EE125-AD-OMI-010/E510 R1051G
NSN 0913-LP-000-0800

TECHNICAL MANUAL

OPERATION AND MAINTENANCE INSTRUCTIONS

WITH PARTS LIST

RADIO RECEIVER R-1051G/URR

01A228000-01

STEWART-WARNER ELECTRONICS

N00039-79-C-0109

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15 JANUARY 1981
CHANGE 3 01 SEPTEMBER 1987
EE125-AD-OMI-01C/E510 R1051G

Permanent Change 3

NSN 0913-LP-000-0803
EE125-AD-OMI-01C/E510 R1051G

INSTRUCTION SHEET

Permanent Change 3 to Technical Manual for Radio Receiver R-1051G/URR, EE125-AD-OMI-010/E510 R1051G, is effective upon receipt.

General Instructions:

This permanent change revises the manual to reflect the equipment changes made by Field Change 1 - R1051G/URR. When this change is included in the manual, the manual shall cover the equipment as though Field Change 1, EE125-AD-FCB-001, has been accomplished on the equipment. This change does not supersede any other changes or corrections.

Maintenance support activities shall make this change in the technical manual immediately but shall keep the superseded data intact for support of equipments that have not been modified.

Holders of equipment accompanied by technical manuals shall not make this change in the manual until accomplishment of the field change referenced above.

Insert this Instruction Sheet in the manual immediately after the front cover preceding the title page, prior changes, or interim corrections in effect.

Specific Instructions:

1. Remove the following pages and insert the corrected Permanent Change 3 pages:

REMOVE	INSERT
Title/A	Title/A
B/C	B/C
(blank)/1-0	(blank)/1-0
1-1/1-2	1-1/1-2
1-17/(1-18 blank)	1-17/(1-18 blank)
2-1/2-2	2-1/2-2
2-3/2-4	2-3/2-4
7-9/7-10	7-9/7-10
7-15/7-16	7-15/7-16
7-17/7-18	7-17/7-18
7-163/7-164	7-163/7-164
*UATMCS/TMDR	*UATMCS (insert three copies after the last page in the manual)

*User Activity Technical Manual Comment Sheet

DATED: 01 September 1987

Permanent Change 2

NSN 0913-LP-000-0802
EE125-AD-OMI-01B/E510 R1051G

INSTRUCTION SHEET

Permanent Change 2 to Technical Manual for Radio Receiver R-1051G/URR, EE125-AD-OMI-010/EE510 R1051G, is effective upon receipt.

General Instructions:

This permanent change revises the manual to correct errors in permanent Change 1. This permanent change does not supersede any other changes or corrections. Insert this Instruction Sheet in the manual immediately after the front cover preceding the title page, prior changes, or interim corrections in effect.

Specific Instructions:

1. Remove the following pages and insert the corrected permanent Change 2 pages:

REMOVE	INSERT
Title/A	Title/A
ix/x	ix/x
1-13/1-14	1-13/1-14
3-26/3-27	3-25/3-26
3-28/blank	3-27/3-28
3-31/3-32	3-31/3-32
3-33/3-34	3-33/3-34
3-35/blank	3-35/3-36
3-39/blank	3-39/3-40
4-25/4-26	4-25/4-26
4-27/4-28	4-27/4-28
5-25/(5-26 blank)	5-25/(5-26 blank)
5-138.1/(5-138.2 blank)	5-138.1/(5-138.2 blank)
5-148.1/(5-148.2 blank)	5-148.1/(5-148.2 blank)
*5-155/(5-156 blank)(Change 1)	5-156.1/(5-156.2 blank)
7-128.13/7-128.14	7-128.13/7-128.14
7-128.15/7-128.16	7-128.15/7-128.16
7-128.17/7-128.18	7-128.17/7-128.18
7-128.19/7-128.20	7-128.19/7-128.20
7-128.21/7-128.22	7-128.21/7-128.22
7-128.23/7-128.24	7-128.23/7-128.24
7-128.25/7-128.26	7-128.25/7-128.26
7-128.29/7-128.30	7-128.29/7-128.30
7-128.31/7-128.32	7-128.31/7-128.32
7-139/7-140	7-139/7-140
7-141/7-142	7-141/7-142
7-147/7-148	7-147/7-148
**UATMCS/TMDR	**UATMCS (insert three copies after the last page in the manual)

Permanent Change 2

NSN 0913-LP-000-0802
EE125-AD-OMI-01B/E510 R1051G

INSTRUCTION SHEET

2. Add the following pages:

   Insert page B/C between page A and page i.
   Insert Record of Changes page between page C and page i.
   Insert Validation Performance page between Record of Changes page and page i.

3. Delete the following pages:

   Remove page i/ii
   Remove page 5-26.1/(5-26.2 blank)
   Remove page 7-142.1/7-142.2
   Remove page 7-142.3/7-142.4
   Remove page 7-148.1/(7-148.2 blank)

*Page 5-155/(5-156 blank) may appear in the manual twice. Remove only the page inserted as part of Change 1.

**User Activity Technical Manual Comment Sheet

DATED: 21 August 1987

INSTRUCTION SHEET

Permanent Change 1 to Technical Manual for Radio Receiver R-1051G EE125-AD-OMI-010/E510 R1051G.

General Instructions:

This change revises the manual to reflect the equipment as originally configured with Translator Synthesizer Assembly A2A6 (98738/99A228201-01) or when the alternate Assembly 50097/B04000-002 has been installed as a replacement. This change does not supersede any other changes or corrections.

Change one pages affect only those sections of the technical manual which deal with the Translator/Synthesizer (T/S) A2A6 Assembly.

Maintenance Support activities shall make this change in the Technical Manual immediately.

Specific Instructions:

1. Remove the following Change 1 pages and insert the revised Change 1 pages:

REMOVE	INSERT	
Title/A Page	Title A Page	Change 1
ix - xvi	ix - xvi	Change 1
1-13 - 1-14	1-13 - 1-14	Change 1
3-25 - 3-28	3-25 - 3-28	Change 1
3-31 - 3-36	3-31 - 3-36	Change 1
3-39 - 3-40	3-39 - 3-40	Change 1

2. Insert the following Change 1 pages:

INSERT PAGE		AFTER PAGE
5-26.1/(5-26.2 blank)	Change 1	5-25/(5-26 blank)
5-46.1/(5/46.2 blank)	Change 1	5-45/(5-46 blank)
5-52.1/(5-52.2 blank)	Change 1	5-51/(5-52 blank)
5-54.1/(5-54.2 blank)	Change 1	5-53/(5-54 blank)
5-60.1/(5-60.2 blank)	Change 1	5-59/(5-60 blank)
5-138.1/(5-138.2 blank)	Change 1	5-137/(5-138 blank)
5-146.1/(5-146.2 blank)	Change 1	5-145/(5-146 blank)
5-148.1/(5-148.2 blank)	Change 1	5-147/(5-148 blank)
5-150.1/(5-150.2 blank)	Change 1	5-149/(5-150 blank)
5-152.1/(5-152.2 blank)	Change 1	5-151/(5-152 blank)
5-156.1/(5-152.2 blank)	Change 1	5-155/(5-156 blank)
5-160.1/(5-160.2 blank)	Change 1	5-159/(5-160 blank)

INSERT PAGE		BETWEEN PAGES
7-128.1 - 7-128.32 (7-128.34 blank)	Change 1	7-128 and 7-129
7-142.1 - 7-142.4	Change 1	7-142 and 7-143
7-148.1/(7-148.2 blank)	Change 1	7-148 and 7-149

3. Remove the following pages and insert the revised Change 1 pages:

REMOVE	INSERT PAGE
7-153 - 7-155	7-153 - 7-155 Change 1

4. Insert the following Change 1 pages:

INSERT PAGE		AFTER PAGE
7-228.1/(7-228.2 blank)	Change 1	7-227/(7-228 blank)
7-232.1/(7-232.2 blank)	Change 1	7-231/(7-232 blank)
7-234.1/(7-234.2 blank)	Change 1	7-233/(7-234 blank)
7-236.1/(7-236.2 blank)	Change 1	7-235/(7-236 blank)
7-238.1/(7-238.2 blank)	Change 1	7-237/(7-238 blank)

DATED: 28 February 1984

LIST OF EFFECTIVE PAGES

INSERT LATEST CHANGED PAGES; DISPOSE OF SUPERSEDED PAGES IN ACCORDANCE WITH APPLICABLE REGULATIONS.

NOTE: ON A CHANGED PAGE, THE PORTION OF THE TEXT AFFECTED BY THE LATEST CHANGE IS INDICATED BY A VERTICAL LINE, OR OTHER CHANGE SYMBOL, IN THE OUTER MARGIN OF THE PAGE. CHANGES TO ILLUSTRATIONS ARE INDICATED BY MINIATURE POINTING HANDS. CHANGES TO SCHEMATICS AND DRAWINGS ARE INDICATED BY SHADED AREAS.

Dates of issue for original and changed pages are:

Original ...... 15 January 1981
Change 1 ...... 28 February 1984
Change 2 ...... 21 August 1987
Change 3 ...... 01 September 1987

TOTAL NUMBER OF PAGES IN THIS MANUAL IS 738 CONSISTING OF THE FOLLOWING:

PAGE NO.	*CHANGE NO.	PAGE NO.	*CHANGE NO.	PAGE NO.	*CHANGE NO.
Title	3	3-6 Blank	0	5-34 Blank	0
A - C	3	3-7 - 3-25	0	5-35	0
i - ii deleted	2	3-26 - 3-28	2	5-36 Blank	0
iii - viii	0	3-29 - 3-30	0	5-37	0
ix	1	3-31 - 3-35	2	5-38 Blank	0
x	2	3-36 - 3-38	0	5-39	0
xi - xvi	1	3-39	2	5-40 Blank	0
Blank	3	3-40 - 3-60	0	5-41 - 5-43	0
1-0	3	4-1 - 4-25	0	5-44 Blank	0
1-1	0	4-26 - 4-27	2	5-45	0
1-2	3	4-28 - 4-39	0	5-46 Blank	0
1-3 - 1-12	0	4-40 Blank	0	5-46.1	1
1-13 - 1-14	2	5-1 - 5-21	0	5-46.2 Blank	1
1-15 - 1-16	0	5-22 Blank	0	5-47 - 5-50	0
1-17	3	5-23 - 5-24	0	5-51	0
1-18 Blank	3	5-25	2	5-52 Blank	0
2-1	0	5-26 Blank	2	5-52.1	1
2-2 - 2-3	3	5-26.1 Deleted	2	5-52.2 Blank	1
2-4 - 2-14	0	5-26.2 Deleted	2	5-53	0
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3-2 Blank	0	5-30 Blank	0	5-54.1	1
3-3	0	5-31	0	5-54.2 Blank	1
3-4 Blank	0	5-32 Blank	0	5-55 - 5-58	0
3-5	0	5-33	0	5-59	0

***Zero in this column indicates an original page**

LIST OF EFFECTIVE PAGES

*Zero in this column indicates an original page

LIST OF EFFECTIVE PAGES

PAGE NO.	*CHANGE NO.	PAGE NO.	*CHANGE NO.	PAGE NO.	*CHANGE NO.
7-142.1 - 7-142.4 Deleted	2	7-211	0	7-235	0
7-143 - 7-147	0	7-212 Blank	0	7-236 Blank	0
7-148	2	7-213	0	7-236.1	1
7-148.1 Deleted	2	7-214 Blank	0	7-236.2 Blank	1
7-148.2 Blank Deleted	2	7-215	0	7-237	0
7-149 - 7-152	0	7-216 Blank	0	7-238 Blank	0
7-153 - 7-155	0	7-217	0	7-238.1	1
7-156 - 7-159	0	7-218 Blank	0	7-238.2 Blank	1
7-160 Blank	0	7-219	0	7-239	0
7-161 - 7-162	0	7-220 Blank	0	7-240 Blank	0
7-163	3	7-221	0	7-241	0
7-164 - 7-165	0	7-222 Blank	0	7-242 Blank	0
7-166 Blank	0	7-223	0	7-243	0
7-167 - 7-169	0	7-224 Blank	0	7-244 Blank	0
7-170 Blank	0	7-225	0	7-245 - 7-249	0
7-171	0	7-226 Blank	0	7-250 Blank	0
7-172 Blank	0	7-227	0	8-1 - 8-9	0
7-173	0	7-228 Blank	0	8-10 Blank	0
7-174 Blank	0	7-228.1	1	8-11	0
7-175 - 7-179	0	7-228.2 Blank	1	8-12 Blank	0
7-180 Blank	0	7-229	0	8-13	0
7-181 - 7-205	0	7-230 Blank	0	8-14 Blank	0
7-206 Blank	0	7-231	0	8-15	0
7-207	0	7-232 Blank	0	8-16 Blank	0
7-208 Blank	0	7-233	0	8-17	0
7-209	0	7-234 Blank	0	8-18 Blank	0
7-210 Blank	0	7-234.1	1	Index 1 - Index 9	0
		7-234.2 Blank	1	Index 10 Blank	0

*Zero in this column indicates an original page

Errors found in this publication (other than obvious typographical errors) which have not been corrected by means of Temporary Changes or Permanent Changes should be reported on a User Activity Technical Manual Comment Sheet. Such reports should include the complete title of the publication and the publication number, identify the page and location of the error, and be forwarded to the SPAWAR Technical Data Center, Naval Electronic Systems Engineering Center Portsmouth, P.O. Box 55, Portsmouth, VA 23705-0055.

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RECORD OF CHANGES

CHANGE NO.	DATE	TITLE OR BRIEF DESCRIPTION	ENTERED BY
CH-1	1-31-90		H. Webb
CH-2	1-31-90		H. Webb
CH-3	1-31-90		H. Webb
	7-19-2016	Change lamp in AC input to 120 V lamp	E. Rodgers [illegible]

VALIDATION PERFORMANCE

Title of Publication:

Technical Manual, Operation and
Maintenance Instructions with Parts List
Radio Receiver R-1051G/URR

EE125-AD-OMI-010/E510 R1051G

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1300 North Kostner Avenue
Chicago, Illinois 60651

Contract No(s) and Purchase Orders, if applicable:

N00039-79-C-0109

Chapter	Section	Paragraph	Date Validation Completed	Check here if not validated
FRONT MATTER			9/26/80	
1			8/28/80	
2			8/28/80	
3			9/16/80	
4			9/2/80	
5			9/15/80	
6			9/5/80	
7			9/16/80	
8			8/28/80	
ALPHABETICAL INDEX			9/26/80	

Name & Authority of Validating Officer:

Rodney Knecht, Project Engineer
Stewart-Warner Electronics

Signature of Validating Officer:

Rodney Knecht

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LIST OF TABLES

LIST OF TABLES (CONTINUED)

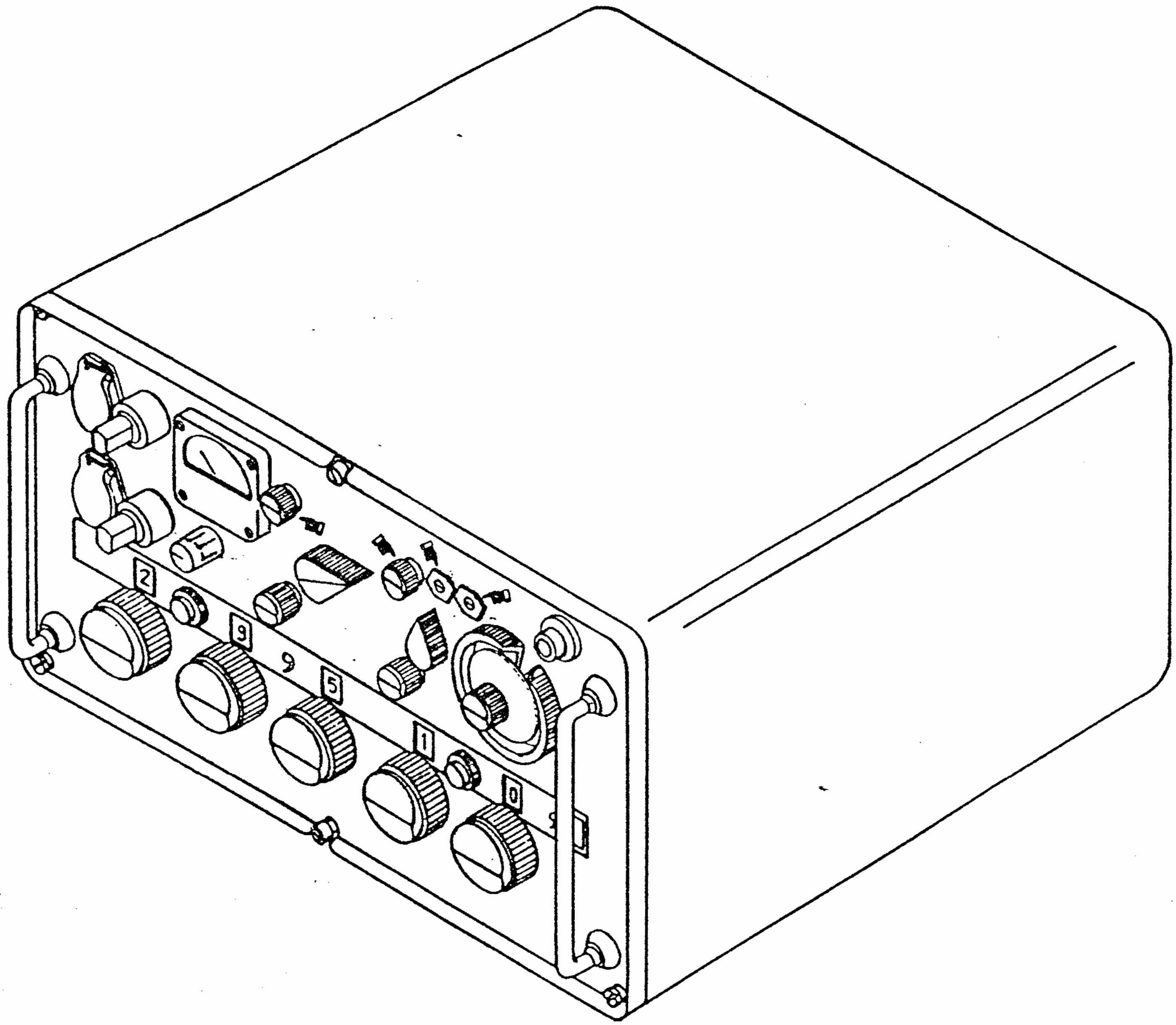


Figure 1-1. Radio Receiver R-1051G/URR

CHAPTER 1

GENERAL INFORMATION AND SAFETY PRECAUTIONS

SAFETY SUMMARY.

The safety precautions listed below must be carefully observed at all times when operating and servicing Radio Receiver R-1051G/URR.

The following are general safety precautions that are not related to any specific procedures and therefore do not appear elsewhere in the publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

WARNING

Failure to comply with the instructions in the following paragraphs may result in severe injury or death. Personnel must at all times observe all safety regulations.

1. Be sure you are not grounded when making measurements or adjustments. Hand rails, exposed metal decks, or equipment frames may provide inadvertent ground contacts.

2. Ground case of test equipment whenever possible, especially when test equipment must be hand held or adjusted while making measurements.

3. Do not change tubes before removing power from R-1051G/URR.

4. Always remove power from R-1051G/URR and connect a ground before making adjustments or measurements. Under certain conditions dangerous potentials may exist, even with power controls in the off position, because of charges retained by capacitors.

5. Use caution even when measuring low voltages. High voltages may accidentally be present across normally low voltage terminals.

6. Do not place complete reliance on safety interlock switches. Measure or test to be sure that voltages are not present.

7. Do not defeat safety interlock switches unless absolutely necessary for testing or making measurements.

1-1. INTRODUCTION.

1-2. This technical manual describes Radio Receiver R-1051G/URR (hereafter also referred to as R-1051G/URR or receiver), and includes operation, functional description, scheduled maintenance, troubleshooting, corrective maintenance, installation procedures, and a parts list for this unit. This technical manual provides both organizational and depot maintenance procedures. The R-1051G/URR (see figure 1-1) receives signals in the 2.0 to 30.0 MHz frequency range such as may be transmitted by Radio Transmitting Set AN/URT-23C(V).

1-3. EQUIPMENT DESCRIPTION.

1-4. GENERAL. The R-1051G/URR is a digitally tuned, superheterodyne receiver capable of receiving lower sideband (LSB), upper sideband (USB), independent sideband (ISB), radio teletype (RATT), amplitude modulated (AM), continuous wave (CW) transmissions and Naval Tactical Data Systems (NTDS) Link 11 signals in the 2.0 to 30.0 MHz frequency range. The ISB mode of operation allows two different types of intelligence to be received simultaneously, one on the LSB channel and the other on the USB channel. RATT reception is obtained by using suitable ancillary equipment, such as Teletype Comparator-Converter Group AN/URA-17. The R-1051G/URR may also receive tone-modulated continuous wave (MCW), compatible amplitude modulated (compatible AM), and, through the use of suitable ancillary equipment, facsimile (FAX) transmissions. The R-1051G/URR may be used as a separate, self-contained receiver requiring only a headset, antenna, and 115 Vac primary power source for full operation. The R-1051G/URR is intended for ship and shore installations. For either type of installation, the R-1051G/URR may be mounted in a standard 19-inch rack, or may be mounted to Shock Mount MT-311 4/UR.

1-5. PHYSICAL CHARACTERISTICS. The R-1051G/URR is housed in a metal case. The chassis is mounted on roller-type slides (one on each side) and is secured to the case by six captive screws through the front panel. When fully extended from the case, the chassis may be tilted

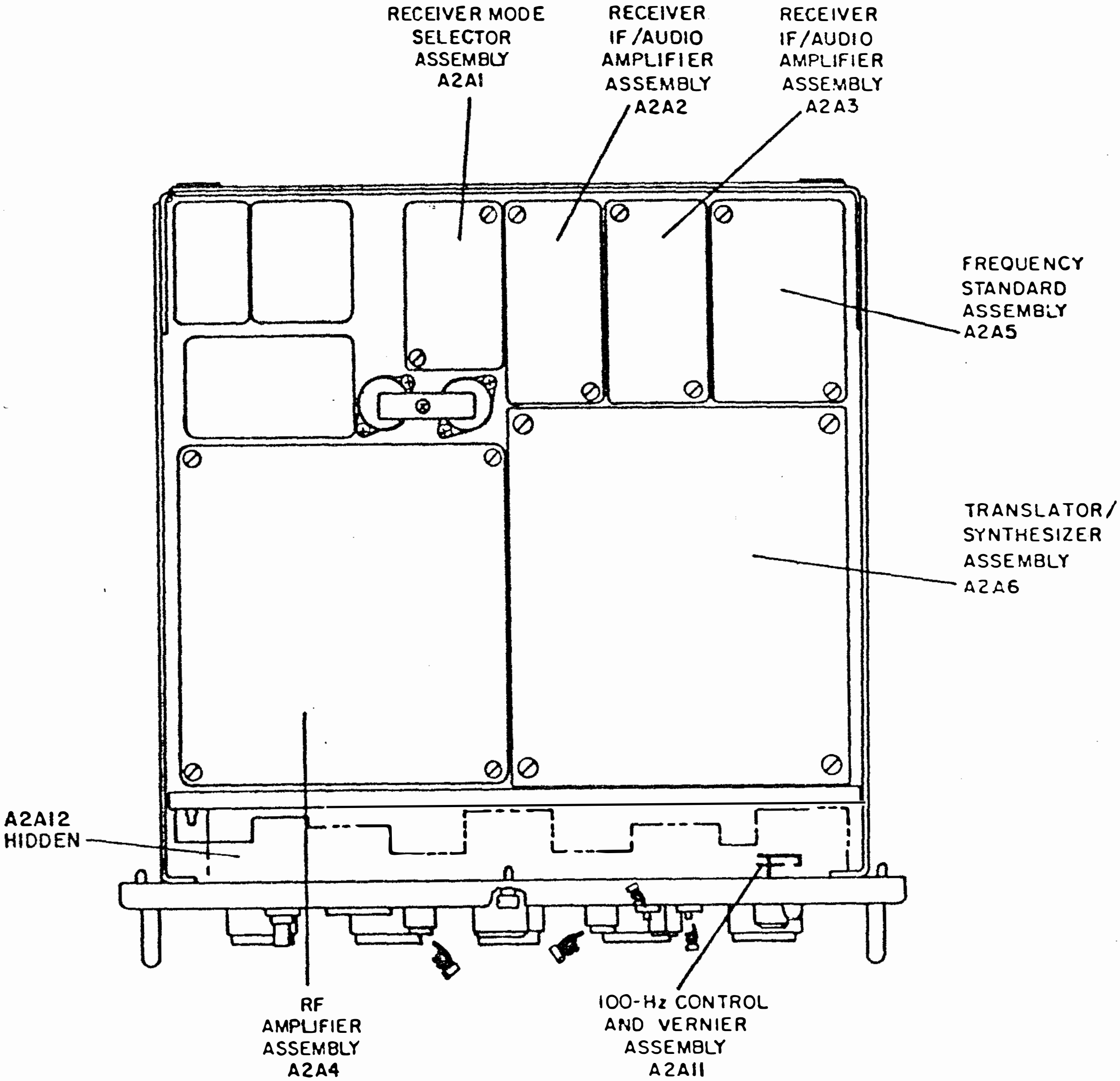


Figure 1-2. Radio Receiver R-1051G/URR, Top View, Case Removed

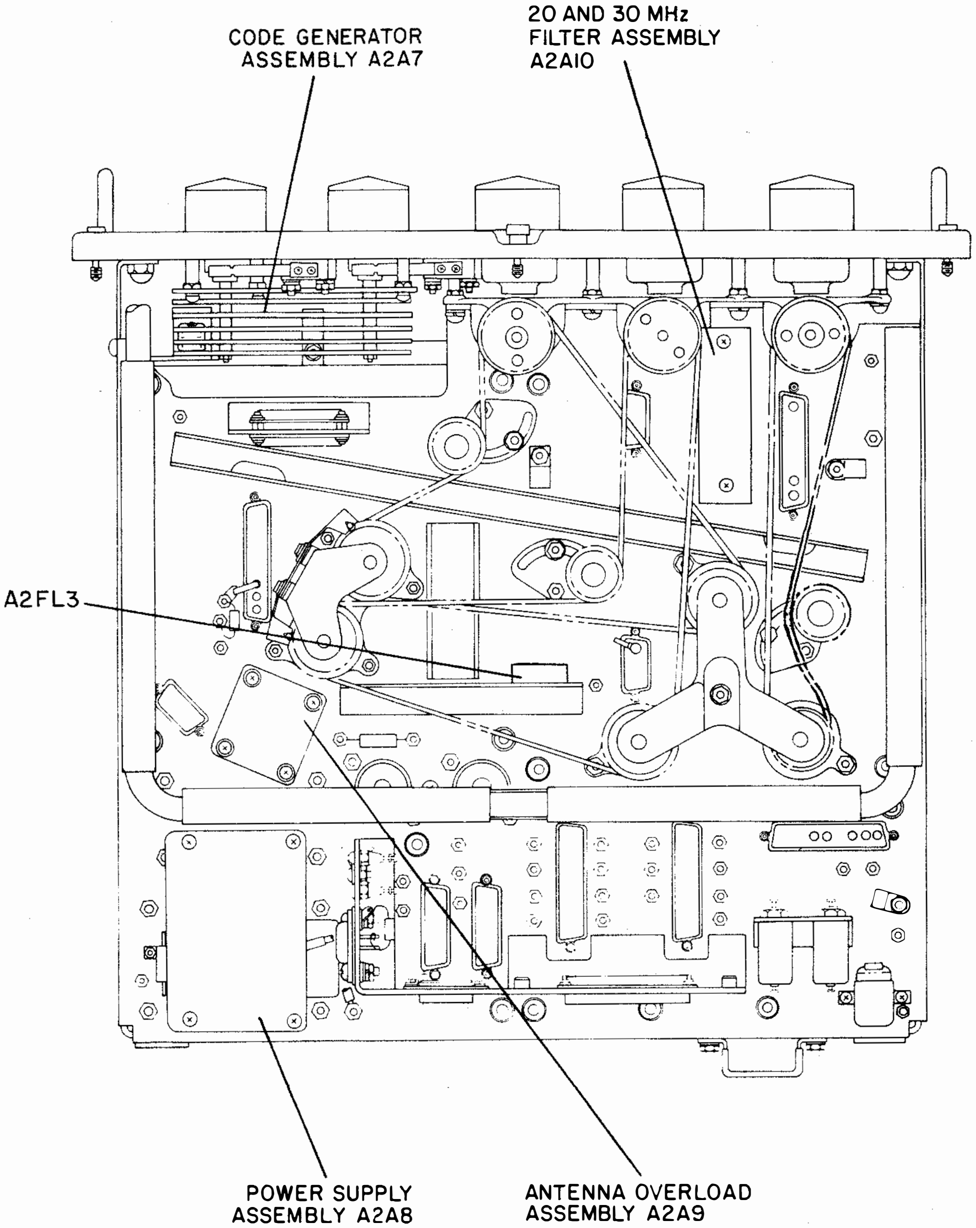


Figure 1-3. Radio Receiver R-1051G/URR,
Bottom View, Case Removed

on slides at a ±90 degree angle to expose the bottom or top for servicing. All operating controls and indicators are located on the front panel; all power and signal input connections are made on the rear of the case. Handles are secured to the front panel to facilitate withdrawing the chassis and transporting the unit. The chassis contains the chain-drive mechanism for tuning, the receptacles for the plug-in electronic assemblies, and a power supply and various other electrical assemblies and components. Figures 1-2 and 1-3 show the locations of the electronic assemblies.

1-6. ELECTRICAL CHARACTERISTICS. The R-1051G/URR employs a digital tuning scheme for automatically tuning to any one of 280,000 operating channels. Additional vernier tuning provides continuous tuning throughout the frequency range. All circuits (except two rf amplification stages) utilize solid-state devices. These circuits are assembled into plug-in electronic assemblies. The frequency generation circuits, which are referenced to an ultra-stable frequency standard, provide a stability of 1 part in 10^8 per day.

1-7. REFERENCE DESIGNATIONS. Reference designations and the functions of the electronic assemblies of the R-1051G/URR are listed in table 1-1.

1-8. <u>REFERENCE DATA.</u>

1-9. Radio Receiver R-1051G/URR, manufactured by Stewart-Warner Electronics (Part Number 01A228000-01) under contract N00039-79-C-0109, operates on 115 Vac, single phase, 48 to 420 Hz. Table 1-2 provides a summary of the characteristics including capabilities and limitations of the equipment. The crystal complement is listed in table 1-3.

1-10. <u>EQUIPMENT, ACCESSORIES AND DOCUMENTS SUPPLIED.</u>

1-11. Equipment, accessories and documents supplied with the R-1051G/URR are listed in table 1-4.

1-12. <u>EQUIPMENT AND PUBLICATIONS REQUIRED BUT NOT SUPPLIED.</u>

1-13. Equipment and publications required but not supplied with the R-1051G/URR are listed in table 1-5.

1-14. <u>NONSTANDARD ABBREVIATIONS.</u>

1-15. Table 1-6 lists the abbreviations used in this technical manual which are not contained in MIL-STD-12.

1-16. <u>FACTORY AND FIELD CHANGES.</u>

1-17. Factory changes made to the R-1051G/URR are listed in table 1-7. Completed field changes made to the R-1051G/URR are to be entered in table 1-8.

Table 1-1. Radio Receiver R-1051G/URR, Assemblies and Reference Designations

REFERENCE DESIGNATIONS	ASSEMBLY NAME	FUNCTION
A1	Case	Houses Radio Receiver R-1051G/URR.
A1A1	Filter Box Assembly	Filters input and output lines to prevent rf transmission feedback on these lines.
A2	Main Frame	Provides mounting base for components.
A2A1	Mode Selector Assembly	Directs the passage of the IF signal to appropriate LSB and/or USB IF/audio amplifiers. Provides a gating function for a 500 kHz carrier insertion signal. Contains a beat frequency oscillator (BFO) for use with CW signals.
A2A2 and A2A3	IF/Audio Amplifier Assemblies	Amplify IF signals, demodulate and amplify intelligence, and provide agc voltages for use internally and in the rf amplifier.
A2A4	RF Amplifier Assembly	Provides tuned preamplification of signal received from antenna.
A2A5	Frequency Standard Assembly	Provides accurate standard frequencies to which all synthesized frequencies are referenced. Provides accurate 500 kHz to IF/audio amplifier for demodulation of 500 kHz IF signal.
A2A6	Translator/ Synthesizer Assembly	Receives basic oscillator frequency from frequency standard, synthesizes required frequency signals for triple-conversion mixers, and converts the 2 to 30 MHz rf input to the desired 500 kHz IF signal.
A2A7	Code Generator Assembly	Produces control signals for automatic tuning of rf amplifier and 10 MHz/1 MHz synthesizer.
A2A8	Power Supply Assembly	Produces required dc operating voltages from a 115 Vac, 48 to 420 Hz power source.
A2A9	Antenna Overload Assembly	Provides protection from excessively high rf input signals.
A2A10	20 and 30 MHz Filter Assembly	Improves first IF and image rejection.
A2A11	100 Hz Control and Vernier Assembly	Generates control signals for the 100 Hz synthesizer.
A2A12	Meter Driver Assembly	Provides meter dB indications of audio output routed to remote lines.

Table 1-2. Radio Receiver R-1051G/URR, Functional Characteristics

FUNCTION	CHARACTERISTIC
Frequency range	2.0000 to 29.9999 MHz in 100 Hz increments, or 2.0 to 30.0 MHz with continuous vernier tuning between 1 kHz increments.
Receiver type	Triple-conversion superheterodyne: First IF: 20 or 30 MHz (depending upon frequency of received signal). Second IF: 2.850 MHz. Third IF: 500 kHz. Aggregate IF bandwidth: Single sideband (SSB) modes: 3.2 kHz; AM/CW: 7 kHz; off-channel rejection -60 dB.
Frequency stability	1 part in 10^8 per day.
Type of frequency control	Synthesizer referenced to a 5 MHz internal standard or external standard with 0.225 to 5 volt RMS into 50 ohms.
Modes of operation	LSB, USB, ISB, AM, CW, and RATT.
Sensitivity (With a nominal impedance of 50 ohms)	0.6 uV for 10 dB $\frac{S+N}{N}$ in SSB and RATT mode; 0.9 uV for CW; and 3.0 uV for AM mode.
Recommended antenna	50 ohms impedance.
Ambient temperature limitations	0° to 50°C.
Power consumption	70 watts.
Primary power requirements	115 Vac ±10 percent, single phase, 48 to 420 Hz.
Image rejection	90 dB above 20 MHz, 100 dB below 20 MHz.
Audio output	60 mW (minimum) into 600 ohm balanced or unbalanced remote output load; 15 mW (minimum) into 600 ohm unbalanced load (local headset).
Audio harmonic distortion	Less than 2 percent, SSB. Less than 5 percent, AM.
Heat dissipation	70 W (239 Btu/hr).
Installation	Shock mounted for mobile use; table or rack mounted for fixed station use.

Table 1-3. Radio Receiver R-1051G/URR, Crystal Complement

REFERENCE DESIGNATION	TYPE OF CUT	CRYSTAL OSCILLATOR FREQUENCY (MHz)	OPERATING TEMPERATURE RANGE (DEGREES C)	TOLERANCE (PERCENT)
A2A4A9Y1	AT	21.000	0 to 80	0.004
A2A4A10Y1	AT	19.000	0 to 80	0.004
A2A4A19Y1	AT	28.500	0 to 80	0.004
A2A5A1Y1	AT	5.000000	86 to 91 (oven controlled)	0.0005

Table 1-4. Radio Receiver R-1051G/URR, Equipment, Accessories and Documents Supplied

QTY	NAME OR NOMENCLATURE		REF DES OR UNIT NO.	OVERALL DIMENSIONS	WEIGHT AND VOLUME
1	Radio Receiver	R-1051G/URR Installed	A2	7.0 in. H x 17.4 in. W x 18.9 in. D	1.3 cu ft. 75 lb.
		Crated		13.3 in. H x 24.0 in. W x 32.0 in. D	5.2 cu ft. 85 lb.
1	Connector Kit Consisting of:	78A226005-21-11	A3		
2	Plug Connector	MS3106A-10SL-4S			
1	Plug Connector	MS3106A-16S-5S			
1	Plug Connector	MS3116F14-12S			
2	Strain Relief Boots	4032585-0701			
1	Strain Relief Boot Instructions	68P226036			
1	Cable Clamp	MS3057-8A			
1	Coaxial Connector	M39012/16-0001			
2	Coaxial Connector	M39012/01-0005			
2	Technical Manual Operation and Maintenance Instructions With Parts List, Radio Receiver R-1051G/URR	EE125-AD-OMI-010/E510 R1051G			
1	Operating Instructions Radio Receiver R-1051G/URR	EE125-AD-OPI-040/E510 R1051G			
1	Dust Cover	MS90376-16R			

Table 1-4. Radio Receiver R-1051G/URR, Equipment, Accessories and Documents Supplied (Continued)

QTY	NAME OR NOMENCLATURE		REF DES OR UNIT NO.	OVERALL DIMENSIONS	WEIGHT AND VOLUME
1	Dust Cover	MS90376-14R			
3	Dust Covers	MS90376-10R			
1	Technical Manual Maintenance Standards Book, Radio Receiver R-1051G/URR	EE125-AD-MSB-020/E510 R1051G			
1	Performance Standards Sheet, Radio Receiver R-1051G/URR	EE125-AD-PSS-030/E510 R1051G			
1	MT-3114/UR Shock and Vibration Mount Assembly	Installed Crated 01A226007-21-11	A5	3.6 in. H x 19.7 in. W x 16.7 in. D	0.8 cu ft. 16 lb. 1.1 cu ft. 23 lb.
1	Consisting of:				
	Base, Shock Mount	01A226064-21-11			
1	Mounting Bracket, Left p/n 07P226206-21-11				
1	Mounting Bracket, Right p/n 07P226206-22-11				
6	Cap Screw	MS35307-332			
6	Lock Washer	MS35338-140			
8	Pan Hd. Screw	MS51958-63			
8	Lock Washer	MS35338-138			
8	Washer	MS15795-809			
6	Washer	MS51795-812			
2	Mounting bracket for rack mounting	4010005-0001			
12	Flat Hd. Screw	MS51960-64			

Table 1-5. Radio Receiver R-1051G/URR, Equipment and Publications Required but Not Supplied

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE EQUIPMENT	EQUIPMENT TEST PARAMETERS	APPLICATION
Electronic Multimeter	AN/USM-311	AN/PSM-4( )	General voltage and resistance measurements	General use
RF Millivolt-meter	04901-92B-S5 with probe tip 04901-91-13B	04901-91CA	RF voltages 20 mV rms to 6.0 Vrms 35 MHz.	Troubleshooting and scheduled mainte-nance
AC Voltmeter	28480-400E	AN/USM-143	Voltage less than 5 mVrms to 25 Vrms and 6 kHz	Troubleshooting and scheduled mainte-nance
Electronic Counter	AN/USM-207	28480-5245L	Frequency to 30 MHz	Troubleshooting and scheduled mainte-nance
RF Signal Generator	28480-8640B-001-003	28480-606B	50 kHz to 650 MHz; 0.1 uV to 3.0 volts	Troubleshooting
Frequency Standard	AN/URQ-10	AN/URQ-9	Standard fre-quency; 100 kHz, 5 MHz	Troubleshooting and scheduled maintenance
Semiconductor Device Test Set	AN/USM-206A	AN/USM-206	Checks diodes and transistors in-circuit and out-of circuit	Troubleshooting
Spectrum Analyzer	28480-8553B-E03	TS-1379/U	Tests inter-modulation rf products to 3.5 kHz	Depot trouble-shooting and maintenance
Distortion Analyzer	28480-334A	28480-332A	500 kHz funda-mental fre-quency; 1% distortion	Depot trouble-shooting and maintenance
High Imped-ance Probe	80009-P2602	28480-1121A	Used with Spec-trum Analyzer	Depot trouble-shooting
Electronic Multimeter	89536-8800A/AA	AN/USM-381 (dc measure-ments only)	2 mVac to 134 Vac; 0 to 123 Vdc	Troubleshooting and scheduled maintenance

Table 1-5. Radio Receiver R-1051G/URR, Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE EQUIPMENT	EQUIPMENT TEST PARAMETERS	APPLICATION
Oscilloscope	AN/USM-281	AN/USM-281E with 30669-1902 plug-in	Dual trace	Troubleshooting and scheduled maintenance
Function Generator	28480-3300A with sweep/offset plug-in 28480-3304A		Dual wave-forms, 0.01 Hz to 100 kHz	Depot trouble-shooting and maintenance
RF Amplifier Test Fixture	TS-3685/ WRC-1	None	Simulates actual operating con-ditions	Depot maintenance of A2A4 assembly
Translator/ Synthesizer Test Fixture	TS-3665/ WRC-1	None	Simulates actual operating con-ditions	Depot maintenance of A2A6 assembly
Frequency Standard Test Fixture	TS-3667/ WRC-1	None	Simulates actual operating con-ditions	Depot maintenance of A2A5 assembly
Amplifier/ Mode Selector Test Fixture	TS-3670/ WRC-1	None	Simulates actual operating con-ditions	Depot maintenance of A2A1, A2A2/ A2A3 assemblies
Speaker	LS-474/U (or equv.)			Audio monitoring
Antenna	AS-2537A	NT-66047	Impedance: 50 ohms	Reception of rf signals
Headset	NT-49985/A (or equiv.)			General operation, troubleshooting and maintenance pro-cedures
Digital Voltmeter	89536-8920A	None	700 mVrms max, 2 MHz max.	
Teletype Comparator-Converter Group	AN/URA-17 (or equiv.)			RATT operation
Audio Amplifier	AM-4453/U (or equiv.)			Speaker amplifier
RF Insert Extractor Tool	91146-CET-C6B	MS17806		Maintenance

Table 1-5. Radio Receiver R-1051G/URR, Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE EQUIPMENT	EQUIPMENT TEST PARAMETERS	APPLICATION
RF Insert Connector, Female	71785-318-11-99-283			Troubleshooting and maintenance
RF Insert connector, Male	71785-318-11 99-285			Troubleshooting and maintenance
Adapter, BNC-to-N	UG-201/U		Impedance: 50 ohms	Troubleshooting and maintenance
Coaxial T-Connector, BNC	UG-374A/U		Impedance: 50 ohms	Troubleshooting and maintenance
RF Insert Crimping Tool	MS22520/1-01 with MS22520/1-03 Die			Maintenance
RF Insert Insertion Tool	MS17805			Maintenance
RF Insert Crimping Tool	M22910/7-1 with 89020-612971 Die	M22910/7-18 Die		Maintenance of A2A6 sub-assemblies
Connector Contacts, Male	MIL-C-24308/11C			Maintenance
Connector Contacts, Female	MIL-C-24308/10C			Maintenance
Contact Crimping Tool	MS31938-1 with MS31938-5P Locator			Maintenance
Contact Removal and Insertion Tool	MS18278			Maintenance
Kit, Extender Cable, Consisting of:	98738-78A226006-21-11			

Table 1-5. Radio Receiver R-1051G/URR, Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE EQUIPMENT	EQUIPMENT TEST PARAMETERS	APPLICATION
1 Extender Cable	08738-30A226277-21-11 (4W3)			Used with 4W2 to operate Mode Selector Assembly A2A1 outside of main frame
1 Extender Cable	98738-30A226427-21-11 (4W2)			See above
2 Extender Cables	98738-30A226280-21-11 (4W1/4W9)			Used to operate IF/Audio Amplifier Assemblies A2A2/A2A3 outside of main frame
1 Extender Cable	98738-30A226273-21-11 (4W4)			Used with 4W5 to operate RF Amplifier Assembly A2A4 outside of main frame
1 Extender Cable	98738-30A226426-21-11 (4W5)			See above
1 Extender Cable	98738-30A226274-21-11 (4W6)			Used to operate Frequency Standard Assembly A2A5 outside of main frame
2 Extender Cables	98738-30A226275-21-11 (4W7/4W8)			Both used with 4W1/4W9 to operate Translator/Synthesizer Assembly A2A6 outside of main frame
Extender board for A2A6A16	98738-01A228396-01	50097-B04088-001		Depot troubleshooting
Extender board for A2A6A17	98738-01A228398-01	50097 B04087-001		Depot troubleshooting
Extender board for A2A6A18	98738-01A228400-01	50097-B04086-001		Depot troubleshooting
Extender board for A2A6A12	98738-01A228390-01	50097-B04085-001		Depot troubleshooting

Table 1-5. Radio Receiver R-1051G/URR, Equipment and Publications Required but Not Supplied (Continued)

CATEGORY	RECOMMENDED EQUIPMENT	ALTERNATE EQUIPMENT	EQUIPMENT TEST PARAMETERS	APPLICATION
Extender board for A2A6A13	98738-01A228392-01	50097-B04084-001		Depot trouble-shooting
Extender board for A2A6A14	98738-01A228394-01	50097-B04083-001		Depot trouble-shooting
MIL-STD-1310( )				Installation
Electronic Installation Maintenance Book	NAVSHIPS 0967-LP-000-0110			Installation
Electronic Installation Maintenance Book	NAVSHIPS 0967-LP-000-0100			
600-ohm Impedance Adapter	PJ-005B with RCR20G621JS			
51-ohm re-sistive load	RCR20G510JS		NSN 5905-00-114-5438	
620-ohm re-sistive load (2 required)	RCR20G621JS			
100-ohm re-sistive load	RCR20G101JS		NSN 5905-00-106-9344	
Grease	MIL-G-23827	Standard Oil Co. Instrument Grease, PED-3527	NSN 9150-00-985-7243	Lubricating chain drive mechanism
Trichloro-ethane	0-T-620		NSN 6810-00-930-6311	Component cleaning
Test Set, Radio Transmitter	01A228460			Required if loop test of Radio Receiver R-1051G/URR and Radio Transmitting Set AN/URT-23C(V) 1 is performed.

Table 1-6. Nonstandard Abbreviations

ABBREVIATION	TERM
ISB	Independent sideband
RATT	Radio teletype

Table 1-7. Radio Receiver R-1051G/URR, Factory Changes

CHANGE NUMBER	NOMENCLATURE	DESCRIPTION

Table 1-8. Radio Receiver R-1051G/URR, Field Changes

CHANGE NO.	FIELD CHANGE BULLETIN NO.	EIB NO.	IDENTIFICATION
1	EE125-AD-FCB-001		Audio line level/phone level controls have been changed from stacked variable resistors to separate variable resistors.

CHAPTER 2

OPERATION

2-1. INTRODUCTION.

2-2. Radio Receiver R-1051G/URR is designed to receive upper sideband (USB), lower sideband (LSB), independent sideband (ISB), continuous wave (CW), tone modulated CW (MCW), compatible and standard amplitude modulated (AM), radio teletype (RATT) transmissions and Naval Tactical Data Systems (NTDS) Link 11 signals in the 2 to 30 MHz frequency range. Reception in any mode other than RATT can be achieved with the aid of a handset or other appropriate ancillary equipment connected to the appropriate jack on the R-1051G/URR front panel. Receptacles on the rear of the case are provided for connecting the audio output to remote ancillary equipments. The R-1051G/URR is operated from an external frequency standard, but may be operated from its internal frequency standard if necessary. In an emergency the output of the internal frequency standard can also be used to standardize other equipment, such as another R-1051G/URR or Radio Transmitter T-827H/URT.

NOTE

The output of the internal frequency standard is disabled when the receiver is in the STDBY or OFF mode, and is momentarily interrupted when the front panel MHz control setting is changed.

Operator responsibility is to select the required R-1051G/URR operating mode and frequency in accordance with the instructions provided in this chapter.

2-3. OPERATING CONTROLS AND INDICATORS.

2-4. All controls, indicators, and connectors required for normal operation of the R-1051G/URR are located on the R-1051G/URR front panel (except the frequency standard control) and are shown in figure 2-1 and listed in table 2-1.

2-5. OPERATING PROCEDURES.

2-6. Operating procedures for each mode of operation of the R-1051G/URR are given in table 2-2.

2-7. INTERFERENCE AND EMERGENCY OPERATION.

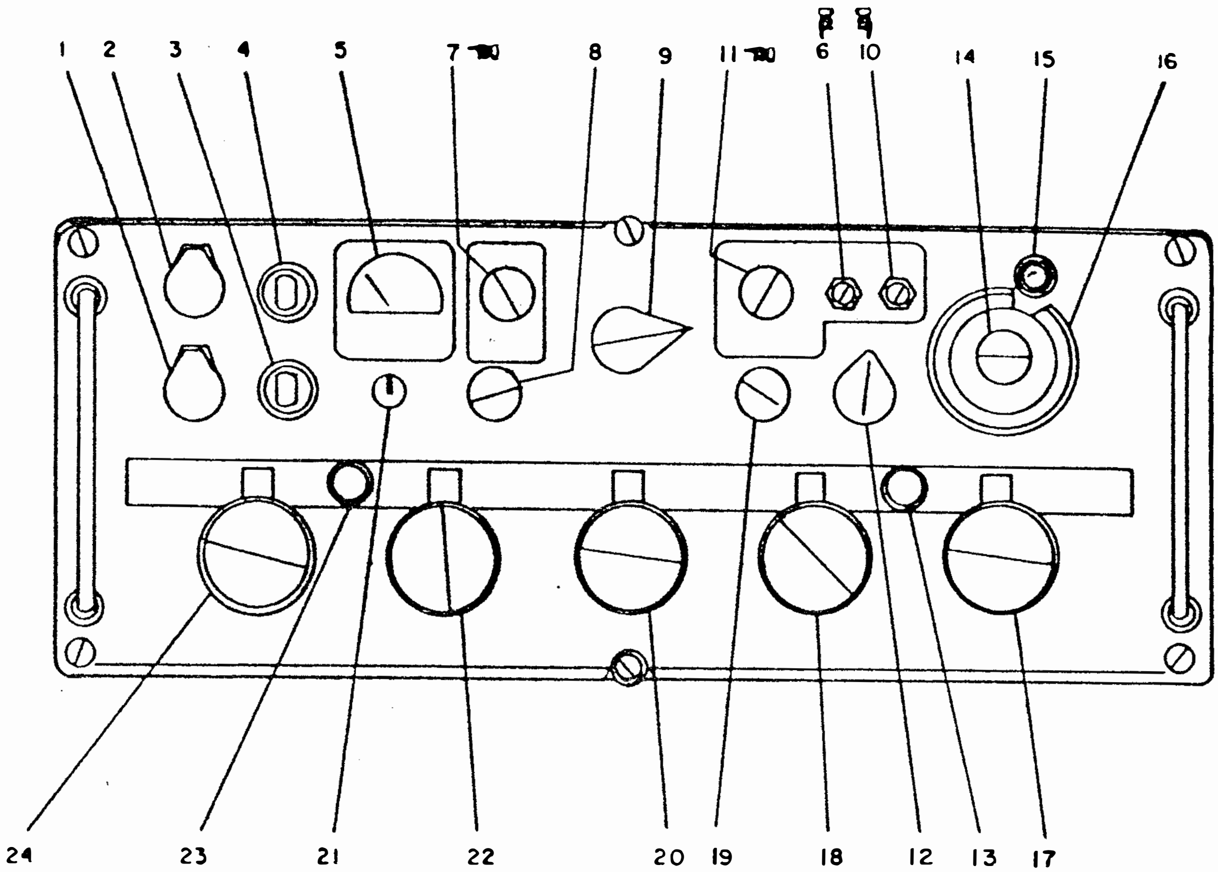
2-8. Operating procedures for interference conditions are given in table 2-3. There are no emergency operating procedures.

2-9. MAINTENANCE CONTROLS AND CONNECTORS.

2-10. Those controls and connectors used primarily for maintenance of the R-1051G/URR are shown in figures 2-2 and 2-3, and are described in table 2-4.

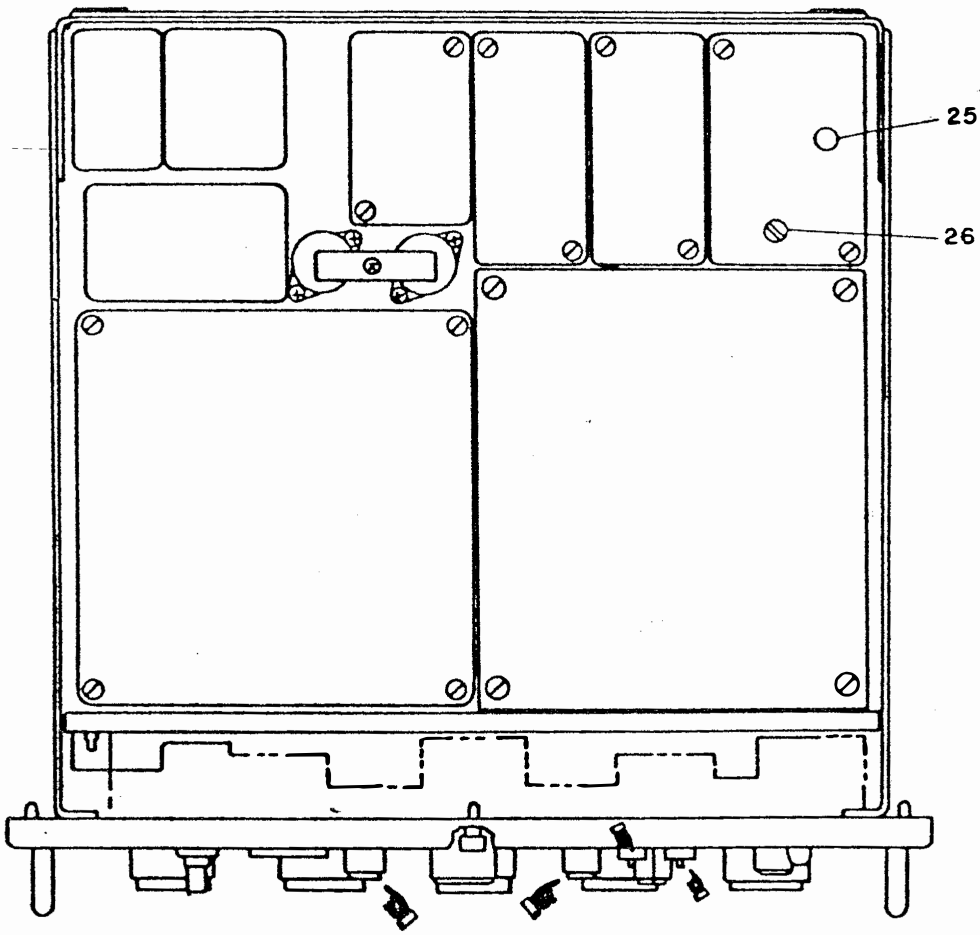
2-11. OPERATOR'S MAINTENANCE PROCEDURES.

2-12. Maintenance Procedures which should be performed by the operator of the R-1051G/URR are listed in table 2-5.



1. PHONE LSB jack
2. PHONE USB jack
3. F2 3/4A fuse
4. F1 3/4A fuse
5. AUDIO LEVEL meter
6. LSB LEVELS LINE control
7. LSB LEVELS PHONE control
8. RF GAIN control
9. Mode selector switch
10. USB LEVELS LINE control
11. USB LEVELS PHONE control
12. AGC switch
13. kHz indicator lamp
14. Hz vernier control
15. Hz vernier indicator
16. Hz switch
17. 1 kHz control
18. 10 kHz control
19. BFO control
20. 100 kHz control
21. AUDIO LEVEL meter
22. 1 MHz control
23. MHz indicator lamp
24. 10 MHz control
25. Comparator lamp (Sheet 2)
26. 5 MHz OSC SOURCE switch (Sheet 2)

Figure 2-1. Radio Receiver R-1051G/URR, Operating Controls, Indicators and Connectors (Sheet 1 of 2)



TOP VIEW

Figure 2-1. Radio Receiver R-1051G/URR, Operating Controls, Indicators and Connectors (Sheet 2 of 2)

Table 2-1. Operating Controls, Indicators, and Connectors

KEY (FIG. 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION	
1	PHONE LSB jack	Used to connect headset to LSB receiver output.	
2	PHONE USB jack	Used to connect headset to USB receiver output.	
3	F2 3/4A fuse	Protects R-1051G/URR against overload; indicator glows when fuse is open.	
4	F1 3/4A fuse	Protects R-1051G/URR against overload; indicator glows when fuse is open.	
5	AUDIO LEVEL meter	Indicates level of LSB or USB audio supplied to remote lines, as selected by AUDIO LEVEL switch.	
6	LSB LEVELS LINE control	Used to adjust volume of remote audio for LSB and ISB (LSB) operation.	
7	LSB LEVELS PHONE control	Used to adjust volume of audio applied to headphone in LSB and ISB (LSB) operation.	
8	RF GAIN control	Used to control gain of rf and IF amplifiers when AGC switch is OFF.	
9	Mode selector switch	Eight-position switch used to select R-1051G/URR modes of operation:	
		OFF	No power applied.
		STD BY	28 Vdc to frequency standard and tube filaments energized.
		LSB	R-1051G/URR operates in lower sideband mode.
		RATT	R-1051G/URR operates in radio teletype mode.
		AM	R-1051G/URR operates in amplitude modulation mode.
		CW	R-1051G/URR operates in continuous wave mode.
		USB	R-1051G/URR operates in upper sideband mode.
		ISB	R-1051G/URR operates in independent sideband mode.

Table 2-1. Operating Controls, Indicators, and Connectors (Continued)

KEY (FIG. 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
10	USB LEVELS LINE control	Used to adjust volume of remote audio for USB, ISB (USB), RATT, CW, and AM operation.
11	USB LEVELS PHONE control	Used to adjust volume of audio applied to headphone in USB, ISB (USB), RATT. CW, and AM operation.
12	AGC switch	Three-position switch selects automatic gain control function for R-1051G/URR: OFF Agc is disabled. SLOW Agc responds slowly to changes in signal strength. FAST Agc responds quickly to changes in signal strength.
13	kHz indicator lamp	Illuminates the three windows above the kHz controls.
14	Hz vernier control	R-1051G/URR may be tuned continuously (with Hz switch in V) between any two 1 kHz steps.
15	Hz vernier indicator	Flashes when Hz switch is in V (vernier) position.
16	Hz switch	Eleven-position switch. 000 R-1051G/URR is tuned to frequency indicated on MHz and kHz indicators. 100-900 Used to select 100 Hz digit of desired operating frequency. V Position activates vernier control A2A11R1. Hz vernier indicator flashes.
17	1 kHz control	Used to select 1 kHz digit of desired operating frequency. Digit selected is displayed in window above control.
18	10 kHz control	Used to select 10 kHz digit of desired operating frequency. Digit selected is displayed in window above control.
19	BFO control	Used to adjust pitch of audio output tone, when receiving CW signals, with mode selector switch in CW position.

Table 2-1. Operating Controls, Indicators, and Connectors (Continued)

KEY (FIG. 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
20	100 kHz control	Used to select 100 kHz digit of desired operating frequency. Digit selected is displayed in window above control.
21	LSB, USB Audio Level	Ten-position switch used to activate AUDIO LEVEL meter. USB — Enables AUDIO LEVEL meter to indicate USB audio level supplied to remote lines. Four switch positions are available. +20 — This position of the selector switch places the zero of the meter dial at a power level of +20 dBm. The lower end of the scale will be at +10 dBm and a full-scale positive reading will signify +22 dBm. +10 — This position of the selector switch places the zero of the meter dial at a power level of +10 dBm. The lower end of the scale will be at 0 dBm and a maximum full scale positive deflection will occur at a level of +12 dBm. 0 — This position of the selector switch places the zero on the meter dial at a power level of 0 dBm. The lower end of the scale will be at -10 dBm and a full scale positive deflection will signify +2 dBm. -10 — This position of the selector switch places the zero on the meter dial at a power level of -10 dBm. The maximum down-scale deflection will now signify -20 dBm and a full scale positive deflection will signify -8 dBm. OFF — Two OFF positions are available for the selector switch. Turning the switch to either OFF position as convenient deactivates the AUDIO LEVEL meter. LSB — Enables AUDIO LEVEL meter to indicate LSB audio level supplied to remote lines.

Table 2-1. Operating Controls, Indicators, and Connectors (Continued)

KEY (FIG. 2-1)	CONTROL/INDICATOR/ CONNECTOR	FUNCTION
21 (Cont.)		The four available positions of the Selector Switch provide for scaling of the meter dial as above under USB to give an appropriate mid-scale indication of the power level in dBm.
22	1 MHz control	Used to select 1 MHz digit of desired operating frequency. Digit selected is displayed in window above control. Turret drive motor in RF Amplifier Assembly A2A4 operates when digit is selected.
23	MHz indicator lamp	Illuminates the two windows above the MHz controls.
24	10 MHz control	Used to select 10 MHz digit of desired operating frequency. Digit selected is displayed in window above control. Turret drive motor in RF Amplifier Assembly A2A4 operates when digit is selected.
25	Comparator lamp	Dims and brightens at a rate proportional to difference in frequency between internal and external frequency standards.
26	5 MHz OSC SOURCE	Three-position switch used to control operating mode of Frequency Standard Assembly A2A5. EXT (OVEN STBY) Allows receiver to operate from external frequency standard while maintaining operating temperature of crystal oven in A2A5. EXT NORM Allows receiver to operate from external frequency standard without maintaining operating temperature of crystal oven in A2A5. INT/COMP Receiver operates from internal frequency standard A2A5. Also used to compare output of A2A5 with an external standard. Operating temperature of crystal oven in A2A5 is maintained.

Table 2-2. Operating Procedures

MODE OPERATION	CONTROLS AND SETTINGS	PROCEDURE	OBSERVATION OR REMARKS
Turn-on	Set mode selector switch to STD BY.	If using internal frequency standard, allow a 60 minute warmup and at least a 96 hour warmup for optimum frequency stability.	MHz and kHz indicator lamps illuminate.
Preliminary Setup	Set mode selector switch to the desired mode of operation.	1. Using MHz, kHz, Hz (and vernier control), select the desired operating frequency.	Frequency selected is displayed in windows above MHz and kHz controls.
		2. Depending on mode of operation selected, connect headset to PHONE USB or PHONE LSB jack.	
		3. Set AGC switch to required type of agc. If OFF is selected, rotate RF GAIN control fully clockwise.	
		4. Set AUDIO LEVEL switch to LSB or USB, depending on the mode previously selected.	
		5. Set LSB or USB LEVELS LINE control for 0 dB, or as required initially for tuning purposes. After adjustment set AUDIO LEVEL switch to OFF.	Observe AUDIO LEVEL meter indication.
		6. Set USB or LSB LEVELS PHONE control for desired headphone volume.	
CW	Set mode selector switch to CW.	1. Set AGC switch to OFF.	
		2. Set frequency controls to the desired frequency.	

Table 2-2. Operating Procedures (Continued)

MODE OPERATION	CONTROLS AND SETTINGS	PROCEDURE	OBSERVATION OR REMARKS
CW (Cont.)		3. Adjust BFO control for the preferred beat note. 4. Optimize sensitivity by rotating RF GAIN control to the position yielding best sensitivity (discernible by ear).	
Alternate CW	Set mode selector to either LSB or USB.	1. Set AGC switch to SLOW. 2. Set frequency controls to 1.0 kHz from desired frequency. 3. Set Hz switch to V, and then adjust Hz vernier control to obtain the preferred beat note.	Set above desired frequency for LSB; below desired frequency for USB.
AM	Set mode selector switch to AM.	1. Set frequency controls to desired frequency. 2. Set AGC switch to SLOW.	
Single Channel RATT	Set mode selector switch to RATT.	1. Set frequency controls to 2 kHz below the assigned frequency. 2. Set AGC switch to SLOW.	Setting enables radio teletypewriter reception.
Single Channel FAX (USB)	Set mode selector switch to USB.	1. Set frequency controls 2.7 kHz below assigned frequency. 2. Set AGC switch to SLOW.	Setting enables facsimile reception on USB.

Table 2-2. Operating Procedures (Continued)

MODE OPERATION	CONTROLS AND SETTINGS	PROCEDURE	OBSERVATION OR REMARKS
Single Channel FAX (LSB)	Set mode selector switch to LSB.	1. Set frequency controls 2.7 kHz above the assigned frequency. 2. Set AGC switch to SLOW.	Setting enables facsimile reception on LSB.
USB Voice	Set mode selector switch to USB.	1. Set frequency controls to assigned frequency. 2. Set AGC switch to SLOW.	
LSB Voice	Set mode selector switch to LSB.	1. Set frequency controls to assigned frequency. 2. Set AGC switch to SLOW.	
USB Tone Multiplex or TADIL A Data	Set mode selector switch to USB.	1. Set frequency controls 1.5 kHz below assigned frequency. 2. Set AGC switch to FAST.	When operation is from an external frequency standard set 5 MHz source switch A2A5S1 to EXT NORM.
LSB Tone Multiplex or TADIL A Data	Set mode selector switch to LSB.	1. Set frequency controls 1.5 kHz above assigned frequency. 2. Set AGC switch to FAST.	When operation is from an external frequency standard set 5 MHz source switch A2A5S1 to EXT NORM.
ISB	Set mode selector switch to ISB.	Set frequency control switches to assigned frequency. Adjust AGC to complement the received signal.	Enables simultaneous reception on both sidebands.
Shutdown	Set mode selector switch to STD BY		To eliminate required warm-up period after start up, leave mode selector switch in STD BY if internal frequency standard is used.

Table 2-2. Operating Procedures (Continued)

MODE OPERATION	CONTROLS AND SETTINGS	PROCEDURE	OBSERVATION OR REMARKS
Turn-off	Set mode selector switch to OFF.	Pull mode selector switch out to turn to OFF.	Completely shuts down R-1051G/URR. MHz and kHz indicators will extinguish.
Emergency Shutdown	Bulkhead distribution switch or circuit breaker.	Turn-off.	

NOTE

If internal frequency standard is used, return R-1051G/URR to standby mode as soon as possible after energizing condition is removed. Allow a 60 minute warmup for general operation and, if using internal frequency standard, at least a 96 hour warmup for optimum frequency stability.

Table 2-3. Operating Procedures for Interference Conditions

INTERFERENCE CONDITION/ MODE	CONTROLS AND SETTINGS	PROCEDURE	REMARKS
All Modes		To counter interference, change operating mode and/or frequency, if possible.	Refer to table 2-2 for operating procedures.
CW Adjacent Channel Interference	Set mode selector switch to USB.	1. Set frequency controls 1 kHz below assigned frequency. 2. Set Hz switch to V. 3. Adjust vernier control for best reception. 4. Set AGC switch to SLOW.	This mode provides narrower bandwidth than that used in CW mode. Narrower bandwidth is useful when adjacent channel interference becomes acute.
CW and USB Adjacent Channel Interference	Set mode selector switch to USB.	1. Set frequency controls 1 kHz above assigned frequency. 2. Set Hz switch to V. 3. Adjust vernier control for best reception. 4. Set AGC switch to SLOW.	This mode may be used when adjacent channel interference is acute in CW and USB modes.
Single Channel RATT Adjacent Channel Interference	Set mode selector switch to USB.	1. Set frequency controls to 2 kHz below assigned frequency. 2. Set AGC switch to SLOW.	This mode may be used for RATT when adjacent channel interference in the RATT mode is acute.
Single Channel RATT Adjacent Channel Interference	Set mode selector switch to LSB.	1. Set frequency controls to 2 kHz above assigned frequency. 2. Set AGC switch to SLOW.	This mode may be used when adjacent channel interference is acute in the RATT and USB modes.

Table 2-4. Maintenance Controls and Connectors

KEY (FIG. 2-3)	CONTROL/CONNECTOR	FUNCTION
1	1A1A1J5 USB AUDIO OUT 600 OHMS connector	Connects USB audio output to external equipment.
2	1A1A1J6 LSB AUDIO OUT 600 OHMS connector	Connects LSB audio output to external equipment.
3	1A1J23 ANT 50 OHMS connector	Connects antenna or antenna coupler.
4	1A1J24 INT 5 MHZ OUT connector	Distributes 5 MHz frequency from Frequency Standard Assembly A2A5 to external equipment.
5	1A1J25 EXT 5 MHZ IN connector	Connects an external 5 MHz frequency standard to the R-1051G/URR.
6	A1A1J4 (Remote control connector)	(Not used in R-1051G/URR). Can be used for future unspecified modifications or additions.
7	1A1A1J3 AC PWR IN connector	Connects an ac power source for operation of the R-1051G/URR.
Figure 2-2	Interlock switch	SPST switch. Disconnects 115 Vac power from R-1051G/URR when chassis is removed from case. The switch can be defeated by gripping the plunger and pulling outward.

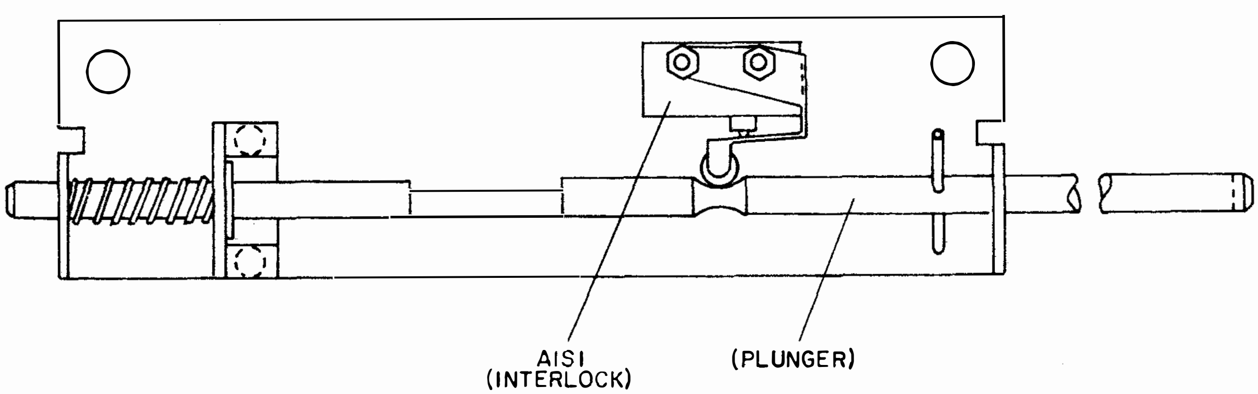


Figure 2-2. Detailed View of Interlock Switch

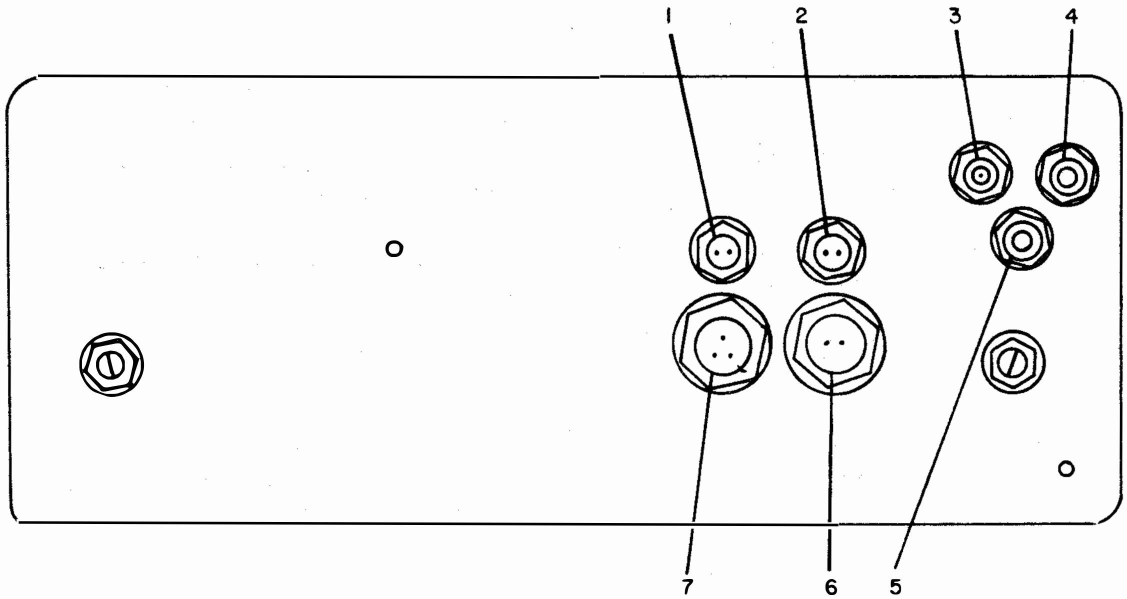


Figure 2-3. Radio Receiver R-1051G/URR Rear Panel Connectors

Table 2-5. Operator's Maintenance Procedures

PERIOD	PROCEDURE	REMARKS
Daily	Tighten loose handles, mounting screws and other hardware.	
Daily	Inspect for broken, frayed or damaged cable assemblies.	
Daily	Check that all connectors are properly seated and in the right location and that all switches and controls are properly set. (Refer to table 2-2 for operating instructions.)	Operating frequency is indicated in windows above MHz and kHz control knobs.
Daily	Set mode selector switch to STDBY. Check all fuses; if any are de fective, associated indicator lamp will light. Replace defective fuses.	
Daily	Check receiver operation.	See table 4-3.
Monthly	Clean exterior.	See table 4-2.
Semiannually	Clean interior.	See table 4-2.

CHAPTER 3

FUNCTIONAL DESCRIPTION

3-1. INTRODUCTION.

3-2. This chapter describes the principles of operation of Radio Receiver R-1051G/URR. The description is presented at three levels. The first level is an overall functional description of the receiver to the level of detail shown on the overall functional block diagram. The second level is a more detailed discussion of each of the functions, based on signal flow diagrams, and concentrating on the functional operation of the principal assemblies and subassemblies involved with each function. Power distribution and control functions are also described with reference to the appropriate power distribution and control diagrams. The third level, based on schematic diagrams, is a discussion of detailed circuit operation of all electronic circuits differing substantially from those covered in NAVSHIPS 0967-000-0120.

3-3. OVERALL FUNCTIONAL DESCRIPTION.

3-4. GENERAL. The overall functional block diagram, figure 3-1, depicts the signal flow through Radio Receiver R-1051G/URR from antenna to audio output, and the relationship of the various assemblies to the signal path.

3-5. SIGNAL INPUT. (Figure 3-1). The rf input from the antenna first passes through Low Pass Filter A2FL3. This filter attenuates spurious signals generated in the receiver which might be conducted out through the antenna. The input then passes through Antenna Overload Assembly A2A9. The primary purpose of this assembly is to protect RF Amplifier Assembly A2A4 from any excessively high amplitude input signals received by the antenna. The antenna overload circuit also protects the rf amplifier whenever the receiver is tuning to new MHz bands, or deenergized.

3-6. RF AMPLIFIER A2A4 (Figure 3-1). The received signal is amplified in the rf amplifier to provide signals at the level required for proper operation of Translator/Synthesizer Assembly A2A6. Gain in the rf amplifier stages varies in response to manual or automatic gain control (agc) voltage feedback derived from the IF signal level in IF-Audio Assembly A2A2 or A2A3. In the rf amplifier stages, selection of circuit components appropriate to the frequency to which the receiver is tuned is accomplished in response to a tuning control signal from Code Generator Assembly A2A7 and the 100 kHz and 10 kHz front panel controls. The final amplified rf signal is filtered by 20 and 30 MHz Filter Assembly A2A10 before entering RF Translator Subassembly A2A6A8.

3-7. TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (Figure 3-2). Conversion of the received rf signal to the 500 kHz intermediate frequency used by R-1051G/URR is accomplished by three mixer stages in the RF Translator Subassembly A2A6A8. In the high frequency mixer the injection frequency from the 10 MHz/1 MHz Synthesizer subassemblies (A2A6A13/A14) ranges between 2.5 to 23.5 MHz to produce a first IF signal in either of two ranges: 19.5 to 20.5 MHz or 29.5 to 30.5 MHz. This first IF signal is gated through either a 20 MHz or a 30 MHz bandpass filter, as determined by a hi-/lo-band control voltage from the code generator A2A7.

3-8. MID-FREQUENCY MIXER ASSEMBLY (Figure 3-1). In the mid-frequency mixer the injection frequency from the 100 kHz Synthesizer Subassembly A2A6A17 is in either of two ranges: 22.4 MHz to 23.3 MHz for use with a 20 MHz first IF, or 32.4 MHz to 33.3 MHz for use with a 30 MHz first IF. Selection of the proper range for the second injection frequency is made in A2A6A17 in response to a hi-/lo-band control signal from the code generator. The resultant second IF signal is in the frequency range of 2.8001 to 2.9 MHz.

3-9. LOW-FREQUENCY MIXER ASSEMBLY (Figure 3-1). In the low frequency mixer the second IF is combined with an injection signal from the 10 kHz/1 kHz/100 Hz synthesizer, which consists of subassemblies A2A6A18 and A2A6-A12. The injection signal is in the range of 3.3001 to 3.400 MHz. The resultant output is the third IF frequency of 500 kHz.

3-10. FREQUENCY SELECTION (Figure 3-1). Selection of the three specific injection frequencies required for the translation process is accomplished

in the Translator/Synthesizer Assembly A2A6 in response to the setting of the front panel tuning controls. Accuracy of the injection signal frequency is a function of a highly accurate 10 MHz standard frequency generated in Frequency Standare Assembly A2A5 from a stable, temperature-controlled 5 MHz crystal oscillator.

3-11. MODE SELECTOR ASSEMBLY A2A1. The 500 kHz output of the Translator/Synthesizer A2A6 (see figure 3-1) is applied to Mode Selector Assembly A2A1. The operation of the receiver is identical in all modes. However, the main signal flow path varies according to the selected operating mode. The mode gate subassembly A2A1A1 responds to gating control voltages, and routes the IF signal through the appropriate LSB, USB, or AM filters to either or both of the IF/Audio Amplifier Assemblies A2A2 and A2A3. In the USB, RATT, AM, and CW modes A2A2 is used; in LSB mode A2A3 is used, and in the ISB mode both the IF/audio amplifiers A2A2 and A2A3 are used.

3-12. IF/AUDIO AMPLIFIER ASSEMBLIES A2A2 AND A2A3. Each IF/audio amplifier (see Figure 3-1) extracts the audio information from its incoming IF signal. This information is applied to a phone jack on the front panel (phone USB or phone LSB) and to an output connector at the rear of the receiver case. In USB, RATT, LSB, and ISB modes of operation, the intelligence is demodulated in a balanced product detector. Carrier reinsertion in these modes is provided by a 500 kHz signal obtained from Frequency Standard Assembly A2A5 via 500 kHz Gate Subassembly A2A1A2 of the Mode Selector Assembly. In the AM mode demodulation is accomplished by a diode (AM) detector. For CW signals an adjustable beat frequency oscillator (BFO) signal from BFO Subassembly A2A1A3 is applied to the AM detector.

3-13. AUTOMATIC GAIN CONTROL. An agc feedback voltage is developed in the IF/audio amplifiers for use in the IF amplifiers and in the rf amplifier. If desired, the agc function may be disabled and the gain of the rf and IF amplifiers manually controlled from the front panel.

3-14. OPERATING VOLTAGES. Operating voltages for the receiver are produced by Power Supply Assembly A2A8. The 115 Vac input is transformed to 6.3 Vac for vacuum tube filaments, and is used to produce +110 Vdc, +28 Vdc, and -30 Vdc. In addition, regulated +20 Vdc is derived from the +28 Vdc supply. Power Supply A2A6-A15 produces +5 Vdc from the +20 Vdc for use by the A2A6 circuits and 100 Hz Control and Vernier Assembly A2A11.

3-15. <u>MAJOR FUNCTIONAL DESCRIPTION.</u>

3-16. GENERAL. During operation, Radio Receiver R-1051G/URR performs the 11 major functions listed below.

1. RF selection, tuning, and overload protection.
2. RF to IF conversion.
3. IF amplification and control.
4. 500 kHz gating.
5. Beat frequency oscillation.
6. Automatic gain control.
7. Audio amplification.
8. Frequency synthesis.
9. Standard frequency generation and distribution.
10. Power distribution.
11. Control.

Descriptions of the first nine major functions are based on the signal flow diagram in Chapter 5. Circuits in the main signal flow path are discussed first followed by discussions of the other assemblies involved with frequency synthesis and standare frequency generation. Power distribution is discussed with reference to the power distribution diagrams in Chapter 5 for the primary ac power and for each of the dc voltages in the receiver. The control function is described with reference to the tuning control diagram and applicable schematic diagram in Chapter 5.

3-17. RF SELECTION, TUNING, AND OVERLOAD PROTECTION (Figure 5-1). The rf selection, tuning, and overload protection function is performed by Low Pass Filter A2FL3, Antenna Overload Assembly A2A9, RF Amplifier Assembly A2A4, and 20 and 30 MHz Filter Assembly A2-A10. The rf input signals from the antenna are processed through these three assemblies so that only the desired 2.0 to 29.9999 MHz signals are applied to Translator/Synthesizer Assembly A2A6.

3-18. The input rf signals are attenuated in Antenna Overload Assembly A2A9 whenever the receiver is deenergized, tuning to a new MHz band, or whenever incoming rf exceeds a safe, predetermined level. When the RF signal exceeds the predetermined safe level, the setting of the front panel MHz controls is changed, or the equipment is deenergized, the base of A2A9Q2 is effectively grounded. This ground cuts off the relay driver A2A9Q2 and deenergizes antenna overload relay A2A9K1. The contacts of A2A9K1 open and A2A9R10 is placed in series and attenuates incoming sighals 40 dB and prevents damage to the rf input stage.

3-19. RF AMPLIFICATION (Figure 5-1). The rf output from the antenna overload circuit is applied to RF Amplifier Assembly A2A4, where it first passes through contacts B2 and B3 of relay A2A4A38K1. This relay is deenergized so that contacts A2A4A38K1-B2 and A2A4A38K1-B3 are always in the closed position. The rf signal is then applied to one of 28 tunable 1 MHz bandpass coupling subassemblies mounted on a turret. The 28 coupling subassemblies cover the frequency range from 2.0 to 29.9999 MHz. Capacitors, mounted on a rotor within the turret, are connected in parallel with the transformers of the 1 MHz bandpass coupling subassemblies in order to tune the subassemblies to discrete center frequencies in 100 kHz and 10 kHz steps within the 1 MHz pass band.

3-20. ANTENNA TUNING. Transformer T1 and capacitor C2 of megahertz subassemblies A2A4A2 through A2A4A29 in series with the capacitors of rotor subassemblies A2A4A30 and A2A4A31 comprise the antenna tuning circuit. Transformer T2 and capacitor C3 of megahertz subassemblies A2A4A2 through A2A4A29 in series with the capacitors of rotor subassemblies A2A4A32 and A2A4A33 comprise the tuned grid circuit for rf amplifier A2A4V1. Capacitor C1 of megahertz subassemblies A2A4A2 through A2A4A29 couples the signal from the antenna tuning circuit to the tuned grid circuit. Parasitic filter A2A4FL1 suppresses unwanted frequencies in the grid circuit. R-C network A2A4A1 provides for proper biasing of the amplifier A2A4V1 and A2A4V2 circuits and rf bypassing for the cathode resistors.

3-21. RF AMPLIFIER OUTPUT CIRCUIT. The tuned plate output circuit of rf amplifier A2A4V1 is comprised of transformer T3 and capacitor C4 of turret subassemblies A2A4A2 through A2A4-A29, in series with the capacitors of rotor subassemblies A2A4A34 and A2A4A35. The amplified rf signal output from rf amplifier A2A4V1 is coupled through capacitor A2A4C5 and parasitic suppressor A2A4FL2 to rf amplifier A2A4V2. The output circuit of A2A4V2 is comprised of parasitic suppressor A2A4FL3, and transformer T4 and capacitor C5 of turret subassemblies A2A4A2 through A2A4A29 in series with the capacitors of rotor subassemblies A2A4A36 and A2A4A37.

3-22. RF AMPLIFIER GAIN CONTROL. The gain of rf amplifier A2A4V1 and A2A4V2 is controlled either manually or automatically by varying the grid bias on the tubes. When AGC switch A2S3 is in OFF position, control is manual by rotation of RF GAIN control A2R3. When AGC switch A2S3 is in either SLOW or FAST position the gain is controlled by the agc circuits in IF/Audio Assemblies A2A2 and A2A3. See paragraph 3-53 for a discussion of agc circuits.

3-23. FILTERING. The output signals from rf amplifier A2A4V2 are coupled through transformer T4 in megahertz turret A2A4A2 through A2A4A29 to output connector A2A4P2 pin A1. The signals then pass to the 20 and 30 MHz Filter Assembly A2A10, where the signals are filtered to increase IF rejection of the receiver. When the receiver is tuned to a band designated LO (see table 3-1), the first IF frequency is at 20 MHz. The filter selected by diode switching in A2A10 will reject 20 +0.4 MHz and pass all other frequencies. When the receiver is tuned to a band designated HI the first IF is at 30 MHz, the filter selected will reject 30 +0.4 MHz and pass all other frequencies.

3-24. RF-TO-IF CONVERSION (Figure 5-2). Conversion of rf to IF is the function of Translator/Synthesizer Assembly A2A6. The translator/Synthesizer receives the 2.0 to 29.9999 MHz rf signal from 20 and 30 MHz Filter Assembly A2A10, converts it in three mixer stages to a final IF frequency of 500 kHz, and sends the output to Mode Selector Assembly A2A1. Each stage of the conversion process is described in the following paragraphs.

3-25. HIGH FREQUENCY MIXING. Conversion of radio frequency (selected by front panel controls) to the intermediate frequency of 500 kHz is the result of a triple mixing process in RF Translator Subassembly A2A6A8. The signal from RF Amplifier Assembly A2A4 is received via 20 and 30 MHz Filter Assembly A2A10 and is applied across R52, from which it is inductively coupled, via A2A6A8T7 to high frequency mixer A2A6A8U3, where conversion to the first IF takes place.

3-26. The injection signal for high frequency mixer A2A6A8U3-2 is supplied by 10 MHz/1 MHz Synthesizer Subassembly A2A6A13 via 10 MHz/ 1 MHz Filter Subassembly A2A6A14.

3-27. The frequency of the injection signal from A2A6A14 is one of 17 descrete frequencies (2.5 to 23.5 MHz) selected by the setting of the front panel MHz controls as shown in Table 3-1. Note that certain 1 MHz increments are designated as lo-band signals, while the remainder are deisgnated as hi-band signals.

3-28. The desired high-frequency mixer output for lo-band signals is in the range of 19.5 to 20.5 MHz, and for hi-band signals in the range of 29.5 MHz to 30.5 MHz. For example, a lo-band signal of 5.000 MHz is mixed with the 14.5 MHz injection frequency to produce a sum frequency of 19.5 MHz. For lo-band signal inputs in the ranges of 22 to 23 MHz and 27 to 30 MHz, the difference signal resulting from the mixing process is the desired signal. Similar examples for hi-band signals would show that the desired mixer output frequencies are in the range of 29.5 to 30.5 MHz.

3-29. The sum and difference output signals from A2A6A8U3-11 are coupled through A2A6-A8T6 to diode A2A6A8CR15. The signals from A2A6A8CR15 pass through one filter of a two filter network comprised of A2A6A8FL1 (20 MHz) and A2A6A8FL2 (30 MHz). The filter which passes the desired signal is selected by control signals applied to gating diodes A2A6A8CR10-CR13 by hi/lo filter relay A2K2. For lo-band signals, +20 Vdc is applied to forward bias gating diodes A2A6A8CR10 and CR12, and to back bias A2A6A8CR11 and CR13. The path of the high frequency mixer output signals is then through lo-band filter A2A6A8FL1, providing a 20 MHz first IF. For hi-band signals ground is applied to the gating diodes by Hi/Lo Filter Relay A2K2, so that all biasing is changed and the resulting signal path is through A2A6A8FL2. The filters remove all undesired frequencies which appear at the output of the high frequency mixer.

3-30. MID-FREQUENCY MIXING. The first IF signal is coupled to mid-frequency mixer A2A6-A8U2 via A2A6A8CR9, which is forward biased by the +10 Vdc supply to A2A6A8T5.

3-31. The injection signal for mid-frequency mixer A2A6A8U2-2 is supplied by 100 kHz Synthesizer Subassembly A2A6A17. When a lo-band signal is being processed, the injection frequency will be in the range of 22.4000 to 23.0000 MHz. For hi-band signal processing the injection frequency range will be 32.4000 to 33.3000 MHz. Table 3-1 shows the specific ranges of injection frequencies for lo-band and hi-band signals associated with the 100 kHz digit of the frequency to which the receiver is tuned. A range of frequencies (in 100 kHz steps) is given.

3-32. As a result of the mixing action, both the lo-band and hi-band signals will be converted to a second IF signal within the range of 2.8001 to 2.9 MHz. For example, a lo-band rf input of 5.0000 MHz, having been converted to a first IF signal of 19.50000 MHz (see paragraph 3-28), will then be mixed with an injection frequency of 22.4000 MHz (see table 3-1) to produce a difference frequency of 2.9000 MHz. In all cases the desired mixer output is the difference frequency.

3-33. The composite signal from mixer A2A6-A8U2-11 is coupled through A2A6A8T4 to diode gate A2A6A8CR6 which is forward biased. The signal then passes through 2.85 MHz filter A2A6-A8FL3 to remove all undesired frequencies which appear at the output of the mid-frequency mixer.

3-34. LOW FREQUENCY MIXING. The second IF signal is coupled through A2A6A8CR4 and A2A6A8T2 to the low frequency mixer A2A6-A8U1-3, where the final IF conversion takes place.

3-35. The injection signal for the low frequency mixer is supplied by the 10 kHz/100 Hz synthesizer circuit comprised of Subassemblies A2A6A28 and A2A6A12.

3-36. The low frequency injection signal will be in the range of 3.3001 to 3.400 MHz, in 10 kHz steps, and is selected in accordance with the setting of the front panel 10 kHz control. Table 3-1 shows the specific ranges of injection frequencies associated with each 10 kHz digit of the rf input signal. Each range consists of 10 frequencies, in 100 Hz steps, to provide conversion of the 100 Hz digit. Control within any of the ranges shown is provided by the setting of Hz switch A2A11S1. For each 100 Hz increment selected on the Hz switch the injection frequency from A2A6A12 will decrease by 0.0001 MHz. For example, if the 1 kHz control is at 1 and the Hz switch is in V position the injection frequency is varied continuously (within the range established by the 1 kHz control setting) by operation of the vernier control A2A11R1.

Table 3-1. Comprehensive Frequency Translation Chart

MHz CONTROL SETTINGS	HIGH FRE-QUENCY MIXER INJECTION SIGNAL (MHz)		100 kHz CONTROL SETTING	MID-FREQUENCY MIXER INJECTION SIGNAL (MHz) IN 100 kHz STEPS		10 kHz CONTROL SETTING	LOW FREQUENCY MIXER INJECTION SIGNAL (MHz) IN 100 Hz STEPS
	LO-BAND	HI-BAND		LO-BAND	HI-BAND		
2	17.5		0	22.4	32.4	0	3.4000 to 3.3901
3	16.5		1	22.5	32.5	1	3.3900 to 3.3801
4	15.5		2	22.6	32.6	2	3.3800 to 3.3701
5	14.5		3	22.7	32.7	3	3.3700 to 3.3601
6		23.5	4	22.8	32.8	4	3.3600 to 3.3501
7	12.5		5	22.9	32.9	5	3.3500 to 3.3401
8	11.5		6	23.0	33.0	6	3.3400 to 3.3301
9		20.5	7	23.1	33.1	7	3.3300 to 3.3201
10		19.5	8	23.2	33.2	8	3.3200 to 3.3101
11	8.5		9	23.3	33.3	9	3.3100 to 3.3001
12	7.5						
13		16.5					
14	5.5						
15	4.5						
16	3.5						
17		12.5					
18		11.5					
19		10.5					
20		9.5					
21		8.5					
22	2.5						
23	3.5						
24		5.5					
25		4.5					
26		3.5					
27	7.5						
28	8.5						
29	9.5						

3-37. As a result of the mixing action, the 500 kHz IF signal will be obtained when an rf input signal to the receiver at 5.0000 MHz is converted to a first IF of 19.5000 MHz, then to a second IF of 2.9000 MHz (see paragraph 3-32) and is mixed with an injection frequency of 3.4000 MHz.

3-38. The composite signal from the low frequency mixer A2A6A8U1-11 is applied through transformer A2A6A8T3 to diode gate A2A6A8-CR3, which is forward biased. Inductor A2A6-A8L2 rejects the sum frequencies and couples the 500 kHz difference frequency to amplifier A2A6-A8Q1. The collector circuit of A2A6A8Q1 is tuned to 500 kHz via transformer A2A6A8T1, and the 500 kHz IF is routed through connector A2A6P2-A1 to Mode Selector Assembly A2A1.

3-39. IF AMPLIFICATION AND CONTROL (Figure 5-3). The IF amplification and control function consists of mode gating, IF amplification, and demodulation. The function is performed primarily in Mode Gates Subassembly A2A1A1 and in IF/Audio Amplifier Assemblies A2A2 and A2A3. The 500 kHz IF signal from Translator/Synthesizer Assembly A2A6 is gated according to the receiver operating mode and is amplified and demodulated before being sent to the audio amplification circuits (see paragraph 3-56).

3-40. The IF amplification is controlled by agc voltages (see paragraph 3-53). The demodulation function uses a 500 kHz injection signal in all modes except AM and CW (see paragraph 3-47). A variable 500 kHz BFO signal is used in the CW mode, and no reinsertion signal is required in the AM mode (see paragraph 3-49).

3-41. MODE GATING. The 500 kHz IF signal from Translator/Synthesizer Assembly A2A6 is supplied to Mode Gates Subassembly A2A1A1, which is part of Mode Selector A2A1. The signal is applied to emitter follower A2A1A1Q1 whose output is applied to three buffer amplifiers A2A1-A1Q2 through A2A1A1Q4. In the USB, RATT, and ISB modes, buffer amplifier A2A1A1Q2 is enabled by +20 Vdc to its emitter via contacts on the front panel mode selector switch A2S2. The output of A2A1A1Q2 is applied to USB filter A2A1FL1. The output of USB filter A2A1FL1 is applied to a second buffer amplifier A2A1A1Q5 whose collector output is then applied to IF/Audio Amplifier Assembly A2A2.

3-42. In the AM and CW modes, buffer amplifier A2A1A1Q3 is enabled by +20 Vdc to its emitter, and diode switch A2A1A1CR3 is enabled by +20 Vdc to its anode by control voltages through the mode selector switch A2S2. Thus, the output of AM filter A2A1FL2 is gated to buffer amplifier A2A1A1Q6 and then applied to IF/Audio Amplifier Assembly A2A2.

3-43. In the LSB mode, the output from LSB filter A2A1FL3 is coupled directly to emitter follower A2A1A1Q7, without gating. The output of this filter is used only when information is being carried in the LSB and ISB modes since circuits in the lower sideband IF/Audio Amplifier Assembly A2A3 (which receives the output from emitter follower A2A1A1Q7) are disabled otherwise (see paragraph 3-46). When operating in the LSB mode, amplifiers A2A1A1Q2, Q3 are disabled and diode gate A2A1A1CR3 is reverse biased.

3-44. IF AMPLIFICATION. In the ISB mode of operation, IF signals are presented to both IF/Audio Amplifier Assemblies A2A2 and A2A3. Since the two assemblies are identical, the following description of the IF amplifier stages of A2A2 applies to both assemblies.

3-45. Amplification of the IF signal is accomplished in transformer coupled stages A2A2A2Q1 and A2A2A2Q4 through A2A2A2Q6. Automatic or manual gain control circuitry (see paragraph 3-53) controls the IF level from amplifier A2A2Q1 to provide a constant input to amplifier A2A2A2-Q4 over a wide range of input IF signal variations. The gain of IF amplifier A2A2A2Q6 may be set by means of IF GAIN potentiometer A2A2A2R22 to produce the desired signal level for the balanced output from transformer A2A2A2T4. In the AM and CW modes, the output of A2A2A2T4 is detected by the AM detector A2A2A3CR2 (via amplifier A2A2A3Q3) in assembly A2A2. In all other modes of operation, the output of A2A2A2-T4 is detected by the product detector A2A2A3Q1 and Q2.

3-46. Operating voltages (+20 Vdc, not shown) for amplifiers A2A2A2Q1 through Q6 is selectively applied to IF/Audio Amplifier Assemblies A2A2 and A2A3 through contacts of the front panel mode selector switch A2S2. Thus, in the USB, RATT, AM, and CW modes, only assembly A2A2 is operational, while in the LSB mode, only assembly A2A3 is operational. In the ISB mode, both assemblies receive +20 Vdc, and are operational.

3-47. DEMODULATION. In the USB, LSB, ISB, and RATT modes of operation, the balanced IF output from the IF amplifier stage is demodulated in the product detector portion of subassemblies A2A2A3 or A2A3A3. The product detector transistors A2A2A3Q1 and A2A2A3Q2, connected in a balanced mixer configuration, receive the 180 degree out-of-phase IF sideband signals at their bases, and a 500 kHz injection signal from Mode Selector Assembly A2A1 at their emitter (see paragraph 3-50). As a result of the subtractive mixing, cancelling, and filtering action of these two transistors and their associated passive components, the audio intelligence is derived from the IF sideband signal and appears across the secondary of transformer A2A2A3T1 or A2A3A3T1.

3-48. Selection of the appropriate product detector(s) is achieved by applying operating voltages and the 500 kHz injection only during the proper modes of operation. Thus, operating voltages are applied to the product detector in IF/Audio Amplifier Assembly A2A2 through contacts of the mode selector switch A2S2 only during the USB, ISB, and RATT modes, while operating voltages are supplied to the product detector in IF/Audio Amplifier A2A3 only in the LSB and ISB modes.

3-49. In the AM and CW modes of operation, only one of the two IF outputs from IF transformer A2A2A2T4 is applied to the AM detector A2A2A3CR2 (IF/Audio Amplifier Assembly A2A3 is inoperative in these modes). The modulated 500 kHz IF signal undergoes one further stage of amplification in transistor A2A2A3Q3, and is applied across the tuned circuit consisting of inductor A2A2A3L1 and capacitor A2A2A3-C6. The resultant output of the tuned circuit is detected in diode A2A2A3CR2, which extracts the audio signal from the IF signal. In the CW mode of operation, a variable BFO signal is applied to the tuned circuit A2A2A3L1 and A2A2-A3C6, and the variable BFO and 500 kHz IF carrier signals are mixed by diode A2A2A3CR2. Capacitor A2A2A3C7 removes the undesired intermediate frequencies, and the variable difference frequency is applied to the audio amplifier circuitry (paragraph 3-56). Operating voltage for amplifier A2A2A3Q3 is provided to this stage through contacts of the mode selector switch A2S2 only during AM or CW modes. In all other modes, the circuit is inoperative.

3-50. 500 kHz GATING (Figure 5-4). Gating of the 500 kHz injection signal used in the product detectors (see paragraph 3-47) is accomplished in the 500 kHz Gate Subassembly A2A1A2, which is part of Mode Selector Assembly A2A1. A 500 kHz signal from Frequency Standard Assembly A2A5 (see paragraph 3-155) is applied to diode switch A2A1A2CR1. This diode is forward biased of operation, when +20 Vdc is applied to the anode through contacts of the front panel mode selector switch A2S2. Two outputs are provided, one to IF/Audio Amplifier Assembly A2A2, and the other to IF/Audio Amplifier Assembly A2A3, where they are used in the detection of IF sideband signals (see paragraph 3-47).

3-51. BEAT FREQUENCY OSCILLATION (Figure 5-8). The beat frequency oscillation (BFO) function is provided by the BFO and Amplifier Subassembly A2A1A3, which is part of the Mode Selector Assembly A2A1. This subassembly is activated by +20 Vdc from the mode selector switch A2S2 when this switch is set to CW position. In all other modes of operation, the +20 Vdc is not supplied to the BFO and amplifier and the subassembly is inoperative.

3-52. The BFO circuitry provides an adjustable range of signals about a center frequency of 500 kHz. Varactor diode A2A1A3CR1 and inductor A2A1A3L1 form a portion of the frequency determining network for variable frequency oscillator A2A1A3Q1. An adjustable dc control voltage, obtained from front panel BFO control A2R6, is applied to vary the capacitance of A2A1A3CR1, and establishes the output frequency of oscillator A2A1A3Q1. The nominal 500 kHz BFO signal is applied through buffer amplifier A2A1A3Q2, Q3, to IF/Audio Amplifier Assembly A2A2 for use in the detection of CW signals (see paragraph 3-49).

3-53. AUTOMATIC GAIN CONTROL (Figure 5-7). Automatic gain control (AGC) voltage is provided by IF/Audio Amplifier Assembly A2A2 in the USB, RATT, AM, and CW modes of operation, by IF/Audio Amplifier Assembly A2A3 in the LSB mode, and by both assemblies in the ISB mode. The agc voltage is supplied to dc amplifier A2A2A2Q2 or A2A3A2Q2 within the IF/Audio amplifiers (see paragraph 3-45), and is also supplied to RF Amplifier Assembly A2A4 (see paragraph 3-22). Since the circuitry of IF/Audio Amplifier Assemblies A2A2 and A2A3 is identical, only A2A2 is discussed.

3-54. A sample of the 500 kHz IF signal is taken from the secondary of IF transformer A2A2A2T2, and applied to IF amplifier A2A2A1Q8. The gain of this stage is varied by AGC ADJ control A2A2-A1R25. Front panel AGC switch A2S3 provides for either FAST or SLOW response in the automatic gain control function, or for manual rf and IF gain control in the OFF position. Capacitor A2A2A1C12 and associated components control the timing of the operation of AGC. Switch A2-A2A1Q10 and preamplifier A2A2A1Q11, activated as a function of the setting of front panel AGC switch A2S3, provide for switching A2A2-A1C12 in and out of the network for SLOW and FAST AGC respectively. When A2S3 is in the FAST or SLOW position, A2A2A1Q12 and A2-A2A1Q13 will switch IF amplifier A2A2A1Q7 on, applying the 500 kHz IF signal to transformer A2A2A1T1. Teo in-phase outputs of different amplitudes are then taken from the secondary of transformer A2A2A1T1. The greater amplitude signal is rectified by detector A2A2A1CR5 to provide a charging potential for capacitor A2A2-A1C5, while the smaller signal is rectified by detector A2A2A1CR4 to provide a charging potential for capacitor A2A2A1C3. The dc voltage on capacitors A2A2A1C5 and A2A2A1C3 provide base bias and emitter bias, respectively, for coincidence detector A2A2A1Q6. A relatively steady rf signal will result in coincidence detector A2A2A1Q6 being cut off.

3-55. Coincidence detector A2A2A1Q6 will forward bias when the rf input level falls sufficiently. Capacitor A2A2A1C3 now discharges through A2A2A1Q6 and resistor A2A2A1R13. As A2A2A1Q6 conducts, base current to emitter follower A2A2A1Q4 decreases, and the voltage applied to the base of dc amplifier A2A2A1Q3 also decreases. In turn, the conduction of A2A2-A2Q2 decreases as A2A2A2Q3 conducts less, raising potential at its collector and reverse biasing A2A2A2Q2. As A2A2A2Q2 conducts less, less loading is placed on the output of A2A2A2T1, increasing the IF level applied to amplifiers A2A2-A2Q4 and A2A2A2Q5. The reverse effect results when the rf level increases sufficiently at the output of A2A2A1T1, the result being that the negative feedback signal applied to the emitter of A2A2A2Q1 is changed so as to reduce the IF level applied to A2A2A2T1 secondary and amplifier stages A2A2A2Q4-Q5. This circuit action also increases or decreases the base voltage on dc amplifier A2A2A1Q1 in step with an increase or decrease in IF signal level to A2A2A2Q4-Q5. An increase in A2A2A1Q1 base voltage will cause its collector voltage to go more negative and vice versa. The collector voltage of A2A2A1Q1, in turn, is fed through diode A2A2A1CR1 to the rf amplifier A2A4, where it changes grid bias voltage on the two electron tube stages to either increase or decrease rf amplifier gain to compensate for the change in IF signal level at A2A2A1T1.

3-56. AUDIO AMPLIFICATION (Figures 5-5, 5-6). Audio amplification of the intelligence obtained from the demodulators (see paragraph 3-47) takes place in IF/Audio Amplifier A2A2 in the USB, RATT, AM, CW, and ISB modes of operation, and in IF/Audio Amplifier A2A3 in the LSB and ISB modes. In any operating mode the amplified 300 to 3500 Hz audio signal is applied to a front panel jack for monitoring by means of a headset and, through Filter Box Assembly A1A1, to rear-panel output connectors for use with auxiliary audio equipment. The audio amplification signal flow is discussed separately below for the two IF audio amplifiers, and is depicted on two separate signal flow diagrams (figures 5-5 and 5-6). Note that the ISB mode is processed in both assemblies, and is discussed and depicted twice.

3-57. USB, RATT, AM, CW, and ISB Modes (Figure 5-5). In the USB and RATT modes of operation, and for the upper sideband signal in the ISB mode, the audio output from the product detector A2A2A3Q1 and Q2 is applied through transformer A2A2A3T1 to the front panel USB LEVELS LINE control A2R2. In the AM and CW modes, the audio output from the AM detector A2A2A3CR2 is applied through audio amplifiers A2A2A1Q9 and A2A2A1Q14 to the USB LEVELS LINE control A2R2.

3-58. From the USB LEVELS LINE control, the audio is fed to the IF/Audio Amplifier Assembly A2A2 and applied to audio amplifier A2A2A2Q7. The output signal from A2A2A2Q7 is applied through emitter follower A2A2A2Q8 to transformer A2A2A2T5, which provides a push-pull output audio signal as required for the input of push-pull amplifier stage A2A2A2Q9/Q10. The amplified audio signal from A2A2A2Q9/Q10 is then applied to output transformer A2A2T1.

3-59. Transformer A2A2T1 provides separate audio signal outputs to allow for both local and remote operation. One output from A2A2T1 is a balanced, 600 ohm, two-wire output connected through Filter Box Assembly A1A1 to rear panel output connectors. These remote audio outputs are connected to external equipment as required. The remote audio signal level may be monitored on AUDIO LEVEL meter A2M1 by placing the front panel AUDIO LEVEL switch A2A12S1 in USB, and the required range position. The AUDIO LEVEL meter driver circuit functions essentially as follows. The Audio Levels output voltage from the IF Audio Amplifier USB (A2XA2P1-12, 14) or LSB (A2XA3P1-12, 14) is connected to the meter driver circuit by setting switch A2A12S1. Thus, equal magnitude and opposite polarity voltages are applied either to inputs A2A12U1B-2, 3 (LSB) position or A2A12U1C-5, 6 (USB) position. The various positions of Selector Switch A1A12S1 serve to connect resistance divider networks as required to shift the relative value of the zero point on the meter dial to accommodate a given amplitude audio level input signal at a convenient mid-scale reading. OP-amp A2A12U1C together with A2A12U1A provides the necessary levels of input voltage required to the diode bridge A2A12CR1-CR4 to produce proportional DC output voltage for a final reading in dBm on A2M1. Operation in the LSB position parallels the operation described for USB. The second output from A2A2T1 is an unbalanced output connected through USB LEVELS PHONE control A2R5 to the front panel PHONE USB jack A2J2. Rotation of A2R2 permits the local operator to adjust the audio signal level applied through PHONE USB jack A2J2 to the headset. A portion of the unbalanced audio signal output of A2A2T1 is also applied as negative feedback to audio amplifier A2A2A2Q7 to reduce distortion in the A2-A2A2 amplifier stages.

3-60. Operating voltages for the audio amplifiers A2A2A1Q9, A2A2A1Q14, A2A2A2Q7, emitter follower A2A2A2Q8, and push-pull amplifiers A2A2A2Q9/Q10 are obtained from the front panel mode selector switch A2S2 only when the stage is actually required.

3-61. LSB and ISB Modes (Figure 5-6). In the LSB mode, and for the lower sideband signal in the ISB mode, the audio output from the product detector A2A3A3Q1 and Q2 is applied through transformer A2A3A3T1 to the front panel LSB LEVELS LINE control A2R1.

3-62. The signal flow of the audio signal from LSB LEVELS LINE control A2R1 through the audio amplifier portion of subassembly A2A3A2 is identical to the USB signal flow previously described in paragraph 3-58.

3-63. One output from the secondary of transformer A2A3T1 is a balanced, 600-ohm, two-wire output applied to rear panel connectors for operation of external equipment. The audio level of this output signal may be monitored on AUDIO LEVEL meter A2M1 by placing the front panel AUDIO LEVEL switch A2A12S1 in the LSB position and selecting the appropriate meter range. The second output is an unbalanced output connected to LSB LEVELS PHONE control A2R4. Rotation of A2R4 permits the adjustment of the audio signal level applied through PHONE LSB jack A2J1 to the local headset.

3-64. FREQUENCY SYNTHESIS. Injection frequencies for the three mixer stages of RF Translator Subassembly A2A6A8 (see paragraph 3-24) are generated within the following subassemblies of Translator/Synthesizer Assembly A2A6:

1. The 10 MHz/1 MHz Synthesizer Circuit comprised of Subassemblies A2A6A13 and A2-A6A14.
2. 100 kHz Synthesizer Subassembly A2-A6A17.
3. The 10 kYz/1 kHz/100 Hz Synthesizer Circuit comprised of Subassemblies A2A6A18 and A2A6A12.

All of the injection frequencies are developed from the outputs of Frequency Generator Subassembly A2A6A16 which, in turn, receives a highly stable 10 MHz reference frequency from Frequency Standard Assembly A2A5. Tuning control is provided by the 10 MHz and 1 MHz controls on the front panel via Code Generator Assembly A2A7, by the 100, 10, and 1 kHz front panel controls by direct mechanical linkage, and by the front panel 100 Hz vernier control via 200 Hz Control and Vernier Assembly A2A11. A combination of phase-locked loops ensures that the injection frequencies supplied to RF Translator Subassembly A2A6A8 are correct. Injection frequencies corresponding to front panel tuning control settings are listed in table 3-1.

3-65. Frequency Generator Assembly A2A6A16 (see Figure 5-10). Two signal paths exist in the Frequency Generator; one is active when the vernier A2A11R1 is in use, the other is active when the vernier is deactivated by the position of Hz switch A2A11S1. The deactivated vernier condition will be described first. The 10 MHz standard frequency from A2A5 enters the circuit at A2A6A16P1-A1 and is amplified by A2A6-A16Q1 and Q2. From the collector of A2A6-A16Q2 the signal is coupled to level shifter A2-A6A16U1A. From A2A6A16U1A the signal is applied to two buffer stages, A2A6A16U1B and A2A6A16U1C. The signal from A2A6A16U1C enters the divider network, which produces the reference frequencies required by the synthesizers, at the input to divider A2A6A16U2. A2A6-A16U2 divides the 10 MHz input signal by ten and the resulting 1 MHz frequency is further divided in A2A6A16U3, whose output at pin 12 is 500 kHz. The 500 kHz signal is routed out of the frequency generator assembly at A2A6A16P1-A2 for use as a reference by 10 MHz/1 MHz synthesizer A2A6A13. The output at pin 11 of A2-A6A16U3 is 100 kHz, which is the reference frequency for the 100 kHz synthesizer A2A6A17. The 100 kHz output is at A2A6A16P1-A4. The 100 kHz is again divided by ten in A2A6A16U4 to produce 10 kHz. The 10 kHz signal is also divided by ten in A2A6A16U5 to produce the 1 kHz reference signal for 10 kHz/1 kHz/100 Hz synthesizer A2A6A12. The 1 kHz reference frequency is gated through inverter A2A6A16U6-B and out through A2A6A16U6-D to A2A6A1P1-A3 when the vernier control A2A11R1 is not in use.

3-66. The gating of the 1 kHz signal, when vernier A2A11R1 is not in use, is controlled by +4 Vdc which enters the circuit at A2A6A16-P1-9. Level shifter A2A6A16Q3 and A2A6-A16Q4 increases the dc voltage to the level required for operation of the gates. The output at the collector of A2A6A16Q4 gates A2A6A16U6B "on", which in turn allows the 1 kHz signal to pass through NOR gate A2A6A16U6D to the output. The vernier reference-divided output of the network is blocked by NAND gate A2A16U6C in this condition, as disabled via inverter A2-A16U6A.

3-67. When switch A2A11S1 is set in the V (vernier) position the 1 kHz reference frequency output varies such that an input tuning range of approximately 1 kHz is spanned as A2A11R1 is rotated. Setting A2A11S1 in the vernier position removes +4 Vdc from A2A6A16P1-9. This turns off A2A6A16Q3 and turns on A2A6A16Q4 which disables gate A2A6A16U6B and enables A2A6-A16U6C. Also, a variable dc voltage from A2-A11R1 in the range of +2.5 to +3.7 Vdc is applied to A2A6A16P1-3. This variable dc voltage is applied to dc amplifier A2A6A16U7 which supplies control line voltage to voltage controlled multivibrator A2A6A16U8. A2A6A16U8 produces a 15 — 19 kHz square wave reference signal as A2A11R1 is varied. This reference signal is one input to phase detector A2A6A16U9 at pin 3. The other input to A2A6A16U9 at pin 1 is described in paragraph 3-69.

3-68. A2A6A16U9 output signals from pins 5 and 10 are applied to loop filter consisting of A2A6A16U10 and A2A6A16C25 and R27. From A2A6A16U10 the signal is passed to voltage-controlled oscillator A2A6A16U11, which produces a frequency of 9.981 to 9.985 MHz. Switch A2A6A16Q6 is now turned on by the low from A2A6A16Q4 collector, turning on A2A6A16Q5 and VCO A2A6A16U11. Amplification is provided by A2A6A16Q5. The level of the signal is then raised by the level shifter consisting of A2-A6A16U12A and A2A6A16U12B. From the output of A2A6A16U12B the signal performs two functions; one is the output via A2A6A16U12D to be divided as the reference frequency output, the other is the output from A2A6A16U12C which serves as feedback to the mixer A2A6-A16U13.

3-69. The mixer A2A6A16U13 receives two inputs. The first of these is the 10 MHz input signal which reaches the mixer as outputs of A2A6A16U1B and A2A6A16U1D. The second is the feedback from A2A6A16U12C. The output of the mixer which is connected to A2A6A16U9 pin 1 is the difference frequency between the two inputs. Thus, it will be seen that A2A6A16U9 through A2A6A16U13 form a phase-locked loop.

3-70. The reference signal source output of A2A6A16U12D enters the divide-by-9984 network comprised of A2A6A16U14 through A2-A6A16U17. The output from A2A6A16U17 is coupled to NAND gate A2A6A16U6C. With logic low at the inputs of A2A6A16U6A and A2A6A16U6B, the signal is allowed to pass to NOR gate A2A6A9U6D, while the 1 kHz reference signal from A2A6A16U5 is blocked by the "off" condition of A2A6A16U6B. At output frequencies of A2A6A16U8 between 15 kHz and 19 kHz the output at A2A6A16P1-A3 will vary between approximately 1.0001 and 0.9997 kHz. Therefore, the reference frequency supplied to 10 kHz/1 kHz/100 Hz synthesizer A2A6A12 will vary the injection frequency to mixer A2-A6A8U1 in the translator (see figure 3-2).

3-71. 10 kHz/1 kHz/100 Hz Synthesizer (Figure 5-11). The 10 kHz/1 kHz/100 Hz Synthesizer Subassemblies A2A6A18 and A2A6A12 produce the 3.3001 to 3.4 MHz injection signal used in the low-frequency mixing circuits of RF Translator Subassembly A2A6A8. An electronic closed-loop servo system compares the output signal with a 1 kHz input reference signal from the Frequency Generator Subassembly A2A6A16. Any error detected is converted into a dc control voltage which corrects the output frequency and phase. When the phase difference between the output signal and the reference signal is constant, the loop is locked.

3-72. The injection signal is generated by a voltage controlled oscillator (VCO) assembly A2A6A12A1. The VCO is comprised of LC oscillator A2A6A12A1U1 and its associated components. A2A6A12A1L1, A2A6A12A1C2, A2A6A12A1C3, and the variable capacitance diode A2A6A12A1CR1 form the resonant circuit which determines the oscillator output frequency. A2A6A12A1CR1 presents capacitance whose value is determined by the amount of applied voltage. The VCO output frequency ranges from 33.001 to 34.0 MHz. The output of the VCO is applied to emitter follower A2A6A12A1Q1, which isolates LC oscillator A2A6A12A1U1 from the output circuitry loads. The output is then applied to inverters A2A6A12U1A-U2C, which provides the correct logic level input to pin 8 of decade divider A2A6A12U3. The 3.3001 to 3.4 MHz output signal from pin 2 of A2A6A12U3 is inverted by A2A6A12U2D and applied to bandpass filter A2A6A12L6-L10, A2A6A12C10-C12. The level of injection signal out is adjustable by means of variable resistor A2A6A12R16. The output from LC oscillator A2A6A12A1U1 is also applied to the divider network Subassembly A2A6A18.

3-73. The divider network Subassembly A2A6-A18 divides the 33.001 to 34.0 MHz input by the factor necessary to produce a 1 kHz output. The frequency output of VCO A2A6A12A1 is applied to the input of A2A6A18U1-15 via connector A2A6XA18P1-A1.

3-74. Prescaler A2A6A18U1 divides 33.001 to 23.0 MHz VCO output by 11 when a logic low (0 to +0.5 Vdc) from pin 7 of counter control logic A2A6A18U2 is applied to pins 9 and 10 of A2A6A18U1. Prescaler A2A6A18U1 continues to divide by eleven until divider A2A6A18U3 has counted down from a preset number to zero. At this time counter control logic A2A6A18U2 applies a logic high (+2.4 to +5.5 Vdc) to pins 9 and 10 of A2A6A18U1. Prescaler A2A6A18U1 now divides by a factor of ten until cascaded dividers A2A6A18U4-U7 reach the all zero state. The counting cycle is now complete and the dividers are reset in preparation for the next cycle. The purpose of cascaded dividers A2A6A18U4 through A2A6A18U7 is to form the required division to synthesize the indicated mixing frequency from the approximately 3.3989 MHz output of prescaler A2A6A18U1. BCD converters A2A6-A18U9 and A2A6A18U10 form the required codes to program dividers A2A6A18U4 through A2A6A18U7 to the correct divisors determined by the settings of the coding switches A2A6S1 and A2A6S2 on the chassis of A2A6, as read in on A2A6A18P1-3 through A2A6A18P1-6 and A2A6A29P1-12 through A2A6A18P1-15. The 100 Hz inputs on A2A6A18P1-8 through A2A6-A18P1-11 from Hz switch A2A11S1 determine the programming of preset divider A2A6A18U3. Resistors A2A6A18R22-A2A6A18R25, and A2-A6A18R18 — A2A6A18R21 are pull-up resistors for integrated circuit inputs A2A6A18U10-10, 11, 12, 13 and A2A6A18U9-10, 11, 12, 13. Counter control logic A2A6A18U2 totals the individual counts to dividers A2A6A18U4 through A2A6A18U7 and generates a reset pulse to begin the next count-cycle. The output of the divider network is applied to pin 3 of phase detector A2A6A12U1, which develops an output in proportion to the magnitude and direction of the phase difference between the divider network output and the 1 kHz reference input from Frequency Generator Subassembly A2A6A16. The phase detector output enables transistor A2A6-A12Q2 of the charge pump circuit through resistor A2A6A12R19 or transistor A2A6A12Q3 through resistor A2A6A12R4. The output of the charge pump is applied to loop filter A2A6A12C2, A2A6A12R7, A2A6A12R9, which filters the pulses providing the dc control voltage applied to the variable capacitance diode A2A6A12A1CR1. The dc control voltage will decrease or increase the bias on A2A6A12A1CR1, changing the capacitance of A2A6A12A1CR1 as required to extablish the proper output frequency from the VCO.

3-75. 100 kHz Synthesizer (Figure 5-12). The 100 kHz Synthesizer Subassembly A2A6A17 produces the injection frequency of 22.4 to 23.3 MHz (lo-band) or 32.4 to 33.3 MHz (hi-band) used in the mid-frequency mixer circuits of RF Translator Subassembly A2A6A8. A comparison of figure 5-12 with figure 5-11 shows that, except for component values, many circuits are identical to the corresponding circuits of the 10 kHz/1 kHz/ 100 Hz synthesizer.

3-76. The frequency divider network divides the VCO output frequency by a number in the range of 224 to 233 or 324 to 333 as determined by the setting of the front panel 100 kHz control and the state of the hi-lo band control line at pin 20 of A2A6A17P1. The divider network output is applied to phase detector A2A6A17U1. The phase detector compares the output signal with the 100 kHz reference signal from Frequency Generator Subassembly A2A6A16. Any error detected causes the VCO frequency to be corrected in the same manner described for the 1 kHz/100 Hz Synthesizer in paragraph 3-72.

3-77. Programmable divider network A2A6A17-U4-U8 functions in the same manner as the 10 kHz/1 kHz/200 Hz synthesizer divider network (see paragraph 3-73) with the following exceptions. The front panel 100 kHz control is coupled to coding switch A2A6S3. The division by A2A6-A17U8 is preset at either 2 or 3 in response to the state of the hi-lo band control input at A2A6-A17P1-7. Transistor A2A6A17Q3 converts the +20 Vdc/ground control input into logic low/logic high levels for application to data pin 5 of A2A6-A17U8. Thus, A2A6A17U8 is preset to divide-by-2 for a +20 Vdc control input (lo-band) and to divide-by-3 for a ground control input (hi-band).

3-78. The VCO output is applied to amplifier A2A6A17Q1. The setting of variable resistor A2A6A17R10 establishes the output signal level. The signal is applied from the collector of A2A6-A17Q1 to a bandpass filter consisting of A2A6-A17L4-L7, and A2A6A17C15-C18. Amplifier A2A6A17Q2 provides isolation and a low impedance output to a dual bandpass filter A2A6FL3 and then to the mid-frequency mixing circuits of Translator Assembly A2A6A8.

3-79. 10 MHz/1 MHz Synthesizer (Figure 5-13). The 10 MHz/1 MHz Synthesizer Subassemblies A2A6A13 and A2A6A14 provide one of the 17 injection frequencies in the range of 2.5 to 23.5 MHz to the high frequency mixer circuit of RF Translator Subassembly A2A6A8. A 20 to 50 MHz VCO output signal is applied through a programmable frequency divider network to establish one input to phase detector A2A6A13U1. Phase detector A2A6A13U1 then compares this signal with a 500 kHz reference signal supplied by Frequency Generator Subassembly A2A6A16, and generates a dc correction voltage (via loop filter A2A6A13U3, A2A6A13C3, A2A6A13R8) to lock the VCO in frequency.

3-80. The VCO output signal is applied to A2A6A13U4A and A2A6A13U4B via emitter follower A2A6A13Q1 which provide logic level conversion to divider A2A6A13U5. A2A6A13U5 provides divisions by 2, 4 and 8 at pins 5 and 6, 9, and 2 respectively.

3-81. The gating circuitry comprising NAND gates A2A6A13U6A through A2A6A13U6D and A2A6A13U4C, D selects the outputs from divider A2A6A13U5 and the appropriate corresponding filter network in 10 MHz/1 MHz Filter Subassembly A2A6A14 via Filter switch A2A6-A14Q1, A2A6A14Q4 or A2A6A14Q7. If pins 1 and 2 of A2A6A13U11 are at logic high and logic low levels, respectively, NAND gates A2A6-A13U4C, A2A6A13U4D will open and pass the output of A2A6A13U5-2 to the divider network via NOR gate A2A6A13U7A-U7C and enable 4 MHz filter switch A2A6A14Q1. In a similar manner, NAND gates A2A6A13U6A, A2A6-A13U6B enable the output of A2A6A13U5-9 when output pin 1 of A2A6A13U11 is at a logic low. NAND gate A2A6A13U6C-U6D selects the outputs from A2A6A13U5-5. Diodes A2A6-A13CR4 and CR6 monitor the lines from pins 2 and 1 of A2A6A13U11 and cut off A2A6-A13Q2 if either is low. This action closes the divide by 2 gates. When both lines are at logic high, A2A6A13Q2 turns on opening gates A2A6-A13U6C and A2A6A13U6D and enabling switch A2A6A14Q7.

3-82. Decade dividers A2A6A13U9 and A2A6-A13U10 are preset via the data inputs out of A2A6A13U11 pins 3, 4, 5, 6, 7 and 9. A five-wire tuning code consisting of open circuits and grounds from Code Generator Assembly A2A7 is applied through filter assembly A2A6A13A1 to input pins 10 through 14 of read-only memory A2A6A13U11. Here it is converted to BCD format. The code is then applied to data pins 5, 11, and 14 of A2A6A13U10 and pins 2, 11, 14 of A2A6A13U9. Counter Control Logic A2A6A13-U8-U10 monitors the count in dividers A2A6-A13U9-U10, accepts the output of NOR gates A2A6A13U7A-U7C at A2A6A13U8-1, and passes the divided 500 kHz VCO — derived output to phase detector input A2A6A13U1-3. At any time, NOR gates A2A6A13U7A-C will select only one of the divided frequencies out of NAND gates A2A6A13U4C-D and A2A6A13U6A-E. NAND gates A2A6A13U4C-D and A2A6A13U6A-D are enabled, along with MHz Filter Switches A2A6-A14Q1, A2A6A14Q4 and A2A6A14Q7 as a function of the BCD outputs of A2A6A13U11-1, 1 and the outputs of NAND gate A2A6A13Q2. Inductors A2A6A15L6, A2A6A14L12 and A2-A6A14L18 function as rf suppressor chokes to the Vcc power supply for the filter amplifiers.

3-83. The selected injection signal to Filter Subassembly A2A6A14 is supplied to a conventional untuned RF amplifier. Variable resistor A2A6A14R7, A2A6A14R10 or A2A6A14R27 in the emitter circuit of the selected RF amplifier adjusts the output level applied to the bandpass filter. This filter rejects all frequencies except the desired injection signal. Buffer A2A6A14Q3 provides a low impedance injection signal source for RF Translator Subassembly A2A6A8.

3-84. STANDARD FREQUENCY GENERATION AND DISTRIBUTION (See figure 5-9). Accurate reference frequencies for use in Radio Receiver R-1051G/URR are provided by Frequency Standard Assembly A2A5. The frequencies are produced either from a 5 MHz external input provided by a frequency standard at the installation site, or from an internal oven-controlled 5 MHz oscillator circuit. The internal 5 MHz oscillator circuit is comprised of crystal-controlled oscillator A2A5A1Q1 and associated circuitry. Precise adjustment of the oscillator output frequency is provided by A2A5A1C2 and A2A5-A1C3. The 5 MHz reference frequency is divided and multiplied in Divider/Amplifier Subassembly A2A5A2 to produce the highly stable output frequencies used by other assemblies in the receiver. Of the four output frequencies of Frequency Standard Assembly A2A5, only the 500 kHz and 10 MHz outputs are used in R-1051G/URR.

3-85. The 5 MHz Reference Control Subassembly A2A5A4 contains logic switching and gating circuitry which automatically energizes the internal 5 MHz oscillator circuit. When the amplitude of the external 5 MHz reference input falls below a predetermined level the 5 MHz oscillator gates its output to the Divider/Amplifier Subassembly.

3-86. Reference Source Selection. A three position 5 MHz OSC SOURCE switch A2A5A2S1 is used to select one of two modes of the external 5 MHz source, or the internal 5 MHz source. When the 5 MHz OSC SOURCE switch is in EXT NORM position, the external standard provides the 5 MHz reference signal. At this time the Oven Subassembly A2A5A3 is off. When the 5 MHz OSC SOURCE switch is in EXT (OVEN STBY) position the external source supplies the reference signal. The oven heater is enabled and maintains a constant oven temperature of 87.5 ±2.5 degrees C. When the 5 MHz OSC SOURCE switch is in INT/COMP position, the crystal oscillator in A2A5A1 provides the reference signal, and the oven maintains the 87.5 degree C temperature.

3-87. Frequency Divider. Divider/Amplifier subassembly A2A5A2 contains both divider circuits and multiplier circuits. The 5 MHz input at A2A5A2E9 is amplified by both A2A5A2Q1 and A2A5A2Q6. The output from A2A5A2Q1 is coupled to divide-by-five oscillator A2A5A2Q2. Oscillator A2A5A2Q2 is timed to 1 MHz. Its output is coupled to A2A5A2Q4, the divide-by two oscillator. The output of A2A5A2Q4 is amplified in 500 kHz amplifier A2A5A2Q5. The primary of transformer A2A5A2T2 is part of a parallel resonant circuit. Capacitor A2A5A2C22 is a trimmer adjustment used to tune the resonant circuit for the proper 500 kHz output at A2A5-P1-A3.

3-88. Frequency Multiplier. The 5 MHz output of A2A5A2Q6 is coupled to amplifier A2A5A2Q7. Amplifier A2A5A2Q7 is tuned to the second harmonic of the input, 5 MHz, by capacitor A2A5-A2C31. The 10 MHz input to amplifier A2A5-A2Q8 is further amplified and appears at the primary of transformer A2A5A2T3, which is part of a parallel resonant circuit tuned by trimmer A2A5A2C33. The output from A2A5A2Q6 is also applied to 5 MHz amplifier A2A5A2Q9. Capacitor A2A5A2C38 is adjusted to provide the proper 5 MHz output at A2A5P1-A6.

3-89. Comparator circuit. Setting oscillator source switch A2A5A2S1 in the INT/COMP position grounds one input to each of nand gates A2A5A4U1A and A2A5A4U2D. In addition, +20 Vdc is applied to amplifier A2A5A2Q10 and A2A5A2Q11. This action results in a visual comparison of the internally generated 5 MHz and the external 5 MHz input. Nand gates A2A5A2U1A and A2A5A2U2D cause the internal 5 MHz to be present at nor gate A2A5A2U2C and the external input to be blocked. Both the internal and external signals are present at the input to phase detector A2A5A4U1D. The output of A2A5A4U1D is a series of pulses with a repetition rate equal to the frequency difference between reference oscillators. Amplifier A2A5A4Q10 and Lamp Driver A2A5A4Q11 raise the power level of the pulses to drive the lamp. The flash rate of the lamp equals the difference in frequency between the internal and external reference oscillators.

3-90. POWER DISTRIBUTION. (Figure 5-14). All primary power for the receiver is from a nominal 115 Vac power source connected to receptacle A2A1J3, mounted on the rear of the case. Primary ac power is then applied through safety interlock switch A1S1, mode selector switch A2S2, and fuses A2F1 and A2F2 to the primary of power transformer A2T1. Indicator lamps which are an integral part of fuse holders A2XF1 and A2XF2 will illuminate if an associated fuse is open. The primary winding of power transformer A2T1 has five taps to accommodate various input line voltages.

3-91. Four secondary windings are provided on transformer A2T1, from which the internal operating voltages for the receiver are derived. Terminals 13 and 14 furnish 6.3 Vac for vacuum tube filaments in RF Amplifier Assembly A2A4. Terminal pairs 7 and 8, 9 and 10, and 11 and 12 of A2T1 furnish ac voltages to bridge rectifier circuits in Power Supply Assembly A2A8, from which +110 Vdc, +28 Vdc, and -30 Vdc, respectively, are obtained.

3-92. +28 Vdc Distribution (Figure 5-15). The output of the +28 Vdc bridge rectifier A2A8CR5 through A2A8CR8 is applied to a choke input filter consisting of choke A2L2, capacitor A2C2, and bleeder resistor A2R8. The filtered +28 Vdc is applied to Frequency Standard Assembly A2A5 through noise filter A2FL2, and to front panel lamps A2DS3 and A2DS4, via A2A8R1 and A2A8R2, to illuminate the frequency display windows above the MHz and kHz controls. When mode selector switch A2S2 is in any position other than OFF or STD BY, the +28 Vdc will also be applied through contacts of A2S2 section C to RF Amplifier Assembly A2A4, Antenna Overload Assembly A2A9, Translator/Synthesizer Assembly A2A6, and tune relay A2K1. While tune relay A2K1 is deenergized, the +28 Vdc will also be applied to hi-/lo-filter relay A2K2, to the +20 Vdc regulating circuit in A2A8, and to section D of mode selector switch A2S2. Switch wafer A2-S2-D selectively applies the +28 Vdc to either or both IF/Audio Amplifiers A2A2 and A2A3, depending on the mode of receiver operation selected. Tune relay A2K1 can be energized by a tune relay ground from the RF Amplifier Assembly A2A4 or Code Generator Assembly A2A7.

3-93. +20 Vdc and +5 Vdc Distribution (Figure 5-16). The +28 Vdc voltage is applied to the collector of series regulator A2Q1 and to the power supply circuitry that controls the series regulator. The regulated +20 Vdc which is the output from A2Q1 is applied through resistors A2A8R6 and A2A8R16 to RF GAIN control A2R3. The regulated +20 Vdc is also applied through noise filter A2FL1 to Frequency Standard Assembly A2A5, and directly to Translator/Synthesizer Assembly A2A6. The +20 Vdc is also applied to the following sets of contacts on mode selector switch A2S2: section A2S2-A, rear contacts 4 and 6; section A2S2-B rear contacts 3 and 6; section A2S2-C front contacts 2 and 11, and rear contacts 3 and 10; section A2S2-D rear contact 12 and to contact A2K2-B3 of the hi/lo filter relay.

3-94. Mode selector switch A2S2 selectively applies the +20 Vdc to Mode Selector Assembly A2A1, and to IF/Audio Amplifier Assemblies A2A2 and A2A3, according to the mode of receiver operation. In the CW mode, +20 Vdc is also applied to BFO control A2R6, through section C rear contact 4 of mode selector switch A2S2. As long as hi/lo filter relay A2K2 remains deenergized, the +20 Vdc from contact B2 will be distributed to Translator/Synthesizer Assembly A2A6 and to subassemblies A2A6A8, A2A6A17. The +20 Vdc distributed to Power Supply A2A6A15 is converted to +5 Vdc for use in the A2A6 circuitry. The +5 Vdc is further distributed to energize the +4 Vdc Power Supply Subassembly A2A11A1.

3-95. +110 Vdc Distribution (Figure 5-17). The output of the +110 Vdc bridge rectifier A2A8CR1 through A2A8CR4 is applied to a choke input filter consisting of choke A2L1, capacitor A2C1, and resistor A2R20. The filtered +110 Vdc is used to supply plate and screen voltage to rf amplifiers A2A4V1 and A2A4V2 in RF Amplifier Assembly A2A4, through section B rear contacts 9 and 11 of mode selector switch A2S2 and normally closed contacts A2 and A3 of tune relay A2K1. The +110 Vdc is also applied to one side of the Hz vernier indicator lamp A2DS5 when Hz switch A2A11S1 is in the vernier (V) position, and mode selector switch A2S2 is in any mode other than STD BY or OFF.

3-96. -30 Vdc Distribution (Figure 5-18). The output of the -30 Vdc bridge rectifier A2A8CR9 through A2A8CR12 is applied to a filter network consisting of resistor A2A8R3 and capacitor A2A8C3. The output from the network is applied through resistor A2A8R4 to the series connected 15 volt zener diodes A2A8CR13 and A2A8CR14, and capacitor A2A8C4, to provide a regulated -30 Vdc source.

3-97. The -30 Vdc is used as the negative supply for the Hz vernier indicator A2DS5 and Meter Amplifier A2A12, and is selectively applied to either or both IF/Audio Amplifier Assemblies A2A2 and A2A3 through front panel mode selector switch A2S2, depencing on the mode of operation. The -30 Vdc is used in the direct-coupled rf agc amplifiers A2A2A1Q1 and A2A3-A1Q1, and is regulated to -20 Vdc and applied to meter amplifier A2A12U1A.

3-98. CONTROL. The types of controls that are used in Radio Receiver R-1051G/URR overall receiver tuning and 100 Hz synthesizer tuning are described in the following paragraphs.

3-99. Overall Receiver Tuning Control (See figure 5-19). The R-1051G/URR tuning control is comprised of Code Generator Assembly A2A7, switch A2A4S1, motor A2A4B1, relay A2A4K1, and hi/lo filter relay A2K2. The tuning circuit switches form two parallel circuits, each employing a five-wire coding scheme. One of these circuits is an open-seeking circuit; the other supplies a five-wire code to code converter circuit A2A6A13U11. A third circuit consisting of one code line controls the hi/lo band relay A2K2. The tuning circuits are described in detail in the following paragraphs.

3-100. The code generator switches are positioned by the 10 MHz and 1 MHz controls on the front panel (see figure 5-46). The five-wire tuning code resulting from the switch positions appears at A2A7P1-1 through 5, and will be one of 28 possible combinations of opens and grounds (see table 3-2), representing one of the 28 positions of turret switch A2A4S1. When the 1 or 10 MHz control position is changed a ground path through the common contact of section A of switch A2A4-S1 to contact X2 of relay A2A4K1 is established, and turret motor relay A2A4K1 is energized. When relay A2A4K1 energizes, turret motor A2A4B1 is energized by +28 Vdc through contacts A1 and A2 of relay A2A4K1.

3-101. When motor A2A4B1 is energized it rotates the rf tuning turret and turret motor switch A2A4S1 until the complement of the code from A2A7 is reflected by switch A2A4S1. Whenever the codes are complementary, the ground path to turret motor relay A2A4K1 is broken, A2A4K1 is deenergized and A2A4B1 stops rotation. Simultaneously the five-wire code appearing at A2A7P1-21 through 25 (see table 3-2) is transmitted to 10 MHz/1 MHz Synthesizer Subassembly A2A6-A13 where it is converted to an inverse binary coded decimal (BCD) for use by the synthesizer.

3-102. Code Generator Assembly A2A7 also generates the hi/lo band control line codes which appear at A2A7P11-6. When a ground is present at A2A7P1-6, hi/lo filter relay A2K2 is energized and ground is applied to the hi/lo control line. When relay A2K2 is deenergized, +20 Vdc is applied to the control line.

3-103. Whenever turret motor relay A2A4K1 is energized, a ground connection is provided to tune relay A2K1. A2K1 is energized, thereby removing +28 Vdc from the +20 Vdc regulator A2Q1 to disable receiver functions during the tuning cycle (see paragraph 3-104). Additionally, tune relay A2K1 is energized by a ground connection from the code generator whenever the MHz controls are set at 00 or 01.

3-104. 100 Hz Synthesizer Tuning Control (Figure 5-33, Sheet 3). 100 Hz Control and Vernier Assembly A2A11 provides a variable +2.5 to +3.7 volts dc for vernier tuning of the 1 kHz6100 Hz Synthesizer Subassembly A2A6A12, +4 volt nonvernier control voltage and +4 Vdc for generation of a four bit ("0" = 0 volt, "1" = +4 volts) BCD number for digital tuning of the 1 kHz/100 Hz synthesizer.

3-105. The +3 Vdc bias for the front-panel Hz vernier control A2A11R1 is obtained from the +5 Vdc through series resistor A2A11A1R4 and is regulated by zener diode A2A11A1CR2. Potentiometer A2A11A1R2 affords adjustment of the voltage gradient of the Hz vernier control. The variable dc (+2.5 to +3.7 volts) output from the wiper of the Hz vernier control A2A1R1 is

Table 3-2. Tuning Code Chart

MHz CONTROL SETTINGS	TUNING CODE[1]										
	CODE GENERATOR PLUG A2A7P1 TERMINALS[2]										
	-1	-2	-3	-4	-5	-6	-21	-22	-23	-24	-25
02	G	O	G	O	O	O	G	G	G	O	G
03	O	G	O	O	O	O	G	O	G	G	G
04	G	O	O	O	G	O	G	G	O	G	G
05	O	O	O	G	G	O	O	G	G	O	G
06	O	O	G	G	O	G	O	G	O	O	O
07	O	G	G	O	G	O	G	O	O	G	G
08	G	G	O	G	G	O	G	G	O	O	G
09	G	O	G	G	O	G	G	O	G	O	O
10	O	G	G	O	O	G	G	G	O	G	O
11	G	G	O	O	O	O	O	O	G	G	G
12	G	O	O	O	O	O	O	O	O	G	G
13	O	O	O	O	G	G	G	O	G	G	G
14	O	O	O	G	O	O	O	G	G	G	O
15	O	O	G	O	G	O	O	O	G	G	O
16	O	G	O	G	G	O	G	G	G	G	O
17	G	O	G	G	G	G	G	O	O	G	G
18	O	G	G	G	G	G	G	G	O	O	G
19	G	G	G	G	O	G	G	G	G	O	O
20	G	G	G	O	O	G	O	G	G	G	G
21	G	G	O	O	G	G	O	O	G	G	G
22	G	O	O	G	O	O	O	O	O	O	G
23	O	O	G	O	O	O	G	G	G	G	O
24	O	G	O	O	G	G	O	G	G	G	O
25	G	O	O	G	G	G	O	O	G	G	O
26	O	O	G	G	G	G	G	G	G	G	O
27	O	G	G	G	O	O	O	O	O	G	G
28	G	G	G	O	G	O	O	O	G	G	G
29	G	G	O	G	O	O	O	G	G	G	G

[1] G = Ground; O = Open.

[2] Terminals A2A7P1-1 through -5 connect to RF Amplifier Assembly A2A4; terminal A2A7P1-6 connects to hi/lo filter relay A2K2; terminals A2A7P1-21 through -25 connect to 10 MHz/1 MHz Synthesizer Subassembly A2A6A13.

connected to Hz switch A2A11S1A front, contact 10. When the Hz switch is placed into the vernier (V) position, the variable dc (+2.5 to 3.7 volts) is applied to Frequency Generator A2A6A9 from A2A11S1A front, A2XA6P1-14. Also, when the Hz switch is in the vernier position, the frequency generator gating circuit does not receive the +4 volt non-vernier control voltage from A2A11S1A rear, contact 5.

3-106. When the Hz switch is placed to any position other than V, +4 Vdc non-vernier control voltage is applied to the gating circuit of Frequency Generator A2A6A16 from A2A11S1A rear, contact 5 through A2XA6P1-19. The +4 Vdc for the BCD generation and non-vernier control is obtained by applying +5 Vdc from Power Supply Subassembly A2A6A7 in Translator/Synthesizer Assembly A2A6 to resistor A2R23 and zener diode A2A11A1CR1 (see Figure 5-32).

3-107. When Hz switch A2A11S1 is in the V position, +110 Vdc and -30 Vdc from the power supply A2A8 are applied to a sawtooth oscillator network consisting of charging resistor A2A11A1-R7, capacitor A2A11A1C4, discharge current-limiting resistor A2A11A1R6, and neon lamp A2DS5 on the front panel. The front panel indicator lamp A2DS5 will flash when the positive charge on A2A11A1C4 and the -30 Vdc exceed the striking potential of A2DS5. Capacitor A2-A11A1C4 will then discharge through the -30 Vdc supply and indicator A2DS5, until the lamp extinguishes.

3-108. TUNING MECHANISM. Tuning of the R-1051G/URR is accomplished by setting the front panel MHz, kHz, and Hz frequency controls to indicate the desired received signal frequency, which is displayed in digital form in the window above the controls. Positioning the front panel controls tunes the equipment circuits by electrical (see paragraph 3-98) and mechanical means.

3-109. The mechanical tuning mechanisms consist of chain drives between the individual front panel kHz controls and the shaft of the 100 kHz turret in RF Amplifier Assembly A2A4, the shaft of the 10 kHz turret drive gear in A2A4, and the shafts of the coding switches in Translator/Synthesizer Assembly A2A6. See figure 5-37 for the switch coding positions. The chain drive mechanisms and the shaft couplers of the tuning system are adjusted to obtain precise tracking for all kHz tuning control positions.

3-110. CIRCUIT LEVEL DESCRIPTIONS.

3-111. GENERAL. The following paragraphs refer to the maintenance schematic diagrams of individual assemblies and subassemblies of the equipment, and discuss the circuits contained in each assembly. The discussions are in reference designation order. Discussion is brief for those circuits that are conventional, and whose theory is covered in NAVSHIPS 0967-000-0120. Full discussion is provided for unconventional circuits, or for peculiar applications of any conventional circuits. Manufacturers simplified schematic diagrams or functional block diagrams of integrated circuits used in R-1051G/URR are provided in figures 3-3 through 3-20. For full information on conventional circuits, refer to the appropriate sections in NAVSHIPS 0967-000-0120 for the specific type of circuit involved.

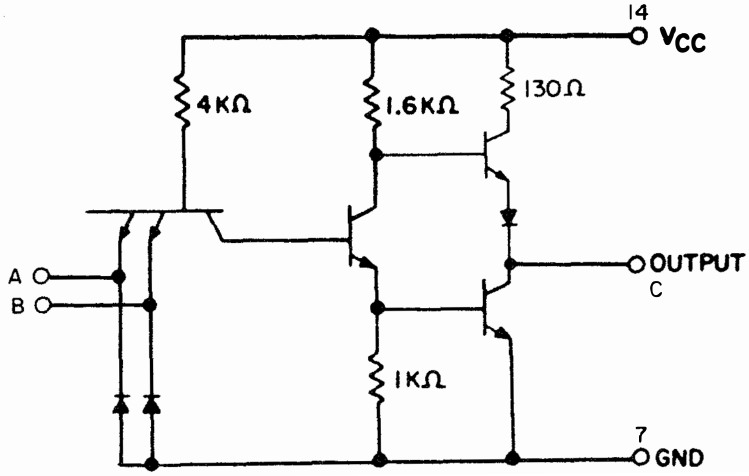
3-112. CASE A1 (Figure 5-32). The Case A1 houses the slide-out Main Frame A2, Filter Box Assembly A1A1, interlock switch A1S1, and the antenna and frequency standard external connectors. Discussion of the circuits of the case is included in that of the main frame (refer to paragraph 3-114).

3-113. FILTER BOX ASSEMBLY A1A1 (Figure 5-32). Filter Box Assembly A2A1, mounted at the rear of the Case A1, houses capacitors used to filter incoming and outgoing signals; three jacks are used to connect incoming ac power and the USB and LSB audio outputs to remote equipment.

3-114. MAIN FRAME A2 (Figure 5-32). The Main Frame A2 includes the receiver front panel and the chassis on which the plug-in electronic assemblies are mounted, as well as miscellaneous electronic components. Figure 5-32 shows the wiring, control, and hard wired assemblies of the main frame. The hard wired assemblies for which schematic information is shown in figure 5-32 include Power Supply Assembly A2A8, Antenna Overload Assembly A2A1, 20 and 30 MHz Filter Assembly A2A10, 100 Hz Control and Vernier Assembly A2A11 (which includes 4 Vdc Power Supply Subassembly A2A11A1), Meter Driver Assembly A2A12 and Low Pass Filter A2FL3.

3-115. The main frame schematic diagram also shows the Case A1, including electrical schematics for Filter Box Assembly A1A1, the interlock switch A1S1, and interface jacks and connectors which are mounted on the rear of the case.

(Text continued on page 3-40)



CKT	A	B	C
1	1	2	3
2	4	5	6
3	9	10	8
4	12	13	11

Figure 3-3. Integrated Circuit M38510/00104 (5400), Simplified Schematic Diagram

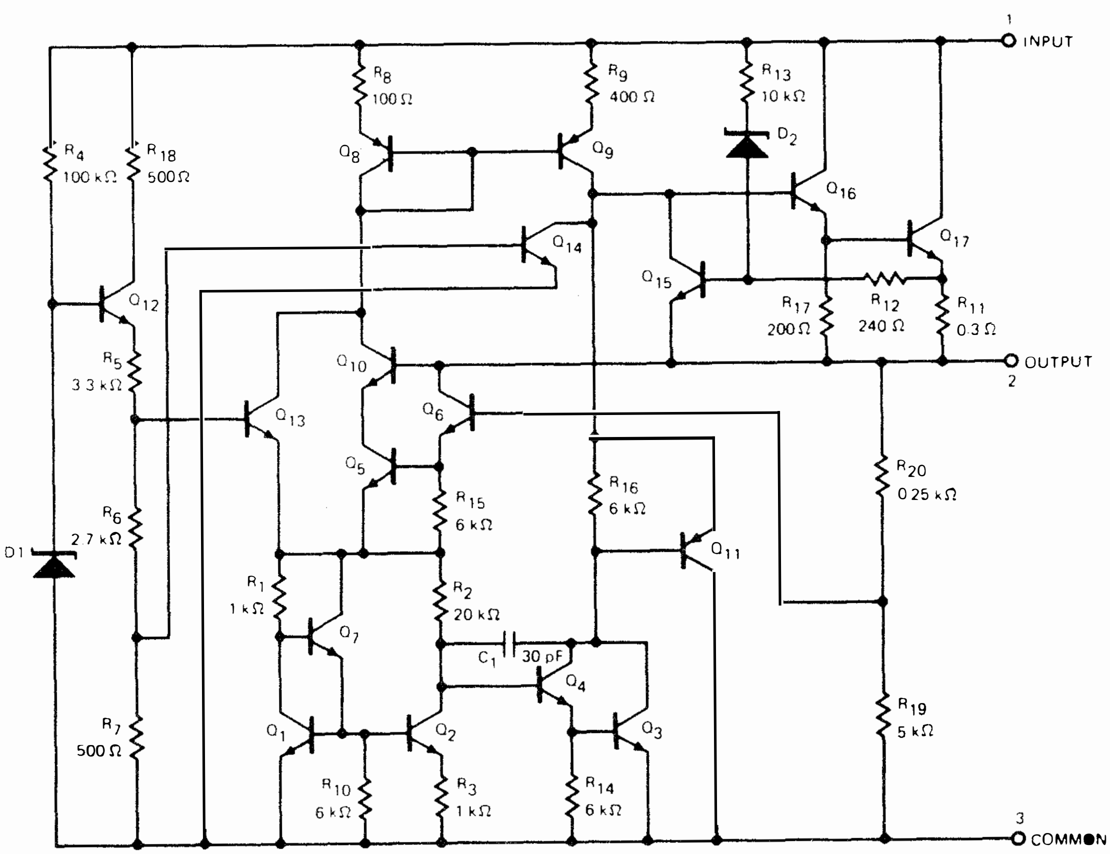
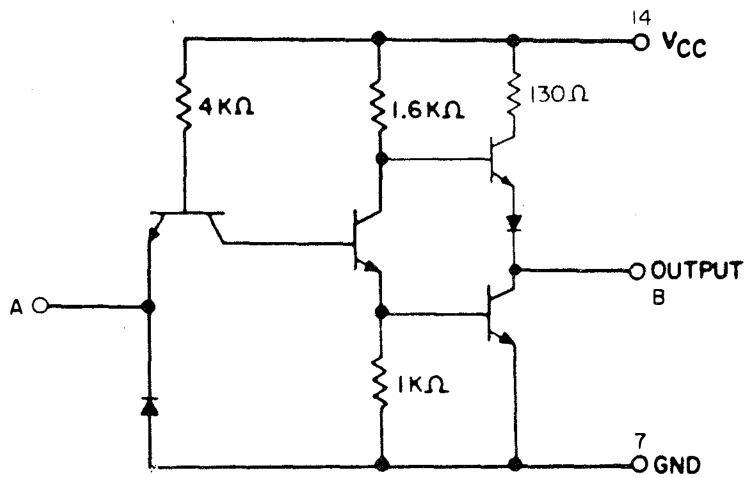
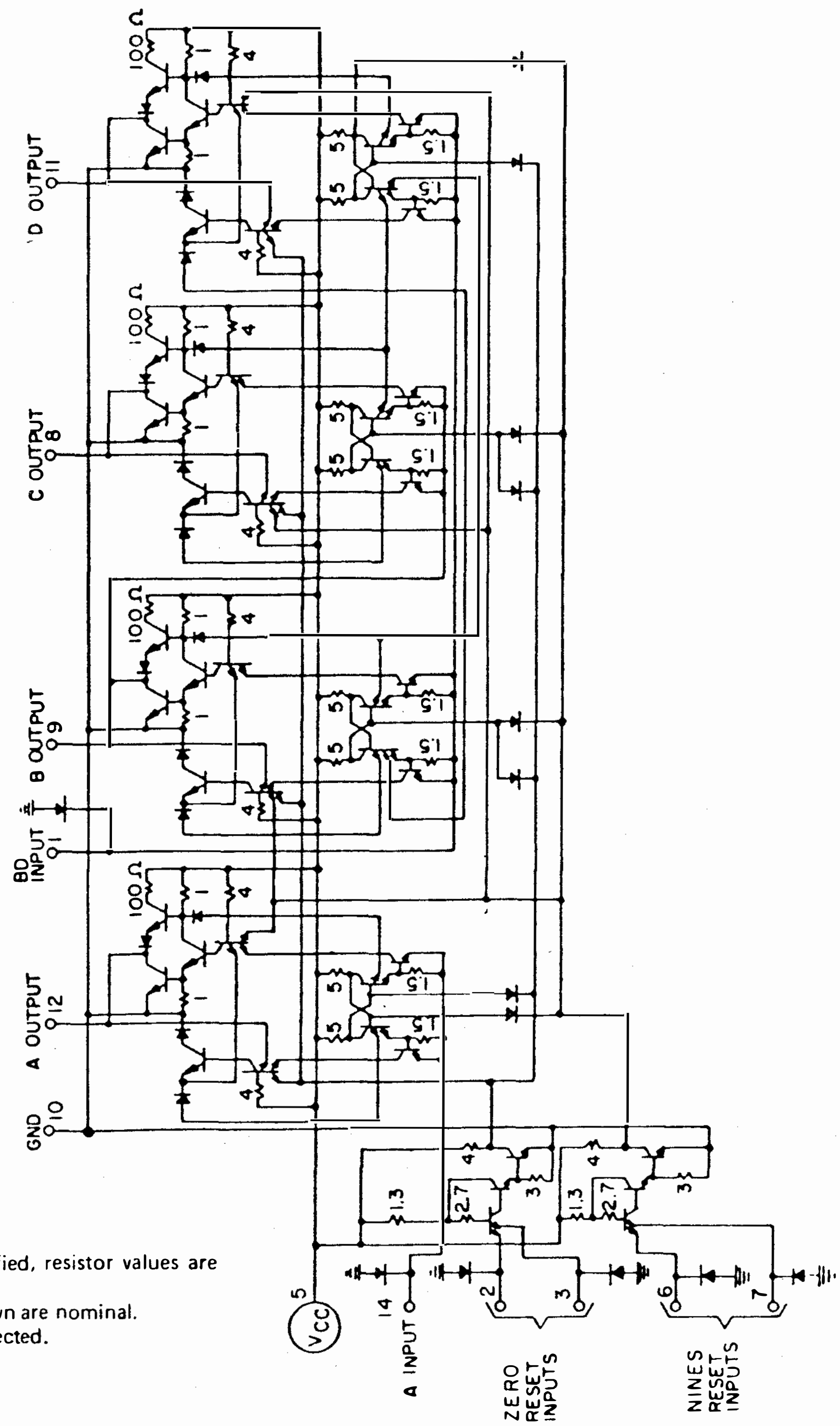


Figure 3-4. Integrated Circuits 78M05HMQB (48P226600-01) and 78M20HMQB (48P226600-02), Simplified Schematic Diagram



CKT	A	B
1	1	2
2	3	4
3	5	6
4	9	8
5	11	10
6	13	12

Figure 3-5. Integrated Circuit M38510/00105, (5404)
Simplified Schematic Diagram



NOTES:

1. Unless otherwise specified, resistor values are in kilohms.
2. Component values shown are nominal.
3. Pins 4 and 13 not connected.

Figure 3-6. Integrated Circuit M38510/01307 (5490), Simplified Schematic Diagram

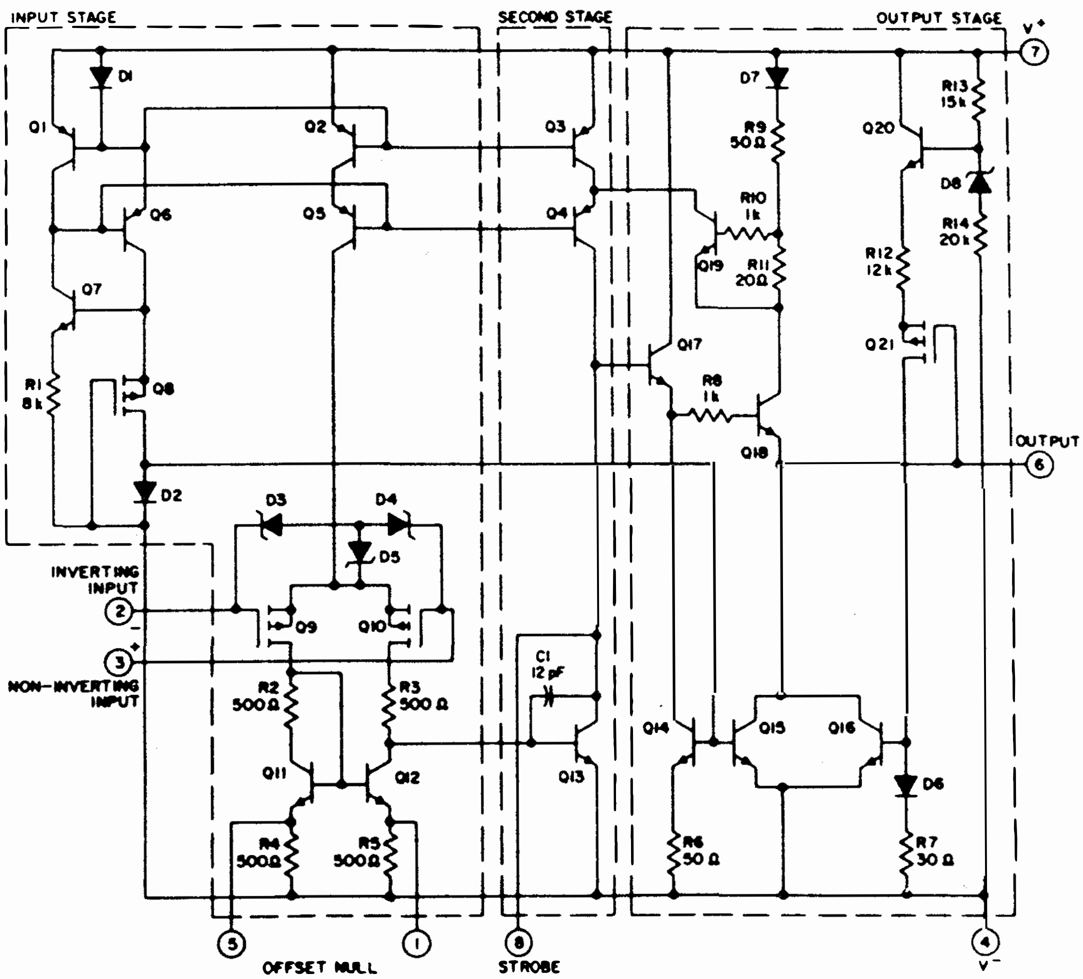


Figure 3-7. Integrated Circuit CA3140S/3 (98738/48P226682-01) Alt. (50097/C31312-002), Simplified Schematic Diagram

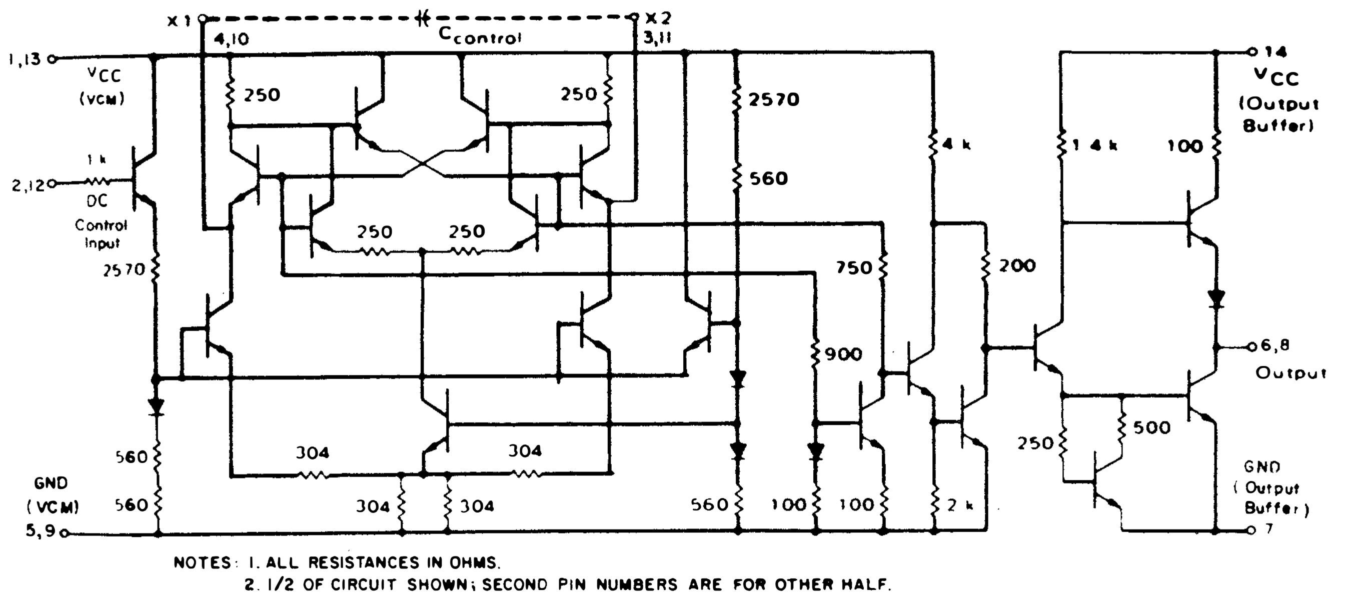


Figure 3-8. Integrated Circuit MC4324DCBS (98738/48P226457-01) Alt. MC4324BCBJS (50097/C31351-001), Simplified Schematic Diagram

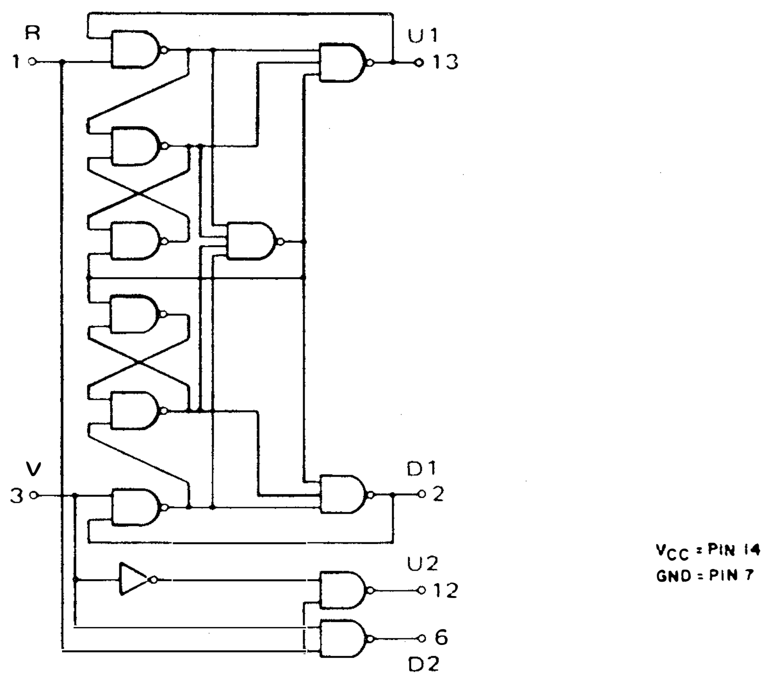
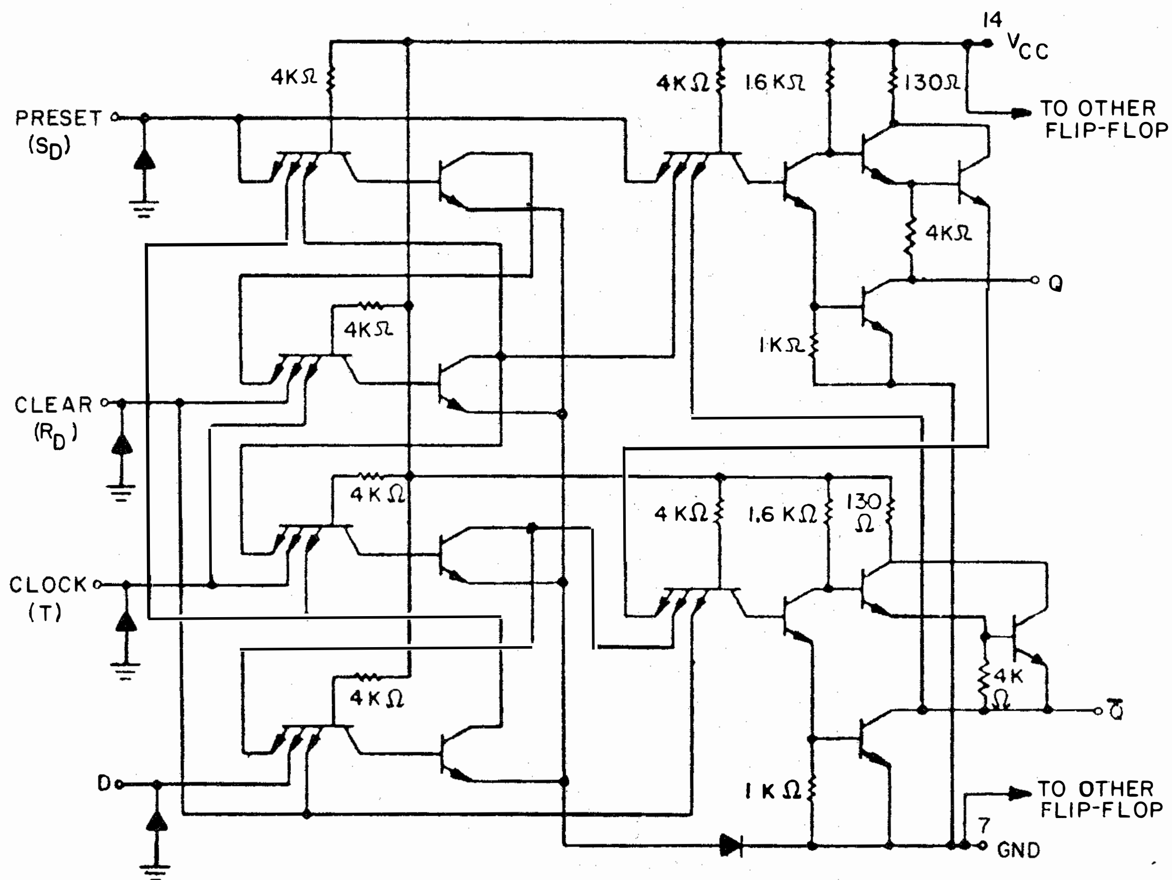
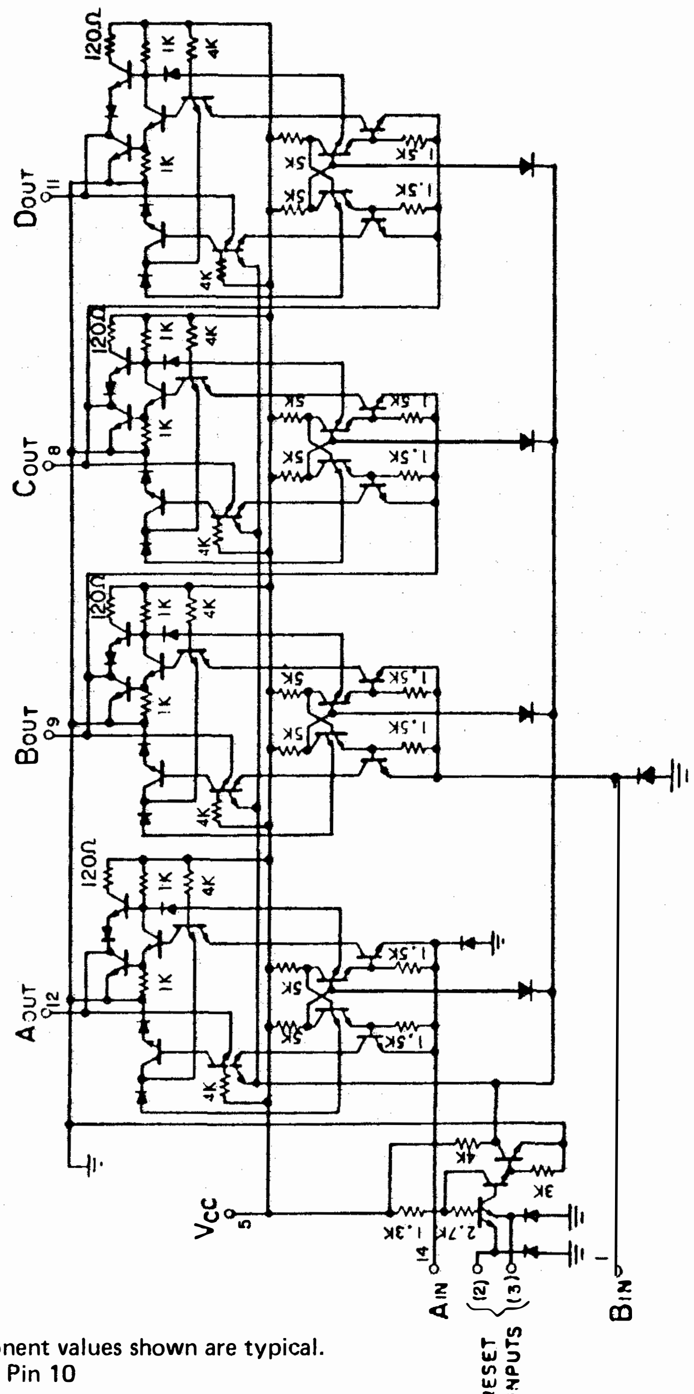


Figure 3-9. Integrated Circuit, MC4344DCBS (98738/48P226446-01) Alt. MC 4344BCBJS (50097/C31351-001), Logic Diagram



CKT	D	T	R_D	S_D	Q	$\bar{Q}$
1	2	3	1	4	5	6
2	12	11	13	10	9	8

Figure 3-10. Integrated Circuit M38510/00205 (5474),
Simplified Schematic Diagram



Component values shown are typical.
GND = Pin 10

Figure 3-11. Integrated Circuit M38510/01302 (5493), Simplified Schematic Diagram

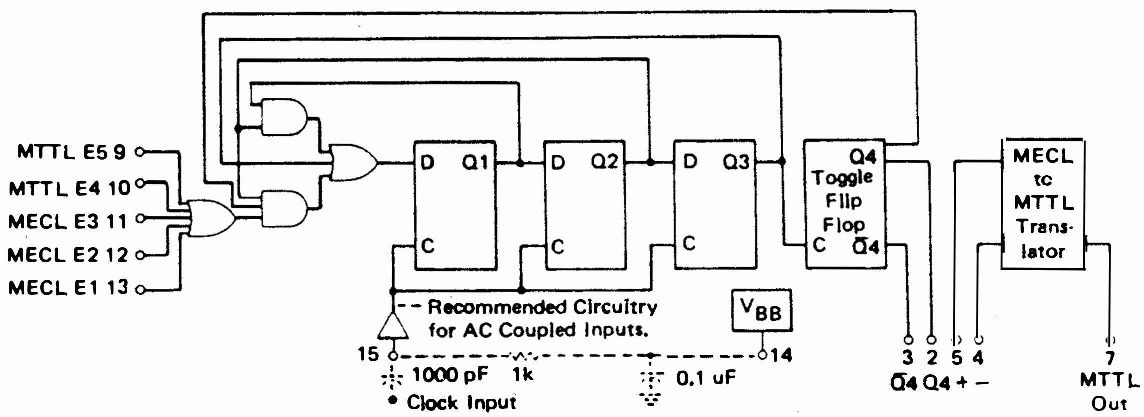


Figure 3-12. Integrated Circuit MD12513(98738/48P226458-01)
Alt. MC12513(50097/C31358-001), Logic Diagram

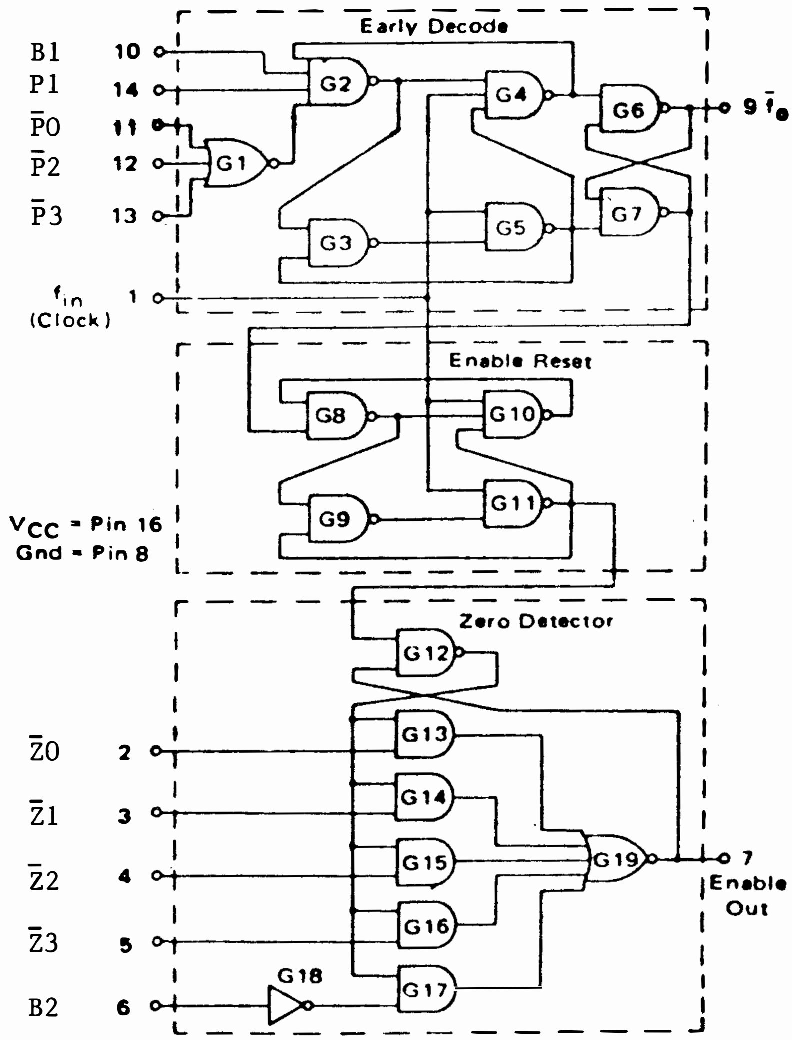


Figure 3-13. Integrated Circuit MC12514DEBS (98738/48P226459-01)
Alt. MC12514BEBJS (50097/C31354-001), Logic Diagram

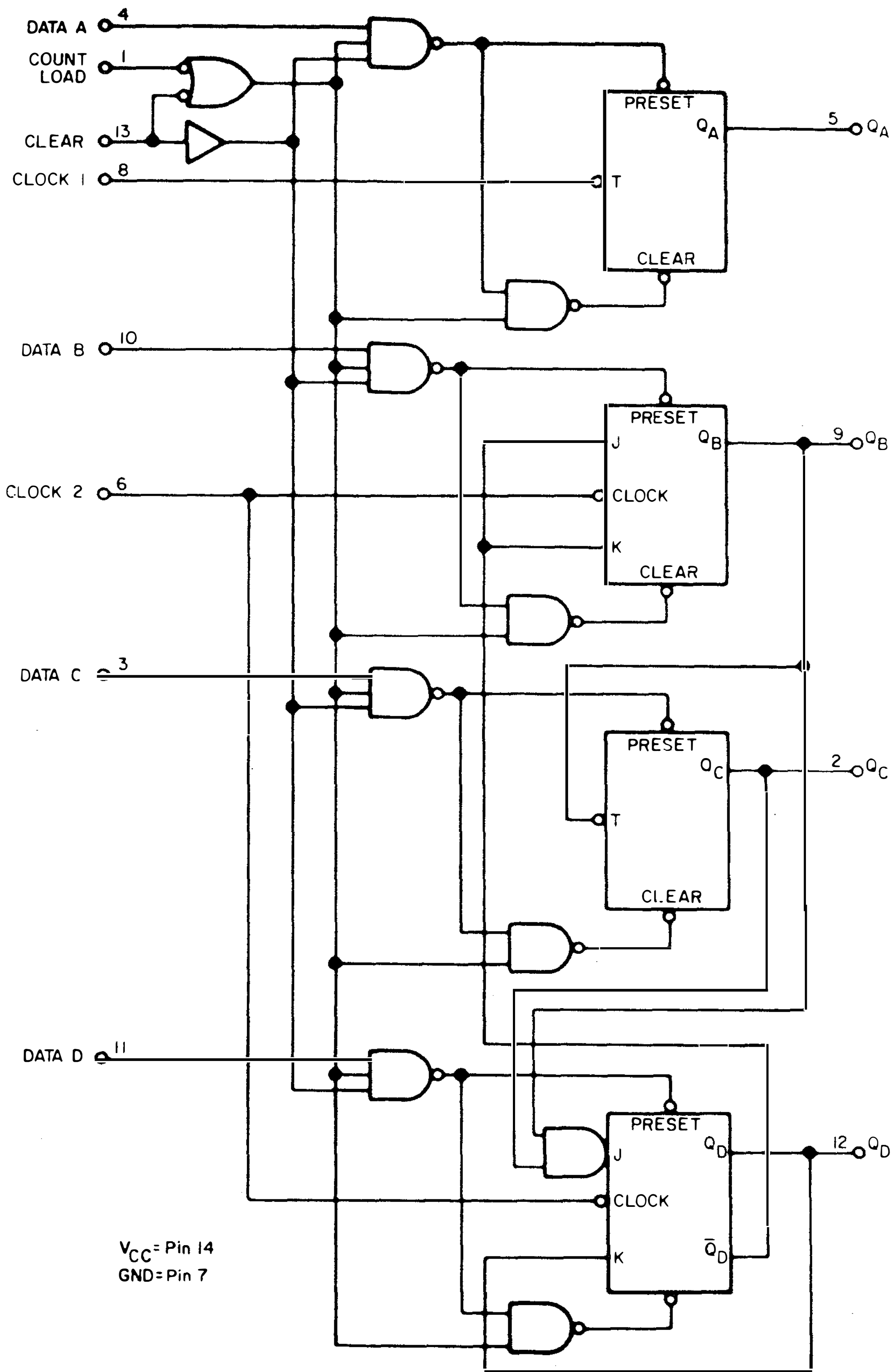
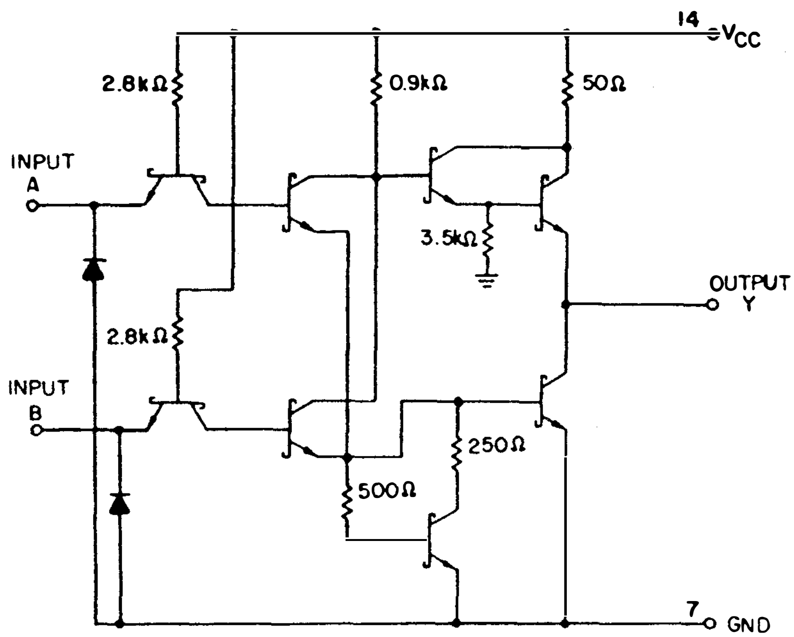


Figure 3-14. Integrated Circuit SNC541963 (98738/48P226449-01) Alt. SNJ54196J (50097/C31311-001), Functional Block Diagram



CKT	A	B	Y
1	2	3	1
2	5	6	4
3	8	9	10
4	11	12	13

Figure 3-15. Integrated Circuit SNC54S02J (98738/48P226451-01) Alt. M38510/0731BCBJS, Simplified Schematic Diagram

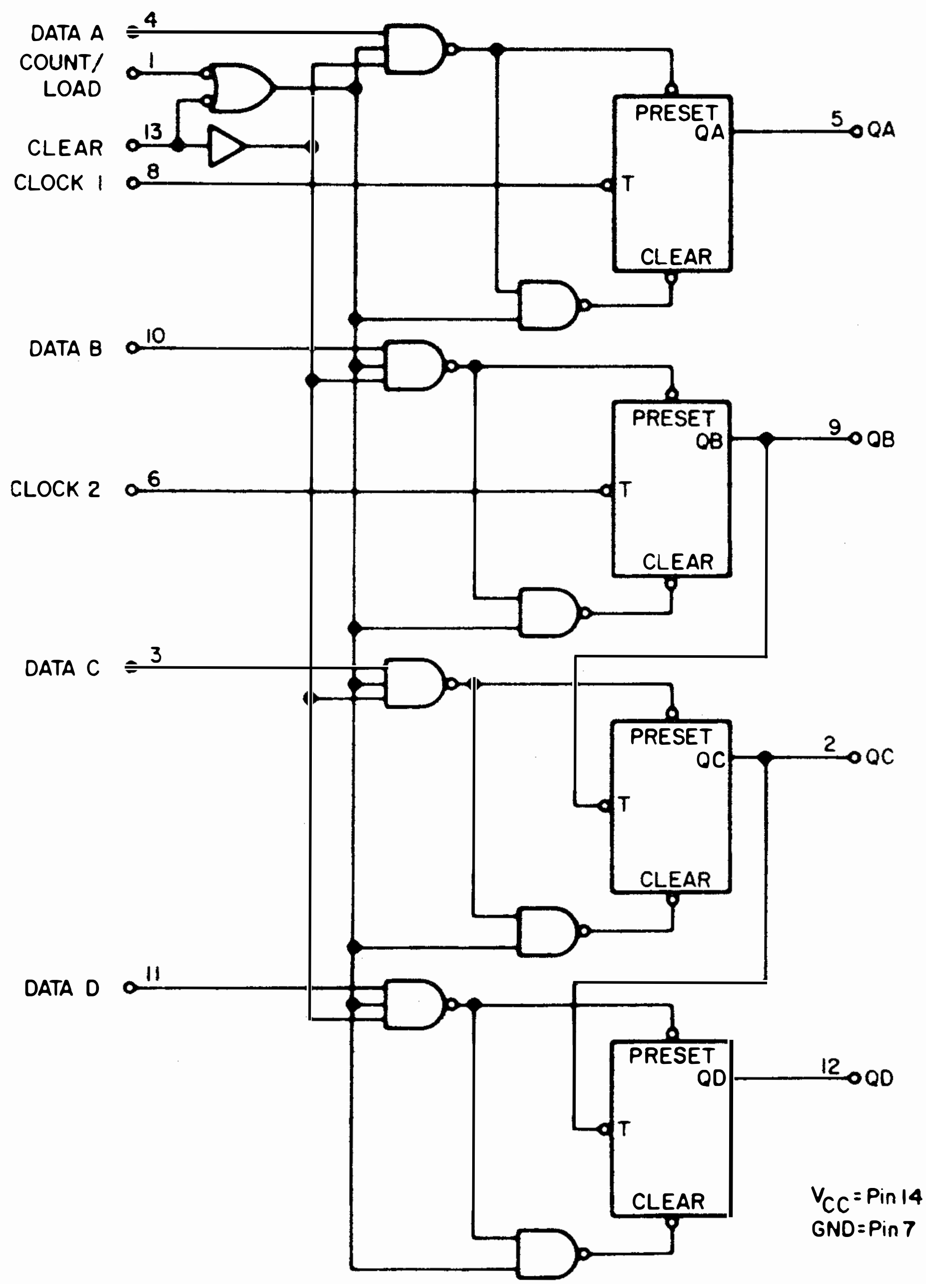
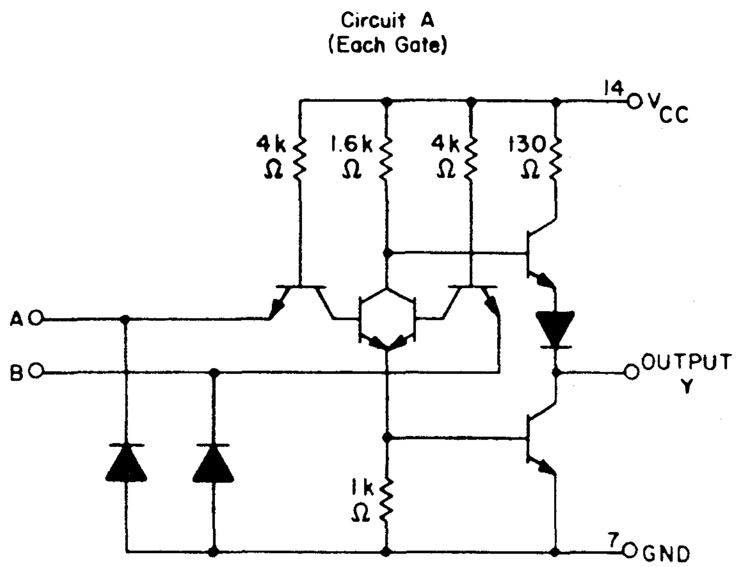
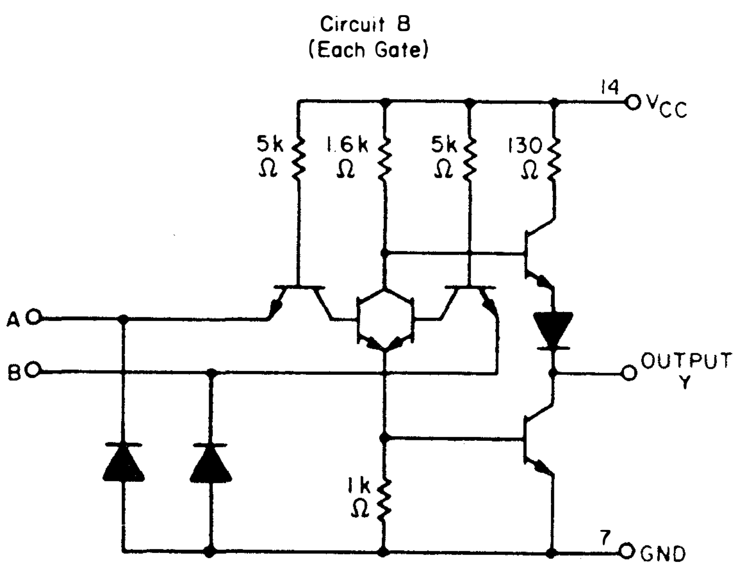


Figure 3-16. Integrated Circuit SNC54197J (98738/48P226455-01) Alt. SNJ54197J (50097/C31353-001), Functional Block Diagram



CKT	A	B	Y
1	2	3	1
2	5	6	4
3	8	9	10
4	11	12	13



NOTE: Component values shown are nominal.

Figure 3-17. Integrated Circuit 38510/00401 (5402), Simplified Schematic Diagram

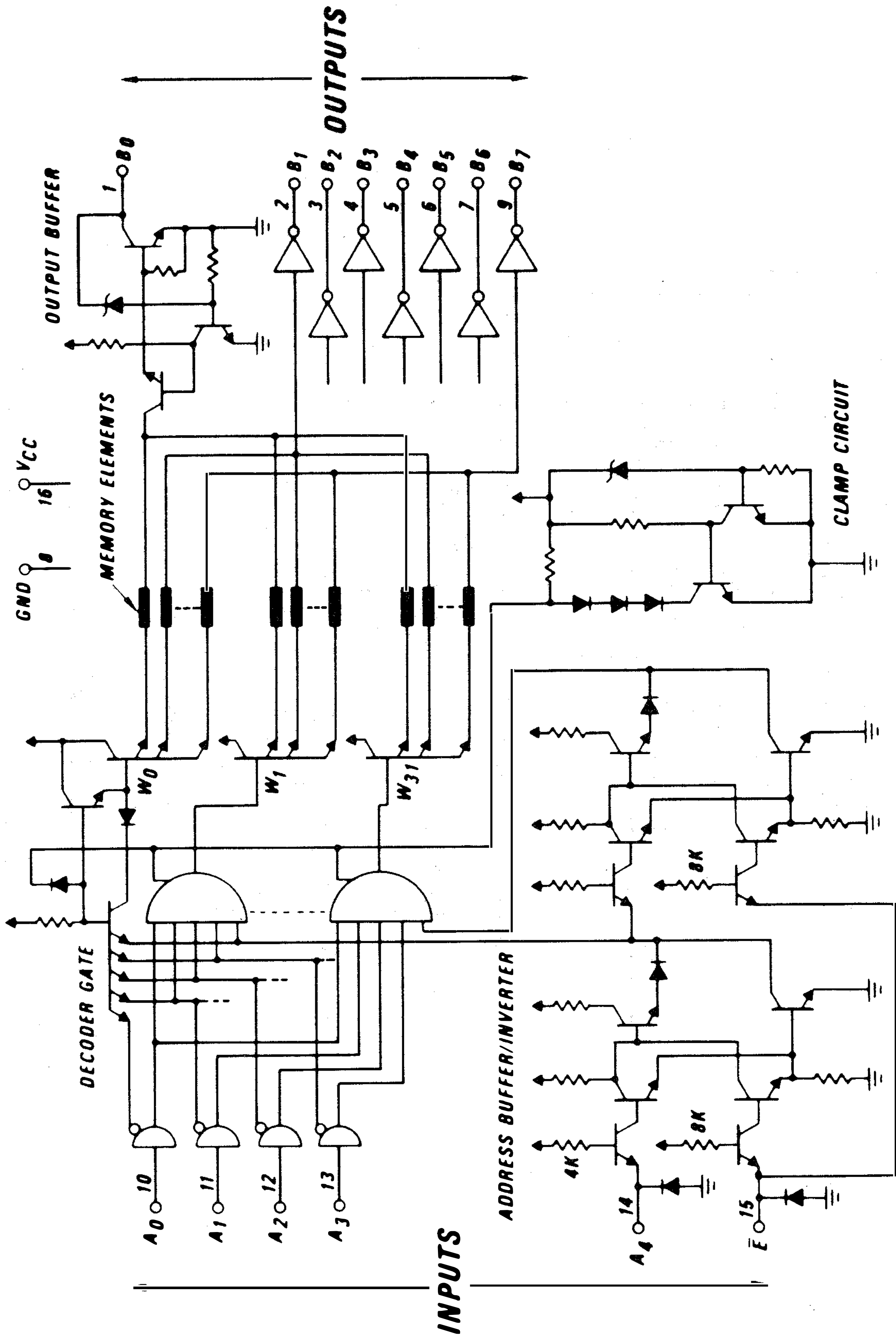


Figure 3-18. Integrated Circuit Harris 8256-8 (48P226463-01), Simplified Schematic Diagram

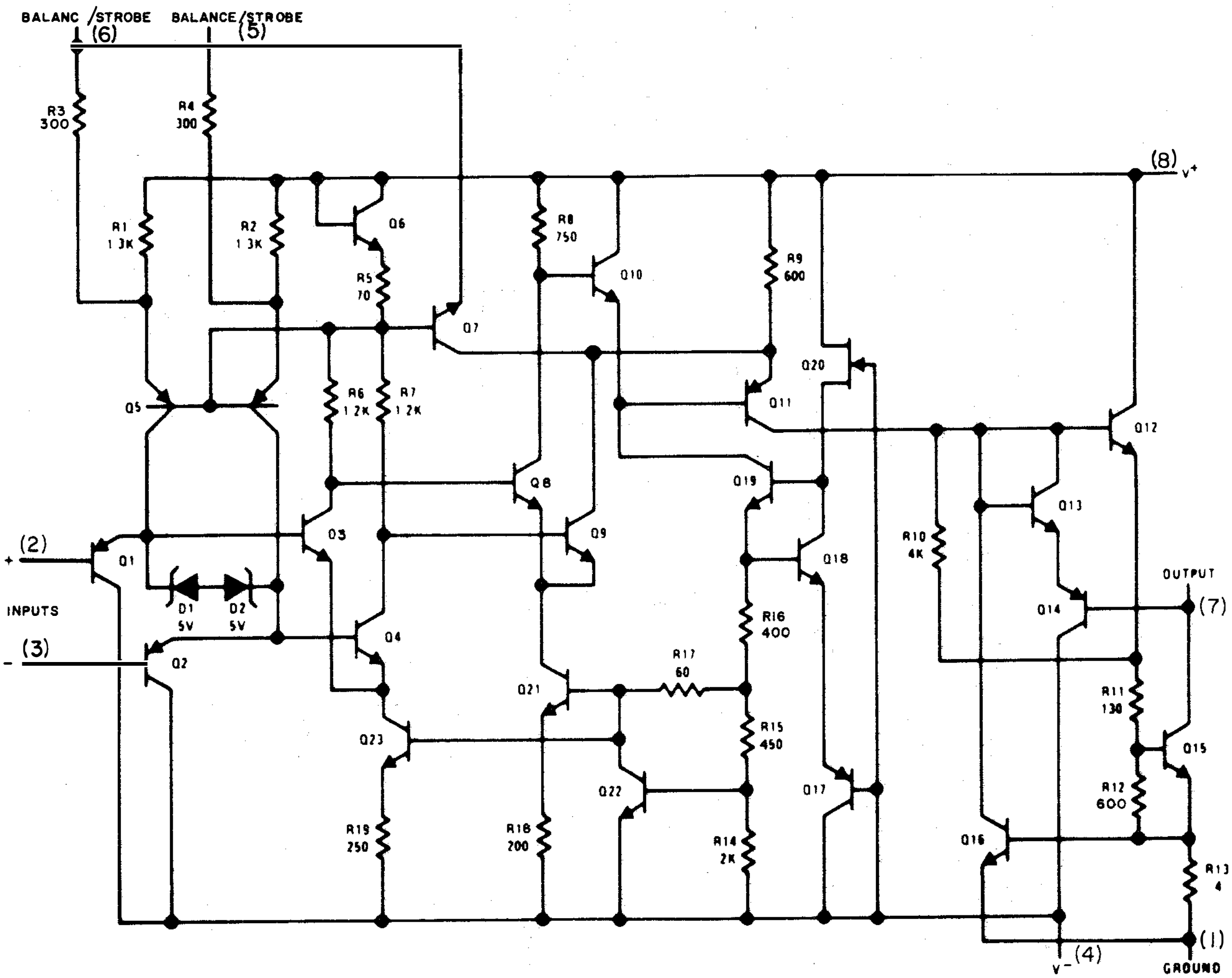


Figure 3-19. Integrated Circuit M38510/10304 (LM111)
Simplified Schematic Diagram

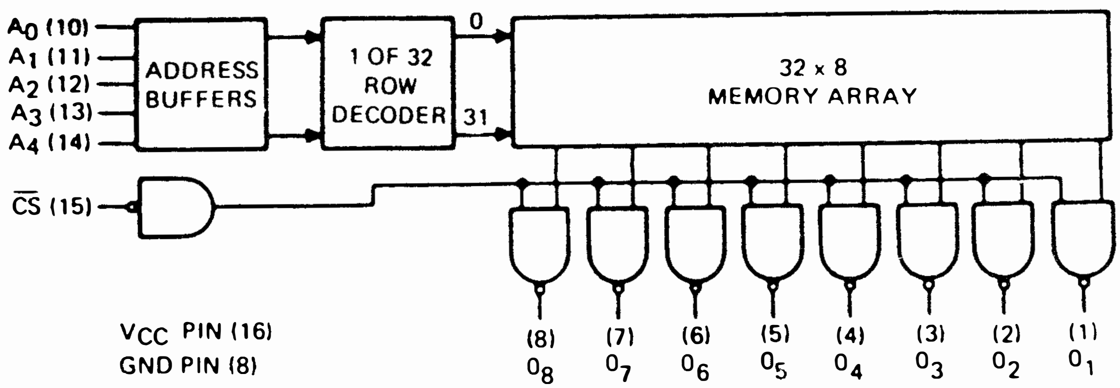


Figure 3-20. Integrated Circuit Harris HMI-7603-S (98738/48P228344-01) Alt. (50097/M31310-003), Functional Block Diagram

3-116. Since the operating controls, indicators and connectors are mounted on the front panel portion of the main frame, the schematic information for those items also appears in figure 5-32. Operation and use of the various segments of multisection controls are discussed in conjunction with the signal flow diagram discussions earlier in this chapter. Figure 5-32 identifies the input and output signals/voltages for this equipment, at their respective entry or exit connectors. Full description of the main and secondary signal flows between the assemblies of the main frame is provided by the receiver overall function block diagram (figure 3-1), the signal flow diagrams (figures 5-1 through 5-13), and the power distribution diagrams (figures 5-14 through 5-18); the schematic diagram shows all interconnection and wiring information on main frame interconnections, and may be used when following a signal or wiring through several functional sections of the equipment.

3-117. Power Control and Distribution. Figure 5-32, Sheet 1 shows the primary power control circuits and Power Supply Assembly A2A8. This power supply contains several separate rectifier/filter circuits, and most of the +20 volt regulator circuits. Rectifier circuit A2A8CR1 through A2A8CR4 produces the +110 Vdc output from A2A8; filtering of the +110 Vdc is accomplished by A2L1 and A2C1 on the main frame. Rectifier A2A8CR5 through A2A8CR8 produces the +28 Vdc output which, after filtering through A2L2, is connected through A2S2C front, contacts 6 and 7 to terminal A2E15 in all positions of mode selector switch A2S2 except OFF. From A2E15, the +28 Vdc is applied through contacts A2K1-B2 and A2K1-B3 of the tune relay to the +20 volt series regulator A2Q1 and to A2A8E14 (to the +20 volt regulator circuits).

3-118. The +20 volt regulator circuit of power supply A2A8 is comprised of A2A8Q1 through A2A8Q4, which forms a conventional type voltage comparator circuit, controlling conduction through a series-dropping stage (A2Q1). Initial level of the +20 volt regulator output (at terminal A2A8E15) is set by means of output voltage control A2A8-R14. Any variation in the +20 Vdc output (due to load changes or variation of the +28 Vdc input to the regulator circuit) is then counteracted by varying conduction through the series dropping stage A2Q1.

3-119. The third conventional, full-wave, bridge rectifier circuit of power supply A2A8 is comprised of A2A8CR9 through A2A8CR12. This circuit produces a negative dc output that is regulated by zener diodes A2A8CR13 and A2A8-CR14, to produce the -30 Vdc output at terminal A2A8E10.

3-120. The remaining circuits of power supply A2A8 consist of dropping resistors A2A8R1 and A2A8R2, and voltage dividers A2A8R6 and A2A8R16. Resistors A2A8R1 and A2A8R2 are connected in series with front panel lamps A2DS3 and A2DS4, to drop the +28 Vdc (at A2A8E5) to the voltage required for the panel lamps. Voltage divider A2A8R6 and A2A8R16 provides a positive output (adjustable by R16) at A2A8E16, for use by the manual RF GAIN control A2R3 when the receiver agc circuits are turned off.

3-121. RF Input Stage Protection. On Figure 5-32, Sheet 2, the circuits of Antenna Overload Assembly A2A9 are shown. RF signals from A2FL3 are fed to Antenna Overload Assembly A2A9, where they are normally applied through the closed contacts of antenna overload relay A2A9K1 to RF Amplifier Assembly A2A4. Contacts A1 and A2 of A2A9K1, when closed, act to shunt resistor A2A9R10 out of the signal path. The input rf signals are also monitored by detector A2A9CR1 to control the bias of dc amplifier A2A9Q1. Amplifier A2A9Q1 is biased to be normally cut off for rf input levels less than approximately 5 Vrms. As long as this safe condition exists, relay driver A2A9Q2 will be forward-biased to energize A2A9K1, and the closed relay contacts will provide a low resistance rf signal path. If, the rf input level to the receiver increases to approximately 5 Vrms (during operation of a nearby transmitting antenna, for example) amplifier A2A9Q1 will conduct, cutting off relay driver A2A9Q2 and deenergizing relay A2A9K1. With A2A9K1 energized the relay contacts are open, and resistor A2A9R10 provides approximately 40 dB attenuation of the rf signal.

3-122. 20 and 30 MHz Filtering. Also shown in figure 5-32, Sheet 2, is the 20 and 30 MHz Filter Assembly A2A10. This assembly receives the output signal of RF Amplifier Assembly A2A4 at its A2A10C1 input, and also receives hi/lo band control voltages from hi-lo filter relay A2K2 (via A2A6P1-20 of the Translator/Synthesizer Assembly A2A6). Regulated +20 Vdc is applied to produce +10 Vdc at the junction of A2A10R2 and A2A10CR5.

3-123. During hi-band operation the input from HI-LO Relay A2K2 contact B2 is a ground, and diodes A2A10CR2 and A2A10CR4 conduct to allow the rf input signal to pass through the hi-band filter (A2A10L3, A2A10C4, A2A10L5, A2A10C6). This filter rejects frequencies be-between 29.6 and 30.4 MHz, which is the hi-band IF. During lo-band operation the input from A2K2 is +20 Vdc, which causes diodes A2A10-CR1 and CR3 to conduct; the rf input signals then pass through the lo-band filter (A2A10C3, A2A10L2, A2A10L4, A2A10C5). This filter rejects frequencies between 19.5 and 20.4 which is the lo-band IF. RF signals, after passing through the selected filter circuit of A2A10, are applied through A2A10C7 to the A2A6P3-A1 input of the Translator/Synthesizer Assembly A2A6.

3-124. Hz Tuning Control. Figure 5-32, Sheet 3, shows the schematic diagram of 100 Hz Control and Vernier Assembly A2A11. The sections of Hz switch A2A22S1, when placed to positions other than V (vernier), connect +4 Vdc to combinations of the 2^0, 2^1, 2^2, and 2^3 gate control output lines. These gating-control voltages then select different counting ratios in the 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 1) A2A6A18 to provide 100 Hz incremental tuning changes.

3-125. Code converter A2A6A18U8 of the 10 kHz/1 kHz/100 Hz synthesizer receives the BCD levels from contacts of the Hz switch. See table 3-3 for identificationof the switch contacts which supply the logic "1" levels (+4 volts). The +4 Vdc is supplied to switch A2A11S1B front, contact 1 and A2A11S1B rear, contact 1 from 4 Vdc power supply terminal A2A11A1E6. With the Hz switch A2A11S1 in the V (vernier) position as shown in figure 5-32, sheet 3, voltage derived from the +4 Vdc Power Supply Subassembly A2A11A1 is applied from Hz control A2A11R1, through A2-A22S1A front, contacts 10 and 11, to the vernier control-line input to the Frequency Generator Subassembly A2A6A9. Continuous variation of the A2A11R1 voltage then permits continuous tuning variation over a 1000 Hz range.

3-126. When the Hz switch A2A11S1 is placed to the V (vernier) position, +110 Vdc is supplied through A2A11S1B front, contacts 6 and 7, to terminal A2A11A1E9. This voltage, when applied through A2A11A1R17 and A2A11A1R6 to A2A11A1E8, causes the front panel vernier indicator A2DS5 to illuminate. This lamp notifies the equipment operator that the vernier tuning mode is selected, and that the receiver is not phase-locked to the output of Frequency Standard Assembly A2A5.

Table 3-3. Preset Counter Logic Codes (BCD)

SWITCH A2A11S1-B CONTACTS		
	FRONT	REAR
2^0 (1)	-	2, 8, 10 or 12
2^1 (2)	-	3 or 4
2^2 (4)	11	-
2^3 (8)	4	-

3-127. MODE SELECTOR ASSEMBLY A2A1 (Figure 5-33). The Mode Selector Assembly A2A1 contains three separate subassemblies: Mode Gates A2A1A1, Beat Frequency Oscillator and Amplifier A2A1A3, and 500 kHz Gate A2A1A2.

3-128. Mode Gates Subassembly A2A1A1. Input to the mode gates subassembly consists of the IF signal from RF Translator Subassembly A2A6A8 via A2XA1P1-A2. The 500 kHz IF frequency is applied to the filter network A2A1 through emitter follower A2A1A1Q1, switches A2A1A1Q2 or A2A1A1Q3, and ungated amplifier A2A1A1Q4. When USB audio is required and a USB signal is being received, the +20 Vdc on pin 1 of A2XA1P1 turns on A2A1A1Q2, passing the signal through USB filter A2A1F4 to output amplifier A2A1A1-A5.

3-129. The IF signal output of A2A1A1Q5 passes through A2A1P1-A3 and to the input of IF/Audio Amplifier Assembly A2A2 via A2-XA1P1-A3. During the USB mode, A2A1E12 is at ground potential, shutting off A2A1A1Q3 and blocking the signal from A2A1FL2.

3-130. In AM mode, A2A1A1E12 is at +20 Vdc and A2A1A1E14 is at ground potential, shutting off A2A1A1Q2 and turning on A2A1A1Q3 and A2A1A1CR3. The IF signal therefore passes through filter A2A1FL2 but not through A2A1-FL1, to amplifier A2A1A1Q6 and input of IF/Audio Amplifier Assembly A2A2 via A2XA1P1-A3.

3-131. During LSB mode, both A2A1A1E12 and A2A1A1E14 are at ground potential, shutting off A2A1A1Q2 and A2A1A1Q3. The IF input signal is applied through Amplifier A2A1A1Q4 to A2A1FL3, which passes only the LSB components of the composite IF input signal. This LSB-IF signal is then passed through A2A1A1Q7 to the IF/Audio Amplifier Assembly A2A3 via A2XA1-P1-A2.

3-132. Beat Frequency Oscillator and Amplifier Subassembly A2A1A3. The BFO and amplifier subassembly contains a variable frequency oscillator A2A1A3Q1 whose output center frequency is 500 kHz. BFO Oscillator A2A1A3Q1 and buffers A2A1A3Q2 and A2A1A3Q3 are biased to cutoff by a ground at A2A1A3E3 via A2XA1P2-2 in all modes except CW. In CW, +20 Vdc is applied at E3 turning on oscillator A2A1A3Q1 and buffers A2A1A3Q2 and A2A1A3Q3. The oscillator output is fed from the emitter of A2A1A3Q1 through the Buffer Amplifier consisting of A2-A1A3Q2 and A2A1A3Q3 to output connector A2XA1P2-A4 and on to the IF/Audio Amplifier Assembly A2A2 only, since this amplifier processes the IF carrier signal during CW mode of operation.

3-133. An interior adjustment of coil A2A1A3L1 produces a BFO center frequency of 500 kHz at a voltage across A2A1A3R1 of +7.5 Vdc to +20 Vdc, controlled by A2R6 on the front panel. During CW operation, changing the voltage across A2A1A3R1 and CR1 by A2R6 control can change the oscillator frequency to produce the most satisfactory tone.

3-134. 500 kHz Gate Subassembly A2A1A2. The third circuit of the mode selector, the 500 kHz gate, enables or disables the 500 kHz injection signals to the demodulation circuits during SSB modes of operation. A 500 kHz stable-frequency signal from Frequency Standard Assembly A2A5 enters the 500 kHz mode gates circuit at terminal A2A1A2E6. Biasing of diode A2A1A2CR1 is controlled by dividers A2A1A2R1-R6-R5 and A2A1A2R2-R3-R4. In AM and CW mode A2A1-A2CR1 is biased off and A2A1A2E5 is at ground potential. During SSB modes, input to A2A1-A2E5 will be +20 Vdc; this will then forward-bias diode A2A1A2CR1, and allow the 500 kHz input signal to pass through the gating circuits to output connectors A2A1P2-A3 and A2A1P2-A1. From these connectors, the signal is fed to the 500 kHz injection inputs of both IF/Audio Amplifier Assemblies A2A2 and A2A3, which contain the demodulation circuits.

3-135. IF/AUDIO AMPLIFIER ASSEMBLIES A2-A2 and A2A3 (Figure 5-34). IF/Audio Amplifier Assemblies A2A2 and A2A3 are identical in their circuitry; the only differences are in the specific inputs received, and therefore the specific outputs produced by each assembly. Assembly A2A2 receives USB IF signals during modes for which USB intelligence exists. Assembly A2A3 receives LSB IF signals during any mode for which LSB intelligence exists. In general, only assembly A2A2 is discussed below. Each IF/audio amplifier contains four types of circuits; IF signal amplifiers, audio amplifiers, demodulation circuits, and automatic gain control (AGC) circuits. Circuit operation for the first three types is described individually for the SSB modes of operation, the AM mode, and the CW mode. The agc circuits, which are relatively independent of the others, are described separately.

3-136. SSB Modes of Operation (Figure 5-34). The 500 kHz IF input signal to IF/Audio Amplifier Assembly A2A2 from the Mode Selector Assembly A2A1 gating circuits enters the IF/audio amplifier at A2A2P1-A3. From this point, it passes through four tuned IF amplifiers (A2A2-A2Q1, Q4, Q5, Q6), and is converted to a balanced, two-line output by A2A2A2T4. The balanced IF output from the secondary of transformer A2A2A2T4 is applied to terminals A2A2A3E12 and A2A2A3E10, which are the inputs to the demodulation circuits. For SSB signals (all modes of operation except AM and CW), the balanced IF signal is applied to the bases of product detector stages A2A2A3Q1 and A2A2A3Q2, as the push-pull input. The 500 kHz injection signal for the product detector stages is supplied from the gating stage of the Mode Selector during all SSB operating modes. This signal is applied through A2A2-A3R1 and A2A2A3R3, and A2A2A3C1 and A2A2A3C4, to the emitters of the product detector stages; note that this input is in-phase to both sections of the product detector.

3-137. The audio output from product detectors A2A2A3Q1 and A2A2A3Q2, representing the demodulated intelligence information, is applied from A2A2A3T1 to output point A2A2P1-4. From this point, the audio is applied to the front-panel USB LEVELS LINE control A2R2 (from assembly A2A2) or LSB LEVELS LINE control A2R1 (from A2A3), which allows adjustment of the ultimate output signal from the equipment. From the line-level control, the audio is returned to the IF/audio amplifier at A2A2P1-6. It is applied to audio amplifier A2A2A2Q7 and, through emitter follower A2A2A2Q8, to the primary of transformer A2A2A2T5. The secondary of A2A2A2T5 produces 180° out-of-phase signals to the base of push-pull amplifiers A2A2A2Q9 and A2A2A2Q10.

3-138. The amplified audio output signal at the secondary of transformer A2A2T1 is then applied to two places. A balanced line audio output is applied from A2A2T1-4/6, through A2A2P1-12/14, and through the wiring of the main frame and Filter Box Assembly A2A2, to output connectors on the rear of the equipment. This output is connected to external equipment as required and to the AUDIO LEVEL circuit board A2A12 and meter A2M1. The second output from A2A2T1 is from terminal 7, and is applied through A2A2P1-3 and through main frame wiring to PHONE USB jack A2J2 (from assembly A2A2) or USB PHONE jack A2J1 (from A2A3) on the equipment front panel for local operator's use.

3-139. AM Mode of Operation. During the AM mode of operation, the IF input signal to the IF/ Audio Amplifier A2A2 enters as previously described for USB operation, and passes through the IF amplifier stages A2A2A2Q1, A2A2A2Q4, A2A2A2Q5, and A2A2A2Q6. During the AM mode, the product detector stages A2A2A3Q1 and A2A2A3Q2 do not operate, since +20 Vdc is not applied from A2A2P1-18. The IF signal input to A2A2A3E10 is fed through an additional IF amplifier stage, A2A2A3Q3, to the input of AM demodulation diode A2A2A3CR2. This diode detector applies the resulting audio signal to the base of audio amplifier A2A2A1Q9. Output audio from cascaded audio amplifiers A2-A2A1Q9 and A2A2A1Q14 is applied through A2A2P1-4 to the front-panel USB LEVELS LINE control A2R2. The audio path from the USB LEVELS LINE control is identical to that previously described for the USB mode of operation.

3-140. During the AM mode of operation, IF amplifier A2A2A3Q3, and audio amplifiers A2-A2A1Q9 and A2A2A1Q14, are made operative by +20 Vdc received from A2A2P1-17. For SSB modes, no dc voltage is applied through A2A2P1-17, and the AM demodulation stages are inoperative.

3-141. CW Mode of Operation. The AM demodulation stages are also used for the CW mode; however, a beat frequency oscillator (BFO) signal is also necessary. The BFO signal is applied to IF/ Audio Amplifier A2A2 only, at connector A2A2-P1-A1. The BFO signal (nominally 500 kHz, but variable by the front panel BFO control A2R6) is applied to the AM detector diode A2A2A3CR2, through A2A2A3C8. In the diode detector, the BFO signal subtractively mixes with the IF carrier signal to produce the beat frequency required. This audio beat frequency is then applied through the audio amplifier stages A2A2A1Q9 and A2-A2A1Q14, in the same manner as AM audio, previously described. IF/Audio Amplifier Assembly A2A3 does not receive the BFO input signal at A2A3P1-A1, not do the AM detector/amplifier stages of A2A3 ever receive the enabling +20 Vdc from A2A3P1-17. This is because assembly A2A3 is used only during LSB and ISB modes, during which only its product detector circuits are required.

3-142. Automatic Gain Control Circuits (Figure 5-34). The agc circuits of the IF/Audio Amplifier Assembly A2A2 or A2A3 produce positive agc voltages which are applied to IF stages within the same assembly, and negative agc voltages which are fed to stages of the RF Amplifier Assembly A2A4, to control gain of those stages. The majority of the agc circuits are contained on AGC Audio Amplifier Subassembly A2A2A1 (or A2-A3A1). The remaining agc stages are A2A2-A2Q2 and A2A2A2Q3. Since the agc circuits operate similarly in both assemblies, only assembly A2A2 is described in the following paragraphs.

3-143. The 500 kHz IF signal from the output of IF Amplifier A2A2A2Q4 is applied via A2A2A2T2 and A2A2A1C4 to IF amplifier A2A2A1Q8. the input stage to the agc circuits. The gain of this amplifier is set by the AGC ADJ potentiometer A2A2A1R25. Further amplification of the 500 kHz sample is provided by transistor A2A2A1Q7 whenever this amplifier is receiving emitter voltage via switch A2A2A1Q13. Switch A2A2A1Q13 will be in conduction, as controlled by preamplifier A2A2A1Q12, when the front panel AGC switch A2S3 is in either the FAST or SLOW position. When the AGCswitch is in the OFF position, ground potential is applied to the base of preamplifier A2A2A1Q12, turning it off. This condition allows switch A2A2A1Q13 to be biased off, disabling amplifier A2A2A1Q7 and, therefore, the entire agc function.

3-144. When the agc function is in use, two IF outputs of the same polarity but different amplitudes will be taken from the secondary of transformer A2A2A1T1. The larger of these two signals is rectified by detector A2A2A1CR5 to provide a charging potential for capacitor A2A2-A1C5. The smaller signal is rectified by Detector A2A2A1CR4 to provide a charging potential for capacitor A2A2A1C3. The dc voltages on capacitors A2A2A1C5 and A2A2A1C13 provide base bias and emitter bias, respectively, for coincidence detector A2A2A1Q6. When a relatively steady rf signal is being received, coincidence detector A2A2A1Q6 will be back-biased.

3-145. The voltage across capacitor A2A2A1C3 (or the parallel combination of capacitors A2A2-A1C3 and C13) also serves as the base bias for emitter follower A2A2A1Q4. As the rf input signal increases, the IF Amplifier A2A2A1Q8 conducts beyond the level set by agc control A2A2A1R25 and the voltage at the base of emitter follower A2A2A1Q4 will become more positive. The resulting increased conduction of emitter follower A2A2A1Q4 will cause a more positive dc voltage to be applied to the base of dc amplifier A2A2A1Q3. The output of the emitter of dc amplifier A2A2A1Q3 is applied to the IF/Audio Amplifier Subassembly A2A2A2 as its agc control voltage becomes more positive. The result of applying this increasingly positive agc voltage is to reduce the gain of the IF amplifier chain to maintain a nearly constant IF signal level to the demodulating circuits. A decrease in the elevated rf input signal level will result in a decrease in the IF agc voltage to increase the gain of the IF amplifier chain until the level set by agc control A2A2A1-R25 is reached. Beyond that level the IF amplifier chain operates at full gain as determined by each stage.

3-146. If the rf signal is interrupted, or suddenly drops to a much lower level, capacitor A2A2A1C5 begins to discharge through resistor A2A2A1R19, while capacitors A2A2A1C3 and A2A2A1C13 discharge through resistor A2A2A1R13 and transistor A2A2A1Q6. Capacitor A2A2A1C5 discharges first and when the charge on this capacitor drops to a potential which will permit conduction in A2A2A1Q6, capacitors A2A2A1C3 and A2A2-A1C13 discharge through A2A2A1Q6, thereby establishing the agc hang time and decay time. The hang time is the interval between loss of signal and the turn on of A2A2A1Q6; decay time is the discharge time of A2A2A1C3 and A2A1-A1C13. The hang time is of sufficient duration so that the potential difference across A2A2A1C3 remains relatively constant during the reception of intermittent voice signals. Whenever rf input resumes at a normal level, coincidence detector A2A2A1Q6 will be immediately reset (biased off). The agc voltage applied to the RF Amplifier Assembly A2A4 is generated through the action of dc amplifiers A2A2A1Q1 and A2A2A1Q1. As a result of an increase in rf input signal level, conduction of dc amplifier A2A2A1Q3 will increase, causing an increase in the forward-biasing voltage on the base of dc amplifier A2A2A1Q2. This, in turn, will raise the base voltage on dc amplifier A2A2A1Q1, and the resulting decreased conduction of this stage will cause the collector to go to a more negative dc voltage. The collector voltage of dc amplifier A2A2A1Q1 is applied through diode A2A2A1CR1 to RF Amplifier Assembly A2A4, where the application of the more negative agc voltage to the control grids of the two rf amplifier tubes reduces their gain. A decrease in the rf input signal level will result in a less negative agc voltage, raising the gain of the rf amplifiers. Diode A2A2A1CR1 prevents any positive dc levels from being applied to the rf amplifier circuits.

3-147. When an extremely low rf input signal (at or near the threshold of receiver sensitivity) is being received, dc amplifier A2A2A1Q2 will be slightly back-biased and dc amplifier A2A2A1Q1 will be at maximum conduction. Under this condition of extremely low input signal, it is not desirable to apply any negative agc voltage to the rf amplifiers until a stronger signal is being received. The desired delay in applying any agc to the rf amplifiers is provided by agc threshold diodes A2A2A1CR2 and A2A2A1CR3 in series with the emitter of dc amplifier A2A2A1Q2. These diodes insure that A2A2A1Q2 is cut off during weak signal reception, so that the rf agc voltage is zero and the gain of RF Amplifier Assembly A2A4 is maximum for all input signal levels below the agc operating threshold.

3-148. Maximum sensitivity of the receiver for weak signal reception is provided by agc threshold diodes A2A2A1CR2 and CR3 in series with the emitter of dc amplifier A2A2A1Q2. These diodes delay application of the negative agc voltage to RF Amplifier A2A4 until the input rf signal increases sufficiently to forward bias A2A2A1Q2, A2A2-A1CR2 and A2A2A1CR3. With dc amplifier A2A2A1Q2 cut off, the agc output voltage is zero and the receiver gain is maximum for all input rf signals below the agc operating threshold.

3-149. With front panel AGC switch A2S3 placed to SLOW position, preamplifier A2A2A1Q11 is cut off, and allows switch A2A2A1Q10 to be forward biased from the +20 Vdc supply voltage. This action allows capacitor A2A2A1C12 to discharge through A2A2A1Q10. Since the discharge time of A2A2A1C12 is much longer than that of A2A2A1C5, the hang time and decay time are greatly increased. In FAST agc operation, preamplifier A2A2A1Q11 is found biased and will cause switch A2A2A1Q10 to be turned off.

3-150. Manual control of rf and IF gain is provided when the front panel AGC switch A2S3 is placed to OFF position by application of a variable dc voltage (at A2A2P1-21) to the base of amplifier A2A2A1Q3. This input, from the RF GAIN control A2R3, controls conduction of dc amplifier A2A2A1Q3, and thereby controls the IF signal level to A2A2A2Q4 and the rf gain control from A2A2A1Q1.

3-151. RF AMPLIFIER ASSEMBLY A2A4 (Figures 5-19, 5-35). The rf amplifiers A2A4V1 and A2A4V2 of RF Amplifier Assembly A2A4 are conventional tuned circuits, capable of tuning over the range from 2.0 to 29.9999 MHz. As indicated in note 3 of figure 5-35, portions of three of the 28 turret subassemblies A2A4A2 through A2A4A29 are used to tune a 1 MHz band (e.g., for 2-MHz tuning, subassemblies A2A4A20, A2A4A25, and A2A4A2 are involved). Selection of the appropriate portions of each of these turret subassemblies is accomplished by rotation of the MHz controls on the front panel (see paragraph 3-153).

3-152. In order to tune to the desired frequency within any 1-MHz band, the 100 kHz and 10 kHz controls are used to mechanically select grid and plate tank-capacitor subassemblies, as shown in notes 1 and 2 of figure 5-35. For example, in tuning to 350 kHz within any MHz band, capacitors C6 and C15 of subassembly A2A4A30, A33, A34, and A37 tune the 100-kHz increment (0.5 MHz), and capacitor C6 of subassemblies A2A4-A31, A2A4A32, A2A4A35 and A2A4A36 tunes the 10-kHz increment (0.05 MHz).

3-153. The selection of the desired 1-MHz band is accomplished by rotating the front-panel MHz controls to the desired frequency. These controls are not mechanically connected to the turret; instead, the controls rotate switch wipers in Code Generator Assembly A2A7. This results in an output from the code generator of a five-line code consisting of circuit grounds and opens (see table 3-2).

3-154. Refer to figure 5-19. A five-line combination for each frequency band is applied through contacts 1 through 5 of A2A4P1, and from there to the turret decoder A2A4S1. Wafer A2A4S1A is the decoder, and connects the ground(s) from the code generator to relay A2A4K1, which energizes and applies +28 Vdc to motor A2A4B1 (via relay contacts A2A4K1-A1 and A2). As the motor drives the turret and the turret decoder, relay A2A4K1 remains energized until decoder A2A4-S1A reaches a position where no ground is provided to the motor relay. For instance, if code generator output is GOOOO where "G" is ground and "O" a circuit open, then decoder A2A4S1A will rotate until its contacts reflect an open-closed-closed-closed-closed configuration on contacts A2A4S1A-1, 2, 3, 4, 5. Since the ground for relay A2A4K1 is supplied by any grounded line from the code generator, the decoder switch A2A4S1A is rotated until its contacts all see open circuits. Wafer A2A4S1B is complementary to A2A4S1A and receives its inputs in parallel with A2A4S1A on code lines 1 - 5 from the Code Generator Assembly A2A7. Thus, when the input code lines are GOOOO, contacts A2A4S1B-1 through A2-A4S1B-5 will be open-closed-closed-closed as the complement of the A2A4S1A1-5 terminal connections. The purpose of switch wafer A2-A4S1B is to provide re-entrant ground paths for A2A4S1A via Code Generator Assembly A2A7 (figure 5-46). Code Generator Assembly A2A7 functions in such a way that all of the open-circuit lines present at A2XA4P1-1 through A2XA4-P1-5 corresponding to a given setting of the front-panel frequency controls are tied together. For example, in Figure 5-19, if code line 1 assumes a circuit open after the bandswitch motor has stopped, for a new code OOGOO, corresponding to a 23.0 MHz reception frequency (Table 3-2), then the ground present on A2S1A-3 will connect to A2S1B-3, to A2S1B-1 to A2S1A-2 (because A2S1A-2 connects through the code generator A2A7 to A2S1A-1, both being open) and since A2S1A-2 is a closed contact to ground now, relay A2A4K1 will energize. Once turret rotation ceases, the turret assemblies A2A4A1 through A2A4A29 are positioned as required to connect the tuning elements that will tune the rf amplifier stages to the selected frequency band.

3-155. FREQUENCY STANDARD ASSEMBLY A2A5 (Figure 5-36). Frequency Standard Assembly A2A5 contains the following four subassemblies: Oscillator and Oven Control A2A5A1, Divider/Amplifier A2A5A2, Oven Body A2A5A3, and 5 MHz Reference Control A2A4A4. The A2A5A1 and A2A5A3 subassemblies contain a temperature-controlled crystal oscillator which provides a stable 5 MHz reference frequency. Subassembly A2A5A4 selects 5 MHz from the A2A5A1 oscillator or 5 MHz from an external frequency standard distribution system as the A2A5 reference frequency. The A2A5A4 control circuitry also provides automatic selection of the internal 5 MHz source if the external standard signal level falls below a predetermined signal level. The 5 MHz source selected by A2A5A4 is applied to Divider/Amplifier Subassembly A2A5-A2, which provides the 10 MHz, 5 MHz, 1 MHz, and 500 kHz outputs of A2A5. A visual comparator circuit in A2A5A2 allows adjustment of the internal crystal oscillator frequency to a known external standard.

3-156. Input Circuit Operation (EXT NORM Mode). The external 5 MHz reference signal (see figure 5-36) is applied to 5 MHz Reference Control Subassembly A2A5A4 from A2A5J3-1, divided by A2A5A4R1, A2A5A4R2 and coupled through A2A5A4C1 to the base of amplifier A2A5A4Q1. Operating bias for A2A5A4Q1 is established by resistors A2A5A4R3, A2A5A4R5, A2A5A4R6 and temperature compensation diodes A2A5A4-CR1-CR5. When the amplified signal output A2A5A4Q1 collector forward biases diode A2A5-A4CR6, capacitor A2A5A4C2 charges and causes emitter follower A2A5A4Q2 to apply a logic high level (+2.0 to +5.5 Vdc) to pin 1 of NAND gate A2A5A4U1A. If the external 5 MHz signal amplified at A2A5A4Q1 collector is of the proper amplitude in the range of 200-300 mVrms as determined by the selected value of A2A5A4R3, then detector diode A2A5A4CR6 allows capacitor A2A5A4C2 to charge to a positive value. The time constant of the network consisting of A2-A5A4C2, A2A5A4R8 and A2A5A4R9 is such that A2A5A4C2 retains a sufficient positive charge on the negative-going half-cycle of the amplified 5 MHz external standard, thus maintaining A2A5-A4U1A-1 at logic high. Logic low for the system is at a 0 to 0.8 Vdc level. Pull-up resistor A2A5-A4R10 also places a logic high at A2A5A4U1A-2 causing output pin 3 of A2A5A4U1A to be at logic low, placing pin A2A5A4U2D-12 at logic high. Since A2A5A4U2D-13 is also high, A2A5-A4U2B-5 is low. Under this condition, the output of gate A2A5A4U2B-6 is always high, and therefore gate A2A4A5U2C-10 remains at logic high. Since A2A5A4U1C-9 is also at logic high, the output of NAND inverter gate A2A5A4U1C-8 will be an inversion of the amplified 5 MHz standare frequency at A2A5A4Q1 collector. NAND gate A2A5A4U2C-8 under this condition will output the external 5 MHz standard to Divider Amplifier Subassembly A2A5A2.

3-157. Isolation diode A2A5A4CR5, in the current sink path with A2A5A4R7, prevents the 5 MHz signal level across A2A5A4CR3, A2A5-A4CR4 from appearing at the input (pins 4 and 5) of inverter A2A5A4U1B.

3-158. If the external 5 MHz reference signal at A2A5P1-A4 drops below the predetermined amplitude or goes sufficiently off frequency, the output level at the collector of A2A5A4Q1 is no longer sufficient to forward bias detector diode A2A5-A4CR6. Capacitor A2A5A4C2 then discharges to ground through emitter follower A2A5A4Q2 until the voltage at the base of A2A5A5Q2 is insufficient for conduction and A2A5A4Q2 is cut off. Input pin 1 of A2A5A4U1A is then at a logic low level through emitter resistor A2A4A4R9. Now, output A2A5A4U1A-3 is high, A2A5A4-U2D-1 is low, A2A5A4U2B-5 is high, so that the internal 5 MHz frequency standard from oscillator and oven control subassembly A2A5A1P2-A5 appears at the output of gate A2A5A4U2B-6. Since A2A5A4U1C-9 is now low, A2A5A4U1C-8 output is held high, which allows NAND gate A2A5A4U2C to pass the internal 5 MHz frequency standard inverted through gate A2A5A4U2C-8 and on to Divider-Amplifier Subassembly A2A5A2-E9 via A2A5J3-4. The external 5 MHz input is now prevented from reaching the output of A2A5A4-U1C-8.

3-159. The output level of inverter A2A5A4U1B changes from logic high to logic low when the external 5 MHz reference is lost, which switches A2A5A4Q4 from saturation to cut off. The voltage at A2A5A4Q4 collector then forward biases the base of emitter follower A2A5A4Q3, and +28 Vdc is applied by A2A5A4Q3 emitter to input pin 1 of +20 Vdc regulator A2A5A4U3. Zener diode A2A5A4VR1 prevents the base voltage on A2A5A4Q3 from exceeding 30 Vdc during transients. The +20 Vdc output from pin 2 of A2A5A4U3 is routed through A2A5A4E5 and A2A5A3J4 to Oscillator and Oven Control Subassembly A2A5A1, and the internal 5 MHz oscillator and oven control circuits are energized.

3-160. The internal 5 MHz oscillator output is applied through A2A5A3J5, A2A5A4E1, and inverter A2A5A4U2A to input pin 4 of A2A5-A4U2B. Since logic high levels are now applied to A2A5A4U2B-5 and A2A5A4U2C-9, the internal 5 MHz signal is gated through A2A5A4U2B and A2A5A4U2C to Divider/Amplifier Subassembly A2A5A2. If after loss of the external 5 MHz signal at A2A5J3-1 it recovers to a minimum predetermined amplitude then operation as described in paragraph 3-156 is resumed.

3-161. Input Circuit Operation (EXT OVEN STBY Mode). When switch A2A5A2S1 is placed to EXT (OVEN STBY) the input circuit signal path and operating conditions are the same as those previously described, except that the emitter of A2A5A4Q4 is no longer grounded through contact 2 of A2A5A2S1. Since A2A5A4Q4 is no longer able to conduct, +28 Vdc power is constantly applied to input pin 1 of +20 Vdc regulator A2A5A4U3 through emitter follower A2A5A4Q3. The oscillator and oven control circuits are thereby energized at all times for immediate availability of the internal 5 MHz reference signal if the external 5 MHz frequency standard fails.

3-162. Input Circuit Operation (INT/COMP Mode). Placing switch A2A5A2S1 (see figure 5-36) to the INT/COMP position applies +28 Vdc power to regulator A2A4A4U3 in the same manner as previously described for the EXT (VEN STBY) mode (see paragraph 3-161). Switch A2A5A2S1-11 also applies +20 Vdc power to the comparator circuit, and applies a ground through A2A5A2S1-3 and A2A5J3-C to inputs A2A5A4U1A-2 and A2A5A4U2D-13. In this condition the outputs of A2A5A4U1A and A2A5A4U2D are always a logic high level. The logic high from A2A5A4U2D-11 is applied to A2A5A4U2B-5, which allows the internal 5 MHz oscillator signal from inverter A2A5A4U2A to gate through A2A5A4U2B. The logic high at A2A5A4U1A-3 is inverted by A2A5-A4U1B and applied to A2A5A4U1C-9, which prevents the external 5 MHz signal from reaching Divider/Amplifier Subassembly A2A5A2 and applies a constant logic high to pin 9 of A2A5A4-U2C. The internal 5 MHz signal is gated from A2A5A4U2B-6 through A2A5A4U2C. The internal 5 MHz signal is gated from A2A5A4U2B-6 through A2A5A4U2C to the A2A5A2 subassembly. The internal 5 MHz signal at A2A5A4-U2B-6 is also applied to phase detector A2A5-A4U1D-12 for use by the comparator circuit.

3-163. Oven Control Circuit Operation. Operating voltage for the oven control and oscillator circuits is derived from the +15 Vdc output of A2A5A4U3 by a +10 Vdc regulator comprised of dropping resistor A2A5A1R9, zener diode A2A5-A1CR1, and capacitor A2A5A1C7. The +10 Vdc is applied to the sensor bridge consisting of A2A5-A1R13 through A2A5A1R16 and A2A5A3R2, and to load resistor A2A5A1R17 and dropping resistors A2A5A1R18 and A2A5A1R22. Common base amplifier A2A5A1Q4 is biased by the reference voltage at the junction of A2A5A1R14, A2A5A1R16 and the feedback through A2A5-A1R23 and, together with emitter follower A2A5-A1Q5, forms a conventional single-ended output differential amplifier circuit.

3-164. The signal output to the base of A2A5-A1Q5 is taken from the junction of resistor A2A5-A1R13 and sensor A2A5A3R2, and varies in proportion to the internal temperature of oven body A2A5A3 due to the resistance vs temperature characteristic of A2A5A3R2, which is mounted on the oven surface. Consequently, as the oven temperature rises the base voltage of A2A5A1Q5 increases, and the increased conduction through A2A5A1Q5 increases the voltage drop across emitter resistor A2A5A1R19. Power amplifier A2A5A1Q5 controls the current flowing through the oven heater element A2A5A3R1. As the voltage across A2A5A1R19 increases the base-emitter voltage drop (bias) of A2A5A1Q4 decreases, which reduces conduction through A2A5-A1Q4 and increases the voltage at the collector of A2A5A1Q4. The increased positive output of the differential amplifier stage is seen by the base of amplifier A2A5A1Q6 as a decrease in bias which reduces conduction through emitter follower A2A5A1Q6. Thus, oven temperature changes sensed by A2A5A3R2 produces corrective changes in the heater element current so as to maintain oven temperature constant at about 87.5C.

3-165. Operating bias for emitter follower A2A5-A1Q7, which is developed by the voltage drop across A2A5A1R20, is thus reduced, and the reduced drive voltage from the emitter of A2A5-A1Q7 to the base of power amplifier A2A5A4Q5 reduces the current flow through A2A5A4Q5 and oven heater A2A5A3R1. If the temperature of the oven decreases below the value established by the setting of potentiometer A2A4A1R15, the circuit operates to increase the current flow through A2A5A3R1, thereby increasing the oven temperature. The value of feedback resistor A2A5A1R23 is selected to control the damping coefficient to prevent excessive temperature overshoot or excessive response time. The setting of variable resistor A2A5A1R15 controls the specific operating temperature.

3-166. 5 MHz Oscillator Circuit Operation. The internal 5 MHz oscillator circuit, consisting of crystal A2A5A1Y1, oscillator A2A5A1Q1, amplifiers A2A5A1Q2, A2A4A1Q3, and associated components, is a conventional parallel mode Colpitts oscillator. Circuit oscillation is obtained via collector to base feedback through crystal A2A5A1Y1, with parallel capacitors A2A5A1C2 and A2A5A1C3 providing fine and coarse adjustment, respectively, of the oscillator frequency.

3-167. The values of capacitors A2A5A1C8 and A2A5A1C11 are selected to provide the proper range of adjustment for the variable capacitors. Two conventional untuned amplifiers (A2A5-A1Q2, A2A5A1Q3) provide amplification of the 5 MHz signals. Load resistor A2A5A1R8 and resistor A2A5A1R12 form a voltage divider to prevent the voltage at the collector of A2A5A1Q3 (and therefore the output of inverter A2A5A4-U2A-1, -1) from exceeding +5 Vdc and damaging the inverter. The 5 MHz signal at the base of A2A5A1C10 and A2A5A1R11 forms a detector network. The detector supplies a negative voltage through feedback resistor A2A5A1R10 to the base of oscillator A2A5A1Q1, and thus acts to maintain a constant output amplitude. The value of feedback resistor A2A5A1R10 is selected to provide the desired output level at the collector of A2A5-A1Q3.

3-168. Comparator Circuit Operation. The external 5 MHz reference from the collector of A2A5A4Q1 (see figure 5-36) is always present at input pin 13 of phase comparator A2A5A4U1D. When the 5 MHz OSC SOURCE switch A2A5A2S1 is placed to the INT/COMP position, the internal 5 MHz oscillator signal is gated to input pin 12 of A2A5A4U1D (see paragraph 3-162). If the 5 MHz reference signals at the input to A2A4A4U1D are out of phase due to a frequency difference, the output of A2A4A4U1D will consist of positive logic level transitions which vary in pulse width and rate in proportion to the phase difference between the 5 MHz signals.

3-169. The output from A2A5A4U1D is coupled through capacitor A2A5A2C41 to the base of amplifier A2A5A2A10, and amplified. When the 5 MHz signals are exactly the same frequency, A2A5A2DS1 illuminates at a constant intensity. If only one 5 MHz signal is present at the input to A2A5A4U1D the output is a constant logic high. The logic high is blocked by A2A5A2C41, A2A5-A2Q10 is cut off, and the bias to A2A5A2Q11 (through A2A5A2R53, A2A5A2R55, and A2A5-A2R56) allows A2A5A2DS1 to illuminate at a constant full intensity.

3-170. Divide-by-five Oscillator Circuit. The 5 MHz signal at A2A5A4U2C pin 8 (see figure 5-36) is capacitively coupled to amplifier A2A5A2Q1 to provide synchronizing signals to a conventional 1 MHz Colpitts oscillator comprised of A2A5A2Q2 and associated components. The 5 MHz signal is applied through resistor A2A5A2R1 and capacitor A2A5A2C2, which act to decrease the rise and fall times of the 5 MHz logic level transitions and thereby decrease the switching time of amplifier A2A5A2Q1. The value of A2A5A2C44 establishes the range of variable capacitor A2A5A2C7 in the feedback circuit, which allows the oscillator to synchronize on the incoming reference signal. The 1 MHz output from the emitter of A2A5A2Q2 is coupled through A2A5A2R10, A2A5A2R13, A2A5A2C10 and amplifier A2A5A2Q3 to coupling transformer A2A5A2T1. Variable capacitor A2A5A2C13 is adjustable to optimize the waveshape at output terminal 4 of A2A5A2T1, which is directly connected to output connector A2A5-P1-A3. The values of A2A5A2R17 and A2A5-A2R18 are selected for the proper 1 MHz output signal amplitude at A2A5P1-A3.

3-171. Divide-by-two Oscillator Circuit. The 1 MHz signal from A2A5A2Q2 emitter is coupled through resistor A2A5A2R19 and capacitor A2-A5A2C14 to the input of a conventional 500 kHz Colpitts oscillator comprised of A2A5A2Q4 and associated components to provide synchronizing signals. Operation of the oscillator and amplifier A2A5A2Q5 is similar to the 1 MHz oscillator circuit (see paragraph 3-184). Variable capacitors A2A5A2C16 and A2A5A2C22 perform the functions corresponding to A2A5A2C7 and A2A5-A2C13, respectively, in the 1 MHz oscillator circuit. Resistors A2A5A2R30 and R31 perform the functions corresponding to A2A5A2R17 and A2A5A2R18.

3-172. Multiply-by-two Circuit. The 5 MHz signal from A2A5A4U2C-8 is capacitively coupled through capacitor A2A5A2C23 and capacitor

A2A5A2C25 to the base of 5 MHz amplifier A2A5A2Q6. The output at the collector of A2A5A2Q6 is coupled through A2A5A2C27 to tuned amplifier A2A5A2Q7, which is tuned to 10 MHz by variable capacitor A2A5A2C31 in the collector circuit. The remainder of the signal path through amplifier A2A5A2Q8 to the output at A2A5P1-A5 is similar to the output path of the 1 MHz oscillator circuit previously described in paragraph 3-185.

3-173. 5 MHz Output Circuit. After amplification in A2A5A2Q6 the 5 MHz signal is capacitively coupled to an additional amplifier stage A2A5-A2Q9, which is tuned to 5 MHz. The output at the collector of A2A5A2Q9 is coupled through capacitor A2A5A2C39 to output connector A2A5-P1-A6. Variable capacitor A2A5A2C38 adjusts the output waveshape, while the value of A2A5A2R49 is selected to establish the output amplitude.

3-174. TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (Figure 5-37). The chassis of the Translator/Synthesizer Assembly A2A6 serves only as a base and an interconnection/interface mount for the nine subassemblies (A2A6A7, A2A6A8, and A2A6A12 through A2A6A18) which perform the functions of the assembly. When the Translator/Synthesizer chassis is mounted in the main frame, three couplers (A2A6MP8, MP12, MP16, (figure 7-66) on the bottom are engaged by mechanically driven couplers on the main frame. Each coupler drives one of the switches A2A6S1 through S3, which provide tuning codes for the kHz synthesizers. Filter Subassembly A2A6A7 (see figure 5-37) is a conventional RC capacitive-input filter used to decouple the +20 Vdc output of Power Supply Assembly A2A8 from the input of Power Supply Subassembly A2A6A15.

3-175. Mechanical Linkage. Each of the front panel kHz controls is mechanically connected to one of three drive chains which, in turn, are connected to one of three couplers on the equipment main frame. When a front panel kHz control is rotated, its associated chain drive rotates the coupler to position the coding switch in Translator/Synthesizer Assembly A2A6. The 100 kHz control positions A2A6S3, the 10 kHz control positions A2A6S2, and the 1 kHz control positions A2A6S1. Each of the switches supplies a four-line tuning code (consisting of open circuits and grounds) to its corresponding synthesizer to select the required injection frequency to RF Translator Subassembly A2A6A8. When the front panel 100 kHz control is in zero position the 100 kHz digit of the injection frequency in both hi and lo bands is 4 (see table 3-1). Switch A2A6S3 deck C (see figure 5-37) is open at this setting (contact 1) and the remaining three decks are grounded. If the front panel control is set at 300 kHz, the 100 kHz digit of the injection frequency is 7 in both hi and lo bands. In this position the wipers of all four decks of A2A6S3 will be on contact 8, producing an open circuit for all decks except deck B.

3-176. Switches A2A6S2 and A2A6S1 operate in a similar manner except that the progression of the injection frequencies is different depending on which front panel control is being operated. The 100 kHz digit of the injection frequency increases progressively from 4 thru 9 to 3 as the 100 kHz control is increased from 0 to 9. The 10 kHz switch (A2A6S2) and the 1 kHz switch (A2A6S1) are natural binary coded decimal (BCD) switches converting the decimal dial positions to BCD. The injection frequency decreases progressively as either the 10 kHz or 1 kHz control is increased. Table 3-1 indicates the injections for various control positions.

3-177. The translator/synthesizer is comprised of nine major subassemblies listed below.

1. Filter Subassembly A2A6A7, a conventional pi filter which filters the +20 Vdc input to Power Supply Subassembly A2A6A15.
2. 100 kHz Synthesizer Subassembly A2A6-A17.
3. 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 1) A2A6A18.
4. 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 2) A2A6A12.
5. 10 MHz/1 MHz Synthesizer Subassembly A2A6A13.
6. 10 MHz/1 MHz Filter Subassembly A2-A6A14.
7. RF Translator Subassembly A2A6A8.
8. Frequency Generator Subassembly A2-A6A16.
9. Power Supply Subassembly A2A6A15.

NOTE

Reference designations A2A6A1 through A2A6A6 and A2A6A9 through A2A6-A11 are not used in Radio Receiver R-1051G/URR in order to distinguish the Translator/Synthesizer from earlier models.

3-178. RF Translator (Figure 5-38). The RF Translator Subassembly A2A6A8 contains the mixing circuits where RF-to-IF conversion is accomplished by three mixer stages in response to the injection signals from the synthesizer subassemblies A2A6A12 through A2A6A14, A2A6A17, and A2A6A18 of Translator Synthesizer Assembly A2A6.

3-179. Mixer stages A2A6A8U1 through A2A6-A8U3 utilize type CA3049 integrated circuits which provide both rf mixing and amplification (conversion gain). Since all mixer stages perform in the same manner, only the operation of low frequency mixer A2A6A8U1 will be described. An injection frequency in the range of 3.3001 to 3.4 MHz is applied from 10 kHz/1 kHz/ 100 Hz Synthesizer Subassembly A2A6A12 to the pin 2 input of mixer A2A6A8U1. Resistors A2A6A8R56, A2A6A8R11 provide the proper termination for the output of A2A6A12 and the input of A2A6A8U1. Thermistor A2A6A8RT1 increases the injection signal level applied to the mixer whenever the operating temperature increases. Likewise, A2A6A8RT2 and A2A6A8RT3 increase their respective injection signal levels to maintain a constant translator output. Resistor A2A6A8R3 reduces the rate at which thermistor A2A6A8RT1 varies the injection signal level.

3-180. As the second input to the mixer is 2.8001 to 1.9 MHz, swamping resistor A2A6A8R14 is placed across the primary winding of input transformer A2A6A8T2 to provide the required bandwidth. The signal at the secondary of A2A6A8T2 is applied as the second input to pins 1 and 10 of A2A6A8U1. Resistive divider A2A6A8R59, A2A6A8R60 and A2A6A8R61 applies bias voltage through the split secondary winding of A2A6A8T2 to the internal amplifiers associated with pins 1 and 10. The sum and difference output signals are applied from output pins 11 and 12 of A2A6A8U1 to the primary winding of output transformer A2A6A8T3. Resistor A2A6A8R4 applies operating power to the amplifiers within A2A6A8U1 through the split primary winding of A2A6A8T3. Capacitors A2A6A8C8, A2A6A8C15 and A2A6-A8C17 provide rf bypassing for the internal biasing circuits within mixer A2A6A8U1.

3-181. Biasing of the gating diodes, which determine the signal path through the rf translator, is achieved with dc voltages or grounds received at A2A6A8J4, A2A6A8J5, and A2A6A8J7. The control line from A2A6A8J4 selects the required 20 or 30 MHz bandpass filter (A2A6A8FL1 or FL2), while the control lines from A2A6A8J5 and A2A6A8J7 determine the overall signal path. The A2A6A8J4 input may be either +20 Vdc or ground as controlled by the main frame hi-lo filter relay A2K2. When the mixing processes require use of lo-band filter A2A6A8FL1, the A2A6A8J4 input is +20 Vdc. This voltage biases diodes A2A6A8-CR10, A2A6A8CR12 into conduction, and the diode gates direct the rf signal through 20 MHz bandpass filter A2A6A8FL1. The A2A6A8J4 control line is grounded for hi-band operation, causing forward-biased diodes A2A6A8CR11, A2A6A8CR13 to direct the rf signal flow through 30 MHz bandpass filter A2A6A8FL2.

3-182. The A2A6A8J5 and A2A6A8J7 inputs are ground and +20 Vdc, respectively, which forward-biases gating diodes A2A6A8CR3, A2A6A8CR4, A2A6A8CR6, A2A6A8CR9, A2A6A8CR15, and A2A6A8CR18. The input signal from RF Amplifier Assembly A2A4 is applied to terminating resistor A2A6A8R51 and diode limiters A2A6A8-CR19 and A2A6A8CR20. Potentiometer A2A6-A8R52 sets the amplitude of the rf input signal, which is then coupled through A2A6A8C63, gating diode A2A6A8CR18, and input transformer A2-A6A8T7 to the input of mixer A2A6A8U3. Mixer A2A6A8U3 performs the high frequency conversion in response to the 2.5 to 23.5 MHz injection signal received at input pin 2. The sum and difference frequencies developed across the secondary of A2A6A8T6 are applied through forward-biased gating diode A2A6A8CR15 and capacitor A2A6A8C48 to the input of bandpass filter A2A6A8FL1 or FL2.

3-183. Depending upon the control line input from A2A6A8J4, one of the filters attenuates the undesired mixer product and passes the 20 or 30 MHz IF signal through A2A6A8C37, A2A6A8C38, A2A6A8CR9, and A2A6A8T5 to the input of mixer A2A6A8U2. Note that the high frequency conversion process utilizes additive mixing for all settings of the front panel MHz controls except 22, 23, and 27-29 (as shown in table 3-1).

3-184. The signal from A2A6A8CR9 in mid-frequency mixer A2A6A8U2 is mixed with an injection signal in the range of 22.4 to 23.3 MHz (lo-band) or 32.4 to 33.3 MHz (hi-band) received from 100 kHz Synthesizer Subassembly A2A6A17 through bandpass filter A2A6FL5 at A2A6A8E8. The resulting sum and difference signals are applied through transformer A2A6A8T4, gating diodes A2A6A8CR6 and capacitors A2A6A8C24 and A2A6A8C25 to bandpass filter A2A6A8FL3, which attenuates the undesired sum frequencies. The difference frequency, which is the desired second IF (2.8001 to 2.9 MHz), is applied through A2A6A8C18, A2A6A8C20 and A2A6A8CR4 to the input of low frequency mixer A2A6A8U1.

3-185. The 3.3001 to 3.40 MHz injection signal to A2A6A8U1 is received from 10 kHz/1 kHz/100 Hz Synthesizer Subassembly (No. 2) A2A6A12 at A2A6A8E6. Mixer A2A6A8U1 then performs the final frequency translation, and the 500 kHz IF signal appears across the secondary winding of output transformer A2A6A8T3. The 500 kHz signal passes through forward-biased gating diode A2A6A8CR3 and A2A6A8C13 to low-pass filter A2A6A8L2, A2A6A8C12, A2A6A8R13. This low-pass filter removes harmonics from the output of A2A6A8U1 and applies the 500 kHz IF signal through A2A6A8C10 to a conventional tuned amplifier A2A6A8Q1.

3-186. Resistor A2A6A8R6 and capacitor A2A6-A8C9 provide power supply de-coupling for A2A6A8Q1, which is biased by base resistors A2A6A8R8, A2A6A8R9 and emitter resistors A2A6A8R5, A2A6A8R7. Capacitor A2A6A8C3 stabilizes A2A6A8Q1 for operation at 500 kHz. The collector circuit of A2A6A8Q1 is tuned to 500 kHz by means of a conventional LC parallel-resonant circuit comprised of A2A6A8C2, T1. Resistor A2A6A8R1 swamps the secondary winding of A2A6A8T1, which is adjusted to provide the necessary 500 kHz IF amplitude to output connector A2A6A8E3.

3-187. Frequency Generator (Figure 5-39). The stable 10 MHz reference output from Frequency Standard Assembly A2A5 is applied to Frequency Generator Subassembly A2A6A16 via connector A2A6A16P1-A1, terminated by resistor A2A6-A16R1, and capacitively coupled through A2A6-A16C5 to the input of a two-stage common emitter amplifier A2A6A16Q1, A2A6A16Q2. Base bias for A2A6A16Q1, Q2 is provided by resistors A2A6A16R2 and A2A6A16R3 and A2A6A16R6 and A2A6A16R7, respectively. Both amplifier stages utilize shunt peaking inductors (A2A6A16-L6, L7) to form high impedance parallel L-C networks with the transistor and wiring board stray capacitance, and thereby improve the high frequency response of the circuit. The amplifiers are stabilized by partially bypassing the emitter resistance through capacitors A2A6A16C7 and A2A6A16C9.

3-188. The amplified 10 MHz signal at the collector of A2A6A16Q1 is capacitively coupled via A2A6A16C8 to the base of A2A6A16Q2. Amplifier A2A6A16Q2 provides additional amplification and applies the 10 MHz signal through capacitor A2A6A16C10 to a level shifter consisting of inverter A2A6A16U1A (see figure 3-5), capacitor A2A6A16C11, and resistors A2A6A16R10, R11. The sinusoidal 10 MHz signal at input 1 of A2A6-A16U1A is converted into a square wave output at pin 2, which is then suitable for driving the remaining integrated circuit gates and dividers of subassembly A2A6A16.

3-189. The integrated circuit divider chain A2-A6A16U2, A2A6A16U5 is isolated from the level shifter circuit components by a buffer stage consisting of inverters A2A6A16U1B and A2-A6A16U1C. The 10 MHz output signal at pin 12 of inverter A2A6A16U1C is applied to input pin 14 of decade divider A2A6A16U2, which applies a 1 MHz input signal to pin 14 of binary decade divider A2A6A16U3. Output pin 12 (binary divider) of A2A6A16U3 provides a 500 kHz clock pulse to connector A2A6A16P1-A2 for use as the reference frequency input to 10 MHz/1 MHz Synthesizer Subassembly A2A6A13.

3-190. The 500 kHz clock pulse at A2A6A16U3-12 is also applied to input pin 1 of another divider within A2A6A16U3, which provides a 100 kHz output signal from pin 11 which is distributed to pin 1 of decade divider A2A6A16U4 and to connector A2A6A16P1-A4 for use by 100 kHz synthesizer assembly A2A6A17. Divider A2A6A16U4 then provides a 10 kHz clock pulse output at pin 12 of input pin 1 of decade divider A2A6A16U5. The 1 kHz output from pin 12 of A2A6A16U5 is applied to a gating circuit (A2A6A16U6A-U6D, see figure 3-3), which selects either the 1 kHz output of A2A6A16U5 or the variable frequency output of the phase-locked loop circuit as the reference frequency for 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12.

3-191. The gating circuit is switched via a level shifter (A2A6A16Q3, A2A6A16Q4) in response to control inputs at connector A2A6A16P1-9. The front panel Hz switch A2A11S1 applies +4.3 Vdc through connector A2A6A16P1-9 when in non-vernier operation to resistive divider A2A6-A16R12, R13. Transistor A2A6A16Q3 is then biased on and A2A6A16Q4 is biased into cutoff, which applies the +5 Vdc supply voltage through load resistor A2A6A16R15 to inverter A2A6-A16U6A and NAND gate A2A6A16U6B. This logic high level (+2.4 to +5.5 Vdc) at A2A6A16-U6B-13 allows the 1 kHz clock-pulse from the divider chain to be present at input pin 1 of NOR gate A2A6A16U6D. Input pin 2 of A2A6A16U6D is maintained at a constant logic high, due to the logic low (0 to +0.8 Vdc) applied through inverter A2A6A16U6A to input pin 4 of NAND gate A2A6A16U6C, and the pin 3 output of A2A6-A16U6D gates to a logic high level for each negative logic transition of the 1 kHz clock-pulse from the divider chain.

3-192. In the vernier tuning application the +4.3 Vdc path from the Hz switch to connector A2A6-A16P1-9 is interrupted, which turns A2A6A16Q3 off and causes A2A6A16Q4 to conduct. With the collector of A2A6A16Q4 essentially grounded, a logic low is applied to input pins 9 and 10 of inverter A2A6A16U6A and pin 13 of NAND gate A2A6A16U16B. The output at pin 11 of A2A6-A16U6B is then a constant logic high, and the 1 kHz clock-pulse from the previously described divider chain is blocked. Inverter A2A6A16U6A applies a logic high at input pin 4 of NAND gate A2A6A16U6C, and the 1 kHz clock-pulses received from the phase-locked loop circuitry (paragraph 3-194) at input pin 5 are gated through A2A6A16U6C to NOR gate A2A6A16U6D. With a constant logic high at input pin 1, the pin 3 output of A2A6A16U6C gates to a logic high level for each negative logic transition of the 1 kHz clock-pulse present at input pin 2. The logic low at the collector of A2A6A16Q3 biases on transistor A2A6A16Q6 through A2A6A16R39. This enables VCO A2A6A16U11 when in the vernier mode.

3-193. In the vernier tuning application, a control voltage in the range of +2.5 to +3.7 Vdc is applied through connector A2A6A16P1-3 and resistor A2A6A16R17 to the inverting input (pin 2) of amplifier A2A6A16U7 (see figure 3-7). Zener diode A2A6A16CR1 applies +6.2 Vdc to a voltage divider consisting of A2A6A16R21 through R23, and +3.0 to +5.0 Vdc (as determined by the setting of potentiometer A2A6A16R22) which is applied through resistor A2A6A16R20 to the noninverting input (pin 3) of A2A6A16U7. The gain of amplifier A2A6A16U7 is established by the value of A2A6A16R17 and feedback resistors A2A6A16-R18, R19, and is set in the range of 0.25 to 0.3 with potentiometer A2A6A16R18.

3-194. Amplifier A2A6A16U7 then provides a dc control voltage output at pin 6 which varies according to the vernier control voltage input to pin 2. The output from pin 6 of A2A6A16U7 is applied to input pin 2 of voltage-controlled multivibrator A2A6A16U8 (see figure 3-8), which oscillates at 15 to 19 kHz as determined by the voltage at input pin 2 and the value of capacitor A2A6-A16C22. This 15 to 19 kHz output signal at pin 6 of A2A6A16U8 provides an adjustable reference frequency to one input (pin 3) of phase detector A2A6A16U9 (see figure 3-10).

3-195. Mixer A2A6A16U13 (see figure 3-10) receives a 10 MHz standard frequency via the previously described amplifiers A2A6A16Q1, Q2, level shifter A2A6A16U1A, and buffers A2A6-A16U1B, U1D, and also receives a sample of the output from voltage controlled oscillator A2A6-A16U11. The 15 to 19 kHz difference frequency from output pin 5 of A2A6A16U13 is applied as the second input (pin 1) of phase detector A2-A6A16U9.

3-196. Phase detector A2A6A16U9 monitors the negative transistors of the reference signal (at input pin 3) and the feedback signal (at input pin 1), and develops a correction signal of the proper polarity and magnitude to phase-lock the VCO A2A6A16U11. If the VCO frequency is too high, the frequency at input pin 1 is higher than the reference frequency at pin 3 and a correction signal appears at pin 13. In like manner, if the VCO frequency is too low a correction signal appears at pin 2 and pin 13 remains at a logic high level. In either case, the correction signal is a series of negative pulses whose width is proportional to the difference in time between the negative transitions at input pins 1 and 3.

3-197. Jumpers between pins 13 and 4 and between 2 and 11 apply the appropriate correction signal to charge-pump circuitry within A2A6-A16U9, which initiates the phase detector outputs and applies fixed amplitude positive or negative pulses to output pin 10 or pin 5, respectively. In the phase-locked condition the negative transitions at input pins 1 and 3 coincide, and there is no correction signal from pin 5 or 10 of A2A6A16U9. Note that since A2A6A16U9 responds only to negative transitions, the correction signal is independent of the amplitude or duty-cycle of the reference and feedback signals.

3-198. The positive or negative pulses from phase detector A2A6A16U9 are applied through resistor A2A6A16R26 or A2A6A16R25, respectively, to the inverting input (pin 2) of amplifier A2A6-A16U10 (see figure 3-7). Amplifier A2A6A16U10 and feedback elements A2A6A16R27, R28, C25 form a conventional integrating amplifier, which converts the positive or negative phase detector pulses into dc control voltages for the A2A6A16-U11 VCO. In the phase-locked condition, the integrating amplifier stores the proper VCO control voltages. The input voltage range of A2A6A16U10 is established by the voltage drop across forward-biased reference diodes A2A6A16CR2, CR3 which is applied through resistor A2A6A16R29 to the non-inverting input (pin 3) of A2A6A16U10. The dc control voltage output from A2A6A16U10 pin 6 is applied through resistors A2A6A16R31, R32 to reverse-bias variable capacitance diode A2A6A16CR5, which forms an LC tank circuit in conjunction with inductor A2A6A16L5 and capacitor A2A6A16C30.

3-199. The reverse voltage across A2A6A16CR5 determines the exact value of the tank circuit reactance, and capacitor A2A6A16C30 limits the output frequency range of A2A6A16U11. The tank circuit is connected to input pins 10 and 12 of oscillator A2A6A16U11 to establish the output frequency at pin 3. Resistor A2A6-A16R33 maintains a fixed bias at the anode of A2A6A16CR5 to insure that the variable capacitance diode is always reverse-biased, and capacitor A2A6A16C29 serves a dc-blocking function. Capacitor A2A6A16C28 ensures that the voltage applied to A2A6A16CR5 is a dc level, since any signal at this point (such as phase detector pulses feeding through A2A6A16U10) will produce undesirable sidebands at the VCO output. Capacitor A2A6A16C31 completes the signal ground path for the LC tank circuit, and A2A6-A16C32, C33 serve as rf bypasses.

3-200. In the phase-locked condition the output frequency of A2A6A16U11 is in the range of 9.981 to 9.985 MHz, with the exact frequency determined by the value of vernier control voltage applied to connector A2A6A16P1-3. The output signal from A2A6A16U11-3 is buffered by emitter-follower A2A6A16Q5 and coupled through capacitor A2A6A16C34 to a level shifter and buffer circuit consisting of inverters A2A6A16-U12A through U12D (see figure 3-5) and associated components. Circuit operation of the level shifter and buffer circuit is the same as described for inverters A2A6A16U1A through U1D (paragraphs 3-174, 3-175).

3-201. The output signal at pin 10 of inverter A2A6A16U12C is applied to one input of mixer A2A6A16U13, which develops a 15 to 19 kHz input signal for phase detector A2A6A16U9 as previously described. The 9.981 to 9.985 MHz output signal is also applied from pin 12 of inverter A2A6A16U12D to the divide-by-9984 circuit. Dividers A2A6A16U14, A2A6-A16U17 (see figure 3-11) are configured, via the connection from pin 1 to pin 12, to divide the input frequency (at pin 14) by sixteen and apply the output signal to pin 11. The remainder of the divide-by-9984 function is performed by a divide-by-39 circuit consisting of programmable dividers A2A6A16U15, A2A6A16U16.

3-202. Cascaded dividers A2A6A16U15, and A2-A6A16U16 are preset to divide by 9 and 3, respectively, via the programming input to pins 2, 5, 11, and 14. The pin 12 output of each divider remains low until the divider has decremented by the preset number of counts. Since the parallel-connected outputs receive V_{CC} through internal resistors at pin 13, a positive pulse is applied to input pin 14 of A2A6A16-U17 only when A2A6A16U15 and U16 have both counted down from their preset counts to zero.

3-203. At the 9th, 19th and 29th input pulse to A2A6A16U15 pin 6, a positive clock pulse will be applied to A2A6A16U16 pin 6. These clock pulses decrease the count in A2A6A16U16 from the original 3 to zero. After ten more input pulses to A2A6A16U15 pin 6, the parallel connected pin 12's of A2A6A16U15 and A2A6A16-U16 will go positive, reset A2A6A16U15 and A2A6A16U16 to 39, and advance A2A6A16U17 by one count. The output signal from the divide-by-9984 circuit (at pin 11 of A2A6A16U17) is in the frequency range of 999.7 to 1000.1 Hz as required for the R-1051G/URR vernier tuning application. This vernier controlled reference signal is then gated through A2A6A16U6C, U6D (see paragraph 3-192) for application to 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12.

3-204. 10 kHz/1 kHz/100 Hz Synthesizer (Figures 5-41, 5-42). The 10 kHz/1 kHz/100 Hz Synthesizer Subassemblies A2A6A12 and A2A6-A18 produce the 3.3001 to 3.4 MHz injection signal used in the low-frequency mixing circuits of RF Translator Subassembly A2A6A8. An electronic closed-loop servo system compares the output signal with a 1 kHz input reference signal from Frequency Generator Subassembly A2A6-A16. The phase of the output signal is compared with the phase of the 1 kHz reference in A2A6-A12, and any phase difference is converted into a dc control voltage. This error-correction voltage alters the output signal frequency and phase to maintain a constant phase difference between the output signal and the 1 kHz reference signal, at which time the loop is locked.

3-205. The 1 kHz reference signal is supplied by dividers in Frequency Generator Subassembly A2A6A16, and accuracy of the 3.3001 to 3.4 MHz injection signal is the same as that of Frequency Standard Assembly A2A5, except when the Hz switch A2A11S1 is in V position (see paragraph 3-192).

3-206. The output signal is developed by a voltage-controlled oscillator (VCO) consisting of variable capacitance diode A2A6A12A1CR1, LC oscillator A2A6A12A1U1, and associated components. The frequency at output pin 3 of A2A6A12A1U1 is in the range of 33.001 to 34.0 MHz, as determined by the reactance of the LC tank circuit comprised of A2A6A12A1CR1, A2A6A12A1C2-C3 and A2A6A12A1L1. A dc frequency control voltage reverse-biases varactor A2A6A12A1CR1 (through resistor A2A6A12A1R1) to establish the exact value of the LC tank circuit reactance and thereby determine the specific output frequency from A2A6A12A1U1. Capacitors A2A6A12A1C1 and C4 complete the signal path for the 33.001 to 34.0 MHz oscillations in the resonant circuit. The output of the VCO is applied to emitter follower A2A6A12A1Q1, which isolates LC oscillator A2A6A12A1U1 from the output circuitry loads. The output is then applied to inverters A2A6A12U2A-U2C, which provides the correct logic level input to pin 8 of decade divider A2A6A12U3. The 3.3001 to 3.4 MHz output signal from pin 2 of A2A6A12U3 is inverted by A2A6A12U2D and applied to bandpass filter A2A6A12L6-L10, A2A6A12C10-C12. The level of injection signal out is adjustable by means of variable resistor A2A5A12R16. The output from LC oscillator A2A6A12A1U1 is also applied to the divider network Subassembly A2A6A18.

3-207. The output signal from pin 3 of A2A6-A12A1U1 is applied to the programmable frequency divider network of 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A18. The programmable frequency divider network selects the specific injection frequency as a function of the positions of the front panel Hz switch (A2A11S1), the 1 kHz coding switch (A2A6S1), and the 10 kHz coding switch (A2A6S2) on the chassis of Translator/Synthesizer A2A6. For example, if the front panel controls are set for a frequency of 1,100 Hz (10 kHz control is set at 0 unless otherwise indicated) the divider network will be programmed to divide the VCO output frequency by 33.989. In the phase-locked condition the VCO output frequency is exactly 33.989 MHz and the divider network output frequency is exactly 1 kHz. If the VCO output is slightly off frequency, the output from the divide-by-33.989 network will no longer be exactly 1 kHz.

3-208. The divider network output is applied to pin 3 of phase detector A2A6A12U1, which develops negative pulsed outputs in proportion to the magnitude and direction of the phase difference between the divider network output and the 1 kHz reference input from Frequency Generator Subassembly A2A6A16. The negative pulses are applied through resistor A2A6A12R4 or A2A6A12R19 to the charge pump circuit comprised of transistors A2A6A12Q1 through A2A6-A12Q3. The charge pump amplifies the negative going pulses from A2A6A12R4, or inverts and amplifies the negative going pulses from A2A6-A12R19. The charge pump output (which consists of negative or positive going pulses, respectively) is applied to loop filter A2A6A12C2, A2-A6A12R7, A2A6A12R9, which converts the output pulses from the charge pump into the dc frequency control voltage required by variable capacitance diode A2A6A12A1CR1. If the phase difference between the pin 1 and pin 3 inputs to A2A6A12U1 is not constant, the dc frequency control voltage will decrease or increase the reverse-bias across A2A6A12A1CR1, and the capacitance of A2A6A12A1CR1 will change as required to establish the proper output frequency from the VCO. An increase in the control voltage will increase the frequency of the VCO.

3-209. The output of the VCO is also applied to emitter follower A2A6A12A1Q1, which isolates LC oscillator A2A6A12A1U1 from the output circuitry of 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A12. From the emitter of A2A6A12A1Q1 the VCO output is applied to inverters A2A6A12U2A-U2C, which increase the amplitude of the 33.001 to 34.0 MHz signal and provide the correct logic level input to pin 8 of decade divider A2A6A12U3. The 3.3001 to

3.4 MHz output signal from pin 2 of A2A6A12U3 is inverted by A2A6A12U2D and applied to band-pass filter A2A6A12L6-L10, A2A6A12C10-C12. The narrow pass-band and sharp cutoff characteristics of this filter attenuate frequencies outside the injection signal range to prevent spurious responses. The injection signal amplitude is adjusted by potentiometer A2A6A12R16 to establish the proper injection signal level to the low frequency mixing circuit of RF Translator Subassembly A2A6A8.

3-210. The A2A6A18 assembly (see figure 5-41) performs the division of the A2A6A12A1U1 VCO output frequency to provide the 1 kHz for the A2A6A12U1 phase detector (paragraph 3-205). Dual modulus prescaler A2A6A18U1 (see figure 5-41) divides inputs on pin 15 by either 10 or 11 depending upon whether pins 9 and 10 are at a logic high or low respectively. This divided frequency output from A2A6A18U1 pin 7 is applied to counters A2A6A18U3 and U4 and to counter control logic device A2A6A18U12. Once each kilohertz period the inputs to A2A6A18U2 (see figure 5-42) on pins 10 through 14 achieve the logic states necessary to produce an output at pin 9. This output is the 1 kHz for the phase detector A2A6A12U1.

3-211. An example of how the prescaler and the cascaded dividers or counters synthesize a frequency can be seen in the following. Consider that A2A6A18U7 counts by ten to the fourth power, A2A6A18U6 by ten to the third, A2A6A18U5 by ten to the second, A2A6A18U4 by ten to the first and A2A6A18U3 by ten to the zero power. Also consider that all counters must complete their counts one thousand times per second to attain an output of 1 kHz. Then the frequency of the network operation is the sum of the cycles required to count down each counter multiplied by one thousand. The required mixing frequency for front panel settings of 2,400 Hz is 3.3976 MHz. This would result in an input frequency to prescaler A2A6A18U1 of 33.976 MHz. Divider A2A6A18U7 is fixed to count by three. Divider A2A6A18U6 can be programmed for either a count of three or four and is set at three. Similarly, A2A6A18U5 which can be set from zero through 9 is set at nine. A2A6A18U4 and A2A6A18U3 should be set at seven and six respectively. Adding the cycles required for each counter;

U7 = 3 times ten to the fourth	=	30000
U6 = 3 times ten to the third	=	3000
U5 = 9 times ten to the second	=	900
U4 = 7 times ten to the first	=	70
U3 = 6 times ten to the zero	=	6
		33976

33976 times 1000 = 33.976 times ten to the sixth = 33.976 MHz. Thus, the fixed count in A2A6-A18U7 represents the most significant digit in the programmable divider network. Cascading of dividers A2A6A18U4-A2A6A18U7 requires the input of each divider to be connected to the output of each preceding divider. The preset count (pin 12) outputs of dividers A2A6A18U5-A2A6-A18U7 are connected in parallel so that the data reset pulse is applied to pin 10 of A2A6A18U2 only when dividers A2A6A18U5-A2A6A18U7 have all counted down from their preset numbers to the zero state.

3-212. Programming (presetting) divider A2A6-A18U3 is accomplished by positioning the front panel Hz switch, Hz switch A2A11S1 forms a binary coded decimal (BCD) word. The BCD words apply either a logic low or logic high to level shifters A2A6A18Q1-A2A6A18Q8, which change the logic low/high levels from the switch to TTL logic low/high levels which are the required input to complement converter A2A6A18U8. The output from pins 4, 3, 2, and 1 of A2A6-A18U8 is then applied to the data pins of divider A2A6A18U3.

3-213. A2A6A18U8, A2A6A18U9, and A2A6-A18U10 perform nines-or-tens complement conversion depending upon the state of input on pin 14. If pin 14 is a logic low the BCD work on pins 10, 11, 12, and 13 is changed to its 10's complement on pins 1, 2, 3, and 4. That is if the BCD input is 0, 1, 6 or 9 the output will be 0, 9, 4 or 1. A2A6A18U8 always performs tens complement conversion since its pin 14 is always a logic low. If pin 14 of A2A6A18U9 or A2A6A18U10 is high, however, their BCD input will be converted to its 9's complement. Thus if the BCD input is 0, 1, 6 or 9 the output will be 9, 8, 3, or 0. Also, if the BCD input is other than 0 the output on pin 5 will go to a logic high forcing succeeding converters to perform 9's complement conversions.

3-214. Complement converters A2A6A18U9 and A2A6A18U10 perform the appropriate nines-or-tens complement conversion for dividers A2A6-

A18U4 and A2A6A18U5 respectively. The inputs for A2A6A18U9 are from switch A2A6S1. Similarly, A2A6S2 provides the inputs for A2A6A18-U10. If A2A6S1, A2A6S2 and A2A11S1 are all at 0 positions A2A6A18U5 pin 5 will be a logic low and A2A6A18U5 pin 6 will be a logic high. This condition causes A2A6A18U6 and A2A6-A18U7 to divide by 4 and 3 respectively. If, however, any Hz, kHz, or 10 kHz input is other than 0, A2A6A18U10 pins 5 and 6 will be logic high and low respectively and A2A6A18U6 and A2A6A18U7 will each divide by 3. Thus for a panel setting of 2,400 Hz A2A6A18U8 will perform a 10's complement on the 4 (400 Hz) and A2A6A18U9 will perform a 9's complement on the two (2 kHz). Similarly, A2A6A18U9 will form a 9's complement on the zero (No 10 kHz). This forms the desired 33976 divisor.

3-215. When Hz switch A2A11S1 is in the V (vernier) position, A2A6A11U3 always divides by 9, and dividers A2A6A11U4-U7 divide by the number determined by the setting of A2A6S1 and A2A6S21A 999.7 to 1000.1 Hz reference signal is applied at A2A6A12U1 pin 1. The VCO circuit tracks the reference signal causing the injection frequency to the low frequency mixer in A2A6A8 to vary continuously in the range between two 1-kHz steps (see table 3-1).

3-216. Dual modulus prescaler A2A6A18U1 will divide the 33.001 to 34.0 MHz output by 11 if the 100 Hz switch (A2A11S1) is in any hundred position other than 000, resulting in a logic low level from pin 7 of counter-control logic A2A6-A18U2 applied to A2A6A18U1-9, 10. This division by 11 will continue until outputs from A2A6A18U3 at pins 7, 9, 15 and 1 are all logic lows. These logic lows (0 to +0.5 Vdc) at counter control logic A2A6A18U2 pins 2, 3, 4, and 5 force A2A6A18U2 pin 7 to logic high (+2.4 to +5.5 Vdc) for the balance of a counting cycle. This logic high is applied to A2A6A18U1 pins 9 and 10 which sets the dual modulus prescaler to divide by 10 for the balance of the counting cycle, at which time cascaded dividers A2A6A18U4-U7 are again zero. A counting cycle begins and ends with each output from A2A6A18U2 pin 9. The number of input pulses to A2A6A18U1 pin 15 will be the count set into A2A6A18U3 through A2A6A18U7.

3-217. Cascading of dividers A2A6A18U4 thru A2A6A18U7 is accomplished by supplying the input to each divider from the pin 1 output of each preceding divider. Thus, the preset count in A2A6A18U7 represents the most significant digit in the programmable divider network. The preset count (pin 12) outputs of dividers A2A6A18U5 through A2A6A18U7 are connected in parallel so that the data reset pulse is applied to pin 10 of A2A6A18U2 only when A2A6A18U5 through A2A6A18U7 have all counted down from their preset numbers to the zero state. Control logic in A2A6A18U2 monitors the state of divider A2A6A18U4 to determine the end of the counting cycle.

3-218. Since the divider network output is taken from pin 9 of A2A6A18U2, an output pulse will be present only when both A2A6A18U3 and A2A6A18U4 through A2A6A18U7 have counted down from their preset numbers to zero. As an example, assume that the front panel controls have been set at 2,500 Hz to select a low-frequency mixer stage injection frequency of 3.3975 MHz (as shown in table 3-1). In this case counts of 5, 7, 9, 3, and 3 are preset in dividers A2A6-A18U3 through A2A6A18U7, respectively. With A2A6A18U3 preset to divide-by-5, prescaler A2A6A18U1 divides-by-11 five times. After 55 input pulses to pin 15 of A2A6A18U1, preset divider A2A6A18U3 reaches the all zero state and counter control logic A2A6A18U2 changes the divisor of A2A6A18U1 from 11 to 10 by placing a logic high on pins 9 - 10 of A2A6A18U1.

3-219. At this time, cascade divider A2A6A18U4 through A2A6A18U7 has also decreased by five (from the preset divisor of 3,397) and is at the 3,392 count. Since the divisor of A2A6A18U1 is now 10, cascade divider A2A6A18U4 through A2A6A18U7 decreases by one count for every ten input pulses to prescaler A2A6A18U1, and therefore reaches the all zero stage after 33,920 input pulses have been supplied to pin 15 of A2A6A18-U1. At this time both A2A6A18U3 and A2A6-A18U4 through A2A6A18U7 are in the all zero state, and one output pulse is applied from pin 9 of counter control logic A2A6A18U2 to input pin 3 of phase detector A2A6A12U1.

3-220. Note that the total number of input pulses required for one output pulse is 33,920 plus 55, or 33,975. Since the phase detector input pulses must occur at a 1 kHz rate in the phase-locked condition, the VCO output frequency is locked at 1 kHz times 33,975, or 33.975 MHz. The VCO output is then applied through decade divider A2A6A12U3 to provide a 3.3975 MHz injection signal to the low-frequency mixing circuit of

RF Translator Subassembly A2A6A8 as previously described (paragraph 3-217).

3-221. Programming of dividers A2A6A18U3 through A2A6A18U6 is accomplished by setting the front panel 10 kHz, 1 kHz controls and Hz switch as follows. Hz switch A2A11S1 applies one of ten binary coded decimal (BCD) words to input pins 8 through 11 of A2A6A18P1. The BCD words are formed by applying either an open circuit (logic low) or +4.3 Vdc (logic high) to each of the four code lines, with the input at A2A6A18-P1-11 corresponding to the least significant bit of the word. The code from the Hz switch undergoes logic level conversion in level shifters A2A6A18-Q1-Q8, which change the logic low/high levels from open circuit/+4.3 Vdc to 0 to +0.8 Vdc/ +2 to +5 Vdc as required for reliable operation of tens complement converter A2A6A18U8.

3-222. Each BCD word (see note 1 of figure 5-11) applied to input pins 10 through 13 of A2A6-A18U8 represents a unique setting of the front panel Hz switch. The outputs from pins 1 through 4 of A2A6A18U8 are then applied to the data pins of divider A2A6A18U3, with the code from A2A6A18U8 pin 1 representing the least significant bit. For example, when the front panel Hz switch is set to 300 the BCD word 3 (0011) is applied to A2A6A18U8, and is converted into 7 (0111) on pins 4, 3, 2, and 1 respectively, for programming of divider A2A6A18U3 (see notes 1 and 2 of figure 5-11). Divider A2A6A18U3 is then present to count down from the number 7.

3-223. Programming of divider A2A6A18U4 differs from the previous paragraphs in that the preset counts depend upon whether the Hz control is in the 000 position or not (see note 3 of figure 5-11). If the Hz control is in the 000 position A2A6A18U8 pin 5 is at a logic low (see note 1 of figure 5-11). The logic low is applied to A2-A6A18U9 pin 14. Thus, the output of A2A6-A18U9 will be the 10's complement of the input from kHz switch A2A6S1. If, however, the Hz switch is in other than the 000 position pin 5 of A2A6A18U8 will be at a logic high and A2A6-A18U9 will perform the 9's complement of any input from the kHz switch. Thus, 7000 on the Hz and kHz dials will be programmed as its 10's complement into A2A6A18U4 i.e., as 3 (0011) on pins 2, 14, 11 and 5 of U4, while 7100 will be programmed as its 9's complement into U4 as 2 (0010) on pins 2, 14, 11 and 5.

3-224. Programming of A2A6A18U5 is accomplished in a similar manner to A2A6A18U4. The BCD word from 10 kHz switch A2A6S2 is applied to converter A2A6A18U10 (see note 3 of figure 5-11). If both the Hz and kHz controls are set at 0 A2A6A18U10 will perform the 10's complement of the input BCD word from the 10 kHz control since pin 14 of A2A6A18U10 will be at a logic zero (see note 1 of figure 5-11). However, if either the Hz or kHz control is set other than at 0 A2-A6A18U10 pin 14 will be at a logic high and a 9's complement conversion of the input BCD word from the 10 kHz control will be performed by A2A6A18U10. A2A6A18U10 conversion outputs of pins 1 through 4 are used to program A2A6-A18U5 on pins 5, 11, 14 and 2.

3-225. A2A6A18U6 is programmed as a 4 if the Hz, kHz and 10 kHz controls are all at 0. For this condition pin 6 of A2A6A18U10 will be at a logic high. This logic high is applied to A2A6-A18U6 and programs it to a 4. If, however, any or all of the Hz, kHz or 10 kHz controls is other than at 0 A2A6A18U10 pin 5 will be at a logic high. This logic is applied to pins 5 and 11 of A2A6A18U6, and U6 is programmed as a 3. Three and four are the only programmed states for A2A6A18U6. A2A6A18U7 is always programmed for three by applying 5 volts through A2A6-A18R2 to pins 5 and 11.

3-226. 100 kHz Synthesizer (Figures 5-12, 5-40). The 100 kHz Synthesizer Subassembly A2A6A17 produces the injection frequency of 22.4 to 23.3 MHz (lo-band) or 32.4 to 33.3 MHz (hi-band) used in the mid-frequency mixer circuits of RF Translator Subassembly A2A6A8. This synthesizer uses phase-locked loop circuitry similar to that used in 10 kHz/1 kHz/100 Hz Synthesizer Subassembly A2A6A18/12. The phase detector (A2A6A17U1), charge pump (A2A6A17Q6-Q8), loop filter (A2-A6A17C2, C3, R8, R32-R33), VCO (A2A6A17-A1CR1, L1, U1) and variable divisor prescaler (A2A6A17U4-U8) circuits are identical to the corresponding circuits of the 10 kHz/1 kHz/100 Hz synthesizer except for component values.

3-227. The VCO output from pin 3 of LC oscillator A2A6A17A1U1 is applied through emitter-follower A2A6A17A1Q1 to a programmable frequency divider network consisting of integrated circuits A2A6A17U4 through A2A6A17U8. This network divides the VCO output frequency by a number in the range of 224 to 233 or 324 to 333 as determined by the setting of the front panel

100 kHz control and the state of the hi-lo band control line at pin 7 of A2A6A17P1. From pin 9 of A2A6A17U5, the divider network output is applied to input pin 3 of phase detector A2A6-A17U1.

3-228. The phase detector produces an error correction output proportional to the phase difference between the divider network output signal and the 100 kHz reference signal from Frequency Generator Subassembly A2A6A16, and the VCO output is phase-locked to the 100 kHz reference signal as previously described (see paragraph 3-206). Since the phase-locked loop maintains the programmable frequency divider output at exactly 100 kHz, the VCO output is a discrete frequency in the range of 22.4 to 23.3 MHz (lo-band) or 32.4 to 33.3 MHz (hi-band).

3-229. Programmable divider network A2A6A17-U4-U8 functions in the same manner as the 10 kHz/1 kHz/100 Hz synthesizer divider network (see paragraph 3-210). The front panel 100 kHz control is coupled to coding switch A2A6S3 via a mechanical chain-drive mechanism. For each position of the associated front panel control, the coding switch generates a unique offset BCD word consisting of open circuits and grounds, which is converted to standard BCD format (grounded and +5 Vdc lines) by pull-up resistors. The BCD words are then applied to the data inputs (pins 2, 14, 11, and 5) of divider A2A6A17U6 to establish the preset counts.

3-230. When the front panel controls are set at 400 kHz the data input to A2A6A17U6 is a BCD 8 (1000) (see note 1 of figure 5-12). Divider A2A6A17U6 is preset to 8. Divider A2A6A17U7 is preset to 2 for 100 kHz control settings of 0 through 5 and to 3 for 100 kHz settings of 6 through 9. For 100 kHz control settings of 0 through 5 the logic level at either pin 2 or 14 of A2A6A17U6 is a logic high (through pull-up resistor A2A6A17R24 or R25). These levels are applied to NOR gate A2A6A17Q4 and A2A6A17Q5. The common collector (NOR tate output) will be a logic low and A2A6A17U7 will be preset to 2. For 100 kHz settings of 6 through 9 both inputs to the NOR gate will be at a logic low so the NOR gate output will be at a logic high and A2A6A17-U7 will be preset to three.

3-231. Divider A2A6A17U8 is preset to either 2 or 3 in response to the state of the hi-lo band control input at A2A6A17P1-20. Transistor A2A6-A17Q3 converts the +20 Vdc/ground control input into logic low/logic high levels for application to data pin 5 of A2A6A17U8. Thus, A2A6A17U8 is preset to 2 for a +20 Vdc control input (lo-band) and to 3 for a ground control input (hi-band).

3-232. The VCO output is also applied to a conventional common-emitter amplifier (A2A6A17-Q1), which isolates the VCO from the output stage circuitry. The gain of A2A6A17Q1 is set by means of potentiometer A2A6A17R10 to establish the proper output signal level. The signal is applied from the collector of A2A6A17Q1 to bandpass filter A2A6A17L4-L7, A2A6A17C15, A2A6A17-C17, A2A6A17C18, which attenuates undesired signals outside the range of 22.4 to 33.3 MHz. Common-emitter amplifier A2A6A17Q2 provides isolation, matches the output impedance of the bandpass filter, and provides a low impedance output for filter assembly A2A6FL5.

3-233. 22.9/32.9 MHz Filter Assembly A2A6FL5 (Figure 5-37). Filter Assembly A2A6FL5 serves to remove unwanted spurious signals from the output of the 100 kHz A2A6A17 assembly. When the set is tuned to a low band (see table 3-1) the injection voltage is at a frequency between 22.4 and 33.3 MHz. Filter Assembly A2A6FL5 receives HI/LO band information from A2A6P1-20 to enable the internal high or low band filter. Internal steering diodes direct the A2A6A17 output through either the high or low narrow band filters. The A2A6FL5 output is applied as the injection signal for use in the mid frequency mixing circuits of rf translator assembly A2A6A8.

3-234. 10 MHz/1 MHz Synthesizer (Figure 5-43). The 10 MHz/1 MHz Synthesizer Subassembly A2A6A13 accepts a 500 kHz reference signal from Frequency Generator Subassembly A2A6A16 and a five-line tuning code (consisting of opens and grounds) from Code Generator Assembly A2A7. The A2A6A13 and A2A6A14 subassemblies provide one of 17 injection frequencies in the range of 2.5 to 23.5 MHz to the high frequency mixer circuit of RF Translator Subassembly A2A6A8. The phase-locked loop operation is identical to that previously described for the 10 kHz/1 kHz/100 Hz and 100 kHz synthesizers, that is, the 20 to 50 MHz VCO output signal is applied through a programmable frequency divider network to establish one input to phase detector A2A6A13U1. Phase detector A2A6A13U1 then compares the phase of this signal with the phase of a 500 kHz reference signal supplied by Frequency Generator

Subassembly A2A6A16, and generates a dc frequency correction voltage (via loop filter A2A6-A13U2, C3, R8) to lock the VCO on frequency. The 2.5 to 23.5 MHz injection signal to RF Translator Subassembly A2A6A8 thereby has the same frequency stability as the 10 MHz output from Frequency Standard Assembly A2A5.

3-235. Decade dividers A2A6A13U9, A2A6A13-U10 are preset via the data inputs to pins 2, 14, 11 and 5 in the same manner as the previously described dividers (A2A6A9U15, A2A6A9U16, A2A6A17U6-U8, and A2A6A18U3-U7). A five-wire tuning code (consisting of open circuits and grounds) from Code Generator Assembly A2A7 is applied through filter assembly A2A6A13A1 to input pins 10 through 14 of read-only memory A2A6A13U11. Each tuning code corresponds to a unique setting of the front panel MHz controls, and is converted to BCD format via A2A6A13U11. When the front panel controls are set to 19 MHz the input to code lines 1 through 5 will be G, G, G, O, O (where "G" represents a ground and "O" represents an open circuit) as shown in table 3-2.

3-236. The grounded and open lines are converted to logic low and logic high levels, respectively, via pull-up resistors and the input code 0, 0, 0, 1, 1 is applied to pins 10 through 14 of A2A6A13U11. Referring to notes 1 and 2 of figure 5-13, it will be seen that pins 6, 7, and 9 of A2A6A13U11 then apply the code 0, 1, 0 to data pins 5, 11, and 14 of A2A6A13U10, which is thereby preset to 2. In like manner, pins 3, 4, and 5 of A2A6A13U11 preset the count of A2A2A13U9 at one. Since the dividers are in a cascade configuration, the input frequency at pin 6 of A2A6A13U9 is divided by 21 and appears at output pin 9 of counter control logic A2A6A13U8 for application to the phase detector.

3-237. The VCO output signal is applied to the programmable frequency divider network through a fixed divisor prescaler A2A6A13U5. Assuming that the front panel controls are set at 19 MHz and that the VCO is phase-locked to the reference signal at pin 1 of A2A6A13U1, a 42.0 MHz signal from pin 3 of LC oscillator A2A6A13U3 is applied through emitter follower A2A6A13Q1 to pin 6 of A2A6A13U4. Both A2A6A13U4A and A2A6-A13U4B provide logic level conversion and buffering for reliable operation of divider A2A6A13U5, which then provides output signals of 21, 10, 5, and 5.25 MHz at pins 5 and 6, pin 9, and pin 2, respectively. Selection of the 10.5 MHz output from pin 9 of A2A6A13U5 is accomplished by gating circuitry in response to the signals from output pins 1 and 2 of read-only memory A2A6-A13U11. Since in this example the programmable divider network is preset to divide-by-21, the 10.5 MHz signal appears as a 500 kHz signal at input pin 3 of phase detector A2A6A13U1 (as required for the phase-locked condition).

3-238. The gating circuitry selects the proper output from divider A2A6A13U5 and also selects the appropriate filter network within 10 MHz/1 MHz Filter Subassembly A2A6A14. If pins 1 and 2 of A2A6A13U11 are at logic high and logic low levels, respectively, NAND gates A2A6A13U6A, 6B will open and pass the 7.5 to 12.5 MHz output of A2A6A13U5 to output connector A2A6A13-A1P1-A3. The logic high level at pins 6 and 9 of A2A6A13U6 is also applied to transistor switch A2A6A14Q4, which then applies operating voltage to the 7.5 to 12.5 MHz filter network. In a similar manner, NAND gates A2A6A13U4C and 4D select the 2.5 to 5.5 MHz output of A2A6-A13U5 whenever output pin 1 of A2A6A13U11 is at a logic low level.

3-239. Selection of the 14.5 to 23.5 MHz output from A2A6A13U5 is accomplished by a NAND gate comprised of A2A6A13CR5, CR6, and Q2. Diodes A2A6A13CR5, CR6 monitor the control lines from pins 1 and 2 of A2A6A13U11, and if either line is at a logic low level (i.e., either the 2.5 to 5.5 MHz or 7.5 to 12.5 MHz gates are open) transistor A2A6A13Q2 is cut off. In this condition, the collector of A2A6A13Q2 is at a logic high level and the 14.5 to 12.4 MHz gates are closed. When both control lines are at a logic high level diodes A2A6A13CR5, CR6 cause transistor A2A6A13Q2 to turn-on, and the logic low at the collector of A2A6A13Q2 opens gates A2A6-A13U6C, A2A6A13U6D and, via transistor switch A2A6A14Q7, applies operating voltage to the 14.5 to 23.5 MHz filter network in 10 MHz/1 MHz Filter Subassembly A2A6A14.

3-240. 10 MHz/1 MHz Filter Subassembly (Figure 5-44). The filter subassembly filters the outputs of 20 MHz/1 MHz Synthesizer Subassembly A2A6A13. The filter subassembly contains three separate circuits identical in performance, differing only in the electrical values of their component parts. Each circuit filters a specific portion of the 10 MHz/1 MHz Synthesizer output frequency band. Only one circuit at a time is active, as selected by the outputs of read-only memory A2A6-

A13U11 (see paragraphs 3-238 and 3-239). Since circuit performance is identical for all three circuits, only the 4 MHz circuit will be described.

3-241. The 2.5 to 5.5 MHz injection signal from A2A6A13 (see paragraph 3-240) at A2A6A14-P1-A1 is coupled through A2A6A14C1 to the base of amplifier A2A6A14Q2. At the same time a control signal (ground) applied at A2A6A14P1-1 turns on transistor switch A2A6A14Q1, which applies operating voltage to amplifier A2A6A14Q2 to buffer A2A6A14Q3. The conventional untuned amplifier A2A6A14Q2 utilizes shunt peaking inductor A2A6A14L1 and a partially bypassed emitter resistance (provided by capacitor A2A6-A14C4) to establish uniform gain over the 2.5 to 5.5 MHz frequency range. The voltage gain of A2A6A14Q2 is adjusted by potentiometer A2A6-A14R7. From the collector of A2A6A14Q2 the amplified 2.5, 3.5, 4.5, or 5.5 MHz signal is coupled through A2A6A14C2 to a bandpass filter consisting of A2A6A14L2-L5 and A2A6A14C3, C5, and C6.

3.242. The bandpass filter attenuates signals outside the 2.5 to 5.5 MHz frequency range and applies the desired signal through A2A6A14C7 to the base of emitter follower A2A6A14Q3. The emitter of A2A6A14Q3 provides a low impedance injection signal source, through capacitor A2A6-A14C29, for the subassembly output at A2A6-A14P1-A4. Resistors A2A6A14R9, R10 provide operating bias for A2A6A14Q3, and A2A6A14-C8, L6 provide power supply decoupling. Note that the buffers for all circuits (A2A6A14Q3, A2A6A14Q6, A2A6A14Q9) utilize the same emitter resistor (A2A6A14R31).

3-243. Power Supply Subassembly A2A6A15 (figure 5-45). The power supply subassembly accepts +20 Vdc from Filter Subassembly A2A6A7 and generates the +5 Vdc required for operation of the translator/synthesizer subassemblies. A solid-state switching regulator design provides high efficiency and minimizes dissipation in the regulating elements, and employs two separate current-limiting stages to protect the supply. The +20 Vdc input is filtered by capacitors A2A6A15C2 and A2A6-A15C3, C16 and applied to voltage comparator A2A6A15U1 (see figure 3-19), which is configured as a free-running oscillator via the regenerative feedback through resistor A2A6A15R2 and capacitor A2A6A15C1. Dropping resistors A2-A6A15R1, A2A6A15R3 and feedback resistor A2A6A14R4 provide a voltage reference at input pin 2 to maintain a constant amplitude 30.4 to 33.6 kHz square wave output at pin 7.

3-244. The output at pin 7 of A2A6A15U1 is applied through low-pass filter A2A6A15R6 and C4 to the reference input (pin 5) of voltage regulator A2A6A15U2. A2A6A15U2 applies a regulated 5 volt square-wave from output pin 2 to switch driver A2A6A15Q1. This large value of base bias rapidly drives A2A6A15Q1 into conduction, and the collector of A2A6A15Q1 provides base bias for switch A2A6A15Q3 (which is also overdriven to provide a fast turn-on time). During the time that A2A6A15Q1, Q3 are saturated, energy is stored in inductor A2A6A15L1 and capacitors A2A6A15C9, C10 as well as being supplied to the load. During the time that A2A6-A15Q1 and Q3 are off the energy stored in A2A6-A15L1, C9 and C10 is used to energize the load, with power diode A2A6A15CR2 providing the return path for the current. The current through A2A6A15L1 is from the input when Q1 and Q3 are on, and to ground through CR2 when Q1 and Q3 are off. Coil A2A6A15L2 provides power supply decoupling for succeeding stages.

CHAPTER 4

SCHEDULED MAINTENANCE

4-1. INTRODUCTION.

4-2. This chapter contains preventive maintenance procedures and performance test instructions for Radio Receiver R-1051G/URR to be accomplished on a scheduled basis. Included are a scheduled maintenance action index; procedures required to inspect and clean the equipment; and step-by-step procedures necessary to verify that the equipment is operating satisfactorily within standards in all modes of operation.

NOTE

The scheduled maintenance instructions in this manual are cancelled when the Planned Maintenance System (PMS) is implemented for this equipment aboard your ship or station.

4-3. SCHEDULED MAINTENANCE ACTION INDEX.

4-4. Table 4-1 includes all scheduled and unscheduled maintenance procedures and performance tests. The periodicity column gives the scheduled interval between performance of these procedures. The periodicity symbols are as follows:

Interval	Symbols
Weekly	W
Monthly	M
Quarterly	Q
Semiannually	S
Annually	A
Unscheduled	U

The maintenance action column lists the maintenance action which corresponds to the periodicity symbol in column 1, and the reference column states the number of the table that contains the procedure listed in column 2. Performance tests identified by periodicity symbol U are unscheduled and are to be performed only at the time of installation or overhaul, or when the result from a related scheduled procedure indicates trouble.

4-5. PREVENTIVE MAINTENANCE PROCEDURES.

4-6. Table 4-2 gives all procedures required to inspect and clean the receiver.

4-7. SCHEDULED PERFORMANCE TESTS.

4-8. SAFETY PRECAUTIONS. The attention of officers and operating personnel is directed to NAVSHIPS 0967-000-0100, Electronic Installation Maintenance Book - General or superseding precautions to be observed. While every practicable safety precaution has been incorporated into this equipment, the following rules must be strictly observed.

WARNING

Failure to comply with the following instructions may result in severe electrical shock. Maintenance personnel must at all times observe all safety regulations.

1. Make sure you are not grounded whenever making measurements or adjustments. For example, hand rails, exposed metal decks, or equipment frames may provide inadvertent ground contacts.

2. Ground case of test equipment whenever possible, and before starting measurements where test equipment must be held or adjusted during the measurements.

3. Do not change tubes or make adjustments inside equipment with high voltage supply on. To avoid casualties, always remove power from receiver and connect a ground first. Under certain conditions dangerous potentials may exist in circuits with power controls in the off position, due to charges retained by capacitors.

4. Be careful even when measuring low voltages. Do not forget that high voltages may be present across terminals which are normally low voltage.

5. Interlock switches are safety devices for removing hazardous voltages from equipment,

and should be operated only by authorized maintenance personnel. Do not defeat interlock switch unless specifically instructed to do so in the test conditions portion of the performance test to be performed. Never completely rely on any door or safety interlock to remove voltage from the equipment; always measure or test to ensure that voltages are not present. Where possible, shut down motor/generators or other power equipment to ensure your protection.

4-9. PROCEDURES. Tables 4-3 through 4-17 contain detailed procedures for accomplishing the performance tests scheduled on a weekly, monthly, quarterly, semi-annual, annual, or unscheduled basis, respectively. The title and description of the test, safety precautions, the minimum rating of the technician expected to perform the test, procedures, and references to troubleshooting or corrective actions are given with each of the detailed performance test procedures. It is recommended that each test procedure be read through to its completion before the test is begun. Figure 4-1 shows the locations of connector pins on the receiver main frame chassis; figure 4-2 shows the method of fabricating the impedance adapter required by the procedure of table 4-16.

Table 4-1. Scheduled Maintenance Action Index

PERIODICITY	MAINTENANCE ACTION	REFERENCE
W	1. Check receiver overall operation.	Table 4-3
M	1. Clean R-1051G/URR Exterior.	Table 4-2
	2. Check Frequency Standard Assembly A2A5 automatic switching action and oscillator.	Table 4-4
	3. Check Interlock switch and Power Supply Assembly A2A8 +20 Vdc regulation.	Table 4-5
Q	1. Check receiver sensitivity.	Table 4-6
	2. Check frequency locking action and vernier operation.	Table 4-7
	3. Check receiver automatic gain control performance and IF gain loop adjustment.	Table 4-11
S	1. Clean R-1051G/URR Interior.	Table 4-2
	2. Clean and inspect chain drive mechanism.	Table 4-2
	3. Audio output meter calibration.	Table 4-9
A	1. Check mechanical synchronization.	Table 4-8
U	1. Check outputs of Power Supply Assembly A2A8.	Table 4-10
	2. Check performance of RF Amplifier Assembly A2A4.	Table 4-12
	3. Check performance of Translator/ Synthesizer Assembly A2A6.	Table 4-13
	4. Check performance of Mode Selector Assembly A2A1.	Table 4-14
	5. Check performance of IF/Audio Amplifier Assemblies A2A2 and A2A3.	Table 4-15
	6. Check outputs of Frequency Standard Assembly A2A5.	Table 4-16

If alternate signal generator is used for the procedures herein, the instructions which call for the "locking of signal generator frequency" must be changed in each instance to the following instructions: "Tune the signal generator for peak audio".

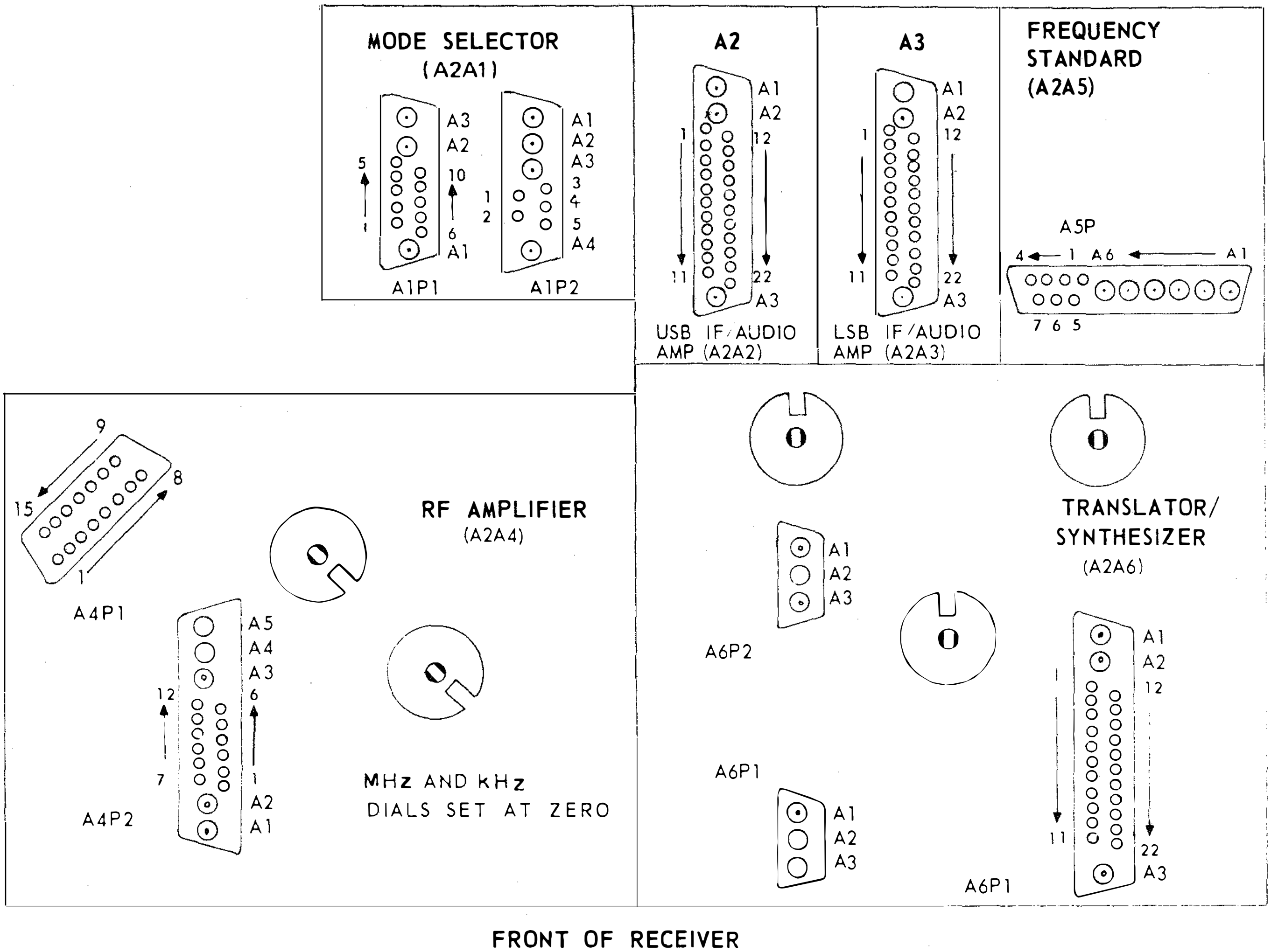


Figure 4-1. Main Frame Connector Pin Location Diagram
(Top View)

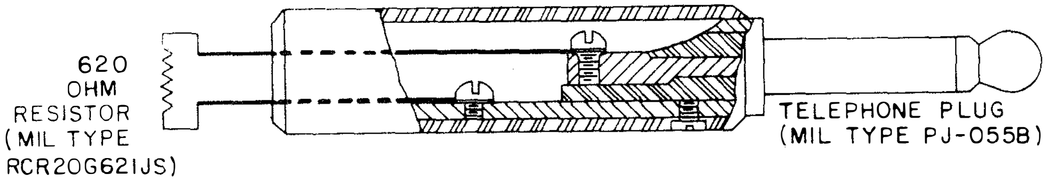


Figure 4-2. Fabrication of 600 Ohm Impedance Adapter

Table 4-2. Preventive Maintenance Procedures

TYPE MAINTENANCE	TOOLS/TEST EQUIP/ MATERIAL/PARTS REQUIRED	LEVEL PERSONNEL	PROCEDURES
Exterior cleaning (M1)	Clean cloth Hot soapy water.	RMSN	Dampen cloth with hot soapy water and wipe front panel.
	WARNING Do not tamper with interlock switch when main frame chassis is extended from case for cleaning or inspection.		
Interior cleaning (S1)	Clean cloth Sash brush	RMSN	Set mode selector switch A2S2 to OFF. Disconnect cable to connector A1A1J3 on back panel of receiver. Loosen front panel screws and slide main frame chassis out of case. Clean interior with a clean cloth and a clean sash brush. Slide chassis back into case and tighten front panel screws. When finished reconnect cable disconnected above.
Chain drive cleaning and inspecting (S2)	Clean cloth.	ET3	Set mode selector switch to OFF. Loosen front panel screws, slide chassis out of case, and tilt 90 degrees to expose bottom. Rotate each kHz control on front panel through all positions. Check drive chains for excessive slack resulting in excessive play in control. Check that gears rotate evenly, with-

Table 4-2. Preventive Maintenance Procedures (Continued)

TYPE MAINTENANCE	TOOLS/TEST EQUIP/ MATERIAL/PARTS REQUIRED	LEVEL PERSONNEL	PROCEDURES
Chain drive cleaning and inspecting. (Cont.)			out slipping, from one position to another. Check that all screws and hardware on gear assemblies are securely tightened. Inspect gears and drive chains for corrosion, damage, or noticeable wear. Wipe dust from all parts with clean cloth. Return chassis to horizontal, slide back into case, and tighten front panel screws.

Table 4-3. Overall Receiver Check

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized

Mode selector switch (A2S2): CW

AUDIO LEVEL switch (A2A12S1): USB 20 dBm

AGC switch (A2S3): SLOW

Hz switch (A2A11S1): 000

USB LEVELS LINE control (A2R2): Fully counterclockwise

RF GAIN control (A2R3): Fully clockwise

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
W1	Check receiver operation.	Headset AUDIO LEVEL meter	(a)_______ (Check)

PROCEDURE: Tune receiver to station WWV or WWVH at 5, 10, 15, or 20 MHz. Plug headset into PHONE USB jack (A2J2). Adjust USB LEVELS LINE control (A2R2) and USB LEVELS PHONE control (A2R5) for a comfortable level.

Check that signal is received in headset, and that BFO tone varies when BFO frequency control (A2R6) is rotated. Also check for a variable indication on AUDIO LEVEL meter. Change USB AUDIO LEVEL meter switch as required.

Set mode selector switch (A2S2) to USB. Tune receiver 1 kHz lower than WWV carrier, and check that signal is heard in headset. Set mode selector switch to RATT and ISB. Check that signal is heard in headset for each position.

Set mode selector switch and AUDIO LEVEL meter switch to LSB +20 dBm. Tune receiver 1 kHz higher than WWV carrier, plug headset into PHONE LSB jack (A2J1), and set LSB LEVELS LINE control (A2R1) and LSB LEVELS PHONE control (A2R4) for a comfortable signal level. Check that signal is heard in headset. Set mode selector switch to ISB and check that signal is heard in headset.

Table 4-3. Overall Receiver Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
W1 (Cont.)	Set Hz switch (A2A11S1) to V (vernier) and rotate Hz vernier control (A2A1R1). Check that audio signal level and frequency varies, both as heard in headset and as indicated on AUDIO LEVEL meter. Change AUDIO LEVEL meter switch as required. Return Hz switch (A2A11S1) to 000. Set mode selector switch (A2S2) to AM. Plug headset into PHONE USB jack (A2J2). Tune receiver to a known AM station, such as Armed Forces frequency at 15.330 MHz. Check that signal is heard in headset. If all checks are satisfactory, check at (a). TROUBLESHOOTING: Table 5-5.		

Table 4-4. Frequency Standard Tests

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized, with main frame extended from case
Mode Selector switch (A2S2): USB
USB LEVELS LINE control (A2R2): Midrange
LSB LEVELS LINE control (A2R1): Midrange
RF GAIN control (A2R3): Fully clockwise
AUDIO LEVEL meter switch (A2A12S1): USB +10 dBm
Frequency controls: 2.010 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M2	Check Internal Frequency Standard (A2A5), adjustment of 5 MHz oscillator and Automatic switching action.	Headset Stop Watch AUDIO LEVEL meter	(a)______ Check (b)______ Check (c)______sec (20 minimum)

PRELIMINARY NOTES:

1. Only Frequency Standards supplied with or for R-1051F/G Receivers have the Automatic Switching feature. Earlier type A2A5 modules, although operationally interchangeable if installed after initial installation, do not require reference (a) or (b) to be met.

2. Since the time to stabilize the internal oscillator is dependent on several conditions, the 96 hour preheat time requirement is only necessary when reference standard (c) cannot be met in less than 96 hours.

3. The 5 MHz Source Switch on A2A5 assembly should be set to the EXT NORMAL position for actual operation when there is 5 MHz present at EXT 5 MHz IN jack A1J25. The only exception is when it is desired to use receiver while heating (stabilizing) the internal oscillator for test or adjustment. Installations not having 5 MHz from external source must use internal oscillator.

PROCEDURE: Determine if receiver installation has an external 5 MHz present at EXT 5 MHz IN jack A1J25, on rear of receiver. If not present connect an External

Table 4-4. Frequency Standard Tests (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M2 (Cont.)	5 MHz from Frequency Standard AN/URQ-10 or equivalent to A1J25. The amplitude of the 5 MHz should be between 0.5 and 2.5 Vrms. Set the 5 MHz OSC SOURCE switch to INT/COMP position. Indicator lamp A2A5A2DS1 will vary in intensity as soon as internal oscillator is near 5 MHz (approximately 20 Hz or less). When the rate of change has appeared to stop, commence measuring the cycling time. Measure from time lamp brilliance just becomes visible until once again it is just becoming visible. If time is 20 seconds or longer record time at (c) in reference standards column. If not, adjust in accordance with Special Procedure 5 as described in Front Matter. Connect antenna to receiver and tune receiver to obtain a normal signal output on either headset or front panel meter. Open receiver, defeat interlock, and set 5 MHz source switch located on top of Frequency Standard assembly to EXT NORMAL if not in that position. Note signals are still present at receiver output. Set switch to EXT (OVEN STD BY) and again note signals present at receiver output. Set switch to INT/COMP position and again note signals present at output of receiver. Check at (a) in reference standards column if signals present at receiver output in all three positions. Set switch to EXT NORMAL and delay further testing for about 30 minutes or until internal oscillator has changed temperature providing difference in pitch of receiver signal when changing switch from internal to external source. Set 5 MHz OSC Source Switch to EXT (OVEN STD BY) position. Remove the 5 MHz external source from A1J25 while listening or observing received signal. There should be only a momentary disruption of received signal. Replace 5 MHz external source to A1J25. Set switch to EXT NORMAL. Again remove 5 MHz external source while listening for momentary disruption of signal. If switching action occurred in both positions, check at reference standard column (b). Reconnect the external 5 MHz source to A1J25. Return equipment to normal operating condition.		

Table 4-4. Frequency Standard Tests (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M2	TROUBLESHOOTING: Figure 5-27.		
(Cont.)	CORRECTIVE ACTION: Table 6-5.		

Table 4-5. Safety Interlock and Regulated Supply Tests

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized.

FREQUENCY Controls: 2.010 MHz

Mode selector switch (A2S2): USB

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M3	Check and record regulation of +20 Vdc output and Power Supply Assembly A2A8. PROCEDURE: Check that indicator lamps are illuminated. Loosen front panel screws and withdraw main frame from case. Observe that indicator lamps extinguish. Check at (a). Pull interlock switch plunger out. Observe that indicator lamps are illuminated. Check at (b). CAUTION If meter indicates 0 Vdc or approximately +28 Vdc, immediately turn mode selector switch (A2S2) to OFF and correct faulty condition. Tilt chassis and connect electronic multimeter to A2E11 (located on main frame to the right of A2A8) and chassis ground. Record indication at (d). If this tolerance cannot be met, perform Power Supply Check procedure 4 in Special Procedure of Maintenance Standards Book, NAVELEX described in Front Matter. Push interlock switch plunger in until lamps extinguish, disconnect multimeter, then push main frame fully into case. Secure main frame to case. Observe that indicator lamps are illuminated. Check at (c).	Electronic Multimeter 89536-8800A/AA	(a)________ Check (b)________ Check (c)________ Check (d)________Vdc (+19.9 to +20.1)

Table 4-5. Safety Interlock and Regulated Supply Tests (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M3	TROUBLESHOOTING: Figure 5-32.		
(Cont.)	CORRECTIVE ACTION: Table 6-7.		

Table 4-6. Overall Receiver Sensitivity

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized

AUDIO LEVEL meter switch (A2A12S1): USB, 0 dBm

Mode selector switch (A2S2): USB

AGC switch (A2S3): OFF

Hz switch (A2A11S1): 000

USB LEVELS LINE control (A2R2): Midrange

LSB LEVELS LINE control (A2R1): Midrange

RF GAIN control (A2R3): Fully clockwise

Frequency controls: 2.010 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q1	Check receiver sensitivity and record.	RF Signal Generator 28480-8640B-001-003 Output Level Control	(a)_______uV (0.6 max) (b)_______uV (0.6 max) (c)_______uV (0.6 max) (d)_______uV (3.0 max) (e)_______uV (0.9 max)

PROCEDURE: Disconnect cables attached to jacks A1A1J5 and A1A1J6 at rear of receiver, and terminate with 600 ohm loads. Disconnect antenna cable from A1J23.

NOTE

The reference standard readings obtained are output levels of the rf generator, and are to be interpreted as receiver sensitivity minimum values. For example, if the rf output required for a 10 dB signal plus noise to noise $\frac{(S+N)}{N}$ increase in audio level is greater than 0.6 uV reading at (a), receiver sensitivity is unsatisfactory.

Connect rf signal generator 28480-8640B-001-003* to ANT 50 OHMS jack (A1J23) at rear of receiver or at antenna patch panel, using a BNC-to-N adapter and 50 ohm coaxial cable. Phase lock rf signal generator for 2.011 MHz, at zero output level.

* Refer to Footnote, page vii, if alternate signal generator is used.

Table 4-6. Overall Receiver Sensitivity (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q1 (Cont.)	Adjust USB LEVELS LINE control (A2R2) for -10 dBm noise reference level as read on the AUDIO LEVEL meter (A2M1). Turn the rf signal generator frequency on and increase output level from below 0.1 uV until 0 dBm is read on AUDIO LEVEL meter. The output level of the rf signal generator should be not more than 0.6 uV. Record reading at (a).		

Set mode selector switch (A2S2) and AUDIO LEVEL meter switch to LSB. Phase lock the rf signal generator at 2,009 MHz at zero output level. Repeat above procedure, substituting the LSB LEVELS LINE control (A2R1) for the USB LEVELS LINE control (A2R2); observe the rf signal generator output required is not more than 0.6 uV. Note this reading at (b).

Set mode selector switch (A2S2) and AUDIO LEVEL METER switch (A2A12S1) to mode for the sideband having the poorest sensitivity, as determined by the larger of the rf signal generator output readings (USB and LSB) measured above. Measure receiver sensitivity at each frequency listed below as follows:

Phase lock the rf signal generator frequency 1 kHz above or below each listed frequency (above if USB has been selected; below if LSB has been selected). Ensure that rf signal generator output level is set to zero. Adjust the appropriate USB or LSB LEVELS LINE control for -10 dBm noise reference level as read on the AUDIO LEVEL meter. Adjust rf signal generator frequency output attenuator for 0 dBm on the AUDIO LEVEL meter. Record output level of rf signal generator (sensitivity) for each frequency listed below, and check at (c) when each output level is not more than 0.6 uV.

FREQUENCY (MHz)

3.101	12.010	21.010
4.222	13.010	22.010
5.333	14.010	23.010
6.444	15.010	24.010
7.555	16.010	25.010
8.666	17.010	26.010
9.777	18.010	27.010
10.898	19.010	28.010
11.989	20.010	29.010

NOTE

It is important to test all the above frequencies to ensure that receiver meets reference standard at all selected combinations of digits.

Table 4-6. Overall Receiver Sensitivity (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q1 (Cont.)	Set receiver frequency controls for 2.010 MHz, mode selector switch (A2S2) to AM, and AUDIO LEVEL meter switch (A2A12S1) to USB 0 dBm. Set rf signal generator to 2.010 MHz in the phase-locked mode, with 1000 Hz at 30 percent modulation.		
	Adjust rf signal generator output attenuator to approximately 2.5 uV and USB LEVELS LINE control (A2R2) for a peak on-scale indication of 0 dBm on the AUDIO LEVEL meter.		
	Switch rf signal generator to continuous wave, and adjust USB LEVELS LINE control (A2R2) for an indication of -10 dBm on the AUDIO LEVEL meter. Switch rf signal generator to 1000 Hz at 30 percent modulation, and adjust rf signal generator attenuator for 0 dBm on the AUDIO LEVEL meter.		
	Repeat step above until the AUDIO LEVEL meter reads -10 dBm and 0 dBm, respectively, when the rf signal generator is switched from continuous wave to 1000 Hz (30 percent) modulation and no further adjustment of the USB LEVELS LINE control (A2R2) or the rf signal generator attenuator is required. The output level of rf signal generator (AM sensitivity) should be not more than 3.0 uV. Record reading at (d).		
	Set mode selector switch (A2S2) to CW, and BFO control (A2R6) to midrange.		
	Phase lock the rf signal generator at 2.010 MHz, continuous wave. Adjust rf signal generator output to 0.9 uV.		
	Set BFO control (A2R6) for a peak reading on the AUDIO LEVEL meter. Adjust USB LEVELS LINE control (A2R2) to measure 0 dBm on the AUDIO LEVEL meter. Turn RF GAIN control (A2R3) to reduce AUDIO LEVEL meter reading by 3 dBm.		
	In the unlocked mode, set rf signal generator to approximately 20 kHz off frequency, and adjust USB LEVELS LINE control (A2R2) for -10 dBm indication on AUDIO LEVEL meter.		
	Reset frequency control on rf signal generator for 2.010 MHz (phase locked) and readjust rf signal generator attenuator for 0 dBm reading on the AUDIO LEVEL meter. The output level of the rf signal generator (CW sensitivity) should be not more than 0.9 uV. Record reading at (e).		
	Remove loads and reconnect cables to A1A1J5 and A1A1J6; disconnect test equipment.		
	TROUBLESHOOTING: Figures 5-20 and 5-22.		
	CORRECTIVE ACTION: Tables 5-4 and 6-5.		

Table 4-7. Receiver Tuning

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized, with main frame extended from case

Interlock switch (A1S1): Pulled out

Mode selector switch (A2S2): USB

AUDIO LEVEL switch (A2A12S1): USB +10 dBm

AGC switch (A2S3): SLOW

5 MHz OSC SOURCE switch: INT/COMP

USB LEVELS LINE control (A2R2): Fully counterclockwise

LSB LEVELS LINE control (A2R1): Fully counterclockwise

USB LEVELS PHONE control (A2R5): Fully clockwise

LSB LEVELS PHONE control (A2R4): Fully clockwise

Frequency controls: 4.9965 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q2	Check receiver tuning. PROCEDURE: Connect rear-panel INT 5 MHZ OUT jack (A1J24) to ANT 50 OHMS jack (A1J23) using a BNC-N adapter and 50 ohm coaxial cable; connect the 1 MHz output of the AN/URQ-10 to the external frequency jack at the rear of the AN/USM-207 and operate the AN/USM-207 on external standard. Connect Electronic Counter AN/USM-207 to front panel PHONE USB jack (A2J2). Adjust USB LEVELS LINE control (A2R2) so that the signal level displayed on AUDIO LEVEL meter is 0 dBm. Observe that electronic counter reads 3500 Hz. Record reading at (a). Change receiver frequency to 4.9975 MHz. Record counter reading at (b). Change frequency to 4.9985 MHz. Record counter reading at (c). Change receiver frequency to 4.9995 MHz. Record counter reading at (d).	Electronic Counter AN/USM-207 AUDIO LEVEL meter	(a)______ Hz (3500 ±1) (b)______ Hz (2500 ±1) (c)______ Hz (1500 ±1) (d)______ Hz (500 ±1) (e)______ Hz (3500 ±1) (f)______ Hz 2500 ±1) (g)______ Hz (1500 ±1) (h)______ Hz (500 ±1) (i)______ Check (100 Hz lock) (j)______ Hz (1980 max)

Table 4-7. Receiver Tuning (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q2 (Cont.)	Set mode selector switch (A2S2) and AUDIO LEVEL meter switch to LSB +10 dBm, and set frequency controls for 5.0035 MHz. Connect electronic counter to PHONE LSB jack (A2J1) and adjust LSB LEVELS LINE control (A2R1) so that the signal level displayed on AUDIO LEVEL meter is 0 dBm. Observe that electronic counter reads 3500 Hz. Record counter reading at (e). Change receiver frequency to 5.0025 MHz. Record counter reading at (f). Change receiver frequency to 5.0015 MHz. Record counter reading at (g). Change receiver frequency to 5.0005 MHz. Record counter reading at (h). Change receiver frequency to 5.0010 MHz, and observe that electronic counter reads 1000 Hz. Rotate Hz switch (A2A11S1) from 000 through 900, observing that electronic counter increases in 100 Hz steps to 1900 Hz. Check at (i) if all indications are correct. Set receiver frequency to 5.0020 MHz. Rotate Hz switch (A2A11S1) to V (vernier) position. Turn Hz vernier control (A2A11R1) fully counterclockwise, and note that electronic counter reads 1980 Hz or lower. Record reading at (j). Turn Hz vernier control (A2A11R1) fully clockwise, and note that electronic counter reads 3020 Hz or higher. Record reading at (k). Reset Hz switch (A2A11S1) to 000, and note that electronic counter reading is 2000 Hz. Check at (l) if indication is correct. Remove electronic counter from PHONE LSB jack (A2J1). Set receiver frequency to 5.0000 MHz. Set mode selector switch (A2S2) to CW. Connect headset to PHONE USB jack (A2J2). Vary BFO frequency control (A2R6) from one extreme to the other, observing a zero-beat note near mid-range of control. Check at (m) if zero beat is near mid-range. After completion of checks, set 5 MHZ OSC SOURCE switch (A2A5A2S1) on Frequency Standard Assembly A2A5 to normal operating mode for installation at hand (usually EXT NORM). Remove test cable between jacks A1J23 and A1J24 on rear of receiver, and reconnect antenna cable to jack A1J23.		(k)______Hz (3020 min.) (l)______Check (1 kHz lock) (m)______Check (BFO)

Table 4-7. Receiver Tuning (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q2 (Cont.)	If no further tests are to be performed, slide receiver chassis into case and secure front panel screws. TROUBLESHOOTING: Figures 5-28, 5-32. CORRECTIVE ACTION: Table 6-2.		

Table 4-8. Mechanical Synchronization Check

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Power off, main frame extended from case

Interlock switch (A1S1): Pushed in

Mode selector switch (A2S2): OFF

Frequency controls: 11.111 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
A1	Check chain-driven mechanical tuning mechanisms. PROCEDURE: Examine drive chains and sprockets for excessive wear or damage. Check tension of chains. Remove RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 from the main frame. Observe that the coupling disks on the bottom of these assemblies are all set to 1. Set the frequency controls for 00.000 MHz, and observe that the three mechanical coupler keyways for the Translator/Synthesizer Assembly A2A6 are toward the rear of the receiver. Set the frequency controls for 00.660 MHz, and observe that the two key-ways for the RF Amplifier Assembly A2A4 are towards the rear of the receiver. Set the MHz and kHz controls to 00.000 and then to 29.999, and observe that the dial numbers appear centered in the dial windows above the controls at all positions. Tilt main frame 90 degrees to expose bottom. CAUTION Hand-guide cable over edge of case to prevent damage when tilting main frame. Observe that the spring washer under each coupling disk on the main frame has not been flattened enough to prevent engagement of the coupler when the RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 are installed. Return main frame to horizontal position.		

Table 4-8. Mechanical Synchronization Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
A1 (Cont.)	Set frequency controls to 11.111 MHz, and reinstall RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 in the receiver chassis and tighten four corner screws on each module. To ensure engagement of mechanical couplers, rotate each of the three kHz controls through all settings (0 through 9). Slide receiver chassis into case and secure it. Set mode selector switch (A2S2) to STD BY or desired operational mode position. CORRECTIVE ACTION: Paragraphs 6-34, 6-36, 6-38, and 6-40.		

Table 4-9. Audio Output Meter Calibration

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized

Mode selector switch (A2S2): USB

AUDIO LEVEL meter switch (A2A12S1): USB, -10 dBm

RF GAIN control (A2R3): Fully clockwise

Frequency controls: 2.010 MHz

AGC switch (A2S3): OFF

USB LEVELS LINE control (A2R2): Fully counterclockwise

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
S3	Check and record front panel meter accuracy. PROCEDURE: Disconnect antenna from ANT 50 OHMS jack (A1J23) and connect output of RF Signal Generator 28480-8640B-001-003* to A1J23 input using a coaxial cable. Disconnect USB (A1A1J5) audio output and connect 600 ohm load and AC Voltmeter 28480-400E across output. Phase lock the output of signal generator at 2.011 MHz at 100 uV. Operate USB LINE LEVELS control A2R2 to obtain a midscale indication on AUDIO LEVEL meter.	AC Voltmeter 28480-400E RF Signal Generator 28480-8640B-001-003 AUDIO LEVEL meter	(a)______dB (i)______dB (-19 to -21) (b)______dB (j)______dB (-9 to -11) (c)______dB (k)______dB (-9 to -11) (d)______dB (l)______dB (-1 to +1) (e)______dB (m)______dB (-1 to +1) (f)______dB (n)______dB (+9 to +11) (g)______dB (o)______dB (+9 to +11) (h)______dB (p)______dB (+17 to +19)

Adjust USB LEVELS LINE control for a -10 dBm indication on AUDIO LEVEL meter. Record ac voltmeter indication at (a).

Adjust USB LEVELS LINE control to obtain an indication of 0 dBm on AUDIO LEVEL meter. Record ac voltmeter indication at (b).

Place USB AUDIO LEVEL meter switch to USB 0 dBm position. Adjust USB LEVELS LINE control to obtain an indication of -10 dBm. Record ac voltmeter indication at (c).

* Refer to Footnote, page 4-3, if alternate signal generator is used.

Table 4-9. Audio Output Meter Calibration (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
S3 (Cont.)	Adjust USB LEVELS LINE control to obtain an indication of 0 dBm. Record ac voltmeter indication at (d). Place AUDIO LEVEL meter switch to USB +10 dBm position. Adjust USB LEVELS LINE control to obtain an indication of -10 dBm. Record ac voltmeter indication at (e). Adjust USB LEVELS LINE control to obtain an indication of 0 dBm. Record ac voltmeter indication at (f). Place AUDIO LEVEL meter switch to USB +20 dBm position. Adjust USB LEVELS LINE control to obtain an indication of -10 dBm. Record ac voltmeter indication at (g). Adjust USB LEVELS LINE control to obtain an indication of -2 dBm. Record ac voltmeter indication at (h). Adjust LSB LEVELS LINE control fully counterclockwise. Place MODE selector switch to LSB. Phase lock the output of signal generator at 2.009 MHz at 100 uV. Operate AUDIO LEVEL meter switch to LSB -10 dBm position. Adjust LSB LEVELS LINE control to obtain a midscale indication on AUDIO LEVEL meter. Remove 600 ohm load and ac voltmeter from USB audio output connector (A1A1J5) and connect to LSB audio output connector (A1A1J6). Repeat procedures for indications (a) thru (h) and record indications at (i) thru (p) substituting LSB in place of USB. Disconnect test equipment, reconnect antenna and audio output lines to normal operating condition, return main frame to case and secure it. TROUBLESHOOTING: Figure 5-32.		

Table 4-10. Power Supply Assembly Check

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized with main frame extended from case and tilted vertically 90 degrees to expose bottom.

Interlock switch (A1S1): Pulled out

Mode selector switch (A1S2): STD BY

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U1	Check and record power supply voltages.	Digital Multimeter 89536-8800A/AA AC Voltmeter, 28480-40E	(a)____________Vdc (+19.9 to +20.1) (b)____________Vdc (+19.9 to +20.1) (c)____________mVrms (2 max) (d)____________Vdc (-28.5 to -31.5) (e)____________Vdc (+24 to +32) (f)____________Vdc (+103 to +123) (g)____________mVrms (15 max) (h)____________mVrms (320 max) (i)____________mVrms (90 max)

PROCEDURE: Connect multimeter to A2E11 (bottom of chassis). Set mode selector switch (A2S2) to LSB, and observe that meter indicates a voltage of approximately 20 Vdc. Record at (a). If the meter indicates 0 Vdc or approximately +28 Vdc, immediately turn the mode selector switch (A2S2) to OFF and correct the faulty condition before proceeding.

Set mode selector switch to ISB. Connect the multimeter to measure positive voltage (+20 Vdc with respect to ground) at A2E11. Record the voltage at (b). Connect the AC voltmeter to measure the ripple at A2E11. Record the ripple voltage at (c). Measure voltages (using multimeter on appropriate dc range) and ripple (using AC voltmeter) between following tie points and ground. Record voltages and ripple voltages in Reference Standard column:

WARNING

Dangerous voltage at A2E43.

Tie Point	Record Voltage At	Record Ripple Voltage At
A2A8E10	(d)	(g)
A2E12	(e)	(h)
A2E43	(f)	(i)

Table 4-10. Power Supply Assembly Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U1 (Cont.)	If no further tests are to be performed, tilt main frame back to horizontal, slide chassis into case, and secure it.		
	TROUBLESHOOTING: Figure 5-32.		
	CORRECTIVE ACTION: Table 6-7.		

Table 4-11. AGC Performance and IF Gain

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized

Mode selector switch (A2S2): USB

AUDIO LEVEL METER switch (A2A12S1): USB, +10 dBm

AGC switch (A2S3): SLOW

Hz switch (A2A11S1): 000

USB LEVELS LINE control (A2R2): Fully counterclockwise

LSB LEVELS LINE control (A2R1): Fully counterclockwise

Frequency controls: 2.010 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q3	Check and record AGC performance and IF gain. PROCEDURE: Disconnect external cables to jacks A1A1J5 and A1A1J6 on rear of receiver. Connect 600 ohm loads between pins A and B of jacks A1A1J5 and A1A1J6. Disconnect antenna cable and connect RF Signal Generator 28480-8640B-001-003* to ANT jack (A1J23) at rear of receiver. Phase lock the rf signal generator to 2.011 MHz, continuous wave, with a 0.6 uVrms output. Rotate USB LEVELS LINE control (A2R2) clockwise until AUDIO LEVEL meter reads 0 dBm. Record AUDIO LEVEL meter reading of 0 at (a). Set Mode selector switch (A2S2) to LSB and AUDIO LEVEL meter switch to LSB +10 dBm, set signal generator frequency to 2.009 MHz, and repeat procedure above. Record reading of AUDIO LEVEL meter at (b). Set Mode selector switch (A2S2) to USB and AUDIO LEVEL meter switch to USB +20 dBm, set signal generator to 2.011 MHz, and adjust USB LEVELS LINE control (A2R2) for -6 dBm on AUDIO LEVEL meter. *Refer to Footnote, page 4-3 if alternate signal generator is used.	AUDIO LEVEL meter RF Signal Generator 28480-8640B-001-003	(a) _______ dBm (0 min) (b) _______ dBm (0 min) (c) _______ dBm (-6 to 0) (d) _______ dBm (3 dB above c max) (e) _______ dBm (-3 to +1) (f) _______ dBm (-6 to 0) (g) _______ dBm (3 dB above f max) (h) _______ dBm (-3 to +1)

Table 4-11. AGC Performance and I.F. Gain (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
Q3 (Cont.)	Increase the rf signal generator output to 2.5 uV, and record reading of AUDIO LEVEL meter at (c). Increase rf signal generator output to 50 mV. AUDIO LEVEL meter should indicate not more than 3 dB above reading recorded at (c). Record AUDIO LEVEL meter reading at (d). Turn USB LEVELS LINE control fully clockwise and record AUDIO LEVEL meter reading at (e). Set mode selector switch (A2S2) and AUDIO LEVEL meter switch to LSB +20 dBm. Reset rf signal generator output for 0.6 uV, set signal generator frequency to 2.009 MHz, and adjust LSB LEVELS LINE control (A2R1) for an indication of -6 dBm on AUDIO LEVEL meter. Increase the rf signal generator output to 2.5 uV, and record indication on AUDIO LEVEL meter at (f). Increase the rf signal generator output to 50 mV. AUDIO LEVEL meter should indicate not more than 3 dB above reading noted at (f). Record AUDIO LEVEL meter reading at (g). Turn LSB LEVELS LINE control fully clockwise and record AUDIO LEVEL meter reading at (h). If no further tests are to be performed, disconnect test equipment and reconnect cables to A1A1J5 and A1A1J6. TROUBLESHOOTING: Figure 5-25. CORRECTIVE ACTION: Table 6-4.		

Table 4-12. RF Amplifier Assembly Check

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized, with main frame extended from case

Interlock switch (A1S1): Pulled out

Mode selector switch (A2S2): USB

AGC switch (A2S3): OFF

Hz switch (A2A11S1): 000

USB LEVELS LINE control (A2R2): Mid-range

RF GAIN control (A2R3): Fully clockwise

Frequency controls: 2.010 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U2	Check and record performance of RF Amplifier Assembly A2A4. PROCEDURE: Connect rf signal generator 28480-8640B-001-003 to receiver ANT 50 OHMS jack (A1J23) using a BNC-N adapter and 50 ohms coaxial cable. In the phase-locked mode, set rf signal generator for 2.011 MHz, continuous wave, at 1000 uV. Connect rf millivoltmeter 04901-92B-S5 to test point A2A4TP3 on RF Amplifier Assembly A2A4. NOTE When main frame is extended from case, radio frequency interference from other equipment may cause erratic readings at A2A6A8TP5 and A2A4TP3. If such a condition is encountered, this check should be performed in a shielded enclosure. Record rf millivoltmeter reading (mVrms) at (a), and note rf millivoltmeter indication (dB) for next step	RF Millivoltmeter 04901-92B-S5	(a) ______ mV (40 min) (b) ______ dB (6 max) (c) ______ (Check)

Table 4-12. RF Amplifier Assembly Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U2 (Cont.)	Without changing frequency, connect rf millivoltmeter to test point A2A6A8TP5 on RF Translator Subassembly A2A6A8. The meter reading should not drop more than 6 dB from that noted at (a); if this is so, record at (b). Repeat measurement at test point A2A4TP3 on the RF Amplifier Assembly A2A4 for each of the frequencies listed below, to verify that all readings are above 40 mV. Phase lock rf signal generator output 1 kHz above receiver frequency for each measurement. Check at (c) if all readings are correct.		

RECEIVER FREQUENCY CHART (MHz)

3.101	12.010	21.010
4.222	13.010	22.010
5.333	14.010	23.010
6.444	15.010	24.010
7.555	16.010	25.010
8.666	17.010	26.010
9.777	18.010	27.010
10.898	19.010	28.010
11.989	20.010	29.010

If no further tests are to be performed, disconnect all test equipment, slide receiver chassis into case and secure it; reconnect antenna cable to ANT 50 OHMS jack (A1J23).

TROUBLESHOOTING: Figure 5-20.

CORRECTIVE ACTION: Table 6-4.

Table 4-13. Translator/Synthesizer Check

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized, main frame extended from case

Interlock switch (A1S1): Pulled out

FREQ STD A2A5A2S1 in "EXT NORMAL"

Mode selector switch (A2S2): CW

AGC switch (A2S3): OFF

USB LEVELS LINE control (A2R2): Midrange

LSB LEVELS LINE control (A2R1): Midrange

Hz switch (A2A11S1): 000

RF GAIN control (A2R3): Fully counterclockwise

Frequency controls: 2.000 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U3	Check IF output of Translator/ Synthesizer Assembly A2A6 and record. PROCEDURE: Prepare the test setup shown in figure 4-3. On Frequency Standard AN/URQ-10 use the panel meter to verify that the 5 MHz output is approximately one volt. Phase lock the output of the rf signal generator output for 10 mVrms at 2.000 MHz. Connect rf millivoltmeter 04901-92B-S5 to A2A6A8TP5 and adjust RF GAIN control on receiver front panel to obtain an indication of 50 mVrms on rf millivoltmeter. Disconnect rf millivoltmeter. Connect counter to A2A6A8TP8. Observe electronic counter indication. Indication should be 499.999.9 Hz to 500,000.1 Hz. Record at (a). Decrease signal generator output exactly 20 dB. Connect rf millivoltmeter to A2A6A8TP8. Indication should be greater than 50 mVrms. Record at (b).	RF Millivoltmeter 04901-92B-S5; Electronic Counter AN/USM-207	(a)________Hz (499,999.9 to 500,000.1) (b)________mVrms (50 min) (c)________mVrms (50 min) (d)________ (Check)

Table 4-13. Translator/Synthesizer Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U3 (Cont.)	Repeat above procedures at each of the frequencies listed below. Verify that output is greater than 50 mVrms at all frequencies. If satisfactory, check at (c). Verify that output frequency is as specified above at all frequencies. If satisfactory, check at (d).		

FREQUENCY CHART (MHz)

3.101	12.1001	21.100
4.222	13.1002	22.100
5.333	14.1003	23.100
6.444	15.1004	24.100
7.555	16.1005	25.100
8.666	17.1006	26.100
9.777	18.1007	27.100
10.898	19.1008	28.100
11.989	20.1009	29.100

Disconnect test equipment. Return A2A5A2S1 to "INT/COMP. Slide receiver main frame into case and secure it.

TROUBLESHOOTING: Figure 5-32.

CORRECTIVE ACTION: Table 6-6.

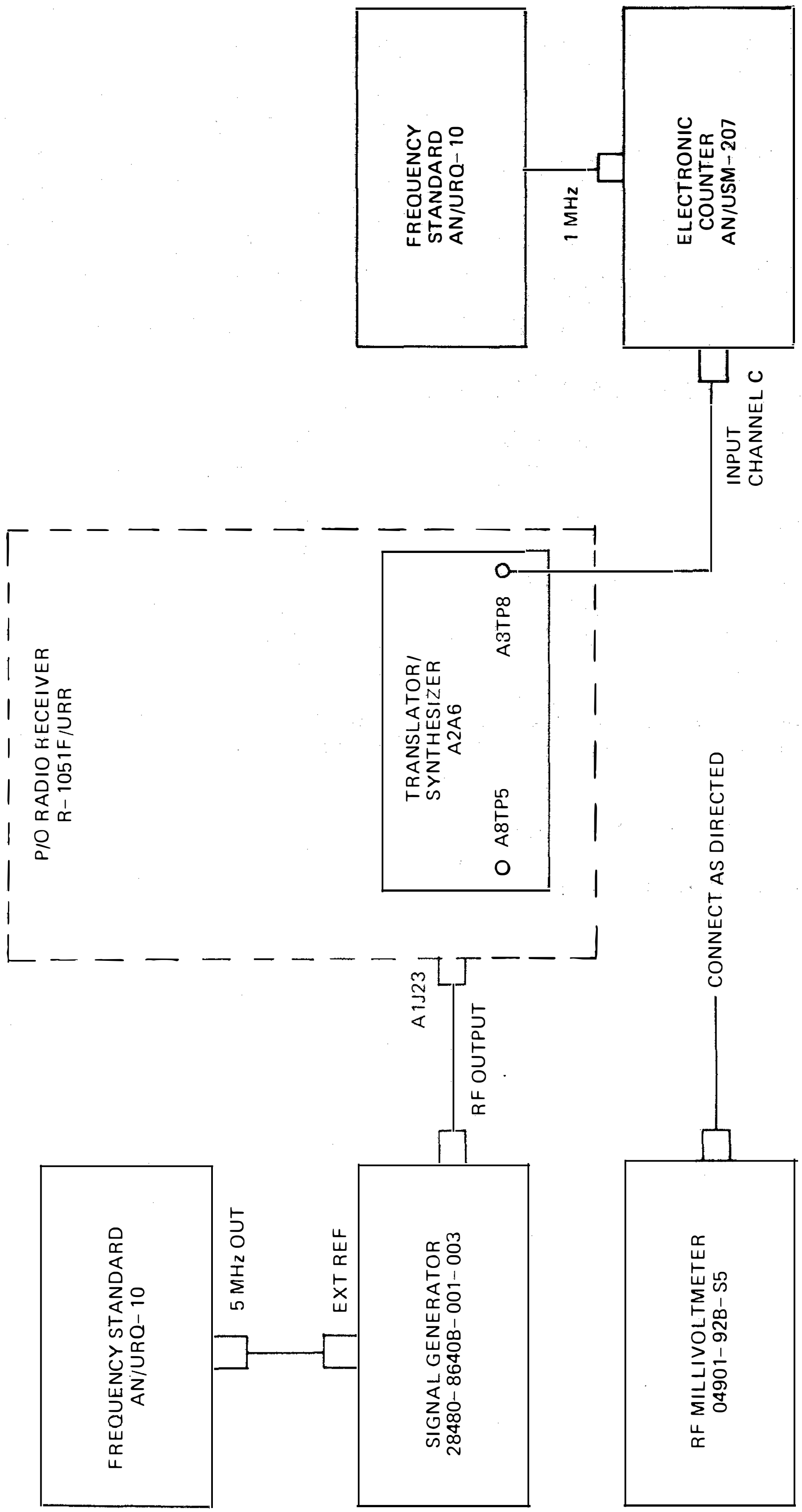


Figure 4-3. Translator/Synthesizer A2A6, Test Setup

Table 4-14. Mode Selector Assembly Check

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized, main frame extended from case

Interlock switch (A1S1): Pulled out

Mode selector switch (A2S2): CW

AGC switch (A2S3): OFF

USB LEVELS LINE control (A2R2): Midrange

LSB LEVELS LINE control (A2R1): Midrange

Hz switch (A2A11S1): 000

Frequency controls: 2.010 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U4	Check and record performance of Mode Selector Assembly A2A1. PROCEDURE: Connect rf signal generator 28480-8640B-001-003 with a BNC-N adapter and 50-ohm Coaxial Cable RG058C/U to ANT jack (A1J23) on rear of receiver. Phase lock the rf signal generator to 2011 kHz continuous wave with a 100 uV output. Connect rf millivoltmeter to A2A1A1TP1 on the mode selector. Adjust the signal generator output to obtain 16 MV R. M. S. on the rf millivoltmeter. Pull out Module 2. Connect the rf millivoltmeter to Coaxial Jack A3 of connector A2XA2P1. Read the rf millivoltmeter and record at (a). Repeat readings of rf millivoltmeter with mode selector switch (A2S2) set to AM, USB, ISB, and RATT. Record the readings at (b), (c), (d) and (e) respectively. Replace Module A2.	RF Millivoltmeter 04901-92B-S5 Electronic Counter AN/USM-207	(a)________mV (3 to 5) (b)________mV (3 to 5) (c)________mV (3 to 5) (d)________mV (3 to 5) (d)________mV (3 to 5) (e)________mV (3 to 5) (f)________mV (3 to 5) (g)________kHz (494.5 to 497) (h)________kHz (503 to 505.5)

Table 4-14. Mode Selector Assembly Check

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U4 (Cont.)	Lock signal generator frequency to 2.009 MHz. Pull out Module A3. Move rf millivoltmeter to jack A3 of connector A2XA3P1. Set mode selector to LSB. Read rf millivoltmeter and record at (f). Replace Module A3.		
	Connect electronic counter to test point A2A1A3TP1 on the Mode Selector Assembly A2A1.		
	Set mode selector switch (A2S2) to CW, and RF GAIN control (A2R3) fully counterclockwise. Rotate BFO frequency control (A2R6) fully counterclockwise and observe that the reading on the electronic counter is between 494.5 and 497 kHz. Record counter display at (g). Rotate BFO frequency control (A2R6) fully clockwise, and observe that the reading on the electronic counter is between 503 and 505.5 kHz. Record counter display at (h).		
	If no further tests are to be performed, disconnect the test equipment, slide receiver chassis into case and secure it; reconnect antenna cable to ANT 50 OHMS jack (A1J23).		
	TROUBLESHOOTING: Figures 5-32 and 5-33.		
	CORRECTIVE ACTION: Table 6-2.		

Table 4-15. IF/Audio Amplifier Assemblies Check

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized

Mode selector switch (A2S2): USB

AUDIO LEVEL switch (A2A12S1): USB, 20 dBm

AGC switch (A2S3): SLOW

Hz switch (A2A11S1): 000

USB LEVELS LINE control (A2R2): Midrange

LSB LEVELS LINE control (A2R1): Midrange

RF GAIN control (A2R3): Fully clockwise

Frequency controls: 2.010 MHz

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U5	Check and record performance of IF/ Audio Amplifier Assemblies A2A2 and A2A3. PROCEDURE: Connect rf signal generator 28480-8640B-001-003 to ANT 50 OHMS jack (A1J23) on rear of receiver using a BNC-N adapter and 50 ohm coaxial cable. Phase lock the rf signal generator at 2.011 MHz, continuous wave, with a 0.5 uV output. Connect ac voltmeter 28480-400E to USB AUDIO OUT jack (A1A1J5) on rear of receiver. Set rf signal generator output level to 500 uVrms. Rotate USB LEVELS LINE control (A2R2) fully clockwise (adjust the ac voltmeter range as required). Record ac voltmeter reading at (a). Insert an adapter comprised of telephone plug PJ-055B and 620-ohm resistor RCR20G621JS into the PHONE USB jack (A2J2) on the receiver front panel. Connect the ac voltmeter to the terminals of the load. Rotate USB PHONE control (A2R5) fully clockwise. Record ac voltmeter reading at (b).	AC Voltmeter 28480-400E AUDIO LEVEL meter	(a)__________Vac (6.0 to 10.0) (b)__________Vac (3.0 to 5.0) (c)__________Vac (3.0 to 10.0) (d)__________dBm (13 to 17) (e)__________Vac (6.0 to 10.0) (f)__________Vac (3.0 to 5.0) (g)__________dBm (13 to 17)

Table 4-15. IF/Audio Amplifier Assemblies Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U5 (Cont.)	Remove phone plug from PHONE USB jack (A2J2) and reconnect ac voltmeter to USB AUDIO OUT jack (A1A1J5) Set mode selector switch (A2S2) to AM. Set rf signal generator for 1000 Hz, 30 percent modulation and phase lock its frequency at 2.010 kHz. Set rf signal generator output level to 500 uVrms. Record ac voltmeter reading at (c).		
	Set ac voltmeter to +20 dB scale. Adjust USB LEVELS LINE control (A2R2) for +15 dB on ac voltmeter. Observe that AUDIO LEVEL meter indicates +15 ±2 dBm, and record reading at (d). Adjust USB LEVELS LINE control (A2R2) for 1 V on ac voltmeter. Reconnect audio cable to jack A1A1J5 on rear of receiver.		
	Connect ac voltmeter to LSB AUDIO OUT jack (A1A1J6) on rear of receiver. Set mode selector switch (A2S2) and AUDIO LEVEL switch (A2A12S1) to LSB, 20 dBm. Set rf signal generator for continuous wave, at 0.5 uVrms and lock its frequency at 2.009 kHz. Then set rf signal generator output level to 500 uVrms.		
	Rotate LSB LEVELS LINE control (A2R1) fully clockwise, adjust the ac voltmeter range as required, and record ac voltmeter reading at (e).		
	Insert phone plug PJ-055B with a 600 ohm load into the PHONE LSB jack (A2J1) on the receiver front panel. Connect the ac voltmeter to the terminals of the load. Rotate LSB PHONE control (A2R4) fully clockwise. Record ac voltmeter reading at (f).		
	Remove phone plug from PHONE LSB jack (A2J1) and reconnect ac voltmeter to LSB AUDIO OUT jack (A1A1J6).		
	Set ac voltmeter to +20 dB scale. Adjust LSB LEVELS LINE control (A2R1) for +15 dBm on ac voltmeter. Observe that AUDIO LEVEL meter indicates +15 ±2 dBm, and record reading at (g). Adjust LSB LEVELS LINE control (A2R1) for 1 V on ac voltmeter.		
	If no further tests are to be performed, disconnect all test equipment, reconnect audio cable to jack A1A1J6, and reconnect antenna cable to ANT 50 OHMS jack (A1J23).		

Table 4-15. IF/Audio Amplifier Assemblies Check (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U5 (Cont.)	TROUBLESHOOTING: Figures 5-23 and 5-24. CORRECTIVE ACTION: Table 6-3.		

Table 4-16. Frequency Standard Tests

MINIMUM TECHNICIAN RATING REQUIRED FOR CHECK: ET3

OPERATING CONDITIONS AND CONTROL SETTINGS:

Receiver: Energized, with main frame extended from case

Interlock switch (A1S1): Pulled out

Mode selector switch (A2S2): ISB

5 MHz OSC SOURCE switch (A2A5A2S1): INT/COMP

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U6	Measure and record 5 MHz, 10 MHz, and 500 kHz outputs of Frequency Standard Assembly A2A5.	RF Millivoltmeter 04901-92B-S5 Electronic Counter AN/USM-207	(a)__________mV (480 to 720) (b)__________mV (20 to 40) (c)__________Hz (499,999.95 to 500,000.05) (d)__________mV (150 to 200)

NOTE

For this test Frequency Standard Assembly A2A5 must be temperature stabilized by allowing the receiver to operate in any receiving mode with 5 MHz OSC SOURCE switch A2A5A2S1 in EXT (OVEN ST BY) position for at least 96 hours.

PROCEDURE: Connect 50 ohm load across INT 5 MHZ OUT jack A1J24 on rear of receiver. Place 5 MHz OSC SOURCE switch A2A5A2S1 in INT COMP position.

Measure 5 MHz output with rf millivoltmeter 04901-92B-S5 at A1J24. Record meter indication at (a). Remove 50 ohm load.

Remove Translator/Synthesizer Assembly A2A6 from receiver. Connect a 50 ohm load across A2XA6P1-A1. Measure amplitude of 10 MHz signal at A2XA6P1-A1 with rf millivoltmeter 04901-92B-S5. Record meter indication at (b). Remove 50 ohm load.

Connect a 100 ohm load across A2XA6P1-A3. Measure the frequency of the 500 kHz signal at A2XA6P1-A3 with electronic counter AN/USM-207. Record indication at (c).

Table 4-16. Frequency Standard Tests (Continued)

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
U6 (Cont.)	Measure amplitude of 500 kHz signal at A2XA6P1-A3 with rf millivoltmeter 04901-92B-S5. Record meter indication at (d). Return 5 MHz OSC SOURCE switch A2A5A2S1 to normal operating mode (usually EXT NORM), remove all loads, and reinstall Translator/ Synthesizer Assembly A2A6 in receiver. Return main frame to case and secure it. TROUBLESHOOTING: Figure 5-27. CORRECTIVE ACTION: Table 6-5.		

CHAPTER 5

TROUBLESHOOTING

5-1. INTRODUCTION.

5-2. GENERAL. This chapter contains data, procedures and diagrams to aid the maintenance technician in identifying malfunctions, localizing troubles to the malfunctioning assembly or subassembly, and isolating faults to a stage or circuit within that assembly. A procedure is provided which gives instructions for receiver turn-on, initial checks, control settings, and test setups. From this procedure, overall equipment operability can be ascertained and inoperative functions can be identified. Signal flow diagrams provided for each equipment function, together with an overall receiver troubleshooting index, serve to localize trouble to the malfunctioning assembly or subassembly. Fault logic diagrams help to identify faulty circuits. Schematic diagrams are provided for independently troubleshooting the suspect assemblies, subassemblies, and circuits.

5-3. TROUBLESHOOTING DATA. Troubleshooting data consists of signal flow diagrams, fault logic diagrams, control diagrams, and maintenance schematic diagrams. By checking the results obtained during the maintenance turn-on procedure against the performance data in the OBSERVE column of table 5-5 the technician can determine which major function or supporting function is not operating properly. Table 5-5 also references the applicable troubleshooting diagrams for analysis and correction of malfunctions. Fault logic diagrams used in conjunction with signal flow diagrams enable the depot technician to identify the detail part within an assembly to be replaced.

5-4. REPAIR FUNCTIONS. Organizational repair functions consist of troubleshooting and repairing Case A1, Main Frame A2 and all hard wired assemblies (A2A8, A2A9, A2A10, A2A11 and A2A12) attached thereto, and Code Generator Assembly A2A7. Depot repair functions consist of troubleshooting, repairing, and aligning plug-in assemblies A2A1 through A2A6 of Main Frame A2.

5-5. ALIGNMENT AND CHECKOUT. When any organizational repairs have been made, such repairs shall be followed by performance of the overall receiver alignment of table 6-1 and the performance tests of Chapter 4. Any repairs to plug-in assemblies at depot shall be followed by performance of alignments listed in the applicable table of Chapter 6.

5-6. TROUBLESHOOTING INDEX.

5-7. Table 5-1 lists the receiver functional areas in alphabetical order, and cross references the appropriate paragraphs and illustrations to be used in trouble analysis of each faulty function.

5-8. RELAY AND INDICATOR LAMP INDICES.

5-9. Table 5-2 provides the maintenance technician with the reference designation, functional name, energizing voltage, and a reference to the troubleshooting diagram for each relay in R-1051G/URR. Table 5-3 provides equivalent information for indicator lamps in the receiver.

5-10. PROTECTIVE DEVICES INDEX.

5-11. Fuses and interlock switch of R-1051G/URR are listed in table 5-4. The electrical rating, circuit protected, and reference to the troubleshooting diagram are provided for each device.

5-12. MAINTENANCE TURN-ON PROCEDURE.

5-13. The receiver maintenance turn-on procedure given in table 5-5 is to be performed in the sequence shown. The receiver is taken through the necessary steps from fully deenergized to fully operational. Observations to be made at each step are described and troubleshooting information relating to failures is referenced. Before starting the procedure of table 5-5, apply primary power to the test equipment listed below, and allow a 30-minute warm-up period.

Frequency Standard AN/URQ-10
AC Voltmeter 28480-400E
Oscilloscope AN/USM-281
Electronic Multimeter AN/USM-311
Electronic Counter AN/USM-207

(Text continued on page 5-19.)

Table 5-1. Radio Receiver R-1051G/URR, Troubleshooting Index

FUNCTIONAL AREA	TROUBLE-SHOOTING DIAGRAM	FUNCTIONAL DESCRIPTION PARAGRAPH	ALIGNMENT/ ADJUSTMENT TABLE/PARAGRAPH
AC Power Distribution	5-14	3-90	Para. 8-19
Audio Amplification (LSB)	5-6, 5-24	3-56	T 6-3
Audio Amplification (USB)	5-5, 5-23	3-56	T 6-3
Automatic Gain Control	5-7, 5-25	3-53	T 6-3
Beat Frequency Oscillator	5-8, 5-26	3-51	T 6-2
Tuning Control	5-19	3-98	T 6-1
500 kHz Gating	5-4	3-50	-
Frequency Standard	5-9, 5-27, 5-36	3-84	T 6-1, T 6-5
Frequency Synthesis and Translation	3-26, 5-28 through 5-31, 5-37 through 5-44	3-64	T 6-6
IF Amplification and Control	5-22	3-39	T 6-2, T 6-3
10 kHz, 1 kHz and 100 Hz Synthesis	5-11, 5-29	3-71	T 6-6
100 kHz Synthesis	5-12, 5-30	3-75	T 6-6
+110 Vdc Distribution	5-17	3-95	-
RF Selection, Tuning, and Overload Protection	5-1, 5-20	3-17	-
RF-to-IF Conversion	5-2, 5-21	3-24	T 6-6
10 MHz and 1 MHz Synthesis	5-13, 5-31	3-79	T 6-6

Table 5-1. Radio Receiver R-1051G/URR, Troubleshooting Index (Continued)

FUNCTIONAL AREA	TROUBLE-SHOOTING DIAGRAM	FUNCTIONAL DESCRIPTION PARAGRAPH	ALIGNMENT/ ADJUSTMENT TABLE/PARAGRAPH
-30 Vdc Distribution	5-18	3-96	-
+20 Vdc and +5 Vdc Distribution	5-16	3-93	T 6-1, T 6-7
+28 Vdc Distribution	5-15	3-92	-

Table 5-2. Relay Index

REFERENCE DESIGNATION	FUNCTIONAL NAME	ENERGIZING VOLTAGE	TROUBLESHOOTING DIAGRAM (FIG. NO.)
A2K1	Tune Relay	+28 Vdc	5-32
A2K2	Hi/Lo-Filter Relay	+28 Vdc	5-32
A2A4K1	Turret Tuning Relay	+28 Vdc	5-35
A2A4A38K1	Transmit/Receive Relay	+28 Vdc	5-35
A2A9K1	Antenna Overload Relay	+28 Vdc	5-32

Table 5-3. Indicator Lamp Index

REFERENCE DESIGNATION	FUNCTIONAL NAME	ENERGIZING VOLTAGE	TROUBLESHOOTING DIAGRAM (FIG. NO.)
A2DS3	Dial Lamps for MHz Indicators	+28 Vdc	5-32
A2DS4	Dial Lamps for kHz Indicators	+28 Vdc	5-32
A2DS5	100-Hz Vernier Indicator	140 Vdc drop (+110 Vdc and -30 Vdc)	5-32
A2A5A2DS1	Frequency Standard Visual Comparator Lamp	+20 Vdc	5-36

Table 5-4. Protective Devices Index

REFERENCE DESIGNATION	FRONT-PANEL MARKING	RATING		CIRCUIT PROTECTED	TROUBLE-SHOOTING DIAGRAM (FIG. NO.)
		VOLTS	AMPERES		
A1S2	(Interlock)	125	15.0	Primary Power	5-32
A2F1	F1 3/4 A	125	0.75	Primary Power	5-32
A2F2	F2 3/4 A	125	0.75	Primary Power	5-32

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure

STEP	OBSERVE	REFERENCE
1. Preliminary Procedure:		
NOTE Perform the preliminary procedure before applying power to the R-1051G/URR.		
a. Loosen front panel screws and slide chassis out fully on slides.	Note and record setting of 5 MHz OSC SOURCE switch A2A5A2S1 on Frequency Standard Assembly A2A5.	
b. Position front panel switches as indicated. Switch — Position Mode selector A2S2 — OFF AGC A2S3 — OFF 10 MHz control — 0 1 MHz control — 2	Mode selector switch A2S2 must be pulled out to turn to OFF. Digits 0 and 2 viewed at 10 and 1 MHz windows on front panel.	
c. Disconnect an external 5 MHz input if connected from EXT 5 MHz IN connector A1J25, and set 5 MHz OSC SOURCE switch A2A5A2S1 on Frequency Standard Assembly A2A5 to INT/COMP.		
d. Momentarily remove fuses A2F1 and A2F2 and check for proper value. Reinsert fuses.	A2F1 and A2F2 are 3/4 ampere slo-blo fuses.	Schematic, figure 5-32, sheet 1.
e. Visually check for any positive indications of electrical or mechanical failures. Ensure that assemblies are properly mated to the main frame chassis.	No visual indication of electrical or mechanical failure, and assemblies are properly mated to the main frame chassis.	
f. At the top right corner of the case, defeat interlock switch A1S2 by gripping plunger and pulling forward.	Plunger extends forward of case. Operation of the interlock switch is noted by an audible click.	
CAUTION Hand guide main frame cable at rear of chassis over edge of case when rotating main frame to vertical position.		

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
1. Preliminary Procedure (Cont.)		
g. Tilt the receiver chassis 90 degrees to expose bottom.		
WARNING Dangerous voltages are present in chassis when primary power is applied. Observe all safety precautions.		
2. Overall Ac and Dc Voltage Application.		
a. At rear of the case, apply 115 Vac at pins A and C of AC PWR IN jack A1A1J3.		
b. On front panel, remove fuses A2F1 and A2F2 and replace the fuse caps.		
c. Turn mode selector switch A2S2 from OFF to STD BY.	Fuse indicators for A2F1 and A2F2 illuminate.	Schematic, figure 5-32, sheet 1.
d. Pull mode selector switch A2S2 out, and turn from STD BY to OFF. Reinstall fuses A2F1 and A2F2 and replace indicator caps.		
e. Set mode selector switch A2S2 to STD BY.	Fuse indicators for A2F1 and A2F2 do not illuminate. MHz and kHz dial lights A2DS3 and A2DS4 illuminate, indicating that 115 Vac is now applied to Power Supply Assembly A2A8 via power transformer A2T1, and +28 Vdc is available at the output of the power supply. Filaments of tubes A2A4V1 and V2 in RF Amplifier Assembly A2A4 illuminate.	Schematic, figure 5-32, sheet 1.
f. On Power Supply Assembly A2A8, locate tie point A2A8E10. On bottom of receiver chassis, in lower left-hand corner and to right of power supply printed circuit board A2A8, locate tie points A2E11, A2E12 and A2E17.		

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
2. Overall Ac and Dc Voltage Application (Cont.)		

CAUTION

Regulated +20 Vdc is generated in Power Supply Assembly A2A8 and applied to the proper receiver assemblies when the mode selector switch A2S2 is set to any position other than OFF or STD BY. If the +20 volt series regulator is shorted, the +20 Vdc line will carry +28 Vdc, which will drastically reduce the life span of all assemblies using the regulated +20 Vdc. One or more assemblies may fail immediately.

STEP	OBSERVE	REFERENCE
g. Connect Multimeter AN/USM-311 to A2E11, set mode selector switch A2S2 to LSB, and observe multimeter.	Approximately +20 Vdc. If multimeter indicates approximately +28 Vdc or 0 Vdc, immediately turn mode selector switch A2S2 to OFF and troubleshoot Power Supply Assembly A2A8.	Schematic, figure 5-32, sheet 1.
h. Set mode selector switch A2S2 to ISB.		
i. Using multimeter on appropriate dc scale, measure voltage between the following tie points and ground: Tie Point — Nominal Voltage A2A8E10 — -30 Vdc A2E12 — +28 Vdc A2E17 — +110 Vdc	+28.5 to -31.5 Vdc +24 to +32 Vdc +103 to +123 Vdc If any voltage is not within tolerance, set mode selector switch A2S2 to OFF and troubleshoot Power Supply Assembly A2A8. If all voltages are out of tolerance, check ac line voltage and setting of power transformer A2T1 primary winding tap.	Schematic, figure 5-32, sheet 1.

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
2. Overall Ac and Dc Voltage Application (Cont.)		
j. Adjust Electronic Multimeter 89536-8800A/AA to measure +20 Vdc with respect to ground and connect to A2E11.	20 ±0.1 Vdc.	Schematic, figure 5-32, sheet 1.
k. Using AC Voltmeter 28480-400E witha 1:1 probe, measure ac ripple at the following tie points.		Schematic, figure 5-32, sheet 1.
Tie Point — Nominal Voltage		
A2E43 — +110 Vdc	90 mVrms maximum	
A2E12 — +28 Vdc	320 mVrms maximum	
A2E11 — +20 Vdc	2 mVrms maximum	
A2A8E10 — -30 Vdc	15 mVrms maximum	
l. Rotate chassis to horizontal position and check for presence of +28 Vdc at RF Amplifier Assembly A2A4, by rotating MHz controls on receiver front panel between 02 and 29, while viewing rf amplifier digit window.	Rf amplifier tuning motor drives as MHz controls are rotated.	Schematic, figure 5-32, sheet 2 and figure 5-35, sheet 1.
m. Rotate the front panel MHz controls from 02 through 29, and compare the digits viewed through the digit window on top of RF Amplifier Assembly A2A4 with those viewed at front panel MHz windows.	The digits viewed in the rf amplifier window should be centered in the window and agree with the digits viewed through the front panel windows.	
n. Set front panel Hz switch A2A11S1 to V, and view the vernier indicator A2DS5.	Lamp flashes in vernier indicator A2DS5.	Schematic, figure 5-32, sheet 3.

3. Frequency Standard Check

CAUTION

Do not check Frequency Standard Assembly A2A5 unless power has been applied for at least 96 hours under the following conditions:

1. Mode selector switch A2S2 in a position other than OFF.

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
3. Frequency Standard Check (Cont.)	CAUTION (Cont.)	
	2. 5 MHz OSC SOURCE switch A2A5A2S1 in a position other than EXT NORM. Most drift will occur during the first 60 minutes of warmup; thereafter the error should be less than ±1 part per 10^7 (±0.5 Hz at 5 MHz).	
a. Connect the AN/YRQ-10 1 MHz output to the AN/USM-207 External Frequency Standard input jack. Disconnect an external 5 MHz input from EXT 5 MHZ IN connector A1J25, if connected, and set 5 MHz OSC SOURCE switch A2A5A2S1 on Frequency Standard Assembly A2A5 to INT/COMP. Connect 50 ohm load to INT 5 MHz OUT jack A1J24 at rear of case.		
b. Connect Electronic Counter AN/USM-207 to A1J24. Measure frequency.	5 MHz ±0.5 Hz.	Fault Logic Diagram, figure 5-27, Schematic, figure 5-36.
c. Remove Mode Selector Assembly A2A1 from chassis. Connect Electronic Counter AN/USM-207 to A2XA1P2-A2. Measure frequency.	500 kHz ±0.1 Hz	Schematic, figure 5-36.
d. Connect RF Millivoltmeter 04901-92B-S5 to INT 5 MHz OUT jack A1J24 and measure voltage.	480 to 720 mVrms	Schematics, figures 5-33 and 5-36.
e. Remove cover from Mode Selector Assembly A2A1, and connect A2A1 to chassis by means of an extender cable. Connect RF Millivoltmeter to A2A1A2E6 and A2A1A2E7 (ground). Measure voltage.	150 to 200 mVrms	Fault Logic Diagram, figure 5-27, Schematic, figure 5-36.
	NOTE Steps f., g., and h. are to be performed at installations where R-1051G/URR is normally operated with external 5 MHz input at EXT 5 MHz IN connector A1J25.	

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
f. Maintain conditions of step e., above. Place 5 MHz OSC SOURCE switch A2A5A2S1 in EXT (OVEN STDBY) position and connect external 5 MHz source to A1J25. Observe RF Millivoltmeter.	150 to 200 mVrms	Schematic, figure 5-36.
g. Disconnect external 5 MHz source from A1J25. Observe RF Millivoltmeter.	150 to 200 mVrms.	Schematic, figure 5-36.
h. Disconnect test equipment. Reattach cover to Mode Selector Assembly A2A1, remove extender cable, and reinstall A2A1 in chassis. Fasten in place. Remove 50 ohm load from A1J24. Restore external 5 MHz source and 5 MHz OSC SOURCE switch A2A5A2S1 to usual operating condition.		
4. RF Amplifier Signal Flow Check		
a. Position receiver front panel controls as follows: Control — Position Mode selector A2S2 — USB RF GAIN A2R3 — Fully clockwise Hz A2A11S1 — 000 AGC A2S3 — OFF USB LEVELS LINE A2R2 — Midrange AUDIO LEVEL switch A2A12S1 — OFF		
b. Connect RF Signal Generator 28480-8640B-001-003 to the receiver ANT jack A1J23. Set generator for a 1000 uV continuous wave signal, at 2.011 MHz.		

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
4. RF Amplifier Signal Flow Check (Cont.)		
c. On RF Amplifier Assembly A2A4, connect RF Millivoltmeter 04901-92B-S5 to A2A4TP3. Ensure that probe is connected to measure at A2A4TP3, not ground test point located next to it.	Connect multivoltmeter probe ground to A2A4TP4.	
d. On the receiver front panel, set the MHz and kHz controls for 2.010 MHz.		
e. Tune the signal generator (2.011 MHz) maximum indication of rf millivoltmeter. Note dBm reading for use in next step.	20 to 40 mV.	Fault Logic Diagram, figure 5-20. Schematic, figure 5-35.
f. Remove rf millivoltmeter from A2A4TP3 and connect to A2A6A8TP5 on RF Translator Subassembly A2A6A8. Note dBm reading.	Reading to be not more than 6 dB lower than the measurement made in step 4.e. If difference is more than 6 dB, troubleshoot signal path between RF Amplifier Assembly A2A4 and RF Translator Subassembly A2A6A8.	Schematic, figure 5-32, sheet 2.
g. Reconnect rf millivoltmeter to A2A4TP3.		
h. Set the rf signal generator and the receiver MHz and kHz controls to the following positions, tuning the rf signal generator for a maximum indication on the rf millivoltmeter: Signal Generator MHz / Receiver MHz 3.102 / 3.101 4.223 / 4.222 5.334 / 5.333 6.445 / 6.444 7.556 / 7.555	20 to 40 mV for each frequency selected.	Schematic, figure 5-35.

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
4. RF Amplifier Signal Flow Check (Cont.) Signal Generator MHz — Receiver MHz 8.667 — 8.666 9.778 — 9.777 10.899 — 10.898 11.990 — 11.989 12.011 — 12.010 13.001 — 13.010 14.011 — 14.010 15.011 — 15.010 16.011 — 16.010 17.011 — 17.010 18.011 — 18.010 19.011 — 19.010 20.011 — 20.010 21.011 — 21.010 22.011 — 22.010 23.011 — 23.010 24.011 — 24.010 25.011 — 25.010 26.011 — 26.010 27.011 — 27.010 28.011 — 28.010 29.011 — 29.010		
5. Translator/Synthesizer RF to IF Signal Flow Check		
a. Maintain receiver front panel control settings, except set MHz and kHz controls for 2.010 MHz and AGC control A2S2 to SLOW.		
b. Connect RF Millivoltmeter 04901-92B-S5 to A2A6A8TP8 on RF Translator Subassembly A2A6A8.		
c. Tune RF Signal Generator 28480-8640B-001-003 to 2.011 MHz (1000 uVrms output) and note RF Millivoltmeter indication.	Greater than 7.0 mVrms.	Troubleshooting Procedures, Figures 5-2, 5-21.

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
5. Translator/Synthesizer RF to IF Signal Flow Check (Cont.)		
d. Repeat steps a. and c. above with signal generator and receiver MHz and kHz controls set at the following frequencies: Signal Generator MHz / Receiver MHz 3.102 / 3.101 4.223 / 4.222 5.334 / 5.333 6.445 / 6.444 7.556 / 7.555 8.667 / 8.666 9.778 / 9.777 10.899 / 10.898 11.990 / 11.989 12.556 / 12.555 13.556 / 13.555 14.556 / 14.555 15.556 / 15.555 16.556 / 16.555 17.556 / 17.555 18.556 / 18.555 19.556 / 19.555 20.556 / 20.555 21.556 / 21.555 22.556 / 22.555 23.556 / 23.555 24.556 / 24.555 25.556 / 25.555 26.556 / 26.555 27.556 / 27.555 28.556 / 28.555 29.556 / 29.555	Greater than 7.0 mVrms for each frequency selected.	Trouble-shooting Procedures, Figures 5-2, 5-21.
6. IF Signal Flow Check		
a. Maintain same test setup as for step 5, except set mode selector switch to STD BY and remove IF Audio Amplifier Assemblies A2A2 and A2A3 from main frame. Set mode selector switch to USB.		

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
6. IF Signal Flow Check (Cont.)		
b. Set receiver MHz and kHz controls to 2.010 MHz.		
c. Set rf signal generator for 2.010 MHz continuous wave.		
d. Connect rf millivoltmeter to terminal A3 of jack A2XA2P1, and adjust output level of signal generator to obtain a 4 mV rms signal.		
e. Connect rf millivoltmeter to A1TP1 on Mode Selector Assembly A2A1, and observe meter indication. Then position the mode selector switch A2S2, in turn, to RATT and ISB.	150 to 180 mVrms at USB, RATT, and ISB positions.	Fault Logic Diagram, figure 5-22. Schematic, figure 5-32. Schematic, figure 5-33.
f. Set mode selector switch A2S2 to AM. Connect rf millivoltmeter to terminal A3 of jack A2XA3P1, and adjust output level of signal generator to obtain a 4 mVrms signal.		
g. Connect rf millivoltmeter to A1TP1 on Mode Selector Assembly A2A1 and observe meter indication with mode selector switch A2S2 in AM, then CW.	150 to 180 mVrms at AM and CW positions.	Fault Logic Diagram, figure 5-22. Schematic figure 5-32. Schematic figure 5-33.
h. Set mode selector switch A2S2 to LSB. Connect rf millivoltmeter to terminal A3 of jack A2XA3P1, and adjust output level of signal generator to obtain a 4 mVrms signal.		
i. Connect the rf millivoltmeter to A1TP1 on Mode Selector Assembly A2A1 and observe meter indication with mode selector switch A2S2 in LSB, then ISB.	150 to 180 mVrms at LSB and ISB positions.	Fault Logic Diagram, figure 5-22. Schematic, figures 5-32 and 5-33.

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
6. IF Signal Flow Check (Cont.)		
j. Set mode selector switch A2S2 to STD BY and reinstall both IF Audio Amplifier Assemblies A2A2 and A2A3.		
k. Disconnect test equipment.		
7. IF-to-Audio Signal Flow Check		
a. Position receiver controls as follows: Control — Position Mode selector A2S2 — USB MHz and kHz controls — 02.010 MHz Hz A2A11S1 — 000 RF GAIN A2R3 — Fully clockwise AGC A2S3 — SLOW AUDIO LEVEL — OFF USB LEVELS LINE control A2R2 — Midrange LSB LEVELS LINE control A2R1 — Midrange		
b. Set RF Signal Generator 28480-8640B-001-003 for 2.011 MHz. continuous wave. Connect to ANT jack A1J23, at rear of receiver.		
c. Connect AC Voltmeter 28480-400E to USB AUDIO OUT jack A1A1J5 at rear of receiver, and set to measure 10 Vac.		

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
7. IF-to-Audio Signal Flow Check (Cont.)		
d. Adjust rf signal generator frequency for peak indication on ac voltmeter with 1 uVrms signal level from the rf signal generator; then set the rf signal generator level to 1 mVrms. Rotate USB LEVELS LINE control A2R2 fully clockwise, and note ac voltmeter indication.	6 to 10 Vac	Fault Logic Diagram, figure 5-23. Schematic, figure 5-34.
e. Set mode selector switch A2S2 to AM.		
f. Adjust the rf signal generator to 1000 Hz, 30 percent modulation. Tune for peak indication on ac voltmeter with a 1 uVrms signal level on rf signal generator; then set the rf signal generator level to 1 mVrms. Note ac voltmeter indication.	6 to 10 Vac	Fault Logic Diagram, figure 5-23. Schematic, figure 5-34.
g. Remove ac voltmeter from receiver jack A1A1J5 and connect to LSB AUDIO OUT jack A1A1J6.		
h. Adjust the rf signal generator for 2.009 MHz, continuous wave, at 1 uV rms.		
i. Set mode selector switch A2S2 to LSB, and rotate LSB LEVELS LINE A2R1 control fully clockwise.		
j. Adjust rf signal generator for peak indication on ac voltmeter; then set rf signal generator level to 1 mVrms. Note ac voltmeter indication.	6 to 10 Vac	Fault Logic Diagram, figure 5-24. Schematic, figure 5-34.
k. Disconnect external test equipment. Maintain all other conditions.		

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
8. Overall Operational Procedure.		
a. Position receiver controls as follows: **Control** — **Position** Mode selector A2S2 — USB MHz and kHz controls — 04.999 MHz Hz A2A11S1 — 000 RF GAIN A2R3 — Clockwise USB and LSB LEVELS PHONE A2R5 and A2R4 — Clockwise USB and LSB LEVELS LINE A2R2 and A2R1 — Clockwise AUDIO LEVEL switch A2A12S1 — USB +20 dB AGC A2S3 — SLOW		
b. Connect INT 5 MHz OUT jack A1J24 to ANT jack A1J23.		
c. Connect Electronic Counter AN/USM-207 or equivalent to PHONE USB jack A2J2 on the receiver front panel. Ensure that 5 MHz OSC SOURCE switch A2A5A2S1 on Frequency Standard Assembly A2A5 is set to INT/COMP.		
d. Adjust the USB LEVELS LINE control A2R2 for an indication of +10 dBm on AUDIO LEVEL meter A2M1, and note the electronic counter indication.	1000 Hz	Fault Logic Diagram, figure 5-27.
e. Change receiver frequency, in turn, to 4.998 and 4.997 MHz; note electronic counter indication for each selected frequency.	Receiver Frequency Selected (MHz) — Electronic Counter Indication (Hz) 4.998 — 2000 4.997 — 3000	Fault Logic Diagram, figure 5-27..

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
8. Overall Operational Procedure. (Cont.)		
f. Change receiver frequency to 5.000 MHz. Set mode selector switch A2S2 to CW. Ensure Hz switch A2A11S1 is at 000 position.		
g. Rotate BFO control A2R6 fully counterclockwise, and adjust the USB LEVELS PHONE and LINE controls A2R5 and A2R2 for a stable indication on the electronic counter.	3 kHz (minimum).	Fault Logic Diagram, figure 5-26.
h. Rotate BFO control A2R6 fully clockwise, and observe electronic counter.	3 kHz (minimum).	Fault Logic Diagram, figure 5-26.
i. Set mode selector and AUDIO LEVEL switch A2S2 and A2A12S1 to LSB, and LSB +20 dB.		
j. Connect electronic counter to PHONE LSB jack A2J1.		
k. Set receiver frequency to 5.001 MHz, and adjust the LSB LEVELS LINE control A2R1 for +10 dBm indication on the AUDIO LEVEL meter A2M1, and observe electronic counter.	1000 Hz.	Fault Logic Diagram, figure 5-27.
l. Rotate the Hz switch A2A11S1 from 000 through 900, and then return to 000 position, while observing electronic counter.	1100 Hz through 1900 Hz in 100-Hz increments.	Schematic Diagram, figure 5-32, sheet 3.
m. Change the receiver frequency, in turn, to 5.002 and 5.003 MHz; note electronic counter indication for each selected frequency; and then return frequency to 5.002 MHz.	Receiver Frequency Selected / Electronic Counter Indication (Hz): 5.002 — 2000 5.003 — 3000	Fault Logic Diagram, figure 5-27.

Table 5-5. Radio Receiver R-1051G/URR, Maintenance Turn-on Procedure (Continued)

STEP	OBSERVE	REFERENCE
8. Overall Operational Procedure (Cont.)		
n. Set Hz switch A2A11S1 to V (vernier position) and rotate Hz vernier control A2A11R1 from fully counterclockwise to fully clockwise position, while observing electronic counter. Return Hz switch A2A11S1 to 000.	1000 Hz or less in fully counterclockwise position, and 2000 Hz or more in fully clockwise position.	Schematic Diagram, figure 5-32, sheet 3.
9. Turn-off Procedure.		
a. On Frequency Standard Assembly A2A5, set 5 MHz OSC SOURCE switch A2A5A2S1 to the position noted in Step 1.a.		
b. Remove all test equipment and test cable between A1J23 and A1J24 on rear of receiver cabinet.		
c. Pull mode selector switch A2S2 out, and set to OFF.		
d. Slide receiver chassis into case. Secure with front panel screws.		

RF Signal Generator 28480-8640B-001-003
RF Millivoltmeter 04901-92B-5S with Probe Tip 04901-91-13B
Digital Voltmeter 89536-8800A/AA

5-14. TROUBLESHOOTING PROCEDURES.

5-15. By careful observation during the maintenance turn-on procedure, trouble can be traced to a major function or secondary function. The diagrams referenced in table 5-5 can be used to localize the fault to a component part.

5-16. TROUBLESHOOTING DIAGRAMS.

5-17. GENERAL. The troubleshooting diagrams included in this chapter consist of signal flow diagrams, power distribution diagrams, a control diagram, fault logic diagrams, and maintenance schematic diagrams. These diagrams aid the technician in troubleshooting by providing a logical sequence of fault isolation of a failure to a specific component.

5-18. SIGNAL FLOW DIAGRAMS. Signal flow diagrams, figures 5-1 through 5-13, provided for each major equipment function, are the main troubleshooting tool. These diagrams show signal paths, connectors, test points, terminals, adjustments, indicators, and circuit stages; all the information necessary to isolate a malfunctioning circuit quickly. Included with each signal flow diagram are the test data required to obtain the measurements to be made at various points on the diagram. The data include test equipment required, reference to other areas of the manual which may furnish additional information, preliminary setup instructions, and step-by-step procedures for obtaining the indication shown at each of the test points specified on the signal flow diagram. The following general notes should be observed when performing any of the tests for the signal flow diagrams.

1. Signal levels and frequencies measured in an assembly connected on an extender cable may differ from the same measurements made when the module is plugged into the main frame without the extender cable.

2. Be certain that the rf signal generator and the electronic counter are connected to Frequency Standard AN/URQ-10 whenever they are used for testing, to ensure accuracy of all frequency measurements.

5-19. POWER DISTRIBUTION DIAGRAMS. The power distribution diagrams (figures 5-14 through 5-18) aid in troubleshooting the circuits involved in primary power, +28 Vdc, +20 Vdc, +5 Vdc, +110 Vdc, and -30 Vdc distribution in the R-1051G/URR. These diagrams depict the distribution of each voltage from the source through control circuits to the final assemblies or subassemblies which use it.

5-20. CONTROL DIAGRAM. The tuning control diagram (figure 5-19) shows all circuits involved in the tuning of the receiver to the desired frequency. The signal flow is shown from the front panel frequency controls to the assemblies and subassemblies that tune the receiver.

5-21. FAULT LOGIC DIAGRAMS. Supplementing each signal flow diagram is a fault logic diagram (figures 5-20 through 5-31). The fault logic diagrams are based on fault indications observed during troubleshooting, and consist of a branching series of questions pertaining to fault isolation. The fault indications are located at the left side of the blocks on the diagram. Single-line blocks contain questions requiring measurement by external test equipment. Questions which may be answered from observation (for example, reading a front panel meter) are enclosed in shaded blocks. Each question results in a "yes" or "no" answer (represented by solid or broken connecting lines, respectively), thereby leading to further questions and progressively narrowing the possible area of fault. The final question leads to a double-line conclusion block, which lists the probable area of malfunction and references a diagram to be used for further isolation of the fault.

5-22. MAINTENANCE SCHEMATIC DIAGRAMS. Maintenance schematic diagrams (figures 5-32 through 5-46) are provided for the overall receiver and for each of the major assemblies and subassemblies within the receiver, providing complete schematic coverage of the equipment. Major signal paths are shown by heavier line weights. These diagrams enable isolation of a fault to a defective component part.

TEST DATA FOR FIGURE 5-1

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
RF MILLIVOLTMETER 04901-92B-S5 OR EQUIVALENT
RF SIGNAL GENERATOR 28480-8640B-001-003 OR EQUIVALENT
RF AMPLIFIER TEST FIXTURE TS-3685/WRC-1 (DEPOT ONLY)
ELECTRONIC MULTIMETER AN/USM-311
ELECTRONIC COUNTER AN/USM-207

B. THE INFORMATION CONTAINED IN THE FOLLOWING NOTES AND ON THE SIGNAL FLOW DIAGRAM IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS RECEIVER FUNCTIONS IN AN OPERATING R-1051G/URR RECEIVER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN RF AMPLIFIER TEST FIXTURE TS-3685/WRC-1. THE SIGNAL LEVELS INDICATED ON THE SIGNAL FLOW DIAGRAMS SHALL BE USED TO GUIDE THE SETTINGS OF THE ASSOCIATED TEST GENERATORS. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THEIR COUNTERPART CONTROLS OF THE R-1051G/URR.

C. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-17.
TROUBLESHOOTING SEQUENCE, FIGURE 5-20.
CORRECTIVE MAINTENANCE, PARAGRAPH 6-66.
PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-19 AND 7-78.

D. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

SPECIFIC NOTES

1. PRELIMINARY SETUP. MAKE PRIMARY POWER AVAILABLE TO THE EQUIPMENT BY PLACING SYSTEM CIRCUIT BREAKER TO ON. LOOSEN FRONT PANEL SCREWS AND SLIDE MAIN FRAME CHASSIS OUT OF CASE. DEFEAT INTERLOCK SWITCH A1S1 BY PULLING SHAFT OUT, SO THAT PLUNGER EXTENDS FORWARD OF CASE. MAKE THE FOLLOWING PRELIMINARY CONTROL SETTINGS BEFORE BEGINNING THE TEST PROCEDURE:

UNIT	CONTROL	POSITION
RADIO RECEIVER R-1051G/URR	MODE SELECTOR SWITCH A2S2	USB
	AGC SWITCH A2S3	OFF
	RF GAIN CONTROL A2R3	FULLY CLOCKWISE
	Hz SWITCH A2A11S1	000
	USB LEVELS LINE CONTROL A2R2	MIDRANGE
	FREQUENCY CONTROLS	2.100 MHz

2. TEST SETUP. CONNECT RF SIGNAL GENERATOR TO ANT JACK A1J23, AND SET ITS OUTPUT FOR A CW FREQUENCY OF 2.101 MHz, AT 500 uVrms.

TEST DATA FOR FIGURE 5-2

GENERAL NOTES

A. THE TESTS DESCRIBED IN THE FOLLOWING TEST DATA ARE TO BE PERFORMED AT DEPOT ONLY.

B. TEST EQUIPMENT REQUIRED:
TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
SPECTRUM ANALYZER 28480-8553B-E30 WITH FET PROBE 28480-1121A
FREQUENCY STANDARD AN/URQ-10 OR EQUIVALENT
RF SIGNAL GENERATOR 28480-8640B-001-003 OR EQUIVALENT

C. REFERENCES. IF NECESSARY MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-25
TROUBLESHOOTING SEQUENCE, FIGURE 5-21
CORRECTIVE MAINTENANCE, PARAGRAPH 6-88
PHYSICAL LOCATION OF TEST POINTS, FIGURE 7-66

SPECIFIC NOTES

1. PRELIMINARY SETUP.
PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON DEPOT TEST FIXTURE. BE SURE CONNECTORS AND COUPLERS ARE PROPERLY MATED. REMOVE LEFT SIDE COVER OF A2A6. SET CONTROLS ON TEST FIXTURE TO TEST A WRC-1 100 Hz INCREMENT TRANSLATOR/SYNTHESIZER ASSEMBLY IN RECEIVING MODE WITHOUT VERNIER ACTION. MAINTAIN A NORMAL +20 VDC SUPPLY LEVEL.

2. TEST SETUP.
   a. CONNECT FREQUENCY STANDARD AN/URQ-10 5 MHz OUTPUT TO EXTERNAL 5 MHz INPUT JACK ON REAR OF TEST FIXTURE.

   b. CONNECT RF MILLIVOLTMETER 04901-92B-S5 TO 10 MHz REFERENCE JACK ON REAR OF TEST FIXTURE. ADJUST 10 MHz LEVEL FOR A METER INDICATION OF 30 ±10 mVrms.

   c. CONNECT OUTPUT OF RF SIGNAL GENERATOR 28480-8640B-001-003 TO RF INPUT CONNECTOR ON REAR OF TEST FIXTURE. SET OUTPUT OF RF SIGNAL GENERATOR FOR 22.505 MHz FOR A 5 mVrms INDICATION ON SIGNAL GENERATOR OUTPUT METER.

   d. ENTER 22.505 MHz INTO THE TEST FIXTURE.

   e. CONNECT OSCILLOSCOPE TO A2A6A8TP8. OUTPUT MUST BE BETWEEN 250 AND 140 mV P-P. IF CORRECT OUTPUT IS NOT OBTAINED, REFER TO TABLE 6-6, PARAGRAPH 6.

   f. FREQUENCY MEASUREMENTS MAY BE MADE BY CONNECTING THE FET PROBE AND SPECTRUM ANALYZER WITH TRACKING GENERATOR IN "RESTORE SIGNAL" MODE.

TEST DATA FOR FIGURE 5-2 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

3. TEST STEPS:

TS-1	REFER TO NOTES 1 AND 2 BEFORE PERFORMING TESTS. CONNECT OSCILLOSCOPE TO A2A6A8TP8. MEASURE IF OUTPUT. SINE WAVE FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.
TS-2	CONNECT OSCILLOSCOPE TO A2A6A8E9. SINE WAVE FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.
TS-3	CONNECT SPECTRUM ANALYZER TO A2A6A8CR15 CATHODE. OBSERVE 20.005 MHz. FREQUENCY SHOULD BE AS INDICATED.
TS-4	CONNECT SPECTRUM ANALYZER TO ANODE OF A2A6A8CR10. OBSERVE 20.005 MHz. FREQUENCY SHOULD BE AS INDICATED.
TS-5	SET OUTPUT OF SIGNAL GENERATOR AND TEST FIXTURE KEYBOARD TO 21.505 MHz. CONNECT SPECTRUM ANALYZER TO ANODE OF A2A6A8CR10. OBSERVE 30.005 MHz. FREQUENCY SHOULD BE AS INDICATED.
TS-6	CONNECT OSCILLOSCOPE TO A2A6A8E8. SINE WAVE FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.
TS-7	CONNECT SPECTRUM ANALYZER TO A2A6A8CR6 CATHODE. OBSERVE 2.895 MHz. FREQUENCY SHOULD BE AS INDICATED.
TS-8	CONNECT SPECTRUM ANALYZER TO A2A6A8CR4 ANODE. OBSERVE 2.895 MHz. FREQUENCY SHOULD BE AS INDICATED.
TS-9	CONNECT OSCILLOSCOPE TO A2A6A8E6. SINE WAVE FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.
TS-10	CONNECT SPECTRUM ANALYZER TO A2A6A8Q1 BASE. OBSERVE 500 kHz. FREQUENCY SHOULD BE AS INDICATED.

TEST DATA FOR FIGURE 5-3

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
RF SIGNAL GENERATOR 28480-8640B-001-003 OR EQUIVALENT
AC VOLTMETER 28480-400E OR EQUIVALENT (2 REQUIRED)
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
AMPLIFIER/MODE SELECTOR TEST FIXTURE TS-3670/WRC-1. SEE NOTE B.
EXTENDER CABLE 98738-30A226280-21-11 FOR IF/AUDIO AMPLIFIER ASSEMBLIES A2A2 AND A2A3
RESISTOR, 620 OHMS
RF MILLIVOLTMETER 04901-92B-S5
COUNTER AN/USM-207

B. THE INFORMATION CONTAINED IN THE FOLLOWING NOTES AND ON THE SIGNAL FLOW DIAGRAM IS ORGANIZED TO ALLOW TROUBLESHOOTING OF THE VARIOUS RECEIVER FUNCTIONS IN AN OPERATING R-1051G/URR RECEIVER. FOR DEPOT MAINTENANCE THE MODULE UNDER TEST WILL BE OPERATED IN AMPLIFIER/MODE SELECTOR TEST FIXTURE TS-3670/WRC-1. THE SIGNAL LEVELS INDICATED ON THE SIGNAL FLOW DIAGRAMS SHALL BE USED TO GUIDE THE SETTINGS OF THE ASSOCIATED TEST GENERATORS. TEST FIXTURE CONTROL SETTINGS SHALL CORRESPOND TO THE SETTINGS OF THEIR COUNTERPART CONTROLS OF THE R-1051G/URR.

C. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION, PARAGRAPH 3-40
TROUBLESHOOTING SEQUENCE, FIGURE 5-22
CORRECTIVE MAINTENANCE, PARAGRAPH 6-55
PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-12, 7-13, 7-14 AND 7-15

D. INDICATES EQUIPMENT FRONT PANEL MARKING.

E. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

SPECIFIC NOTES

1. PRELIMINARY SETUP. MAKE PRIMARY POWER AVAILABLE TO THE EQUIPMENT BY PLACING SYSTEM CIRCUIT BREAKER TO ON. LOOSEN FRONT-PANEL SCREWS AND SLIDE MAIN-FRAME CHASSIS OUT OF CASE. DEFEAT INTERLOCK SWITCH A1S1 BY PULLING SHAFT OUT SO THAT PLUNGER EXTENDS FORWARD OF CASE. MAKE THE FOLLOWING PRELIMINARY CONTROL SETTINGS BEFORE BEGINNING THE TEST PROCEDURE:

UNIT	CONTROL	POSITION
RADIO RECEIVER R-1051G/URR	MODE SELECTOR SWITCH A2S2	STD BY
	AGC SWITCH A2S3	OFF
	RF GAIN CONTROL A2R3	MAXIMUM CLOCKWISE
	USB LEVELS LINE CONTROL A2R2	MIDRANGE
	LSB LEVELS LINE CONTROL A2R1	MIDRANGE
	Hz SWITCH A2A1S1	000
	FREQUENCY CONTROLS	2.100 MHz

TEST DATA FOR FIGURE 5-3 (CONTINUED)

2. TEST SETUP.

a. APPLY THE RF OUTPUT FROM THE RF SIGNAL GENERATOR TO THE RECEIVER ANT JACK A1J23. SET THE SIGNAL GENERATOR OUTPUT FOR A FREQUENCY OF 2.101 MHz, AT 500 uV.

NOTE

THE MODE SELECTOR INPUT SIGNAL AS MEASURED AT RF TRANSLATOR TEST POINT A2A6A8TP8 DROPS TO 5 mV WHEN THE AGC SWITCH A2S3 IS SET TO SLOW.

b. REMOVE RECEIVER IF/AUDIO AMPLIFIERS A2A2 AND A2A3 FROM RECEIVER, AND RECONNECT VIA THE EXTENDER CABLES.

c. LOOSEN THE SCREWS AND REMOVE COVERS FROM BOTH IF/AUDIO AMPLIFIERS.

d. CONNECT A 620 OHM TERMINATING RESISTOR BETWEEN PINS A AND B OF USB AUDIO OUT JACK A1A1J5. CONNECT VERTICAL INPUT OF OSCILLOSCOPE AND AC VOLTMETER INPUT TO PINS A AND B OF JACK A1A1J5; CONNECT LOW SIDE OF AC VOLTMETER AND OSCILLOSCOPE TP PIN B. SET MODE SELECTOR SWITCH A2S2 TO USB.

NOTE

ADJUST THE RF SIGNALGENERATOR FOR OPTIMUM FREQUENCY OUTPUT BY ADJUSTING THE FREQUENCY CONTROL FOR MAXIMUM AUDIO OUTPUT AS OBSERVED ON THE AC VOLTMETER AT A1A1J5.

3. TEST STEPS:

TS-1 REFER TO NOTES 1 AND 2 BEFORE PERFORMING TEST. ADJUST RF GAIN CONTROL A2R3 TO OBTAIN INPUT SIGNAL LEVEL TO THE MODE SELECTOR AT A2A2A1TP1 OF 15 - 18 mVRMS AS MEASURED ON THE RF MILLIVOLTMETER.

TS-2 MEASURE THE 501 kHz IF INPUT SIGNAL LEVEL TO THE USB IF/AUDIO AMPLIFIER AT A2A2A2E1 ON THE RF MILLIVOLTMETER TO BE AS INDICATED.

TS-3 ADJUST FREQUENCY OF SIGNAL GENERATOR FOR A PEAK READING ON THE RF MILLIVOLTMETER AS A REFERENCE. INCREASE FREQUENCY OF SIGNAL GENERATOR UNTIL THE METER READING DROPS 3 DB (.707 OF VOLTAGE REFERENCE). CONNECT COUNTER TO A2A1A1TP1. INCREASE SIGNAL GENERATOR AMPLITUDE MOMENTARILY SO THAT COUNTER OPERATES. THE FREQUENCY SHALL BE AS INDICATED FOR UPPER BAND EDGE. REPEAT TEST FOR LOWER -3 dB POINT. THE FREQUENCY SHALL BE AS INDICATED FOR LOWER BAND EDGE.

TS-4 MEASURE THE 501 kHz IF INPUT SIGNAL TO THE USB PRODUCT DETECTOR A2A2A3Q1 AT A2A2A2E15 ON THE RF MILLIVOLTMETER TO BE AS INDICATED.

TS-5 MEASURE THE 500 kHz IF INJECTION SIGNAL TO THE EMITTER OF THE USB PRODUCT DETECTORS ON THE RF MILLIVOLTMETER AT A2A2A3TP1 TO BE AS INDICATED.

TS-6 MEASURE THE AUDIO OUTPUT SIGNAL OF THE USB IF/AUDIO AMPLIFIER WITH A2R2 FULL CCW AND WITH A2R2 FULL CW ON THE AC VOLTMETER AT A2A2A3E7. VOLTAGES TO BE AS INDICATED.

TEST DATA FOR FIGURE 5-9

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
FREQUENCY STANDARD TEST FIXTURE TS-3667/WRC-1. SEE NOTE B.
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
ELECTRONIC MULTIMETER AN/USM-311 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10
DIGITAL MULTIMETER 89536-8800A/AA, OR EQUIVALENT
RF MILLIVOLTMETER 04901-92B-S5 OR EQUIVALENT
RF SIGNAL GENERATOR 28480-8640B-001-003
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT

B. TESTS TO BE PERFORMED IN DEPOT ONLY.

C. REFERENCES:
TROUBLESHOOTING SEQUENCE, FIGURE 5-27
CORRECTIVE MAINTENANCE, PARAGRAPH 6-78
MAINTENANCE SCHEMATIC DIAGRAM, FIGURE 5-36

SPECIFIC NOTES

1. PRELIMINARY SETUP. PLACE FREQUENCY STANDARD ASSEMBLY A2A5 ON TEST FIXTURE. APPLY POWER, SET POWER SWITCH TO "OVEN" POSITION. SET RF LOAD SELECT SWITCH TO "LOAD" POSITION. ALLOW 1 HOUR MINIMUM TIME FOR STANDARD FREQUENCY OSCILLATOR TEMPERATURE TO STABILIZE. SET POWER SWITCH TO "OPERATE" POSITION.

2. TEST SETUP.

   a. CONNECT OSCILLOSCOPE TO SCOPE CONNECTOR ON REAR PANEL OF TEST FIXTURE.

   b. CONNECT RF MILLIVOLTMETER TO RFVTVM CONNECTOR ON REAR PANEL OF TEST FIXTURE

   c. CONNECT ELECTRONIC COUNTER TO COUNTER CONNECTOR ON REAR PANEL OF TEST FIXTURE.

   d. CONNECT 5 MHZ FREQUENCY STANDARD TO EXTERNAL 5 MHZ INPUT CONNECTOR ON REAR PANEL OF TEST FIXTURE.

   e. SET SERVICE PROBE SELECT SWITCH TO OFF POSITION.

TEST DATA FOR FIGURE 5-9 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

3. TEST STEPS:

TS-1 SET FREQUENCY OUTPUT SELECT SWITCH TO INT 5 MHz POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-2 SET FREQUENCY OUTPUT SELECT SWITCH TO 1 MHz POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-3 SET FREQUENCY OUTPUT SELECT SWITCH TO 500 kHz A1 POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-4 SET FREQUENCY OUTPUT SELECT SWITCH TO 500 kHz A2 POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-5 SET SELECTOR SWITCH TO 10 MHz POSITION. OBSERVE SINEWAVE. COUNTER READING AND RF MILLIVOLTMETER READING SHOULD BE AS INDICATED.

TS-6 DISCONNECT EXTERNAL FREQUENCY STANDARD FROM REAR PANEL OF TEST FIXTURE AND CONNECT RF SIGNAL GENERATOR IN ITS PLACE. SET FREQUENCY OF RF SIGNAL GENERATOR TO APPROXIMATELY 5.0001 MHz AT A MINIMUM OUTPUT LEVEL OF 1 VOLT.

SET FREQUENCY OUTPUT SELECT SWITCH TO INT 5 MHZ POSITION. COUNTER WILL INDICATE THE SIGNAL GENERATOR FREQUENCY. WHILE OBSERVING COUNTER, TURN EXT 5 MHz LEVEL ADJUST CONTROL ON TEST FIXTURE DOWN AS FAR AS IT WILL GO. COUNTER WILL INDICATE A FREQUENCY SHIFT, CONFIRMING THAT INTERNAL OSCILLATOR HAS BEEN SELECTED.

TEST DATA FOR FIGURE 5-11

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
ELECTRONIC MULTIMETER AN/USM-211 OR EQUIVALENT
FREQUENCY STANDARD AN/URQ-10
FET PROBE HP1121A
DIFFERENTIAL VOLTMETER AN/USM-381 OR EQUIVALENT
ELECTRONIC COUNTER AN/USM-207 OR EQUIVALENT
SPECTRUM ANALYZER 28480-8553B-E30

B. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
FUNCTIONAL DESCRIPTION. PARAGRAPH 3-92
TROUBLESHOOTING SEQUENCE, FIGURE 5-29
CORRECTIVE MAINTENANCE, PARAGRAPH 6-88
PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-71 AND 7-72

C. WAVEFORMS, TABLE 6-6

D. TESTS TO BE PERFORMED IN DEPOT ONLY.

SPECIFIC NOTES

1. THE FOLLOWING FUNCTION TABLES FOR THE A2A6A18U8-U10 PROGRAMMABLE DIVIDERS SHOW THE VARIOUS INPUT AND OUTPUT COMBINATIONS REALIZED FOR POSSIBLE SETTINGS OF CODING SWITCHES A2A11S1, A2A6S1 AND S2.

A2A6A18U8-U10 PROGRAMS

10'S COMPLEMENT CONVERSION (PIN 14 = 0)

DIAL A2A11S1 A2A6S1 OR A2A6S2	INPUT PIN				OUTPUT PIN					
	13	12	11	10	6	5	4	3	2	1
0	0	0	0	0	1	0	0	0	0	0
1	0	0	0	1	0	1	1	0	0	1
2	0	0	1	0	0	1	1	0	0	0
3	0	0	1	1	0	1	0	1	1	1
4	0	1	0	0	0	1	0	1	1	0
5	0	1	0	1	0	1	0	1	0	1
6	0	1	1	0	0	1	0	1	0	0
7	0	1	1	1	0	1	0	0	1	1
8	1	0	0	0	0	1	0	0	1	0
9	1	0	0	1	0	1	0	0	0	1

TEST DATA FOR FIGURE 5-11 (CONTINUED)

A2A6A18U8-U10 PROGRAMS (CONTINUED)

9's COMPLEMENT CONVERSION (PIN 14 = 1)

DIAL A2A11S1 A2A6S1 OR A2A6S2	INPUT PIN				OUTPUT PIN					
	13	12	11	10	6	5	4	3	2	1
0	0	0	0	0	0	1	1	0	0	1
1	0	0	0	1	0	1	1	0	0	0
2	0	0	1	0	0	1	0	1	1	1
3	0	0	1	1	0	1	0	1	1	0
4	0	1	0	0	0	1	0	1	0	1
5	0	1	0	1	0	1	0	1	0	0
6	0	1	1	0	0	1	0	0	1	1
7	0	1	1	1	0	1	0	0	1	0
8	1	0	0	0	0	1	0	0	0	1
9	1	0	0	1	0	1	0	0	0	0

2. TABLE OF NUMBER OF DIVISIONS BY 11 OF A2A6A18U1 FOR Hz SETTINGS

A2A11S1 POSITION	A2A6A18U4 INPUT COUNTS
000	0
100	9
200	8
300	7
400	6
500	5
600	4
700	3
800	2
900	1

TEST DATA FOR FIGURE 5-11 (CONTINUED)

3. TABLE OF A2A6A18U4 AND U5 PRESET COUNTS FOR Hz, 1 KHz AND 10 KHz SWITCH POSITIONS.

KHz SWITCH SETTING A2A6S1	A2A6A18U4 PRESET COUNTS	
	Hz = 000	Hz OTHER THAN 000
0	0	9
1	9	8
2	8	7
3	7	6
4	6	5
5	5	4
6	4	3
7	3	2
8	2	1
9	1	0

10 KHz SWITCH SETTING A2A6S2	A2A6A8U5 PRESET COUNTS	
	KHz AND Hz = 0	KHz OR Hz OTHER THAN 0
0	0	9
1	9	8
2	8	7
3	7	6
4	6	5
5	5	4
6	4	3
7	3	2
8	2	1
9	1	0

4. PRELIMINARY SETUP. PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON TEST FIXTURE, AND REMOVE COVER FROM ASSEMBLY. PREPARE THE TEST FIXTURE BY SETTING ITS CONTROLS TO TEST A WRC-1 100 Hz TYPE MODULE IN THE RECEIVE MODE, WITHOUT VERNIER ACTION, AND A NORMAL 20 VDC LEVEL. SET TEST FIXTURE FREQUENCY CONTROLS FOR 2.0011 MHz OPERATION, BUT DO NOT APPLY POWER TO TEST FIXTURE.

5. TEST SETUP.

   a. CONNECT DIFFERENTIAL VOLTMETER TO APPROPRIATE CONNECTOR ON TEST FIXTURE FRONT PANEL.

   b. CONNECT FREQUENCY STANDARD AN/URQ-10 5 MHz OUTPUT TO EXT 5 MHz INPUT CONNECTOR ON REAR OF TEST FIXTURE.

   c. CONNECT ELECTRONIC COUNTER AN/USM-207 TO MEASURE FREQUENCY AS DIRECTED.

TEST DATA FOR FIGURE 5-11 (CONTINUED)

6. PRELIMINARY CHECK.

   a. SET METER OUTPUT SELECTOR TO +20 VDC. APPLY POWER. METER SHOULD INDICATE +19.9 TO +20.1 VDC.

   b. DISCONNECT DIFFERENTIAL VOLTMETER.

7. TEST STEPS:

TS-1	REFER TO NOTES 4, 5, AND 6 BEFORE PERFORMING TEST. OBSERVE SINE WAVE AT A2A6A12TP3. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.
TS-2	OBSERVE WAVEFORM A AT A2A6A12TP1. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.
TS-3	OBSERVE WAVEFORM SIMILAR TO D AT A2A6A18TP2 AND A2A6A12TP2. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.
TS-4	OBSERVE WAVEFORM E AT A2A6A18TP1. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

DEPOT TEST DATA FOR FIGURE 5-13

GENERAL NOTES

A. TEST EQUIPMENT REQUIRED:
   TRANSLATOR/SYNTHESIZER TEST FIXTURE TS-3665/WRC-1
   OSCILLOSCOPE AN/USM-281 OR EQUIVALENT
   ELECTRONIC MULTIMETER AN/USM-311 OR EQUIVALENT
   FREQUENCY STANDARD AN/URQ-10
   DIFFERENTIAL VOLTMETER AN/USM-381 OR EQUIVALENT
   SPECTRUM ANALYZER 28480-8553B-E30
   FET PROBE 28480-1121A

B. REFERENCES. IF NECESSARY, MAKE THE FOLLOWING REFERENCES:
   FUNCTIONAL DESCRIPTION, PARAGRAPH 3-92
   TROUBLESHOOTING SEQUENCE, FIGURE 5-31
   CORRECTIVE MAINTENANCE, PARAGRAPH 6-88
   PHYSICAL LOCATION OF TEST POINTS, FIGURES 7-73 AND 7-74.
   WAVEFORMS, TABLE 6-6.

C. TESTS TO BE PERFORMED IN DEPOT ONLY.

SPECIFIC NOTES

1. FUNCTION TABLE FOR A2A6A13U9, U10 FOLLOWS. FOR A2A6A13U9, DATA PIN 5 IS ALWAYS AT LOGIC HIGH LEVEL TO ALLOW PRESET COUNTS OF 9, 7, 5, 3, and 1. FOR A2A6A13U10, DATA PIN 2 IS ALWAYS AT LOGIC LOW LEVEL TO ALLOW PRESET COUNTS OF 7 THRU 0.

COUNT	BIT	2^3	2^2	2^1	2^0
	DATA PIN	2	14	11	5
	OUTPUT PIN	1	15	9	7
9		1	0	0	1
8		1	0	0	0
7		0	1	1	1
6		0	1	1	0
5		0	1	0	1
4		0	1	0	0
3		0	0	1	1
2		0	0	1	0
1		0	0	0	1
0		0	0	0	0

DEPOT TEST DATA FOR FIGURE 5-13 (CONTINUED)

2. FUNCTION TABLE FOR A2A6A13U11 FOLLOWS. A2A6A13U11 IS PROGRAMMED ONLY FOR THE LISTED INPUT CODES.

INJECTION FREQUENCY (MHz)	MHz CONTROL SETTINGS	INPUT PIN					OUTPUT PIN							
		10	11	12	13	14	1	2	3	4	5	6	7	9
2.5	22	1	1	1	1	0	0	1	0	1	0	0	0	0
3.5	16,23,26	0	0	0	0	1	0	1	1	1	0	0	0	0
4.5	15,25	1	1	0	0	1	0	1	0	0	1	0	0	0
5.5	14,24	1	0	0	0	1	0	1	0	0	0	1	0	0
7.5	12,27	1	1	1	0	0	1	0	0	1	0	1	0	0
8.5	11,21,28	1	1	0	0	0	1	0	1	1	0	1	0	0
9.5	20,29	1	0	0	0	0	1	0	0	0	1	1	0	0
10.5	19	0	0	0	1	1	1	0	0	0	0	0	1	0
11.5	08,18	0	0	1	1	0	1	0	1	0	0	0	1	0
12.5	07,17	0	1	1	0	0	1	0	0	0	0	0	1	0
14.5	05	1	0	0	1	0	1	1	0	0	1	0	1	0
15.5	04	0	0	1	0	0	1	1	0	0	0	1	1	0
16.5	03,13	0	1	0	0	0	1	1	1	0	0	1	1	0
17.5	02	0	0	0	1	0	1	1	0	1	0	1	1	0
19.5	10	0	0	1	0	1	1	1	0	0	1	1	1	0
20.5	09	0	1	0	1	1	1	1	0	0	0	0	0	1
23.5	06	1	0	1	1	1	1	1	1	1	0	0	0	1

3. PRELIMINARY SETUP. PLACE TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 ON TEST FIXTURE, AND REMOVE COVER FROM ASSEMBLY. PREPARE THE TEST FIXTURE BY SETTING ITS CONTROLS TO TEST A WRC-1 100 Hz TYPE MODULE IN THE RECEIVE MODE, WITHOUT VERNIER ACTION, AND A NORMAL 20 VDC LEVEL. SET TEST FIXTURE FREQUENCY CONTROLS FOR 8.0000 MHz OPERATION, BUT DO NOT APPLY POWER TO TEST FIXTURE.

4. TEST SETUP.

(a) CONNECT DIFFERENTIAL VOLTMETER TO APPROPRIATE CONNECTOR ON TEST FIXTURE FRONT PANEL.

(b) CONNECT FREQUENCY STANDARD AN/URQ-10 5 MHz OUTPUT TO EXT 5 MHz INPUT CONNECTOR ON REAR OF TEST FIXTURE.

5. PRELIMINARY CHECK.

(a) SET METER OUTPUT SELECTOR TO +20 VDC. APPLY POWER. METER SHOULD INDICATE +19.9 TO +20.1 VDC.

(b) DISCONNECT DIFFERENTIAL VOLTMETER.

DEPOT TEST DATA FOR FIGURE 5-13 (CONTINUED)

SPECIFIC NOTES (CONTINUED)

6. THIS TEST PROCEDURE CONSISTS OF SETTING THE TEST FIXTURE FREQUENCY CONTROLS CONSECUTIVELY TO (A) 8 MHz, (B) 16 MHz AND (C) 9 MHz AND AT EACH FREQUENCY SETTING PERFORMING TESTS TS-1 THROUGH TS-8. TWO ADDITIONAL TESTS, TS-9 AND TS-10, ARE PERFORMED AT 8 MHz ONLY (A TOTAL OF 26 MEASUREMENTS). FOR CLARITY THE ENTIRE TEST IS SUMMARIZED IN THE SYNTHESIZER MEASUREMENT SUMMARY CHART WHICH FOLLOWS THE TEST STEPS. MEASURE ALL FREQUENCIES WITH SPECTRUM ANALYZER FITTED WITH FET PROBE WITH 10:1 DIVIDER TIP.

7. TEST STEPS:

$\boxed{\text{TS-1}}$ REFER TO NOTES 3, 4, 5 AND 6 BEFORE PERFORMING TEST. SET TEST FIXTURE FREQUENCY CONTROLS TO 8.0000 MHz AND OBSERVE WAVEFORM J AT A2A6A14TP5. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

$\boxed{\text{TS-2}}$ MEASURE THE VOLTAGE AT A2A6A14TP3. VOLTAGE SHOULD BE AS INDICATED (A).

$\boxed{\text{TS-3}}$ MEASURE THE VOLTAGE AT A2A6A14TP6. VOLTAGE SHOULD BE AS INDICATED (A).

$\boxed{\text{TS-4}}$ MEASURE THE VOLTAGE AT A2A6A14TP1. VOLTAGE SHOULD BE AS INDICATED (A).

$\boxed{\text{TS-5}}$ OBSERVE SIGNAL AT A2A6A14TP4. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

$\boxed{\text{TS-6}}$ OBSERVE SIGNAL AT A2A6A14TP2. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

$\boxed{\text{TS-7}}$ OBSERVE SIGNAL AT A2A6A14TP7. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A).

$\boxed{\text{TS-8}}$ OBSERVE WAVEFORM I AT A2A6A13TP3. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED (A). (WAVESHAPE VARIES WITH FREQUENCY).

$\boxed{\text{TS-9}}$ OBSERVE WAVEFORM G AT A2A6A13TP1. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

$\boxed{\text{TS-10}}$ OBSERVE WAVEFORM H AT A2A6A13TP2. FREQUENCY AND AMPLITUDE SHOULD BE AS INDICATED.

SET TEST FIXTURE FREQUENCY CONTROLS TO 16,0000 MHz AND REPEAT TESTS TS-1 THROUGH TS-8. MEASUREMENT RESULTS SHOULD BE AS INDICATED (B).

SET TEST FIXTURE FREQUENCY CONTROLS TO 9.0000 MHz AND REPEAT TESTS TS-1 THROUGH TS-8. MEASUREMENT RESULTS SHOULD BE AS INDICATED (C).

DEPOT TEST DATA FOR FIGURE 5-13 (CONTINUED)

10 MHz/1 MHz SYNTHESIZER MEASUREMENT SUMMARY CHART

TEST STEP	TEST POINT A2A6	TEST SET FREQUENCY CONTROLS (A) 8.0000 MHz	(B) 16.0000 MHz	(C) 9.0000 MHz
TS-1	A14TP5	WAVEFORM J 11.5 MHz 200 mV P-P	WAVEFORM J 3.5 MHz 200 mV P-P	WAVEFORM J 20.5 MHz 200 mV P-P
TS-2	A14TP3	0.4 VDC	5 VDC	5 VDC
TS-3	A14TP6	5 VDC	5 VDC	0.4 VDC
TS-4	A14TP1	5 VDC	0.4 VDC	5 VDC
TS-5	A14TP4	SQUARE WAVE 11.5 MHz 800 mV P-P	NO SIGNAL	NO SIGNAL
TS-6	A14TP2	NO SIGNAL	SQUARE WAVE 3.5 MHz 800 mV P-P	NO SIGNAL
TS-7	A14TP7	NO SIGNAL	NO SIGNAL	SQUARE WAVE 20.5 MHz 800 mV P-P
TS-8	A13TP3	WAVEFORM I 11.5 MHz 4 V P-P	WAVEFORM I 3.5 MHz 4 V P-P	WAVEFORM I 20.5 MHz 4 V P-P
TS-9	A13TP1	WAVEFORM G 500 kHz 4 V P-P		
TS-X	A13TP2	WAVEFORM H 500 kHz 4 V P-P		

NOTES FOR FIGURE 5-32

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH NUMBERS OF HIGHER ASSEMBLIES.

B. ALL RESISTANCE VALUES IN OHMS, UNLESS OTHERWISE NOTED.

C. ALL CAPACITANCE VALUES IN MICROFARADS, UNLESS OTHERWISE NOTED.

D. RESISTANCES OF COILS, RELAYS AND TRANSFORMER WINDINGS SHOWN WHEN GREATER THAN ONE OHM.

E. SWITCHES A2S2 AND A2S3 ARE SHOWN AS VIEWED FROM REAR OF FRONT PANEL, IN THE OFF POSITION. A BLACK SWITCH TERMINAL INDICATES A LONG CLIP AT THAT POINT.

F. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.

G. INDICATES FRONT PANEL MARKING.

H. * ON SCHEMATIC DIAGRAM INDICATES A COMPONENT OF SELECTED VALUE (NOMINAL VALUE SHOWN). REFER TO CHAPTER 7 PARTS LIST FOR PART NUMBERS AND RANGE OF VALUES; REFER TO TABLE 6-1, STEP 6 FOR PROCEDURE.

PART LOCATION INDEX

REF DESIG.	SHEET	ZONE
A1E1	1	13G
J1 thru J22		*
J23	1	14B
J24	3	1B
J25	1	14A
P1-1 thru P1-4		*
P1-5	1	11H
P1-6	1	12D
P1-7	3	2D
P1-8	1	12C
P1-9		*
P1-10	3	2G
P1-11	3	2C
P1-12	3	2C
P1-13	3	2E
P1-14	3	2C
P1-15		*
P1-16		*
P1-17	1	11G
P1-18	3	2H

REF. DESIG.	SHEET	ZONE
A1P1-19	3	2H
P1-20 thru P1-22		*
P1-23	1	12C
P1-24	1	12D
P1-25	3	2G
P1-26 thru P1-47		*
P1-48	1	11E
P1-49	1	11E
P1-50	1	11F
A1P2A1	3	2B
P2A2	1	12A
P2A3	1	12B
S1-A-C	1	12F
S1-A-NC	1	12F
S1-A-NO	1	12F
S1-B-C	1	12E
S1-B-NC	1	12E
S1-B-NO	1	12E
A1A1C1	1	13D

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE
A1A1C2	3	2D
C3	1	13C
C4	3	2G
C5	3	2D
C6	3	2C
C7	3	2E
C8	3	2H
C9	3	2H
C10	1	13G
C11	1	13F
C12	1	13G
C13	1	13C
C14	1	13D
C15	3	2G
E1	1	13G
J1		*
J2		*
J3-A	1	14G
J3-B	1	14G
J3-C	1	14F
J4-A	1	14D
J4-B	3	1D
J4-C	1	14C
J4-D	3	1G
J4-E	3	1D
J4-F	3	1C
J4-G	3	1E
J4-H	3	1H
J4-J	3	1H
J4-K	1	14C
J4-L	1	14D
J4-M	3	1G
J5-A	3	1H
J5-B	3	1H
J6-A	3	1C
J6-B	3	1C
A2C1	1	5G
C2	1	4F
C3	1	9D
C4	3	11B
CR1	1	10C
CR2	2	14E
CR3		*
CR4	2	14E
CR5	1	7B
CR6		*

REF. DESIG.	SHEET	ZONE
A2CR7		*
CR8	1	7A
DS1		*
DS2		*
DS3	1	5F
DS4	1	5F
DS5	3	12F
E1	1	5E
E2	1	10F
	3	9E
E3	1	7A
E4	3	9G, 12D
E5	1	4C
E6	1	7A
	3	8G
E7	2	13D
E8	2	10E
E9	2	9G, 14G
E10	1	4E
E11	1	6E
E12	1	5F
E13	3	9F, 11E
E14	1	6F
E15	1	3F
E16	2	10F
E17	1	6G
E18	1	6E
E19	3	12G
E20	1	4C
E21	1	3B
	3	9H, 10D, 11G 10G, 13G
E22	1	4B
	3	9H
E23	3	2H
E24		*
E25	2	2H
	3	13H
E26	3	3H
E27	1	4B
E28	3	2C
	1	4B, 11E 11G
E29	3	11C
E30	3	10B
E31	3	9D, 10C, 11C
	1	5C

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE	REF. DESIG.	SHEET	ZONE
A2E32	3	10B	A2J8-21	2	12E
E33	3	3C	J8-22	2	12E
E34	1	5C	J8-23	2	11E
	3	9C	J8-24	2	11E
E35	1	5C	J8-25	2	11E
	3	8C	J9		
E36	3	3C	thru		*
E37	1	5E	J20		
E38	2	6D	J21-1		
E39	2	9C, 8D	thru		(Spares)
E40	2	8C, 8D, 8E	J21-4		
E41	2	14E	J21-5	1	11H
E42	1	4E	J21-6		
E43	1	5G	thru		(Spares)
E44	2	10F	J21-10		
F1	1	10E	J21-11	3	2C
F2	1	10G	J21-12	3	2C
FL1	2	11B	J21-13	3	2E
FL2	2	11C	J21-14	3	2C
FL3	2	14G	J21-15		*
J1	3	9E	J21-16		*
J1-1	3	9E	J21-17	1	11G
J1-2	3	9E	J21-18	3	2H
J1-3	3	9E	J21-19	3	2H
J2	3	9F	J21-20		
J2-1	3	9F	thru		(Spares)
J2-2	3	9F	J21-25		
J2-3	3	9F	J21-26		
J3			thru		*
thru		*	J21-47		
J7			J21-48	1	11E
J8	2	11D, 13D,	J21-49	1	11E
		11E, 13E	J21-50	1	11F
J8-1			J22-A1	3	2B
thru	2	12E	J22-A2	2	14B
J8-5			J22-A3	2	15G
J8-6	2	13E	K1	1	10C
J8-7	2	13E	K1-A1	1	10D
J8-8	2	13D	K1-A2	1	10D
J8-9	2	13D	K1-A3	1	10D
J8-10			K1-B1	1	10D
thru		*	K1-B2	1	10D
J8-18			K1-B3	1	10D
J8-19	2	12D	K1-X1	1	10C
J8-20	2	12D	K1-X2	1	10C
			K2	2	14E
			K2-A1	2	14E

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE
A2K2-A2	2	14E
K2-A3	2	14E
K2-B1	2	14E
K2-B2	2	14E
K2-B3	2	14E
K2-X1	2	14E
K2-X2	2	14E
L1	1	6G
L2	1	6F
L3	2	10E
M1	3	8F
Q1	1	9D
R1	3	11D
R2	3	10G
R3	1	6B
R4	3	9D
R5	3	9G
R6	3	12D
R7		*
R8	1	4F
R9	3	8F
R10	3	8E
R11 thru R13		*
R14	1	7B
R15 thru R18		*
R19	3	12D
R20	1	5G
R21		*
R22		*
R23	3	13G
R24		*
R25	1	6B
S1		*
S2A-F-1	3	10F
S2A-F-2	3	10F
S2A-F-3	3	10E
S2A-F-4	3	10E
S2A-F-5		*
S2A-F-6	1	11E
S2A-F-7	1	11E
S2A-F-8		*
S2A-F-9	3	9E
S2A-F-10	3	9E
A2S2A-F-11	3	9F
S2A-F-12	3	9F
S2A-R-1		*
S2A-R-2	1	5E
S2A-R-3	1	*
S2A-R-4	1	5E
S2A-R-5	1	5D
S2A-R-6	1	5D
S2A-R-7		*
S2A-R-8	3	10D
S2A-R-9		*
S2A-R-10	3	10D
S2A-R-11	3	10D
S2A-R-12		*
S2B-F-1 thru S2B-F-9		*
S2B-F-10	1	10G
S2B-F-11	1	10G
S2B-R-1		*
S2B-R-2	3	11D
S2B-R-3	3	11D
S2B-R-4		*
S2B-R-5		*
S2B-R-6	3	11C
S2B-R-7		*
S2B-R-8	3	11C
S2B-R-9	1	5G
S2B-R-10	1	5G
S2B-R-11	1	5G
S2B-R-12		*
S2C-F-1	3	10F
S2C-F-2	3	10F
S2C-F-3	3	10E
S2C-F-4	3	10E
S2C-F-5		*
S2C-F-6	1	4F
S2C-F-7	1	4F
S2C-F-8		*
S2C-F-9		*
S2C-F-10	3	10E
S2C-F-11	3	10F
S2C-F-12	3	10F
S2C-R-1		*
S2C-R-2		*
S2C-R-3	3	11E

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE	REF. DESIG.	SHEET	ZONE
A2S2C-R-4	3	11D	A2T1-3	1	9G
S2C-R-5		*	T1-4	1	9F
S2C-R-6	3	11D	T1-5	1	9F
S2C-R-7		*	T1-6	1	9E
S2C-R-8	3	11D	T1-7	1	9G
S2C-R-9		*	T1-8	1	9G
S2C-R-10	3	11D	T1-9	1	9F
S2C-R-11		*	T1-10	1	9F
S2C-R-12	3	11E	T1-11	1	9F
S2D-F-1		*	T1-12	1	9E
S2D-F-2	1	4E	T1-13	1	9H
S2D-F-3			T1-14	1	9H
thru		*	A2XA1P1-1	3	11G
S2D-F-5			P1-2	3	11G
S2D-F-6	1	4D	P1-3		
S2D-F-7	1	4D	thru		*
S2D-F-8		*	P1-5		
S2D-F-9		*	P1-6	3	12G
S2D-F-10	1	4E	P1-7	3	12G
S2D-F-11	1	4E	P1-A1	3	13H
S2D-F-12	1	4E	P1-A2	3	11H
S2D-R-1		*	P1-A3	3	11H
S2D-R-2		*	P2-1	3	12G
S2D-R-3	1	8B	P2-2	3	12G
S2D-R-4	1	8B	P2-3	3	13G
S2D-R-5	1	8B	P2-4	3	12G
S2D-R-6	1	8B	P2-5	3	12G
S2D-R-7			P2-A1	3	12G
thru		*	P2-A2	3	12G
S2D-R-10			P2-A3	3	11G
S2D-R-11	3	11F	P2-A4	3	11G
S2D-R-12	3	11F	A2XA2P1-1	1	3C
S3-1		*	P1-2	3	10G
S3-2		*	P1-3	3	9G
S3-3	1	5B	P1-4	3	10G
S3-4		*	P1-5		*
S3-5	1	5B	P1-6	3	10H
S3-6	1	5B	P1-7	1	3C
S3-7			P1-8		*
thru		*	P1-9	1	4C
S3-9			P1-10		*
S3-10	1	5B	P1-11	3	9G
S3-11	1	5B	P1-12	3	9H
S3-12	1	5C	P1-13	1	4C
T1-1	1	9G		3	9H
T1-2	1	9G	P1-14	3	9H

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE
A2XA2P1-15	1	4C
P1-16		*
P1-17	3	9G
P1-18	3	10G
P1-19	1	3C
P1-20	1	4C
P1-21	1	4C
P1-22	3	9G
P1-A1	3	10G
P1-A2	3	10G
P1-A3	3	10H
A2XA3P1-1	1	5C
P1-2	3	10C
P1-3	3	9D
P1-4	3	10C
P1-5		*
P1-6	3	10C
P1-7	1	5C
P1-8		*
P1-9	1	5C
P1-10		*
P1-11	3	10C
P1-12	3	9C
P1-13	1	5C
	3	9C
P1-14	3	9C
P1-15	1	5C
P1-16		*
P1-17		*
P1-18	3	10C
P1-19	1	5C
P1-20	1	5C
P1-21	1	5C
P1-22	3	10C
P1-A1		*
P1-A2	3	10C
P1-A3	3	10D
A2XA4P1-1	2	10G
P1-2	2	10G
P1-3	2	10G
P1-4	2	10G
P1-5	2	9G
P1-6	2	10G
P1-7	2	10G
P1-8	2	9G

REF. DESIG.	SHEET	ZONE
A2XA4P2-1	2	9G
P2-2 thru P2-6		*
P2-7	2	9G
P2-8	2	9G
P2-9	2	10G
P2-10		*
P2-11		*
P2-12	2	10G
P2-A1	2	8H
P2-A2		*
P2-A3	2	11H
A2XA5P1-1	2	10C
P1-2	2	9C
P1-3	2	10C
P1-A1	2	9D
P1-A2	2	9C
P1-A3	2	10D
P1-A4	2	9C
P1-A5	2	9D
P1-A6	2	9C
A2XA6P1-1	2	6F
P1-2	2	6F
P1-3	2	6F
P1-4	2	6E
P1-5	2	6E
P1-6	2	6F
P1-7	2	6C
P1-8	2	6D
P1-9		*
P1-10	2	2G, 6G
P1-11	2	2B
P1-12	2	4A
P1-13	2	4A
P1-14	2	3A
P1-15	2	3A
P1-16	2	6D
P1-17	2	2C
P1-18	2	2G
P1-19	2	4A
P1-20	2	6E
P1-21	2	3A
P1-A1	2	6E
P1-A2	2	6E

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE
A2XA6P1-A3	2	6D
P2-A1	2	2H
P2-A2		*
P2-A3	2	2C
P3-A1	2	6G
P3-A2		*
P3-A3		*
A2XDS1		*
XDS2		*
XDS3	1	5F
XDS4	1	5F
XDS5	3	12F
XF1	1	10F
XF2	1	10G
A2A1P1-1	3	11G
P1-2	3	11G
P1-3 thru P1-5		*
P1-6	3	12G
P1-7	3	12G
A2A1P1-A1	3	13H
P1-A2	3	11H
P1-A3	3	11G
P2-1	3	12G
P2-2	3	12G
P2-3	3	13G
P2-4	3	12G
P2-5	3	12G
A2A1P2-A1	3	12G
P2-A2	3	12G
P2-A3	3	11G
P2-A4	3	11G
A2A2P1-1	1	3C
P1-2	3	10G
P1-3	3	9G
P1-4	3	10G
P1-5		*
P1-6	3	10G
P1-7	1	3C
P1-8		*
P1-9	1	4C
P1-10		*
P1-11	3	9G
P1-12	3	9H
P1-13	1	4C
	3	9H

REF. DESIG.	SHEET	ZONE
A2A2P1-14	3	9H
P1-15	1	4C
P1-16		*
P1-17	3	9G
P1-18	3	10G
P1-19	1	3C
P1-20	1	4C
P1-21	1	4C
P1-22	3	9G
P1-A1	3	10G
P1-A2	3	10G
P1-A3	3	10H
A2A3P1-1	1	5C
P1-2	3	10C
P1-3	3	9D
P1-4	3	10C
P1-5		*
P1-6	3	10C
P1-7	1	5C
P1-8		*
P1-9	1	5C
P1-10		*
P1-11	3	10C
P1-12	3	9D
P1-13	1	5C
	3	9C
P1-14	3	9C
P1-15	1	5C
P1-16		*
P1-17		*
P1-18	3	10C
P1-19	1	5C
P1-20	1	5C
P1-21	1	5C
P1-22	3	10C
P1-A1		*
P1-A 2	3	10C
P1-A3	3	10D
A2A4P1-1	2	10G
P1-2	2	10G
P1-3	2	10G
P1-4	2	10G
P1-5	2	9G
P1-6	2	10G
P1-7	2	10G
P1-8	2	9G

* NOT USED

NOTES FOR FIGURE5-32(CONTINUED)

PART LOCATION INDEX

REF DESIG.	SHEET	ZONE
A2A4P2-1	2	9G
P2-2 thru P2-6		*
P2-7	2	9G
P2-8	2	9G
P2-9	2	10G
P2-10		*
P2-11		*
P2-12	2	10G
P2-A1	2	8H
P2-A2	2	9G
P2-A3	2	11H
A2A5P1-1	2	10C
P1-2	2	9C
P1-3	2	10C
P1-A1	2	9D
P1-A2	2	9C
P1-A3	2	10D
P1-A4	2	9C
P1-A5	2	9D
P1-A6	2	9C
A2A6P1-1	2	6F
P1-2	2	6F
P1-3	2	6F
P1-4	2	6E
P1-5	2	6E
P1-6	2	6F
P1-7	2	6C
P1-8	2	6D
P1-9		*
P1-10	2	2G, 6G
P1-11	2	2B
P1-12	2	4A
P1-13	2	4A
P1-14	2	3A
P1-15	2	3A
P1-16	2	6D
P1-17	2	2C
P1-18	2	2G
P1-19	2	4A
P1-20	2	6E
P1-21	2	3A
P1-A1	2	6E
A2A6P1-A2	2	6E
P1-A3	2	6D
P2-A1	2	2H
P2-A2		*
P2-A3	2	2C
P3-A1	2	6G
A2A7P1-1	2	12E
P1-2	2	12E
P1-3	2	12E
P1-4	2	12E
P1-5	2	12E
P1-6	2	13E
P1-7	2	13E
P1-8	2	13D
P1-9	2	13D
P1-10 thru P1-18		*
P1-19	2	12D
P1-20	2	12D
P1-21	2	12E
P1-22	2	12E
P1-23	2	11E
P1-24	2	11E
P1-25	2	11E
A2A8C1		*
C2		*
C3	1	8E
C4	1	7E
C5		*
C6	1	7D
C7	1	6D
CR1	1	8G
CR2	1	8G
CR3	1	8G
CR4	1	8G
CR5	1	8F
CR6	1	8F
CR7	1	8F
CR8	1	8F
CR9	1	8E
CR10	1	8E
CR11	1	8E
CR12	1	8E
CR13	1	7E

* NOT USED

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE	REF. DESIG.	SHEET	ZONE
A2A8CR14	1	7E	A2A9CR1	2	13G
CR15	1	8D	CR2	2	13H
CR16	1	8C	E1 **	2	14G
CR17	1	8C	E2 **	2	11H, 14H
E1 **	1	9F	E3 **	2	11H
E2 **	1	9F	E4 **	2	11H
E3 **	1	6F	E5 **	2	14G
E4 **	1	6F	E6 **	2	14H
E5 **	1	6F	K1	2	12G
E6 **		*	K1-A1	2	12H
E7 **	1	6G	K1-A2	2	11H
E8 **	1	9G	K1-X1	2	12G
E9 **	1	9G	K1-X2	2	11G
E10 **	1	6E	Q1	2	12G
E11 **	1	9E	Q2	2	12G
E12 **	1	9F	R1	2	13G
E13 **	1	9D	R2	2	13G
E14 **	1	9C	R3	2	13G
E15 **	1	6E, 9E	R4	2	12H
E16 **	1	6C	R5	2	12G
E17 **	1	6G	R6	2	12G
E18 **	1	6F	R7	2	12G
Q1	1	8D	R8	2	11G
Q2	1	8D	R9	2	12G
Q3	1	8D	R10	2	12H
Q4	1	7D	A2A10C1	2	8H
R1	1	7F	C2	2	8F
R2	1	7F	C3	2	7H
R3	1	8E	C4	2	7G
R4	1	8E	C5	2	7G
R5	1	9D	C6	2	7F
R6	1	6D	C7	2	6G
R7	1	8C	CR1	2	8H
R8	1	8D	CR2	2	8G
R9	1	8D	CR3	2	7H
R10	1	7D	CR4	2	7G
R11	1	7D	CR5	2	7F
R12	1	7C	E1**	2	6G
R13	1	7D	E2**	2	8F
R14	1	7D	E3**	2	6G
R15	1	7C	E4**	2	6G
R16	1	6C	E5**	2	8H
A2A9C1	2	14G	E6**	2	8H
C2	2	13G	L1	2	8G
C3	2	13G	L2	2	7H
C4	2	13G	L3	2	7G

* NOT USED ** WIRING TERMINATIONS - FOR REFERENCE ONLY

NOTES FOR FIGURE 5-32 (CONTINUED)

PART LOCATION INDEX

REF. DESIG.	SHEET	ZONE	REF. DESIG.	SHEET	ZONE
A2A10L4	2	7H	A2A11A1CR2	3	14E
L5	2	7G	E1**	3	14E
L6	2	7G	E2**	3	14E
R1	2	8F	E3**	3	14E
R2	2	7G	E4**		*
R3	2	6G	E5**	3	13E
A2A11R1	3	14E	E6**	3	14F
S1A-F-1			E7**	3	14F
thru		*	E8**	3	13F
S1A-F-9			E9**	3	13F
S1A-F-10	3	13D	R1	3	14F
S1A-F-11	3	13D	R2	3	14E
S1A-F-12	3	13D	R3	3	14E
S1A-R-1		*	R4	3	14E
S1A-R-2		*	R5		*
S1A-R-3	3	14B	R6	3	13F
S1A-R-4		*	R7	3	13E
S1A-R-5	3	14B	A2A12C1	3	7F
S1B-F-1	3	14D	C2	3	7E
S1B-F-2		*	C3	3	7D
S1B-F-3		*	CR1	3	7F
S1B-F-4	3	14D	CR2	3	7F
S1B-F-5		*	CR3	3	7F
S1B-F-6	3	14C	CR4	3	7F
S1B-F-7	3	14C	CR5	3	7D
S1B-F-8			E1	3	8D
thru		*	E2	3	8F
S1B-F-10			E3	3	8E
S1B-F-11	3	14D	E4	3	8G
S1B-R-1	3	14B	E5	3	8E
S1B-R-2	3	14B	E6	3	3D
S1B-R-3	3	14B	E7	3	3D
S1B-R-4	3	14B	E8	3	3E
S1B-R-5			E9	3	3E
thru		*	R1	3	7F
S1B-R-7			R2	3	6E
S1B-R-8	3	14B	R3	3	6E
S1B-R-9		*	R4	3	6G
S1B-R-10	3	14B	R5	3	6F
S1B-R-11		*	R6	3	7E
S1B-R-12	3	14B	R7	3	4E
A2A11A1C1	3	14F	R8	3	3E
C2	3	13E	R9	3	3E
C3		*	R10	3	4E
C4	3	14E	R11	3	4E
CR1	3	14F	R12	3	3D

* NOT USED   ** WIRING TERMINATIONS - FOR REFERENCE ONLY

NOTES FOR FIGURE 5-34

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLY.

B. UNLESS OTHERWISE SPECIFIED:
   1. ALL RESISTANCE IS IN OHMS, K = 1000, M = 1,000,000
      ALL RESISTORS ARE 1/4 WATT, ±5%
   2. ALL CAPACITORS ARE IN MICROFARADS, pF = PICOFARAD.
   3. ALL COIL RESISTANCES ARE LESS THAN 1 OHM.

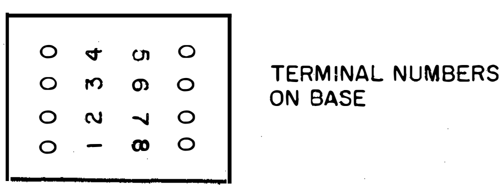
C. CW ON POTENTIOMETERS INDICATES DIRECTION OF ROTATION WHEN VIEWED FROM SHAFT END.

D. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

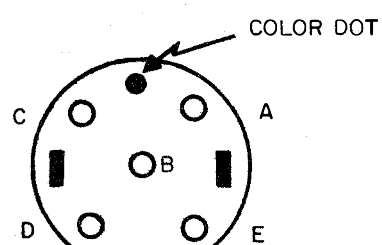
E. REFER TO BASE DIAGRAMS FOR TRANSFORMER ORIENTATION.

F. ALL AC VOLTAGE MEASUREMENTS TAKEN WITH RF MILLIVOLTMETER, 04901-92B-S5, USING 04901-91-7C 100:1 VOLTAGE DIVIDER PROBE, AS REQUIRED.

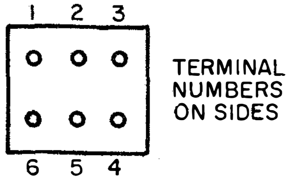
G. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED FROM BREAK POINT IN PARALLEL WITH DIAGRAM BORDER.



A2A2T1 AND A2A3T1



A2A2A1T1, A2A3A1T1, A2A2A1T2, A2A3A1T3, A2A2A2T1 THRU T4 AND A2A3A2T1 THRU T4



A2A2A3T1 AND A2A3A3T1
A2A2A2T5 AND A2A3A2T5

TRANSFORMER BASE DIAGRAMS

NOTES FOR FIGURE 5-34 (Cont)

SPECIFIC NOTES

1. VOLTAGE MEASUREMENTS

TEST POINT	VOLTAGE		TEST POINT	VOLTAGE	
A1Q1-E	1.1V		A1Q14-E	18.3V	AM ONLY
A1Q1-B	0.5V		A1Q14-B	17.7V	
A1Q1-C	1.1V		A1Q14-C	0.2V	
A1Q2-E	16.2V	(NOTE 6)	A2Q1-E	7.95V	
A1Q2-B	19.7V		A2Q1-B	7.36V	
A1Q2-C	0.5V		A2Q1-C	0V	
A1Q3-E	0V	(NOTE 5)	A2Q2-E	0V	
A1Q3-B	0.2V		A2Q2-B	0V	
A1Q3-C	19.7V		A2Q2-C	16.5V	
A1Q4-E	0.2V		A2Q3-E	0V	
A1Q4-B	0.8V		A2Q3-B	0.6V	
A1Q4-C	19.5V		A2Q3-C	0.6V	
A1Q6-E	1.0V		A2Q4-E	7.8V	
A1Q6-B	1.2V		A2Q4-B	7.2V	
A1Q6-C	0V		A2Q4-C	0V	
A1Q7-E	5.3V		A2Q5-E	7.8V	
A1Q7-B	4.7V		A2Q5-B	7.2V	
A1Q7-C	0V		A2Q5-C	0V	
A1Q8-E	8.2V		A2Q6-E	7.8V	
A1Q8-B	7.6V		A2Q6-B	7.2V	
A1Q8-C	0V		A2Q6-C	0V	
A1Q9-E	1.0V	AM ONLY	A2Q7-E	18.2V	
A1Q9-B	1.6V		A2Q7-B	17.6V	
A1Q9-C	17.7V		A2Q7-C	11.8V	
A1Q10-E	0V	(NOTE 6)	A2Q8-E	18.0V	
A1Q10-B	0.6V		A2Q8-B	11.8V	
A1Q10-C	0V		A2Q8-C	5.0V	
A1Q11-E	0V	(NOTE 6)	A2Q9-E	26.4	
A1Q11-B	0.6V		A2Q9-B	25.8	
A1Q11-C	0.2V		A2Q9-C	0V	
A1Q12-E	0V		A2Q10-E	26.4V	
A1Q12-B	0.6V		A2Q10-B	25.8V	
A1Q12-C	0.2V		A2Q10-C	0V	
A1Q13-E	19.7V	(NOTE 6)	A3Q1-E	17.5V	
A1Q13-B	19.1V		A3Q1-B	16.9V	
A1A13-C	19.5V		A3Q1-C	1.3V	

NOTES FOR FIGURE 5-34 (Cont)

TEST POINT	VOLTAGE	TEST POINT	VOLTAGE
A3Q2-E	17.5V	A3Q3-E	8.8V
A3Q2-B	16.9V	A3Q3-B	16.9V
A3Q2-C	1.4V	A3Q3-C	0V

VOLTAGE MEASUREMENTS TAKEN TO GROUND WITH MULTIMETER AN/USM-311.

TEST POINT	MEASUREMENT
A2E10	+20 Vdc
A2E3	+20 Vdc
A2E19	0V
A1E10	1-3 Vdc
A1TP1	-12 Vdc
A1TP1	1 Vdc
A3E7	20 Vdc

2. SET MODE SELECTOR A2S2 TO USB POSITION FOR MEASUREMENTS AT TERMINALS OF A2A2T1: TO LSB POSITION FOR MEASUREMENT AT TERMINALS OF A2A3T1. INPUT TO ANT CONNECTOR A1J23: 3 uV, AGC SWITCH A2S3: OFF. RF GAIN POT. FULLY CW (MAX RF GAIN).

TEST POINT	MEASUREMENT
A2A2/A2A3 T1 TERMINAL 4	15 Vrms
5	0 Vrms
6	15 Vrms
7	8 Vrms

3. DC RESISTANCE MEASUREMENTS OF TRANSFORMER WINDINGS. RESISTANCES BETWEEN TERMINALS NOT LISTED ARE LESS THAN ONE OHM. RESISTANCES SHOWN ARE ±10%.

TERMINALS	RESISTANCE (OHMS)
A2A2/A2A3 T1 1-3	110
4-6	14
7-8	35
	12
A2A2/A2A3 A1T1 A-D	12
A-C	9
B-E	4.5
C-E	3
A2A2/A2A3 A1T2 C-D	2.5
A2T5 1-3	1.6K
4-5	30
A3T1 1-3	1.6K
4-6	60

NOTES FOR FIGURE 5-34 (Cont)

PART LOCATION INDEX

REF DES	ZONE
A2A2P1-1	20H
P1-2	4E
P1-3	4F
P1-4	4F
P1-5	20E
P1-6	20G
P1-7	20H
P1-8	20E
P1-9	20F
P1-10	20E
P1-11	20A
P1-12	4G
P1-13	4G
P1-14	4G
P1-15	20B
P1-16	20E
P1-17	4E
P1-18	20B
P1-19	20D
P1-20	20C
P1-21	20D
P1-22	4E
P1-A1	20A
P1-A2	20B
P1-A3	20G
T1	6G
T1-1	6G
T1-2	6G
T1-3	6F
T1-4	6G
T1-5	6G
T1-6	6G
T1-7	6G
T1-8	6F
A2A2A1C1	*
C2	16C
C3	15C
C4	8D
C5	12C
C6	20B
C7	11D
C8	11C
C9	10C

REF DES	ZONE
A2A2A1C10	9C
C11	9D
C12	12D
C13	12C
C14	*
C15	19C
C16	3B
CR1	19D
CR2	17D
CR3	17D
CR4	12C
CR5	11D
E1**	20D
E2**	19E
E3**	20C
E4**	20C
E5**	4B
E6**	3E
E7**	3E
E8**	9E
E9**	20B
E10**	20D
E11**	8C
E12**	17E
Q1	19D
Q2	17C
Q3	16C
Q4	15C
Q5	*
Q6	12D
Q7	10C
Q8	9C
Q9	3B
Q10	14C
Q11	14C
Q12	13C
Q13	13D
Q14	3B
R1	20D

REF DES	ZONE
A2A2A1R2	19D
R3	19D
R4	19C
R5	19C
R6	19C
R7	18D
R8	17D
R9	17C
R10	16D
R11	16D
R12	16D
R13	12C
R14	*
R15	12C
R16	12C
R17	*
R18	11D
R19	11C
R20	10D
R21	10C
R22	9D
R23	9D
R24	4B
R25	9D
R26	9C
R27	4C
R28	3C
R29	3C
R30	4B
R31	15D
R32	14C
R33	14C
R34	14C
R35	13C
R36	14D
R37	14D
R38	14C
R39	3B
R40	3B
R41	12D

* NOT USED
** WIRING TERMINATIONS FOR REFERENCE ONLY.

NOTES FOR FIGURE 5-34 (CONT)

PART LOCATION INDEX (CONT)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A2A1R42	9C	A2A2A2E6 **	20F	A2A2A2R13	15F
RT1	12C	E7 **	6F	R14	14G
T1	11C	E8 **	20G	R15	14F
T2	10C	E9 **	6F	R16	14G
TP1	16D	E10**	20H	R17	14G
TP2	19D	E11**	6G	R18	13F
A2A2A2C1	19G	E12**	6F	R19	12G
C2	19G	E13**	6G	R20	12F
C3	19G	E14**	20H	R21	12G
C4	18G	E15**	11E	R22	12G
C5	18G	E16**	12E	R23	11F
C6	17F	E17**	11E	R24	11G
C7	17G	E18**	11E	R25	11F
C8	16F	E19**	15E	R26	10G
C9	15G	E20**	14E	R27	10G
C10	14G	L1	20F	R28	10F
C11	14F	Q1	19G	R29	10F
C12	14G	Q2	17F	R30	9F
C13	13G	Q3	17G	R31	9G
C14	12F	Q4	16G	R32	9G
C15	12G	Q5	14G	R33	8F
C16	11F	Q6	12G	R34	8G
C17	10G	Q7	10G	R35	7G
C18	10G	Q8	8G	R36	7G
C19	9F	Q9	7G	R37	6G
C20	9F	Q10	7F	R38	17G
C21	8G	R1	19G	R39	17G
C22	8F	R2	19F	R40	7G
C23	7G	R3	19G	RT1	18G
C24	6F	R4	*	T1	19F
C25	19F	R5	18G	T2	15F
C26	10F	R6	18F	T3	14F
CR1	17F	R7	17F	T4	12F
E1 **	20G	R8	18G	T5	8G
E2 **	20G	R9	17F	A2A2A3C1	7D
E3 **	20F	R10	16G	C2	7C
E4 **	18E	R11	16F	C3	7C
E5 **	6F	R12	16G	C4	7B
				C5	5C

* NOT USED
** WIRING TERMINATIONS FOR REFERENCE ONLY.

NOTES FOR FIGURE 5-34 (CONT)

PART LOCATION INDEX (CONT)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A2A3C6	5B	A2A2A3E7 **	5E	A2A2A3R1	7D
C7	5B	E8 **	7E	R2	6D
C8	6A	E9 **	7A	R3	7B
CR1	5C	E10**	7C	R4	6B
CR2	5B	E11**	7C	R5	5C
E1**	5E	E12 **	7D	R6	4B
E2**	7B	E13 **	7C	R7	5C
E3**	4B	L1	5B	T1	6C
E4**	7B	Q1	7D	TP1	7D
E5**	7B	Q2	7C	A2A3's	Identical to A2A2's
E6**	7A	Q3	5B		

* NOT USED
** WIRING TERMINATIONS FOR REFERENCE ONLY.

4. TRANSISTORS A2A2Q1, A2A2Q4, A2A2Q6, A2A3Q7, A2A3Q8 HAVE THE CASE GROUNDED AS AN RF SHIELD. COLLECTORS ARE AT AC GROUND ONLY.

5. AGC: OFF; RF GAIN POTENTIOMETER FULLY CW (MAXIMUM RF GAIN).

6. AGC: FAST. RF GAIN POT.: FULLY CW (MAX RF GAIN).

NOTES FOR FIGURE 5-35

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLY.

B. RF AMPLIFIER ASSEMBLY A2A5 IS COMMON TO BOTH RADIO RECEIVER R-1051G/URR AND RADIO TRANSMITTER T-827H/URT.

C. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/4 WATT.
ALL CAPACITORS ARE IN PICOFARADS.
RESISTANCE OF ALL COIL WINDINGS LESS THAN ONE OHM.

D. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

E. CW ON POTENTIOMETERS INDICATES CLOCKWISE DIRECTION OF ROTATION WHEN VIEWED FROM SHAFT END.

F. —)(— INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

VACUUM TUBE VOLTAGE CHART

	PINS						
	1	2	3	4	5	6	7
V1	0	+2.2 Vdc	6.3 Vac	6.3 Vac	+110 Vdc	+110 Vdc	0 V
V2	0	+5.4 Vdc	6.3 Vac	6.3 Vac	+110 Vdc	+110 Vdc	+5.4 Vdc

NOTE

VOLTAGE MEASUREMENTS TAKEN TO GROUND USING MULTIMETER AN/USM-311, WITH VACUUM TUBES ON EXTENDERS AND RECEIVER CONTROLS SET AS FOLLOWS:

CONTROL	SETTING
FREQUENCY	3.0 MHz
MODE	LSB
AGC	OFF
RF GAIN	MAXIMUM CLOCKWISE

NOTES FOR FIGURE 5-35 (CONTINUED)

PART LOCATION INDEX

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A4B1	1	9D	A2A4E6-D1	1	5D
C1,C2	2	9F	E7-A1	1	5B
C3	2	7F	E7-B1	1	7B
C4	2	7E	E7-C1	1	5A
C5	2	6F	E7-D1	1	7A
C6	2	5F	E8-A2	2	5C
C7	2	5F	E8-B2		*
C8	1	6B	E8-C2		*
C9	1	6B	E8-D2	2	4C
C10	2	7D	E9-A1	1	6D
C11	2	5D	E9-B1		*
C12	2	5C	E9-C1		*
C13	2	5B	E9-D1	1	6D
C14	2	5B	E10-A1	1	6B
C15	1	10B	E10-B1		*
C16	1	10B	E10-C1		*
C17	1	9B	E10-D1	1	6B
C18	1	9B	E11-A1	2	6C
C19	1	6D	E11-B1	2	4C
C20	1	6C	E11-C1	2	5C
C21	1	10D	E11-D1	2	3C
C22	1	9D	E12-A1	2	4B
CR1	1	9D	E12-B1		*
E1-A2	1	4E	E12-C1		*
E1-B2	1	4F	E12-D1	2	5B
E1-C2	1	4F	E13-A1	2	3B
E1-D2	1	3E	E13-B1	2	5B
E2-A1		*	E13-C2	2	4A
E2-B1	1	2E	E13-D2	2	6A
E2-C1	1	2F	FL1	2	9F
E2-D1	1	3E	FL2	2	6F
E3-A2	2	4D	FL3	2	5G
E3-B2	2	3E	K1	1	8C
E3-C2	2	4E	K1-A1	1	8D
E3-D2	2	4E	K1-A2	1	8D
E4-A2	2	3F	K1-A3	1	8D
E5-A2	2	3G	K1-B1	1	8D
E5-B2	2	4G	K1-B2	1	8E
E5-C2	2	4F	K1-B3	1	8E
E5-D1	2	3F	K1-X1	1	8C
E6-A1	1	7C	K1-X2	1	8C
E6-B1	1	5C	P1-1	1	10C
E6-C1	1	7D	P1-2	1	10C

* NOT USED

NOTES FOR FIGURE 5-35 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE
A2A4P1-3	1	10C
P1-4	1	10C
P1-5	1	10C
P1-6	1	10E
P1-7	1	10C
P1-8	1	10D
P2-1	1	10B
P2-2	1	10E
P2-3 thru P2-6		*
P2-7	1	10B
P2-8	1	10B
P2-9	1	10A
P2-10	1	10F
P2-11	1	10E
P2-12	1	10A
P2-A1	2	2F
P2-A2	1	10A
P2-A3	1	10F
P2-A4		*
P2-A5	1	10G
R1	2	8F
R2	2	8F
R3	2	6F
S1	1	9C
TP1	2	6G
TP2	2	6G
TP3	2	3G
TP4	2	2G
V1	2	8F
F2	2	5F
A2A4A1C1	2	8E
C2	2	8E
C3	2	5F
C4	2	9E
E1**	2	9E
E2**	2	8E
E3**	2	7C
E4**	2	5F
E5**	2	9E
E6**	2	7A
E7**	2	5E
E8**	2	7A, 7C
E9	2	8E
E10	2	8E

REF DES	SHEET	ZONE
A2A4A1R1	2	8E
R2	2	9E
R3	2	8E
R4	2	7C
R5	2	5F
R6	2	7A
A2A4A2C1 thru A11C1	1	3F
A2A4A12C1	1	3D
A2A4A13C1	1	3D
A2A4A14C1 thru A2A4A19C1	1	3D
A2A4A20C1	1	3H
A2A4A21C1	1	3H
A2A4A22C1 thru A2A4A29C1	1	3F
A2A4A2C2 thru A2A4A11C2	1	3F
A2A4A12C2	1	3D
A2A4A13C2	1	3D
A2A4A14C2 thru A2A4A19C2	1	3F
A2A4A20C2	1	3H
A2A4A21C2	1	3H
A2A4A22C2 thru A2A4A29C2	1	3F
A2A4A2C3 thru A2A4A11C3	1	2F
A2A4A12C3	1	3D
A2A4A13C3	1	3D
A2A4A14C3 thru A2A4A19C3	1	3F
A2A4A20C3	1	2H
A2A4A21C3	1	2H
A2A4A22C3 thru A2A4A29C3	1	3F

* NOT USED.
** WIRING TERMINATION - FOR REFERENCE ONLY.

NOTES FOR FIGURE 5-35 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	SHEET	ZONE	REF DES	SHEET	ZONE
A2A4A2C4 thru A2A4A29C4	2	3E	A2A4A30C1 thru A2A4A30C9	1	5D
A2A4A2C5 thru A2A4A29C5	2	3G	A2A4A30C10 thru A2A4A30C19	1	5C
A2A4A20C6	1	3G	A2A4A31C1 thru A2A4A31C9	1	7D
A2A4A21C6	1	3G			
A2A4A2T1 thru A2A4A11T1	1	3F	A2A4A32C1 thru A2A4A32C9	1	7B
A2A4A12T1	1	3D	A2A4A33C1 thru A2A4A33C19	1	5B
A2A4A13T1	1	3D			
A2A4A14T1 thru A2A4A19T1	1	3F	A2A4A34C1 thru A2A4A34C19	2	4C
A2A4A20T1	1	3H			
A2A4A21T1	1	3H	A2A4A35C1 thru A2A4A35C9	2	5C
A2A4A22T1 thru A2A4A29T1	1	3F			
A2A4A2T2 thru A2A4A11T2	1	3F	A2A4A36C1 thru A2A4A36C9	2	5B
A2A4A12T2	1	3D	A2A4A37C1 thru A2A4A37C19	2	4B
A2A4A13T2	1	3D			
A2A4A14T2 thru A2A4A19T2	1	3F	A2A4A38C1	1	9G
			C2	1	9H
A2A4A20T2	1	3H	C3	1	9G
A2A4A21T2	1	3H	C4	1	8F
A2A4A22T2 thru A2A4A29T2	1	3F	C5	1	8G
			C6	1	7G
			C7	1	6G
A2A4A2T3 thru A2A4A29T3	2	3E	C8	1	7G
			C9	1	6G
			C10	1	5G
A2A4A2T4 thru A2A4A29T4	2	3F	C11	1	8G
			C12	1	7G
			C13	1	5G
A2A4A10Y1	1	2F	E1		*
A2A4A12L1	1	3D	E2		*
A2A4A13L1	1	3D	E3	1	10G
A2A4A19Y1	1	2F	E4	1	10G

* NOT USED

NOTES FOR FIGURE 5-37

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH NUMBERS OF NEXT HIGHER ASSEMBLY.

B. THE TRANSLATOR/SYNTHESIZER IS COMMON TO BOTH T-827H/URT AND R-1051G/URR. REFERENCES APPLY ONLY AS INDICATED TO T-827H/URT (XMTR) OR R-1051G/URR (RCVR), AND SIGNAL FLOW IS SHOWN FOR R-1051G/URR APPLICATION.

C. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, ONE WATT.
ALL CAPACITORS ARE IN MICROFARADS.

D. CCW ON SWITCH WIPERS INDICATES DIRECTION OF ROTATION WHEN VIEWED FROM SHAFT END, AND CORRESPONDS TO CLOCKWISE ROTATION OF FRONT PANEL CONTROLS.

E. SWITCHES S1 THROUGH S3 SHOWN IN 000 kHz POSITION.

F. INDICATES FEEDBACK.

G. INDICATES FRONT PANEL MARKING.

H. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6AT1P1	24C	A2A6E8	*	A2A6FL5	5C
AT1R1	23C	E9	*	J1	
AT2P1	24C	E10	***	thru	*
AT2R1	23C	E11	***	J3	
C1	19B	E12	***	J4	20A
C2	14A	E13	***	J5	20A
C3	14A	E14	*	J6	20A
E1	9D, 11A,	E15	*	J7	21A
	14D, 19A	E16	22A, 20A	J8	3C
E2	3C	E17	19A	J9	3C
E3	5B	E18	**	J10	5D
E4	***	E19	**	J11	5D
		FL1	22A	J12	5B
E5	***	FL2	*	J13	5B
E6	***	FL3	*	P1-A1	24B
E7	***	FL4	19A	P1-A2	24C

* NOT USED
** NOT SHOWN
*** WIRING TERMINATIONS - FOR REFERENCE ONLY.

NOTES FOR FIGURE 5-37 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6P1-A3	24C	A2A6XA12P1-1	*	A2A6XA16P1-10	19A
P1-A3	24C	P1-2	10D	P1-11	19A
P1-1	24E	P1-3	10D	P1-12	
P1-2	24E	P1-4	9D	thru	*
P1-3	24D	P1-5	9D	P1-14	
P1-4	24D	A2A6XA13P1-A1	15B	P1-15	19A
P1-5	24D	P1-A2	13B	P1-16	19A
P1-6	2E	P1-A3	13B	P1-17	19A
P1-7	2D	P1-A4	13B	A2A6XA17P1-A1	8B
P1-8	2B	P1-1	*	P1-A2	6B
P1-9	2D	P1-2	15B	P1-1	8B
P1-10	24A	P1-3	15B	P1-2	*
P1-11	24D	P1-4	15B	P1-3	8C
P1-12	2D	P1-5	15B	P1-4	8C
P1-13	24D	P1-6	15B	P1-5	8C
P1-14	24B	P1-7	13A	P1-6	8C
P1-15	24D	P1-8	13A	P1-7	8B
P1-16	2C	P1-9	13A	P1-8	8B
P1-17	24D	P1-10	14A	P1-9	
P1-18	2C	P1-11	14A	thru	*
P1-19	24B	P1-12	*	P1-12	
P1-20	24C	P1-13	*	P1-13	6B
P1-21	2C	P1-14	*	P1-14	6B
P2-A1	2F	P1-15	14A	P1-15	6B
P2-A2	24F	P1-16	14A	A2A6XA18P1-A1	12E
P3-A1	24F	P1-17	13A	P1-A2	12E
P3-A2	2F	A2A6XA14P1-A1	12B	P1-1	14D
S1E1	16E	P1-A2	12B	P1-3	14E
S1E2	16D	P1-A3	12B	P1-4	14E
S1E3	18C	P1-A4	10B	P1-5	14E
S1E4	16D	P1-1	12B	P1-6	14E
S1E5	16D	P1-2	12A	P1-7	14D
S2E1	18E	P1-3	11A	P1-8	14E
S2E2	18D	P1-4	11A	P1-9	14E
S2E3	20D	P1-5	12A	P1-10	14D
S2E4	18D	A2A6XA15P1-A1	19B	P1-11	14E
S2E5	18D	P1-A2	17B	P1-12	12D
S3E1	20E	P1-A3	17B	P1-13	12D
S3E2	20D	P1-A4	17C	P1-14	12D
S3E3	22C	P1-1	*	P1-15	12D
S3E4	20D	P1-2	*	A2A6A1	
S3E5	20D	P1-3	19B	thru	*
XA12P1-A1	11D	P1-4		A2A6A6	
XA12P1-A2	11E	thru	*	A2A6A7C1	21A
XA12P1-A3	11E	P1-8		C2	21A
XA12P1-A4	8E	P1-9	19B	E1	*

* NOT USED

NOTES FOR FIGURE 5-39

GENERAL NOTES

A. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH A2A6A16.

B. UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, ±5%, 1/8 WATT.
ALL CAPACITORS ARE IN MICROFARADS.
ALL INDUCTORS ARE IN MICROHENRIES.
ALL REFERENCE DIODE VOLTAGES ARE ±5%.
RESISTANCE OF INDUCTORS IS LESS THAN ONE OHM, UNLESS OTHERWISE INDICATED.

C. WHEN MAKING RESISTANCE MEASUREMENTS AT TRANSISTOR POINTS, USE HIGHEST POSSIBLE OHMMETER RANGE TO PREVENT DAMAGE TO TRANSISTORS.

D. INDICATES FEEDBACK.

E. INDICATES BREAK POINTS USED TO REDUCE DIAGRAM CLUTTER. TO FIND MATING END OF BROKEN LINE PROCEED IN PARALLEL WITH DIAGRAM BORDER.

PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A16C1	*	A2A6A16C22	9B	A2A6A16E1	11E
C2	*	C23	9B	E2	11E
C3	9C	C24	8B	E3	*
C4	3B	C25	7B	E4	2F
C5	10E	C26	7A	E5	2E
C6	10F	C27	*	E6	2D, 2F
C7	10E	C28	5B	E7	2F
C8	10E	C29	5B	E8	7E
C9	9E	C30	4B	E9	7D
C10	9E	C31	4A	E10	7D
C11	9E	C32	4A	E11	7E
C12	5F	C33	3A	L1	*
C13	5F	C34	3A	L2	*
C14	3F	C35	2A	L3	9C
C15	2C	C36	2B	L4	*
C16	3C	C37	6D	L5	4B
C17	5C	CR1	10A	L6	10F
C18	10B	CR2	8A	L7	9F
C19	*	CR3	7A	P1-A1	11E
C20	11B	CR4	9D	P1-A2	2F
C21	10A	CR5	5B	P1-A3	2E

* NOT USED

NOTES FOR FIGURE 5-39 (CONTINUED)

PART LOCATION INDEX (CONTINUED)

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A6A16P1-A4	2F	A2A6A16R7	10E	A2A6A16R34	3A
P1-1	*	R8	9E	R35	3A
P1-2	*	R9	9E	R36	2A
P1-3	11B	R10	9E	R37	3B
P1-4		R11	8E	R38	9D
thru	*	R12	5D	R39	5D
P1-8		R13	5D	TP1	11B
P1-9	11D	R14	5E	TP2	2E
P1-10	11D	R15	5E	TP3	2F
P1-11	11C	R16	3C	TP4	3F
P1-12		R17	11B	U1	8E, 9E
thru	*	R18	10B	U2	6E
P1-14		R19	10B	U3	5E
P1-15	11C	R20	10B	U4	4E
P1-16	11C	R21	11A	U5	3E
P1-17	11C	R22	10A	U6	3D, 3E, 4D
Q1	10E	R23	10A	U7	10B
Q2	9E	R24	10B	U8	9B
Q3	5D	R25	7B	U9	8B
Q4	5D	R26	7B	U10	7B
Q5	3B	R27	7B	U11	3B, 4B
Q6	6C	R28	7B	U12	2A, 3A
R1	11E	R29	7B	U13	6D
R2	10F	R30	7A	U14	2C
R3	10E	R31	6B	U15	3C
R4	10E	R32	5B	U16	4C
R5	10E	R33	5B	U17	5C
R6	10F				

* NOT USED

TRANSISTOR VOLTAGE CHART

	E	B	C
Q1	.82	1.45	5.01
Q2	2.01	2.45	5.00
Q3	0V	.63	.03
Q4	0V	.03	5.01
Q5	3.07	3.67	4.80
Q6	5.0	5.02	0V

CHAPTER 6

CORRECTIVE MAINTENANCE

6-1. INTRODUCTION.

6-2. This chapter contains all instructions required to adjust and align the R-1051G/URR and its major assemblies and subassemblies, and to remove, repair, and test repairable assemblies and subassemblies. This chapter is divided into two sections. Section I contains information and procedures for adjustment and alignment of electronic circuits and mechanical assemblies; Section II contains repair instructions, which cover disassembly, means of access, parts removal, and complex repair actions.

6-3. Many of the procedures in this chapter can be accomplished at organizational level. However, Mode Selector Assembly A2A1, IF/Audio Amplifier Assemblies A2A2 and A2A3, RF Amplifier Assembly A2A4, Frequency Standard Assembly A2A5, and Translator/Synthesizer Assembly A2A6 are designated as depot repairable only. Therefore no corrective maintenance should be performed on these assemblies at organizational level except for the overall adjustments listed in table 6-1.

SECTION I

ADJUSTMENTS AND ALIGNMENTS

6-4. GENERAL.

6-5. This section contains all information and procedures required to perform all necessary adjustments and alignments of the R-1051G/URR, both at organizational and depot level. Included are adjustment and alignment procedures for electronic assemblies and adjustment procedures for mechanical assemblies. Test equipment setup illustrations are provided where necessary to support the procedures.

6-6. ELECTRONIC ADJUSTMENTS AND ALIGNMENTS.

6-7. PROCEDURES. Overall adjustment and alignment procedures for the R-1051G/URR are given in table 6-1; procedures for the individual assemblies and subassemblies within the receiver are given in tables 6-2 through 6-7. Each adjustment and alignment table gives the test equipment requirements, step-by-step procedures, adjustment values, and references to supporting illustrations showing the necessary test setups.

NOTE

Tables 6-2 through 6-6 are for depot use only.

6-8. TEST EQUIPMENT REQUIRED. All adjustment and alignment procedures in this chapter use the approved test equipments listed in table 1-5. All equipments are organizational types with the exception of the special depot test sets required for the assemblies designated depot repairable. Simulated Link 11 system tests require use of Radio Transmitting Set AN/URT-23C(V)1 modulated by Stewart-Warner Data Audio Test Set (P/N 01A228460-01) or equivalent test instrument.

6-9. MECHANICAL ADJUSTMENTS.

6-10. DRIVE CHAIN ADJUSTMENT. To obtain proper positioning of front panel kHz controls with respect to seated position of the detent springs, proceed as follows:

1. Set mode selector switch A2S2 to OFF.
2. Loosen front panel screws and slide main frame out of case. Ensure that the following conditions are met:
    a. RF Amplifier Assembly A2A4 is correctly installed.
    b. Translator/Synthesizer Assembly A2A6 is correctly installed.
    c. All couplers are properly engaged.
    d. All kHz dials are in 0 position.
3. Tilt main frame 90 degrees to expose bottom.

4. See figure 7-4. On each of the kHz controls take up any existing slack in the associated drive chain by holding the associated tensioning idler gear (A2MP16B, 17B, 18B, figure 7-4) tightly against the drive chain while observing the associated dial digit. Fasten the tensioning idler gear in the position which allows no slack. If any dial digit has moved away from the center of its window while performing this step, proceed to step 5; otherwise proceed to coupler adjustment (paragraph 6-11).

5. Rotate each of the kHz controls until the setscrews in the digital indicating dial are accessible. This will be at position 4 of the dial.

6. Loosen the two setscrews and rotate the dial to center the digit 4.

7. Apply sealing compound, Grade E per MIL-S-22473 to threads of setscrews and fasten setscrews.

8. Check mechanical action of the 100 kHz, 10 kHz and 1 kHz controls. The controls should rotate smoothly, with full detent or seating action of the detent rollers in the dual sprocket assembly when a digit is centered in its window. If adjustment is required, proceed to steps 9 and/or 10, as applicable.

9. Increase or decrease detent spring tension as required. To increase tension, remove the spacer from under the end of the detent spring. To reduce tension, add another spacer under the end of the spring.

10. If it is necessary to correct the detent action, proceed as follows:

a. Loosen the two hex-head screws on the wheel index (MP15Z, MP15AA of figure 7-6).

NOTE

The screws of the 10 kHz wheel index are accessible by means of a suitable open-end wrench inserted behind the index.

b. Press firmly on the detent spring above the roller while holding the kHz control to prevent rotation. The wheel index should move sufficiently to permit full detent action without disturbing dial digit centering. Tighten the two hex-head screws.

c. If dial digit centering is incorrect, repeat steps 5 through 7 above.

6-11. COUPLER ADJUSTMENT. After the drive chains have been adjusted to provide optimum detent positioning, the sprocket assembly couplers (MP15M, MP15N of figure 7-6 and MP14K, MP14L, MP14M of figure 7-5) must be adjusted for proper mechanical alignment between electrical assemblies and chain drive mechanism. Proceed as follows:

1. Remove RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 from main frame.

2. Set 100 kHz and 10 kHz controls to 1.

3. On the dual sprocket assembly (MP15, figure 7-6) loosen the screws in the hub calamps (MP15AD, MP15AE, figure 7-6).

4. With the aid of a screwdriver inserted into the coupler adjustment slot (MP15B, MP15C), adjust both couplers so that the slot in each points toward, and is perpendicular to, the front panel. Tighten hub clamp screws.

5. Set all three kHz controls to 0.

6. On the triple sprocket assembly (MP14, figure 7-5) loosen the screws in the hub clamps (MP14AC, MP14AD, MP14AE, figure 7-5).

7. With the aid of a screwdriver inserted into the coupler adjustment slot, adjust all three couplers so that each points toward, and is perpendicular to, the rear edge of the main frame. Tighten the three hub clamp screws.

8. Check tuning couplers on RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 to be sure they will engage the main frame couplers when inserted.

9. Reinstall RF Amplifier Assembly A2A4 and Translator/Synthesizer Assembly A2A6 in main frame and fasten into place.

10. Slide main frame into case and secure by tightening front panel screws.

11. Set mode selector switch A2S2 to desired operating mode.

Text continued on page 6-64

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		NOTE The receiver overall adjustment and alignment procedures are best performed in their entirety. However, if it is desired to perform an individual test step (e.g., BFO adjustment) as a result of performance or troubleshooting tests, it is necessary to perform the preliminary procedure in step 2 before beginning the adjustment procedure, and to perform the terminal procedure in step 10 at the conclusion of each adjustment procedure. Those procedural steps that are unnecessary if the entire overall adjustment and alignment procedure is being performed are designated by an asterisk (*), so that they may be omitted, and done only when an individual test step is being performed separately.	
1. Mechanical Check		Operate front panel frequency controls and check that digits center in windows; if they do not, adjust and align the drive chain coupler mechanisms (see paragraph 6-9).	
2. Preliminary Procedure		a. Set mode selector switch A2S2 and LSB-USB AUDIO LEVEL switch A2A12S1 to OFF, and set frequency controls to 2,000,000 Hz. b. Loosen front panel screws and slide chassis from case. c. Defeat interlock switch A1S1 by gripping plunger and pulling forward. d. Prepare test setup of figure 6-1.	
		WARNING Dangerous voltages are present in underside of chassis when interlock is defeated. Exercise all necessary precautions to avoid electrical shock.	
3. Power Supply Check	Digital Multimeter 89536-8800A/AA	a. Tilt the receiver chassis vertically 90 degrees to expose the underside.	

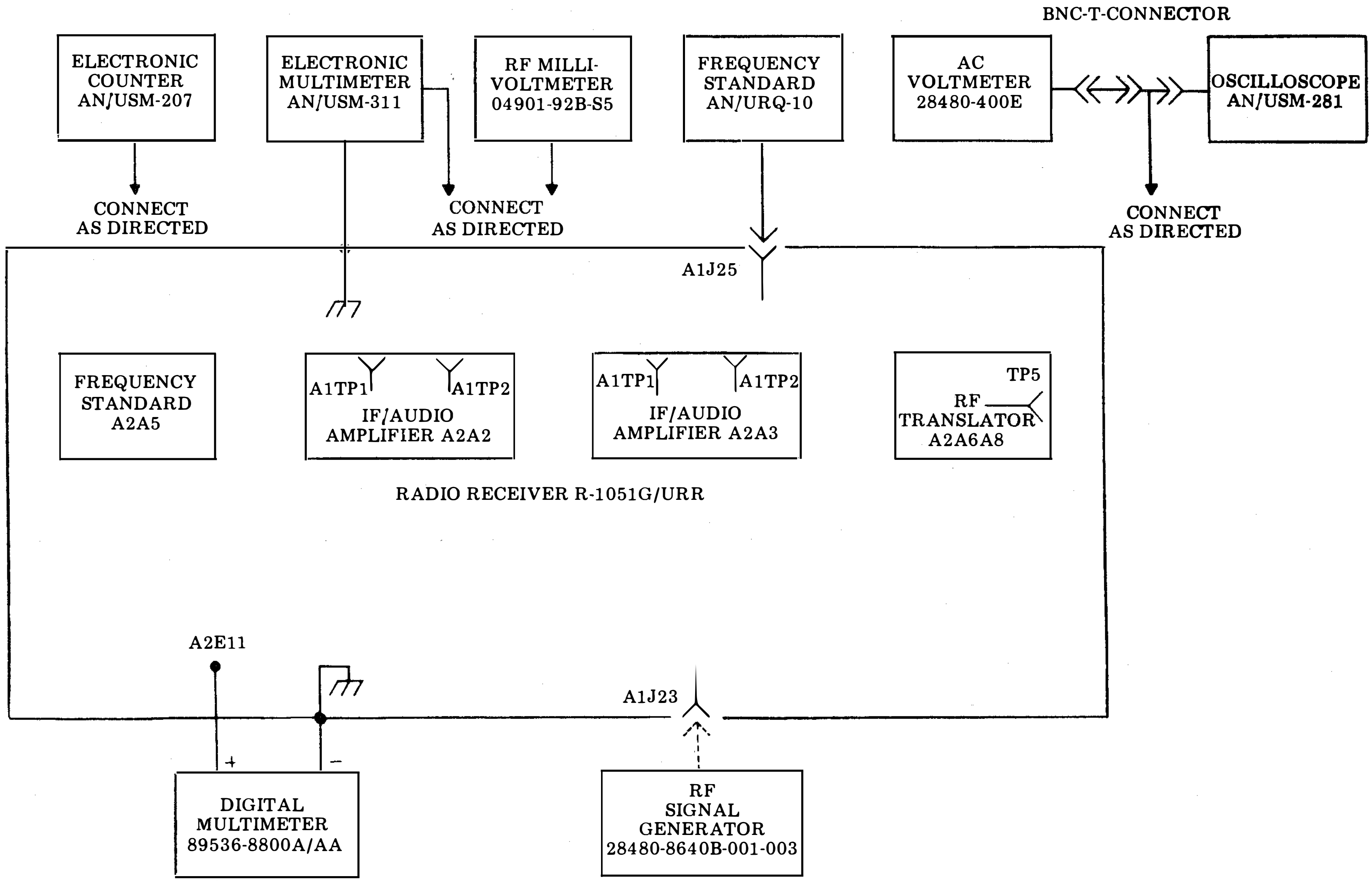


Figure 6-1. Radio Receiver R-1051G/URR, Overall Alignment and Adjustment Bench Test Setup

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Power Supply Check (Cont.)		CAUTION Hand guide main frame cable at rear of chassis over edge of case when rotating main frame to vertical position.	
		b. Connect digital multimeter between terminal A2E11(+) and chassis (-).	
		c. Set mode selector switch A2S2 to LSB.	
		CAUTION If digital multimeter indicates either +28 Vdc or 0 volt, return mode selector switch to OFF, and troubleshoot the Power Supply Assembly A2A8 and Main Frame A2. If voltage is not +20 Vdc nominal, as required, but within the range of approximately 14 to 23 Vdc, refer to table 6-7 for adjustment procedure.	
		d. Check that digital multimeter indicates approximately 20 Vdc.	
		e. Adjust A2A8R14 for correct output.	+19.9 Vdc to +20.1 Vdc
		f. Return chassis to horizontal position.	
4. Frequency Standard Adjustment	Frequency Standard AN/URQ-10		
		CAUTION The 5 MHz oscillator circuit of Frequency Standard Assembly A2A5 must not be adjusted unless it has been determined that the 5 MHz output frequency is in error. Unnecessary adjustment will cause poor equipment operation that is not only difficult to correct but which requires lengthy maintenance time.	

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Frequency Standard Adjustment (Cont.)		a. Set mode selector switch A2S2 to STD BY, and 5 MHz OSC SOURCE switch on A2A5 to EXT (OVEN STD BY). Allow at least a 96 hour warmup period before proceeding with the final adjustment. If immediate adjustment is necessary, allow at least a 60 minute warmup period.	
		b. If not normally used, connect 5 MHz output of external frequency standard to EXT 5 MHZ IN jack A1J25 on rear of receiver.	
		c. Set 5 MHZ OSC SOURCE switch A2A5A2S1 on top of Frequency Standard Assembly A2A5 to INT/COMP.	
		d. Set mode selector switch A2S2 to AM.	
		e. Observe comparator lamp A2A5A2DS1 on top of Frequency Standard Assembly A2A5. Lamp will flicker at a rate equal to error frequency. Measure from time lamp is just visibly increasing in brilliance, until again just visibly increasing in brilliance.	
		NOTE A steady, dim, lamp indication may result from large error frequencies. If this is the case, proceed to step g.	
		f. Rotate FINE FREQUENCY ADJUST control on top of Frequency Standard Assembly A2A5 one rotation at a time until comparator lamp changes brilliance as slowly as possible.	Lamp flickers slower than once in 20 seconds.

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Frequency Standard Adjustment (Cont.)		g. If lamp flickers more than once in 20 seconds, return FINE FREQUENCY ADJUST control to midrange (15 on INDEX). Then rotate COARSE FREQUENCY ADJUST a small amount and repeat step f. h. Repeat steps f. and g. until time measured is in excess of 20 seconds over a 5 minute observation period. i. Disconnect external frequency standard from jack A1J25, if not normally used. *j. Set 5 MHZ OSC SOURCE switch A2A5A2S1 to EXT NORMAL. *k. Set mode selector switch A2S2 to STD BY.	
5. BFO Frequency Adjustment	Electronic Counter AN/USM-207	a. Set mode selector switch A2S2 to CW, AGC switch A2S3 to SLOW, frequency controls to 5.000 MHz, and Hz switch A2A11S1 to 000. b. Rotate 5 MHZ OSC SOURCE switch A2A5A2S1 on Frequency Standard Assembly A2A5 to INT/COMP. c. At rear of receiver case, connect INT 5 MHZ OUT jack A1J24 to ANT 50 OHMS jack using BNC-to-N adapter UG-201/U and 50 ohm coaxial cable. d. Connect input of electronic counter to PHONE USB jack A2J2.	

* Omit if performing complete alignment.

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. BFO Frequency Adjustment (Cont.)		e. Rotate BFO frequency control A2R6 fully counterclockwise, and note frequency on electronic counter. If no reading is obtained, increase USB LEVELS PHONE and USB LEVELS LINE controls A2R5 and A2R2 until a stable reading is obtained.	
		f. Rotate BFO frequency control A2R6 fully clockwise, and note frequency on electronic counter.	
		g. Adjust BFO ADJ inductor A2A1A3L1 on top of Mode Selector Assembly A2A1, so that electronic counter reads at least 3 kHz when BFO frequency control A2R6 is at extreme clockwise and counterclockwise positions.	3.0 to 3.5 kHz at extreme clockwise and counterclockwise positions.
		h. Observe that frequency passes through zero beat as BFO frequency control is slowly rotated from fully counterclockwise to fully clockwise.	
		i. Remove cable between jacks A1J23 and A1J24 at rear of receiver. Disconnect frequency counter. Remove connector input to PHONE USB jack.	
		j. Set 5 MHZ OSC SOURCE switch A2A5A2S1 to EXT NORMAL.	
		*k. Return mode selector switch A2S2 to STD BY.	

* Omit if performing complete alignment.

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. 20 and 30 MHz Filter Adjustment	RF Signal Generator 28480-8640B-001-003 AC Voltmeter 28480-400E Resistor, 600 ohms	a. Connect rf signal generator to ANT 50 OHMS jack A1J23 at rear of receiver. b. Disconnect cables from connectors A1A1J5 and J6 at rear of receiver case. c. Tilt chassis 90 degrees to expose bottom.	

WARNING

Dangerous voltages are present in underside of chassis when interlock is defeated. Exercise all necessary precautions to avoid electrical shock.

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		d. Connect ac voltmeter and 600 ohm resistor between pins A and B of A1A1J5. Connect 600 ohm resistor between pins A and B of A1A1J6. e. Remove two screws and cover from 20 and 30 MHz Filter Assembly A2A10. f. Set mode selector switch A2S2 to USB and AGC switch A2S3 to OFF. Set frequency control to 27.1000 MHz. g. Set output level of rf signal generator to 1.0 Vrms, and set the frequency at 19.6010 MHz. (Adjust the USB LEVELS LINE control A2R2 for an on-scale reading of AUDIO LEVEL meter, and maintain throughout test.) AUDIO LEVEL switch A2A12S1 is set at USB, +0 dBm.	
20 MHz Filter Adjustment (LO-Band IF Rejection)		h. Adjust A2A10L4 for minimum indication on the ac voltmeter.	Minimum

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. 20 MHz Filter Adjustment (LO-Band IF Rejection) (Cont.)		i. Set the receiver frequency controls to 27.9000 MHz.	
		j. Set the signal generator frequency at 20.4010 MHz.	
		k. Adjust A2A10L2 for minimum indication on the ac voltmeter.	Minimum
		l. Set the receiver frequency controls to 26.1000 MHz.	
		m. Set the signal generator frequency at 29.6010 MHz.	
30 MHz Filter Adjustment (Hi-Band IF Rejection)		n. Adjust A2A10L5 for a minimum indication on ac voltmeter.	Minimum
		o. Set the receiver frequency controls to 26.9000 MHz.	
		p. Set the signal generator frequency at 30.4010 MHz.	
		q. Adjust A2A10L3 for a minimum indication on ac voltmeter.	Minimum
		r. Set mode selector switch A2S2 to OFF.	
		s. Reinstall cover on 20 and 30 MHz Filter Assembly A2A10.	
		*t. Disconnect all test equipment and return chassis to horizontal position.	
		*u. Reconnect cables to A1A1J5 and J6.	

* Omit if performing complete alignment.

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. AGC and IF Gain Loop Adjustment	RF Signal Generator 28480-8640B-001-003	*a. Connect rf signal generator to ANT jack A1J23 at rear of receiver.	
	RF Millivoltmeter 04901-92B-S5	*b. Disconnect cables from connectors A1A1J5 and J6 at rear of receiver case.	Unpatch at Switchboard
	Digital Multimeter 89536-8800A/AA.	c. Set mode selector switch A2S2 to USB, AGC switch A2S3 to OFF, and RF GAIN control A2R3 fully clockwise.	
	Resistor, 600 ohms	d. Adjust potentiometers on IF/Audio Amplifier Assembly A2A2 as follows: A2A2A1R25 (IF agc) - fully counterclockwise A2A2A1R6 (rf agc) - fully clockwise A2A2A2R22 (IF gain) - fully clockwise	
		e. Set Hz switch A2A11S1 to 000, and frequency controls to 2.000 MHz. Set A2A12S1 (AUDIO LEVEL) to USB +10.	

NOTE

Steps f. through m. are for the purpose of determining the lowest gain frequency of the receiver. if this frequency is already known, set frequency controls to it and proceed to step m.

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		f. Set rf signal generator for a 2.001 MHz, 0.5 uV, continuous wave output.	
		g. Lock rf signal generator at 1 kHz above the receiver dial frequency.	

* Omit if performing complete alignment.

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. AGC and IF Gain Loop Adjustment (Cont.)		h. Adjust USB LEVELS LINE control A2R2 for -5 on AUDIO LEVEL meter (+10 -5 = 5 dBm).	-5 dBm
		i. Advance the MHz controls through each increment from 3.000 to 29.000 MHz, and lock rf signal generator at 1 kHz above the receiver dial frequency at each position, then verify rf signal generator is set for 0.5 uV. Note that frequency at which lowest audio output is obtained, and return MHz controls to that frequency.	Note: Do not adjust A2R2 during steps i, j, or k.
		j. Advance 100 kHz control through all positions. Lock rf signal generator at 1 kHz above the receiver dial frequency at each position, verifying that rf signal generator output is 0.5 uV. Return 100 kHz control to that frequency producing lowest output.	
		k. Advance 10 kHz dial through all positions. Lock rf signal generator at 1 kHz above receiver dial frequency at each position, verifying that rf signal generator output is 0.5 uV. Return 10 kHz control to that frequency producing lowest output, and reset rf signal generator output for 0.5 uV.	

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. AGC and IF Gain Loop Adjustment (Cont.)		l. With frequency controls set for lowest output as determined above, verify that signal generator is set for 0.5 uV rms output, and lock at 1 kHz above receiver dial frequency.	
		m. Set AGC switch A2S3 at SLOW.	
		n. Adjust USB LEVELS LINE control A2R2 for -5 on AUDIO LEVEL meter (+10 -5 = +5 dBm).	-5 dBm
		o. Set signal generator output for 0.5 uV. Connect digital multimeter 89536-8800A/AA dc lead to test point A2A2A1TP1 and common lead to ground. Set scale on meter for 1 volt.	
		p. Rotate potentiometer A2A2A1R25 clockwise for stable 0.2 Vdc on the 89536-8800A/AA.	0.2 ±0.02 Vdc
		q. Increase rf signal generator output to 0.05 V.	
		r. Connect probe of rf millivoltmeter 04901-92B-S5 to test point A2A6A8TP5. Set scale to 100 mV. Adjust potentiometer A2A2A1R6 counterclockwise for 26 mV rms on rf millivoltmeter.	26 mVrms
		s. Reduce rf signal generator output to 500 uV.	
		t. Set USB LEVELS LINE control A2R2 fully clockwise.	

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. AGC and IF Gain Loop Adjustment (Cont.)		u. Adjust potentiometer A2A2A2R22 counterclockwise for 21.5 ±0.5 dBm on the AUDIO LEVEL meter. (AUDIO LEVEL switch in +20 dBm position and meter reading of -1 ±1).	21.5 ±0.5 dBm
		v. Adjust potentiometers on (LSB) IF/Audio Amplifier Assembly A2A3 as follows: A2A3A1R25 (IF agc) - fully counterclockwise A2A3A1R6 (rf agc) - fully clockwise A2A3A2R22 (IF gain) - fully clockwise	
		w. Set mode selector switch A2S2 to LSB, AGC switch A2S3 to OFF, AUDIO LEVEL switch A2A12S1 to LSB +10, and RF gain control A2R3 fully clockwise.	
NOTE Procedure for the LSB Module A2A3 is the same as above steps e. through w. except that the signal generator is locked 1 kHz below the receiver dial frequency and audio level switch is on LSB ranges.			
		*x. Disconnect test equipment and reconnect cables to A1A1J5 and J6.	
8. RF Gain Adjustment	RF Signal Generator 28480-8640B-001-003 AC Voltmeter 28480-400E *Resistor, 600 ohms.	a. Set the receiver controls as follows: Mode selector switch A2S2 to USB, AUDIO LEVEL switch A2A12S1 to OFF, AGC switch A2S3 to OFF, and frequency controls to 2.100 MHz.	

* Omit if performing complete alignment.

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
8. RF Gain Adjustment (Cont.)		*b. Connect rf signal generator to ANT 50 OHMS jack A1J23 on rear of receiver.	
		c. Set the rf signal generator for continuous wave, and adjust its output level to 0.7 uV. Tilt the receiver chassis vertically 90 degrees to expose the underside.	
		*d. Connect a 600 ohm resistor and the ac voltmeter between pins A and B of USB AUDIO OUT jack A1A1J5.	
		e. Tune the rf signal generator for a peak audio output on the ac voltmeter.	
		f. Adjust the USB LEVELS LINE control A2R2 for a zero dB indication on the 3-volt scale of the ac voltmeter.	
		g. Rotate the RF GAIN control A2R3 to the fully counterclockwise position.	
		h. Increase the rf signal generator output level by 130 dBm, and then adjust potentiometer A2A8R16 for a zero dBm indication on the ac voltmeter.	0 dBm
		i. Disconnect all test equipment; return chassis to horizontal position.	
9. Return to Normal Operation		a. Ensure that all test equipment is disconnected.	

* Omit if performing complete alignment.

Table 6-1. Radio Receiver R-1051G/URR, Overall Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
9. Return to Normal Operation (Cont.)		b. Reconnect cables to appropriate connectors on rear of case. c. Slide receiver chassis back into case, and secure it by tightening front panel screws. d. Set mode selector switch A2S2 to STD BY or desired operating mode. e. Position switch on frequency standard for system operation.	

Table 6-2. Mode Selector Assembly A2A1, Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. BFO Frequency Adjustment	Amplifier/Mode Selector Test Fixture TS-3670/WRC-1 Electronic Counter AN/USM-207 RF Millivoltmeter 04901-92B-S5	a. Remove cover from Mode Selector Assembly A2A1, and connect test equipment as shown in figure 6-2.	
		b. On test fixture set controls to test receiver Mode Selector Assembly in CW receiving mode.	
		c. On test fixture set BFO controls for lowest pitch and low range.	
		d. Adjust A2A1A3L1 on Mode Selector Assembly A2A1 for an indication of 497 kHz +0 Hz -50 Hz on electronic counter.	496.95 kHz to 497.00 kHz
		e. On test fixture set BFO controls for highest pitch and high range. If indicated frequency is not greater than or equal to 503.0 Hz, adjust A2A1A3L1 to bring indication within limit.	$\geq$ 503.0 Hz
		f. On test fixture set BFO controls for lowest pitch and low range. Indicated frequency should be less than or equal to 497.0 kHz.	$\leq$ 497.0 kHz
2. BFO Level Adjustment	Same as step 1.	a. Operate BFO controls to obtain an indication of 500 kHz on frequency counter.	500 kHz
		b. Set rf millivoltmeter to measure 1 V rms full scale.	
		c. Tune A2A1A3T1 for peak indication on voltmeter.	$\geq$ 250 mVrms
		d. Reinstall cover on Mode Selector Assembly A2A1 and remove assembly from Test Fixture.	

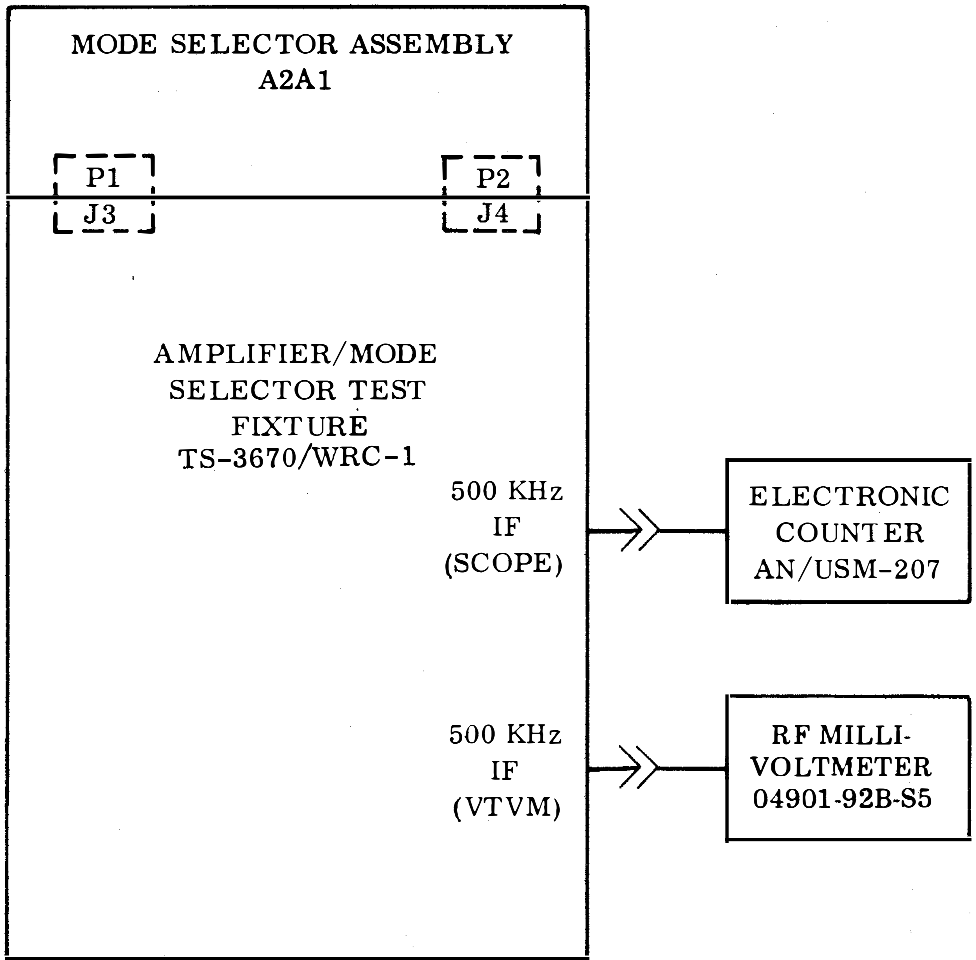


Figure 6-2. Mode Selector Assembly A2A1, Alignment and Adjustment Bench Test Setup

Table 6-3. IF/Audio Amplifier Assemblies A2A2/A2A3, Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		NOTE The circuitry of assemblies A2A2 and A2A3 is identical. All reference designations in this table which begin with A2A2 are applicable to A2A3.	
1. IF Alignment	Amplifier/Mode Selector Test Fixture TS-3670/WRC-1 RF Signal Generator 28480-8640B-001-003 AC Voltmeter 28480-400E	a. Remove cover from IF/Audio Amplifier Assembly A2A2 and connect test equipment as shown in figure 6-3. Be sure connectors are properly mated. b. On test fixture set controls to test receiver IF amplifier in CW receiving mode, with no FSK response and audio gain control at maximum setting. Apply power to test fixture. c. On IF/Audio Amplifier Assembly A2A2, set A2A2A1R25 fully counterclockwise, A2A2A1R6 fully clockwise, and A2A2A2R22 fully clockwise.	
		d. Adjust AC Voltmeter to measure a 3 volt signal level, and adjust the rf signal generator to provide an output of 500 kHz modulated 30% by 1000 Hz, with sufficient amplitude to yield a 3-volt indication on the ac voltmeter.	3 volts.
		NOTE Start the following step with the rf signal generator output set at 30 mV. Decrease rf signal generator output if necessary to maintain 3-volt indication on ac voltmeter.	

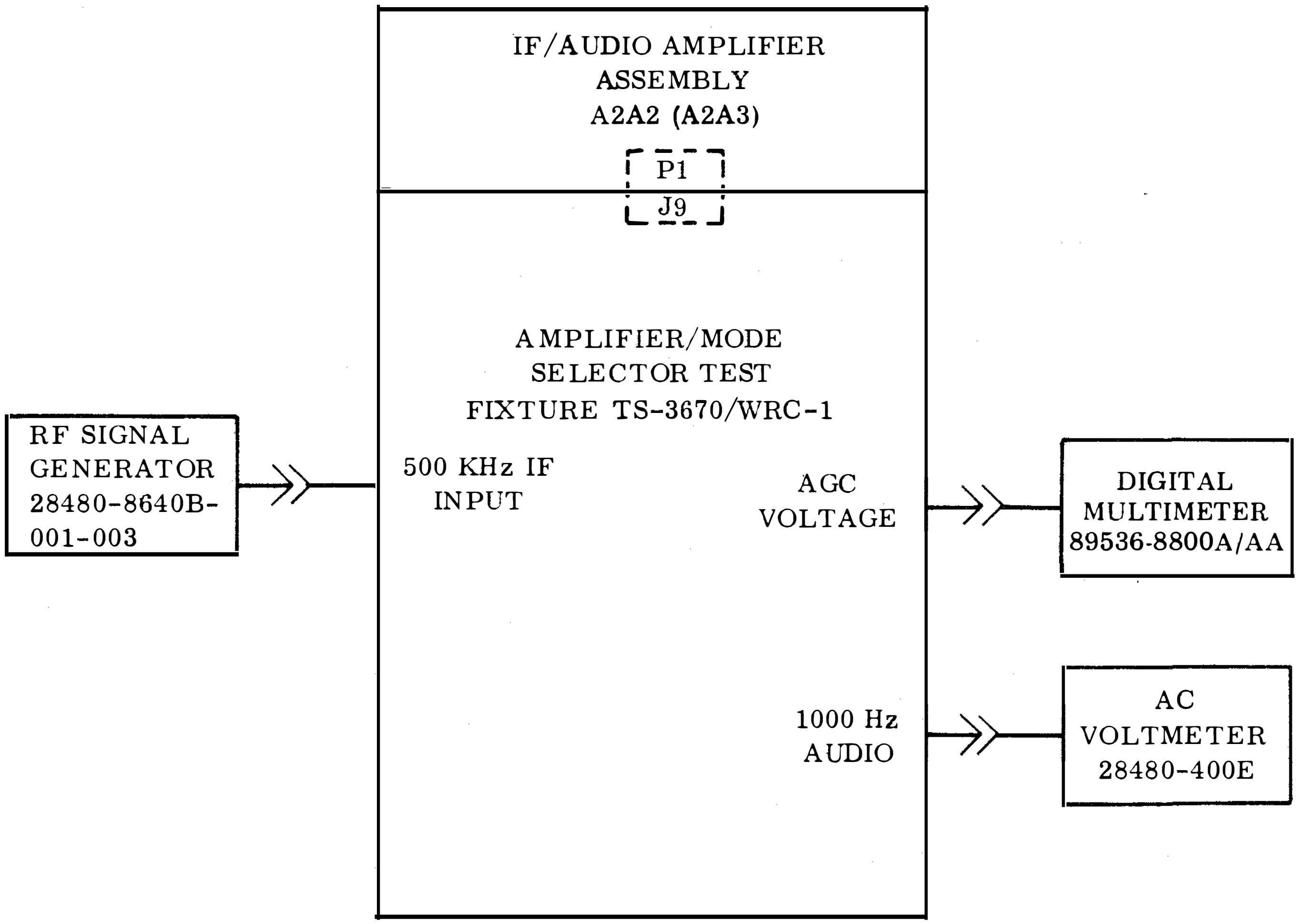


Figure 6-3. IF/Audio Amplifier Assemblies A2A2/A2A3,
Alignment and Adjustment Bench Test Setup

Table 6-3. IF/Audio Amplifier Assemblies A2A2/A2A3, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. IF Alignment (Cont.)		e. Tune A2A2A2T1, A2A2A2T2, A2A2A2T3, A2A2A2T4, and A2A2A3L1 for peak indication on ac voltmeter.	3 volts with rf signal generator output level of 30 mV or less.
2. AGC Alignment	Digital Multimeter 89536-8800A/AA RF Signal Generator 28480-8640B-001-003	a. With test equipment connected as in figure 6-3, set controls on test fixture for fast FSK response.	
		b. Adjust rf signal generator output to 300 uV.	300 uV.
		c. Using an external 1:1 probe, connect digital multimeter input to A2A2A1TP1.	
		d. Adjust A2A2A1R25 or the rf signal generator output, or both, to obtain an indication of 250 mVdc on digital multimeter.	250 mVdc.
		e. Tune A2A2A1T1 for maximum indication on digital multimeter.	Maximum indication.
		NOTE Adjust A2A2A1R25 and/or input signal level from rf signal generator as required to maintain indication of 250 mV on digital multimeter.	
		f. Tune A2A2A1T2 for maximum indication on digital multimeter.	Maximum indication.
3. AGC Adjustment	RF Signal Generator 28480-8640B-001-003 Digital Multimeter 89536-8800A/AA	a. In test equipment setup of figure 6-3, connect multimeter to test point A1TP1 on assembly A2A2. Adjust rf signal generator output for 1000 uV CW @ 500 kHz.	
		b. Adjust A2A2A1R25 clockwise for 0.9 Vdc indication on multimeter.	0.9 ±0.05 Vdc.

Table 6-3. IF/Audio Amplifier Assemblies A2A2/A2A3, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. RF AGC Adjustment	RF Signal Generator 28480-8640B-001-003 Digital Multimeter 89536-8800A/AA	a. Disconnect digital multimeter probe from A2A2A1TP1. Position digital multimeter controls to measure -10 Vdc, and connect multimeter to A2A2A1TP2.	
		b. Set rf signal generator for output of 500 kHz modulated 30% by 1000 Hz at 1 mV level.	
		c. Adjust A2A2A1R6 counterclockwise for -8 Vdc indication on digital multimeter.	-8 Vdc ±1.0 Vdc.
5. IF Gain Adjustment	RF Signal Generator 28480-8640B- AC Voltmeter 28480-400E	a. With test equipment connected as shown in figure 603 and output of rf signal generator set as in step 4.b., above, set controls on ac voltmeter to measure 8 volts. Set controls on test fixture to monitor audio output.	
		b. Adjust A2A2A2R22 counterclockwise to obtain audio output level of 7.5 Vac as indicated on ac voltmeter.	7.5 ±1 Vac.
		c. Remove IF/Audio Amplifier Assembly A2A2/A2A3 from Test Fixture, and reinstall cover on assembly.	

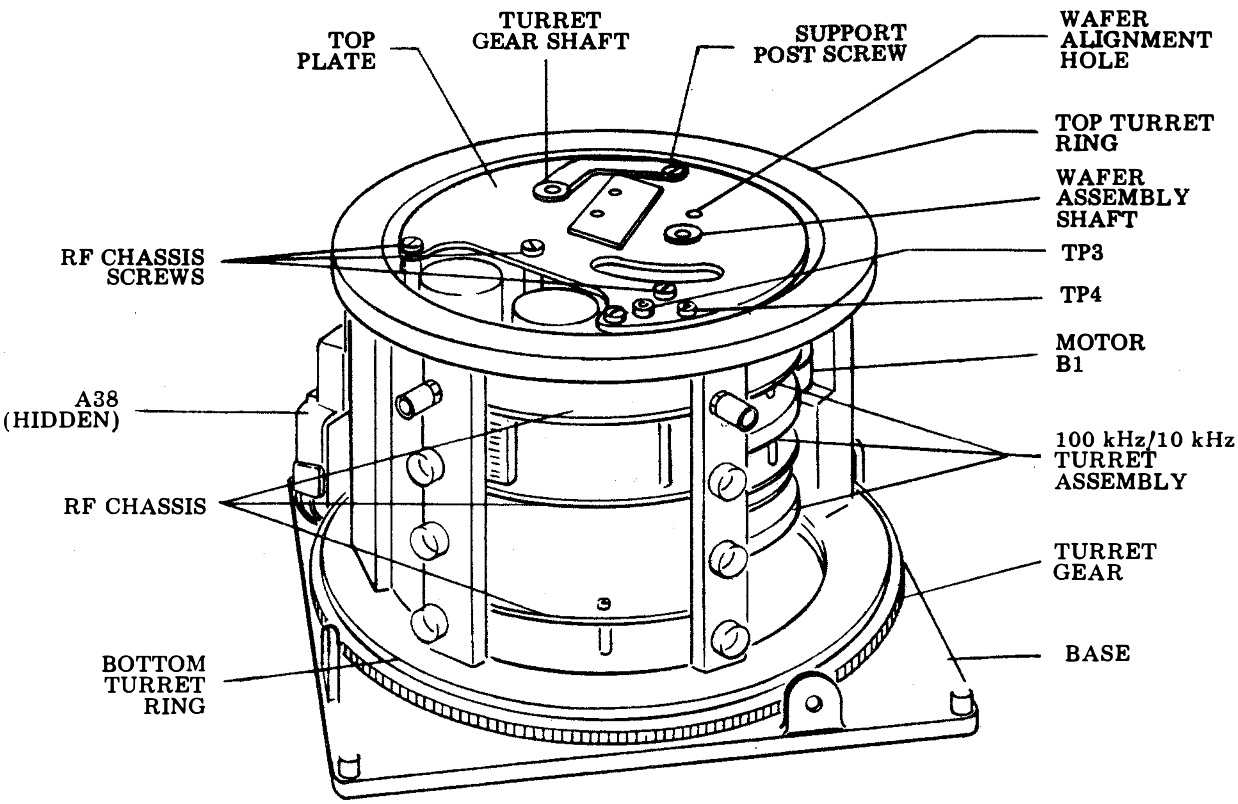


Figure 6-4. RF Amplifier Assembly A2A4, Disassembly Parts Identification

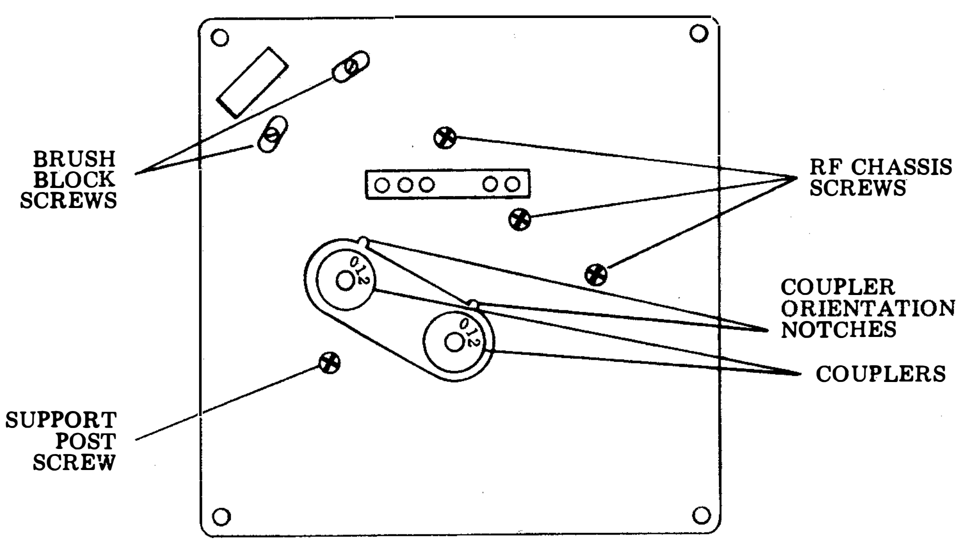


Figure 6-5. RF Amplifier Assembly A2A4, Bottom View, Disassembly Screw Locations

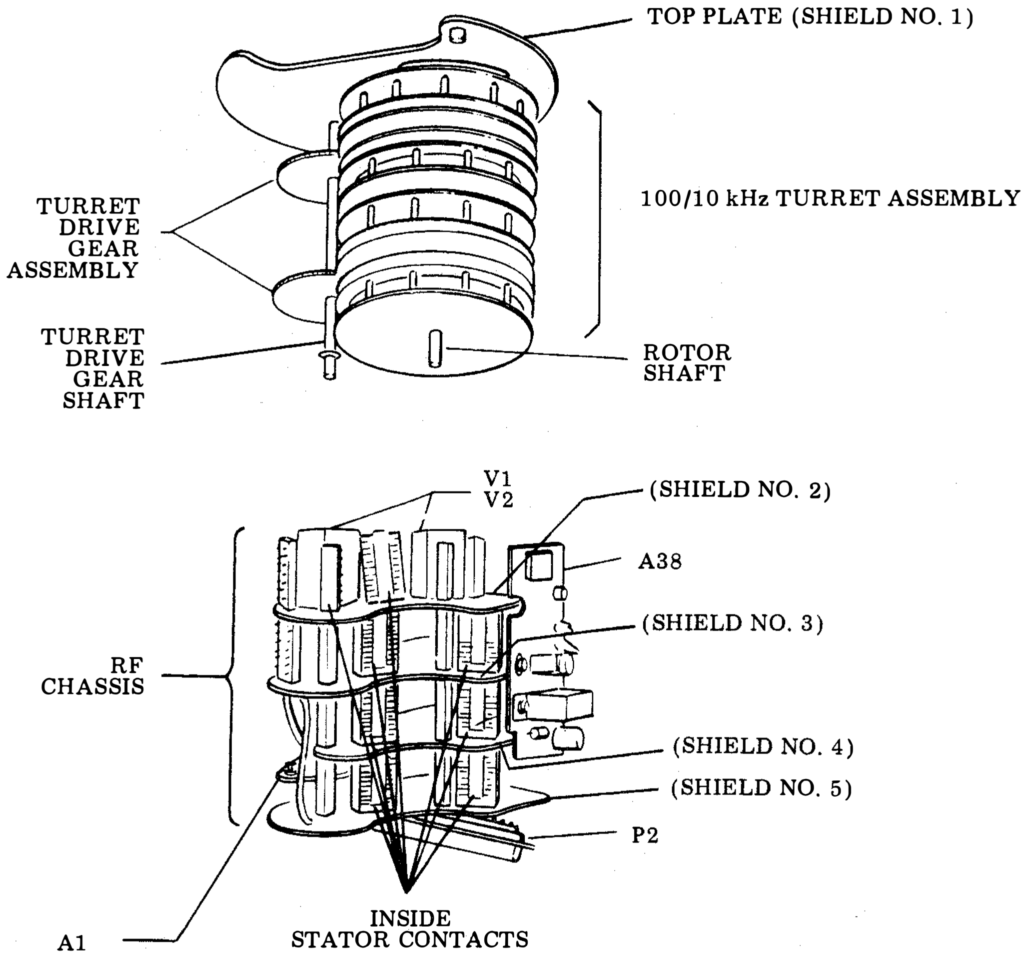


Figure 6-6. RF Amplifier Assembly A2A4, RF Chassis and Turret Assembly, Disassembly Parts Location

Table 6-4. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures *

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. A2A4A2T4 Adjustment	RF Amplifier Test Fixture TS-3685/ WRC-1 RF Signal Generator 28480-8640B-001-003 RF Millivoltmeter 04901-92B-S5	a. Remove cover from RF Amplifier Assembly A2A4.	
		b. Rotate 100 kHz and 10 kHz couplers on RF Amplifier Assembly so that they will mate with couplers on RF Amplifier Test Fixture.	
		c. Mount RF Amplifier Assembly A2A4 on RF Amplifier Test Fixture, making certain that connectors and couplers mate correctly.	
		d. Connect test equipment as shown in figure 6-7.	
		e. Apply operating power to test fixture.	
		f. Set test fixture controls to test in receiving mode with AGC voltage set to zero.	
		g. Set rf signal generator for 2.005 MHz, and adjust output level to approximately 10 mV rms.	10 mV
		h. Set test fixture frequency control to apply 2.005 MHz to the module under test.	
		i. Detune A2A4A2T4 (top coil on strip A2), A2A4A25T3 (second coil from top on strip A25), A2A4A20T2, and A2A4A20T1 (bottom two coils on strip A20).	

NOTE

In the following procedures, reduce rf signal generator output as required to keep rf millivoltmeter indication on scale.

* Since these are depot adjustment/alignment procedures, both receiver and transmitter applications are addressed in this table.

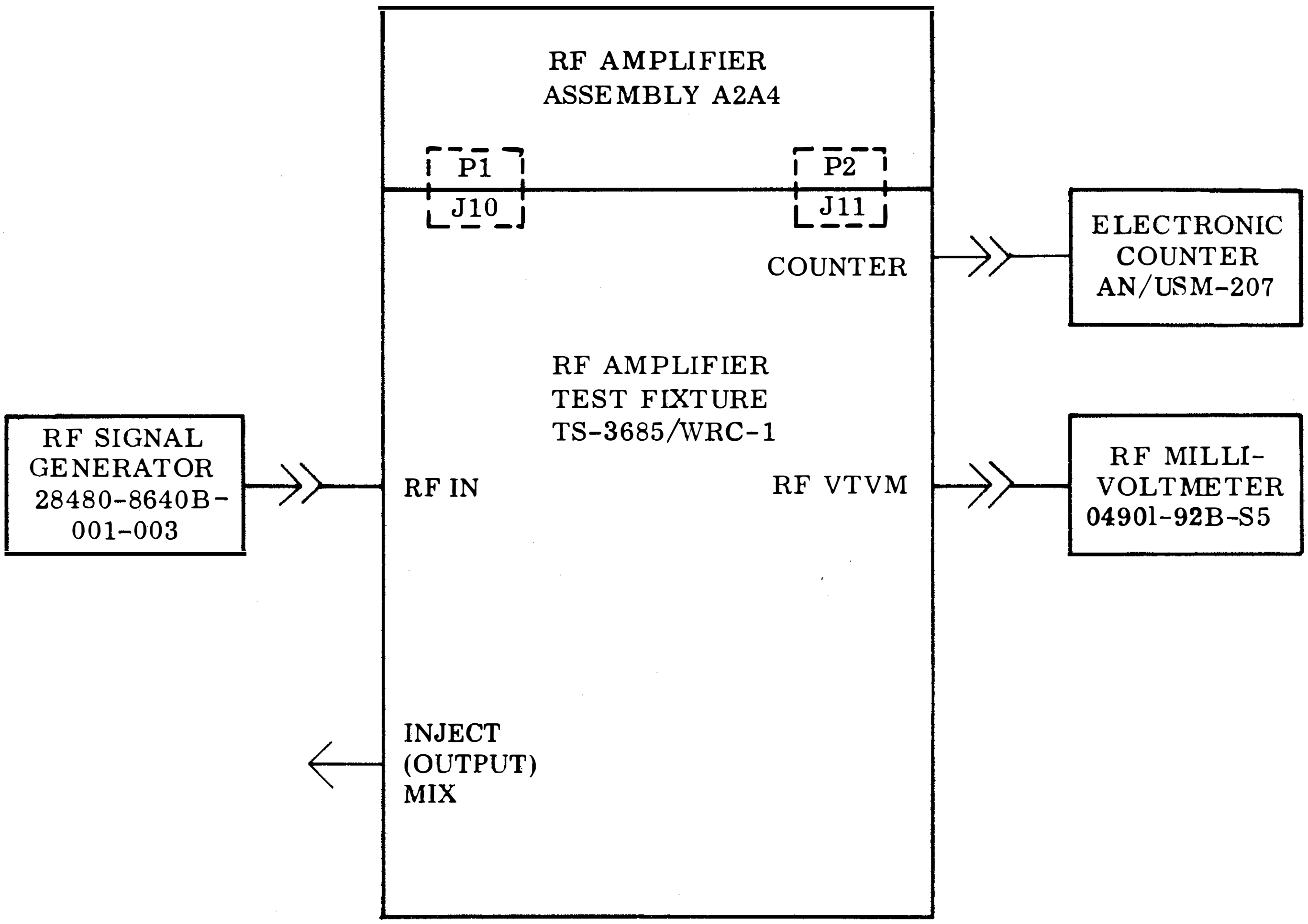


Figure 6-7. RF Amplifier Assembly A2A4, Alignment and Adjustment Bench Test Setup

Table 6-4. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		j. Adjust A2A4A2T4 (top coil on strip A2) for maximum indication on rf millivoltmeter.	Maximum output
2. A2A4A25T3 Adjustment	Same as step 1.	Adjust A2A4A25T3 (2nd coil from top) for maximum indication on rf millivoltmeter.	Maximum output
3. A2A4A20T2 and A2A4A20T1 Adjustment	Same as step 1.	a. Adjust A2A4A20T2 (2nd coil from bottom) for maximum indication on rf millivoltmeter.	Maximum output
		b. Adjust A2A4A20T1 (bottom coil) for maximum indication on rf millivoltmeter.	Maximum output
4. Gain Check and Adjustment	Same as step 1.	a. Set rf signal generator output level to 1 mV.	
		b. Output signal level indicated on rf millivoltmeter should be between 40 and 250 mV; if not, retune A2A4A2T4, A2A4A25T3, A2A4A20T2, and A2A4A20T1.	40 to 250 mV.

NOTE

Excessive repeated tuning for a peak output may cause regeneration.

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. Gain Variation Check and Adjustment	Same as step 1.	a. Set signal generator output and test fixture frequency control for 2.00 MHz. Note dBm indication on rf millivoltmeter. Increase signal generator output in 100 kHz steps to 2.90 MHz. Operate frequency control on the test fixture as required. Note dBm indication on rf millivoltmeter at each step.	

Table 6-4. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. Gain Variation Check and Adjustment (Cont.)		b. If the gain variation between the highest and lowest indications obtained in step a. is greater than 6 dB, touch up the adjustments of the transformers adjusted in steps 1 through 4, above, to reduce the gain variation to less than 6 dB.	Less than 6 dB gain variation over the band.
6. A2A4A3 through A2A4A29 Adjustment	Same as step 1.	Set rf signal generator for approximately 10 mV output at each of the frequencies listed below, and set test fixture frequency control to 5 kHz less. Set control on test fixture to monitor rf input frequency. At each test frequency, detune the associated T4, T3, T2, and T1 coils as listed below; then adjust the coils in the indicated sequence and repeat steps 4 and 5.	
		3.005 MHz A2A4A3T4 (top coil) A2A4A26T3 (2nd coil from top) A2A4A21T2 (3rd coil from top) A2A4A21T1 (bottom coil)	Maximum output at 3.005 MHz 40 to 250 mV
		4.005 MHz A2A4A4T4 A2A4A27T3 A2A4A22T2 A2A4A22T1	Maximum output at 4.005 MHz 40 to 250 mV
		5.005 MHz A2A4A5T4 A2A4A28T3 A2A4A23T2 A2A4A23T1	Maximum output at 5.005 MHz 40 to 250 mV
		6.005 MHz A2A4A6T4 A2A4A29T3 A2A4A24T2 A2A4A24T1	Maximum output at 6.005 MHz 40 to 250 mV

Table 6-4. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		7.005 MHz A2A4A7T4 A2A4A2T3 A2A4A25T2 A2A4A25T1	Maximum output at 7.005 MHz 40 to 250 mV
		8.005 MHz A2A4A8T4 A2A4A3T3 A2A4A26T2 A2A4A26T1	Maximum output at 8.005 MHz 40 to 250 mV
		9.005 MHz A2A4A9T4 A2A4A4T3 A2A4A27T2 A2A4A27T1	Maximum output at 9.005 MHz 40 to 250 mV
		10.005 MHz A2A4A10T4 A2A4A5T3 A2A4A28T2 A2A4A28T1	Maximum output at 10.005 MHz 40 to 250 mV
		11.005 MHz A2A4A11T4 A2A4A6T3 A2A4A29T2 A2A4A29T1	Maximum output at 11.005 MHz 40 to 250 mV
		12.005 MHz A2A4A12T4 A2A4A7T3 A2A4A2T2 A2A4A2T1	Maximum output at 12.005 MHz 40 to 250 mV
		13.005 MHz A2A4A13T4 A2A4A8T3 A2A4A3T2 A2A4A3T1	Maximum output at 13.005 MHz 40 to 250 mV
		14.005 MHz A2A4A14T4 A2A4A9T3 A2A4A4T2 A2A4A4T1	Maximum output at 14.005 MHz 40 to 250 mV

Table 6-4. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		15.005 MHz A2A4A15T4 A2A4A10T3 A2A4A5T2 A2A4A5T1	Maximum output at 15.005 MHz 40 to 250 mV
		16.005 MHz A2A4A16T4 A2A4A11T3 A2A4A6T2 A2A4A6T1	Maximum output at 16.005 MHz 40 to 250 mV
		17.005 MHz A2A4A17T4 A2A4A12T3 A2A4A7T2 A2A4A7T1	Maximum output at 17.005 MHz 40 to 250 mV
		18.005 MHz A2A4A18T4 A2A4A13T3 A2A4A8T2 A2A4A8T1	Maximum output at 18.005 MHz 40 to 250 mV
		19.005 MHz A2A4A19T4 A2A4A14T3 A2A4A9T2 A2A4A9T1	Maximum output at 19.005 MHz 40 to 250 mV
		20.005 MHz A2A4A20T4 A2A4A15T3 A2A4A10T2 A2A4A10T1	Maximum output at 20.005 MHz 40 to 250 mV
		21.005 MHz A2A4A21T4 A2A4A16T3 A2A4A11T2 A2A4A11T1	Maximum output at 21.005 MHz 40 to 250 mV

Table 6-4. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		NOTE Before tuning the 22 MHz band, adjust the cores of associated transformers fully clockwise. Set the test fixture rf controls to 22.0 MHz and the rf signal generator to 20.000 MHz. Locate A2A4A12T5 (between A2A4A12T1 and A2A4A12T2) and adjust trap for minimum output. It may be necessary to increase the rf signal generator output during this adjustment. After adjusting A2A4A12T5, set the rf signal generator to 22.005 MHz and proceed with normal tuning of transformers.	
		22.005 MHz A2A4A22T4 A2A4A17T3 A2A4A12T2 A2A4A12T1	Maximum output at 22.005 MHz 40 to 250 mV
		NOTE Before tuning the 23 MHz band, adjust the cores of associated transformers fully clockwise. Set the test fixture rf controls to 23.00 MHz and the rf signal generator to 19.205 MHz. Locate A2A4A13T5 (between A2A4A13T1 and A2A4A13T2) and adjust trap for minimum output. It may be necessary to increase the rf signal generator output during this adjustment. After adjusting A2A4A13T5, set the rf signal generator to 23.005 MHz and proceed with normal tuning of transformers.	
		23.005 MHz A2A4A23T4 A2A4A18T3 A2A4A13T2 A2A4A13T1	Maximum output at 23.005 MHz 40 to 250 mV
		24.005 MHz A2A4A24T4 A2A4A19T3 A2A4A14T2 A2A4A14T1	Maximum output at 24.005 MHz 40 to 250 mV

Table 6-4. RF Amplifier Assembly A2A4, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. A2A4A3 through A2A4A29 Adjustment (Cont.)		25.005 MHz A2A4A25T4 A2A4A20T3 A2A4A15T2 A2A4A15T1	Maximum output at 25.005 MHz 40 to 250 mV
		26.005 MHz A2A4A26T4 A2A4A21T3 A2A4A16T2 A2A4A16T1	Maximum output at 26.005 MHz 40 to 250 mV
		27.005 MHz A2A4A27T4 A2A4A22T3 A2A4A17T2 A2A4A17T1	Maximum output at 27.005 MHz 40 to 250 mV
		28.005 MHz A2A4A28T4 A2A4A23T3 A2A4A18T2 A2A4A18T1	Maximum output at 28.005 MHz 40 to 250 mV
		29.005 MHz A2A4A29T4 A2A4A24T3 A2A4A19T2 A2A4A19T1	Maximum output at 29.005 MHz 40 to 250 mV
7. Band-to Band Gain Variation	Same as step 1.	a. Set signal generator output and test frequency to 2.55 MHz. Record dBm indication. Repeat at 3.55 MHz, 4.55 MHz, 5.55 MHz, etc., to 29.55 MHz.	
		b. If the gain variation between the highest and lowest readings obtained in step a exceeds 15 dB, readjust the high gain band by turning T4 to reduce the band-to-band variation to less than 15 dB.	Less than 15 dB variation

Table 6-5. Frequency Standard A2A5, Adjustment and Alignment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Initial Test Setup	Frequency Standard Test Fixture TS-3667/WRC-1	a. Connect Frequency Standard and test equipment as shown in figure 6-8. b. Set 5 MHz OSC SOURCE switch A2A5A2S1 to INT/COMP position. c. Apply power to test fixture and allow a 96-hour (minimum) warmup.	
2. Frequency Check	Frequency Standard Test Fixture TS-3667/WRC-1 Electronic Counter AN/USM-207	Set time base on counter for a 10-second gate. On test fixture set output controls to LOAD and INT 5 MHz. Counter shall indicate 4,999,999.8 Hz to 5,000,000.2 Hz. If indication is within limits, proceed to step 5, otherwise proceed to step 3.	
3. Fine Frequency Adjustment	Same as step 2.	a. Adjust FINE FREQUENCY ADJUST control A2A5A1C2 with a screwdriver until an indication of 5,000,000.0 Hz is observed on electronic counter. Do not adjust A2A5A1C2 beyond end calibration marks on INDEX (1 or 30). b. If within limits, log the INDEX reading on the logging chart on the cover of the Frequency Standard Assembly, and proceed to step 5. Otherwise, proceed to step 4.	5,000,000.0 Hz
4. Coarse Frequency Adjustment	Same as step 2.	a. If the fine frequency adjustment does not bring the 5 MHz output of the Frequency Standard Assembly into range, the INDEX will read 1 or 30. If this occurs,	5,000,000.0 Hz

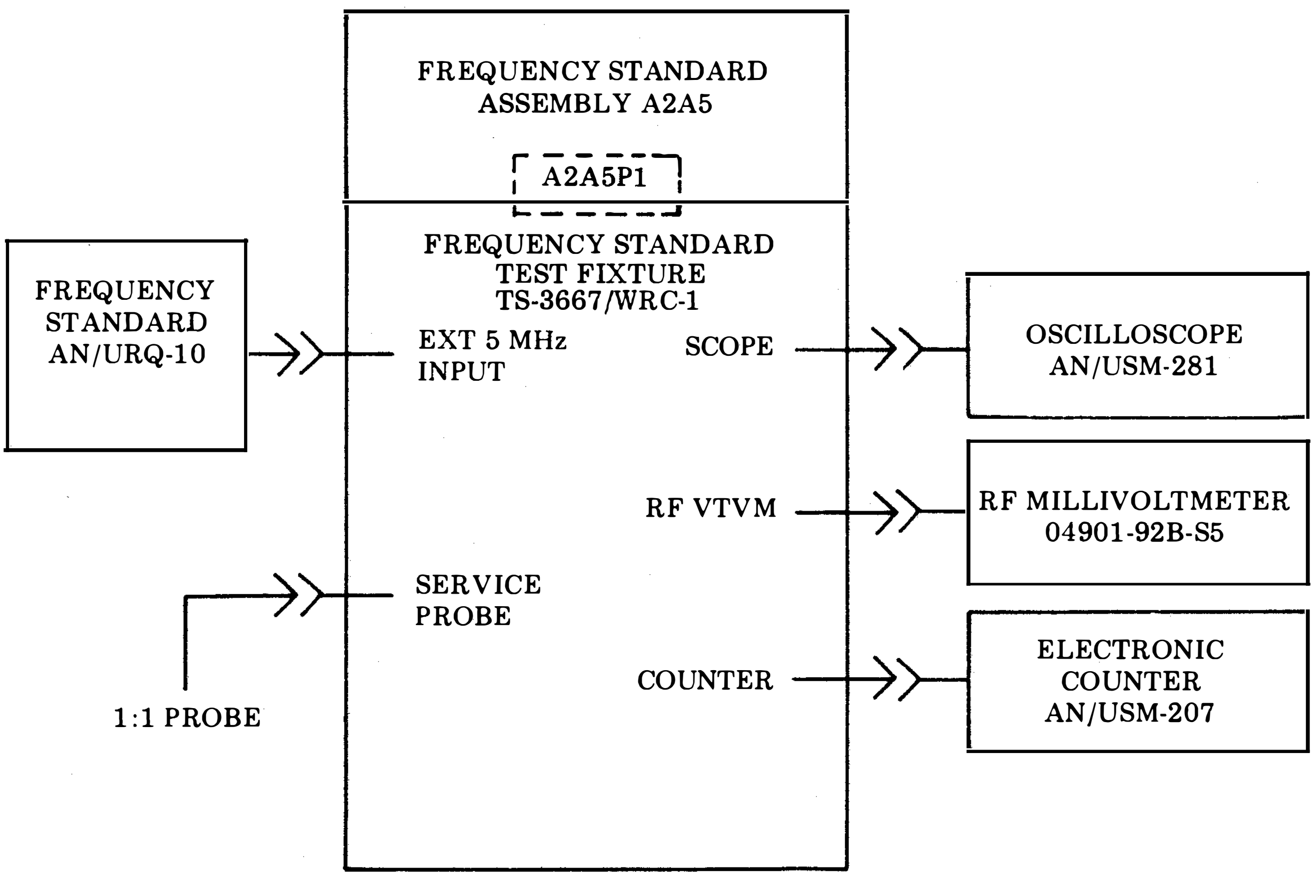


Figure 6-8. Frequency Standard Assembly A2A5,
Alignment and Adjustment Bench Test Setup

Table 6-5. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Coarse Frequency Adjustment (Cont.)		readjust the FINE FREQUENCY ADJUST control A2A5A1C2 to an INDEX reading of 17. Then remove the plug which covers the COARSE FREQUENCY ADJUST, and adjust the COARSE FREQUENCY ADJUST control A2A5A1C3 with the aid of a nonmetallic or insulated shaft screwdriver until the electronic counter indicates 5,000,000.0 Hz ±0.2 Hz.	
		b. Reattach plug over COARSE FREQUENCY ADJUST control and repeat step 3.	
5. 5 MHz Amplifier Alignment	Frequency Standard Test Fixture TS-3667/WRC-1 RF Millivoltmeter 04901-92B-S5 Oscilloscope AN/USM-281	a. Remove cover from A2A5. On test fixture set output controls to LOAD and INT 5 MHz. Leave A2A5A2S1 as in step 2.	
		b. Observe the rf millivoltmeter. If voltage outside of specified range is indicated, select value of A2A5A2R49 to obtain required result. See table 7-2 for selectable values.	480 mVrms to 720 mVrms
		c. Adjust A2A5A2C38 to obtain a maximum amplitude sine wave as displayed on the oscilloscope.	
6. 1 MHz Divider Alignment	Frequency Standard Test Fixture TS-3667/WRC-1 Electronic Counter AN/USM-207 RF Millivoltmeter 04901-92B-S5 Oscilloscope AN/USM-281	a. On test fixture, set controls to read 1 MHz output and load output. Leave A2A5A2S1 as in step 2.	
		b. Adjust A2A5A2C7 to obtain an indication of 1,000,000.0 Hz on electronic counter.	1,000,000.0 Hz
		c. Observe rf millivoltmeter. 1 MHz output should be as	350 mVrms to 550 mVrms.

Table 6-5. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. 1 MHz Divider Alignment (Cont.)		specified. If output outside specified range is indicated, select values of A2A5A2R17 and A2A5A2R18 to bring voltage into range. See table 7-2 for selectable values.	
		d. Adjust A2A5A2C13 to obtain a maximum amplitude sine wave as displayed on the oscilloscope.	
7. 500 kHz Divider Alignment	Same as step 6.	a. On test fixture set output controls to LOAD and 500 kHz (A1). Leave A2A5A2S1 as in step 2.	
		b. Adjust A2A5A2C16 to obtain an indication of 500,000.0 Hz on electronic counter.	500,000.0 Hz
		c. Observe rf millivoltmeter. 500,000.0 Hz output should be as specified. If output outside specified range, select values of A2A5A2R30 and A2A5A2R31 to bring voltage into range. See table 7-2 for selectable values.	150 mVrms to 200 mVrms
		d. Adjust A2A5A2C22 to obtain a maximum amplitude sine wave as displayed on the oscilloscope.	
8. 10 MHz Multiplier Alignment	Same as step 6.	a. On test fixture, set output controls to LOAD and 10 MHz. Leave A2A5A2S1 as in step 2.	
		b. Adjust A2A5A2C31 to obtain an electronic counter indication of 10,000,000 Hz.	10,000,000 Hz

Table 6-5. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
8. 10 MHz Multiplier Alignment (Cont.)		c. Observe rf millivoltmeter. Output should be as specified. If output outside specified range, select values for A2A5A2R43 and A2A5A2R44 to bring voltage into range. See table 7-2 for selectable values.	20 mVrms to 40 mVrms
		d. Adjust A2A5A2C33 to obtain a maximum amplitude sine wave as observed on the oscilloscope.	
9. Automatic 5 MHz Source Switching Check and Adjustment	Frequency Standard Test Fixture TS-3667/WRC-1 Electronic Counter AN/USM-207 Frequency Standard AN/URQ-10 RF Millivoltmeter 04901-92B-S5	a. Connect 5 MHz output of AN/URQ-10 to 5 MHz input connector on test fixture. Set external 5 MHz level adjustment control on test fixture maximum clockwise.	
		b. Set 5 MHz OSC SOURCE switch A2A5A2S1 to EXT NORMAL position.	
		c. On test fixture, set output controls to LOAD and INT 5 MHz. Electronic counter and rf millivoltmeter will not indicate.	
		d. While observing electronic counter and rf millivoltmeter, slowly rotate external 5 MHz level adjustment control on test fixture counterclockwise until counter and rf millivoltmeter indicate.	
		e. Turn frequency output selector to EXT 5 MHz. Amplitude as indicated on rf millivoltmeter should be between 200 mVrms and 300 mVrms.	200 mVrms to 300 mVrms

Table 6-5. Frequency Standard A2A5, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
9. Automatic 5 MHz Source Switching Check and Adjustment (Cont.)		f. Rotate external 5 MHz level adjustment control on test fixture to full counterclockwise. Turn frequency selector to EXT 5 MHz. Counter and rf millivoltmeter should indicate.	
		g. Turn frequency selector to INT 5 MHz and slowly rotate external 5 MHz level adjustment control on test fixture clockwise until rf millivoltmeter and electronic counter do not indicate.	
		h. Turn frequency selector to EXT 5 MHz. Amplitude as indicated on rf millivoltmeter should be between 350 mVrms and 450 mVrms.	350 mVrms to 450 mVrms
		i. If indication in e. above is not within limits, select a value for A2A5A4R3 to bring indication within limits. See table 7-2 for selectable values.	
		j. If indication in h. above is not within limits, select a value for A2A5A4R5 to bring indication within limits. See table 7-2 for selectable values.	
		NOTE There is interaction between A2A5A4R3 and A2A5A4R5. When selecting values for these resistors, select a value for A2A5A4R3 first.	
10. Final Check		a. Reattach cover to Frequency Standard Assembly A2A5.	
		b. Repeat step 2. above.	
		c. Remove Frequency Standard Assembly A2A5 from test fixture.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures *

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Frequency Generator Subassembly A2A6A16 Adjustment	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Electronic Counter AN/USM-207 Digital Multimeter 89536-8800A/AA RF Signal Generator 28480-8640B-001-003 Frequency Standard AN/URQ-10 Oscilloscope AN/USM-281 Spectrum Analyzer 28480-8553B-E30 FET Probe HP 1121A A2A6A16 Extender Card 01A228396-01	a. Remove top cover from Translator/Synthesizer Assembly A2A6, and connect test equipment as shown in figure 6-10.	
		b. Apply power to test fixture and set controls to test 100 Hz Translator/ Synthesizer in receive mode, with no vernier action.	
		c. Connect digital multimeter to A2A6A15TP2 and observe indication of 5.1 to 5.3 Vdc. If not within this range, select value of A2A6A15R15 in accordance with Specific Note 1 of Figure 5-45.	5.1 to 5.3 Vdc.
		d. Connect digital multimeter to A2A6A16TP1 and observe indication. It should be 0 Vdc.	0 Vdc

* Since these are depot adjustment/alignment procedures, both receiver and transmitter applications are addressed in this table.

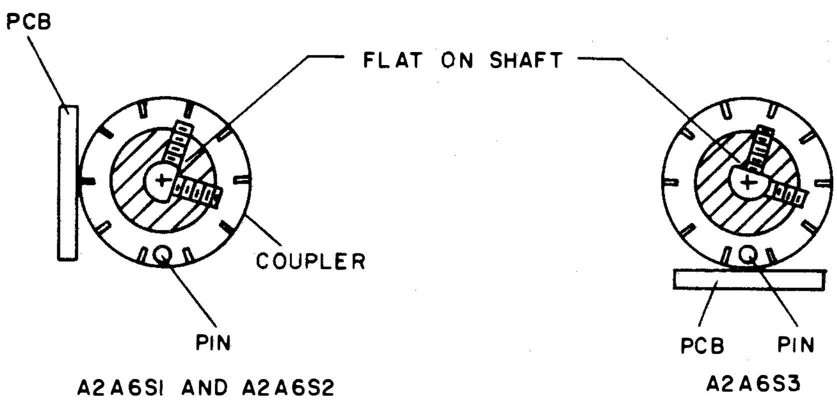


Figure 6-9. Switch and Coupling Orientation

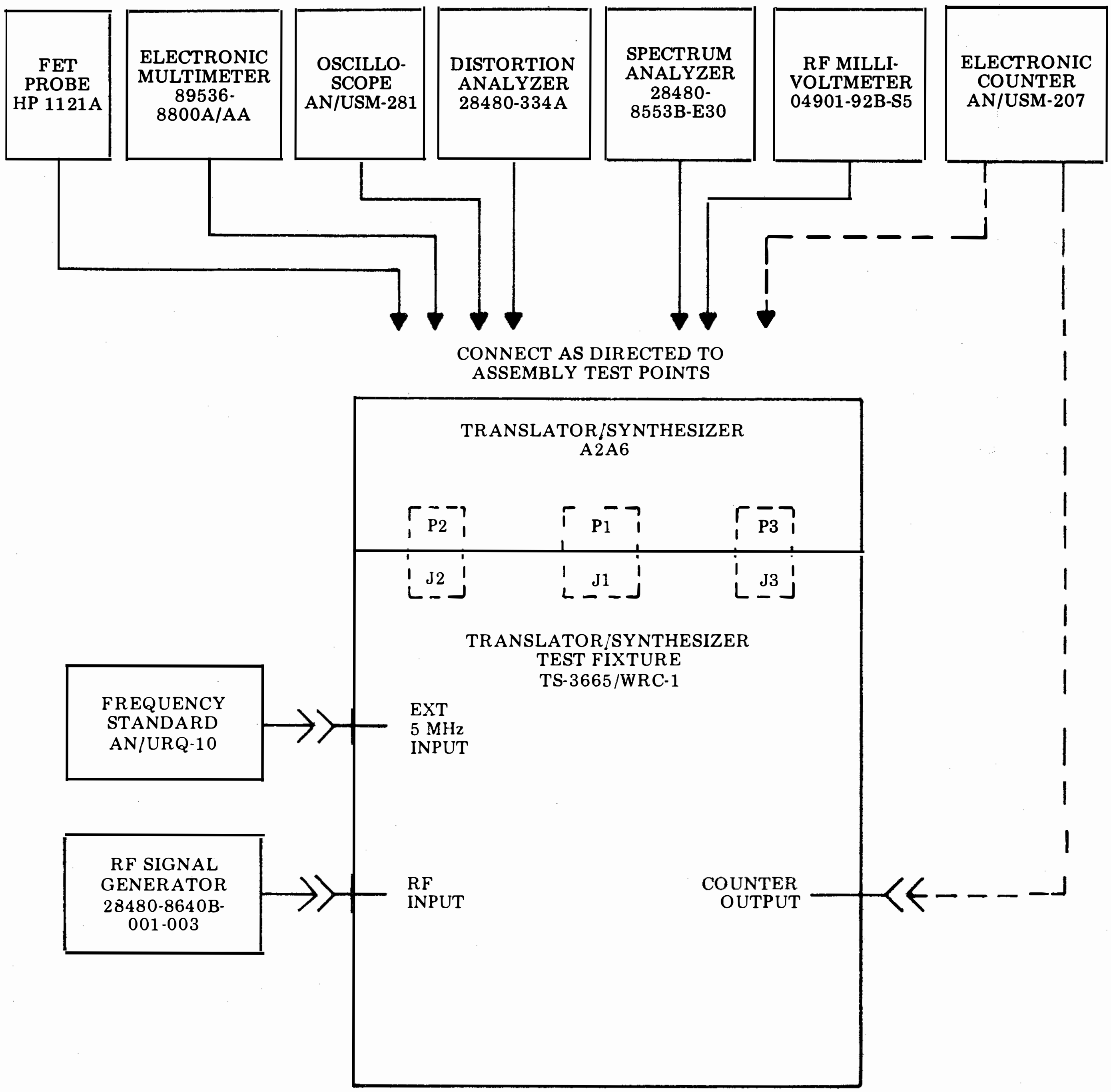


Figure 6-10. Translator/Synthesizer Assembly A2A6,
Alignment and Adjustment Bench Test Setup

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Frequency Generator Subassembly A2A6A16 Adjustment (Continued)		e. Activate vernier and observe digital multimeter indication. It should vary between 2.5 and 3.7 Vdc as the vernier is operated from limit to limit.	Varying voltages between 2.5 and 3.7 Vdc.
		f. Connect the rf signal generator to the RF input connector on the test fixture. Set output of the rf signal generator to 5.000 MHz at a level of 5 mVrms.	
		g. Tune the Translator/Synthesizer to 5.001 MHz by means of test fixture controls.	
		h. Connect FET probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A8TP8. With the vernier control fully counterclockwise, observe an indication of 499.2 to 499.4 kHz. If necessary, adjust A2A6A16R22 to obtain the correct indication.	499.2 to 499.4 kHz.

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

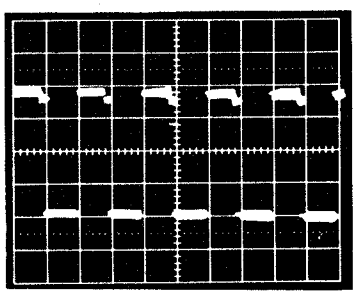
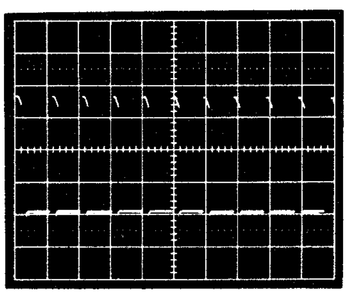
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Frequency Generator Subassembly A2A6A16 Adjustment (Continued)  WAVEFORM A  WAVEFORM B		i. With the equipment connected as in Step h, and with the vernier control fully clockwise, observe an indication of 497.6 to 497.8 kHz on the counter. If necessary, adjust A2A6A16R18 to obtain the correct indication. j. Repeat steps h. and i. Adjust if necessary to obtain the required indications. k. Connect the oscilloscope and counter to A2A6A16-TP2. Disable vernier. Observe Waveform A. (Rectangular pulses at an amplitude of 4 V P-P and a period of 1000 ±4 usec.) l. Enable vernier. Observe waveform similar to Waveform A. Connect counter to A2A6A16TP2 and observe counter vary between 1000.1 Hz and 999.7 Hz as the vernier is operated. Disable vernier.	497.6 to 497.8 kHz.

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

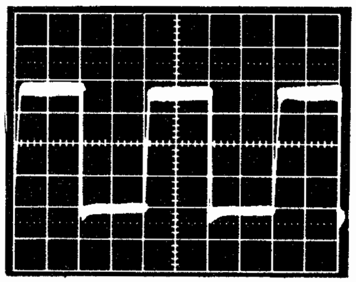
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Frequency Generator Subassembly A2A6A16 Adjustment (Continued)		m. Connect oscilloscope and counter to A2A6A16TP2. Observe Waveform B. (Pulses at an amplitude of 4 V P-P and a frequency of 100 kHz.) n. Connect oscilloscope and counter to A2A6A16TP4. Observe Waveform C. (Rectangular pulses at an amplitude of 4 V P-P and a frequency of 500 kHz.	
 WAVEFORM C			
2. Synthesizer A2A6A17 Adjustment	Translator/Synthesizer Test Fixture TS-3665/ WRC-1 Oscilloscope AN/USM-281 Distortion Analyzer 28480-334A Frequency Standard AN/URQ-10	a. Remove Synthesizer Subassembly A2A6A17 from Translator/Synthesizer. Insert extender into A2A6A17 slot, and mate A2A6A17 subassembly with extender. b. Tune Translator/Synthesizer to 7.000 MHz by means of test fixture controls.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6A17 Adjustment (Continued)	Signal Generator 28480-8640B-001-003 A2A6A17 Extender Card 01A228398-01	c. Use digital multimeter to measure voltage at pin 1 of A2A6A17A1 VCO subassembly (Fig. 7-70).	
	Spectrum Analyzer 38480-8553B-E30 FET Probe HP 1121A	d. Adjust A2A6A17A1L1 (through hole provided in VCO cover) until meter reads 4 ±0.1 Vdc.	4 ± 0.1 Vdc.
	Digital Multimeter 89536-8800A/AA	e. Remove synthesizer subassembly A2A6A17 from extender. Remove extender from slot, and reinstall A2A6A17 in its normal position.	
		f. Tune Translator/Synthesizer to 5.000 MHz by means of test fixture controls.	
		g. Remove side panel from Translator/Synthesizer assembly for access to translator subassembly A2A6A8, and connect oscilloscope to A2A6A8E8. Adjust A2A6A17R10 to obtain a sine wave at an amplitude of 100 ±15 mV P-P.	100 ±15 mV P-P.

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6A17 Adjustment (Continued)		Connect FET probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A17TP3 and measure frequency of 22.4 MHz ±100 Hz.	
		h. Tune Translator-Synthesizer to 6.000 MHz by means of test fixture controls. The frequency as read on the tracking generator at A2A6A17TP3 shall be 32.4 MHz ±100 Hz. The amplitude of the sine wave at A2A6A8E8 shall be 100 ±15 mV P-P.	
		i. Connect distortion analyzer to A2A6P2A1 (IF OUT) or A2A6A8TP8. Set output of rf signal generator connected to rf input of test fixture to 6.000 MHz at a level of 5 mV rms.	
		j. Measure the distortion.	1.5% or less distortion.

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

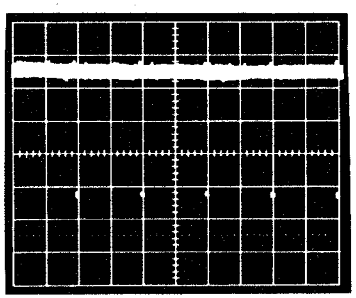
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6A17 Adjustment (Continued)		k. Change the signal generator and test fixture frequencies to 7.000 MHz, and measure distortion.	1.5% or less distortion
		l. If distortion in Steps j. or k. is greater than 1.5%, replace A2A6-A17A1 VCO subassembly, and repeat steps a. through k.	1.5% or less distortion.
		m. Disconnect external test equipment.	
		n. Connect oscilloscope to A2A6A17TP1. Observe Waveform B.	
 WAVEFORM D		o. Connect oscilloscope to A2A6A17TP2. Observe Waveform D (negative-going pulses 300-500 n sec wide at a period of 10 usec and peak amplitude of 4 volts). This waveform shall be locked to the A2A6A17TP1 waveform B. Check this by displaying both waveforms on alternate sweeps of the scope. Trigger scope from TP1.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

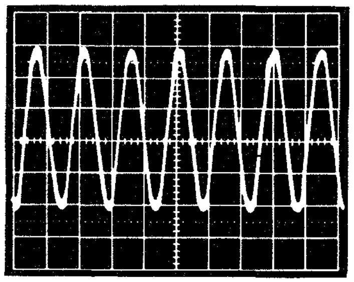
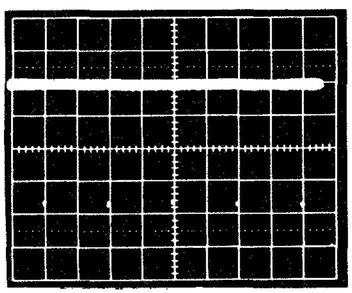
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. Synthesizer A2A6A17 Adjustment (Continued)		p. Repeat step o. for each position of the 100 kHz control of the test fixture.	
3. Synthesizer Circuit A2A6A18 and A2A6A12 Adjustment  WAVEFORM E  WAVEFORM F	Translator/Synthesizer Test Fixture TS-3665/ WRC-1 Oscilloscope AN/USM-281 Spectrum Analyzer 28480-8553B-E30 FET Probe HP 1121A Frequency Standard AN/URQ-10 A2A6A18 Extender Card 01A228400-01 A2A6A12 Extender Card 01A228390-01 Electronic Counter AN/USM-207 RF Signal Generator 28480-8640B-001-003	a. Connect FET probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A18TP1. With test fixture frequency set to 6.000000 MHz measure frequency of signal at A2A6A18TP1 to be 34 MHz ±100 Hz. Then connect oscilloscope to A2A6-A18TP1 and observe waveform E (period of approximately 30 nsec and amplitude of 0.8 to 1.5 V P-P). b. Connect oscilloscope to A2A6A18TP2. Observe waveform F (200 - 400 nsec negative-going pulses with a period of 1000 usec and an amplitude of 4 volts P-P).	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Synthesizer Circuit A2A6A18 and A2A6A12 Adjustment (Continued)		c. Connect oscilloscope to A2A6A12TP3. Adjust A2A6A12R16 for sine-wave amplitude of 200 ±10 mV P-P. Connect FET probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6-A12TP3. With test fixture frequency set to 6.000000 MHz, frequency of signal at TP3 shall read 3.4 MHz ±30 Hz.	200 ±10 mV P-P
		d. Connect oscilloscope to A2A6A12TP1. Observe Waveform B (rectangular pulses at an amplitude of 4 volts P-P). Connect counter to A2A6A12TP1. Frequency shall be 1 kHz ±0.1 Hz.	
		e. With counter in A2A6-A12TP1, activate vernier. Observe that the frequency is between 1 kHz and 999.7 Hz. Deactivate vernier.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

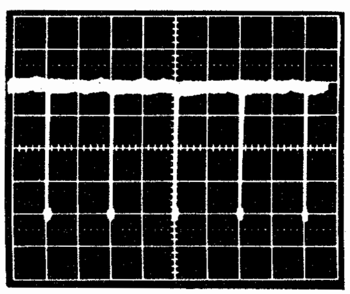
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
3. Synthesizer Circuit A2A6A18 and A2A6A12 Adjustment (Continued)		f. Connect oscilloscope to A2A6A12TP2. Observe Waveform F (200 - 400 nsec negative-going pulses with a period of 1000 usec and an amplitude of 4 volts P-P). This waveform shall be locked to the A2A6A12TP1 Waveform B. Check this by displaying both waveforms on alternate sweeps of the oscilloscope.	
		g. Repeat Step f. for each position of the 100 Hz, 1 kHz and 10 kHz frequency controls of the test fixture.	
4. Synthesizer Subassembly A2A6A13  WAVEFORM G	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Oscilloscope AN/USM-281. Frequency Standard AN/URQ-10 A2A6A13 Extender Card 01A228392-01	a. Connect oscilloscope to A2A6A13TP1. Observe Waveform G (negative-going pulses 40 to 400 nsec wide at a period of 2 usec and an amplitude of 4 volts P-P). The width depends upon MHz setting.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

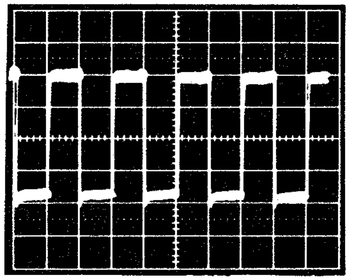
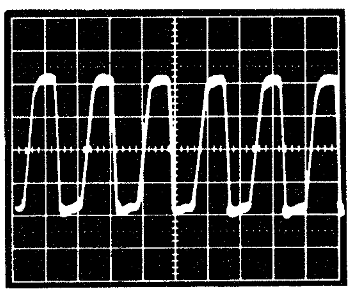
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
4. Synthesizer Subassembly A2A6A13 (Continued)  WAVEFORM H  WAVEFORM I		b. Connect oscilloscope to A2A6A13TP2. Observe Waveform H (rectangular pulse at a period of 2 usec and an amplitude of 4 volts P-P). This waveform shall be locked to the A2A6A13TP1 Waveform G. Check this by displaying both waveforms on alternate sweeps of the oscilloscope. c. Repeat Step b. for each valid position of the 1 MHz and 10 MHz controls of the test fixture. d. Connect oscilloscope to A2A6A13TP3. Observe Waveform I (rectangular pulses at an amplitude of 4 volts P-P and a period of approximately 40 to 400 nsec depending upon the test fixture 1 MHz and 10 MHz controls, i.e., 400 nsec at 22 MHz dial setting and 42 nsec at 6 MHz dial setting).	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

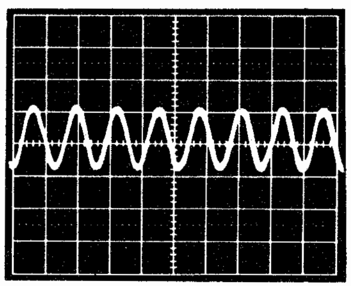
STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. 10 MHz/1 MHz Filter Subassembly A2A6A14 Adjustment  WAVEFORM J	Translator/Synthesizer Test Fixture TS-3665/WRC-1 Multimeter AN/USM-311 Oscilloscope AN/USM-281 Frequency Standard AN/URQ-10 A2A6A14 Extender Card 01A228394-01	a. Tune Translator/Synthesizer to 16.000 MHz by means of test fixture controls. b. Measure voltage at A2A6A14TP1. It should be 0 to 0.4 Vdc. c. Measure voltage at A2A6A14TP3 and A2A6A14TP6. These will both be +5 Vdc nominal. d. Connect oscilloscope to A2A6A14TP5. Observe Waveform J. Adjust A2A6A14R7 for sinewave amplitude of 200 ±10 mV P-P and a period of approximately 280 nsec. e. Tune Translator/Synthesizer to 20 MHz by means of test fixture controls. f. Measure voltage at A2A6A14TP3. It should be 0 to 0.4 Vdc.	 200 ±10 mV P-P.

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. 10 MHz/1 MHz Filter Subassembly A2A6A14 Adjustment (Continued)		g. Measure the voltage at A2A6A14TP1 and TP6. These will both be +5 Vdc nominal.	
		h. Connect oscilloscope to A2A6A14TP5. Observe Waveform J. Adjust A2A6A14R17 for waveform amplitude of 200 ±10 mV P-P and a period of approximately 105 nsec.	200 ±10 mV P-P.
		i. Tune Translator/Synthesizer to 10.000 MHz by means of test fixture controls.	
		j. Measure voltage at A2A6A14TP6. It should be 0 to 0.4 Vdc.	
		k. Measure the voltage at A2A6A14TP1 and TP3. These will both be +5 Vdc nominal.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
5. 10 MHz/1 MHz Filter Subassembly A2A6A14 Adjustment (Continued)		1. Connect oscilloscope to A2A6 A14TP5. Observe Waveform J. Adjust A2A6A14R27 for displayed amplitude of 200 mV ±10 mV P-P and a period of approximately 50 nsec.	200 ±10 mV P-P.
6. Transistor Subassembly A2A6A8 Adjustment	Translator/Synthesizer Test Fixture TS-3665/ WRC-1 RF Millivoltmeter 04901-92B-S5 RF Signal Generator 28480-8640B-001-003 Spectrum Analyzer 28480-8553B-E30 FET Probe HP1121A Frequency Standard AN/URQ-10	a. Remove side cover from Translator/Synthesizer Assembly for access to Translator Subassembly A2A6A8. b. Connect rf millivoltmeter to A2A6A8TP5 and connect oscilloscope to A2A6A8TP8. c. Set output frequency of signal generator to 21.000 MHz, and tune Translator/Synthesizer to 21.000 MHz by means of test fixture controls. d. Adjust output amplitude of rf signal generator to obtain an indication of 5 mVrms on rf millivoltmeter.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. Transistor Subassembly A2A6A8 Adjustment (Continued)		e. Adjust A2A6A8T1 to obtain maximum output indication on oscilloscope.	Maximum output.
		f. Vary the 100 kHz selector on the test fixture and on the signal generator simultaneously and synchronously through their complete ranges. Note the frequency of highest output and the frequency of lowest output.	
		g. At the frequency of highest output, adjust A2A6A8R52 for 250 ±20 mV P-P on the oscilloscope. The output at the frequency of lowest output level must be greater than 175 mV P-P.	250 ±20 mV P-P
		h. Change the test fixture frequency to 22.000 mHz. Change the signal generator frequency to 22.000 MHz at an output level of 5 mVrms.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. Transistor Subassembly A2A6A8 Adjustment (Continued)		i. Vary the 100 kHz selector on the test fixture and on the signal generator simultaneously and synchronously through their complete ranges. Note the frequency of highest output and the frequency of lowest output. The output must be between 200 mV and 300 mV P-P at the frequency of highest output.	
		j. If the highest output does not fall between 200 mV P-P and 300 mV P-P, adjust A2A6A8R36 so that the output falls within this range. The output at the frequency of lowest output level must be greater than 140 mV P-P.	200 - 300 mV P-P

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
6. Transistor Subassembly A2A6A8 Adjustment (Continued)		k. Set controls on test fixture to test Translator/ Synthesizer in Transmit mode with transmit IF switch at 10 mV.	
		l. Connect spectrum analyzer to A2A6A8TP6 using FET Probe.	
		m. Tune Translator/Synthesizer to 7.100 MHz by means of test fixture controls. Adjust signal generator for an output of 3 mV at a frequency of 500 kHz.	
		n. Adjust A2A6A8L14 for minimum output of the 19.5 MHz signal as observed on the spectrum analyzer.	Minimum output
		o. Disconnect test equipment and reattach top and side covers of Translator/Synthesizer Assembly A2A6.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Final Check	Translator/Synthesizer Test Fixture TS-3665/WRC-1 RF Signal Generator 28480-8640B-001-003 Spectrum Analyzer 28480-8553B-E30 Frequency Standard AN/URQ-10 Oscilloscope AN/USM-281 FET Probe (HP 1121A)	a. Connect signal generator to test fixture RF IN jack (A2A6P3A1) at frequency of 6.000 MHz and 5 mV rms amplitude. Connect oscilloscope to IF OUT jack (A2A6P2A1). Set test fixture for receive and frequency for 6.000 MHz.	
		b. Observe that output level is between 140 mV and 300 mV P-P.	140 to 300 mV P-P.
		c. Vary the 100 kHz selector on the test fixture and on the signal generator simultaneously and synchronously through their complete range. Observe that the output is between 140 and 300 mV P-P.	140 to 300 mV P-P.
		d. Repeat steps a. and b. for a test fixture and signal generator setting of 7.000 MHz.	

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Final Check (Continued)		e. Repeat step c. and observe that the output level is between 140 and 300 mV P-P.	140 to 300 mV P-P.
		f. Connect signal generator to test fixture RF IN jack (A2A6P3A1) at frequency of 6.000 MHz and 5 mV rms amplitude. Connect FET probe and spectrum analyzer with tracking generator in RESTORE SIGNAL mode to A2A6A8TP8. Activate vernier on test fixture. With vernier control fully counterclockwise observe an indication of 499.3 kHz ±200 Hz.	499.3 kHz ±200 Hz.
		g. Set vernier control fully clockwise; observe an indication of 497.7 kHz ±200 Hz.	497.7 kHz ±200 Hz.

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Final Check (Continued)		h. Connect signal generator to IF IN jack (A2A6P2A2) at frequency of 500 kHz and level of 3 mV rms. Set test fixture for EXCITE and frequency for 2.222200 MHz. Connect spectrum analyzer to RF OUT jack (A2A6P3A2) and tracking generator in RESTORE SIGNAL mode.	
		i. Observe that the output level is greater than 1.5 mV rms and that the frequency is the same as the dial ±30 Hz.	Greater than 1.5 mV rms.
		j. Repeat steps h and i for the following test fixture frequency settings. 3.333300 MHz 4.444400 MHz 5.555500 MHz 6.666600 MHz 7.777700 MHz 8.888800 MHz 9.999900 MHz 10.000000 MHz 11.111100 MHz 12.000000 MHz	Greater than 1.5 mV rms.

Table 6-6. Translator/Synthesizer Assembly A2A6, Adjustment and Alignment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
7. Final Check (Continued)		14.000000 MHz 15.000000 MHz 16.000000 MHz 19.000000 MHz 20.000000 MHz 22.000000 MHz	
		k. Connect signal generator to IF IN jack (A2A6P2A2) at frequency of 500 kHz and a level of 3 mV rms. Set test fixture for EXCITE and frequency for 7.100 MHz. Connect spectrum analyzer to RF OUT jack (A2A6P3A2) and record output level at 7.100 MHz.	
		l. Adjust spectrum analyzer only for 19.5 MHz and observe output. It shall be at least 15 dB below value measured in step k.	15 dB below value measured in step k.

Table 6-7. Receiver Power Supply Assembly A2A8, Adjustment Procedures

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
1. Preliminary	None	a. Set equipment controls as follows: Mode selector switch to OFF, MHz, kHz, and Hz controls to 2,000,000 Hz.	

WARNING

Dangerous voltages are present in the equipment chassis. Avoid personal contact with circuitry.

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		b. Slide chassis from case and defeat power interlock by pulling the switch shaft forward.	

CAUTION

Hand guide main frame cable at rear of chassis over edge of case when rotating main frame to vertical position.

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
		c. Tilt the main frame vertically to expose the underside.	
2. +20 Vdc Adjustment	Digital Multimeter 89536-8800A/AA	a. Connect digital multimeter between A2E11 (+) and chassis (-).	
		b. Set mode selector switch to LSB, and set AGC switch A2S3 to SLOW.	
		c. Check that multimeter reading is in the range of approximately +14 to +23 Vdc.	

CAUTION

If meter indicates either +28 or 0 Vdc, immediately return mode selector switch to OFF, and troubleshoot the power supply (A2A8) and main frame (A2).

Table 6-7. Receiver Power Supply Assembly A2A8, Adjustment Procedures (Continued)

STEP	TEST EQUIPMENT	PROCEDURES	ADJUSTMENT VALUE
2. +20 Vdc Adjustment (Cont.)		d. Set mode selector switch to ISB.	
		e. Adjust A2A8R14.	+20.0 ±0.1 Vdc.
3. A2A8R16 Adjustment	Digital Multimeter 89536-8800A/AA	a. Connect digital multimeter between A2A8E16 (+) and chassis (-).	
		b. Adjust A2A8R16.*	
4. Return to Normal Operation		a. Ensure that all test equipment is disconnected; return main frame to horizontal position.	+2.0 ±0.1 Vdc.
		b. Slide receiver chassis back into case, and secure it by tightening front panel screws.	
		c. Set mode selector switch A2S2 to STD BY or desired operating mode.	

* This is an initial adjustment only. Final adjustment is to be performed in accordance with Table 6-1, step 8.

SECTION II

REPAIR

6-12. GENERAL.

6-13. This section contains instructions for the repair of assemblies and subassemblies of Radio Receiver R-1051G/URR. Instructions include removal, disassembly, inspection, replacement of parts, cleaning, reinstallation, adjustment, and checkout. Where applicable, illustrations in Chapter 7 are referenced for parts locations.

NOTE

The following assemblies are to be repaired at depot only; Receiver Mode Selection Assembly A2A1, IF/Audio Assemblies A2A2 and A2A3, RF Amplifier Assembly A2A4, Frequency Standard Assembly A2A5, and Translator/Synthesizer Assembly A2A6.

6-14. INSPECTION. Inspect removed assemblies, subassemblies and parts in accordance with the criteria listed in table 6-8.

6-15. REPAIR METHODS. After a malfunction has been traced to a specific assembly or subassembly, repair can, in most instances, be effected by replacement of the defective component part. Disassembly shall be only to the extent required for access to the part to be replaced.

6-16. WIRE, CABLE, AND CONNECTORS. RF Connectors on assemblies A2A1, A2A2, A2A3, A2A4, A2A5, A2A6, associated mating connectors on the main frame, and main frame connectors A1P2 and A2J22 are repairable. Repair of these connectors consists of removal and replacement of the rf inserts. Connectors within the Translator/Synthesizer are repairable only to the extent that rf inserts are replaceable. To repair a connector, proceed as follows:

1. To replace a connector rf insert (crimp type) on flexible coax:

a. Using extractor tool 91146-CET-C6B, remove the rf insert from the connector.

b. Cut coaxial cable as close as possible to shell of rf insert; it may be necessary to cut through cable marker.

c. Prepare the cable for insertion into a new rf insert by removing 7/15 inch of the outer jacket, cutting the shields 1/4 inch from the outer jacket end, and removing 1/16 inch of insulation from the center conductor.

d. Slip the metal sleeve (part of the rf insert) over the cable.

e. Insert the center conductor into the tube of the rf insert until the stripped portion rests in the channel at the center of the insert. Solder center conductor into place using SN60-WRMAP solder.

NOTE

It may be necessary to flare the ends of the shields to permit them to slide over the outside of the tube.

f. Solder the metal cap (part of the rf insert) into place.

g. Slide the metal sleeve toward the body of the rf insert as far as possible. The braided shields will then be held in place around the tube by the sleeve.

h. Crimp the sleeve using M22910/7-1 tool with 80920-612971 die.

2. To replace a connector of rf insert (solder type) on flexible cable:

a. Perform steps 1a. through 1g. above.

b. Solder the sleeve to the body of the insert, using SN60WRMAP solder and a 42 watt iron. Be sure that solder enters the hole in the sleeve to achieve a solder joint between the sleeve and the cable shield.

3. To replace a connector rf insert on semi-rigid coax:

a. Using extractor tool 91146-CET-C6B, remove the RF inserts from connectors at both ends of the cable.

b. With a sharp knife cut off the heat shrink marker from the end of the coax undergoing repair.

c. Remove the end cover from the connector by melting the solder, wicking or sucking the solder out and lifting the edge of the cover with the point of a sharp knife.

d. Remove the solder from the connection of the coax center wire to the connector center pin.

Table 6-8. Inspection Requirements for Radio Receiver R-1051G/URR

ITEM	CHECK FOR	CORRECTIVE ACTION
	CASE A1	
Case	Cracks.	Replace case.
	Dents.	Replace case if dents are large. Small dents can be hammered out after removing chassis.
	Chipped paint, interior and exterior.	Touch up interior with lusterless enamel, color black No. 37038 of FED-STD-595. Allow 8 hours drying time. Touch up exterior with gray semigloss enamel per MIL-E-15090, Class 2, Type I.
External connectors	Cracks, bent or missing pins.	Replace cracked connector. Straighten or replace bent pins. Replace broken pins.
Internal cabling and wiring.	Broken conductors scraped insulation.	Replace affected conductors. Replace torn cable jacket.
Drawer slides	Bends; loose or missing hardware.	Replace bent slide. Tighten loose hardware. Replace missing hardware.
	Main Frame A2	
Front panel	Cracked or loose control knobs.	Replace cracked knobs. Tighten loose knobs.
	Jack cover springs.	Replace jack cover assembly if spring broken.
Main frame, top	Cracked plug-in	Replace.
	Broken or loose tuning couplers.	Replace if damaged. Tighten if loose.
Main frame, bottom	Broken wires.	Replace.
	Loose tuning drive chains.	Tighten per paragraph 6-10.
	Worn tuning drive chains.	Replace.
	Worn gears; gears with broken or bent teeth.	Replace.

Table 6-8. Inspection Requirements for Radio Receiver R-1051G/URR (Continued)

ITEM	CHECK FOR	CORRECTIVE ACTION
	Main Frame A2	
Main frame, bottom (Cont.)	Loose screws and hardware on gear assemblies.	Tighten.
	Loose screws and hardware on plug-in connectors.	Tighten.
	Bent or broken detent springs on dual and triple sprocket assemblies.	Replace
	Leaking electrolytic capacitors.	Replace.
	Burned components.	Determine cause, correct fault, and replace.
Plug-in assemblies (all	Damaged connectors.	Straighten pins. Replace assembly if necessary.
	Dented dust covers.	Straighten if possible, otherwise replace assembly.
	Burned components.	Determine cause, correct fault, and replace assembly.
	Leaking electrolytic capacitors.	Replace assembly.
	Damaged printed wiring boards.	Replace assembly.
	Damaged printed conductors.	Repair per paragraph 6-17.
	Broken or loose internal wiring.	Replace or repair as required.
	Loose or missing hardware.	Tighten or replace, as required.
	Broken or loose tuning couplers (A2A4 and A2A6 only).	Replace if damaged. Tighten if loose.

e. Heat the connection between the coax shield and the connector and withdraw the coax.

f. Slip a new piece of heat shrink tubing over the end of the coax and push the coax into the new connector insert.

g. Rotate the insert to the proper orientation and solder the center wire, the coax shield and the end cover respectively to the insert.

h. Slide the new tubing into position and shrink in place.

6-17. PRINTED WIRING CONDUCTORS. Cracked or broken conductors on printed wiring boards are repairable. To repair, proceed as follows:

1. Remove the coating (if present) from conductor a distance of about 1/4 inch either side of the break, using a 42-watt chisel tip soldering iron. The heat of the soldering iron will soften the coating to facilitate removal.
2. When coating has been removed, clean the conductor by scraping with a sharp blade.
3. Tin the cleaned section using SN60WRMAP solder.
4. Lay a piece of bare solid copper wire AWG 20 (smaller, if necessary) about 1/2 inch long on the tinned conductor, and solder into place with SN60WRMAP solder.
5. Coat the repaired section with protective coating type ER per MIL-I-4605B if repairing a coated board.

6-18. COMPONENT REPLACEMENT. To remove and replace a component on a printed circuit board, proceed as follows:

1. Cut component leads close to printed circuit board.
2. Remove component; do not force component from printed circuit board. If necessary, use a 42-watt (maximum) soldering iron to soften coating around component sufficiently to enable removal of component.
3. Unsolder cut leads from printed circuit board.
4. Install new component on printed circuit board and solder in place with SN60WRMAP solder using heat sinks on component leads.
5. Coat component and immediate area around component with protective coating type ER per MIL-I-4605B if repairing a coated board.

6-19. CLEANING. After removing covers from assemblies, clean the interiors with a stream of dry air not exceeding 15 psig. The main frame and hard wired assemblies attached thereto may be cleaned in the same manner. Contact pins on connectors and vacuum tubes may be cleaned with trichloroethane per Federal Specification O-T-620. Apply with a soft brush or lint-free cloth. Allow cleaned parts to dry in a dust free location.

6-20. <u>RECEIVER CASE A1</u>.

6-21. GENERAL. Repair of Receiver Case A1 is accomplished at organizational level.

6-22. REMOVAL. Main Frame A2 must be removed from the case for access to the interior of the case. To remove the main frame from the case, proceed as follows:

1. Set mode selector switch A2S2 to OFF, and remove primary power connection from AC PWR IN connection A1A1J3.

CAUTION

Hand guide cable at rear of main frame over edge of case when tilting chassis to vertical position.

2. Loosen front panel screws and pull main frame forward. Pull slide latches and tilt main frame upward to expose bottom.
3. Remove attaching hardware and cable clamp, then disconnect A1P1/A1P2 from A2J21/A2J22. Disconnect ground strap connected to A1P2 taking care not to break it.
4. Return main frame to horizontal position.
5. Release right and left forward limiters on drawer slides and pull main frame forward about one inch.

CAUTION

Main frame weighs approximately 70 pounds. Be prepared to handle this weight before pulling main frame free of case.

6. Pull main frame forward until clear of case and drawer slides and place on bench.

6-23. DISASSEMBLY. After the main frame has been removed, further disassembly of the case is not required since all parts are accessible for replacement. If the Filter Box Assembly A1A1 requires removal for replacement of a capacitor, disconnect external cable connections and remove exterior hardware which fasten connections A1A1-J3, A1A1J4, A1A1J5, and A1A1J6 to the case. Remove the connectors and filter box assembly as a unit.

6-24. INSPECTION. In addition to the inspection criteria in table 6-8, inspect the case for dents and check drawer slides for smooth operation.

6-25. REPAIR. Repair is accomplished by replacement of defective parts. After replacing interlock switch A1S1, connect an ohmmeter to the switch terminals and observe the ohmmeter for indication of proper opening and closing while operating the interlock plunger. Adjust the switch position if necessary.

6-26. CLEANING. Clean the interior of the case by the applicable methods of paragraph 6-19.

6-27. REASSEMBLY AND INSTALLATION. Reassembly of the filter box and cable/connector hardware is accomplished by following the procedures of paragraph 6-23 in reverse order. To install Main Frame A2 in the case, proceed as follows:

1. Mate the chassis sections of the drawer slides with the cabinet sections, and push main frame toward case until limiters engage.
2. Release latches and tilt main frame A2 90 degrees to expose bottom.
3. Connect A1P1/A1P2 to A2J21/A2J22. Fasten cable clamp and connectors with hardware removed at disassembly. Be sure to attach ground strap of A1P2.
4. Return main frame to horizontal position and slide into case. Fasten with front panel screws.

6-28. ADJUSTMENT. No adjustment is required other than proper positioning of interlock switch A1S1 (paragraph 6-25).

6-29. CHECKOUT. Reconnect any external cabling disconnected during disassembly and perform the maintenance turn-on procedures of table 5-5.

6-30. <u>RECEIVER MAIN FRAME A2 AND HARD WIRED ASSEMBLIES.</u>

6-31. GENERAL. The Main Frame A2 and its hard wired assemblies are repairable at organizational level. If necessary to remove a plug-in assembly for access to a connector or mechanical part, such as tuning couplers, refer to the paragraph(s) describing removal of the specific assembly(ies).

6-32. REMOVAL. Generally, repairs to the Main Frame A2 can be made by withdrawing A2 from the Case A1 on the drawer slides and tilting A2 90 degrees upward to expose the bottom or downward to expose the top, as required. However, if necessary to remove A2 from A1, perform removal procedures given in paragraph 6-22.

6-33. DISASSEMBLY. Disassembly of the Main Frame A2 consists of removal of plug-in subassemblies, removal of hard wired assemblies for replacement or repair, removal of the chain drive and sprocket assemblies for replacement or repair, and removal of a plug-in connector for replacement. Do not disassemble Main Frame A2 beyond the requirement of the specific repair task to be performed.

6-34. HARD WIRED ASSEMBLIES. The following hard wired assemblies are removable: Power Supply Assembly A2A8, Antenna Overload Assembly A2A9, 20 and 30 MHz Filter Assembly A2A10, 100 Hz Control and Vernier Assembly A2A11, and Meter Driver Assembly A2A12.

1. To remove Power Supply Assembly A2A8 (figure 1-3):

a. Set mode selector switch A2S2 to OFF, and disconnect primary power at bulkhead distribution point.

b. Loosen six captive screws on receiver front panel and slide main frame out from case until slides lock.

CAUTION

Hand guide cable at rear of main frame over front edge of case when tilting chassis to vertical position.

c. Release latches and tilt chassis up to expose bottom. Be sure latches engage at 90 degree position.

d. Remove four flat-head machine screws which fasten protective plate (A2MP99, figure 7-4) covering Power Supply Assembly A2A8, and lift protective plate from chassis.

e. Unscrew four hexagon spacers (A2MP95 through A2MP98, figure 7-4) which hold A2A8 and remove ground lug (A2E50) fastened at right center of A2A8.

f. Swing assembly aside to expose soldered leads.

g. Unsolder and tag leads for identification.

h. Remove assembly from main frame.

2. To remove Antenna Overload Assembly A2A9 (figure 1-3):

a. Perform steps 1.a. through 1.e. above.

b. Remove four machine screws which fasten protective plate (A2MP104, figure 7-4) covering Antenna Overload Assembly A2A9.

c. Unscrew four hexagon spacers (A2-MP112 through A2MP115, figure 7-4) which hold A2A9.

d. Perform steps 1.f. through 1.h., above.

3. To remove 20 and 30 MHz Filter Assembly A2A10 (figure 1-3):

a. Perform steps 1.a. through 1.c., above.

b. Remove two machine screws which secure protective plate (A2MP118, figure 7-4) and remove protective plate.

c. Unscrew two hexagon spacers (A2-MP120, MP121, figure 7-4) which hold A2A10.

d. Perform steps 1.f. through 1.h., above.

4. To remove 100 Hz Control and Vernier Assembly A2A11 (figure 1-2):

NOTE

Do not remove A2A11 as a unit unless A2A11S1 or A2A11R1 require replacement.

a. Perform steps 1.a. and 1.b., above.

b. Loosen setscrews which fasten control knobs (A2MP60, MP61, figure 7-7) to A2A11R1 and A2A11S1 respectively, and remove knobs.

c. Remove RF Amplifier Assembly A2A4 (paragraph 6-69) and Translator/Synthesizer Assembly A2A6 (paragraph 6-90) from main frame.

d. Remove attaching hardware from shield (A2MP102, figure 7-4) behind front panel and lay shield on chassis. Take care not to break wires connected to A2R23.

e. Remove attaching hardware from 100 Hz Control and Vernier Assembly A2A11, and move assembly for access to wiring.

f. Unsolder and tag all leads.

g. Move A2A11 assembly toward rear of main frame until control shafts are clear of front panel. Lift out 100 Hz Control and Vernier Assembly A2A11.

5. To remove 4 volt Power Supply Subassembly A2A11A1:

a. Perform steps 4.a. through 4.d., above.

b. Remove attaching hardware from 100 Hz Control and Vernier Assembly A2A11 and move assembly to gain access to screws on Subassembly A2A11A1.

c. Remove two machine screws which hold Subassembly A2A11A1 to bracket (A2A11MP1, figure 7-80).

d. Swing A2A11A1 aside and unsolder and tag leads. Lift out A2A11A1.

6. To remove Variable Resistor A2A11R1:

a. Perform steps 4.a. through 4.d., above.

b. Unsolder and tag leads to variable resistor A2A11R1.

c. Remove attaching hardware from 100 Hz Control and Vernier Assembly A2A11, and move to gain access to hex nut which attaches A2A11R1 to switchplate.

d. With an open end wrench loosen A2-A11R1 hex nut.

e. Pull A2A11R1 back and remove from switchplate taking care not to drop hex nut and lock washer into unit as shaft is removed.

7. To remove rotary switch A2A11S1:

a. Perform steps 4.a. through 4.e., above.

NOTE

Unlace wiring harness as required to provide necessary slack.

b. Tag and unsolder leads to switch.

c. Remove two screws and washers. These secure switch to switchplate. Carefully remove switch.

8. To remove the PCB meter driver A2A12 (figure 7-82):

a. Perform steps 1.a. and 1.b., above.

b. Remove RF Amplifier Assembly A2A4.

c. Remove Translator/Synthesizer Assembly A2A6.

d. Remove resistor A2R23 (figure 7-4S) from component shirld A2MP102 (figure 7-4S).

e. Remove component shield A2MP102. The meter driver PCB (figure 7-82) can not be accessed from the rear.

f. Tag and unsolder A2A12 PCB leads, E1, E3, E5, E6, E7, E8, E9 from cable and E2, E4, from Audio Level Meter.

g. Remove knob and lock nut on selector switch A2A12S1 (figure 7-82) on front panel to free PCB bracket A2A12MP1. Entire PCB may now be lifted out.

6-35. <u>TUNING CHAIN-DRIVE MECHANISM.</u> To remove drive chains and sprocket assemblies, proceed as follows:

1. Set mode selector switch A2S2 to OFF, and disable primary power at bulkhead distribution point.

2. Loosen six captive screws on front panel and slide main frame from case until slides lock.

3. Remove RF Amplifier Assembly A2A4 (paragraph 6-68) and Translator/Synthesizer Assembly A2A6 (paragraph 6-89) from main frame.

CAUTION

Hand guide cable at rear of main frame over front edge of case when tilting main frame to vertical position.

4. Release latches and tilt main frame up to expose bottom. Be sure latches engage at 90 degree position.

5. Loosen idler block (A2MP16, A2MP17, A2MP18 of figure 7-4) associated with the chain to be removed.

6. If the chain is metal, locate keeper clip on chassis and remove clip. If chain is plastic/wire, cut through it with wire cutters.

7. Carefully remove chain from sprockets. Proceed with the following step if replacement chain will be plastic/wire. Replacement with metal chain does not require performance of step 8.

8. Remove four nuts which fasten the associated sprocket assembly (A2MP15 and/ir A2MP14 of figure 7-4) to the main frame. Lift out sprocket assembly. To disassemble a sprocket assembly (figures 7-5, 7-6):

a. Remove two retaining rings located inside assembly housing and secured around shaft.

b. Loosen the coupler hub-clamp setscrew and punch out the shaft from end opposite coupler.

c. Separate parts of assembly as parts clear the shaft.

NOTE

Always note the position of all shims adjacent to the retaining rings; shims must be reinserted in the same position at reassembly.

6-36. INSPECTION. Inspect Main Frame A2 and any removed hard wired assembly in accordance with the applicable portions of table 6-8.

6-37. REPAIR. Except for sprocket assemblies, repair is accomplished by replacement of defective parts, all of which are accessible. To repair sprocket assemblies proceed as follows:

1. Wipe all disassembled parts with a dry, lint-free cloth.

2. Inspect all parts for damage and replace as required.

3. Replace metal springs which provide tension between associated parts.

4. If shaft is scored, replace both coupler and shaft.

5. Replace detent springs if bent.

6. Replace hub clamp if it was evident during equipment operation that proper clamping action was not being maintained.

6-38. CLEANING. Refer to paragraph 6-19 for cleaning methods and materials. Clean removed parts and main frame before reassembly.

6-39. REASSEMBLY. Reassembly consists of installation of hard wired assemblies, sprocket assemblies, and drive chains.

6-40. Hard Wired Assemblies. Whenever hard wired assemblies are being installed, the primary power cable shall be removed from AC PWR IN connector A1A1J3 at rear of receiver case. For steps 1, 2, and 3 below, it is necessary to tilt the main frame 90 degrees to expose bottom. The main frame need not be tilted for steps 4 and 5.

1. To install Power Supply Assembly A2A8 (figure 1-3):

a. Solder leads to assembly.

b. Swing assembly into place and fasten with four hexagon spacers (A2MP95 through A2MP98, figure 7-4) and attach ground lug (A2-E50).

c. Hold protective plate (A2MP99) in place and fasten with four flat-head machine screws originally removed.

2. To install Antenna Overload Assembly A2A9 (figure 1-3):

a. Solder leads to assembly.

b. Swing assembly into place and fasten with four hexagon spacers (A2MP112 through A2MP115, figure 7-4).

c. Hold protective plate (A2MP104, figure 7-4) in place and fasten with four machine screws originally removed.

3. To install 20 and 30 MHz Filter Assembly A2A10 (figure 1-3):

a. Solder leads to assembly.

b. Swing assembly into place and fasten with two hexagon spacers (A2MP120, MP121, figure 7-4).

c. Hold protective plate (A2MP118, figure 7-4) in place and fasten with two machine screws originally removed.

4. To install 4 volt power supply subassembly A2A11A1:

a. Solder leads to assembly.

b. Fasten subassembly to bracket (A2-A11MP1, figure 7-82) with two machine screws originally removed.

5. To install 100 Hz Control and Vernier Assembly A2A11 (figure 1-2):

a. If Translator/Synthesizer Assembly A2-A6 and RF Amplifier A2A4 are in main frame, remove them (paragraph 6-89) and perform step 4.b. below.

b. Insert A2A11 assembly behind the front panel and push control shafts through holes in panel.

c. Solder leads to assembly.

d. Fasten assembly into place with hardware originally removed.

e. Reattach shield (A2MP102, figure 7-4) with hardware originally removed.

f. Attach control knobs (A2MP60, MP61, figure 7-7) and fasten to shafts with setscrews.

g. Reinstall Translator/Synthesizer Assembly A2A6 and RF Amplifier Assembly A2A4 in main frame.

6-4. TUNING CHAIN-DRIVE MECHANISM. Proceed with the following four steps if reassembly of tuning chain-drive mechanism involves plastic/wire chain. Otherwise go to step 5.

1. When reassembling sprocket assemblies (figures 7-5, 7-6) use new retaining rings in place of those which were removed. Reinsert shims in the same positions from which removed. Install plastic/wire chain over sprockets before assembling sprocket and shaft to casting.

NOTE

End play in the shafts shall be less than 0.025 inch. Add or remove shims as required.

2. Secure each sprocket assembly into position with four nuts.

3. Pass drive chain(s) over appropriate open drive sprocket (A2MP15 and/or A2MP14) and idler sprocket (A2MP16A, A2MP17A, or A2MP18A). Refer to figure 7-4 and table 7-2 to determine which chain is appropriate for each application.

4. Adjust in accordance with paragraph 6-43. Proceed with the following steps if reassembly of tuning chain-drive mechanism involves metal chain.

5. Thread drive chain(s) onto gears.

6. Fasten ends of each chain together using keeper clip.

7. Tighten idler block loosened in step 6-35 (5).

6-42. INSTALLATION. If Main Frame A2 was removed from Case A1 for repair purposes, perform paragraph 6-27 to install A2.

6-43. ADJUSTMENTS. After repairs on chain drive tuning mechanism, perform drive chain and coupler adjustments of paragraphs 6-10 and 6-11. After repairs on power supply A2A8, perform adjustments and alignments of table 6-7. After repair and installation of 20 and 30 MHz Filter Assembly A2A10 and installation of 100 Hz Control and Vernier Assembly A2A11 perform step 7 of table 6-1.

6-44. CHECKOUT. Perform the maintenance turn-on procedures of table 5-5 to check out Radio Receiver R-1051G/URR.

6-45. <u>MODE SELECTOR ASSEMBLY A2A1.</u>

6-46. GENERAL. Mode Selector Assembly A2A1 is repairable at depot only; organizational level repair is limited to removal and replacement of A2A1, except for overall adjustment in table 6-1.

6-47. REMOVAL. The location of the Mode Selector Assembly A2A1 is shown in figure 1-2. To remove the assembly:

1. Move mode selector switch A2A2 to OFF position.

2. Loosen six front panel screws and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen two captive screws securing A2A1 to the main frame.

4. Gently pull Mode Selector Assembly A2A1 upward using captive screws as handles.

6-48. DISASSEMBLY. Disassemble Mode Selector Assembly A2A1 only to the extent necessary to gain access to a defective component requiring replacement. To disassembly A2A1 proceed as follows:

1. To remove cover (A2A1MP1, figure 7-8):

a. Remove one screw, at top of assembly, securing cover.

b. Lift cover off of assembly.

2. To remove Mode Gates Subassembly A2A1A1, 500 kHz Gate Subassembly A2A1A2, or BFO and Amplifier Subassembly A2A1A3, (figure 7-8):

a. Remove four screws and associated washers securing subassembly.

b. Swing subassembly aside and unsolder and tag wires for identification at reassembly.

c. Lift out subassembly.

3. Removal of other parts is obvious by visual inspection.

6-49. INSPECTION. Inspect Mode Selector Assembly A2A1 and subassemblies in accordance with the applicable portions of table 6-8.

6-50 REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-51. CLEANING. Clean parts and subassemblies of Mode Selector Assembly A2A1 in accordance with the applicable portions of paragraph 6-19.

6-52. REASSEMBLY. To reassemble Mode Selector Assembly A2A1 reverse the disassembly procedure. Do not install cover until paragraph 6-53 has been performed.

6-53. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-2.

6-54. INSTALLATION. To install Mode Selector Assembly A2A1 in Main Frame A2;

1. Turn captive screws counterclockwise until held by Mode Selector Assembly A2A1 chassis.
2. Install Mode Selector Assembly A2A1 in the main frame in the position shown in figure 1-2.
3. Press down gently on Mode Selector Assembly A2A1 to mate connectors on assembly with connectors on main frame.
4. Secure Mode Selector Assembly A2A1 in place with captive screws.

NOTE

After installation, adjust BFO frequency and level as instructed in table 6-1, step 5 and check performance of Radio Receiver R-1051G/URR in accordance with table 5-5.

6-55. <u>IF/AUDIO AMPLIFIER ASSEMBLIES A2A2 AND A2A3.</u>

6-56. GENERAL. IF/Audio Amplifier Assemblies A2A2 and A2A3 are identical and are repairable at depot only. Organizational level repair is limited to removal and replacement of the assemblies except for overall adjustments in table 6-3.

6-57. REMOVAL. The locations of IF/Audio Amplifier Assemblies A2A2 and A2A3 are shown in figure 1-2. To remove either assembly:

1. Move mode selector switch A2S2 to OFF position.
2. Loosen six screws on front panel and pull Main Frame A2 from Case A1 until slides lock.
3. Loosen two captive screws (figure 7-12) securing IF/Audio Amplifier Assembly to the main frame.
4. Gently pull IF/Audio Amplifier Assembly upward using captive screws as handles.

6-58. DISASSEMBLY. Disassemble IF/Audio Amplifier Assemblies only to the extent necessary to gain access to a defective component requiring replacement. To disassemble IF/Audio Amplifier Assembly proceed as follows:

1. To remove cover (A2A2/A2A3MP2, figure 7-12):

a. Remove two screws, at top of assembly, securing cover.

b. Lift cover from assembly.

2. To remove AGC Audio Amplifier Subassembly A2A2/A2A3A1, IF/Audio Amplifier Subassembly A2A2/A2A3A2, and SSB-AM Detector Subassembly A2A2/A2A3A3 (figure 7-12):

a. Unsolder and tag all leads.

b. Remove attaching hardware and lift out subassembly.

3. To remove transformer A2A2/A2A3T1 (figure 7-12):

a. Remove two screws and washers which attach A2A2/A2A3T1 to chassis A2A2/A2A3MP1.

b; Swing transformer out ; unsolder and tag all leads.

6-59. INSPECTION. Inspect IF/Audio Amplifier Assemblies A2A2/A2A3 and subassemblies in accordance with the applicable portions of table 6-8.

6-60. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-61. CLEANING. Clean parts and subassemblies of IF/Audio Amplifier Assemblies A2A2/A2A3 in accordance with the applicable portion of paragraph 6-19.

6-62. REASSEMBLY. To reassemble IF/Audio Amplifier Assemblies A2A2/A2A3 reverse the disassembly procedure. Do not install cover until paragraph 6-63 has been performed.

6-63. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-3; completion of the procedures in table 6-3 satisfies the requirement for checkout.

6-64. INSTALLATION. To install IF/Audio Amplifier Assembly A2A2 or A2A3 in Main Frame A2:

1. Turn captive screws counterclockwise until held by IF/Audio Amplifier Assembly chassis.
2. Install the IF/Audio Amplifier Assembly in A2A2 or A2A3 position, as applicable, in the main frame in the position shown in figure 1-2.
3. Press down gently to mate A2A2/A2A3P1 with connector in main frame.
4. Secure IF/Audio Amplifier Assembly in place with captive screws.

NOTE

After installation, perform step 7 of table 6-1 as applicable to the IF/Audio Amplifier Assembly A2A2 or A2A3, and check performance of Radio Receiver R-1051G/URR in accordance with table 5-5.

6-65. RF AMPLIFIER ASSEMBLY A2A4.

6-66. GENERAL. Organizational repair of RF Amplifier Assembly A2A4 is limited to replacement of vacuum tubes A2A4V1 and A2A4V2 (paragraph 6-68), or replacement of A2A4 as a unit. Further repair and adjustment is made only at depot.

6-67. VACUUM TUBE REMOVAL AND REPLACEMENT. To remove and replace either of vacuum tubes A2A4V1 or A2A4V2 proceed as follows:

1. Set mode selection switch to OFF, loosen front panel captive screws, and extend chassis from case.
2. Reach through the slot in the RF Amplifier Assembly cover and pull the tube shield upward from the tube to be replaced.
3. Using tube puller, reach through the slot and remove the tube from its socket.
4. Hold replacement tube with pins oriented to mate with socket.
5. Insert tube through slot and push downward to seat tube properly.
6. Reinstall tube shield, slide chassis into case, and secure using front panel screws.

6-68. REMOVAL. To remove the RF Amplifier Assembly A2A4:

1. Move mode selector switch A2S2 to OFF position.
2. Loosen six front panel screws and pull Main Frame A2 from Case A1 until slides lock.
3. Loosen four captive screws, one at each corner of the assembly.
4. Lift assembly gently from the main frame.

6-69. DISASSEMBLY. Do not disassemble RF Amplifier Assembly A2A4 further than required for access to parts to be repaired or replaced. The major parts to be disassembled are illustrated in figures 6-4, 6-5, and 6-6. For further detail information see figures 7-16 through 7-59 and the parts list, table 7-2. To disassemble the RF Amplifier Assembly:

1. With the assembly placed on a work bench, remove the six dustcover screws and lift off cover (A2A4MP5, figure 7-16). Lift the white teflon ring from the slot between the top plate and top turret ring assemblies.
2. Remove the four captive screws which secure the assembly to the main frame.
3. Loosen the three screws securing the turret assembly drive motor A2A4B1 to the base. Slide motor to one side to disengage motor gear assembly from the turret drive gear. Secure motor in this position.
4. Rotate the complete turret assembly until the contacts of adjacent megahertz subassemblies are located at either side of the contacts of the outer stator contact strips attached to the rf section. One set of the three outer contact strips (identified by a small green rectangle) is located to the right of test point A2A4TP4 near the outer

edge of the top plate as depicted in Figure 7-16. The actual contacts are visible under the green rectangle (as viewed obliquely through the slot from which the teflon ring was removed). Hold the turret assembly in this position and remove the four screws securing top turret ring. Carefully lift off ring and remove all megahertz subassemblies. It may be necessary to rotate the turret slightly when removing the megahertz subassemblies near or in contact with the outer stator contacts.

5. Remove the two screws securing connector A2A4P2 to base.

6. Loosen setscrews on each of the couplers (on bottom of base). Heat couplers with heavy soldering iron to break loctite seal. Use long nose pliers at coupler hub to slide each coupler from rotor shaft.

7. Carefully remove the locating pin from each shaft. Grip with pliers. Turn and pull gently until clear.

8. Remove the three screws and washers securing the rf chassis to the base (refer to figure 6-5).

9. Remove the screw and washer securing support post to base.

10. Remove nut and securing ground strap for A2A4P2A5. This is located opposite motor relay.

6-70. To remove 100/10 kHz turret assembly, rf chassis, and top plate:

CAUTION

Hold the 100/10 kHz turret assembly and rf chassis together to avoid damaging contacts and wafers. Do not move or separate sections until the combined sections have been placed on a workbench.

NOTE

Do not remove the turret gear assembly from the base except specifically for replacing assembly or block brushes. Each time the gear assembly is removed, the brushes are exposed to dirt as well as possible damage.

1. While holding the base, begin lifting the top plate. When the two sections have cleared the base, lift them with both hands and place them on the bench. Note washers at shaft holes.

2. Remove the screw securing the support post to top plate and remove post.

3. Unsolder wires connecting A2A4TP3 and A2A4TP4 (ground test point). Remove the three screws securing rf chassis to top plate, and carefully separate the top plate from the rf chassis 100/10 kHz turret assembly and turret drive gear assembly. Now separate the turret drive gear assembly from the 100/10 kHz turret assembly. Carefully separate the 100/10 kHz turret assembly from inside stator strips on rf chassis.

4. To disassemble rf chassis (see figure 6-6):

a. Remove the top tube shields and tubes A2A4V1 and A2A4V2.

b. Remove three screws and washers securing RF Mixer Amplifier Subassembly A2A4A38 to rf chassis and pull A2A4A38 with rear shield slightly away from mounting brackets.

c. Tag and unsolder wires to free A2A4A38 for complete removal. Separate shield from A2A4A38.

d. Remove two screws and washers which fasten A2A4A1 in place, unsolder and tag leads, and remove A2A4A1. Individual components on A2A4A1 are accessible for replacement without removing A2A4A1. Unsolder and replace as necessary.

e. Starting from top, separate shields of rf chassis by unscrewing spacers between shields 2, 3 and 5, and unsoldering interconnecting wires. Do not disassemble unless the component to be replaced is not accessible without disassembly. If bottom shield is to be removed or replaced, remove two screws securing RF Amplifier Subassembly A2A4A1, and unsolder and tag wires as necessary to free the board.

5. To disassemble the 100/10 kHz turret assembly:

NOTE

Do not disassemble 100/10 kHz turret assembly unless a component on the assembly is to be replaced. Remove only those parts necessary to replace the component.

a. Remove the E-ring from the bottom of the shaft.

b. Remove the top and bottom rotor assemblies by driving out the roll pin from each assembly.

NOTE

Special care must be taken not to bend shaft when removing roll pins. Brace shaft at points where pins are to be removed.

c. Remove the next upper and lower gear rotor assemblies by removing the E-ring located on either side of each assembly on the turret shaft (there are six rings).

d. Remove the center rotor assembly by driving out the roll pin (located in the hub).

6. To remove the gears from the turret drive gear assembly (figure 6-6):

a. Drive out the roll pin from each gear.

b. Slide gears from shaft. The bottom gear can be removed easily by removing the E-ring, and sliding from bottom of shaft.

NOTE

Removal of gears from shaft is not necessary if gears are intact and not in need of replacement. However, the E-ring at base of shaft must be removed to facilitate later reassembly procedures. See 6-75, step 12.

7. To remove turret gear from base:

a. Remove six screws and washers securing bearing retainers to base.

NOTE

Screw next to motor relay is longer than the other five.

b. Remove six bearing retainers.

CAUTION

When handling turret gear assembly be extremely careful not to scratch or otherwise damage the surface of the code ring. Always place the gear on bench with the code ring facing upward.

c. Carefully lift the turret gear assembly with bottom turret ring from base.

d. Remove the four nuts securing bottom ring to turret gear assembly and lift off turret ring. Note the locating pin between the A24 and A25 positions on the ring. Separate ring bearing from gear.

e. Remove the four turret posts only if necessary. To remove, unscrew each post.

NOTE

Do not remove brush block assembly (A2A4MP31, figure 7-17) from base unless the brushes are to be replaced.

8. To remove brush block:

a. Remove two screws securing brush block assembly to base.

b. Unsolder the six code leads (five at P1 and one at the motor relay).

6-71. INSPECTION. Inspect all disassembled parts of the RF Amplifier Assembly A2A4 in accordance with the applicable portions of table 6-8 and the following:

1. Inspect stator strips. Replace if badly bent and cannot be straightened to accept tabs properly.

NOTE

All contacts should close with sufficient tension to ensure proper electrical contact.

2. Inspect code ring on underside of gear assembly. Replace gear if code ring is broken or scratched to the extent that continuity is broken. To inspect code ring, rotate gear assembly while observing through brush block openings. It is not necessary to remove gear assembly from base for inspection.

3. Inspect brush blocks. Replace if contacts are badly bent or if visibly worn or chipped.

4. Inspect tube sockets. Replace damaged sockets.

6-72. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18. Do not repair turret motor, motor relay, or tube socket assemblies if known to be defective. Replace as complete units.

6-73. CLEANING. Clean in accordance with applicable portions of paragraph 6-19. Clean all mechanical parts with a dry lint-free cloth.

6-74. REASSEMBLY. Basically, reassembly of the rf amplifier is the reverse of disassembly. See figures 6-4, 6-5, and 6-6 during reassembly. However, there are many precautions and slight variations to be observed in the reassembly process, as follows:

1. Reassemble all mechanical and electrical components of rf section except top plate; do not remount RF Mixer Amplifier Subassembly A2A4A38 at this time. Resolder all wire connections except wires going to test points A2A4TP3 and A2A4TP4. Reinstall tubes and tube shields.

2. Reassemble 100/10 kHz turret assembly, using new E-rings where applicable. Special care must be taken not to bend the shaft when replacing the roll pin in the hub of each rotor assembly. Brace shaft near points where pins are to be reinserted. Use guide rod to align roll pin holes prior to reinserting pins. Ensure that alignment holes thru wafers and top shield are aligned on the right side of the flat on shaft when viewed from coupler end of shaft with the flat facing down.

3. Reassemble turret drive gear assembly. Do not install E-ring on shaft at this time.

4. Press ring bearing into code ring and gear assembly. Install the four turret posts. Position bottom turret ring onto gear assembly by mating roll pin on gear assembly with hole in the bottom turret ring (hole is between megahertz assembly positions A2A4A24 and A2A4A25. Secure bottom turret ring to gear assembly. Reassemble gear assembly onto the base, using the six bearing retainers.

5. Mesh 100/10 kHz turret assembly wafers with inside stator contact strips of rf chassis as follows:

CAUTION

In following steps do not spread contacts more than required to slide wire through.

a. Thread one 5 inch length of AWG 16, single-strand, insulated wire through each row of horizontal contacts on the inner stator contact strips to force contacts open slightly (in order to engage 100/10 kHz turret assembly wafers).

b. Carefully mesh wafers of the 100/10 kHz turret assembly with all contacts. The two inner stator contact strips on the upper rf chassis are not secured until the top plate is secured. These contact strips should be positioned in a vertical plane, and then meshed with the wafers. Ensure that the shields of the rf chassis extend over the wafers, and that the grounding springs attached to shields 2, 3, and 4 are positioned on the top side of the 100/10 kHz turret assembly.

c. Slide the AWG-16 wires out of the contacts. Visually check that all contacts of stator contact blocks close sufficiently on wafers. Note that not all contacts are used.

6. Mesh turret drive gear assembly with gears on 100/10 kHz turret assembly. Hold the three assemblies (turret drive gear assembly, 100/10 kHz turret assembly, and rf chassis assembly) intact, and attach the top plate to the proper ends of the three assemblies. Ensure that the tabs of the upper inner stator contact strips, and the outer stator contact strips are positioned within the rectangular holes in the top plate. Secure the top plate with the three original screws to the rf chassis.

7. Resolder the two wires to A2A4TP3 and A2A4TP4 (ground test point) under the top shield.

8. Align the two flat washers with the two bearings in the base. Carefully lift the assemblies and place in position on base. Set support post in position between top shield and base. Secure support post to top shield. Secure rf chassis and support post to base.

9. Reinstall locating pins into shafts of 100/10 kHz turret assembly and turret drive gear assembly.

10. Slide coupler onto 100/10 kHz turret assembly shaft. Ensure that the hub of the coupler is not beyond the bottom surface of the base. Apply loctite sealant, Grade E, per MIL-S-22473 to coupler setscrew; tighten setscrew against flat of the 100/10 kHz rotor shaft.

11. Rotate the coupler so that 0 on coupler is adjacent to, and aligned with, notch in base. Insert 4 inch, 0.125 inch diameter rod in top alignment hole on top shield. Rod should then pass through all wafers to base. If the upper or lower rotor assembly has been rotated from the position established in step 2, reposition either or both assemblies to allow the rod to pass through freely.

12. Slide coupler onto turret drive gear assembly shaft. Rotate coupler without engaging gears on 100/10 kHz turret assembly, so that 0 is adjacent to and aligned with notch in base. Push shaft up so that gears engage, and place new E-ring onto turret drive gear assembly shaft. Remove the rod. Remount RF Amplifier Assembly A2A4A38.

13. Push connector A2A4P2 through slot in base and secure to base with two screws.

14. Reattach ground strap for A2A4P2A5 on screw opposite motor relay using nut and lock washer.

15. Insert any one of the 28 megahertz subassemblies into the bottom turret ring; select a location that is not near any outer stator strip contacts. Position the top turret ring over the megahertz subassembly. Ensure that the A designation on the top turret ring corresponds to the A designation on the bottom turret ring. Secure the top turret ring using the four screws. Carefully rotate the turret assembly so that the megahertz subassembly contacts pass through the three sets of outer stator strip contacts. Ensure that there is an equal distance between each set of outer stator

strips and the megahertz subassembly. If the dimensions are not equal, or should any interference exist between any one of the outer stator strips and the megahertz subassembly, loosen the three rf chassis screws and the support post screw. Adjust the rf chassis until the spacing is equal or the interference is eliminated. Tighten the four screws to secure the rf chassis and support post. Rotate turret assembly to break the connection between outer stator strip contacts and megahertz subassembly contacts. Remove the four screws securing the top turret ring and remove the ring. Remove the megahertz subassembly.

16. Rotate turret gear assembly until any two adjacent rectangular slots in the bottom turret ring are located at either side of the contacts on the bottom set of outer stator strips. Hold the gear assembly in this position and insert all megahertz subassemblies. (Prior to inserting the megahertz subassemblies in their respective rectangular slots, inspect all contacts to ensure that they are not bent or misaligned.) Also ensure that each megahertz subassembly is in its correct location, and that it is positioned "right side up" -- i.e., with transformer T4 (as shown in figures 7-23 through 7-50) adjacent to the top turret ring.

17. Position the top turret ring over the megahertz subassemblies. Ensure that the A designation on the top turret ring corresponds to the A designation on the megahertz subassemblies and the A designations on the bottom turret ring. Ensure that all megahertz subassemblies are properly mated into the rectangular slots in both the top and bottom turret rings. Secure using the four original screws.

18. Engage gear of turret assembly drive motor with turret drive gear. Loosen screws securing turret assembly drive motor and engage the motor gear with the gear assembly. Tighten screws.

19. Place white teflon ring in slot between top plate and top turret assemblies.

20. Reattach dust cover unless adjustments are to be made.

6-75. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-4. Completion of the procedures in table 6-4 satisfies the requirement for checkout.

6-76. INSTALLATION. To install the RF Amplifier Assembly A2A4 in Main Frame A2:

1. Set mode selector switch A2S2 to OFF, and kHz controls to 000.

2. Place RF Amplifier Assembly A2A4 in position on the main frame, and press gently into place to mate connectors and couplers.

3. Secure assembly in place with four captive screws, one at each corner.

NOTE

After installation is complete, perform step 8 of table 6-1 and check performance of Radio Receiver R-1051G/URR in accordance with table 5-5.

6-77. FREQUENCY STANDARD ASSEMBLY A2A5.

6-78. GENERAL. Frequency Standard Assembly A2A5 is repairable at depot only. Organizational level repair is limited to removal and replacement of the assembly, except for overall adjustment in table 6-1.

6-79. The location of Frequency Standard Assembly A2A5 is shown in figure 1-2. To remove the assembly:

1. Set mode selector switch A2S2 to OFF position.

2. Loosen six screws on front panel and pull Main Frame A2 from Case A1 until slides lock.

3. Loosen two captive screws (A2A5MP15, MP16, figure 7-60) securing Frequency Standard Assembly to main frame.

4. Gently pull Frequency Standard Assembly upward, using captive screws as handles.

6-80. DISASSEMBLY. Disassemble the Frequency Standard Assembly only to the extent necessary to gain access to a defective component requiring replacement. To disassemble the Frequency Standard Assembly proceed as follows:

1. To remove cover (A2A5MP13, figure 7-60):

a. Remove five screws, lock washers, and flat washers which attach cover to base plate (A2-A5MP1, figure 7-61) and switch bracket. Two screws are located at each side; one at the top.

b. Record position of indicator dial (A2-A5MP6, figure 7-61) as seen through INDEX window.

c. Lift cover from assembly.

2. To remove Divider/Amplifier Subassembly A2A5A2 (figure 7-63):

a. Remove the two screws which fasten the subassembly to the Oven Body Subassembly A2A5A3 (figure 7-64) and two each screws, lock washers, and flat washers which fasten the subassembly at the bottom.

b. Unsolder and tag leads and lift out subassembly. Take care not to lose teflon spacers (A2A5MP3, A2A5MP4, figure 7-64):

3. To remove Oven Body Subassembly A2A5A3 (figure 7-64):

a. Perform part a. of step 2 above.

b. Remove two screws which fasten subassembly from underside of base plate.

c. Lift off subassembly with 5 MHz Reference Control Subassembly A2A5A4 (figure 7-65) attached.

4. To remove 5 MHz Reference Control Subassembly A2A5A4 (figure 7-65):

a. Perform step 3, above.

b. Remove screw, nylon washer, and lock washer which attach subassembly A2A5A4 to Oven Body Subassembly A2A5A3.

c. Swing aside Subassembly A2A5A4. Unsolder and tag leads. Lift off subassembly A2-A5A4.

5. To remove Oven Body Assembly A2A5A3 from sleeve assembly A2A5MP2 (figure 7-64):

a. Perform step 3, above.

b. Remove two each screws, flat washers, and lock washers which attach oven cover assembly (A2A5MP5, figure 7-61) to sleeve.

c. Pull fine adjust knob (A2A5MP10, figure 7-61) from its shaft.

d. Lift out oven cover assembly with indicator dial (A2A5MP6, figure 7-61) attached.

e. Cut lacing cord from cable (A2A5W7, figure 7-64). Push cable into sleeve while pulling oven wiring assembly upward.

NOTE

It is not necessary to remove Oscillator and Oven Control Subassembly A2-A5A1 (figure 7-62) from Oven Body Subassembly A2A5A3 for this step.

6. To remove Oscillator and Oven Control Subassembly A2A5A1 (figure 7-62):

a. Perform parts b. through d. of step 5, above.

b. Pull Oscillator and Oven Control Subassembly out of Oven Body Subassembly.

7. To remove switch A2A5A2S1 (figure 7-63):

a. Remove nut which attaches switch to bracket.

b. Unsolder and tag switch leads. Lift off switch.

6-81. INSPECTION. Inspect Frequency Standard Assembly A2A5 in accordance with the applicable portions of table 6-8.

6-82. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-83. CLEANING. Clean parts and subassemblies of Frequency Standard Assembly A2A5 in accordance with applicable portions of paragraph 6-19.

6-84. REASSEMBLY. To reassemble Frequency Standard Assembly A2A5 reverse the disassembly procedure. Observe the following:

1. When inserting Oscillator and Oven Conontrol Subassembly A2A5A1 into Oven Body Assembly A2A5A3, be sure that subassembly A2A5A1 is held in place by the nylon guides in A2A5A3, and that the contact pins on subassembly A2A5A1 mate with the contacts of A2-A5A3J2 at the bottom of the oven body assembly.

2. Before reattaching the fine adjust knob to its shaft, set indicator dial to the position noted in step 1.b. of paragraph 6-80.

3. Be sure to use a nylon flat washer when attaching 5 MHz Reference Control Subassembly A2A5A4 to sleeve assembly A2A5MP2.

4. When attaching Oven Body Subassembly A2A5A3 with 5 MHz rReference Control Subassembly A2A5A4 to base plate, be sure contacts of A2A5A4 are properly mated with connector A2A5J3.

5. If lacing cord was removed from cable A2A5W7, replace with new lacing. Do not install cover until paragraph 6-86 has been performed.

6-85. ADJUSTMENT. Perform the adjustment and alignment procedures of table 6-5. Performance of the procedures of table 6-5 satisfies the requirements for checkout.

6-86. INSTALLATION. To install Frequency Standard Assembly A2A5 into main frame A2:

1. Turn captive screws counterclockwise until held by base plate (A2A5MP1, figure 7-61).

2. Install Frequency Standard Assembly A2-A5 in the main frame in the position shown in figure 1-2.

3. Press down gently on Frequency Standard Assembly A2A5 to mate connector on assembly with connector on main frame.

4. Secure Frequency Standard Assembly A2A5 in place with captive screws.

NOTE

After installation adjust output frequency as instructed in table 6-1, step 4, and check performance of Radio Receiver R-1051G/URR in accordance with table 5-5.

6-87. TRANSLATOR/SYHTHESIZER ASSEMBLY A2A6.

6-88. GENERAL. Translator/Synthesizer Assembly A2A6 (figure 1-2) is repairable at depot only. Organizational repair is limited to removal and replacement of the assembly.

6-89. REMOVAL. To remove Translator/Synthesizer Assembly A2A6:

1. Loosen four captive screws, one at each corner of the assembly.

2. Lift assembly gently from main frame, using two of the captive screws as handles.

6-90. DISASSEMBLY. Complete disassembly involves the removal of three covers. Do not disassemble beyond what is required for access to the part to be repaired or replaced. To remove the top cover (A2A6MP3, figure 7-66), remove thirteen screws and lift cover off. Removal of the top cover provides access to six plug in printed circuit subassemblies A2A6A16, A2A6A17, A2-A6A18 and A2A6A12 through A2A6A14 and the Power Supply Subassembly A2A6A15. Any of the plug-in subassemblies may be removed by releasing its latches and pulling upward. The Power Supply Subassembly A2A6A15 can be removed by sliding it upward in its tracks and disconnecting wires at A2A6A1E1 and A2A6-A1E4 - E6 (figure 7-75). Filter Subassembly A2A6A7 (figure 7-67) is hard wired to the A2A6 chassis. To remove the Filter subassembly, first remove the Power Supply subassembly, then remove the two machine screws which fasten the Filter subassembly from the outside at the upper rear of the A2A6 housing. Lift out the Filter Subassembly as far as its leads will permit. Unsolder and tag leads for identification.

6-91. TRANSLATOR SUBASSEMBLY A2A6A8 (figure 7-68). To remove the RF Translator subassembly:

1. Remove six machine screws which attach the bottom cover (A2A6MP1, figure 7-66) and remove cover.

2. Remove six machine screws which attach the side cover , and remove cover.

3. Remove thirteen screws which attach the top cover (A2A6MP3, figure 7-66) and remove cover.

4. Remove the A2A6A12 and A2A6A14 plug-in printed circuit subassemblies.

5. With the aid of rf insert extractor tool 91146-CET-C6B extract the following rf inserts which terminate the rf leads from the RF Translator subassembly:

a. A2A6A12P1A4.
b. A2A6P2A1.
c. A2A6P2A2.
d. A2A6P3A2.
e. A2A6P3A1.
f. A2A6XA14P1A4.

6. Disconnect leads at A2A6A8J4 - J7 and also FL5-1 and FL5-J1.

7. Remove six each machine screws and washers which fasten RF Translator subassembly to chassis. Carefully lift out subassembly while guiding coaxial leads through slots in chassis.

6-92. ROTARY SWITCHES. To remove any of the rotary switches A2A6S1, A2A6S2, or A2A6S3 (see figure 7-66):

1. Remove thirteen screws which attach the top cover (A2A6MP3, figure 7-66) and remove cover.

2. Remove six screws which attach bottom cover (A2A6MP1, figure 7-66) to A2A6 and lift cover off.

3. Unsolder leads of flexible connector harness assembly from switch terminals.

4. Remove coupling assembly (A2A6MP8, A2A6MP12, and A2A6MP16, figure 7-66) from bottom of switch shaft.

5. Remove anti-turn washer, nut and lock washer from switch and remove switch.

6-93. MAIN CONNECTORS. To remove connectors A2A6P1 through A2A6P3, proceed as follows:

1. To remove A2A6P2 or A2A6P3 (see figure 7-66):

a. Remove coaxial inserts from connector.

b. Remove attaching hardware from connector and lift out. Take care not to damage ground wire soldered to flexible connector harness.

2. To remove A2A6P1 (see figure 7-66):

a. Remove A1 coaxial insert from connector.

b. Remove attaching hardware from connector.

c. Lift connector with flexible connector harness attached, and unsolder leads to harness.

6-94. PRINTED CIRCUIT BOARD CONNECTORS. To remove any printed circuit board connector, proceed as follows:

1. Remove coaxial inserts A2A6P1A1, A2-A6XA14A4 and A2A6XA12A4.
2. Remove attaching hardware from all connectors except A2A6P3.
3. Remove coaxial insert from A2A6XA17-A2.
4. Disconnect two power leads and one coaxial lead from FL5-1, FL5-2, and FL5-J1 respectively.
5. Remove two each screws, lockwashers, and flatwashers securing FL5 to chassis and lift out FL5.
6. Unsolder A2A6C1 from the flex harness and lift it from its clip.
7. Unsolder flex harness from A2A6S3 (figure 7-66).
8. Eject coaxial inserts from connector to be removed. It may be necessary to eject the insert on the opposite end of the semirigid coaxial cable. Unsolder A2A6C2 and A2A6C3 from A2A6XA12A1 and A2 if necessary.
9. Peel back flexible connector harness with connectors attached.
10. Unsolder connector to be replaced.

6-95. INSPECTION. Inspect Translator/Synthesizer Assembly A2A6 and its subassemblies in accordance with the applicable portions of table 6-8. Inspect the flexible connector harness for broken conductors and loose solder connections.

6-96. REPAIR. Make necessary repairs in accordance with instructions given in paragraphs 6-15 through 6-18.

6-97. CLEANING. Clean parts and subassemblies of A2A6 in accordance with the applicable portions of paragraph 6-19.

6-98. REASSEMBLY. Except for the reattachment of rotary switch couplers, reassembly is the reverse of disassembly. To attach couplers to rotary switches, align each coupler individually exactly as shown in figure 6-9.

6-99. ADJUSTMENT. Align and adjust Translator/Synthesizer Assembly in accordance with table 6-6. Completion of procedures in table 6-6 satisfies the requirements for checkout.

6-100. INSTALLATION. To install Translator/Synthesizer Assembly A2A6 into the mainframe:

1. Set frequency controls for 00.000 MHz.
2. Position couplers on rotary switches so that pins on all three are toward the rear of Translator/Synthesizer.
3. Set Translator/Synthesizer Assembly gently into place, and fasten with four corner captive screws.
4. Rotate kHz controls from 000 through 999 to check proper mating of couplers.

NOTE

After installation, slide main frame into case and fasten with front panel screws. Check performance of Radio Receiver R-1051G/URR in accordance with table 5-5.

6-101. <u>CODE GENERATOR ASSEMBLY A2A7.</u>

6-102. GENERAL. Code Generator Assembly A2A7 (figure 7-76) is repairable at organizational level. It should be noted that the assembly is identical to the code generator used in Radio Transmitter T-827H/URT. However, in Radio Receiver R-1051G/URR pins 8 and 10 through 20 of A2J8, the mating connector for A2A7P1. are not connected.

6-103. REMOVAL. The location of the Code Generator Assembly is shown in figure 1-3. To remove Code Generator Assembly A2A7 from Main Frame A2, proceed in accordance with the following:

1. Set mode selector switch A2S2 to OFF, and disable primary power at bulkhead distribution point.
2. Loosen six captive screws on front panel and slide main frame from case until slides lock.

3. Remove RF Amplifier Assembly A2A4 from main frame.

4. Loosen captive screw (A2A7MP10, figure 7-76) at rear of Code Generator Assembly.

CAUTION

Hand guide cable at rear of main frame over front edge of case when tilting main frame to vertical position.

5. Releast tilt latches and tilt main frame up to expose bottom. Be sure tilt latches engage at 90 degree position.

6. Disconnect A2A7P1 from A2J8.

7. Remove the remaining two screws which fasten the Code Generator Assembly to the front panel mounting spacers.

8. Gently and carefully push the Code Generator Assembly toward rear of main frame to disengage its couplers from the MHz frequency controls on the front panel.

9. Carefully work the assembly out of the main frame.

6-104. DISASSEMBLY. Disassembly is accomplished by removing the screws which hold the sections of the assembly (A2A7A1 through A2-A7A5, figure 7-76) together, and unsoldering interconnections as required for access to the faulty section.

6-105. INSPECTION. Inspect the Code Generator Assembly in accordance with the applicable portions of table 6-8.

6-106. REPAIR. Repair consists of replacing printed circuit switch sections determined to be faulty by ohmmeter measurements between pins of A2A7P1 and the individual switch sections, and between sections and points on sections (see figure 5-47).

6-107. CLEANING. Refer to paragraph 6-19 for cleaning methods and materials. Clean removed parts and replacement parts before reassembly.

6-108. REASSEMBLY. Reassembly is the reverse of disassembly. Be sure to reassemble switches in correct sequence.

6-109. INSTALLATION. To install the code generator assembly into the main frame proceed in accordance with the following:

1. Position the MHz control knobs and the couplers on the code generator so that the pins on the knob couplers will engage the slots on the switch couplers when the code generator is installed.

2. Carefully work the code generator assembly into position to engage couplers.

3. Attach code generator and spacers to main frame with mounting hardware originally removed or loosened.

4. Use an ohmmeter connected to pins of A2A7P1 to confirm that codes are correct in accordance with table 3-2.

5. Connect plug A2A7P1 to A2J8 on main frame.

6-110. POWER SUPPLY ASSEMBLY A2A8.

6-111. GENERAL. The receiver power supply (figure 1-3) is repairable at organizational level. Repair instructions for this hard-wired assembly are supplied in paragraphs 6-15 through 6-18 and 6-34(1).

6-112. ADJUSTMENT. Reconnect input power to AC PWR IN connector 1A1J3. Perform the adjustment procedures of table 6-7. Performance of table 6-7 adjustments satisfies the requirement for checkout.

6-113. ANTENNA OVERLOAD ASSEMBLY A2-A9.

6-114. GENERAL. The Antenna Overload Assembly (figure 1-3) is repairable at organizational level. Repair instructions for this hard-wired assembly are supplied in paragraphs 6-15 through 6-18 and 6-34(2).

6-115. 20 MHz AND 30 MHz FILTER ASSEMBLY A2A10.

6-116. GENERAL. The 20 MHz and 30 MHz Filter Assembly (figure 1-3) is repairable at organizational level. Repair instructions for this hard-wired assembly are supplied in paragraphs 6-15 through 6-18 and 6-34(3).

6-117. 100 Hz CONTROL AND VERNIER ASSEMBLY A2A11.

6-118. GENERAL. The 100 Hz Control and Vernier Assembly A2A11 (figure 1-2) is repairable at organizational level. Repair instructions for this hard-wired assembly are supplied in paragraphs 6-15 through 6-18 and 6-34(4) through 6-34(7).

6-119. METER DRIVER CIRCUIT CARD ASSEMBLY A2A12.

6-120. GENERAL. The Meter Driver Circuit Card Assembly A2A12 (figure 1-2) is repairable at organizational level. Repair instructions for this hard-wired assembly are supplied in paragraphs 6-15 through 6-18 and 6-34(8).

CHAPTER 7

PARTS LIST

7-1. INTRODUCTION.

7-2. LIST OF ASSEMBLIES. Table 7-1 is a listing of the assemblies included in Radio Receiver R-1051G/URR. These are listed by reference designations in numerical order. Thus, when the complete reference designation of a part is known, this table will furnish the identification of the assembly in which the part is located, since the first number of a complete reference designation identifies the unit. Table 7-1 also provides the following information for each assembly listed: (1) official name, (2) designation, and (3) location of the first page of its parts listing in table 7-2.

7-3. REFERENCE DESIGNATIONS. The numbering method of assigning reference designations has been used to identify assemblies, subassemblies, and parts. This method has been expanded as necessary to cover adequately the various degrees of subdivision of the equipment. Examples of this numbering method and typical expansions of the same are illustrated by the following:

a. Example 1:

A1	R1
Assembly Designation	Class and No. of item

Read as: First (1) resistor (R) of first (1) assembly (A).

b. Example 2:

A1	A2	R1
Assembly Designation	Subassembly Designation	Class and No. of item

Read as: First (1) resistor (R) of second (2) subassembly (A) of first (1) assembly (A).

7-4. Partial reference designations are used on the equipment and illustrations. The partial reference designations consist of the class letter(s) and the identifying item number. The complete reference designations may be obtained by placing the proper prefix before the partial reference designations. Prefixes are provided on illustrations following the notation "REF DESIG PREFIX."

7-5. MAINTENANCE PARTS LISTING.

7-6. PARTS LIST. Table 7-2 lists all assemblies and their maintenance parts, in numerical sequence by reference designation. Maintenance parts for each assembly are listed alphanumerically by class of part following the assembly designation. Thus, the parts for each assembly are grouped together. Table 7-2 provides the following information: (1) complete reference designations of each assembly, subassembly, and part, (2) reference to explanatory notes, (3) noun name and brief description, and (4) identification of the parts location which pictorially locates the part.

a. Column 1, Reference Designation. The parts list is divided and arranged by major assemblies in numerical sequence (e.g., assembly A1 with its subassemblies, parts, etc., precedes assembly A2 with its parts). All parts attached to the assembly are listed first in alphanumerical order, followed by subassemblies with parts, and additional subassemblies with parts, also listed in alphanumerical order, as follows:

Assembly (Assembly parts)	A1 A1AT1 A1B1 A1C1 A1CR1 A1R1 Etc.
Subassembly (Subassembly parts)	A1A1 A1A1AT1 A1A1B1 A1A1C1 A1A1CR1 A1A1R1 Etc.

b. Column 2, Notes. Parts variations within each article are identified by a number symbol in the Notes column of table 7-2. The absence of a number symbol in the Notes column indicates that the part is used on all articles covered by this

Table 7-1. Radio Receiver R-1051G/URR, List of Major Assemblies

REFERENCE DESIGNATION	NOMENCLATURE	PAGE NO.
A1	Receiver Case	7-3
A1A1	Filter Box Assembly	7-6
A2	Receiver Main Frame	7-7
A2A1	Receiver Mode Selector Assembly	7-22
A2A2	Receiver IF/Audio Amplifier Assembly	7-27
A2A3	Receiver IF/Audio Amplifier Assembly	7-34
A2A4	RF Amplifier Assembly	7-35
A2A5	Frequency Standard Assembly	7-80
A2A6	Translator/Synthesizer Assembly	7-96
A2A7	Code Generator Assembly	7-129
A2A8	Power Supply Assembly	7-131
A2A9	Antenna Cut-out Assembly	7-133
A2A10	20- and 30-MHz Filter Assembly	7-134
A2A11	Vernier Switch Assembly	7-135
A2A12	Meter Driver Assembly	7-136
A3	Mating Connector Kit	7-137
A4	Not Used.	7-137
A5	Shock and Vibration Mount Assembly	7-138

technical manual. Note 1 is defined as a selected value at assembly. Note 2 indicates a part (such as a cable) which is not called out on the parts location diagram. An asterisk (*) in the Notes column indicates a preferred part, unless specified otherwise at the bottom of the page.

c. Column 3, Name and Description. This column contains the name, including descriptive data and military type number of the item. Those parts not having a military type number include physical characteristics. Identical parts used more than five times are referenced to the List of Common Item Descriptions (table 7-3). Following the description are the manufacturer's part number and the contractor's part number. Attaching hardware with quantity, is identified by the assigned letter code; e.g. C(4) would be the third listed piece of attaching hardware in which four pieces are used.

d. Column 4, Figure Reference Number. This column lists the figure number of the parts location illustration (located at the end of the chapter), which shows the physical location of the part.

7-7. LIST OF COMMON ITEM DESCRIPTIONS. Table 7-3 contains the description of all multiple use parts (over five applications). The description contains the same information as column 3 of table 7-2.

7-8. LIST OF ATTACHING HARDWARE. Table 7-4 contains a list of standard attaching hardware used in five or more applications.

7-9. LIST OF MANUFACTURERS. Table 7-5 contains the name, address, and code number of all manufacturers supplying items for equipment as referenced in the parts list. This list is in numerical sequence by code number. Code numbers are in accordance with handbooks H4-1 and H4-2.

7-10. PARTS LOCATION ILLUSTRATIONS.

7-11. Parts location illustrations (figure 7-1 through 7-83) are located at the end of this chapter. Their purpose is to provide positive and rapid location of parts. Column 4 of table 7-2 references the appropriate illustration which pictorially locates the part in the equipment.

Table 7-2. Radio Receiver R-1051G/URR, Parts List

RADIO RECEIVER R-1051G/URR

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
1		RECEIVER, RADIO R-1051G/URR: Mfr 98738, part no. 01A228000-01.	
RECEIVER CASE A1			
A1		RECEIVER CASE: Mfr 98738, part no. 01A226065-22-11. (Attaching Parts) FC(2) FD(2) DY(3) M(1)	7-1
A1E1		TERMINAL, LUG: 0.688 in. long, 0.266 in. w; mfr 06845, part no. 4021198-0701.	7-1
A1J1 thru A1J22		Not used.	
A1J23		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 contact, coaxial, 0.812 in. dia, 1.62 in. thk; mfr 95712, part no. 33417, 06845, dwg 4030755-0701. (Attaching Parts) AX(1)	7-1
A1J24		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 contact, coaxial, 0.687 in. long, 0.687 in. w; 1.250 in. thk; mfr 91737, part no. 15808, 06845, dwg 4030754-0703. (Attaching Parts) FE (1)	7-1
A1J25		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 contact, coaxial, 0.812 in. dia, 1.625 in. thk; mfr 95712, part no. 33417, 06845, dwg no. 4030755-0701. (Attaching Parts) AX (1)	7-1
A1MP1		CAP, CONNECTOR: For J24; MIL type M39012-25-0006. (Attaching Parts) M(1), DY(1)	7-1
A1MP2		CAP, CONNECTOR: For J25; MIL type M39012-25-0012.	7-1
A1MP3		SLIDE, RIGHT HAND: Mfr 05236, part no. 120966R, 06845, dwg 4032393-0702. (Attaching Parts) A(4) B(8) EK(4) C(4) D(4)	7-1
A1MP4		SLIDE, LEFT HAND: Mfr 05236, part no. 120966L, 06845, dwg 4032393-0701. (Attaching Parts) A(4) B(8) EK(4) C(4) D(4)	7-1
A1MP5 thru A1MP8		BRACKET, SLIDE: 6.26 in. long, 2.00 in. w; mfr 06845, part no. 4032497-0501.	7-1
A1MP9		SHAFT, INTERLOCK: 7.59 in. long; 0.187 in. dia; mfr 06845, part no. 4031910-0001.	7-2
A1MP10		SPRING, COMPRESSION: 0.268 in. OD, 0.218 in. ID, 1.25 in. long; mfr 06845, part no. 4031911-0001.	7-2

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RADIO RECEIVER R-1051G/URR

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A1MP11		Not used.	
A1MP12		ADAPTER, SWITCH ACTUATOR: Mfr 91929, part no. JS31, 06845, dwg 4031919-0701. (Attaching Parts) E(2) F(2) G(2)	7-2
A1MP13		PIN, SPRING: MIL type MS171439.	7-2
A1MP14 *		SWITCH INTERLOCK ASSEMBLY: Mfr 98738, part no. 01A226212-21-11. (Attaching Parts) A(2) B(2) H(2)	7-1
A1MP15		BRACKET, INTERLOCK: 1.22 in. long, 0.62 in. w; mfr 98738, part no. 15P226213-21-11.	7-2
A1MP16		BLOCK, STOP: 0.600 in. long, 0.63 in. w; mfr 06845, part no. 4010049-0001. (Attaching Parts) EN(2)	7-2
A1MP17		PLATE, RETAINER: 0.76 in. long, 0.50 in. w, mfr 06845, part no. 4031912-0001.	7-2
A1MP18		RING, RETAINING: MIL type MS16633-4018.	7-2
A1MP19		GASKET: Woven aluminum; 4.30 in. long, 3.90 in. w; 0.004 in. thk; mfr 98738, part no. 32P226210-21-11.	7-1
A1MP20		CHANNEL, CABLE: 10.50 in. long, 0.22 in. w; mfr 06845, part no. 4031942-0001. (Attaching Parts) K(3) L(3) M(3)	7-1
A1MP21		STRAP, RETAINING: Annealed stainless steel; 1.833 in. long, 0.500 in. w; 0.312 in. dia; mfr 84971, part no. TA515SS5-10, 06845, dwg 4032173-0701. (Attaching Parts) A(2) B(2)	7-1
A1MP22 and A1MP23		PIN, LOCATING: 1.08 in. long, 1.09 in. w; mfr 98738, part no. 22P226777-21-11. (Attaching Parts) N(1) P(1) Q(1) BA(1)	7-1
A1MP24 thru A1MP30		CLAMP, LOOP: Polyamide (nylon); 0.810 in. long, 0.375 in. w; 0.312 in. dia. loop; mfr 09922, part no. HP5N; 06845, dwg 4032230-0704. (Attaching Parts) A(1) B(1) H(1)	7-1
A1MP31 thru A1MP35		CLAMP, LOOP: Polyamide (nylon); 0.927 in. long, 0.375 in. w; 0.380 in. dia. loop; mfr 09922, part no. HP6N, 06845, dwg 4032230-0705. (Attaching Parts) A(1) B(1) H(1)	7-1
A1MP36		CLAMP, LOOP: Polyamide (nylon); 0.800 in. long, 0.375 in. w, 0.250 in. dia. loop; mfr 09922, part no. HP4N, 06845, dwg 4032230-0703. (Attaching Parts) K(1) L(1) M(1)	7-1
A1MP37		BRACKET ASSEMBLY: 7.40 in. long, 0.88 in. w; mfr 06845, part no. 4032502-0501. (Attaching Parts) H(3) R(3) B(3)	7-1
		* Consists of A1MP9 thru A1MP13 and A1MP15 thru A1MP18.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RADIO RECEIVER R-1051G/URR

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A1MP38	2	CAP, CONNECTOR: For A1J3; MS90376-16R.	
A1MP39	2	CAP, CONNECTOR: For A1J4; MS90376-14R.	
A1MP40 thru A1MP42	2	CAP, CONNECTOR: For A1J5, A1J6, A1J23, respectively; MS90376-10R.	
A1P1		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type M24308/1-5. (Attaching Parts) S(2) T(2)	7-1
A1P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 3 coaxial contacts, pin insert; 1.213 in. long, 0.494 in. w, 0.641 in. thk; mfr 71785, part no. DAMMF3W3S, 06845, dwg 4032484-0704. (Attaching Parts) S(2) T(1) F(1) U(1)	7-1
A1P2A1 thru A1P2A3		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-1
A1S1A and A1S1B		SWITCH: MIL type MS25085-2, per MIL-S-8805/2. (Attaching Parts) See A1MP12	7-2
A1W1		CABLE ASSEMBLY: 60.0 in. long, mfr 98738, part no. 30A226483-21-11 (with connectors installed both ends, including A1J24 and A1P2A1).	7-1
A1W2		CABLE ASSEMBLY: 60.0 in. long, mfr 98738, part no. 30A226483-22-11 (with connectors installed both ends, including A1J23 and A1P2A3).	7-1
A1W3		CABLE ASSEMBLY: 60.0 in. long, mfr 98738, part no. 30A226483-23-11 (with connectors installed both ends, including A1J25 and A1P2A2).	7-1

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER CASE A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A1A1		FILTER BOX ASSEMBLY: 4.56 in. long, 4.38 in. w, 0.820 in. thk; mfr 98738, part no. 01A226208-21-11. (Attaching Parts) AV(2) AW(2) AX(2) AY(2)	7-1 and 7-3
A1A1C1 thru A1A1C15		CAPACITOR, FIXED, CERAMIC: 1000 pF ±20%, 500 Vdc working; MIL type CK70AW102M.	7-3
A1A1E1		TERMINAL, STUD: MIL type SE12XC07.	7-3
A1A1J1 and A1A1J2		Not used.	
A1A1J3		CONNECTOR, RECEPTACLE, ELECTRICAL: 3 contacts, pin insert; 1.375 in. long, 1.375 in. w, 0.986 in. thk; mfr 77820, part no. 71-74116-5P, 06845, dwg 4032476-0703. (Attaching Parts) AQ(1) AL(1) AU(1) AZ(1)	7-1/7-3
A1A1J4		CONNECTOR, RECEPTACLE, ELECTRICAL: 12 contacts, pin insert; MIL type MS3114E14-12P.	7-1/7-3
A1A1J5 and A1A1J6		CONNECTOR, RECEPTACLE, ELECTRICAL: 2 contacts, pin insert; 1.000 in. long, 1.000 in. w, 0.968 in. thk; mfr 77820, part no. 71-74111-4P, 06845, dwg 4032476-0701. (Attaching Parts) AQ(1) AL(1) AU(1) AZ(1)	7-1/7-3
A1A1MP1		COVER: 4.50 in. long, 4.32 in. w; mfr 98738, part no. 15P226667-21-11. (Attaching Parts) V(12)	7-3

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2		RECEIVER MAIN FRAME: Mfr 98738, part no. 01A228020-01. (Attaching Parts) BU(2) BM(2) FH(9) Z(1) Y(5) AA(6) BV(4) AM(4) AN(4) FG(4)	7-4
A2C1		CAPACITOR, FIXED, ELECTROLYTIC: 330 uF ±5%, 150 Vdc working; 3.000 in. long, 1.500 in. dia; MIL type CE51C331J. (Attaching Parts) B(1) W(1) H(1) X(1)	7-4B
A2C2		CAPACITOR, FIXED, ELECTROLYTIC: 470 uF, +75, -10%, 100 Vdc working; 3.000 in. long, 1.500 in. dia; MIL type CE51C471H. (Attaching Parts) B(1) W(1)	7-4B
A2C3		CAPACITOR, FIXED, ELECTROLYTIC: 1.0 uF, ±10%, 75 Vdc working; MIL type M39003/01-2400.	7-4B
A2C4		CAPACITOR: Item 18.	7-4B
A2CR1 and A2CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N649-1.	7-4B
A2CR3		Not used.	
A2CR4		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N649-1.	7-4B
A2CR5		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5711.	7-7
A2CR6 and A2CR7		Not used.	
A2CR8		SEMICONDUCTOR DEVICE, DIODE: Item 60.	7-7
A2DS1 and A2DS2		Not used.	
A2DS3 and A2DS4		LAMP, INCANDESCENT: MIL type MS25237-387.	7-7
A2DS5		LAMP, NEON: MIL type MS25252-C9A.	7-7
A2E1 and A2E2		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-7
A2E3		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-7
A2E4 thru A2E6		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-7
A2E7		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-4A
A2E8		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E9		TERMINAL, STUD: Item 66. (Attaching Parts) AA(1)	7-4A
A2E10		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-4A

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2E11 and A2E12		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1) AQ(1)	7-4A
A2E13		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	
A2E14		STRAP, GROUND: Mfr 06845, dwg 4032453-0501. (Attaching Parts) AB(1) AC(1) AD(2) AE(1) AA(2)	7-4A
A2E15 thru A2E18		TERMINAL, STUD: Item 62.	7-4A
A2E19		TERMINAL, LUG: See A2E47 and A2E48. (Attaching Parts) AF(1) AG(1)	7-4A
A2E20		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E21		TERMINAL, STUD: Item 66. (Attaching Parts) AA(1)	7-4A
A2E22 and A2E23		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E24		Not used.	
A2E25		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-4A
A2E26		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E27		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-4A
A2E28		TERMINAL, STUD: Item 66. (Attaching Parts) AA(1)	7-4A
A2E29 and A2E30		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E31 and A2E32		TERMINAL, STUD: Item 66. (Attaching Parts) AA(1)	7-4A
A2E33 and A2E34		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E35		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-4A
A2E36 and A2E37		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E38 and A2E39		TERMINAL, STUD: Item 66. (Attaching Parts) AA(1)	7-4A
A2E40 and A2E41		TERMINAL, STUD: Item 63. (Attaching Parts) AA(1)	7-4A
A2E42		TERMINAL STUD: Item 66. (Attaching Parts) AA(1)	7-4A

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2E43 and A2E44		TERMINAL, STUD: Item 62. (Attaching Parts) AA(1)	7-4A
A2E45		TERMINAL, LUG: MIL type MS35431-4. (Attaching Parts) See A2Q1.	7-4A
A2E46		TERMINAL, LUG: MIL type MS77068-2.	7-4A
A2E47 and A2E48		TERMINAL, LUG: MIL type MS77068-1, part of A2E19.	7-4A
A2E49		TERMINAL, LUG: MIL type MS77068-1. (Attaching Parts) A2E44.	7-4A
A2E50		TERMINAL, LUG: MIL type MS25036-106, part of A2E14.	7-4A
A2E51		TERMINAL, LUG: MIL type MS25036-152, part of A2E14.	7-4A
A2E52		Not used.	
A2E53		TERMINAL, LUG: Mfr 06845, part no. 4021198-0701. (Attaching Parts) AA(1) AJ(1) AK(1)	7-4A
A2F1 and A2F2		FUSE, ELECTRICAL: 3/4 amp, MIL type F02B250V3-4AS.	7-7
A2FL1 and A2FL2		FILTER, RFI: 60 Hz, 0.670 in. dia, 1.250 in. long; mfr 56289, part no. 1JX97, 06845, dwg 4032365-0701.	7-4A
A2FL3		FILTER, LOW PASS, 30 MHz: 1.50 in. long, 0.50 in. w, 0.75 in. thk; mfr 98738, part no. 01A228298-01. (Attaching Parts) AD(2) or AG(2), AL(2)	7-4A
A2FL3MP1		FERRULE, GROUNDING: 0.45 in. long, 0.80 in. dia; mfr 08795, part no. D-144-34, 06845, dwg 4017497-0703.	7-4A
A2FL3P1		CONNECTOR, PLUG, ELECTRICAL: Right angle, coaxial, 0.734 in. long, male contact; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	7-4B
A2J1 and A2J2		JACK, TIP: MIL type M641-12-1. (Attaching Parts) AH(1) ea, A2MP68 and A2MP69	7-7
A2J3 thru A2J7		Not used.	
A2J8		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type M24308/1-3. (Attaching Parts) AJ(2) A2MP108 and A2MP109.	7-4B
A2J9 thru A2J20		Not used.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2J21		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.641 in. thk; mfr 71785, part no. DDMAM50P, 06845, dwg 4032279-0703. (Attaching Parts) AJ(2) AK(2)	7-4B
A2J22		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. h; mfr 71785, part no. DAMM3W3P, 06845, dwg 4032484-0701. (Attaching Parts) AJ(2) AK(2)	7-4B
A2J22A1 thru A2J22A3		CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial; 0.734 in. long, 0.492 in. w; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	7-4B
A2K1 and A2K2		RELAY, ELECTRICAL, DPDT, 2 AMP: MIL type M5757-10-035. (Attaching Parts) AF(1) AL(2) A2MP110 and A2MP111	7-4B
A2L1		REACTOR: 15H, 175 V, 2.625 in. long, 1.688 in. w, 4.500 in. h; mfr 96256, part no. T57279, 06845, dwg 4032364-0701. (Attaching Parts) AM(4) AN(4)	7-4S
A2L2		REACTOR: 400 mH, 140 V, 4.125 in. long, 2.500 in. w, 4.375 in. h; mfr 93928, part no. 16300-1, 06845, dwg 4030645-0701. (Attaching Parts) AM(4) AN(4)	7-4S
A2L3		COIL, RF: MIL type MS 75089-4.	7-4B
A2M1		METER, ELECTRICAL, dB SCALE: Mfr 98738, part no. 72P228029-01. (Attaching Parts) DA(4)	7-7
A2MP1 and A2MP2		KNOB ASSEMBLY: Plastic, 1.500 in. dia, 1.090 in. thk; mfr 06845, part no. 2058802-0501. (Attaching Parts) BC(1) DM(1) FP(1)	7-7
A2MP3 thru A2MP5		KNOB ASSEMBLY: Plastic, 1.500 in. dia, 1.090 in. thk; mfr 06845, part no. 2058802-0502. (Attaching Parts) BC(1) DW(1) DM(1)	7-7
A2MP6 thru A2MP9		KNOB, CONTROL: Plastic, MIL type MS91528-1D2B. (Attaching Parts) DW(1)	7-7
A2MP10		KNOB ASSEMBLY: Mfr 06845, part no. 4032100-0501. (Attaching Parts) BG(2) ED(1) EB(1)	7-7
A2MP11		KNOB, CONTROL: MIL type MS91528-1K2B. (Attaching Parts) BD(2) EB(1)	7-7
A2MP12 and A2MP13		DIAL, SCALE: 2.55 in. dia, mfr 98738, part no. 34A226785-21-11. (Attaching Parts) BH(1) BD(1)	7-7

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP14		SPROCKET ASSEMBLY, TRIPLE: Mfr 98738, part no. 01A228308-01. (Attaching Parts) A(4) B(4)	7-4/7-5
A2MP14A		BRACKET, SPROCKET: Mfr 06845, part no. 4032198-0001.	7-5
A2MP14B thru A2MP14G		BEARING, SLEEVE: 0.460 in. dia, 0.140 in. thk, sintered metal; mfr 06845, part no. 2031154-0002.	7-5
A2MP14H thru A2MP14J		SPROCKET, WHEEL: 30 teeth, 1.463 in. dia, 0.094 in. thk; mfr 06845, part no. 4030801-0701.	7-5
A2MP14K thru A2MP14M		DISK, COUPLING: 0.875 in. dia, 0.390 in. thk; mfr 06845, part no. 4030895-0001.	7-5
A2MP14N, A2MP14P and A2MP14Q		WASHER, SPRING, TENSION: 0.568 in. dia, 0.200 in. hole dia; mfr 78189, part no. 3502-10-53-0544B, 06845, dwg 4032104-0703.	7-5
A2MP14R thru A2MP14W		RING, RETAINING: MIL type MS16633-4018.	7-5
A2MP14X and A2MP14Y		SHAFT, COUPLING: 1.115 in. long, 0.187 in. dia, mfr 06845, part no. 4032196-0501.	7-5
A2MP14Z thru A2MP14AB		RING, RETAINING: MIL type MS16624-1039.	7-5
A2MP14AC and A2MP14AC1		CLAMP, SPROCKET: 0.436 in. long, 0.234 in. w, 0.59 in. h; mfr 98738, part no. 42P228365-01. (Attaching Parts) FN(1)	7-5
A2MP14AD and A2MP14AD1		CLAMP, SPROCKET: 0.43 in. long, 0.23 in. w; 0.59 in. h; mfr 98738, part no. 42P228365-01. (Attaching Parts) FN(1)	7-5
A2MP14AE and A2MP14AE1		CLAMP, SPROCKET: 0.436 in. long, 0.234 in. w, 0.59 in. h; mfr 98738, part no. 42P228365-01. (Attaching Parts) FN(1)	7-5
A2MP14AF		SHAFT, COUPLING: 0.1874 in. dia, 1.38 in. long; mfr 06845, part no. 4032197-0501.	7-5
A2MP14AG thru A2MP14AL		WASHER, FLAT: 0.620 in. dia; 0.193 in. ID, 0.011 in. thk., mfr 06845, part no. 4032136-0001.	7-5
A2MP14AM thru A2MP14AP		SHIM, STEEL: 0.380 in. dia, 0.20 in. ID, 0.011 in. thk, mfr 06845, part no. 2074903-3404.	7-6
A2MP15		DUAL SPROCKET ASSEMBLY: Mfr 98738, part no. 01A228273-01. (Attaching Parts) B(4) C(4)	7-4/7-6
A2MP15A		BRACKET, SPROCKET: Mfr 06845, part no. 4030872-0501.	7-6

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP15B and A2MP15C		SHAFT, COUPLING: 1.38 in. long, 0.1874 in. dia; mfr 06845, part no. 4032197-0501.	7-6
A2MP15D and A2MP15E		SPROCKET, WHEEL: 30 teeth, 1.463 in. dia, 0.281 in. thk; mfr 06845, part no. 4030777-0701. (Attaching Parts) FL(2) AL(2) AU(2)	7-6
A2MP15F and A2MP15G		WASHER, SPRING, TENSION: 0.568 in. dia, 0.200 in. hole dia; mfr 78189, part no. 3502-10-53-0544B, 06845, dwg 4032104-0703.	7-6
A2MP15H and A2MP15J thru A2MP15L		BEARING, SLEEVE: 0.460 in. dia, 0.390 in. thk; mfr 06845, part no. 2031154-0002.	7-6
A2MP15M and A2MP15N		DISK COUPLING: 0.875 in. dia., 0.390 in. thk; mfr 06845, part no. 4030895-0001.	7-6
A2MP15P thru A2MP15S		SPACER: 0.188 in. OD, 0.120 in. ID, 0.312 in. long; mfr 06845, part no. 4030905-0001.	7-6
A2MP15T and A2MP15U		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-6
A2MP15V and A2MP15W		PIN, ROLLER: 0.1875 in. dia, 0.400 in. long, mfr 06845, part no. 4032132-0002.	7-6
A2MP15X and A2MP15Y		ARM: Copper, nickel plated, 2.14 in. long, 0.300 in. w, 0.500 in. thk; mfr 06845, part no. 4030879-0001.	7-6
A2MP15Z and A2MP15AA		WHEEL, INDEX: 1.500 in. dia, 0.062 in. thk; mfr 06845, part no. 4032201-0001. (Attaching Parts) AL(2) AT(2) See A2MP15P	7-6
A2MP15AB and A2MP15AC		Not used.	
A2MP15AD and A2MP15AD1		CLAMP, SPROCKET: 0.436 in. long, 0.235 in. w, 0.59 in. h; mfr 98738, part no. 42P228365-01. (Attaching Parts) FN(1)	7-6
A2MP15AE and A2MP15AE1		CLAMP, SPROCKET: 0.436 in. long, 0.235 in. w, 0.59 in. h; mfr 98738, part no. 42P228365-01. (Attaching Parts) FN(1)	7-6
A2MP15AF and A2MP15AG		PLATE: 1.68 in. long, 0.250 in. w; mfr 06845, part no. 4032110-0001. (Attaching Parts) AQ(1)	7-6
A2MP15AH and A2MP15AJ		SPACER: 0.48 in. long, 0.30 in. w, 0.062 in. thk; mfr 06845, part no. 4032143-0001. (Attaching Parts) AS(1) on A2MP15AJ; FM(1) on A2MP15AH, A2MP15AJ, and A2MP15AK.	7-6
A2MP15AK and A2MP15AL		SPACER: 0.48 in. long, 0.30 in. w, 0.016 in. thk; mfr 06845, part no. 4032143-0002.	7-6

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP15AM and A2MP15AN		SPACER: 0.48 in. long, 0.30 in. w, 0.062 in. thk; mfr 06845, part no. 4032143-0001. (Attaching Parts) AS(1) on A2MP15AN; FM(1) on A2MP15AM, A2MP15AN, and A2MP15AL.	7-6
A2MP15AP and A2MP15AQ		RING, RETAINING: MIL type MS16624-1039.	7-6
A2MP15AR thru A2MP15AU		WASHER, FLAT: 0.620 in. dia., 0.193 in. ID, 0.010 in. thk; mfr 06845, part no. 4032136-0001.	7-6
A2MP15AV thru A2MP15AY		RING, RETAINING: MIL type MS16633-4018.	7-6
A2MP15AZ		Not used.	
A2MP15BA and A2MP15BB		SHIM, STEEL: 0.380 in. dia, 0.20 in. ID, 0.011 in. thk; mfr 06845, part no. 2074903-3404.	7-6
A2MP16		BLOCK, ADJUSTABLE, IDLER: 0.64 in. long; mfr 06845, part no. 4032373-0501. (Attaching Parts) A(2) B(2) H(1)	7-4A
A2MP16A		SHAFT, SPROCKET IDLER: 0.500 in. OD, 0.1268 in. ID, 0.64 in. long; mfr 06845, part no. 4030871-0001.	7-4A
A2MP16B		SPROCKET, WHEEL: 1.182 in. dia, 0.268 in. thk; mfr 06845, part no. 4030779-0701.	7-4A
A2MP16C		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-4A
A2MP17		BLOCK, ADJUSTABLE, IDLER: Mfr 06845, part no. 4032373-0501. (Attaching Parts) A(2) B(2) H(1)	7-4A
A2MP17A		SHAFT, SPROCKET, IDLER: 0.64 in. long; mfr 06845, part no. 4030871-0001.	7-4A
A2MP17B		SPROCKET, WHEEL: 1.182 in. dia, 0.268 in. thk; mfr 06845, part no. 4030779-0701.	7-4A
A2MP17C		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-4A
A2MP18		BLOCK, ADJUSTABLE, IDLER: Mfr 06845, part no. 4032373-0502. (Attaching Parts) A(2) B(2) H(1)	7-4A
A2MP18A		SHAFT, SPROCKET, IDLER: 0.64 in. long; mfr 06845, part no. 4030871-0001.	7-4A
A2MP18B		SPROCKET, WHEEL: 1.182 in. dia, 0.268 in. thk; mfr 06845, part no. 4030779-0701.	7-4A
A2MP18C		BEARING, ROLLER, NEEDLE: 0.34 in. OD, 0.19 in. ID, 0.25 in. thk; mfr 60380, part no. B34, 06845, dwg 4032157-0701.	7-4A

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP19		CHAIN, ROLLER: 20.35 in. long; mfr 29440, part no. 14CCF-138-E, 98738, dwg 45P228227-01.	7-4A
A2MP19	*	CHAIN, ROLLER: 20.06 in. long; mfr 06845, part no. 4032155-0701.	7-4A
A2MP20		CHAIN, ROLLER: 23.60 in. long; mfr 29440, part no. 14CCF-160-E, 98738, dwg 45P228227-02.	7-4A
A2MP20	*	CHAIN ROLLER: 23.60 in. long; mfr 06845, part no. 4032155-0702.	7-4A
A2MP21		CHAIN, ROLLER: 30.38 in. long; mfr 29440, part no. 14CCF-206-E, 98738, dwg 45P228227-03.	7-4A
A2MP21	*	CHAIN ROLLER: 30.53 in. long; mfr 06845, part no. 4032155-0703.	7-4A
A2MP22 and A2MP23		Not used.	
A2MP24 and A2MP25		SPRING, DETENT: Mfr 06845, part no. 4032225-0501. (Attaching Parts) K(2) L(1) M(2)	7-7
A2MP26 and A2MP27		PIN, ROLLER: 0.1562 in. dia, 0.40 in. long; mfr 06845, part no. 4032132-0001.	7-7
A2MP28 and A2MP29		BEARING, NEEDLE: 0.28 in. OD, 0.16 in. ID, 0.25 in. thk; mfr 60380, part no. B21-24, 06845, dwg 4032157-0702.	7-7
A2MP30 thru A2MP32		GEAR SET: Bevel, matched-32 teeth; mfr 00141, part no. 0090-1, 06845, dwg 4030781-0701. (Attaching Parts) FQ(2) BC(2)	7-7
A2MP33 thru A2MP35		SPROCKET WHEEL: 1.463 in. dia, 0.269 in. thk; mfr 06845, part no. 4030778-0702. (Attaching Parts) FQ(1) BE(1)	7-7
A2MP36 thru A2MP38		SHAFT, SUPPORT, BRACKET, GEAR: 0.1874 in. dia, 2.062 in. long; mfr 06845, part no. 4030873-0001.	7-7
A2MP39 and A2MP40		Not used.	
A2MP41		1 kHz DETENT ASSEMBLY: 1.25 in. dia, 0.318 in. thk, shaft 1.554 in. long; mfr 06845, part no. 4032354-0701. (Attaching Parts) BB(1) BC(1)	7-7
A2MP42 and A2MP43		10 kHz AND 100 kHz SHAFT ASSEMBLY: 0.625 in. hex, 0.218 in. thk, shaft, 2.296 in. long; mfr 76854, part no. 4-8145-633, 98738, dwg 43P227255-21-12. (Attaching Parts) BB(1) BC(1)	7-7
A2MP44 thru A2MP46		DIAL: Cellulose acetate butyrate, 2.55 in. dia, 0.804 in. thk; mfr 06845, part no. 4010034-0001. (Attaching Parts) BD(2)	7-7
A2MP47 thru A2MP49		BEARING, BALL, ANNULAR: 0.422 in. OD, 0.1875 in. ID, 0.125 in. thk; SST; mfr 40920, part no. B972, 06845, dwg 4018589-0701.	7-7
		* Indicates preferred part.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP50 thru A2MP55		BEARING, SLEEVE: 0.460 in. dia, 0.140 in. thk; mfr 06845, part no. 2031154-0002.	7-7
A2MP56		PLATE: 0.912 in. long, 0.624 in. w, 0.094 in. thk; mfr 06845, part no. 4013364-0001. (Attaching Parts) BC(1) DM(1)	7-7
A2MP57		PLATE: 0.960 in. long, 0.531 in. w, 0.094 in. thk; mfr 06845, part no. 4013365-0001.	7-7
A2MP58		LENS: MIL type LC13YN2.	7-7
A2MP59		PANEL, LIGHT: 12.44 in. long, 0.860 in. w, 0.150 in. thk; mfr 06845, part no. 4010004-0001. (Attaching Parts) See A2MP87.	7-7
A2MP60		KNOB, CONTROL: 1.525 in. OD, 0.900 in. ID, 1.010 in. thk; mfr 06845, part no. 2058804-0001. (Attaching Parts) BL(2) A(2)	7-7
A2MP61		KNOB: Plastic, 2.06 in. dia, 0.38 in. thk; mfr 98738, part no. 36P227275-01. (Attaching Parts) BK(2)	7-7
A2MP62 and A2MP63		SPACER, SPROCKET: 0.500 in. OD, 0.1875 in. ID, 0.080 in. thk; mfr 06845, part no. 4030866-0001.	7-7
A2MP64		SPACER, SPROCKET: 0.600 in. OD, 0.1875 in. ID, 0.144 in. thk; mfr 06845, part no. 4030866-0002.	7-7
A2MP65		Not used.	
A2MP66 and A2MP67		BUSHING: Bronze cadmium, 0.688 in. OD, 0.2502 in. ID, 2.500 in. long; mfr 06845, part no. 2058974-0001. (Attaching Parts) FR(1)	7-7
A2MP68 and A2MP69		COVER, ELECTRICAL, CONNECTOR: Gray enamel, 1.125 in. long, 0.88 in. w, 0.440 in. thk; mfr 82389 part no. 520, 06845, dwg 4031933-0701.	7-7
A2MP70 and A2MP71		Not used.	
A2MP72 and A2MP73		BOOT, SEAL: MIL type M5423/09-02.	7-7
A2MP74 and A2MP75		WHEEL, INDEX: 1.188 in. dia, 1.31 in. long; mfr 08845, part no. 4013394-0001. (Attaching Parts) BB(2) BC(2)	7-7
A2MP76		SPRING, CLAMP: Steel, cadmium plated, 1.88 in. long, 0.621 in. w, 0.0149 in. thk; mfr 06845, part no. 4030898-0001.	7-4A
A2MP77 thru A2MP79		SPACER: 0.250 in. hex, 0.544 in. long; mfr 98738, part no. 43P228463-01.	7-7
A2MP80 thru A2MP85		SPACER: 0.312 in. hex, 0.714 in. long; mfr 98738, part no. 43P228463-02.	7-7

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP86		BRACKET, SUPPORT: 8.640 in. long, 1.580 in. w, 1.175 in. d; mfr 06845, part no. 4032360-0501. (Attaching Parts) B(6) H(1) BM(3) BN(3) BR*(6) BQ*(3) BP*(6) * Quantities may vary.	7-7
A2MP87 and A2MP88		CLAMP: 1.28 in. long, 0.88 in. w, 0.190 in. d; mfr 06845, part no. 4010007-0001. (Attaching Parts) K(1) M(1)	7-7
A2MP89 and A2MP90		SPACER: 0.250 in. dia, 0.190 in. long; mfr 06845, part no. 4010020-0001.	7-7
A2MP91 thru A2MP94		STUD, EXTENSION: 0.250 in. hex, 0.84 in. long; mfr 06845, part no. 4032189-0003.	7-4S
A2MP95 thru A2MP98		SPACER: 0.250 in. hex, 0.500 in. long; mfr 06845, part no. 4032128-0004.	7-4S
A2MP99		SHIELD, COMPONENT: 4.00 in. long, 3.12 in. w, 0.62 in. thk; mfr 98738, part no. 07P226290-23-11. (Attaching Parts) DZ(4)	7-4S
A2MP100 and A2MP101		BUSHING: Polyamide (nylon), 0.375 in. dia, 0.094 in. thk; mfr 06845, part no. 4032106-0002.	7-4
A2MP102		SHIELD, COMPONENT: 15.54 in. long, 2.40 in. w, 0.56 in. d; mfr 98738, part no. 26A228172-01. (Attaching Parts) BU(2) BM(2)	7-4
A2MP103		STRAP, RETAINING: Stainless steel, 2.080 in. long, 0.500 in. w, 0.375 in. thk; mfr 84971, part no. TA616SS6-13, 06845, dwg 4032173-0702. (Attaching Parts) B(2) C(2) H(2)	7-4
A2MP104		SHIELD, COMPONENT: Plastic sheet 1.86 in. long, 1.80 in. w; mfr 98738, part no. 14P226290-23-11. (Attaching Parts) FS(4)	7-4S
A2MP105		CLAMP, LOOP: Polyamide (nylon), 0.728 in. long, 0.375 in. w, 0.187 in. loop dia; mfr 09922, part no. HP3N, 06845, dwg 4032230-0702. (Attaching Parts) A(1) B(1) H(1)	7-4A
A2MP106 and A2MP107		CLAMP, LOOP: 0.811 in. long, 0.375 in. w, 0.312 in. dia; mfr 09922, part no. HP5N, 06845, dwg 4032230-0704. (Attaching Parts) A(1) B(1) H(1)	7-4A
A2MP108 and A2MP109		SPACER: 0.188 in. hex, 0.78 in. long; mfr 06845, part no. 4032112-0001. (Attaching Parts) AJ(1)	7-4A
A2MP110 and A2MP111		SPACER: 0.188 in. hex, 0.600 in. long; mfr 06845, part no. 4032128-0008.	7-4A

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP112 thru A2MP115		STUD, EXTENSION: 0.187 in. hex, 1.04 in. long; mfr 06845, part no. 4032189-0001.	7-4A
A2MP116 and A2MP117		CLAMP, LOOP: 0.939 in. long, 0.375 in. w, 0.440 in. loop dia; mfr 09922, part no. HP7N, 06845, dwg 4032230-0706. (Attaching Parts) L(1) K(1) M(1)	7-4A
A2MP118		SHIELD: 3.470 in. long, 1.150 in. w, 0.78 in. d; mfr 06845, part no. 4032524-0001. (Attaching Parts) AQ(2) AL(2)	7-4A
A2MP119		Not used.	
A2MP120 and A2MP121		STUD, EXTENSION: 0.287 in. hex, 0.98 in. long; mfr 06845, part no. 4032189-0005.	7-4A
A2MP122		POST: 0.250 in. hex, 1.06 in. long; mfr 06845, part no. 4032192-0001.	7-4B
A2MP123		GASKET, FORMED: Synthetic rubber, 13.75 in. dia, 0.140 in. thk; mfr 06845, part no. 4032199-0001.	7-7
A2MP124 thru A2MP128		WINDOW, DIAL: Acrylic plastic sheet, 0.30 in. thk, 0.740 in. dia; mfr 06845, part no. 4030630-0001.	7-7
A2MP129 thru A2MP133		CLIP, WINDOW: 0.75 in. long, 0.72 in. w; mfr 06845, part no. 4032105-0001. (Attaching Parts) AG(2) AL(2)	7-7
A2MP134 and A2MP135		HANDLE: Aluminum alloy, 0.312 in. dia, 4.874 in. long, 1.500 in. d; mfr 00328, part no. S041-19, dwg 4032156-0701. (Attaching Parts) BV(2)	7-7
A2MP136 thru A2MP139		FERRULE: Aluminum alloy, 0.312 in. thk, 0.750 in. dia; mfr 00328, part no. S044-3, dwg 4032156-0702.	7-7
A2MP140	*	DUCT, WIRING: 8 in. long, 0.68 in. w; mfr 98738, dwg no. 11P226783-01. (Attaching Parts) BW(3) BX(3) BY(3)	7-4A
A2MP141	*	DUCT, WIRING: 13.18 in. long, 0.62 in. w, PVC; mfr 06845, part no. 4032576-0003. (Attaching Parts) BW(3) BX(3) BY(3)	7-4A
A2MP142	*	DUCT, WIRING: 8.50 in. long, 0.62 in. w, PVC; mfr 06845, part no. 4032576-0002. (Attaching Parts) BW(3) BX(3) BY(3)	7-4A
		* Indicates item to be ordered by length.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2MP143	*	COVER, DUCT: 8.0 in. long, 0.690 in. w; mfr 98738, dwg no. 11P226783-02.	7-4A
A2MP144 and A2MP145	*	COVER, DUCT: 60 in. long, 0.690 in. w; mfr 98738, dwg no. 11P226783-02.	7-4A
A2MP146	*	COVER, DUCT: 8.5 in. long, 0.690 in. w; mfr 98738, dwg no. 11P226783-02.	7-4A
A2MP147		KNOB, PLASTIC: MIL type M25049/1-138.	7-7
A2MP148		FERRULE, GROUNDING: 0.590 in. long, 0.150 in. dia; mfr 08795, part no. D-144-21, 06845, dwg 4017497-0704.	7-4B
A2MP149 and A2MP150		NUT, SELF-LOCKING, CAP: 0.453 in. OD x 10-32; mfr 06845, part no. 4032211-0701.	7-4
A2MP151 thru A2MP154		SHIM, SOLID, METALLIC: CRES, 0.26 in. OD, 0.006 in. thk; mfr 06845, part no. 2074903-3406.	7-4B
A2MP155		BRACKET, AUDIO LEVEL SWITCH: Alum. alloy; 2.02 in. long, 1.26 in. w; mfr 98738, part no. 07P228026-01. (Upon which A2A12 is fastened.) (Attaching Parts) AG(2) AL(2)	7-7
A2MP156		INSULATOR, PLATE, MICA: 1.655 in. long, 1.063 in. w, 0.002 in. thk; mfr 06845, part no. 4032435-0701.	7-4B
A2Q1		TRANSISTOR: MIL type JAN2N3442. (Attaching Parts) L(1) K(2) M(2) EJ(2)	7-4B
A2R1 and A2R2		RESISTOR, VARIABLE, COMPOSITION: 1000 ohms ±10%, 2 w; MIL type RV6TAYSA102C.	7-7
A2R3		RESISTOR, VARIABLE, COMPOSITION: 1000 ohms ±20%, 1 w; MIL type RV4SAYSD102A.	7-7
A2R4 and A2R5		RESISTOR, VARIABLE, COMPOSITION: 2500 ohms ±10%, 2 w; MIL type RV6SAYSD252C.	7-7
A2R6		RESISTOR, VARIABLE, COMPOSITION: 25K ohms ±20%, 1 w; MIL type RV4SAYSD253A.	7-7
A2R7		Not used.	
A2R8		RESISTOR, FIXED, WIRE-WOUND: 332 ohms ±1%, 5 w, MIL type RER60F3320M. (Attaching Parts) J(2) T(2)	7-4B
A2R9 and A2R10		RESISTOR: Item 41.	7-7
A2R11 thru A2R13		Not used.	
A2R14		RESISTOR, FIXED, FILM: 430 ohms ±2%, 1/4 w; MIL type RLR07C431GR.	7-7
A2R15 thru A2R18		Not used.	
A2R19		RESISTOR: Item 43. Composition.	7-7
		* Indicates item to be ordered by length.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2R20		RESISTOR, FIXED; 13K ohms ±5%, 2 w; MIL type RCR42G133JS.	7-4B
A2R21 and A2R22		Not used.	
A2R23		RESISTOR, FIXED, WIRE-WOUND: 53.6 ohms ±1%, 10 w; MIL type RER65F53R6M. (Attaching Parts) J(2) T(2)	7-4B
A2R24		Not used.	
A2R25		RESISTOR, FIXED, FILM: 510 ohms ±5%, 1/4 w; MIL type RCR07G511JS.	7-7
A2S1		Not used.	
A2S2		MODE SELECTOR SWITCH, ROTARY: 4 sections, 8 position, 2 amp at 28 Vdc, 1 amp at 110 Vac, mfr 76854, part no. 276779K4, 06845, dwg 4030821-0701.	7-7
A2S3		AGC GATE CONTROL SWITCH, ROTARY: 1 section, 3 position, 1.438 in. dia, 0.375 in. long; mfr 76854, part no. 5-21342-211, 06845, dwg 4010003-0701.	7-7
A2T1		TRANSFORMER, POWER: 215 Vac working voltage, 2.75 in. long, 3.438 in. w, 4.50 in. d; mfr 28994, part no. GK4763, 98738, dwg 25P228008-01. (Attaching Parts) AM(4) AN(4)	7-4B
A2W1 thru A2W18		Not used.	
A2W19		CABLE ASSEMBLY, RF: 13.00 in. long; mfr 98738, part no. 30A226481-21-11.	7-4B
A2W20		CABLE ASSEMBLY, RF: 9.62 in. long; mfr 98738, part no. 30A226481-22-11.	7-4B
A2W21		CABLE ASSEMBLY, RF: 12.00 in. long; mfr 98738, part no. 30A226481-23-11.	7-4B
A2W22		CABLE ASSEMBLY, RF: 10.00 in. long; mfr 98738, part no. 30A226481-24-11.	7-4B
A2W23		CABLE ASSEMBLY, RF: 12.40 in. long; mfr 98738, part no. 30A226481-25-11.	7-4B
A2W24		CABLE ASSEMBLY, RF: 9.00 in. long; mfr 98738, part no. 30A226481-26-11.	7-4B
A2W25		CABLE ASSEMBLY, RF: 14.98 in. long; mfr 98738, part no. 30A226482-28-11.	7-4B
A2W26		CABLE ASSEMBLY, RF: 3.25 in. long; mfr 98738, part no. 30A226481-33-11.	7-4B
A2W27		CABLE ASSEMBLY, RF: 5.62 in. long; mfr 98738, part no. 30A226481-27-11.	7-4B
A2W28		CABLE ASSEMBLY, RF: 14.88 in. long; mfr 98738, part no. 30A226481-28-11.	7-4B
A2W29		CABLE ASSEMBLY, RF: 7.50 in. long; mfr 98738, part no. 30A226481-29-11.	7-4B
A2W30		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226481-30-11.	7-4B

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2W31		CABLE ASSEMBLY, RF: 4.18 in. long; mfr 98738, part no. 30A226481-31-11.	7-4B
A2W32		CABLE ASSEMBLY, RF: 5.00 in. long; mfr 98738, part no. 30A226481-32-11.	7-4B
A2W33		Refer to A2FL3P1	7-4B
A2W34		CABLE ASSEMBLY, RF: 4.18 in. long; mfr 98738, part no. 30A226482-31-11.	7-4B
A2XA1P1		CONNECTOR, PLUG, ELECTRICAL: 13 contacts including 3 coaxial; 2.088 in. long, 0.494 in. w, 0.419 in. thk; mfr 71785, part no. DBMMR13W3S, 06845, dwg 4032484-0713. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA1P1A1 thru A2XA1P1A3		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA1P2		CONNECTOR, PLUG, ELECTRICAL: 9 contacts including 4 coaxial; 2.088 in. long, 0.494 in. w, 0.428 in. thk; mfr 71785, part no. DBMMR9W4S, 06845, dwg 4032484-0715. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA1P2A1 thru A2XA1P2A4		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA2P1		CONNECTOR, PLUG, ELECTRICAL: 25 contacts including 3 coaxial; 2.729 in. long, 0.663 in. w, 0.429 in. thk; mfr 71785, part no. DCMMR25W3S, 06845, dwg 4032484-0720. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA2P1A1 thru A2XA2P1A3		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA3P1		CONNECTOR, PLUG, ELECTRICAL: 25 contacts including 3 coaxial; 2.729 in. long, 0.663 in. w, 0.429 in. thk; mfr 71785, part no. DCMMR25W3S, 06845, dwg 4032484-0720. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA3P1A1		Not used.	
A2XA3P1A2 and A2XA3P1A3		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA4P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 contacts; 1.54 in. long, 0.50 in. w, 0.65 in. thk; 98738, part no. 09P226565-23. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MAIN FRAME A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2XA4P2		CONNECTOR, PLUG, ELECTRICAL: 17 contacts including 5 coaxial; 2.729 in. long, 0.494 in. w, 0.429 in. thk; mfr 71785, part no. DCMMR17W5S, 06845, dwg 4032484-0721. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA4P2A1		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA4P2A2		Not used.	
A2XA4P2A3		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA5P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.229 in. long, 0.494 in. w, 0.429 in. h; mfr 71785, part no. DCMMR13W6S, 06845, dwg 4032484-0719. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA5P1A1 thru A2XA5P1A6		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA6P1		CONNECTOR, PLUG, ELECTRICAL: 25 contacts including 3 coaxial; 2.729 in. long, 0.494 in. w, 0.429 in. thk; mfr 71785, part no. DCMMR25W3S, 06845, dwg 4032484-0720. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA6P1A1 thru A2XA6P1A3		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA6P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.541 in. long, 0.494 in. w, 0.429 in. h; mfr 71785, part no. DAMMR3W3S, 06845, dwg 4032484-0705. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA6P2A1		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA6P2A2		Not used.	
A2XA6P2A3		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XA6P3		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.429 in. h; mfr 71785, part no. DAMMR3W3S, 06845, dwg 4032484-0705. (Attaching Parts) CA(2) T(2) BZ(2)	7-4B
A2XA6P3A1		CONNECTOR, PLUG, ELECTRICAL: Item 27.	7-4B
A2XC1 and A2XC2		SOCKET, TUBE: MIL type M12883-01-02.	7-4A
A2XDS1 and A2XDS2		Not used.	
A2XDS3 and A2XDS4		LIGHT, PANEL: 25 Vdc, 1.125 in. long, 0.641 in. dia; mfr 06845, part no. 4032385-0701.	7-7
A2XDS5		LAMPHOLDER: MIL type LH74-2.	7-7
A2XF1 and A2XF2		FUSEHOLDER: MIL type FHL17G1.	7-7

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MODE SELECTOR A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1		RECEIVER MODE SELECTOR: 3.670 in. long, 2.170 in. w, 4.447 in. h; mfr 98738, part no. 01A228161-01. (Attaching Parts) CE(2)	7-8
A2A1C1		CAPACITOR, FIXED, MICA: 240 pF, ±5%, 500 Vdc working; MIL type CMR04F241FPDM.	7-8
A2A1C2A	*	CAPACITOR: Item 2. A2A1FL2 color coded orange.	7-8
A2A1C2B	*	CAPACITOR: Item 3. A2A1FL2 color coded green.	7-8
A2A1C2C	*	CAPACITOR: Item 5. A2A1FL2 color coded yellow.	7-8
A2A1E1		TERMINAL, LUG: MIL type MS77070-1. (Attaching Parts) AQ(1)	7-8
A2A1E2 and A2A1E3		TERMINAL, STUD: 0.455 in. long, 0.136 in. hole dia; mfr 98291, part no. ST-SM29TUR, 06845, dwg 4010637-0709.	7-8
A2A1E4		TERMINAL, LUG: MIL type MS77070-1. (Attaching Parts) AQ(1)	7-8
A2A1E5 and A2A1E6		TERMINAL, STUD: 0.455 in. long, 0.136 in. hole dia, mfr 98291, part no. ST-SM29TUR, dwg 4010637-0709.	7-8
A2A1FL1		FILTER, BANDPASS, USB: 0.437 in. dia, 2.50 in. long, 500 kHz; mfr 98738, part no. 08P228093-02. (Attaching Parts) AL(2) AQ(2)	7-8
A2A1FL2		FILTER, BANDPASS, AM: 0.437 in. dia, 2.50 in. long, 500 kHz; mfr 06845, part no. 4032274-0702. (Attaching Parts) AL(2) AQ(2)	7-8
A2A1FL3		FILTER, BANDPASS, LSB: 0.437 in. dia; 2.50 in. long, 500 kHz; mfr 98738, part no. 08P228093-01. (Attaching Parts) AL(2) AQ(2)	7-8
A2A1MP1		CHASSIS, ELECTRICAL EQUIPMENT: 4.38 in. long, 3.275 in. w, 2.078 in. h; mfr 98738, part no. 27A226419-22-11. (Attaching Parts) CE(2)	7-8
A2A1MP2		COVER: 4.406 in. long, 3.588 in. w; 0.041 in. thk; mfr 98738, part no. 15P226336-23-11. (Attaching Parts) AQ(1)	7-8
A2A1P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.09 in. long, 0.49 in. w; 0.48 in. thk; mfr 71785, part no. DBMME13W3P, 06845, dwg 4032484-0708. (Attaching Parts) CF(2)	7-8
A2A1P1A1 thru A2A1P1A3		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. w, 0.045 in. dia; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-8
A2A1P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.09 in. long, 0.49 in. w, 0.43 in. thk; mfr 71785, part no. DBMME9W4P, 06845, dwg 4032484-0712. (Attaching Parts) CF(2)	7-8
		* A2A1FL2 color code determines choice of capacitor C2A, B or C.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MODE SELECTOR A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1P2A1 thru A2A1P2A4		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. w, 0.045 in. dia; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-8
A2A1W1 thru A2A1W4		Not used.	
A2A1W5		CABLE ASSEMBLY, RF: 6.32 in. long, mfr 98738, part no. 30A226482-35-11, connects to A2A1P1A1.	7-8
A2A1W6		CABLE ASSEMBLY, RF: 5.62 in. long; mfr 98339, part no. 30A226482-43-11, connects to A2A1P1A2.	7-8
A2A1W7		CABLE ASSEMBLY, RF: 4.0 in. long; mfr 98738, part no. 30A226482-33-11. Connects to A2A1P1A3.	7-8
A2A1W8 thru A2A1W27		Not used.	
A2A1W28 thru A2A1W30		CABLE ASSEMBLY, RF: 3.25 in. long; mfr 98738, part no. 30A226482-32-11. Connects to A2A1P2A1 thru A3.	7-8
A2A1W31		CABLE ASSEMBLY, RF: 5.0 in. long; mfr 98738, part no. 30A226482-42-11. Connects to A2A1P2A4.	7-8
A2A1A1		MODE GATE SUBASSEMBLY: L-shaped, 3.34 in. long, 3.80 in. w; mfr 98738, part no. 01A228159-01. (Attaching Parts) AL(4) AF(4) CG(4)	7-9
A2A1A1C1 thru A2A1A1C6		CAPACITOR: Item 19.	7-9
A2A1A1C7A	*	CAPACITOR: Item 2. A2A1FL2 color coded orange.	7-9
A2A1A1C7B	*	CAPACITOR: Item 3. A2A1FL2 color coded green.	7-9
A2A1A1C7C	*	CAPACITOR: Item 5. A2A1FL2 color coded yellow.	7-9
A2A1A1C8 thru A2A1A1C16		CAPACITOR: Item 19.	7-9
A2A1A1C17		CAPACITOR: Item 13.	7-9
A2A1A1C18 thru A2A1A1C20		CAPACITOR: 240 pF, ±5%, 500 Vdc working; MIL type CMR04F241FPDM.	7-9
A2A1A1C21 and A2A1A1C22		CAPACITOR: Item 19.	7-9
A2A1A1CR1 and A2A1A1CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4148.	7-9
A2A1A1CR3		SEMICONDUCTOR DEVICE, DIODE: Item 60.	7-9
A2A1A1Q1		TRANSISTOR: Item 64.	7-9
A2A1A1Q2 thru A2A1A1Q4		TRANSISTOR: Item 65.	7-9
		* A2A1FL2 COLOR CODE DETERMINES CHOICE OF CAPACITOR C7A, C7B, C7C.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MODE SELECTOR A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A1Q5 thru A2A1A1Q7		TRANSISTOR: Item 64.	7-9
A2A1A1R1		RESISTOR: Item 48.	7-9
A2A1A1R2 and A2A1A1R3		RESISTOR, FIXED, COMPOSITION: 13K ohms ±5%, 1/4 w; MIL type RCR07G133JS.	7-9
A2A1A1R4		RESISTOR: Item 37.	7-9
A2A1A1R5		RESISTOR, FIXED, COMPOSITION: 2K ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-9
A2A1A1R6		RESISTOR, FIXED, COMPOSITION: 5.1K ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-9
A2A1A1R7		RESISTOR: Item 43.	7-9
A2A1A1R8		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-9
A2A1A1R9 and A2A1A1R10		RESISTOR, FIXED, COMPOSITION: 5.1K ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-9
A2A1A1R11		RESISTOR, FIXED, COMPOSITION: 240 ohms ±5%, 1/4 w; MIL type RCR07G241JS.	7-9
A2A1A1R12		RESISTOR: Item 38.	7-9
A2A1A1R13		RESISTOR, FIXED, COMPOSITION: 2K ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-9
A2A1A1R14 and A2A1A1R15		RESISTOR, FIXED, COMPOSITION: 5.1K ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-9
A2A1A1R16		RESISTOR: Item 37.	7-9
A2A1A1R17		RESISTOR: Item 38.	7-9
A2A1A1R18		RESISTOR: Item 39.	7-9
A2A1A1R19		RESISTOR, FIXED, COMPOSITION: 5.1K ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-9
A2A1A1R20		RESISTOR, FIXED, FILM: 750 ohms ±5%, 1/4 w; MIL type RCR07G751JS.	7-9
A2A1A1R21		RESISTOR, FIXED, COMPOSITION: 2K ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-9
A2A1A1R22		RESISTOR: Item 52.	7-9
A2A1A1R23		RESISTOR, FIXED, FILM: 750 ohms ±5%, 1/4 w; MIL type RCR07G751JS.	7-9
A2A1A1R24		RESISTOR: Item 39.	7-9
A2A1A1R25		RESISTOR, FIXED, COMPOSITION: 3K ohms, ±5%, 1/4 w; MIL type RCR07G302JS.	7-9
A2A1A1R26		RESISTOR: Item 37.	7-9
A2A1A1R27		RESISTOR, FIXED, COMPOSITION: 5.1K ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-9
A2A1A1R28		RESISTOR: Item 39.	7-9
A2A1A1R29		RESISTOR: Item 47.	7-9

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MODE SELECTOR A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A1R30		RESISTOR, FIXED, COMPOSITION: 7.5K ohms ±5%, 1/4 w; MIL type RCR07G752JS.	7-9
A2A1A1TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-02.	7-9
A2A1A2		500 kHz GATE SUBASSEMBLY: 3.44 in. long, 1.58 in. w, mfr 98738, part no. 01A226168-21-11. (Attaching Parts) AL(4) AF(4) CG(4)	7-10
A2A1A2C1 thru A2A1A2C4		CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.20 uf ±20%, 100 Vdc working; 0.55 in. long, 0.35 in. w, 0.222 in. dia; mfr 99515, part no. EP36D4, 06845, dwg 4032429-0704.	7-10
A2A1A2CR1		SEMICONDUCTOR DEVICE, DIODE: Item 60.	7-10
A2A1A2R1		RESISTOR, FIXED, FILM: 910 ohms ±2%, 1/2 w; MIL type RLR20C911GR.	7-10
A2A1A2R2 and A2A1A2R3		RESISTOR: Item 54.	7-10
A2A1A2R4		RESISTOR: Item 43.	7-10
A2A1A2R5		RESISTOR, FIXED, FILM: 510 ohms ±2%, 1/2 w; MIL type RLR20C511GR.	7-10
A2A1A2R6		RESISTOR: Item 37.	7-10
A2A1A3		CIRCUIT CARD ASSEMBLY; BEAT FREQUENCY OSCILLATOR SUBASSEMBLY: 3.44 in. long, 1.58 in. w; mfr 98738, part no. 01A226167-21-11. (Attaching Parts) AL(4) AF(4) CG(4)	7-11
A2A1A3C1		CAPACITOR: Item 13.	7-11
A2A1A3C2		CAPACITOR, FIXED, MICA: 3000 pF ±2%, 500 Vdc working; MIL type CMR06F302GPDM.	7-11
A2A1A3C3		CAPACITOR, FIXED, CERAMIC: 91 pF ±5%, 500 Vdc working; MIL type CC52TH910J.	7-11
A2A1A3C4		CAPACITOR, FIXED, MICA: 220 pF ±1%, 500 Vdc working; MIL type CMR05F221FPDM.	7-11
A2A1A3C5		CAPACITOR, FIXED, MICA: 820 pF ±1%, 500 Vdc working; MIL type CMR06F821FPDM.	7-11
A2A1A3C6		CAPACITOR, FIXED, MICA: 3000 pF ±2%, 500 Vdc working; MIL type CMR06F302GPDM.	7-11
A2A1A3C7 and A2A1A3C8		CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.01 mf ±20%, 100 Vdc working; 0.42 in. long, 0.29 in. w, 0.17 in. thk; mfr 99515, part no. EP36D1, dwg 4032429-0701.	7-11

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER MODE SELECTOR A2A1

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A1A3C9		CAPACITOR, FIXED, MICA: 910 pF ±2%, 500 Vdc working; MIL type CMR06F911GPDM.	7-11
A2A1A3C10		CAPACITOR: Item 19.	7-11
A2A1A3CR1		DIODE: Varactor; mfr 04713, part no. 1N954, 06845, dwg 4031991-0701.	7-11
A2A1A3L1		COIL, RF, VARIABLE: 470 uH, 0.400 in. dia, 0.500 in. h; mfr 72259, part no. VIH470, 06845, dwg 4030767-0701.	7-11
A2A1A3MP1 thru A2A1A3MP3		MOUNTING PAD, ELECTRONIC: Diallyl Phthalate; 0.344 in. dia, 0.095 in. thk; mfr 13103, part no. 7717-109, 98738, dwg 14S132171-39A-9.	7-11
A2A1A3Q1 thru A2A1A3Q3		TRANSISTOR: Item 65.	7-11
A2A1A3R1		RESISTOR, FIXED, COMPOSITION: 22K ohms ±5%, 1/4 watt; MIL type RCR07G223JS.	7-11
A2A1A3R2		RESISTOR, FIXED, COMPOSITION: 100K ohms ±5%, 1/4 watt; MIL type RCR07G104JS.	7-11
A2A1A3R3		RESISTOR, FIXED, FILM: 20K ohms ±2%, 1/4 w; MIL type RLR07C203GR.	7-11
A2A1A3R4		RESISTOR, FIXED, COMPOSITION: 100K ohms ±5%, 1/4 w; MIL type RCR07G104JS.	7-11
A2A1A3R5		RESISTOR: Item 46.	7-11
A2A1A3R6		RESISTOR: Item 38.	7-11
A2A1A3R7		RESISTOR: Item 42.	7-11
A2A1A3R8		RESISTOR, FIXED, COMPOSITION: 18K ohms ±5%, 1/4 w; MIL type RCR07G183JS.	7-11
A2A1A3R9		RESISTOR: Item 55.	7-11
A2A1A3R10		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-11
A2A1A3R11		RESISTOR, FIXED, FILM: 910 ohms ±2%, 1/4 w; MIL type RLR07C911GR.	7-11
A2A1A3R12 and A2A1A3R13		RESISTOR: Item 37.	7-11
A2A1A3R14		RESISTOR, FIXED, COMPOSITION: 2000 ohms ±5%, 1/4 w; MIL type RCR07G202JS.	7-11
A2A1A3T1		COIL, RF, VARIABLE: 0.500 MHz, 0.422 in. dia, 0.490 in. h; mfr 93292, part no. 500-2384, 06845, dwg 4032552-0701.	7-11
A2A1A3TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 20.	7-11

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2		IF/AUDIO AMPLIFIER ASSEMBLY: 4.42 in. long, 2.17 in. w, 4.40 in. h; mfr 98738, part no. 01A226058-22-11. (Attaching Parts) CE(2)	7-12
A2A2E1		TERMINAL, LUG: 0.531 in. long, 0.250 in. w; mfr 79963, part no. 11A, 06845, dwg 2004437-0703. (Attaching Parts) See A2A2P1	7-12
A2A2MP1		CHASSIS, ELECTRICAL: 4.350 in. long, 4.327 in. w, 2.078 in. h; mfr 98738, part no. 27A226418-21-11.	7-12
A2A2MP2		COVER: Aluminum alloy, 4.337 in. long, 2.088 in. w; mfr 98738, part no. 15P228031-01. (Attaching Parts) AQ(2)	7-12
A2A2P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.729 in. long, 0.494 in. w, 0.426 in. thk; mfr 71785, part no. DCMM25W3P, 06845, dwg 4032484-0716. (Attaching Parts) AA(2) AD(1) AJ(1) AK(2)	7-12
A2A2P1A1 thru A2A2P1A3		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. w, 0.045 in. thk; mfr 71785, part no. 318-11-99-284, dwg 4032484-0730.	7-12
A2A2T1		TRANSFORMER, AUDIO FREQUENCY: 1.187 in. long, 0.875 in. w, 1.000 in.h; mfr 01961, part no. P39333, 06845, dwg 4032121-0701. (Attaching Parts) CJ(2)	7-12
A2A2W1		CABLE ASSEMBLY, RF: 3.35 in. long; mfr 98738, part no. 30A226482-32-11, connected to A2A2P1A3.	7-12
A2A2W2		CABLE, ASSEMBLY: 4.00 in. long; mfr 98738, part no. 30A226482-33-11, connected to A2A2P1A1.	7-12
A2A2W3		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226482-46-11, connected to A2A2P1A2.	7-12
A2A2A1		AGC/AUDIO AMPLIFIERS SUBASSEMBLY: 3.68 in. long, 2.57 in. w, 0.63 in. thk; mfr 98738, part no. 01A228102-01. (Attaching Parts) AF(4) AL(4) CG(4)	7-13
A2A2A1C1		Not used.	
A2A2A1C2		CAPACITOR: Item 19.	7-13
A2A2A1C3 thru A2A2A1C5		CAPACITOR: Item 18.	7-13
A2A2A1C6		CAPACITOR: Item 12.	7-13

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2A1C7		CAPACITOR, FIXED, CERAMIC: 0.022 uF ±10%, 100 Vdc working; MIL type M39014-02-1222.	7-13
A2A2A1C8		CAPACITOR: Item 4.	7-13
A2A2A1C9		CAPACITOR: Item 18.	7-13
A2A2A1C10		CAPACITOR: Item 4.	7-13
A2A2A1C11		CAPACITOR: Item 16.	7-13
A2A2A1C12		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±10%, 6 Vdc working; MIL type M39003-01-2254.	7-13
A2A2A1C13		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±10%, 20 Vdc working; MIL type M39003-01-2289.	7-13
A2A2A1C14		Not used.	
A2A2A1C15		CAPACITOR: Item 19.	7-13
A2A2A1C16		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±20%, 35 Vdc working; MIL type M39003-01-2305.	7-13
A2A2A1CR1 and A2A2A1CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5711.	7-13
A2A2A1CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N645.	7-13
A2A2A1CR4 and A2A2A1CR5		SEMICONDUCTOR DEVICE, DIODE: Item 60.	7-13
A2A2A1MP1 thru A2A2A1MP7		MOUNTING PAD, ELECTRONIC: Diallyl phthalate, 0.095 in. thk, 0.344 in. dia; mfr 13103, part no. 7717-10 9, 98738, dwg 14S132171-39A-9.	7-13
A2A2A1Q1and A2A2A1Q2			7-13
A2A2A1Q3 and A2A2A1Q4		TRANSISTOR: MIL type JAN2N930.	7-13
A2A2A1Q5		Not used.	
A2A2A1Q6 thru A2A2A1Q8		TRANSISTOR: Item 65.	7-13
A2A2A1Q9 thru A2A2A1Q12		TRANSISTOR: Item 64.	7-13
A2A2A1Q13 and A2A2A1Q14		TRANSISTOR: Item 65.	7-13

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2A1R1		RESISTOR, FIXED, FILM: 6200 ohms ±2%, 1/4 w; MIL type RLR07C622GR.	7-13
A2A2A1R2		RESISTOR: Item 38.	7-13
A2A2A1R3		RESISTOR: Item 47.	7-13
A2A2A1R4		RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/4 w; MIL type RCR07G182JS.	7-13
A2A2A1R5		RESISTOR, FIXED, COMPOSITION: 270 ohms ±5%, 1/4 w; MIL type RCR07G271JS.	7-13
A2A2A1R6		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohms, ±5%, 3/4 w; MIL type M39015-2-004XM.	7-13
A2A2A1R7		RESISTOR, FIXED, COMPOSITION: 3300 ohms ±5%, 1/4 w; MIL type RCR07G332JS.	7-13
A2A2A1R8		RESISTOR, FIXED, FILM: 620 ohms ±2%, 1/4 w; MIL type RLR07C621GR.	7-13
A2A2A1R9 and A2A2A1R10		RESISTOR: Item 38.	7-13
A2A2A1R11		RESISTOR, FIXED, FILM: 7500 ohms ±2%, 1/4 w; MIL type RLR07C752GR.	7-13
A2A2A1R12		RESISTOR: Item 39.	7-13
A2A2A1R13		RESISTOR, FIXED, COMPOSITION: 100 ohms ±5%, 1/4 w; MIL type RCR07G101JS.	7-13
A2A2A1R14		Not used.	
A2A2A1R15		RESISTOR, FIXED, FILM: 3600 ohms ±2%, 1/4 w; MIL type RLR07C362GR.	7-13
A2A2A1R16		RESISTOR, FIXED, FILM: 5100 ohms ±2%, 1/4 w; MIL type RLR07C512GR.	7-13
A2A2A1R17		Not used.	
A2A2A1R18		RESISTOR, FIXED, COMPOSITION: 3300 ohms ±5%, 1/4 w; MIL type RCR07G332JS.	7-13
A2A2A1R19		RESISTOR, FIXED, COMPOSITION: 330K ohms ±5%, 1/4 w; MIL type RCR07G334JS.	7-13
A2A2A1R20		RESISTOR: Item 42.	7-13
A2A2A1R21		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-13
A2A2A1R22		RESISTOR: Item 39.	7-13
A2A2A1R23		RESISTOR: Item 43.	7-13
A2A2A1R24		RESISTOR, FIXED, FILM: 51K ohms ±2%, 1/4 w; MIL type RLR07C513GR.	7-13
A2A2A1R25		RESISTOR, VARIABLE, WIRE-WOUND: 5000 ohms, ±5%, 3/4 w; MIL type M39015-2-006XM.	7-13
A2A2A1R26		RESISTOR: Item 39.	7-13
A2A2A1R27		RESISTOR, FIXED, COMPOSITION: 100K ohms ±5%, 1/4 w; MIL type RCR07G104JS.	7-13

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2A1R28		RESISTOR: Item 39.	7-13
A2A2A1R29		RESISTOR: Item 52.	7-13
A2A2A1R30		RESISTOR: Item 39.	7-13
A2A2A1R31		RESISTOR: Item 55.	7-13
A2A2A1R32		RESISTOR: Item 54.	7-13
A2A2A1R33		RESISTOR: Item 39.	7-13
A2A2A1R34		RESISTOR, FIXED, COMPOSITION: 22K ohms ±5%, 1/4 w; MIL type RCR07G223JS.	7-13
A2A2A1R35		RESISTOR: Item 39.	7-13
A2A2A1R36		RESISTOR, FIXED, COMPOSITION: 22K ohms ±5%, 1/4 w; MIL type RCR07G223JS.	7-13
A2A2A1R37		RESISTOR: Item 38.	7-13
A2A2A1R38		RESISTOR: Item 56.	7-13
A2A2A1R39		RESISTOR: Item 52.	7-13
A2A2A1R40		RESISTOR: Item 55.	7-13
A2A2A1R41		RESISTOR, FIXED, COMPOSITION: 10 megohms ±5%, 1/4 w; MIL type RCR07G106JS.	7-13
A2A2A1R42		RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4 w; MIL type RCR07G123JS.	7-13
A2A2A1RT1		RESISTOR, THERMAL: 5290 ohms ±5%, at 25 deg C; 0.270 in. dia, 0.100 in. thk; mfr 75263, part no. 35F5, dwg 4032273-0701.	7-13
A2A2A1T1		TRANSFORMER, RF, VARIABLE: 600 kHz, mfr 93292, part no. 500-2393, 06845, dwg 4032348-0705.	7-13
A2A2A1T2		TRANSFORMER, RF, VARIABLE: 500 kHz, mfr 93292, part no. 500-2394; 06845, dwg 4032348-0706.	7-13
A2A2A1TP1 and A2A2A1TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 20.	7-13
A2A2A2		IF/AUDIO AMPLIFIER SUBASSEMBLY: 4.08 in. long, 2.845 in. w, 0.80 in. thk; mfr 98738, part no. 01A228022-01. (Attaching Parts) AF(4) AL(4) CG(4) FF(1)	7-14
A2A2A2C1 and A2A2A2C2		CAPACITOR: Item 8.	7-14
A2A2A2C3		CAPACITOR: Item 4.	7-14
A2A2A2C4 and A2A2A2C5		CAPACITOR: Item 7.	7-14

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2A2C6		CAPACITOR: Item 8.	7-14
A2A2A2C7		CAPACITOR: Item 7.	7-14
A2A2A2C8		CAPACITOR: Item 4.	7-14
A2A2A2C9		CAPACITOR: Item 8.	7-14
A2A2A2C10		CAPACITOR: Item 7.	7-14
A2A2A2C11		CAPACITOR: Item 4.	7-14
A2A2A2C12 and A2A2A2C13		CAPACITOR: Item 7.	7-14
A2A2A2C14		CAPACITOR: Item 4.	7-14
A2A2A2C15		CAPACITOR: Item 8.	7-14
A2A2A2C16		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±10%, 50 Vdc working; MIL type M39003-01-2377.	7-14
A2A2A2C17		CAPACITOR, FIXED, ELECTROLYTIC: 22 uF ±10%, 50 Vdc working; MIL type M39003-01-2306.	7-14
A2A2A2C18		CAPACITOR, FIXED, ELECTROLYTIC: 47 uF ±20%, 35 Vdc working; MIL type M39003-01-2313.	7-14
A2A2A2C19		CAPACITOR: Item 12.	7-14
A2A2A2C20		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±10%, 50 Vdc working; MIL type M39003-01-2377.	7-14
A2A2A2C21 and A2A2A2C22		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±20%, 20 Vdc working; MIL type M39003-01-2290.	7-14
A2A2A2C23		CAPACITOR, FIXED, MICA: 1200 pF ±5%, 500 Vdc working; MIL type CMR06F122JPDM.	7-14
A2A2A2C24		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±20%, 20 Vdc working; MIL type M39003-01-2290.	7-14
A2A2A2C25		CAPACITOR, FIXED, ELECTROLYTIC: 47 uF ±20%, 35 Vdc working; MIL type M39003-01-2313.	7-14
A2A2A2C26		CAPACITOR: Item 16.	7-14
A2A2A2CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N645.	7-14
A2A2A2L1		COIL, RF: MIL type MS75089-35.	7-14
A2A2A2MP1 thru A2A2A2MP4		MOUNTING, PAD, ELECTRONIC: Diallyl phthalate, 0.344 in. dia, 0.095 in. thk; mfr 13103, part no. 7717-109, 98738, dwg 14S132171-39A-9.	7-14
A2A2A2Q1		TRANSISTOR: Item 65.	7-14
A2A2A2Q2 and A2A2A2Q3		TRANSISTOR: MIL type JAN2N706.	7-14
A2A2A2Q4 thru A2A2A2Q10		TRANSISTOR: Item 65.	7-14
A2A2A2R1		RESISTOR: Item 43.	7-14

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2A2R2 and A2A2A2R3		RESISTOR: Item 39.	7-14
A2A2A2R4		Not used.	
A2A2A2R5 and A2A2A2R6		RESISTOR: Item 54.	7-14
A2A2A2R7		RESISTOR: Item 57.	7-14
A2A2A2R8		RESISTOR: Item 38.	7-14
A2A2A2R9		RESISTOR: Item 53.	7-14
A2A2A2R10		RESISTOR: Item 43.	7-14
A2A2A2R11 and A2A2A2R12		RESISTOR: Item 39.	7-14
A2A2A2R13		RESISTOR: Item 44.	7-14
A2A2A2R14		RESISTOR: Item 43.	7-14
A2A2A2R15 and A2A2A2R16		RESISTOR: Item 39.	7-14
A2A2A2R17		RESISTOR: Item 37.	7-14
A2A2A2R18		RESISTOR, FIXED, FILM: 62 ohms ±2%, 1/4 w; MIL type RLR07C620GR.	7-14
A2A2A2R19		RESISTOR: Item 43.	7-14
A2A2A2R20 and A2A2A2R21		RESISTOR: Item 39.	7-14
A2A2A2R22		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohm ±5%, 3/4 w; MIL type M39015-2-004XM.	7-14
A2A2A2R23		RESISTOR: Item 59.	7-14
A2A2A2R24		RESISTOR: Item 41.	7-14
A2A2A2R25		RESISTOR, FIXED, FILM: 11K ohms ±2%, 1/4 w; MIL type RLR07C113GR.	7-14
A2A2A2R26 and A2A2A2R27		RESISTOR: Item 38.	7-14
A2A2A2R28		RESISTOR, FIXED, FILM: 16K ohms ±2%, 1/4 w; MIl type RLR07C163GR.	7-14
A2A2A2R29		RESISTOR: Item 55.	7-14
A2A2A2R30		RESISTOR, FIXED, COMPOSITION: 2700 ohms ±5%, 1/4 w; MIL type RCR07G272JS.	7-14
A2A2A2R31		RESISTOR, FIXED, FILM: 62 ohms ±2%, 1/4 w; MIL type RLR07C620GR.	7-14
A2A2A2R32		RESISTOR: Item 57.	7-14

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2A3R33		RESISTOR, FIXED, FILM: 620 ohms ±2%, 1/4 w; MIL type RLR07C621GR.	7-14
A2A2A2R34		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-14
A2A2A2R35		RESISTOR: Item 40.	7-14
A2A2A2R36		RESISTOR, FIXED, COMPOSITION: 3300 ohms ±5%, 1/2 w; MIL type RCR20G332JS.	7-14
A2A2A2R37		RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/2 watt; MIL type RCR20G390JS.	7-14
A2A2A2R38		RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-14
A2A2A2R39		RESISTOR: Item 48.	7-14
A2A2A2R40		RESISTOR: Item 56.	7-14
A2A2A2RT1		THERMISTOR: Negative coefficient, 500 ohms, ±10% at 25 deg. C, 1/2 w; mfr 98738, part no. 06P226775-02.	7-14
A2A2A2T1		TRANSFORMER, RF, VARIABLE: 500 kHz, capacitance 845 pF ±3%; mfr 93292, part no. 500-2352, 06845, dwg 4032348-0701.	7-14
A2A2A2T2		TRANSFORMER, RF, VARIABLE: 500 kHz; mfr 93292, part no. 500-2353, 06845, dwg 4032348-0702.	7-14
A2A2A2T3		TRANSFORMER, RF, VARIABLE: 500 kHz; mfr 93292, part no. 500-1391, 06845, dwg 4032348-0703.	7-14
A2A2A2T4		TRANSFORMER, RF, VARIABLE: 600 kHz; mfr 93292, part no. 500-2392, 06845, dwg 4032348-0704.	7-14
A2A2A2T5		TRANSFORMER, AUDIO: Mfr 01961, part no. PE9334, 06845, dwg 4030818-0701.	7-14
A2A2A3		SSB/AM DETECTOR SUBASSEMBLY: 2.40 in. long, 1.38 in. w, 0.78 in. thk; mfr 98738, part no. 01A226163-21-11. (Attaching Parts) AF(3) AL(3) CG(3) FF(2)	7-15
A2A2A3C1		CAPACITOR, FIXED, ELECTROLYTIC: 39 uF ±10%, 10 Vdc working; MIL type M39003-01-2979.	7-15
A2A2A3C2 and A2A2A3C3		CAPACITOR, FIXED, CERAMIC: 1500 pF ±20%, 200 Vdc working; MIL type M39014-02-1203.	7-15
A2A2A3C4		CAPACITOR, FIXED, ELECTROLYTIC: 39 uF ±10%, 10 Vdc working; MIL type M39003-01-2979.	7-15
A2A2A3C5		CAPACITOR: Item 19.	7-15
A2A2A3C6		CAPACITOR: Item 4.	7-15

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

IF/AUDIO AMPLIFIER ASSEMBLY A2A2

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A2A3C7		CAPACITOR, FIXED, CERAMIC: 2200 pF ±20%, 200 Vdc working; MIL type M39014-02-1207.	7-15
A2A2A3C8		CAPACITOR, FIXED, CERAMIC: 33 pF ±10%, 200 Vdc working; MIL type M39014-01-1210.	7-15
A2A2A3CR1 and A2A2A3CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5711.	7-15
A2A2A3L1		INDUCTOR, RF, VARIABLE: 500 kHz, capacitance 863 pF ±5%, 0.422 in. dia, 0.490 in. h; mfr 93292, part no. 500-2360, 06845, dwg 4032540-0701.	7-15
A2A2A3MP1 thru A2A2A3MP3		MOUNTING PAD, ELECTRONIC: Diallyl phthalate, 0.344 in. dia, 0.095 in. thk; mfr 13103, part no. 7717-109, 98738, dwg 14S132171-39A-9.	7-15
A2A2A3Q1 thru A2A2A3Q3		TRANSISTOR: Item 65.	7-15
A2A2A3R1		RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-15
A2A2A3R2		RESISTOR: Item 41.	7-15
A2A2A3R3		RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.	7-15
A2A2A3R4		RESISTOR: Item 41.	7-15
A2A2A3R5		RESISTOR, FIXED, FILM: 2K ohms ±2%, 1/4 w; MIL type RLR07C202GR.	7-15
A2A2A3R6		RESISTOR: Item 39.	7-15
A2A2A3R7		RESISTOR: Item 37.	7-15
A2A2A3T1		TRANSFORMER, AUDIO: 0.875 in. long, 0.781 in. w, 0.531 in. h; mfr 01961, part no. PE9335, 06845, dwg 4030818-0702.	7-15
A2A2A3TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 20.	7-15
A2A3		Same as A2A2.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4		RF AMPLIFIER ASSEMBLY: 7.332 in. long, 7.432 in. w, 4.930 in. h; mfr 98738, part no. 01A226052-21-11. (Attaching Parts) CE(4)	7-16
A2A4B1		MOTOR ASSEMBLY: Mfr 06845, part no. 4032216-0501. (Attaching Parts) AU(2) AF(3)	7-17
A2A4B1A		MOTOR: 26 Vdc ±0.5 Vdc, 240 milliamp; 3.242 in. long, 0.875 in. dia; mfr 25140, part no. 43A1470, 06845, dwg 4030785-0701.	7-17
A2A4C1		CAPACITOR, FIXED, MICA: 330 pF ±5%, 500 Vdc working; MIL type CMR05F331JPDM.	7-19H
A2A4C2		CAPACITOR: Item 16.	7-19B
A2A4C3		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±20%, 500 Vdc working; MIL type CK63AW103M.	7-19G
A2A4C4		CAPACITOR: Item 16.	7-19B
A2A4C5		CAPACITOR, FIXED, MICA: 330 pF ±5%, 500 Vdc working; MIL type CMR05F331JPDM.	7-19H
A2A4C6		CAPACITOR: Item 16.	7-19B
A2A4C7		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±20%, 500 Vdc working; MIL type CK63AW103M.	7-19D
A2A4C8		CAPACITOR, FIXED, MICA: 356 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-48.	7-19E
A2A4C9		CAPACITOR, FIXED, MICA: 775 pF ±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-58.	7-19E
A2A4C10		CAPACITOR: Item 16.	7-19B
A2A4C11		CAPACITOR, FIXED, MICA: 356 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-48.	7-19G
A2A4C12		CAPACITOR, FIXED, MICA: 775 pF±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-58.	7-19G
A2A4C13		CAPACITOR, FIXED, MICA: 356 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-48.	7-19C
A2A4C14		CAPACITOR, FIXED, MICA: 775 pF ±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-58.	7-19C
A2A4C15 thru A2A4C18		CAPACITOR: Item 16.	7-19B

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4C19		CAPACITOR, FIXED, MICA: 369 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-49.	7-19F
A2A4C20		CAPACITOR, FIXED, MICA: 784 pF ±1%, 300 Vdc working; 0.470 in. long, 0.400 in. w, 0.230 in. thk; mfr 98738, dwg 21P228300-59.	7-19F
A2A4C21 and A2A4C22		CAPACITOR: Item 15.	7-17
A2A4CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3611.	7-17
A2A4E1		TERMINAL, LUG: 0.50 in. long; mfr 79963, part no. 75, 98738, dwg no. 29S111221-31.	7-17
A2A4E2 thru A2A4E11		Not used.	
A2A4E12 and A2A4E13		TERMINAL, LUG: MIL type MS35431-4. (Attaching Parts) AD(2)	7-19H
A2A4E14		TERMINAL, FEED-THRU: MIL type SE14XC04.	7-19E
A2A4E15 thru A2A4E18		TERMINAL, FEED-THRU: MIL type FT049B01.	7-19G
A2A4E19		TERMINAL, STUD: MIL type SE079B01.	7-19H
A2A4E20 and A2A4E21		TERMINAL, STUD: MIL type SE12XC07.	7-19G
A2A4E22		TERMINAL, STUD: MIL type SE15XC04.	7-19C
A2A4E23		TERMINAL, STUD: MIL type SE12XC07.	7-19D
A2A4E24 thru A2A4E27		TERMINAL, FEED-THRU: MIL type FT049B01.	7-19B and 7-19C
A2A4E28		TERMINAL, STUD: MIL type MS17156-1.	7-19B
A2A4E29		TERMINAL, FEED-THRU: MIL type FT049B01.	7-19B
A2A4E30		TERMINAL, STUD: MIL type MS17156-1.	7-19B
A2A4FL1 thru A2A4FL3		SUPPRESSOR, PARASITIC: 0.200 in. OD, 0.100 in. ID, 0.250 in. long; mfr 08832, part no. F754, 06845, dwg 4032581-0701.	7-19H and 7-19C
A2A4K1		RELAY, ELECTRICAL: DPDT, 2 amp, MIL type M5757-10-039. (Attaching Parts) AA(2) AG(2) AQ(2)	7-17
A2A4MP1		MOTOR DRIVE: Mfr 06845, dwg no. 4032239-0501, consists of A2A4MP2, MP3 and MP4 (Attaching Parts) CM(1)	7-16
A2A4MP2 and A2A4MP3		GEAR, SPUR: 170 teeth, 1.792 in. dia, 0.281 in. thk; mfr 06845, part no. 4030615-0701. (Attaching Parts) CL(1)	7-16
A2A4MP4		SHAFT, ROTOR: 0.1874 in. dia, 4.22 in. long; mfr 06845, part no. 4030639-0001. (Attaching Parts) FJ(1)	7-16

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP5		COVER: 7.432 in. long, 7.332 in. w, 4.430 in. h; mfr 98738, part no. 15P226217-21-11. (Attaching Parts) CE(4) AL(4) CG(4) AF(4)	7-16
A2A4MP6		POST: 3.783 in. long, 0.312 in. dia; mfr 06845, part no. 4032437-0501. (Attaching Parts) FK(1) DB(1)	7-16
A2A4MP7		SHIELD, NO. 1: 5.030 in. dia, 0.090 in. thk; mfr 98738, part no. 01A226698-21-11. (Attaching Parts) DB(3) CS(3) AB(2) M(2) L(2)	7-16
A2A4MP8		SPACER, COVER: 1.98 in. long, 0.62 in. w, 0.120 in. thk; mfr 06845, part no. 4032448-0001.	7-16
A2A4MP9 thru A2A4MP12		POST: 3.78 in. long, 0.188 in. hex; mfr 06845, part no. 4030951-0502.	7-16
A2A4MP13 thru A2A4MP17		CLAMP, RETAINER: 0.24 in. long, 0.28 in. w; 0.20 in. h; mfr 06845, part no. 4032108-0001. (Attaching Parts) AL(1) CQ(1)	7-16
A2A4MP18		CLAMP, RETAINER: 0.24 in. long, 0.28 in. w, 0.20 in. h; mfr 06845, part no. 4032108-0001. (Attaching Parts) AL(2) AD(1) DA(1)	7-16
A2A4MP19		BEARING, BALL, ANNULAR: Steel with bronze separator; mfr 32828, part no. 6905-1, 06845, dwg 4030764-0701.	7-16
A2A4MP20 and A2A4MP21		Not used.	
A2A4MP22		RING, TURRET, TOP: Aluminum alloy; 6.80 in. OD, 5.28 in. ID, 0.125 in. thk; mfr 06845, part no. 4032294-0001. (Attaching Parts) AF(4)	7-16
A2A4MP23		RING, TURRET BOTTOM: 6.80 in. OD, 5.28 in. ID, 0.125 in. thk; mfr 06845, part no. 4030947-0001.	7-16
A2A4MP24		RING, SPACER: Nylon; 5.544 in. dia, 0.231 in. thk; mfr 98738, part no. 42P226779-21-11.	7-16
A2A4MP25		Not used.	
A2A4MP26 thru A2A4MP29		BEARING, SLEEVE: Sintered metal, oil impregnated; 0.422 in. OD, 0.187 in. ID, 0.109 in. thk; mfr 12639, part no. 127-100, 06845, dwg 4030759-0701.	7-16 and 7-17
A2A4MP30		BRACKET, RELAY: 1.12 in. long, 1.74 in. w, 0.62 in. thk; mfr 06845, part no. 4032226-0001. (Attaching Parts) AJ(2) AK(2)	7-17
A2A4MP31		BRUSH SET, ELECTRICAL CONTACT: MOLDED EPOXY, STAINLESS STEEL; 3.58 in. long; mfr 43710, part no. 1433, 06845, dwg no. 4032432-0701. (Attaching Parts) CN(2)	7-19

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP32 thru A2A4MP39		Not used.	
A2A4MP40		MOUNTING BASE, ELECTRICAL: Aluminum alloy, 7.322 in. long, 7.322 in. w, mfr 98738, part no. 01A226431-21-11. (Attaching Parts) L(3) AB(3)	7-17
A2A4MP41 and A2A4MP42		CLAMP: 0.25 in. long, 0.178 in. w; mfr 06845, part no. 4032184-0001. (Attaching Parts) See A2A4S1	7-17
A2A4MP43		GEAR, SPUR: 50 teeth, 1.083 in. dia, 0.343 in. long; mfr 57533, part no. E21-50, 06845, dwg 4032171-0701.	7-17
A2A4MP44 and A2A4MP45		GROMMET: MIL type MS35489-1.	7-17
A2A4MP46		Not used.	
A2A4MP47		TUNING ROTOR: 3.00 in. dia, 4.22 in. long; mfr 98738, part no. 01A226092-21-11; Consists of A2A4MP48 thru A2A4MP58.	7-16
A2A4MP48		TOP ROTOR: Mfr 98738, part no. 01A226352-21-11. Consists of A2A4MP49, A2A4A37 (Attaching Parts) CP(1)	7-22
A2A4MP49		HUB, TOP ROTOR: 1.00 in. OD, 0.40 in. long, 0.38 in. ID; mfr 98738, part no. 43P227263-21-11.	7-22
A2A4MP50		UPPER GEAR ROTOR: Mfr 98738, part no. 01A226349-21-11; Consists of A2A4MP51, A2A4A35 and A2A4A36 (Attaching Parts) CM(2)	7-22
A2A4MP51		GEAR, SPUR: Mfr 98738, part no. 44P227260-22-11; Consists of A2A4MP51A and A2A4MP51B	7-22
A2A4MP51A		GEAR: 170 teeth, 1.792 in. dia, 0.38 in. thk; mfr 98738, part no. 44P227260-23-11.	7-22
A2A4MP51B		BEARING, SLEEVE: MIL type MS17795-13.	7-22
A2A4MP52		CENTER ROTOR: Mfr 98738, part no. 01A226350-21-11; Consists of A2A4MP53, A2A4A33 and A2A4A34 (Attaching Parts) CP(1)	7-22
A2A4MP53		HUB, CENTER ROTOR: Mfr 98738, part no. 43P227262-21-11; 1.79 in. dia, 0.74 in. thk.	7-22
A2A4MP54		LOWER GEAR ROTOR: Mfr 98738, part no. 01A226351-21-11; Consists of A2A4MP55, A2A4A31 and A2A4A32. (Attaching Parts) CM(2)	7-22

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP55		GEAR, SPUR: Mfr 98738, part no. 44P227260-22-11. Consists of A2A4MP55A and A2A4MP55B.	7-22
A2A4MP55A		GEAR: 170 teeth, 1.792 in. dia, 0.38 in. thk; mfr 98738, part no. 44P227260-23-11.	7-22
A2A4MP55B		BEARING, SLEEVE: MIL type MS17795-13.	7-22
A2A4MP56		BOTTOM ROTOR: Mfr 98738, part no. 01A226353-21-11; Consists of A2A4MP57 and A2A4A30. (Attaching Parts) CP(1)	7-22
A2A4MP57		HUB, BOTTOM ROTOR: 1.00 in. OD, 0.38 in. ID, 0.40 in. long; mfr 98738, part no. 43P227261-21-11.	7-22
A2A4MP58		SHAFT, ROTOR: 4.22 in. long, 0.1874 in. dia; mfr 98738, part no. 47P227268-01. (Attaching Parts) CM(1) FJ(1)	7-22
A2A4MP59		TURRET DRIVE GEAR ASSEMBLY: Mfr 06845, part no. 4032438-0501; Consists of A2A4MP60 and A2A4MP61. (Attaching Parts) AD(4) AL(4) CG(4)	7-16
A2A4MP60		GEAR, SPUR: Aluminum alloy, anodic coating; 7.208 in. dia, 0.265 in. thk; mfr 06845, part no. 4030614-0502.	7-20
A2A4MP61		CODING RING: Laminated epoxy, copper foil, one side, plated with rhodium; 7.06 in. dia, 0.062 in. thk; mfr 06845, part no. 4032447-0001.	7-20
A2A4MP62 and A2A4MP63		COUPLING ASSEMBLY: Mfr 98738, part no. 58A227169-21-11; Consists of A2A4MP64 thru A2A4MP66. (Attaching Parts) BD(1) CP(1)	7-18
A2A4MP64		COUPLING, TOP: CRES, 0.875 in. dia, 0.382 in. thk; mfr 98738, part no. 58P227167-21-11.	7-18
A2A4MP65		DRIVE PIN: CRES, 0.0936 in. dia, 0.225 in. long; mfr 06845, part no. 4032181-0001.	7-18
A2A4MP66		HOLD DOWN SPRING: Half hard copper, 0.80 in. long, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) G(2) CR(2)	7-18
A2A4MP67		SHIELD ASSEMBLY, NO. 2: Mfr 98738, part no. 01A226220-21-11; Consists of A2A4MP68 thru A2A4MP71.	7-19D
A2A4MP68		SHIELD, NO. 2: Aluminum alloy, approx. 5.0 in. long, 2.80 in. w, 0.063 in. thk; mfr 98738, part no. 64P226356-21-11.	7-19D
A2A4MP69		FASTENER: CRES, 0.187 in. sq, 0.360 in. long; mfr 06845, part no. 4032145-0001. (Attaching Parts) CT(1)	7-19C

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP70 and A2A4MP71		SPRING, GROUNDING: Copper, silver plated; approx. 1.60 in. long, 0.725 in. w, 0.005 in. thk; mfr 98738, part no. 41P226219-21-11. (Attaching Parts) DX(3)	7-19C
A2A4MP72		SHIELD ASSEMBLY, NO. 3: Mfr 98738, part no. 01A226223-21-11; Consists of A2A4MP73 thru A2A4MP77.	7-19G
A2A4MP73		SHIELD SUBASSEMBLY, NO. 3: Mfr 98738, part no. 01A226222-22-11; Consists of A2A4MP78 thru A2A4MP80.	7-19H
A2A4MP74		SHIELD, TUBE SOCKET: Brass, silver plated; 1.24 in. long, 1.10 in. w, 0.020 in. thk; includes terminals; mfr 06845, part no. 4032213-0501.	7-19B
A2A4MP75		SHIELD, TUBE SOCKET: Brass, silver plated; 1.24 in. long, 1.10 in. w, 0.020 in. thk; includes terminals; mfr 06845, part no. 4032213-0502.	7-19B
A2A4MP76 and A2A4MP77		Not used.	
A2A4MP78		SHIELD, NO. 3: Aluminum alloy; approx. 5.0 in. long, 2.80 in. w, 0.063 in. thk; mfr 06845, part no. 4032525-0001.	7-19H
A2A4MP79		FASTENER: Same as A2A4MP69.	7-19G
A2A4MP80		SPRING, GROUNDING: Same as A2A4MP70.	7-19G
A2A4MP81		SHIELD ASSEMBLY, NO. 4: Mfr 98738, part no. 01A226221-21-11; Consists of A2A4MP82 thru A2A4MP85.	7-19F
A2A4MP82		SHIELD, NO. 4: Aluminum alloy, silver plated, approx. 4.0 in. long, 1.75 in. w, 0.063 in. thk; mfr 06845, part no. 4032229-0001.	7-19E
A2A4MP83		FASTENER: Same as A2A4MP69.	7-19E
A2A4MP84 and A2A4MP85		SPRING, GROUNDING: Same as A2A4MP70.	7-19E
A2A4MP86		SHIELD, NO. 5: Aluminum alloy; approx. 5.0 in. long, 2.75 in. w, 0.063 in. thk; mfr 06845, part no. 4032231-0501. (Attaching Parts) M(3) DB(3)	7-19J
A2A4MP87		SHIELD, INSULATED: Brass base with nylon insulator; 2.70 in. long, 1.54 in. w, 0.070 in. thk; mfr 06845, part no. 4016866-0501. (Attaching Parts) See A2A4A1	7-19C

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP88		CLAMP, LOOP: Nylon; 0.480 in. long, 0.230 in. w; mfr 95987, part no. 1-16-2NA, 06845, dwg 4032230-0701. (Attaching Parts) CJ(1)	7-19J
A2A4MP89 and A2A4MP90		SHIELD, ELECTRON TUBE: Aluminum with cadmium plated copper liner; 0.875 in. dia, 1.875 in. long; mfr 98978, part no. TR5-5020-21B, 06845, dwg 4032212-0701.	7-19C
A2A4MP91 thru A2A4MP96		SPACER: Aluminum alloy; hexagonal, 0.250 in. across flats, 0.883 in. long, 0.159 in. ID; mfr 06845, part no. 4032191-0001.	7-19A
A2A4MP97		SPACER, THREADED: Aluminum alloy; hexagonal, 0.25 in. across flats, 0.88 in. long, 6-32 NC-2B int. threads, mfr 06845, part no. 4032113-001. (Attaching Parts) M(2) ER(2)	
A2A4MP98 thru A2A4MP103		SPACER, THREADED: Aluminum alloy, hexagonal, 0.250 in. across flats, 0.883 in. long, 6-32 NC-2B int. threads; mfr 06845, part no. 4032113-0001.	7-19A
A2A4MP104 thru A2A4MP106		ROD, THREADED: CRES; 2.82 in. long, 6-32 UNC-2A threads; mfr 06845, part no. 4032449-0001.	7-19A
A2A4MP107		STATOR PLATE ASSEMBLY: 4 electrical contacts; 0.980 in. long, 0.60 in. w, 0.126 in. thk; mfr 98738, part no. 01A227173-22-11.	7-19C
A2A4MP107A		PLATE, STATOR: Diallyl-phthalate; 0.980 in. long, 0.60 in. w, 0.126 in. thk; mfr 06845, part no. 4032214-0001.	7-19K
A2A4MP107B thru A2A4MP107E		CONTACT, ELECTRICAL: Material - Beryllium copper alloy; 190 HM; mfr 98738, part no. 39P227171-21-11.	7-19K
A2A4MP108		STATOR PLATE ASSEMBLY: Four contact; mfr 98738, part no. 01A227173-23-11.	7-19C
A2A4MP108A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP108B thru A2A4MP108E		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP109		STATOR PLATE ASSEMBLY: Four contact; mfr 98738, part no. 01A227173-24-11.	7-19J
A2A4MP109A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP109B thru A2A4MP109E		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP110		STATOR PLATE ASSEMBLY: Same as A2A4MP109.	7-19G
A2A4MP110A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP110B thru A2A4MP110E		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP111		STATOR PLATE ASSEMBLY: Two contact; mfr 98738, part no. 01A227173-31-11.	7-19G
A2A4MP111A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP111B and A2A4MP111C		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP112		STATOR PLATE ASSEMBLY: Four contact; mfr 98738, part no. 01A227173-35-11.	7-19G
A2A4MP112A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP112B thru A2A4MP112E		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP113		STATOR PLATE ASSEMBLY: Same as A2A4MP112.	7-19E
A2A4MP113A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP113B thru A2A4MP113E		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP114		STATOR PLATE ASSEMBLY: Same as A2A4MP112.	7-19J
A2A4MP114A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP114B thru A2A4MP114E		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP115		STATOR PLATE ASSEMBLY: Two contact; mfr 98738, part no. 01A227173-36-11.	7-19J

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4MP115A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP115B and A2A4MP115C		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP116		STATOR PLATE ASSEMBLY: Same as A2A4MP115.	7-19C
A2A4MP116A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP116B and A2A4MP116C		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP117		STATOR PLATE ASSEMBLY: Same as A2A4MP115.	7-19E
A2A4MP117A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP117B and A2A4MP117C		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP118		STATOR PLATE ASSEMBLY: Three contact; mfr 98738, part no. 01A227173-37-11.	7-19E
A2A4MP118A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP118B thru A2A4MP118D		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP119		STATOR PLATE ASSEMBLY: One contact; mfr 98738, part no. 01A227173-38-11.	7-19G
A2A4MP119A		PLATE, STATOR: Same as A2A4MP107A.	7-19K
A2A4MP119B		CONTACT, ELECTRICAL: Same as A2A4MP107B.	7-19K
A2A4MP120		RETAINER: Beryllium copper; 1.38 in. long, 1.00 in. w, 0.050 in. thk; mfr 98738, part no. 42P227163-21-11.	7-16
		(Attaching Parts) DB(1)	
A2A4P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 pin contacts; 1.541 in. long, 0.494 in. w, 0.422 in. dia; mfr 71785, part no. DAMM15P, 06845, dwg 4032484-0703.	7-17
A2A4P2		CONNECTOR, RECEPTACLE, ELECTRICAL: 5 pin contacts; 2.729 in. long, 0.494 in. w, 0.426 in. dia; mfr 71785, part no. DCMME17W5P, 06845, dwg 4032484-0718.	7-17
		(Attaching Parts) CF(2)	
A2A4P2A1 thru A2A4P2A3		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. w, 0.045 in. dia; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-17

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4P2A4		Not used.	
A2A4P2A5		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, 0.530 in. w, 0.045 in. dia; mfr 71785, part no. 318-11-99-284, 06845, dwg 4032484-0730.	7-17
A2A4R1		RESISTOR: Item 56.	7-19B
A2A4R2		RESISTOR: Item 59.	7-19B
A2A4R3		RESISTOR: Item 39.	7-19B
A2A4S1		CONSISTS OF MP31, MP41, and MP42.	7-17
A2A4TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-12-03.	7-16 and 7-19C
A2A4TP2 and A2A4TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-12-01.	7-19C and 7-16
A2A4TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-12-03.	7-16 and 7-19C
A2A4V1		ELECTRON TUBE: MIL type JAN6BZ6.	7-19C
A2A4V2		ELECTRON TUBE: MIL type JAN6AN5WA.	7-19C
A2A4W1		CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226790-26-11. Connects to A2A4P2.	7-17
A2A4W2		CABLE ASSEMBLY, RF: 7.50 in. long; mfr 98738, part no. 30A226482-45-11. Connects to A2A4P2.	7-17
A2A4W3 and A2A4W4		CABLE ASSEMBLY, RF: 4.00 in. long; mfr 98738, part no. 30A226482-33-11. Connects to A2A4P2.	7-17
A2A4XV1 and A2A4XV2		SOCKET, ELECTRON TUBE: 1.19 in. long, 0.625 in. dia; mfr 91662, part no. 05-0715-03, 06845, dwg 4032578-0701. (Attaching Parts) AQ(2) AL(2)	7-19G
A2A4A1		RF AMPLIFIER SUBASSEMBLY: 1.901 in. long, 2.38 in. w; mfr 98738, part no. 01A226169-21-11. (Attaching Parts) AL(2) AU(2) CW(2)	7-19J and 7-21
A2A4A1C1		CAPACITOR: Item 16.	7-21
A2A4A1C2 and A2A4A1C3		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±20%, 20 Vdc working; MIL type M39003-01-2290.	7-21
A2A4A1C4		CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014-01-1237.	7-21
A2A4A1E1 thru A2A4A1E8		Not used.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A1E9		TERMINAL, STUD: 0.240 in. long, 0.062 in. dia; mfr 88245, part no. 2031B1, 98738, dwg 29P239053-21-11.	7-21
A2A4A1R1		RESISTOR, FIXED, COMPOSITION: 100K ohms ±5%, 1/4 w; MIL type RCR07G104JS.	7-21
A2A4A1R2		RESISTOR: Item 38.	7-21
A2A4A1R3		RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-21
A2A4A1R4		RESISTOR, FIXED, FILM: 620 ohms ±2%, 1/2 w; MIL type RLR20C621GR.	7-21
A2A4A1R5 and A2A4A1R6		RESISTOR, FIXED, COMPOSITION: 120 ohms ±2%, 1/2 w; MIL type RCR20G121JS.	7-21
A2A4A2		12 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w; 1.12 in. h; mfr 98738, part no. 01A226316-21-11.	7-23
A2A4A2C1		CAPACITOR: Item 10.	7-23
A2A4A2C2		CAPACITOR, FIXED, MICA: 126 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-10.	7-23
A2A4A2C3		CAPACITOR, FIXED, MICA: 132 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-13.	7-23
A2A4A2C4		CAPACITOR, FIXED, MICA: 250 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-39.	7-23
A2A4A2E1		BLOCK, CONTACT: Item 1.	7-23
A2A4A2T1		TRANSFORMER, RF, VARIABLE: 12 MHz, capacitance 118 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2411, 06845, dwg 4032167-0711.	7-23
A2A4A2T2		COIL, RF, VARIABLE: 12 MHz, capacitance 135 pF, mfr 93292, part no. 500-2511, mfr 06845, dwg 4032521-0711.	7-23
A2A4A2T3		TRANSFORMER, RF, VARIABLE: 7 MHz, capacitance 196.0 pF; 0.422 in. dia. 0.490 in. long; mfr 93292, part no. 500-2606, 06845, dwg 4032522-0706.	7-23
A2A4A2T4		TRANSFORMER, RF, VARIABLE: 2 MHz, capacitance 754 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2701, 06845, dwg 4032523-0701.	7-23

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A3		13 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, mfr 98738, part no. 01A226327-21-11.	7-24
A2A4A3C1		CAPACITOR: Item 10.	7-24
A2A4A3C2		CAPACITOR, FIXED, MICA: 115 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w; 0.180 in. thk; mfr 98738, dwg 21P228300-06.	7-24
A2A4A3C3		CAPACITOR, FIXED, MICA: 120 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.160 in. thk; mfr 98738, dwg 21P228300-07.	7-24
A2A4A3C4		CAPACITOR, FIXED, MICA: 208 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-32.	7-24
A2A4A3C5		CAPACITOR, FIXED, MICA: 1250 pF ±1%, 300 Vdc working; 0.750 in. long, 0.510 in. w, 0.200 in. thk; mfr 98738, dwg 21P228301-01.	7-24
A2A4A3E1		BLOCK, CONTACT: Item 1.	7-24
A2A4A3T1		TRANSFORMER, RF, VARIABLE: 13 MHz, capacitance 109 pF ±5%, 0.422 in. dia; 0.490 in. long; mfr 93292, part no. 500-2412; 06845, dwg 4032167-0712.	7-24
A2A4A3T2		COIL, RF, VARIABLE: 13 MHz, capacitance 126.7 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2512, 06845, dwg 4032521-0712.	7-24
A2A4A3T3		TRANSFORMER, RF, VARIABLE: 8 MHz, capacitance 170.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2627, 06845, dwg 4032522-0727.	7-24
A2A4A3T4		TRANSFORMER, RF, VARIABLE: 3 MHz, capacitance 482 pF; 0.390 in. dia. 0.531 in. long; mfr 93292, part no. 500-2702, 06845, dwg 4032523-0702.	7-24
A2A4A4		14 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, dwg 01A226328-21-11.	7-25
A2A4A4C1		CAPACITOR: Item 10.	7-25
A2A4A4C2		CAPACITOR, FIXED, MICA: 105 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-02.	7-25
A2A4A4C3		CAPACITOR, FIXED, MICA: 111 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-05.	7-25

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A4C4		CAPACITOR, FIXED, MICA: 179 pF ±1%, 500 Vdc working, 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-25.	7-25
A2A4A4C5		CAPACITOR, FIXED, MICA: 629 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-57.	7-25
A2A4A4E1		BLOCK, CONTACT: Item 1.	7-25
A2A4A4T1		TRANSFORMER, RF, VARIABLE: 14 MHz, capacitance 101 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2413, 06845, dwg 4032167-0713.	7-25
A2A4A4T2		COIL, RF, VARIABLE: 14 MHz, capacitance 119.5 pF ±5%, 0.422 in. dia, 0.490 in. long, mfr 93292, part no. 500-2513, 06845, dwg 4032521-0713.	7-25
A2A4A4T3		TRANSFORMER, RF, VARIABLE: 9 MHz, capacitance 152.0 pF; 0.422 in. dia; 0.490 in. long; mfr 93292, part no. 500-2607, 06845, dwg 4032522-0707.	7-25
A2A4A4T4		TRANSFORMER, RF, VARIABLE: 4 MHz, capacitance 358 pF; 0.390 in, dia, 0.531 in. long; mfr 93292, part no. 500-2703, 06845, dwg 4032523-0703.	7-25
A2A4A5		15 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, dwg 01A226317-21-11.	7-26
A2A4A5C1		CAPACITOR: Item 9.	7-26
A2A4A5C2		CAPACITOR, FIXED, MICA: 97 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0738.	7-26
A2A4A5C3		CAPACITOR, FIXED, MICA: 103 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-01.	7-26
A2A4A5C4		CAPACITOR, FIXED, MICA: 157 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-20.	7-26
A2A4A5C5		CAPACITOR, FIXED, MICA: 422 pF ±1%, 300 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-52.	7-26
A2A4A5E1		BLOCK, CONTACT: Item 1.	7-26

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A5T1		TRANSFORMER, RF, VARIABLE: 15 MHz, capacitance 94.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2414, 06845, dwg 4032167-0714.	7-26
A2A4A5T2		COIL, RF, VARIABLE: 15 MHz, capacitance 113 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2514, 06845, dwg 4032521-0714.	7-26
A2A4A5T3		TRANSFORMER, RF, VARIABLE: 10 MHz, capacitance 137.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2608, 06845, dwg 4032522-0708.	7-26
A2A4A5T4		TRANSFORMER, RF, VARIABLE: 5 MHz, capacitance 286 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2704, 06845, dwg 4032523-0704.	7-26
A2A4A6		16 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w; 1.12 in. h; mfr 98738, part no. 01A226329-21-11.	7-27
A2A4A6C1		CAPACITOR: Item 9.	7-27
A2A4A6C2		CAPACITOR, FIXED, MICA: 91 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0735.	7-27
A2A4A6C3		CAPACITOR, FIXED, MICA: 96 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0737.	7-27
A2A4A6C4		CAPACITOR, FIXED, MICA: 140 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-15.	7-27
A2A4A6C5		CAPACITOR, FIXED, MICA: 318 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-46.	7-27
A2A4A6E1		BLOCK, CONTACT: Item 1.	7-27
A2A4A6T1		TRANSFORMER, RF, VARIABLE: 16 MHz, capacitance 89 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2415, 06845, dwg 4032167-0715.	7-27
A2A4A6T2		COIL, RF, VARIABLE: 16 MHz, capacitance 107.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2515, 06845, dwg 4032521-0715.	7-27

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A6T3		TRANSFORMER, RF, VARIABLE: 11 MHz, capacitance 125.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2609, 06845, dwg 4032522-0709.	7-27
A2A4A6T4		TRANSFORMER, RF, VARIABLE: 6 MHz, capacitance 240 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2705, 06845, dwg 4032523-0705.	7-27
A2A4A7		17 MHZ SUBASSEMBLY: 390 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226318-21-11.	7-28
A2A4A7C1		CAPACITOR: Item 9.	7-28
A2A4A7C2		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0733.	7-28
A2A4A7C3		CAPACITOR, FIXED, MICA: 90 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0734.	7-28
A2A4A7C4		CAPACITOR, FIXED, MICA: 126 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-10.	7-28
A2A4A7C5		CAPACITOR, FIXED, MICA: 256 pF ±1%, 500 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-41.	7-28
A2A4A7E1		BLOCK, CONTACT: Item 1.	7-28
A2A4A7T1		TRANSFORMER, RF, VARIABLE: 17 MHz, capacitance 83.8 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2416, 06845, dwg 4032167-0716.	7-28
A2A4A7T2		COIL, RF, VARIABLE: 17 MHz, capacitance 102.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2516, 06845, dwg 4032521-0716.	7-28
A2A4A7T3		TRANSFORMER, RF, VARIABLE: 12 MHz, capacitance 115.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2610, 06845, dwg 4032522-0710.	7-28
A2A4A7T4		TRANSFORMER, RF, VARIABLE: 7 MHz, capacitance 208 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2076, 06845, dwg 4032523-0706.	7-28

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A8		18 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. thk; mfr 98738, part no. 01A226319-21-11.	7-29
A2A4A8C1		CAPACITOR: Item 9.	7-29
A2A4A8C2		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-29
A2A4A8C3		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0733.	7-29
A2A4A8C4		CAPACITOR, FIXED, MICA: 115 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-06.	7-29
A2A4A8C5		CAPACITOR, FIXED, MICA: 214 pF ±1%, 500 Vdc working; 0.460 in. long, 0.30 in. w; 0.200 in. thk; mfr 98738, dwg 21P228300-33.	7-29
A2A4A8E1		BLOCK, CONTACT: Item 1.	7-29
A2A4A8T1		TRANSFORMER, RF, VARIABLE: 18 MHz, capacitance 79.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2417, 06845, dwg 4032167-0717.	7-29
A2A4A8T2		COIL, RF, VARIABLE: 18 MHz, capacitance 98.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2517, 06845, dwg 4032521-0717.	7-29
A2A4A8T3		TRANSFORMER, RF, VARIABLE: 13 MHz, capacitance 107.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2611, 06845, dwg 4032522-0711.	7-29
A2A4A8T4		TRANSFORMER, RF, VARIABLE: 8 MHz, capacitance 185 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2707, 06845, dwg 4032523-0707.	7-29
A2A4A9		19 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226320-21-11.	7-30
A2A4A9C1		CAPACITOR: Item 9.	7-30
A2A4A9C2		CAPACITOR, FIXED, MICA: 75 pF ±1%, 500 Vdc working; 0.450 in. long, 3.60 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0729.	7-30
A2A4A9C3		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-30

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A9C4		CAPACITOR, FIXED, MICA: 105 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-02.	7-30
A2A4A9C5		CAPACITOR, FIXED, MICA: 185 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-27.	7-30
A2A4A9E1		BLOCK, CONTACT: Item 1.	7-30
A2A4A9T1		TRANSFORMER, RF, VARIABLE: 19 MHz, capacitance 75.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2418, 06845, dwg 4032167-0718.	7-30
A2A4A9T2		COIL, RF, VARIABLE: 19 MHz, capacitance 96.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2518, 06845, dwg 4032521-0718.	7-30
A2A4A9T3		TRANSFORMER, RF, VARIABLE: 14 MHz, capacitance 101.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2612, 06845, dwg 4032522-0712.	7-30
A2A4A9T4		TRANSFORMER, RF, VARIABLE: 9 MHz, capacitance 166 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2708, 06845, dwg 4032523-0708.	7-30
A2A4A9Y1		CRYSTAL UNIT, QUARTZ: Frequency 21.000 MHz; 0.515 in. long, 0.418 in. w, 0.166 in. thk; mfr 00136, part no. M20-21-000MHZ, 06845, dwg 4032119-0702.	7-30
A2A4A10		20 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226321-21-11.	7-31
A2A4A10C1		CAPACITOR: Item 9.	7-31
A2A4A10C2		CAPACITOR, FIXED, MICA: 71 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0725.	7-31
A2A4A10C3		CAPACITOR, FIXED, MICA: 76 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0730.	7-31
A2A4A10C4		CAPACITOR, FIXED, MICA: 97 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in, w. 0.180 in. thk; mfr 06845, dwg 4031978-0738.	7-31

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A10C5		CAPACITOR, FIXED, MICA: 163 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-22.	7-31
A2A4A10E1		BLOCK, CONTACT: Item 1.	7-31
A2A4A10T1		TRANSFORMER, RF, VARIABLE: 20 MHz, capacitance 73.3 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2419, 06845, dwg 4032167-0719.	7-31
A2A4A10T2		COIL, RF, VARIABLE: 20 MHz, capacitance 90.3 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2519, 06845, dwg 4032521-0719.	7-31
A2A4A10T3		TRANSFORMER, RF, VARIABLE: 15 MHz, capacitance 95.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2613, 06845, dwg 4032522-0713.	7-31
A2A4A10T4		TRANSFORMER, RF, VARIABLE: 10 MHz, capacitance 152 pF; 0.390 in. dia, 0.390 in. long; mfr 93292, part no. 500-2709, 06845, dwg 4032523-0709.	7-31
A2A4A10Y1		CRYSTAL UNIT, QUARTZ: Frequency 19 MHz; 0.515 in. long, 0.418 in. w, 0.166 in. thk; mfr 00136, part no. M20-19-000MHZ, 06845, dwg 4032119-0701.	7-31
A2A4A11		21 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226322-21-11.	7-32
A2A4A11C1		CAPACITOR: Item 9.	7-32
A2A4A11C2		CAPACITOR, FIXED, MICA: 67 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. dia, 0.180 in. thk; mfr 06845, dwg 4031978-0722.	7-32
A2A4A11C3		CAPACITOR, FIXED, MICA: 73 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. dia, 0.180 in. thk; mfr 06845, dwg 4031978-0727.	7-32
A2A4A11C4		CAPACITOR, FIXED, MICA: 91 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0735.	7-32
A2A4A11C5		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-32
A2A4A11E1		BLOCK, CONTACT: Item 1.	7-32

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A11T1		TRANSFORMER, RF, VARIABLE: 21 MHz, capacitance 70.2 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2420, 06845, dwg 4032167-0720.	7-32
A2A4A11T2		COIL, RF, VARIABLE: 21 MHz, capacitance 88 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2520, 06845, dwg 4032521-0720.	7-32
A2A4A11T3		TRANSFORMER, RF, VARIABLE: 16 MHz, capacitance 90.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2614, 06845, dwg 4032522-0714.	7-32
A2A4A11T4		TRANSFORMER, RF, VARIABLE: 11 MHz, capacitance 140 pF; 0.390 in. dia, 0.490 in. long; mfr 93292, part no. 500-2710; 06845, dwg 4032523-0710.	7-32
A2A4A12		22 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226182-21-11.	7-33
A2A4A12C1		CAPACITOR, FIXED, MICA: 7 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0742.	7-33
A2A4A12C2		CAPACITOR, FIXED, MICA: 64 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.160 in. thk; mfr 06845, dwg 4031978-0720.	7-33
A2A4A12C3		CAPACITOR, FIXED, MICA: 68 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0723.	7-33
A2A4A12C4		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0733.	7-33
A2A4A12C5		CAPACITOR, FIXED, MICA: 132 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-13.	7-33
A2A4A12E1		BLOCK, CONTACT: Item 1.	7-33
A2A4A12L1		COIL, RF, VARIABLE: 20.0 MHz, capacitance 7.0 pF; 0.435 in. dia, 0.400 in. long; mfr 93292, part no. 500-2349, 06845, dwg 4032547-0701.	7-33
A2A4A12T1		TRANSFORMER, RF, VARIABLE: 22 MHz, capacitance 67.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2421, 06845, dwg 4032167-0721.	7-33

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A12T2		COIL, RF, VARIABLE: 22 MHz, capacitance 86.0 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2521, 06845, dwg 4032521-0721.	7-33
A2A4A12T3		TRANSFORMER, RF, VARIABLE: 17 MHz, capacitance 85.2 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2615, 06845, dwg 4032522-0715.	7-33
A2A4A12T4		TRANSFORMER, RF, VARIABLE: 12 MHz, capacitance 130 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2711, 06845, dwg 4032523-0711.	7-33
A2A4A13		23 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226182-22-11.	7-34
A2A4A13C1		CAPACITOR, FIXED, CERAMIC: 0.160 in. dia, 0.260 in. long; 3.9 pF; 500 Vdc working; mfr 78488, part no. GA3-9PFPORM5PCT, dwg 4031973-0732.	7-34
A2A4A13C2		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 3.60 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-34
A2A4A13C3		CAPACITOR, FIXED, MICA: 66 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0721.	7-34
A2A4A13C4		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-34
A2A4A13C5		CAPACITOR, FIXED, MICA: 120 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-07.	7-34
A2A4A13E1		BLOCK, CONTACT: Item 1.	7-34
A2A4A13L1		COIL, RF, VARIABLE: 20.0 MHz, capacitance 3.9 pF; 0.435 in. dia, 0.400 in. long; mfr 93292, part no. 500-2350, 06845, dwg 4032547-0702.	7-34
A2A4A13T1		TRANSFORMER, RF, VARIABLE: 23 MHz; capacitance 65.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2422, 06845, dwg 4032167-0722.	7-34

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A13T2		COIL, RF, VARIABLE: 23 MHz, capacitance 83.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2522, 06845, dwg 4032521-0722.	7-34
A2A4A13T3		TRANSFORMER, RF, VARIABLE: 18 MHz, capacitance 81.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2616, 06845, dwg 4032522-0716.	7-34
A2A4A13T4		TRANSFORMER, RF, VARIABLE: 13 MHz, capacitance 122 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2712, 06845, dwg 4032523-0712.	7-34
A2A4A14		24 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226323-21-11.	7-35
A2A4A14C1		CAPACITOR: Item 10.	7-35
A2A4A14C2		CAPACITOR, FIXED, MICA: 58 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0716.	
A2A4A14C3		CAPACITOR, FIXED, MICA: 63 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0719.	7-35
A2A4A14C4		CAPACITOR, FIXED, MICA: 75 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0729.	7-35
A2A4A14C5		CAPACITOR, FIXED, MICA: 111 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-05.	7-35
A2A4A14E1		BLOCK, CONTACT: Item 1.	7-35
A2A4A14T1		TRANSFORMER, RF, VARIABLE: 24 MHz, capacitance 62.5 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2423, 06845, dwg 4032167-0723.	7-35
A2A4A14T2		COIL, RF, VARIABLE: 24 MHz, capacitance 82.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2523, 06845, dwg 4032521-0723.	7-35
A2A4A14T3		TRANSFORMER, RF, VARIABLE: 19 MHz, capacitance 77.4 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2617, 06845, dwg 4032522-0717.	7-35

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A14T4		TRANSFORMER, RF, VARIABLE: 14 MHz, capacitance 115 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2713, 06845, dwg 4032523-0713.	7-35
A2A4A15		25 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.21 in. h; mfr 98738, part no. 01A226330-21-11.	7-36
A2A4A15C1		CAPACITOR, FIXED, CERAMIC: 2.2 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-2PFPORM5PCT, 06845, dwg 4031973-0726.	7-36
A2A4A15C2		CAPACITOR, FIXED, MICA: 56 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0714.	7-36
A2A4A15C3		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-36
A2A4A15C4		CAPACITOR, FIXED, MICA: 71 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0725.	7-36
A2A4A15C5		CAPACITOR, FIXED, MICA: 103 pF ±1%, 500 Vdc working; 0.450 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-01.	7-36
A2A4A15E1		BLOCK, CONTACT: Item 1.	7-36
A2A4A15T1		TRANSFORMER, RF, VARIABLE: 25 MHz, capacitance 60.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2424, 06845, dwg 4032167-0724.	7-36
A2A4A15T2		COIL, RF, VARIABLE: 25 MHz, capacitance 80.0 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2524, 06845, dwg 4032521-0724.	7-36
A2A4A15T3		TRANSFORMER, RF, VARIABLE: 20 MHz, capacitance 74.3 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2618, 06845, dwg 4032522-0718.	7-36
A2A4A15T4		TRANSFORMER, RF, VARIABLE: 15 MHz, capacitance 109 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2714, 06845, dwg 4032523-0714.	7-36

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A16		26 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; 98738, part no. 01A226331-21-11.	7-37
A2A4A16C1		CAPACITOR, FIXED, CERAMIC: 2.2 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-2PFPORM5PCT, 06845, dwg 4031973-0726.	7-37
A2A4A16C2		CAPACITOR, FIXED, MICA: 54 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0712.	7-37
A2A4A16C3		CAPACITOR, FIXED, MICA: 52 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0710.	7-37
A2A4A16C4		CAPACITOR, FIXED, MICA: 67 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0722.	7-37
A2A4A16C5		CAPACITOR: Item 6.	7-37
A2A4A16E1		BLOCK, CONTACT: Item 1.	7-37
A2A4A16T1		TRANSFORMER, RF, VARIABLE: 26 MHz, capacitance 58.8 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2425, 06845, dwg 4032167-0725.	7-37
A2A4A16T2		COIL, RF, VARIABLE: 26 MHz, capacitance 80.0 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2524, 06845, dwg 4032521-0724.	7-37
A2A4A16T3		TRANSFORMER, RF, VARIABLE: 21 MHz, capacitance 71.7 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2619, 06845, dwg 4032522-0719.	7-37
A2A4A16T4		TRANSFORMER, RF, VARIABLE: 16 MHz, capacitance 103 pF; 0.390 in. dia, 0.490 in. long; mfr 93292, part no. 500-2715, 06845, dwg 4032523-0715.	7-37
A2A4A17		27 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226332-21-11.	7-38
A2A4A17C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-4PFPORM5PCT, 06845, dwg 4031973-0727.	7-38

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A17C2		CAPACITOR, FIXED, MICA: 52 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0710.	7-38
A2A4A17C3		CAPACITOR, FIXED, MICA: 57 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0715.	7-38
A2A4A17C4		CAPACITOR, FIXED, MICA: 64 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0720.	7-38
A2A4A17C5		CAPACITOR, FIXED, MICA: 90 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0734.	7-38
A2A4A17E1		BLOCK, CONTACT: Item 1.	7-38
A2A4A17T1		TRANSFORMER, RF, VARIABLE: 27 MHz, capacitance 57.5 pF ± 5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2426, 06845, dwg 4032167-0726.	7-38
A2A4A17T2		COIL, RF, VARIABLE: 27 MHz, capacitance 77.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2526, 06845, dwg 4032521-0726.	7-38
A2A4A17T3		TRANSFORMER, RF, VARIABLE: 22 MHz, capacitance 69.4 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2620, 06845, dwg 4032522-0720.	7-38
A2A4A17T4		TRANSFORMER, RF, VARIABLE: 17 MHz, capacitance 98.8 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2716, 06845, dwg 4032523-0716.	7-38
A2A4A18		28 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226333-21-11.	7-39
A2A4A18C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-4PFPORM5PCT, 06845, dwg 4031973-0727.	7-39
A2A4A18C2		CAPACITOR, FIXED, MICA: 50 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0709.	7-39
A2A4A18C3		CAPACITOR, FIXED, MICA: 55 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0713.	7-39

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A18C4		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-39
A2A4A18C5		CAPACITOR, FIXED, MICA: 85 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0733.	7-39
A2A4A18E1		BLOCK, CONTACT: Item 1.	7-39
A2A4A18T1		TRANSFORMER, RF, VARIABLE: 28 MHz, capacitance 56.6 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2427, 06845, dwg 4032167-0727.	7-39
A2A4A18T2		COIL, RF, VARIABLE: 28 MHz, capacitance 76.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2527, 06845, dwg 4032521-0727.	7-39
A2A4A18T3		TRANSFORMER, RF, VARIABLE: 23 MHz; capacitance 67.2 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2621, 06845, dwg 4032522-0721.	7-39
A2A4A18T4		TRANSFORMER, RF, VARIABLE: 18 MHz, capacitance 94.6 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2717, 06845, dwg 4032523-0717.	7-39
A2A4A19		29 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. thk; mfr 98738, part no. 01A226334-21-11.	7-40
A2A4A19C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. thk; mfr 78488, part no. GA2-4PFPORM5PCT, 06845, dwg 4031973-0727.	7-40
A2A4A19C2		CAPACITOR, FIXED, MICA: 48 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0708.	7-40
A2A4A19C3		CAPACITOR, FIXED, MICA: 53 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0711.	7-40
A2A4A19C4		CAPACITOR, FIXED, MICA: 58 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0716.	7-40

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A19C5		CAPACITOR, FIXED, MICA: 80 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0731.	7-40
A2A4A19E1		BLOCK, CONTACT: Item 1.	7-40
A2A4A19T1		TRANSFORMER, RF, VARIABLE: 29 MHz, capacitance 55.1 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2428, 06845, dwg 4032167-0728.	7-40
A2A4A19T2		COIL, RF, VARIABLE: 29 MHz, capacitance 78.5 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2528, 06845, dwg 4032521-0728.	7-40
A2A4A19T3		TRANSFORMER, RF, VARIABLE: 24 MHz, capacitance 65.9 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2628, 06845, dwg 4032522-0728.	7-40
A2A4A19T4		TRANSFORMER, RF, VARIABLE: 19 MHz, capacitance 90.9 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2718, 06845, dwg 4032523-0718.	7-40
A2A4A19Y1		CRYSTAL UNIT, QUARTZ: Frequency 28.500 MHz; 0.515 in. long, 0.418 in. w, 0.166 in. thk; mfr 00136, part no. M20-28-500MHZ, 06845, dwg 4032119-0703.	7-40
A2A4A20		2 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226183-21-11.	7-41
A2A4A20C1		CAPACITOR: Item 10.	7-41
A2A4A20C2 and A2A4A20C3		Not used.	
A2A4A20C4		CAPACITOR, FIXED, MICA: 56 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0714.	7-41
A2A4A20C5		CAPACITOR, FIXED, MICA: 76 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0730.	7-41
A2A4A20C6		CAPACITOR, FIXED, PLASTIC: 0.068 uF ±5%, 50 Vdc working; 0.531 in. long, 0.500 in. w, 0.218 in. thk; mfr 84411, part no. 601PE683-50W, 06845, dwg 2027530-0704.	7-41

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A20E1		BLOCK, CONTACT: Item 1.	7-41
A2A4A20T1		TRANSFORMER, RF, VARIABLE: 2 MHz, capacitance 767 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2401, 06845, dwg 4032167-0701.	7-41
A2A4A20T2		COIL, RF, VARIABLE: 2 MHz, capacitance 772 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2501, 06845, dwg 4032521-0701.	7-41
A2A4A20T3		TRANSFORMER, RF, VARIABLE: 25 MHz, capacitance 65.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2622, 06845, dwg 4032522-0722.	7-41
A2A4A20T4		TRANSFORMER, RF, VARIABLE: 20 MHz, capacitance 87.6 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2719, 06845, dwg 4032523-0719.	7-41
A2A4A21		3 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226184-21-11.	7-42
A2A4A21C1		CAPACITOR: Item 10.	7-42
A2A4A21C2 and A2A4A21C3		CAPACITOR, FIXED, MICA: 1250 pF ±1%, 500 Vdc working; 1.250 in. long, 0.660 in. w, 0.220 in. thk; mfr 98738, dwg 21P228301-01.	7-42
A2A4A21C4		CAPACITOR, FIXED, MICA: 54 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0712.	7-42
A2A4A21C5		CAPACITOR, FIXED, MICA: 73 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0727.	7-42
A2A4A21C6		CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.047 uF ±5%, 50 Vdc working; 0.531 in. long, 0.453 in. w, 0.203 in. thk; mfr 84411, part no. 601PE473-50W, 06845, dwg 2027530-0703.	7-42
A2A4A21E1		BLOCK, CONTACT: Item 1.	7-42
A2A4A21T1		TRANSFORMER, RF, VARIABLE: 3 MHz, capacitance 485 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2402, 06845, dwg 4032167-0702.	7-42
A2A4A21T2		COIL, RF, VARIABLE: 3 MHz, capacitance 490 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2502, 06845, dwg 4032521-0702.	7-42

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A21T3		TRANSFORMER, RF, VARIABLE: 26 MHz, capacitance 64.4 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2623, 06845, dwg 4032522-0723.	7-42
A2A4A21T4		TRANSFORMER, RF, VARIABLE: 21 MHz, capacitance 84.6 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2720, 06845, dwg 4032523-0720.	7-42
A2A4A22		4 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. thk; mfr 98738, part no. 01A226315-21-11.	7-43
A2A4A22C1		CAPACITOR, FIXED, CERAMIC: 4.7 pF ±5%, 500 Vdc working; 0.250 in. long, 0.160 in. dia; mfr 78488, part no. GA4-7PFPORM5PCT, 06845, dwg 4031973-0734.	7-43
A2A4A22C2		CAPACITOR, FIXED, MICA: 623 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-56.	7-43
A2A4A22C3		CAPACITOR, FIXED, MICA: 629 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-57.	7-43
A2A4A22C4		CAPACITOR, FIXED, MICA: 52 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0710.	7-43
A2A4A22C5		CAPACITOR, FIXED, MICA: 68 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0723.	7-43
A2A4A22E1		BLOCK, CONTACT: Item 1.	7-43
A2A4A22T1		TRANSFORMER, RF, VARIABLE: 4 MHz, capacitance 352.0 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2403, 06845, dwg 4032167-0703.	7-43
A2A4A22T2		COIL, RF, VARIABLE: 4 MHz, capacitance 370 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2503, 06845, dwg 4032521-0703.	7-43
A2A4A22T3		TRANSFORMER, RF, VARIABLE: 27 MHz, capacitance 67.0 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2624, 06845, dwg 4032522-0724.	7-43

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A22T4		TRANSFORMER, RF, VARIABLE: 22 MHz, capacitance 81.8 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2721, 06845, dwg 4032523-0721.	7-43
A2A4A23		5 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.21 in. h; mfr 98738, part no. 01A226335-21-11.	7-44
A2A4A23C1		CAPACITOR, FIXED, CERAMIC: 3.9 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-9PFPORM5PCT, 06845, dwg 4031973-0732.	7-44
A2A4A23C2		CAPACITOR, FIXED, MICA: 416 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-51.	7-44
A2A4A23C3		CAPACITOR, FIXED, MICA: 422 pF ±1%, 300 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-52.	7-44
A2A4A23C4		CAPACITOR, FIXED, MICA: 50 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; dwg 4031978-0709.	7-44
A2A4A23C5		CAPACITOR, FIXED, MICA: 66 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0721.	7-44
A2A4A23E1		BLOCK, CONTACT: Item 1.	7-44
A2A4A23T1		TRANSFORMER, RF, VARIABLE: 5 MHz, capacitance 284 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2404, 06845, dwg 4032167-0704.	7-44
A2A4A23T2		COIL, RF, VARIABLE: 5 MHz, capacitance 298 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2504, 06845, dwg 4032521-0704.	7-44
A2A4A23T3		TRANSFORMER, RF, VARIABLE: 28 MHz, capacitance 66.8 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2625, 06845, dwg 4032522-0725.	7-44
A2A4A23T4		TRANSFORMER, RF, VARIABLE: 23 MHz, capacitance 79.3 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2722, 06845, dwg 4032523-0722.	7-44

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A24		6 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226324-21-11.	7-45
A2A4A24C1		CAPACITOR, FIXED, CERAMIC: 3.3 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-3PFPORM5PCT, 06845, dwg 4031973-0730.	7-45
A2A4A24C2		CAPACITOR, FIXED, MICA: 312 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-44.	7-45
A2A4A24C3		CAPACITOR, FIXED, MICA: 318 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-46.	7-45
A2A4A24C4		CAPACITOR, FIXED, MICA: 48 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0708.	7-45
A2A4A24C5		CAPACITOR, FIXED, MICA: 63 pF ±1%, 500 Vdc working, 0.450 in. long, 0.360 in. w, 0.130 in. thk; mfr 06845, dwg 4031978-0719.	7-45
A2A4A24E1		BLOCK, CONTACT: Item 1.	7-45
A2A4A24T1		TRANSFORMER, RF, VARIABLE: 6 MHz, capacitance 230 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2405, 06845, dwg 4032167-0705.	7-45
A2A4A24T2		COIL, RF, VARIABLE: 6 MHz, capacitance 250 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2505, 06845, dwg 4032521-0705.	7-45
A2A4A24T3		TRANSFORMER, RF, VARIABLE: 29 MHz, capacitance 66.6 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2626, 06845, dwg 4032522-0726.	7-45
A2A4A24T4		TRANSFORMER, RF, VARIABLE: 24 MHz, capacitance 77.0 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2723, 06845, dwg 4032523-0723.	7-45
A2A4A25		7 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226706-21-11.	7-46
A2A4A25C1		CAPACITOR, FIXED, CERAMIC: 3.0 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia, mfr 78488, part no. GA3-0PFPORM5PCT, 06845, dwg 4031973-0729.	7-46

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A25C2		CAPACITOR, FIXED, MICA: 250 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-39.	7-46
A2A4A25C3		CAPACITOR, FIXED, MICA: 256 pF ±1%, 500 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-41.	7-46
A2A4A25C4		Not used.	
A2A4A25C5		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-46
A2A4A25E1		BLOCK, CONTACT: Item 1.	7-46
A2A4A25T1		TRANSFORMER, RF, VARIABLE: 7 MHz, capacitance 196 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2406, 06845, dwg 4032167-0706.	7-46
A2A4A25T2		COIL, RF, VARIABLE: 7 MHz, capacitance 216 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2506, 06845, dwg 4032521-0706.	7-46
A2A4A25T3		TRANSFORMER, RF, VARIABLE: 2 MHz, capacitance 754 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2601, 06845, dwg 4032522-0701.	7-46
A2A4A25T4		TRANSFORMER, RF, VARIABLE: 25 MHz, capacitance 74.9 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2724, 06845, dwg 4032523-0724.	7-46
A2A4A26		8 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226707-21-11.	7-47
A2A4A26C1		CAPACITOR, FIXED, CERAMIC: 3 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia; mfr 78488, part no. GA3-0PFPORM5PCT, 06845, dwg 4031973-0729.	7-47
A2A4A26C2		CAPACITOR, FIXED, MICA: 208 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-32.	7-47
A2A4A26C3		CAPACITOR, FIXED, MICA: 214 pF ±1%, 500 Vdc working; 0.460 in. long, 0.300 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-33.	7-47

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A26C4		CAPACITOR, FIXED, MICA: 1250 pF ±1%, 500 Vdc working; 0.750 in. long, 0.510 in. w, 0.200 in. thk; mfr 98738, dwg 21P228301-01.	7-47
A2A4A26C5		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-47
A2A4A26E1		BLOCK, CONTACT: Item 1.	7-47
A2A4A26T1		TRANSFORMER, RF, VARIABLE: 8 MHz, capacitance 172 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2407, 06845, dwg 4032167-0707.	7-47
A2A4A26T2		COIL, RF, VARIABLE: 8 MHz, capacitance 191 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2507, 06845, dwg 4032521-0707.	7-47
A2A4A26T3		TRANSFORMER, RF, VARIABLE: 3 MHz, capacitance 474 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2602, 06845, dwg 4032522-0702.	7-47
A2A4A26T4		TRANSFORMER, RF, VARIABLE: 26 MHz, capacitance 72.9 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2725, 06845, dwg 4032523-0725.	7-47
A2A4A27		9 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226337-21-11.	7-48
A2A4A27C1		CAPACITOR, FIXED, CERAMIC: 2.7 pF ±5%, 500 Vdc working; 0.260 in. long, 0.160 in. dia, mfr 78488, part no. GA2-7PFPORM5PCT, 06845, dwg 4031973-0728.	7-48
A2A4A27C2		CAPACITOR, FIXED, MICA: 179 pF ±1%, 500 Vdc working; 0.460 in. long, 0.390 in. w. 0.190 in. thk; mfr 98738, dwg 21P228300-25.	7-48
A2A4A27C3		CAPACITOR, FIXED, MICA: 185 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-27.	7-48
A2A4A27C4		CAPACITOR, FIXED, MICA: 623 pF ±1%, 300 vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-56.	7-48
A2A4A27C5		CAPACITOR, FIXED, MICA: 57 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.178 in. thk; mfr 06845, dwg 4031978-0715.	7-48

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A27E1		BLOCK, CONTACT: Item 1.	7-48
A2A4A27T1		TRANSFORMER, RF, VARIABLE: 9 MHz, capacitance 154 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93202, part no. 500-2408, 06845, dwg 4032167-0708.	7-48
A2A4A27T2		COIL, RF, VARIABLE: 9 MHz, capacitance 173 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2508, 06845, dwg 4032521-0708.	7-48
A2A4A27T3		TRANSFORMER, RF, VARIABLE: 4 MHz; capacitance 350 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2603, 06845, dwg 4032522-0703.	7-48
A2A4A27T4		TRANSFORMER, RF, VARIABLE: 27 MHz; capacitance 71 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2726, 06845, dwg 4032523-0726.	7-48
A2A4A28		10 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226325-21-11.	7-49
A2A4A28C1		CAPACITOR, FIXED, CERAMIC: 2.4 pF ±5%, 500 Vdc working; 0.240 in. long, 0.160 in. dia; mfr 78488, part no. GA2-4PFPORM5PCT, 06845, dwg 4031973-0727.	7-49
A2A4A28C2		CAPACITOR, FIXED, MICA: 157 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-20.	7-49
A2A4A28C3		CAPACITOR, FIXED, MICA: 163 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-22.	7-49
A2A4A28C4		CAPACITOR, FIXED, MICA: 416 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-51.	7-49
A2A4A28C5		CAPACITOR, FIXED, MICA: 55 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0713.	7-49
A2A4A28E1		BLOCK, CONTACT: Item 1.	7-49
A2A4A28T1		TRANSFORMER, RF, VARIABLE: 10 MHz, capacitance 140 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2409, 06845, dwg 4032167-0709.	7-49
A2A4A28T2		COIL, RF, VARIABLE: 10 MHz, capacitance 158 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2509, 06845, dwg 4032521-0709.	7-49

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A28T3		TRANSFORMER, RF, VARIABLE: 5 MHz, capacitance 275 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2604, 06845, dwg 4032522-0704.	7-49
A2A4A28T4		TRANSFORMER, RF, VARIABLE: 28 MHz, capacitance 69.5 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2727, 06845, dwg 4032523-0727.	7-49
A2A4A29		11 MHZ SUBASSEMBLY: 3.90 in. long, 0.625 in. w, 1.12 in. h; mfr 98738, part no. 01A226326-21-11.	7-50
A2A4A29C1		CAPACITOR: Item 10.	7-50
A2A4A29C2		CAPACITOR, FIXED, MICA: 140 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-15.	7-50
A2A4A29C3		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-50
A2A4A29C4		CAPACITOR, FIXED, MICA: 312 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-44.	7-50
A2A4A29C5		CAPACITOR, FIXED, MICA: 53 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0711.	7-50
A2A4A29E1		BLOCK, CONTACT: Item 1.	7-50
A2A4A29T1		TRANSFORMER, RF, VARIABLE: 11 MHz, capacitance 128 pF ±5%, 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2410, 06845, dwg 4032167-0710.	7-50
A2A4A29T2		COIL, RF, VARIABLE: 11 MHz, capacitance 145 pF ±5%; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2510, 06845, dwg 4032521-0710.	7-50
A2A4A29T3		TRANSFORMER, RF, VARIABLE: 6 MHz, capacitance 228 pF; 0.422 in. dia, 0.490 in. long; mfr 93292, part no. 500-2605, 06845, dwg 4032522-0705.	7-50
A2A4A29T4		TRANSFORMER, RF, VARIABLE: 29 MHz, capacitance 67.8 pF; 0.390 in. dia, 0.531 in. long; mfr 93292, part no. 500-2728, 06845, dwg 4032523-0728.	7-50

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A30		100 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.40 in. thk; mfr 98738, part no. 01A226155-21-11. (Attaching Parts) CX(3)	7-51
A2A4A30C1		CAPACITOR, FIXED, MICA: 545 pF ±1%, 300 Vdc working; 0.470 in. long, 3.90 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-55.	7-51
A2A4A30C2		CAPACITOR, FIXED, MICA: 426 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-53.	7-51
A2A4A30C3		CAPACITOR, FIXED, MICA: 332 pF ±1%, 500 Vdc working; 0.470 in. long, 0.400 in. w, 0.220 in. thk; mfr 98738, dwg 21P228300-47.	7-51
A2A4A30C4		CAPACITOR, FIXED, MICA: 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-51
A2A4A30C5		CAPACITOR, FIXED, MICA: 195 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-31.	7-51
A2A4A30C6		CAPACITOR, FIXED, MICA: 143 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-16.	7-51
A2A4A30C7		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-51
A2A4A30C8		CAPACITOR, FIXED, MICA: 61 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0718.	7-51
A2A4A30C9		CAPACITOR, FIXED, MICA: 29 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0705.	7-51
A2A4A30C10		CAPACITOR, FIXED, MICA: 253 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-40.	7-51
A2A4A30C11		CAPACITOR, FIXED, MICA: 219 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-35.	7-51
A2A4A30C12		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-29.	7-51
A2A4A30C13		CAPACITOR, FIXED, MICA: 165 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-23.	7-51

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A30C14		CAPACITOR, FIXED, MICA: 144 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-17.	7-51
A2A4A30C15		CAPACITOR, FIXED, MICA: 125 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-09.	7-51
A2A4A30C16		CAPACITOR, FIXED, MICA: 109 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-03.	7-51
A2A4A30C17		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-51
A2A4A30C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-51
A2A4A30C19		CAPACITOR, FIXED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-51
A2A4A30MP1		ROTOR: 2.982 in. dia, 0.0135 in. thk; mfr 98738, part no. 01A228403-01.	7-22/ 7-51
A2A4A31		10 kHz ROTOR SUBASSEMBLY: 2.982 in. dia; 0.440 in. thk; mfr 98738, part no. 01A226159-21-11. (Attaching Parts) CY (3)	7-22/ 7-52
A2A4A31C1		CAPACITOR, FIXED, MICA: 250 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-39.	7-52
A2A4A31C2		CAPACITOR, FIXED, MICA: 215 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-34.	7-52
A2A4A31C3		CAPACITOR, FIXED, MICA: 183 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-26.	7-52
A2A4A31C4		CAPACITOR, FIXED, MICA: 153 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-19.	7-52
A2A4A31C5		CAPACITOR, FIXED, MICA: 124 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-08.	7-52
A2A4A31C6		CAPACITOR: Item 6.	7-52
A2A4A31C7		CAPACITOR, FIXED, MICA: 70 pF ±0.5%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0724.	7-52

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A31C8		CAPACITOR, FIXED, MICA: 45 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0706.	7-52
A2A4A31C9		CAPACITOR, FIXED, MICA: 22 pF ±0.5 pF, 500 Vdc working; 0.45 in. long, 0.36 in. w, 0.17 in. thk; mfr 06845, dwg 4031978-0702.	7-52
A2A4A32		10 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.440 in. thk; mfr 98738, part no. 01A226160-21-11. (Attaching Parts) See A2A4A31.	7-22/ 7-53
A2A4A32C1		CAPACITOR, FIXED, MICA: 260 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-43.	7-53
A2A4A32C2		CAPACITOR, FIXED, MICA: 224 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-37.	7-53
A2A4A32C3		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-29.	7-53
A2A4A32C4		CAPACITOR, FIXED, MICA: 158 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-21.	7-53
A2A4A32C5		CAPACITOR, FIXED, MICA: 128 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-12.	7-53
A2A4A32C6		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-53
A2A4A32C7		CAPACITOR, FIXED, MICA: 72 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0726.	7-53
A2A4A32C8		CAPACITOR, FIXED, MICA: 47 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0707.	7-53
A2A4A32C9		CAPACITOR, FIXED, MICA: 23 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0703.	7-53

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A33		100 kHz ROTOR SUBASSEMBLY: 2.982 in. dia, 0.442 in. thk; mfr 98738, part no. 01A226153-21-11. (Attaching Parts) CY (3)	7-22/ 7-54
A2A4A33C1		CAPACITOR, FIXED, MICA: 517 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-54.	7-54
A2A4A33C2		CAPACITOR, FIXED, MICA: 405 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-50.	7-54
A2A4A33C3		CAPACITOR, FIXED, MICA: 316 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-45.	7-54
A2A4A33C4		CAPACITOR, FIXED, MICA: 245 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-38.	7-54
A2A4A33C5		CAPACITOR, FIXED, MICA: 186 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-28.	7-54
A2A4A33C6		CAPACITOR, FIXED, MICA: 137 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-14.	7-54
A2A4A33C7		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-54
A2A4A33C8		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-54
A2A4A33C9		CAPACITOR, FIXED, MICA: 28 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0704.	7-54
A2A4A33C10		CAPACITOR, FIXED, MICA: 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-54
A2A4A33C11		CAPACITOR, FIXED, MICA: 222 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-36.	7-54
A2A4A33C12		CAPACITOR, FIXED, MICA: 193 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-30.	7-54
A2A4A33C13		CAPACITOR, FIXED, MICA: 167 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-24.	7-54

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A33C14		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-54
A2A4A33C15		CAPACITOR, FIXED, MICA: 127 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-11.	7-54
A2A4A33C16		CAPACITOR, FIXED, MICA: 110 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-04.	7-54
A2A4A33C17		CAPACITOR: Item 6.	7-54
A2A4A33C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-54
A2A4A33C19		CAPACITOR, FIXED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-54
A2A4A33MP1		ROTOR: 2.982 in. dia, 0.0135 in. thk; mfr 98738, part no. 01A228403-01.	7-22/ 7-54
A2A4A34		ROTOR, ELECTRIC SWITCH: 100 kHz, 2.982 in. dia, 0.432 in. thk; mfr 98738, part no. 01A226154-21-11. (Attaching Parts) See A2A4A33.	7-22/ 7-55
A2A4A34C1		CAPACITOR, FIXED, MICA: 517 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-54.	7-55
A2A4A34C2		CAPACITOR, FIXED, MICA: 405 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-50.	7-55
A2A4A34C3		CAPACITOR, FIXED, MICA: 316 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-45.	7-55
A2A4A34C4		CAPACITOR, FIXED, MICA: 245 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-38.	7-55
A2A4A34C5		CAPACITOR, FIXED, MICA: 186 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-28.	7-55
A2A4A34C6		CAPACITOR, FIXED, MICA: 137 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-14.	7-55

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A34C7		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-55
A2A4A34C8		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-55
A2A4A34C9		CAPACITOR, FIXED, MICA: 28 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0704.	7-55
A2A4A34C10		CAPACITOR, FIXED, MICA: 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-55
A2A4A34C11		CAPACITOR, FIXED, MICA: 222 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-36.	7-55
A2A4A34C12		CAPACITOR, FIXED, MICA: 193 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-30.	7-55
A2A4A34C13		CAPACITOR, FIXED, MICA: 167 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-24.	7-55
A2A4A34C14		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-55
A2A4A34C15		CAPACITOR, FIXED, MICA: 127 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-11.	7-55
A2A4A34C16		CAPACITOR, FIXED, MICA: 110 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-04.	7-55
A2A4A34C17		CAPACITOR: Item 6.	7-55
A2A4A34C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-55
A2A4A34C19		CAPACITOR, FIXED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-55
A2A4A34MP1		ROTOR: 2.982 in. dia, 0.0135 in. thk; mfr 98738, part no. 01A228403-01.	7-22/ 7-55

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A35		ROTOR, ELECTRIC SWITCH: 10 kHz, 2.982 in. dia, 0.291 in. thk; mfr 98738, part no. 01A226157-21-11. (Attaching Parts) CY (3)	7-56
A2A4A35C1		CAPACITOR, FIXED, MICA: 260 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-43.	7-56
A2A4A35C2		CAPACITOR, FIXED, MICA: 224 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-37.	7-56
A2A4A35C3		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-29.	7-56
A2A4A35C4		CAPACITOR, FIXED, MICA: 158 pF ±1%, 500 Vdc working, 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-21.	7-56
A2A4A35C5		CAPACITOR, FIXED, MICA: 128 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-12.	7-56
A2A4A35C6		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-56
A2A4A35C7		CAPACITOR, FIXED, MICA: 72 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0726.	7-56
A2A4A35C8		CAPACITOR, FIXED, MICA: 47 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0707.	7-56
A2A4A35C9		CAPACITOR, FIXED, MICA: 23 pF ±0.5%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0703.	7-56
A2A4A36		ROTOR, ELECTRIC SWITCH: 10 kHz, 2.982 in. dia, 0.291 in. thk; mfr 98738, part no. 01A226158-21-11. (Attaching Parts) See A2A4A35	7-22/ 7-57
A2A4A36C1		CAPACITOR, FIXED, MICA: 260 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-43.	7-57
A2A4A36C2		CAPACITOR, FIXED, MICA: 224 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-37.	7-57

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A36C3		CAPACITOR, FIXED, MICA: 190 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-29.	7-57
A2A4A36C4		CAPACITOR, FIXED, MICA: 158 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-21.	7-57
A2A4A36C5		CAPACITOR, FIXED, MICA: 128 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-12.	7-57
A2A4A36C6		CAPACITOR, FIXED, MICA: 99 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0739.	7-57
A2A4A36C7		CAPACITOR, FIXED, MICA: 72 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0726.	7-57
A2A4A36C8		CAPACITOR, FIXED, MICA: 47 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0707.	7-57
A2A4A36C9		CAPACITOR, FIXED, MICA: 23 pF ±0.5 pF; 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0703.	7-57
A2A4A37		ROTOR, ELECTRIC SWITCH: 100 kHz, 2.982 in. dia, 0.430 in. thk; mfr 98738, part no. 01A226156-21-11. (Attaching Parts) CZ (3)	7-22/ 7-58
A2A4A37C1		CAPACITOR, FIXED, MICA: 517 pF ±1%, 300 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-54.	7-58
A2A4A37C2		CAPACITOR, FIXED, MICA: 405 pF ±1%, 300 Vdc working; 0.470 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-50.	7-58
A2A4A37C3		CAPACITOR, FIXED, MICA: 316 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-45.	7-58
A2A4A37C4		CAPACITOR, FIXED, MICA: 245 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-38.	7-58
A2A4A37C5		CAPACITOR, FIXED, MICA: 186 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, part no. 21P228300-28.	7-58

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A37C6		CAPACITOR, FIXED, MICA: 137 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-14.	7-58
A2A4A37C7		CAPACITOR, FIXED, MICA: 95 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0736.	7-58
A2A4A37C8		CAPACITOR, FIXED, MICA: 59 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0717.	7-58
A2A4A37C9		CAPACITOR, FIXED, MICA: 28 pF ±0.5 pF, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.170 in. thk; mfr 06845, dwg 4031978-0704.	7-58
A2A4A37C10		CAPACITOR, FIXED, MICA: 257 pF ±1%, 500 Vdc working; 0.470 in. long, 0.390 in. w, 0.210 in. thk; mfr 98738, dwg 21P228300-42.	7-58
A2A4A37C11		CAPACITOR, FIXED, MICA: 222 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.200 in. thk; mfr 98738, dwg 21P228300-36.	7-58
A2A4A37C12		CAPACITOR, FIXED, MICA: 193 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-30.	7-58
A2A4A37C13		CAPACITOR, FIXED, MICA: 167 pF ±1%, 500 Vdc working; 0.460 in. long, 0.380 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-24.	7-58
A2A4A37C14		CAPACITOR, FIXED, MICA: 146 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.190 in. thk; mfr 98738, dwg 21P228300-18.	7-58
A2A4A37C15		CAPACITOR, FIXED, MICA: 127 pF ±1%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-11.	7-58
A2A4A37C16		CAPACITOR, FIXED, MICA: 110 pF ±0.5%, 500 Vdc working; 0.460 in. long, 0.370 in. w, 0.180 in. thk; mfr 98738, dwg 21P228300-04.	7-58
A2A4A37C17		CAPACITOR: Item 6.	7-58
A2A4A37C18		CAPACITOR, FIXED, MICA: 83 pF ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0732.	7-58
A2A4A37C19		CAPACITOR, FIXED, MICA: 74 pF ±1%, 500 Vdc working; 0.450 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, dwg 4031978-0728.	7-58
A2A4A37MP1		ROTOR: 2.982 in. dia, 0.0135 in. thk; mfr 98738, part no. 01A228403-01.	7-22/ 7-58

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A38		RF AMPLIFIER: 3.375 in. long, 1.56 in. w, 1.08 in. thk; mfr 98738, part no. 01A226162-21-11. (Attaching Parts) AL(3) AQ(3) AU(3)	7-59
A2A4A38C1 and A2A4A38C2		CAPACITOR: Item 16.	7-59
A2A4A38C3		CAPACITOR: Item 19.	7-59
A2A4A38C4 and A2A4A38C5		CAPACITOR: Item 16.	7-59
A2A4A38C6		CAPACITOR: Item 19.	7-59
A2A4A38C7		CAPACITOR: Item 16.	7-59
A2A4A38C8		CAPACITOR, FIXED, CERAMIC: 120 pF ±1%, 500 Vdc working; MIL type CMR05F121FPDM.	7-59
A2A4A38C9		CAPACITOR: Item 16.	7-59
A2A4A38C10		CAPACITOR: Item 19.	7-59
A2A4A38C11		CAPACITOR, FIXED, CERAMIC: 1,500 pF ±20%, 100 Vdc working; MIL type M39014-01-1441.	7-59
A2A4A38C12		CAPACITOR: Item 16.	7-59
A2A4A38C13		CAPACITOR, FIXED, CERAMIC: 1,500 pF ±20%, 100 Vdc working; MIL type M39014-01-1441.	7-59
A2A4A38C14		CAPACITOR, FIXED, CERAMIC: 56 pF ±10%, 200 Vdc working; MIL type M39014-01-1215.	7-59
A2A4A38E1		TERMINAL LUG: 0.45 in. long, 0.18 in, w, mfr 00779, part no. 36467, 98738, dwg 29S132211-6.	7-59
A2A4A38FL1 thru A2A4A38FL3		SHIELDING BEAD, FERRITE: 0.138 in. OD, 0.047 in. ID, 0.118 in. long; mfr 78488, part no. 57-0180, 06845, dwg 2053852-0701.	7-59
A2A4A38K1		RELAY, ARMATURE: 0 to 0.100 amp at 50 mVdc; MIL type M5757-10-017. (Attaching Parts) AD(2) AL(2) AQ(2)	7-59
A2A4A38L1		COIL, RF: 240 uH ±5%, dc resistance 7.80 ohms; MIL type MS90538-21.	7-59
A2A4A38Q1 thru A2A4A38Q3		TRANSISTOR: Silicon, PNP; mfr 04713, part no. 2N4959, 98738, dwg 48P226657-01.	7-59
A2A4A38R1		RESISTOR: Item 59.	7-59
A2A4A38R2		RESISTOR: Item 42.	7-59
A2A4A38R3		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-59
A2A4A38R4		RESISTOR: Item 41.	7-59
A2A4A38R5		RESISTOR: Item 44.	7-59
A2A4A38R6		RESISTOR, VARIABLE, NON-WIREWOUND: 200 ohms, 1/2 w; MIL type RJR24CP201M.	7-59
A2A4A38R7		RESISTOR: Item 37.	7-59

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RF AMPLIFIER ASSEMBLY A2A4

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A4A38R8		Not used.	
A2A4A38R9		RESISTOR: Item 49.	7-59
A2A4A38R10		RESISTOR, FIXED, FILM: 6,200 ohms ±2%, 1/4 w; MIL type RLR07C622GR.	7-59
A2A4A38R11		RESISTOR, FIXED, FILM: 510 ohms ±2%, 1/4 w; MIL type RLR07C511GR.	7-59
A2A4A38R12		RESISTOR: Item 44.	7-59
A2A4A38R13		RESISTOR: Item 54.	7-59
A2A4A38R14		RESISTOR: Item 37.	7-59
A2A4A38R15		RESISTOR: Item 59.	7-59
A2A4A38R16		RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/4 w; MIL type RCR07G182JS.	7-59
A2A4A38R17		RESISTOR, FIXED, FILM: 6200 ohms ±2%, 1/4 w; MIL type RLR07C622GR.	7-59
A2A4A38R18		RESISTOR, FIXED, FILM: 510 ohms ±2%, 1/4 w; MIL type RLR07C511GR.	
A2A4A38R19		RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-59
A2A4A38R20		RESISTOR: Item 38.	7-59
A2A4A38R21		RESISTOR: Item 51.	7-59
A2A4A38TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 20.	7-59
A2A4A38TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 V rms, 60 Hz; MIL type M39024-11-03.	7-59
A2A4A38W1		CABLE ASSEMBLY, RF: 1.752 in. long; mfr 98738, part no. 30A226790-21-11.	7-59
A2A4A38W2		CABLE ASSEMBLY, RF: 5.75 in. long; mfr 98738, part no. 30A226789-21-11.	7-59
A2A4A38W2 P1		Refer to A2A4P2A5, CONNECTOR PLUG.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5		FREQUENCY STANDARD ASSEMBLY: 4.437 in. long, 2.937 in. w, 4.470 in. h; mfr 98738, part no. 01A228203-01. (Attaching Parts) A2A5MP15 and A2A5MP16	7-60
A2A5C1 and A2A5C2		CAPACITOR: Item 68.	7-61
A2A5E1 thru A2A5E4		Not used.	
A2A5E5		TERMINAL: Brass; 0.187 in. dia, 0.438 in. long; mfr 88245, part no. 1250B, 98738, dwg 29S111314-2. (Attaching Parts) AL(1) DA(1)	7-61
A2A5E6		TERMINAL, LUG: Brass, 90° bend, 0.13 in. dia, 0.53 in. long; mfr 79963, part no. 124, 98738, dwg 29S133084-01. (Attaching Parts) AL(1) DA(1)	7-61
A2A5E7		TERMINAL, LUG: MIL type MS77068-1. (Attaching Parts) AU(1) DA(1)	7-61
A2A5J1 and A2A5J2		Not used.	
A2A5J3		CONNECTOR, ELECTRICAL, PRINTED WIRING BOARD CARD: Card insertion; MIL type M21097-1-019. (Attaching Parts) AU(2) AL(1) DA(2) A2A5E7.	7-61
A2A5MP1		BASE PLATE: Aluminum alloy; 4.406 in. long, 2.906 in. w, 0.906 in. h; mfr 98738, part no. 01A226516-22-11. (Attaching Parts) FX(2)	7-61
A2A5MP2		SLEEVE ASSEMBLY: Polyurethane foam, 2.75 in. long, 1.875 in. w, 3.875 in. h; mfr 98738, part no. 01A226525-21-11. (Attaching Parts) AB(2)	7-61
A2A5MP3 and A2A5MP4		SPACER: Teflon; 0.562 in. long, 0.250 in. dia; mfr 98738, part no. 43P228454. (Attaching Parts) M(2) AB(2)	7-61
A2A5MP5		OVEN COVER SUBASSEMBLY: Plastic; 2.50 in. long, 1.437 in. w; mfr 98738, part no. 15A226634-22-11. (Attaching Parts) AL(2) AR(2) AU(2)	7-61
A2A5MP6		DIAL, INDICATOR: Nylon; 1.687 in. dia, 0.188 in. thk; mfr 98738, part no. 34P226544-21-11. (Attaching Parts) DC(1) FT(1) A2A5MP7 thru A2A5MP9	7-61
A2A5MP7		SPACER: Teflon; 0.250 in. dia, 0.219 in. long; mfr 98738, part no. 43P226537-22-11.	7-61
A2A5MP8		Not used.	
A2A5MP9		SPRING WASHER: Phospher bronze, cadmium plated; 0.50 in. OD, 0.254 in. ID, 0.010 in. thk; mfr 78189, part no. 3702-14-47, 98738, dwg 04P226633-01.	7-61

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5MP10		SPRING, COMPRESSION: CRES, 0.250 in. long, 0.088 in. dia; mfr 70472, part no. 00088-012-0250S, 98738, dwg 41P226642-21-11. (Attaching Parts) CV(1)	7-61
A2A5MP11		Not used.	
A2A5MP12		KNOB, CONTROL: Molded black nylon; 0.50 in. long, 0.355 in. dia; mfr 98738, part no. 36P226546-21-11.	7-61
A2A5MP13		COVER: Aluminum alloy; 4.375 in. long, 2.750 in. w, 3.875 in. h; mfr 98738, part no. 15P226549-23-11. (Attaching Parts) AL(5) AQ(5)	7-60
A2A5MP14		PLUG, PROTECTIVE: Nylon; 0.344 in. dia, 0.031 in. thk, 0.172 in. long; mfr 78189, part no. 207-120241-05-0103, 98738, dwg 09P226623-01.	7-60
A2A5MP15 and A2A5MP16		SCREW, CAPTIVE: CRES, 4.690 in. long, 0.218 in. dia, 10-32 UNF-2A threads; mfr 98738, part no. 03P226540-21-11.	7-60
A2A5MP17 and A2A5MP18		STRAP, TIEDOWN: MIL type MS3367-4-9.	7-61
A2A5P1		CONNECTOR, ELECTRICAL: 2.729 in. long, 0.494 in. w; 0.426 in. thk; mfr 71468, part no. DCM13W6P-F115, 98738, dwg 09P226606-01. (Attaching Parts) DD(2)	7-61
A2A5P1A1 thru A2A5P1A5		CONNECTOR, INSERT, COAXIAL: Beryllium copper contacts plated with gold; 0.850 in. long; mfr 13556, part no. 318-11-99-231, 98738, dwg 09P226604-01.	7-61
A2A5W1 and A2A5W2		CABLE ASSEMBLY, SHIELDED: 4.50 in. long, connector installed one end; mfr 98738, part no. 01A226526-21-11.	7-61
A2A5W3		CABLE ASSEMBLY, SHIELDED: 6.0 in. long, connector installed one end; mfr 98738, part no. 01A226526-22-11.	7-61
A2A5W4		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; connector installed one end; mfr 98738, part no. 01A226512-21-11.	7-61
A2A5W5		CABLE ASSEMBLY, SHIELDED: 3.50 in. long; connector installed one end; mfr 98738, part no. 01A226526-23-11.	7-61
A2A5W6		CABLE ASSEMBLY, SHIELDED: 6.0 in. long; connector installed one end; mfr 98738, part no. 01A226526-24-11.	7-61
A2A5W7		CABLE ASSEMBLY, SHIELDED: 4.50 in. long; mfr 98738, part no. 30A226513-21-11.	7-61
A2A5A1		OSCILLATOR OVEN PCB ASSEMBLY: 2.968 in. long, 1.781 in. w; mfr 98738, part no. 01A226530-22-11.	7-62

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1C1		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CMR06F681JODL.	7-62
A2A5A1C2		CAPACITOR, VARIABLE: 0.8 pF to 12 pF, 1500 Vdc working; mfr 18736, part no. V1502, 98738, dwg 19P226601-01.	7-62
A2A5A1C3		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF; 200 Vdc working; MIL type CV32D350.	7-62
A2A5A1C4		CAPACITOR, FIXED, MICA: 180 pF ±5%, 500 Vdc working; MIL type CMR04F181JODL.	7-62
A2A5A1C5		CAPACITOR, FIXED, MICA: 220 pF ±5%, 500 Vdc working; MIL type CMR04F221JODL.	7-62
A2A5A1C6		CAPACITOR: Item 18.	7-62
A2A5A1C7		CAPACITOR, FIXED, ELECTROLYTIC: 3.3 uF ±20%, 15 Vdc working; MIL type M39003-01-2269.	7-62
A2A5A1C8A	1	CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-62
A2A5A1C8B	1	CAPACITOR, FIXED, MICA: 47 pF ±5%, 500 Vdc working; MIL type CMR04E470JODL.	7-62
A2A5A1C8C	1	CAPACITOR, FIXED, MICA: 68 pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-62
A2A5A1C8D	1	CAPACITOR, FIXED, MICA: 82 pF ±5%, 500 Vdc working; MIL type CMR04E820JODL.	7-62
A2A5A1C8E	1	CAPACITOR, FIXED, MICA: 100 pF ±5%, 500 Vdc working; MIL type CMR04F101JODL.	7-62
A2A5A1C8F	1	CAPACITOR, FIXED, MICA: 120 pF ±5%, 500 Vdc working; MIL type CMR04F121JODL.	7-62
A2A5A1C8G	1	CAPACITOR, FIXED, MICA: 130 pF ±5%, 500 Vdc working; MIL type CMR04F131JODL.	7-62
A2A5A1C8H	1	CAPACITOR, FIXED, MICA: 160 pF ±5%, 500 Vdc working; MIL type CMR04F161JODL.	7-62
A2A5A1C9		Not used.	
A2A5A1C10		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%, 100 Vdc working; MIL type M39014-01-1535.	7-62
A2A5A1C11A	1	CAPACITOR, FIXED, MICA: 82 pF ±5%, 500 Vdc working; MIL type CMR04F820JODL.	7-62
A2A5A1C11B	1	CAPACITOR, FIXED, MICA: 100 pF ±5%, 500 Vdc working; MIL type CMR04F101JODL.	7-62
A2A5A1C11C	1	CAPACITOR, FIXED, MICA: 120 pF ±5%, 500 Vdc working; MIL type CMR04F121JODL.	7-62
A2A5A1C11D	1	CAPACITOR, FIXED, MICA: 130 pF ±5%, 500 Vdc working; MIL type CMR04F131JODL.	7-62

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1C11E	1	CAPACITOR, FIXED, MICA: 160 pF ±5%, 500 Vdc working; MIL type CMR04F161JODL.	7-62
A2A5A1C11F	1	CAPACITOR, FIXED, MICA: 250 pF ±5%, 500 Vdc working; MIL type CMR04F251JODL.	7-62
A2A5A1CR1		SEMICONDUCTOR DEVICE: Item 61.	7-62
A2A5A1CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4150.	7-62
A2A5A1E1 and A2A5A1E2		CONTACT: Phosphor bronze; 0.600 in. long, 0.101 in. w; mfr 91506, part no. 8004-4P40, 98738, dwg 09P226617-01.	7-62
A2A5A1MP1		BRACKET, CRYSTAL HOLDER: Aluminum alloy; 0.937 in. long, 0.625 in. w, 0.062 in. thk; mfr 98738, part no. 07P226639-21-11.	7-62
A2A5A1MP2		SPACER, CRYSTAL HOLDER: Aluminum alloy; 0.687 in. long, 0.50 in. w, 0.125 in. thk; mfr 98738, part no. 43P226640-21-11.	7-62
A2A5A1MP3		CLIP, CRYSTAL HOLDER: Spring steel; 0.50 in. long, 0.758 in. w, 0.40 in. h; mfr 99378, part no. 100-206-8, 98738, dwg 42P226625-07.	7-62
A2A5A1MP4		GROMMET: Neoprene; 0.375 in. long, 0.250 in. dia, 0.375 in. dia. at shoulder, mfr 70485, part no. 962, 98738, dwg 05P226616-01. (Attaching Parts) DE(2)	7-62
A2A5A1MP5		PAD, TRANSISTOR, MOUNTING: 0.350 in. OD, 0.200 in. ID, 0.020 in. thk.; mfr 13103, part no. 7717-15; 98738, dwg 14S132171-11A-9.	7-62
A2A5A1P1 thru A2A5A1P5		CONNECTOR: PCB contact, phosphor bronze, 0.127 in. long; mfr 91662, part no. 02-005-046-5-200-100, 98738, dwg 09P226602-01.	7-62
A2A5A1Q1 thru A2A5A1Q5		TRANSISTOR: MIL type JAN2N706.	7-62
A2A5A1Q6		TRANSISTOR: MIL type JAN2N2907A.	7-62
A2A5A1Q7		TRANSISTOR: MIL type JAN2N697.	7-62
A2A5A1R1		RESISTOR, FIXED, COMPOSITION: 120K ohms ±5%, 1/4 w; MIL type RCR07G124JS.	7-62
A2A5A1R2		RESISTOR: Item 59.	7-62
A2A5A1R3		RESISTOR: Item 58.	7-62
A2A5A1R4		RESISTOR, FIXED, COMPOSITION: 82K ohms ±5%, 1/4 w; MIL type RCR07G823JS.	7-62
A2A5A1R5		RESISTOR: Item 43.	7-62
A2A5A1R6		RESISTOR: Item 53.	7-62
A2A5A1R7		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-62
A2A5A1R8		RESISTOR: Item 46.	7-62
A2A5A1R9		RESISTOR, FIXED, WIRE-WOUND: 270 ohms ±5%, 1/2 w; MIL type RCR20G271JS.	7-62

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1R10A	1	RESISTOR: Item 39.	7-62
A2A5A1R10B	1	RESISTOR, FIXED, COMPOSITION: 18K ohms ±5%, 1/4 w; MIL type RCR07G183JS.	7-62
A2A5A1R10C	1	RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.	7-62
A2A5A1R10D	1	RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4 w; MIL type RCR07G393JS.	7-62
A2A5A1R10E	1	RESISTOR: Item 56.	7-62
A2A5A1R11		RESISTOR: Item 39.	7-62
A2A5A1R12		RESISTOR: Item 46.	7-62
A2A5A1R13 and A2A5A1R14		RESISTOR, FIXED, FILM: 4700 ohms ±2%, 1/4 w; MIL type RLR07C472GR.	7-62
A2A5A1R15		RESISTOR, VARIABLE, WIRE-WOUND: 1K ohms ±5%, 3/4 w; MIL type M39015/2-004XM.	7-62
A2A5A1R16A	1	RESISTOR, FIXED, FILM: 3300 ohms ±2%, 1/4 w; MIL type RLR07C332GR.	7-62
A2A5A1R16B	1	RESISTOR, FIXED, FILM: 3900 ohms ±2%, 1/4 w; MIL type RLR07C392GR.	7-62
A2A5A1R16C	1	RESISTOR, FIXED, FILM: 4300 ohms ±2%, 1/4 w; MIL type RLR07C432GR.	7-62
A2A5A1R16D	1	RESISTOR, FIXED, FILM: 4700 ohms ±2%, 1/4 w; MIL type RLR07C472GR.	7-62
A2A5A1R17 and A2A5A1R18		RESISTOR: Item 42.	7-62
A2A5A1R19 and A2A5A1R20		RESISTOR: Item 39.	7-62
A2A5A1R21		RESISTOR: Item 46.	7-62
A2A5A1R22		RESISTOR: Item 48.	7-62
A2A5A1R23A	1	RESISTOR, FIXED, COMPOSITION: 270K ohms ±5%, 1/4 w; MIL type RCR07G274JS.	7-62
A2A5A1R23B	1	RESISTOR, FIXED, COMPOSITION: 330K ohms ±5%, 1/4 w; MIL type RCR07G334JS.	7-62
A2A5A1R23C	1	RESISTOR, FIXED, COMPOSITION: 390K ohms ±5%, 1/4 w; MIL type RCR07G394JS.	7-62
A2A5A1R23D	1	RESISTOR, FIXED, COMPOSITION: 470K ohms ±5%, 1/4 w; MIL type RCR07G474JS.	7-62
A2A5A1R23E	1	RESISTOR, FIXED, COMPOSITION: 560K ohms ±5%, 1/4 w; MIL type RCR07G564JS.	7-62

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A1R23F	1	RESISTOR, FIXED, COMPOSITION: 680K ohms ±5%, 1/4 w; MIL type RCR07G684JS.	7-62
A2A5A1R23G	1	RESISTOR, FIXED, COMPOSITION: 820K ohms ±5%, 1/4 w; MIL type RCR07G824JS.	7-62
A2A5A1R23H	1	RESISTOR, FIXED, COMPOSITION: 1 megohm ±5%, 1/4 w; MIL type RCR07G105JS.	7-62
A2A5A1R23J	1	RESISTOR, FIXED, COMPOSITION: 1.2 megohms ±5%, 1/4 w; MIL type RCR07G125JS.	7-62
A2A5A1R23K	1	RESISTOR, FIXED, COMPOSITION: 1.5 megohms ±5%, 1/4 w; MIL type RCR07G155JS.	7-62
A2A5A1R23L	1	RESISTOR, FIXED, COMPOSITION: 1.8 megohms ±5%, 1/4 w; MIL type RCR07G185JS.	7-62
A2A5A1R23M	1	RESISTOR, FIXED, COMPOSITION: 2.3 megohms ±5%, 1/4 w; MIL type RCR07G235JS.	7-62
A2A5A1R23N	1	RESISTOR, FIXED, COMPOSITION: 2.7 megohms ±5%, 1/4 w; MIL type RCR07G275JS.	7-62
A2A5A1R24		RESISTOR: Item 38.	7-62
A2A5A1Y1		CRYSTAL QUARTZ, 5 MHZ: In glass holder; 0.795 in. long, 0.757 in. w; 0.352 in. thk; mfr 98738, part no. 48P228436-01.	7-62
A2A5A2		DRIVER/AMPLIFIER PCB ASSEMBLY: Mfr 98738, part no. 01A226529-22-11. (Attaching Parts) AF(2) AL(2) AU(2) DF(2) AB(2) L(2) M(2)	7-63
A2A5A2C1		CAPACITOR: Item 67.	7-63
A2A5A2C2		CAPACITOR, FIXED, MICA: 300 pF ±5%, 500 Vdc working; MIL type CMR04F301JOCL.	7-63
A2A5A2C3 and A2A5A2C4		CAPACITOR: Item 68.	7-63
A2A5A2C5		CAPACITOR: Item 67.	7-63
A2A5A2C6		CAPACITOR: Item 68.	7-63
A2A5A2C7		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-63
A2A5A2C8		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CMR06F681JODL.	7-63
A2A5A2C9		CAPACITOR, FIXED, MICA: 220 pF ±5%, 500 Vdc working; MIL type CMR04F221JODL.	7-63
A2A5A2C10		CAPACITOR: Item 67.	7-63
A2A5A2C11		CAPACITOR: Item 68.	7-63

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2C12		CAPACITOR, FIXED, MICA: 30 pF ±5%, 500 Vdc working; MIL type CMR04E300JODL.	7-63
A2A5A2C13		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-63
A2A5A2C14		CAPACITOR: Item 67.	7-63
A2A5A2C15		CAPACITOR: Item 68.	7-63
A2A5A2C16		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-63
A2A5A2C17		CAPACITOR: Item 67.	7-63
A2A5A2C18		CAPACITOR, FIXED, MICA: 1500 pF ±5%, 500 Vdc working; MIL type CMR06F152JODL.	7-63
A2A5A2C19		CAPACITOR, FIXED, MICA: 680 pF ±5%, 500 Vdc working; MIL type CMR06F681JODL.	7-63
A2A5A2C20		CAPACITOR: Item 68.	7-63
A2A5A2C21		CAPACITOR, FIXED, MICA: 330 pF ±3%, 500 Vdc working; MIL type CMR04F331JODL.	7-63
A2A5A2C22		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 15 pF to 60 pF, 200 Vdc working; MIL type CV31E600.	7-63
A2A5A2C23		CAPACITOR, FIXED, MICA: 150 pF ±5%, 500 Vdc working; MIL type CMR04F151JODL.	7-63
A2A5A2C24		CAPACITOR: Item 68.	7-63
A2A5A2C25		CAPACITOR: Item 67.	7-63
A2A5A2C26		CAPACITOR: Item 68.	7-63
A2A5A2C27		CAPACITOR, FIXED, MICA: 68 pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-63
A2A5A2C28		CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-63
A2A5A2C29		CAPACITOR: Item 68.	7-63
A2A5A2C30		CAPACITOR, FIXED, MICA: 33 pF ±5%, 500 Vdc working; MIL type CMR04E330JODL.	7-63
A2A5A2C31		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-63
A2A5A2C32		CAPACITOR, FIXED, MICA: 1500 pF ±5%, 500 Vdc working; MIL type CMR06F152JODL.	7-63
A2A5A2C33		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-63
A2A5A2C34		CAPACITOR: Item 68.	7-63
A2A5A2C35		CAPACITOR, FIXED, MICA: 68 pF ±5%, 500 Vdc working; MIL type CMR04E680JODL.	7-63
A2A5A2C36		CAPACITOR: Item 68.	7-63

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2C7		CAPACITOR, FIXED, MICA: 56 pF ±5%, 500 Vdc working; MIL type CMR04E560JODL.	7-63
A2A5A2C38		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: 9 pF to 35 pF, 200 Vdc working; MIL type CV31D350.	7-63
A2A5A2C39		CAPACITOR, FIXED, MICA: 91 pF ±5%, 500 Vdc working; MIL type CMR04F910JODL.	7-63
A2A5A2C40		CAPACITOR, FIXED, MICA: 1200 pF ±5%, 500 Vdc working; MIL type CMR06F122JODL.	7-63
A2A5A2C41		CAPACITOR: Item 67.	7-63
A2A5A2C42		CAPACITOR: Item 68.	7-63
A2A5A2C43		Not used.	
A2A5A2C44A	1	CAPACITOR, FIXED, MICA: 10 pF ±5%, 500 Vdc working; MIL type CMR04X100JODL.	7-63
A2A5A2C44B	1	CAPACITOR, FIXED, MICA: 22 pF ±5%, 500 Vdc working; MIL type CMR04X220JODL.	7-63
A2A5A2C44C	1	CAPACITOR, FIXED, MICA: 27 pF ±5%, 500 Vdc working; MIL type CMR04X270JODL.	7-63
A2A5A2C44D	1	CAPACITOR, FIXED, MICA: 39 pF ±5%, 500 Vdc working; MIL type CMR04X390JODL.	7-63
A2A5A2C44E	1	CAPACITOR, FIXED, MICA: 47 pF ±5%, 500 Vdc working; MIL type CMR04X470JODL.	7-63
A2A5A2C44F	1	CAPACITOR, FIXED, MICA: 82 pF ±5%, 500 Vdc working; MIL type CMR04X820JODL.	7-63
A2A5A2C44G	1	CAPACITOR, FIXED, MICA: 100 pF ±5%, 500 Vdc working; MIL type CMR04X101JODL.	7-63
A2A5A2DS1		LAMP, INCANDESCENT: 10 V, 0.4 w; mfr 82219, part no. 10ES, 98738, dwg 65P226608-01.	7-63
A2A5A2L1		CHOKE: 120 uH ±5%, 75 milliamps; MIL type MS90538-14.	7-63
A2A5A2L2		CHOKE: 200 uH ±5%, 150 milliamps; MIL type MS90538-19.	7-63
A2A5A2L3		CHOKE: 6.80 uH ±10%, 395 milliamps, MIL type MS14046-2.	7-63
A2A5A2L4		CHOKE: 10.00 uH ±5%, 290 milliamps, MIL type MS14046-4.	7-63
A2A5A2MP1		BRACKET ASSEMBLY: Alum. alloy, 0.937 in. long, 0.812 in. w, 1.187 in. h; mfr 98738, part no. 01A226519-21-11. (Attaching Parts) DG(2)	7-61
A2A5A2MP2		CLIP, LAMP: MIL type M24066/2-106.	7-63
A2A5A2Q1		TRANSISTOR: MIL type JAN2N706.	7-63
A2A5A2Q2 and A2A5A2Q3		TRANSISTOR: Item 64.	7-63

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2Q4 thru A2A5A2Q8		TRANSISTOR: MIL type JAN2N706.	7-63
A2A5A2Q9 thru A2A5A2Q11		TRANSISTOR: Item 64.	7-63
A2A5A2R1		RESISTOR: Item 38.	7-63
A2A5A2R2		RESISTOR: Item 39.	7-63
A2A5A2R3		RESISTOR, FIXED, COMPOSITION: 33K ohms ±5%, 1/4 w; MIL type RCR07G333JS.	7-63
A2A5A2R4		RESISTOR, FIXED, COMPOSITION: Item 46.	7-63
A2A5A2R5		RESISTOR, FIXED, COMPOSITION: 33K ohms ±5%, 1/4 w; MIL type RCR07G333JS.	7-63
A2A5A2R6		RESISTOR: Item 39.	7-63
A2A5A2R7		RESISTOR, FIXED, COMPOSITION: Item 46.	7-63
A2A5A2R8		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-63
A2A5A2R9		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-63
A2A5A2R10		RESISTOR: Item 55.	7-63
A2A5A2R11		RESISTOR: Item 38.	7-63
A2A5A2R12		RESISTOR: Item 39.	7-63
A2A5A2R13		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-63
A2A5A2R14		RESISTOR, FIXED, COMPOSITION: 68K ohms ±5%, 1/4 w; MIL type RCR07G683JS.	7-63
A2A5A2R15		RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-63
A2A5A2R16		RESISTOR: Item 57.	7-63
A2A5A2R17A	1	RESISTOR: Item 50.	7-63
A2A5A2R17B	1	RESISTOR: Item 51.	7-63
A2A5A2R17C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-63
A2A5A2R17D	1	RESISTOR: Item 53.	7-63
A2A5A2R17E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-63
A2A5A2R17F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-63
A2A5A2R17G	1	RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-63
A2A5A2R17H	1	RESISTOR: Item 37.	7-63
A2A5A2R17J	1	RESISTOR: Item 40.	7-63
A2A5A2R17K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-63

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R17L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-63
A2A5A2R17M	1	RESISTOR: Item 45.	7-63
A2A5A2R18A	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-63
A2A5A2R18B	1	RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-63
A2A5A2R18C	1	RESISTOR: Item 37.	7-63
A2A5A2R19		RESISTOR: Item 39.	7-63
A2A5A2R20		RESISTOR, FIXED, COMPOSITION: 33K ohms ±5%, 1/4 w; MIL type RCR07G333JS.	7-63
A2A5A2R21 and A2A5A2R22		RESISTOR: Item 39.	7-63
A2A5A2R23 thru A2A5A2R25		RESISTOR: Item 55.	7-63
A2A5A2R26		RESISTOR: Item 46.	7-63
A2A5A2R27		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.	7-63
A2A5A2R28		RESISTOR: Item 39.	7-63
A2A5A2R29		RESISTOR: Item 38.	7-63
A2A5A2R30A	1	RESISTOR: Item 50.	7-63
A2A5A2R30B	1	RESISTOR: Item 51.	7-63
A2A5A2R30C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-63
A2A5A2R30D	1	RESISTOR: Item 53.	7-63
A2A5A2R30E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-63
A2A5A2R30F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-63
A2A5A2R30G	1	RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-63
A2A5A2R30H	1	RESISTOR: Item 37.	7-63
A2A5A2R30J	1	RESISTOR: Item 40.	7-63
A2A5A2R30K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-63
A2A5A2R30L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-63
A2A5A2R30M	1	RESISTOR: Item 45.	7-63
A2A5A2R31A	1	RESISTOR: Item 44.	7-63
A2A5A2R31B	1	RESISTOR: Item 51.	7-63
A2A5A2R31C	1	RESISTOR: Item 53.	7-63
A2A5A2R32		RESISTOR: Item 38.	7-63

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R33		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-63
A2A5A2R34		RESISTOR, FIXED, COMPOSITION: 33K ohms ±5%, 1/4 w; MIL type RCR07G333JS.	7-63
A2A5A2R35		Not used.	
A2A5A2R36		RESISTOR: Item 46.	
A2A5A2R37		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-63
A2A5A2R38		RESISTOR: Item 39.	7-63
A2A5A2R39		RESISTOR: Item 46.	7-63
A2A5A2R40		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.	7-63
A2A5A2R41		RESISTOR: Item 55.	7-63
A2A5A2R42		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-63
A2A5A2R43A	1	RESISTOR: Item 52.	7-63
A2A5A2R43B	1	RESISTOR: Item 54.	7-63
A2A5A2R43C	1	RESISTOR: Item 57.	7-63
A2A5A2R44A	1	RESISTOR, FIXED, COMPOSITION: 2.70 ohms ±5%, 1/4 w; MIL type RCR07G2R7JS.	7-63
A2A5A2R44B	1	RESISTOR, FIXED, COMPOSITION: 3.3 ohms ±5%, 1/4 w; MIL type RCR07G3R3JS.	7-63
A2A5A2R44C	1	RESISTOR, FIXED, COMPOSITION: 3.9 ohms ±5%, 1/4 w; MIL type RCR07G3R9JS.	7-63
A2A5A2R44D	1	RESISTOR, FIXED, COMPOSITION: 4.7 ohms ±5%, 1/4 w; MIL type RCR07G4R7JS.	7-63
A2A5A2R44E	1	RESISTOR, FIXED, COMPOSITION: 5.6 ohms ±5%, 1/4 w; MIL type RCR07G5R6JS.	7-63
A2A5A2R44F	1	RESISTOR, FIXED, COMPOSITION: 6.8 ohms ±5%, 1/4 w; MIL type RCR07G6R8JS.	7-63
A2A5A2R44G	1	RESISTOR, FIXED, COMPOSITION: 8.2 ohms ±5%, 1/4 w; MIL type RCR07G8R2JS.	7-63
A2A5A2R44H	1	RESISTOR: Item 36.	7-63
A2A5A2R45 and A2A5A2R46		RESISTOR: Item 39.	7-63
A2A5A2R47		RESISTOR, FIXED, COMPOSITION: 100K ohms ±5%, 1/4 w; MIL type RCR07G104JS.	7-63
A2A5A2R48		RESISTOR: Item 38.	7-63
A2A5A2R49A	1	RESISTOR: Item 50.	7-63
A2A5A2R49B	1	RESISTOR: Item 51.	7-63
A2A5A2R49C	1	RESISTOR, FIXED, COMPOSITION: 39 ohms ±5%, 1/4 w; MIL type RCR07G390JS.	7-63

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A2R49D	1	RESISTOR: Item 53.	7-63
A2A5A2R49E	1	RESISTOR, FIXED, COMPOSITION: 56 ohms ±5%, 1/4 w; MIL type RCR07G560JS.	7-63
A2A5A2R49F	1	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-63
A2A5A2R49G	1	RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-63
A2A5A2R49H	1	RESISTOR: Item 37.	7-63
A2A5A2R49J	1	RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4 w; MIL type RCR07G121JS.	7-63
A2A5A2R49K	1	RESISTOR, FIXED, COMPOSITION: 150 ohms ±5%, 1/4 w; MIL type RCR07G151JS.	7-63
A2A5A2R49L	1	RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/4 w; MIL type RCR07G181JS.	7-63
A2A5A2R49M	1	RESISTOR: Item 45.	7-63
A2A5A2R50		Not used.	
A2A5A2R51		Not used.	
A2A5A2R52		RESISTOR: Item 39.	7-63
A2A5A2R53		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-63
A2A5A2R54		RESISTOR: Item 37.	7-63
A2A5A2R55		RESISTOR: Item 38.	7-63
A2A5A2R56		RESISTOR: Item 39.	7-63
A2A5A2R57		RESISTOR, FIXED, FILM: 560 ohms ±5%, 1/2 w; MIL type RLR20C5600JR.	7-63
A2A5A2R58		RESISTOR: Item 46.	7-63
A2A5A2R59		Not used.	
A2A5A2R60		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-63
A2A5A2R61		RESISTOR: Item 38.	7-63
A2A5A2R62		RESISTOR: Item 39.	7-63
A2A5A2S1		SWITCH, ROTARY: Three pole, three position; 0.50 in. body dia, 0.93 in. long; mfr 76854, part no. 5-21347-431, 98738, dwg 40P226636-01.	7-63
A2A5A2T1		TRANSFORMER, RF: 240 uH primary inductance, 21 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24P226607-23-11.	7-63
A2A5A2T2		TRANSFORMER, RF: 240 uH primary inductance, 10 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24P226607-22-11.	7-63
A2A5A2T3		TRANSFORMER, RF: 10 uH primary inductance, 3/4 turn secondary; 0.375 in. long, 0.155 in. dia; mfr 98738, part no. 24P226607-21-11.	7-63

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A3		OVEN BODY SUBASSEMBLY: Mfr 98738, part no. 01A226523-22-11. (Attaching Parts) AB(2)	7-64
A2A5A3E1		LUG, SOLDER: MIL type MS77068-1. (Attaching Parts) AQ(1) AU(1)	7-64
A2A5A3E2 and A2A5A3E3		TERMINAL, TURRET: MIL type SE089-B01S.	7-64
A2A5A3J1		CONNECTOR ASSEMBLY: Copper clad plastic, five contacts; 1.39 in. long, 0.25 in. w; mfr 98738, part no. 01A226509-21-11. (Attaching Parts) FV(2)	7-64
A2A5A3J1A1 thru A2A5A3J1A5		CONTACT, P.C. BOARD: Phosphor bronze, nickel plated; 0.70 in. long; mfr 91662, part no. 01-005-120-6200-100, 98738, dwg 09P226643-01.	7-64
A2A5A3MP1		OVEN CAN AND HEATER ASSEMBLY: Aluminum alloy, heater winding epoxy coated, 2.0 in. long, 1.141 in. w, 3.125 in. h; mfr 98738, part no. 01A226518-22-11.	7-64
A2A5A3MP2		PLATE, INSULATOR: Plastic; 0.50 in. sq, 0.62 in. thk; mfr 98738, part no. 64P226533-21-11.	7-64
A2A5A3MP3 and A2A5A3MP4		GROMMET, NYLON: 0.218 in. sq, 0.268 in. long; mfr 02768, part no. 212-110302-00, 98738, dwg 05P226618-21-11.	7-64
A2A5A3MP5		CRYSTAL OVEN CAN: 3.06 in. long, 2.00 in. w; mfr 98738, part no. 15P226548-22-11.	7-64
A2A5A3MP6		OVEN CAN STAKING ASSEMBLY: 3.37 in. long, 2.00 in. w; mfr 98738, part no. 01A226517-22-11. (Attaching Parts) FW(1)	7-64
A2A5A3R1		RESISTOR, HEATER WIRE: Nickel chrome "C", #30AWG, adjusted to 82 ±2 ohms, 6.75 ohms/ft. nom; mfr 98738, dwg 30P226621-21-11.	7-64
A2A5A3R2		RESISTOR, FIXED, WIRE-WOUND: 3900 ohms ±1%, mfr 48615, part no. SX094, 98738, dwg 17P226603-01.	7-64
A2A5A4		5 MHZ REFERENCE CONTROL SUBASSEMBLY: 3.180 in. long, 2.062 in. w; mfr 98738, part no. 01A226524-22-11. (Attaching Parts) AF(1) AL(1) AU(1) DH(1)	7-65
A2A5A4C1		CAPACITOR: Item 68.	7-65
A2A5A4C2		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±10%, 50 wvdc; MIL type M39003-01-2356.	7-65

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4C3		CAPACITOR, FIXED, MICA: 150 pF ±5%, 500 wvdc; MIL type CMR04F151JODL.	7-65
A2A5A4C4 thru A2A5A4C8		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±10%, 50 wvdc; MIL type M39003-01-2356.	7-65
A2A5A4CR1 thru A2A5A4CR6		SEMICONDUCTOR DEVICE, SILICON SWITCHING DIODE: MIL type JAN1N4150.	7-65
A2A5A4CR7		SEMICONDUCTOR DEVICE, SILICON REFERENCE DIODE: MIL type JAN1N4120.	7-65
A2A5A4CR8		SEMICONDUCTOR DEVICE, SILICON REFERENCE DIODE: MIL type JAN1N4106.	7-65
A2A5A4E1		EYELET: Solder plated brass; 0.187 in. long, 0.150 in. dia; mfr 57771, part no. A2209GS3-6, 98738, dwg 05P226624-02.	7-65
A2A5A4E2		Not used.	
A2A5A4E4		TERMINAL, LUG: MIL type MS35431-1.	7-65, 7-65AA
A2A5A4MP1 thru A2A5A4MP3		PAD, INSULATOR: Nylon, 0.375 in. dia, 0.075 in. thk; mfr 13103, part no. 7717-4, 98738, dwg 14S132171-3B.	7-65
A2A5A4MP4		HEAT SINK: Aluminum alloy, anodized black; 1.297 in. long, 0.75 in. w, 0.969 in. h; mfr 98738, part no. 91P226541-21-11.	7-65, 7-65AA
A2A5A4MP5		INSULATOR, TRANSISTOR: Mica; 0.98 in. long, 0.78 in. w; mfr 02735, part no. 411-010-DF-031, 98738, dwg 14P227266-01.	7-65, 7-65AA
A2A5A4MP6		SPACER, TRANSISTOR: Nylon; 1.30 in. long, 0.75 in. w; 0.063 in. thk; mfr 98738, part no. 43P226641-21-11.	7-65, 7-65AA
A2A5A4Q1 and A2A5A4Q2		TRANSISTOR: Item 64.	7-65
A2A5A4Q3		TRANSISTOR: MIL type JAN2N3019.	7-65
A2A5A4Q4		TRANSISTOR: Item 64.	7-65
A2A5A4Q5		TRANSISTOR: MIL type JAN2N3441. (Attaching Parts) AG(2) AS(1) CQ(2)	7-65, 7-65AA
A2A5A4R1		RESISTOR, FIXED, FILM: 75 ohms ±5%, 1/2 w; MIL type RLR20C750JR.	7-65
A2A5A4R2		RESISTOR: Item 37.	7-65
A2A5A4R3A	1	RESISTOR: Item 56.	7-65
A2A5A4R3B	1	RESISTOR, FIXED, COMPOSITION: 2400 ohms ±5%, 1/4 w; MIL type RCR07G242JS.	7-65
A2A5A4R3C	1	RESISTOR: Item 47.	7-65
A2A5A4R3D	1	RESISTOR, FIXED, COMPOSITION: 3000 ohms ±5%, 1/4 w; MIL type RCR07G302JS.	7-65
A2A5A4R3E	1	RESISTOR: Item 49.	7-65

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4R3F	1	RESISTOR, FIXED, COMPOSITION: 3600 ohms ±5%, 1/4 w; MIL type RCR07G362JS.	7-65
A2A5A4R3G	1	RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-65
A2A5A4R3H	1	RESISTOR, FIXED, COMPOSITION: 4300 ohms ±5%, 1/4 w; MIL type RCR07G432JS.	7-65
A2A5A4R3J	1	RESISTOR: Item 55.	7-65
A2A5A4R3K	1	RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-65
A2A5A4R3L	1	RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-65
A2A5A4R3M	1	RESISTOR, FIXED, COMPOSITION: 6200 ohms ±5%, 1/4 w; MIL type RCR07G622JS.	7-65
A2A5A4R3N	1	RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-65
A2A5A4R3P	1	RESISTOR, FIXED, COMPOSITION: 7500 ohms ±5%, 1/4 w; MIL type RCR07G752JS.	7-65
A2A5A4R3Q	1	RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-65
A2A5A4R3R	1	RESISTOR, FIXED, COMPOSITION: 9100 ohms ±5%, 1/4 w; MIL type RCR07G912JS.	7-65
A2A5A4R3S	1	RESISTOR: Item 39.	7-65
A2A5A4R4		RESISTOR: Item 38.	7-65
A2A5A4R5A	1	RESISTOR: Item 46.	7-65
A2A5A4R5B	1	RESISTOR: Item 32.	7-65
A2A5A4R5C	1	RESISTOR: Item 47.	7-65
A2A5A4R5D	1	RESISTOR, FIXED, COMPOSITION: 3000 ohms ±5%, 1/4 w; MIL type RCR07G302JS.	7-65
A2A5A4R5E	1	RESISTOR: Item 49.	7-65
A2A5A4R5F	1	RESISTOR, FIXED, COMPOSITION: 3600 ohms ±5%, 1/4 w; MIL type RCR07G362JS.	7-65
A2A5A4R5G	1	RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-65
A2A5A4R5H	1	RESISTOR, FIXED, COMPOSITION: 4300 ohms ±5%, 1/4 w; MIL type RCR07G432JS.	7-65
A2A5A4R5J	1	RESISTOR: Item 55.	7-65
A2A5A4R5K	1	RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.	7-65
A2A5A4R5L	1	RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-65
A2A5A4R5M	1	RESISTOR, FIXED, COMPOSITION: 6200 ohms ±5%, 1/4 w; MIL type RCR07G622JS.	7-65

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

FREQUENCY STANDARD ASSEMBLY A2A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A5A4R5N	1	RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/4 w; MIL type RCR07G682JS.	7-65
A2A5A4R5P	1	RESISTOR, FIXED, COMPOSITION: 7500 ohms ±5%, 1/4 w; MIL type RCR07G752JS.	7-65
A2A5A4R5Q	1	RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-65
A2A5A4R5R	1	RESISTOR, FIXED, COMPOSITION: 9100 ohms ±5%, 1/4 w; MIL type RCR07G912JS.	7-65
A2A5A4R5S	1	RESISTOR: Item 39.	7-65
A2A5A4R6		RESISTOR: Item 55.	7-65
A2A5A4R7		RESISTOR: Item 47.	7-65
A2A5A4R8		RESISTOR: Item 42.	7-65
A2A5A4R9		RESISTOR: Item 45.	7-65
A2A5A4R10		RESISTOR: Item 55.	7-65
A2A5A4R11		RESISTOR, FIXED, WIRE-WOUND: 332 ohms ±1%, 3 w; MIL type RWR89S3320FM.	7-65
A2A5A4R12		RESISTOR, FIXED, WIRE-WOUND: 2210 ohms ±1%, 2 w; MIL type RWR80S2211FR.	7-65
A2A5A4R13		RESISTOR: Item 47.	7-65
A2A5A4R14		RESISTOR: Item 55.	7-65
A2A5A4U1 and A2A5A4U2		INTEGRATED CIRCUIT: MIL type M38510-00104BCB.	7-65
A2A5A4U3		INTEGRATED CIRCUIT: MIL type M38510-10704BXC.	7-65
A2A5A4U4		INTEGRATED CIRCUIT: Mfr 07263, part no. 78M05HMQB, 98738, dwg 48P226600-01.	7-65
			7-65
			7-65

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6		TRANSLATOR/SYNTHESIZER ASSEMBLY: 8.19 in. long, 7.40 in. w, 4.50 in. h; mfr 98738, part no. 99A228201-01. NSN 5820 01-131-0022 (Attaching Parts) CE(4)	7-66
A2A6AT1		TERMINATION, COAXIAL: Right angle, 0.734 in. long; mfr 98738, part no. 01A226359-21-11.	7-66
A2A6AT1P1		CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial, 0.73 in. long; male contact; mfr 71785, part no. DM53741-5001, 98738, dwg 09P226565-19.	7-66
A2A6AT1R1		RESISTOR: Item 29.	7-66
A2A6AT2		TERMINATION, COAXIAL: Right angle, 0.734 in. long; mfr 98738, part no. 01A226359-22-11.	7-66
A2A6AT2P1		CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial, 0.734 in. long, male contact; mfr 71785, part no. DM53741-5001, 98738, dwg 09P226565-19.	7-66
A2A6AT2R1		RESISTOR, FIXED, COMPOSITION: 10 ohms ±5%, 1/8 w; MIL type RCR05G100JS.	7-66
A2A6C1		CAPACITOR, FIXED, ELECTROLYTIC: 820 uF ±10%, 7 Vdc working; MIL type M390p8-1-0705.	7-66
A2A6C2		CAPACITOR, FIXED, CERAMIC: 1,000 pF ±10%, 200 Vdc working; MIL type M39014-01-1237.	7-66
A2A6C3		CAPACITOR, FIXED, CERAMIC: 680 pF ±10%, 200 Vdc working; MIL type M39014-01-1236.	7-66
A2A6E1 and A2A6E2		TERMINAL: Solder only.	7-66
A2A6E3		TERMINAL, LUG: MIL type MS77068-3.	7-66
A2A6E4		TERMINAL: Solder only.	7-66
A2A6E5		TERMINAL, LUG: MIL type MS77068-3.	7-66
A2A6E6		TERMINAL: Solder only.	7-66
A2A6E7		TERMINAL, LUG: MIL type MS77068-3.	7-62
A2A6E8 and A2A6E9		Not used.	
A2A6E10		TERMINAL, LUG: MIL type MS77068-3.	7-66
A2A6E11		TERMINAL, LUG: 1.34 in. long, 0.7 in. w; mfr 26344, part no. 20315, 98738, dwg 29P226767-01. (Attaching Parts) F(1) U(1) BZ(1) DQ(1)	7-66
A2A6E12 and A2A6E13		TERMINAL: Solder only.	7-66
A2A6E14 and A2A6E15		Not used.	
A2A6E16 and A2A6E17		TERMINAL, LUG: MIL type MS77068-3. (Attaching Parts) A(1) BM(1)	7-66
A2A6E18 and A2A6E19		TERMINAL, LUG: Tinned copper; 1.34 in. long, 0.070 in. w, mfr 26344, part no. 20315, 98738, dwg 29P226767-01. (Attaching Parts) U(1) F(1) BZ(1) DQ(1)	7-66
A2A6FL1		FILTER, RFI: 1.057 in. long, 0.30 in. dia; MIL type M15733-24-0007.	7-66

Table 7-2. Radio Receiver R-1051G/URR Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6FL2 and A2A6FL3		Not used.	
A2A6FL4		FILTER RFI: 1.057 in. long, 0.350 in. dia; MIL type M15733-24-0007.	7-66
A2A6FL5		FILTER, RFI: 1.06 in. long, 0.35 in. dia; mfr 98738, part no. 01A228291-02. (Attaching Parts) AL(2) AQ(2) AU(2)	7-66
A2A6J1 thru A2A6J7		Not used.	
A2A6J8		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-19.	7-66
A2A6J9		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-15.	7-66
A2A6J10		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-14.	7-66
A2A6J11		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-13.	7-66
A2A6MP1		COVER, BOTTOM: 8.030 in. long, 6.120 in. w, 0.062 in. thk; aluminum alloy; mfr 98738, part no. 15P226262-21-11. (Attaching Parts) DL(6)	
A2A6MP2	2	COVER, SIDE: 8.178 in. long, 4.40 in. w, 0.062 in. thk; aluminum alloy; mfr 98738, part no. 15P226304-23-11. (Attaching Parts) DK(6) CQ(6) AL(6)	7-66
A2A6MP3		COVER, TOP: 8.187 in. long, 7.350 in. w, 0.062 in. thk; aluminum alloy; mfr 98738, part no. 15P226579-21-11. (Attaching Parts) CQ(13)	7-66
A2A6MP4		SPRING, WASHER, LOCK: MIL type MS35338-137.	7-66
A2A6MP5 thru A2A6MP7		Not used.	
A2A6MP8		COUPLING ASSEMBLY: Consists of A2A6MP9 thru A2A6MP11; 0.485 in. long, 0.875 in. dia; mfr 98738, part no. 01A226294-21-11. (Attaching Parts) BD(2)	
A2A6MP9		COUPLING, TOP: 0.485 in. long, 0.875 in. dia; mfr 98738, part no. 58P226263-21-11.	7-66
A2A6MP10		PIN: 0.225 in. long, 0.0936 in. dia; mfr 06845, part no. 4032181-0001.	7-66
A2A6MP11		SPRING, HOLD DOWN: 0.72 in. dia, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) CR(2) G(2)	7-66

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6MP12		COUPLING ASSEMBLY: Consists of A2A6MP13 thru A2A6MP15; 0.485 in. long, 0.875 in. dia; mfr 98738, part no. 01A226294-21-11. (Attaching Parts) BD(2)	7-66
A2A6MP13		COUPLING, TOP: 0.485 in. long, 0.875 in. dia; mfr 98738, part no. 58P226263-21-11.	7-66
A2A6MP14		PIN: 0.225 in. long, 0.0936 in. dia; mfr 06845, part no. 4032181-0001.	7-66
A2A6MP15		SPRING, HOLD DOWN: 0.720 in. dia, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) CR(2) G(2)	7-66
A2A6MP16		COUPLING ASSEMBLY: Consists of A2A6MP17 thru A2A6MP19; 0.485 in. long, 0.875 in. dia; mfr 98738, part no. 01A226294-21-11. (Attaching Parts) BD(2)	7-66
A2A6MP17		COUPLING, TOP: 0.485 in. long, 0.875 in. dia; mfr 98738, part no. 58P226263-21-11.	7-66
A2A6MP18		PIN: 0.225 in. long, 0.0936 in. dia; mfr 06845, part no. 4032181-0001.	7-66
A2A6MP19		SPRING, HOLD DOWN: 0.790 in. dia, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) CR(2) G(2)	7-66
A2A6MP20		PAD, RUBBER: 3.0 in. long, 0.5 in. w; mfr 98738, part no. 75P226575-22-11.	7-66
A2A6MP21		INSULATOR: L-Shaped, 5.88 in. long, 1.38 in. w; mfr 98738, part no. 14P226586-21-11.	7-66
A2A6MP22		INSULATOR: 2.5 in. long, 1.75 in. w; mfr 98738, part no. 14P226580-22-11.	7-66
A2A6MP23		BRACKET ASSEMBLY, CAP, MOUNTING: 1.25 in. long attached clip; mfr 98738, part no. 01A228292-01. (Attaching Parts) AL(2) AQ(2)	7-66
A2A6MP24		CONNECTOR AND HARNESS ASSEMBLY: Consists of A2A6MP25, A2A6P1, and A2A6XA9P1 thru A2A6XA14P1; mfr 98738, part no. 01A228340-01.	7-66
A2A6MP25		PRINTED CIRCUIT, FLEXIBLE: Mfr 98738, part no. 84P228339-01.	7-66 7-66
A2A6MP26 thru A2A6MP32		INSULATOR: 8.0 in. long, 3.0 in. w; mfr 98738, part no. 14P226580-21-11.	7-66
A2A6P1		CONNECTOR, PLUG, ELECTRICAL: 2.182 in. long, 0.329 in. w, 0.494 in. thk; mfr 71785, part no. DCMM25W3PE, 98738, dwg 09P226565-21-11. (Attaching Parts) AL(2) DJ(2)	7-66
A2A6P1A1		CONNECTOR, PLUG, ELECTRICAL: 0.734 in. long, right angle coaxial; mfr 71785, part no. DM53741-5001, 98738, dwg 09P226565-19.	7-66

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6P1A2		Refer to A2A6AT1P1.	
A2A6P1A3		Refer to A2A6AT2P1.	
A2A6P2		CONNECTOR, PLUG, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. dia; mfr 71785, part no. DAMM3W3P, 06845, dwg 4032484-0701. (Attaching Parts) AL(2) DJ(2)	7-66
A2A6P2A1 and A2A6P2A2		CONNECTOR, PLUG, ELECTRICAL: Right angle, coaxial, 0.734 in. long, male contact; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	7-66, 7-68
A2A6P3		CONNECTOR, PLUG, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. dia; mfr 71785, part no. DAMM3W3P, 06845, dwg 4032484-0701. (Attaching Parts) AL(2) DJ(2)	7-66
A2A6P3A1 and A2A6P3A2		CONNECTOR, PLUG, ELECTRICAL: Right angle, coaxial, 0.734 in. long, male contact; mfr 71785, part no. 318-11-99-285, 06845, dwg 4032484-0731.	7-66, 7-68
A2A6S1 and A2A6S2		SWITCH, ROTARY, ASSEMBLY: 2.102 in. long, 0.725 in. w, 0.812 in. dia; mfr 98738, part no. 01A226302-22-11. (Attaching Parts) DM(2) DN(2) DP(2)	7-66
A2A6S3		SWITCH, ROTARY, ASSEMBLY: 2.102 in. long, 0.725 in. w, 0.812 in. dia; mfr 98738, part no. 01A226302-23-11. (Attaching Parts) DM(1) DN(1) DP(1)	7-66
A2A6W1	2	CABLE ASSEMBLY, RF: 1.50 in. long, mfr 98738, part no. 30A226477-21-11.	7-66
A2A6W2	2	CABLE ASSEMBLY, RF: 2.37 in. long, mfr 98738, part no. 30A226477-22-11.	7-66
A2A6W3	2	CABLE ASSEMBLY, RF: 2.40 in. long, mfr 98738, part no. 30A226477-23-11.	7-66
A2A6W4 thru A2A6W9		Not used.	
A2A6W10	2	CABLE ASSEMBLY, RF: 5.75 in. long, mfr 98738, part no. 30A226477-30-11.	7-66
A2A6W11	2	CABLE ASSEMBLY, RF: 2.50 in. long; mfr 98738, part no. 30A226477-31-11.	7-66
A2A6W12	2	CABLE ASSEMBLY, RF: 6.22 in. long; mfr 98738, part no. 30A226477-32-11.	7-66
A2A6W13	2	CABLE ASSEMBLY, RF: 1.87 in. long; mfr 98738, part no. 30A226477-33-11.	7-66
A2A6W14	2	CABLE ASSEMBLY, RF: 4.77 in. long; mfr 98738, part no. 30A226477-34-11.	7-66
A2A6W15	2	CABLE ASSEMBLY, RF: 4.75 in. long; mfr 98738, part no. 30A226477-35-11.	7-66

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6XA1P1 thru A2A6XA11P1		Not used.	
A2A6XA12P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; 71785, part no. DBMMF9W4SE, 98738, dwg 09P226565-09. (Attaching Parts) BZ(2) F(2) G(2) DQ(2)	7-66
A2A6XA12 P1A1 thru A2A6XA12 P1A3		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA12 P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 27. Refer to A2A6A8W2.	7-66, 7-68
A2A6XA13P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.156 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DCMMF21WA4SE, 98738, dwg 09P226565-16. (Attaching Parts) BZ(2) F(2) G(2) DQ(2)	7-66
A2A6XA13 P1A1 thru A2A6XA13 P1A4		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA14P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; 71785, part no. DBMMF9W4SE, 98738, dwg 09P226565-09. (Attaching Parts) BZ(2) F(2) G(2) DQ(2)	7-66
A2A6XA14 P1A1 thru A2A6XA14 P1A3		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA14 P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 27. Refer to A2A6A8W1.	7-66, 7-68
A2A6XA15P1		Not used.	
A2A6XA16P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.156 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DCMMF21WA4SE, 98738, dwg 09P226565-16. (Attaching Parts) BZ(2) F(2) G(2) DQ(2)	7-66
A2A6XA16 P1A1 thru A2A6XA16 P1A4		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA17P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DBMMF17W2SE, 98738, dwg 09P226565-08. (Attaching Parts) BZ(2) F(2) G(1) DQ(2)	7-66
A2A6XA17 P1A1		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6XA17 P1A2		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA18P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 71785, part no. DBMMF17W2SE, 98738, dwg 09P226565-08. (Attaching Parts) BZ(2) F(2) G(1) DQ(2)	7-66
A2A6XA18 P1A1 and A2A6XA18 P1A2		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6A1 thru A2A6A6		Not used.	
A2A6A7		FILTER ASSEMBLY: 4.50 in. long, 1.750 in. w, mfr 98738, part no. 01A226681-21-11. (Attaching Parts) DL(2)	7-67
A2A6A7C1 and A2A6A7C2		CAPACITOR, FIXED, ELECTROLYTIC: 390 uF, -10 to +30%, 30 Vdc working; MIL type M39018-01-0630.	7-67
A2A6A7E1 thru A2A6A7E11		Not used.	
A2A6A7E12 and A2A6A7E13		TERMINAL STUD: Item 62. (Attaching Parts) V(1)	7-67
A2A6A7E14 and A2A6A7E15		TERMINAL STUD: Item 63. (Attaching Parts) V(1)	7-67
A2A6A7MP1		BRACKET ASSEMBLY, FILTER: 4.50 in. long, 1.812 in. w; mfr 98738, part no. 07A226680-21-11.	7-67
A2A6A7MP2 and A2A6A7MP3		MOUNTING BRACKET: MIL type M24066/2-122.	7-67
A2A6A7R1 and A2A6A7R2		Not used.	
A2A6A7R3 and A2A6A7R4		RESISTOR, FIXED, COMPOSITION: 3 ohms, ±5%, 1 w, MIL type RCR32G3R0JS.	7-67
A2A6A8		RF TRANSLATOR ASSEMBLY: 8,03 in. long, 4.125 in. w; mfr 98738, part no. 01A227277-02. (Attaching Parts) AL(6) AQ(6) DK(6)	7-66, 7-68
A2A6A8C1		CAPACITOR: Item 19.	7-68
A2A6A8C2		CAPACITOR, FIXED, MICA: 820 pF ±2%, 500 Vdc working; MIL type CMR06F821GPDM.	7-68

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8C3 and A2A6A8C4		CAPACITOR: Item 19.	7-68
A2A6A8C5		CAPACITOR: Item 12.	7-68
A2A6A8C6 thru A2A6A8C11		CAPACITOR: Item 19.	7-68
A2A6A8C12		CAPACITOR, FIXED, MICA: 1000 pF ±2%, 500 Vdc working; MIL type CMR06F102GPDM.	7-68
A2A6A8C13 thru A2A6A8C15		CAPACITOR: Item 19.	7-68
A2A6A8C16		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014-01-1207.	7-68
A2A6A8C17		CAPACITOR: Item 19.	7-68
A2A6A8C18		CAPACITOR: Item 17.	7-68
A2A6A8C19		CAPACITOR: Item 19.	7-68
A2A6A8C20		CAPACITOR: Item 17.	7-68
A2A6A8C21 thru A2A6A8C23		CAPACITOR: Item 19.	7-68
A2A6A8C24 and A2A6A8C25		CAPACITOR: Item 17.	7-68
A2A6A8C26 and A2A6A8C27		CAPACITOR: Item 19.	7-68
A2A6A8C28		CAPACITOR: Item 12.	7-68
A2A6A8C29		CAPACITOR: Item 19.	7-68
A2A6A8C30		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014-01-1207.	7-68
A2A6A8C31 thru A2A6A8C33		CAPACITOR: Item 19.	7-68
A2A6A8C34		CAPACITOR: Item 17.	7-68
A2A6A8C35 and A2A6A8C36		CAPACITOR: Item 19.	7-68
A2A6A8C37 and A2A6A8C38		CAPACITOR: Item 17.	7-68
A2A6A8C39		CAPACITOR: Item 19.	7-68
A2A6A8C40 and A2A6A8C41		CAPACITOR: Item 17.	7-68

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8C42 and A2A6A8C43		CAPACITOR: Item 19.	7-68
A2A6A8C44 and A2A6A8C45		CAPACITOR: Item 17.	7-68
A2A6A8C46 and A2A6A8C47		CAPACITOR: Item 19.	7-68
A2A6A8C48		CAPACITOR: Item 17.	7-68
A2A6A8C49 and A2A6A8C50		CAPACITOR: Item 19.	7-68
A2A6A8C51		CAPACITOR: Item 17.	7-68
A2A6A8C52 and A2A6A8C53		CAPACITOR: Item 19.	7-68
A2A6A8C54		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014-01-1207.	7-68
A2A6A8C55		CAPACITOR: Item 19.	7-68
A2A6A8C56 thru A2A6A8C58		CAPACITOR: Item 17.	7-68
A2A6A8C59		CAPACITOR, FIXED, CERAMIC: 300 pF ±2%, 500 Vdc working; MIL type CMR05F301GPDM.	7-68
A2A6A8C60 thru A2A6A8C62		CAPACITOR: Item 19.	7-68
A2A6A8C63		CAPACITOR: Item 17.	7-68
A2A6A8C64 and A2A6A8C65		CAPACITOR: Item 19.	7-68
A2A6A8C66		CAPACITOR, FIXED, CERAMIC: 1000 pF ±20%, 200 Vdc working; MIL type M39014-01-1237.	7-68
A2A6A8CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3020B.	7-68
A2A6A8CR2 thru A2A6A8CR20		SEMICONDUCTOR DEVICE, DIODE: Item 60.	7-68
A2A6A8E1 thru A2A6A8E15		Not used.	
A2A6A8E16 * thru A2A6A8E19 *		CONTACT, ELECTRICAL: Brass, acid-plated; 0.070 in. OD; mfr 71279, part no. 2971-2, 06845, dwg 4031989-0701.	
		* Electrical contacts into which J4 thru J7 plug, respectively. (Not listed on Fig. 7-68).	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8FL1		FILTER, BANDPASS, 20 MHz: 2.50 in. long, 1 in. w; mfr 98738, part no. 08P228422-01. (Attaching Parts) AL(2) AG(2)	7-68
A2A6A8FL2		FILTER, BANDPASS, 30 MHz: 2.50 in. long, 1 in. w; mfr 98738, part no. 08P228421-01. (Attaching Parts) AL(2) AG(2)	7-68
A2A6A8FL3		FILTER, BANDPASS, 2.85 MHz: 2.50 in. long, 1 in. w; mfr 98738, part no. 08P228423-01. (Attaching Parts) AL(2) AG(2)	7-68
A2A6A8J1		CONNECTOR, TEST-POINT TYPE: MIL type M39024-12-15. Refer to A2A6FL5-2, (Fig. 7-66).	7-68
A2A6A8J2 and A2A6A8J3		Not used.	
A2A6A8J4		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-16.	7-68
A2A6A8J5		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-20.	7-68
A2A6A8J6		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-13.	7-68
A2A6A8J7		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-17.	7-68
A2A6A8L1		COIL, RF: 1 mH; MIL type MS75089-23.	7-68
A2A6A8L2		COIL, RF: 22 uH; MIL type MS75089-3.	7-68
A2A6A8L3		COIL, RF: 47 uH; MIL type MS75089-7.	7-68
A2A6A8L4 and A2A6A8L5		COIL, RF: 1 mH; MIL type MS75089-23.	7-68
A2A6A8L6 and A2A6A8L7		COIL, RF: 47 uH; MIL type MS75089-7.	7-68
A2A6A8L8		COIL, RF: 22 uH; MIL type MS75089-3.	7-68
A2A6A8L9		COIL, RF: 12 uH; MIL type MS14046-5.	7-68
A2A6A8L10		COIL, RF: 47 uH; MIL type MS75089-7.	7-68
A2A6A8L11		COIL, RF: 12 uH; MIL type MS14046-5.	7-68
A2A6A8L12		COIL, RF: 1 mH; MIL type MS75089-23.	7-68
A2A6A8L13		COIL, RF: 22 uH; MIL type MS75089-3.	7-68
A2A6A8L14		COIL, RF: 0.22 uH ±10%, 2300 milliamps, 0.038 ohms DC resistance; mfr 09021, part no. VCMR22V, 98738, dwg 24P228449-01.	7-68
A2A6A8L15		COIL, RF: 22 uH; MIL type MS75084-16.	7-68

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8Q1		TRANSISTOR: Item 64.	7-68
A2A6A8R1		RESISTOR: Item 40.	7-68
A2A6A8R2		RESISTOR: Item 54.	7-68
A2A6A8R3		RESISTOR: Item 37.	7-68
A2A6A8R4		RESISTOR, FIXED, COMPOSITION: 1200 ohms ±5%, 1/4 w; MIL type RCR07G122JS.	7-68
A2A6A8R5		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-68
A2A6A8R6		RESISTOR: Item 45.	7-68
A2A6A8R7		RESISTOR: Item 38.	7-68
A2A6A8R8 and A2A6A8R9		RESISTOR: Item 39.	7-68
A2A6A8R10		RESISTOR: Item 45.	7-68
A2A6A8R11		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-68
A2A6A8R12		RESISTOR: Item 45.	7-68
A2A6A8R13		RESISTOR, FIXED, COMPOSITION: 270 ohms ±5%, 1/4 w; MIL type RCR07G271JS.	7-68
A2A6A8R14		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-68
A2A6A8R15 thru A2A6A8R17		RESISTOR: Item 46.	7-68
A2A6A8R18		RESISTOR: Item 45.	7-68
A2A6A8R19		RESISTOR: Item 46.	7-68
A2A6A8R20 thru A2A6A8R22		RESISTOR: Item 45.	7-68
A2A6A8R23 thru A2A6A8R26		RESISTOR: Item 46.	7-68
A2A6A8R27		RESISTOR: Item 41.	7-68
A2A6A8R28 and A2A6A8R29		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-68
A2A6A8R30		RESISTOR: Item 45.	7-68
A2A6A8R31		RESISTOR: Item 41.	7-68
A2A6A8R32		RESISTOR: Item 45.	7-68
A2A6A8R33		RESISTOR: Item 37.	7-68
A2A6A8R34 and A2A6A8R35		RESISTOR: Item 41.	7-68

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8R36		RESISTOR, VARIABLE: 1000 ohms ±3%, 1/4 w; MIL type RJR26FW102M.	7-68
A2A6A8R37 and A2A6A8R38		RESISTOR: Item 41.	7-68
A2A6A8R39		RESISTOR: Item 45.	7-68
A2A6A8R40		RESISTOR: Item 41.	7-68
A2A6A8R41		RESISTOR: Item 45.	7-68
A2A6A8R42 and A2A6A8R43		RESISTOR: Item 46.	7-68
A2A6A8R44		RESISTOR: Item 41.	7-68
A2A6A8R45 and A2A6A8R46		RESISTOR: Item 46.	7-68
A2A6A8R47 and A2A6A8R48		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-68
A2A6A8R49		RESISTOR: Item 41.	7-68
A2A6A8R50		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-68
A2A6A8R51		RESISTOR: Item 37.	7-68
A2A6A8R52		RESISTOR, VARIABLE: 100 ohms ±3%, 1/4 w; MIL type RJR26FW101M.	7-68
A2A6A8R53 and A2A6A8R54		RESISTOR: Item 45.	7-68
A2A6A8R55		RESISTOR: Item 37.	7-68
A2A6A8R56 thru A2A6A8R58		RESISTOR, FIXED, COMPOSITION: 75 ohms ±5%, 1/4 w; MIL type RCR07G750JS.	7-68
A2A6A8R59		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-68
A2A6A8R60		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-68
A2A6A8R61		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-68
A2A6A8R62		RESISTOR: Item 38.	7-68
A2A6A8R63		RESISTOR: (Same as R59)	7-68
A2A6A8R64		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-68
A2A6A8R65		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-68
A2A6A8R66		RESISTOR: Item 31.	7-68
A2A6A8R67		RESISTOR: (Same as R59).	7-68

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8R68		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-68
A2A6A8R69		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-68
A2A6A8R70		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-68
A2A6A8RT1 thru A2A6A8RT3		THERMISTOR: Negative coefficient, 200 ohms, ±10%, at 25 deg. C, 1/2 w; mfr 98738, part no. 06P226775-01.	7-68
A2A6A8T1		TRANSFORMER, RF: 0.490 in. long, 0.422 in. dia; mfr 98738, part no. 24P226469-01.	7-68
A2A6A8T2 and A2A6A8T3		TRANSFORMER, RF: 0.5 in. long, 0.375 in. w, 0.375 in. h; mfr 06978, part no. 70-122-02, 98738, dwg 24P226473-01.	7-68
A2A6A8T4 thru A2A6A8T7		TRANSFORMER, RF: 0.525 in. long, 0.525 in. w, 0.280 in. h; mfr 14482, part no. BT8, 98738, dwg 24P226471-01.	7-68
A2A6A8TP1 thru A2A6A8TP4		Not used	
A2A6A8TP5		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024-11-05.	7-68
A2A6A8TP6		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024-11-07.	7-68
A2A6A8TP7		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024-11-10.	7-68
A2A6A8TP8		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms, 60 Hz; MIL type M39024-11-09.	7-68
A2A6A8U1 and A2A6A8U2		INTEGRATED CIRCUIT: Mfr 54590, part no. CA3049T/3, 98738, dwg 48P228318-02.	7-68
A2A6A8U3		INTEGRATED CIRCUIT: Mfr 54590, part no. CA3049T/3, 98738, dwg 48P228318-01.	7-68
A2A6A8W1		CABLE ASSEMBLY, RF: 11.25 in. long; mfr 98738, part no. 30A226482-21-11.	7-68
A2A6A8W1P1		Refer to A2A6XA14P1A4.	
A2A6A8W2		CABLE ASSEMBLY, RF: 7.12 in. long; mfr 98738, part no. 30A226482-22-11.	7-68
A2A6A8W2P1		Refer to A2A6XA12P1A4.	
A2A6A8W3		CABLE ASSEMBLY, RF: 5.00 in. long; mfr 98738, part no. 30A228007-01.	7-68
A2A6A8W3P1		Refer to A2A6FL5, (Fig. 7-66)	
A2A6A8W4		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226482-24-11.	7-68
A2A6A8W4P1		Refer to A2A6P2A1.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8W5	2	CABLE ASSEMBLY, RF: 6.00 in. long; mfr 98738, part no. 30A226482-25-11.	7-68
A2A6A8W5P1	2	Refer to A2A6P2A2.	
A2A6A8W6	2	CABLE ASSEMBLY, RF: 5.50 in. long; mfr 98738, part no. 30A226482-26-11.	7-68
A2A6A8W6P1	2	Refer to A2A6P3A1.	
A2A6A8W7	2	CABLE ASSEMBLY, RF: 5.62 in. long; mfr 98738, part no. 30A226482-27-11.	7-68
A2A6A8W7P1	2	Refer to A2A6P3A2.	
A2A6A9 thru A2A6A11		Not used.	
A2A6A12		CIRCUIT CARD ASSEMBLY, 1 kHz/100 Hz NO. 2: 5.75 in. long, 3.0 in. w; mfr 98738, part no. 01A226071-21-11.	7-72
A2A6A12C1		CAPACITOR: Item 11.	7-72
A2A6A12C2		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006-09-8318.	7-72
A2A6A12C3 and A2A6A12C4		CAPACITOR: Item 15.	7-72
A2A6A12C5		CAPACITOR: Item 19.	7-72
A2A6A12C6 and A2A6A12C7		CAPACITOR: Item 15.	7-72
A2A6A12C8		CAPACITOR: Item 19.	7-72
A2A6A12C9		CAPACITOR: Item 15.	7-72
A2A6A12C10		CAPACITOR, FIXED, MICA: 1200 pF ±2%, 500 Vdc working; MIL type CMR06F122GPDM.	7-72
A2A6A12C11		CAPACITOR, FIXED, MICA: 1800 pF ±2%, 500 Vdc working; MIL type CMR06F182GPDM.	7-72
A2A6A12C12		CAPACITOR, FIXED, MICA: 1200 pF ±2%, 500 Vdc working; MIL type CMR06F122GPDM.	7-72
A2A6A12C13		Not used.	
A2A6A12C14		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±10%, 35 Vdc working; MIL type M39003-01-2304.	7-72

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A12L1		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-22
A2A6A12L2 thru A2A6A12L5		Not used.	
A2A6A12L6		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-72
A2A6A12L7		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-72
A2A6A12L8		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-72
A2A6A12L9		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-72
A2A6A12L10		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-72
A2A6A12L11 and A2A6A12L12		Not used.	
A2A6A12L13		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-72
A2A6A12MP1 and A2A6A12MP2		EJECTOR, CIRCUIT CARD: Item 28.	7-72
A2A6A12P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; mfr 25330, part no. GBM53513-1364, 98738, dwg 09P226666-02. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-72
A2A6A12P1A1 thru A2A6A12P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 25.	7-72
A2A6A12Q1		TRANSISTOR: MIL type JAN2N2369A.	7-72
A2A6A12Q2		TRANSISTOR: MIL type JAN2N2907A.	7-72
A2A6A12Q3		TRANSISTOR: MIL type JAN2N2369A.	7-72
A2A6A12R1		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-72
A2A6A12R2		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-72
A2A6A12R3	*	Not used.	
A2A6A12R3A	1	RESISTOR, FIXED, COMPOSITION: 10 megohms ±5%, 1/4 w; MIL type RCR07G106JS.	7-72
A2A6A12R3B	1	RESISTOR, FIXED, COMPOSITION: 22 megohms ±5%, 1/4 w; MIL type RCR07G226JS.	7-72
A2A6A12R4		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-72
A2A6A12R5		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w, MIL type RCR07G821JS.	7-72
A2A6A12R6		RESISTOR: Item 49.	7-72
A2A6A12R7		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.	7-72
A2A6A12R8		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-72
		* No usage preferred.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A12R9		RESISTOR: Item 39.	7-72
A2A6A12R10		RESISTOR, FIXED, COMPOSITION: 130K ohms ±5%, 1/4 w; MIL type RCR07G134JS.	7-72
A2A6A12R11 thru A2A6A12R13		RESISTOR: Item 37.	7-72
A2A6A12R14		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/4 w; MIL type RCR07G361JS.	7-72
A2A6A12R15		RESISTOR: Item 40.	7-72
A2A6A12R16		RESISTOR, VARIABLE, WIRE-WOUND: 100 ohms ±5%, 3/4 w; MIL type M39015-3-004XM.	7-72
A2A6A12R17		Not used.	
A2A6A12R18		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-72
A2A6A12R19		RESISTOR: Item 38.	7-72
A2A6A12TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-72
A2A6A12TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-72
A2A6A12TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-72
A2A6A12U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-72
A2A6A12U2		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54S04J, 98738, dwg 48P226448-01.	7-72
A2A6A12U3		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54196J, 98738, dwg 48P226449-01.	7-72
A2A6A12W1 thru A2A6A12W4		CABLE, RF, COAXIAL: MIL type RG-316/U.	7-72
A2A6A12A1		VCO CIRCUIT ASSEMBLY: Mfr 98738, part no. 01A226758-22-11.	7-72
A2A6A13		CIRCUIT CARD ASSEMBLY, 10 MHz/1 MHz: 5.75 in. long, 3.0 in. w, mfr 98738, part no. 01A226068-28-11.	7-73
A2A6A13C1		CAPACITOR: Item 15.	7-73
A2A6A13C2		CAPACITOR: Item 19.	7-73
A2A6A13C3		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006-09-8318.	7-73
A2A6A13C4		CAPACITOR: Item 19.	7-73
A2A6A13C5		Not used.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13C6		CAPACITOR, FIXED, ELECTROLYTIC: 56 uF ±10%, 6 Vdc working; MIL type M39003-01-2246.	7-73
A2A6A13C7		CAPACITOR: Item 19.	7-73
A2A6A13C8 and A2A6A13C9		CAPACITOR: Item 15.	7-73
A2A6A13C10		Not used.	
A2A6A13C11		CAPACITOR: Item 11.	7-73
A2A6A13C12		Not used.	
A2A6A13C13		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF ±10%, 10 Vdc working; MIL type M39003-01-2261.	7-73
A2A6A13C14 thru A2A6A13C16		CAPACITOR: Item 15.	7-73
A2A6A13C17		CAPACITOR: Item 19.	7-73
A2A6A13C18 thru A2A6A13C24		CAPACITOR: Item 15.	7-73
A2A6A13CR1 and A2A6A13CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-73
A2A6A13CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N964B.	7-73
A2A6A13CR4		SEMICONDUCTOR DEVICE, DIODE: Mfr 18518, part no. HA-142, 98738, dwg 48P226450-02.	7-73
A2A6A13CR5 thru A2A6A13CR7		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-73
A2A6A13L1		Not used.	
A2A6A13L2		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-73
A2A6A13L3 and A2A6A13L4		Not used.	
A2A6A13L5		INDUCTOR ASSEMBLY: 0.465 mH; mfr 98738, part no. 24A226360-24-11.	7-73
A2A6A13L6 thru A2A6A13L10		COIL, RF: 470 uH; MIL type MS75085-15.	7-73
A2A6A13MP1 and A2A6A13MP2		EJECTOR, CIRCUIT CARD: Item 28.	7-73
A2A6A13P1A1 thru A2A6A13P1A4		CONNECTOR: Item 25.	7-73

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13Q1 and A2A6A13Q2		TRANSISTOR: Item 64.	7-73
A2A6A13R1 thru A2A6A13R5		RESISTOR: Item 31.	7-73
A2A6A13R6 and A2A6A13R7		RESISTOR, FIXED, COMPOSITION: 9100 ohms ±5%, 1/8 w; MIL type RCR05G912JS.	7-73
A2A6A13R8		RESISTOR, FIXED, COMPOSITION: 180 ohms ±5%, 1/8 w; MIL type RCR05G181JS.	7-73
A2A6A13R9		RESISTOR: Item 30.	7-73
A2A6A13R10		RESISTOR, FIXED, COMPOSITION: 9100 ohms ±5%, 1/8 w; MIL type RCR05G912JS.	7-73
A2A6A13R11		RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/8 w; MIL type RCR05G182JS.	7-73
A2A6A13R12 thru A2A6A13R19		RESISTOR: Item 30.	7-73
A2A6A13R20		RESISTOR, FIXED, COMPOSITION: 1 megohm ±5%, 1/8 w; MIL type RCR05G105JS.	7-73
A2A6A13R21 thru A2A6A13R25		RESISTOR: Item 29.	7-73
A2A6A13R26 and A2A6A13R27		RESISTOR: Item 34.	7-73
A2A6A13R28 thru A2A6A13R30		RESISTOR: Item 30.	7-73
A2A6A13R31		RESISTOR: Item 33.	7-73
A2A6A13R32A	1	RESISTOR, FIXED, COMPOSITION: 510K ohms ±5%, 1/8 w; MIL type RCR05G514JS.	7-73
A2A6A13R32B	1	RESISTOR, FIXED, COMPOSITION: 1 megohm ±5%, 1/8 w; MIL type RCR05G105JS.	7-73
A2A6A13R32C	1	RESISTOR, FIXED, COMPOSITION: 2200K ohms ±5%, 1/8 w; MIL type RCR05G225JS.	7-73
A2A6A13R32D	1	RESISTOR, FIXED, COMPOSITION: 4700K ohms ±5%, 1/8 w; MIL type RCR05G475JS.	7-73
A2A6A13R33		RESISTOR: Item 36.	7-73
A2A6A13R34		RESISTOR: Item 38.	7-73
A2A6A13TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-73

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-73
A2A6A13TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-73
A2A6A13U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-73
A2A6A13U2		INTEGRATED CIRCUIT: Mfr 18723, part no. CA3140S3, 98738, dwg 48P226682-01.	7-73
A2A6A13U3		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228371-01.	7-73
A2A6A13U4		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54S02J, 98738, dwg 48P226451-01.	7-73
A2A6A13U5		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54197J, 98738, dwg 48P226455-01.	7-73
A2A6A13U6		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54S02J, 98738, dwg 48P226451-01.	7-73
A2A6A13U7		INTEGRATED CIRCUIT: MIL type M38510-00401BCB.	7-73
A2A6A13U8		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514DEBS, 98738, dwg 48P226459-01.	7-73
A2A6A13U9 and A2A6A13U10		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228370-01.	7-73
A2A6A13U11		INTEGRATED CIRCUIT: Mfr 18324, part no. CC4335F, 98738, dwg 48P226463-01.	7-73
A2A6A13W1		CABLE, RF, COAXIAL: MIL type RG-316/U.	7-73
A2A6A13A1		FILTER ASSEMBLY, TRANSLATOR/SYNTHESIZER: Mfr 98738, part no. 01A226751-21-11. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-73
A2A6A13A1 CR1 thru A2A6A13A1 CR5		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3611.	7-73
A2A6A13A1 FL1 thru A2A6A13A1 FL5		FILTER, RFI: 1 uF min. capacitance, 50 Vdc working; 0.858 in. long, 0.203 in. dia; mfr 01121, part no. MS003BA105M, 98738, dwg 21P226694-01.	7-73
A2A6A13A1 MP1		BRACKET, FILTER MOUNTING: Brass, 2.63 in. long, 0.81 in. w, 0.43 in. thk; mfr 98738, part no. 07P226691-21-11.	7-73
A2A6A13A1 MP2 and A2A6A13A1 MP3		STRAP, GROUND: Brass, 0.75 in. long, 0.187 in. w, mfr 98738, part no. 07P226695-21-11.	7-73

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13A1P1		CONNECTOR, PLUG, ELECTRICAL: 2.729 in. long, 0.494 in. w; mfr 25330, part no. GCM53514-1287, 98738, dwg 09P226666-03.	7-73
A2A6A13A1 P1A1 thru A2A6A13A1 P1A4		CONNECTOR: Item 25.	7-73
A2A6A13A1W1 thru A2A6A13A1W4		CABLE, RF, COAXIAL: MIL type RG-316/U.	7-73
A2A6A14		CIRCUIT CARD ASSEMBLY, FILTER 10 MHz/1 MHz; 5.75 in. long, 3.0 in. w; mfr 98738, part no. 01A226073-21-11.	7-74
A2A6A14C1 and A2A6A14C2		CAPACITOR: Item 19.	7-74
A2A6A14C3		CAPACITOR, FIXED, MICA: 200 pF ±2%, 500 Vdc working; MIL type CMR04F201GPDM.	7-74
A2A6A14C4		CAPACITOR: Item 19.	7-74
A2A6A14C5		CAPACITOR, FIXED, MICA: 330 pF ±2%, 100 Vdc working; MIL type CMR04F331GPAM.	7-74
A2A6A14C6		CAPACITOR, FIXED, MICA: 200 pF ±2%, 500 Vdc working; MIL type CMR04F201GPDM.	7-74
A2A6A14C7 thru A2A6A14C9		CAPACITOR: Item 19.	7-74
A2A6A14C10 and A2A6A14C11		CAPACITOR: Item 15.	7-74
A2A6A14C12		CAPACITOR, FIXED, MICA: 180 pF ±2%, 500 Vdc working; MIL type CMR04F181GPDM.	7-74
A2A6A14C13		CAPACITOR: Item 15.	7-74
A2A6A14C14		CAPACITOR, FIXED, MICA: 300 pF ±2%, 300 Vdc working; MIL type CMR04F301GPCM.	7-74
A2A6A14C15		CAPACITOR, FIXED, MICA: 180 pF ±2%, 500 Vdc working; MIL type CMR04F181GPDM.	7-74
A2A6A14C16 thru A2A6A14C20		CAPACITOR: Item 15.	7-74
A2A6A14C21		CAPACITOR, FIXED, MICA: 56 pF ±2%, 500 Vdc working; MIL type CMR04E560GPDM.	7-74
A2A6A14C22		CAPACITOR: Item 15.	7-74
A2A6A14C23		CAPACITOR, FIXED, MICA: 91 pF ±2%, 500 Vdc working; MIL type CMR04F910GPDM.	7-74

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14C24		CAPACITOR, FIXED, MICA: 56 pF ±2%, 500 Vdc working; MIL type CMR04E560GPDM.	7-74
A2A6A14C25 thru A2A6A14C27		CAPACITOR: Item 15.	7-74
A2A6A14C28		CAPACITOR: Item 11.	7-74
A2A6A14C29		CAPACITOR: Item 19.	7-74
A2A6A14L1		COIL, RF: 22 uH; MIL type MS75084-16.	7-74
A2A6A14L2		COIL, RF: 8.2 uH; MIL type MS75084-11.	7-74
A2A6A14L3		COIL, RF: 22 uH; MIL type MS75084-16.	7-74
A2A6A14L4		COIL, RF: 8.2 uH; MIL type MS75084-11.	7-74
A2A6A14L5		COIL, RF: 22 uH; MIL type MS75084-16.	7-74
A2A6A14L6		COIL, RF: 1 uH; MIL type MS75083-13.	7-74
A2A6A14L7		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-74
A2A6A14L8		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74
A2A6A14L9		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-74
A2A6A14L10		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74
A2A6A14L11		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-74
A2A6A14L12		COIL, RF: 1 uH; MIL type MS75083-13.	7-74
A2A6A14L13		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-74
A2A6A14L14		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74
A2A6A14L15		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-74
A2A6A14L16		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74
A2A6A14L17		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-74
A2A6A14L18		COIL, RF: 1 uH; MIL type MS75083-13.	7-74
A2A6A14L19		COIL, RF: 27 uH; MIL type MS75089-4.	7-74
A2A6A14MP1 and A2A6A14MP2		EJECTOR, CIRCUIT CARD: Item 28.	7-74
A2A6A14MP3 thru A2A6A14MP5		PAD, TRANSISTOR MOUNTING: Mfr 13103, part no. 7717-114DAP; 98738, dwg 14S132171-44A-9.	7-74
A2A6A14P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; mfr 25330, part no. GBM53513-1364, 98738, dwg 09P226666-02. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-74
A2A6A14P1A1 thru A2A6A14P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 25.	7-74
A2A6A14Q1		TRANSISTOR: Item 65.	7-74
A2A6A14Q2 and A2A6A14Q3		TRANSISTOR: Item 64.	7-74
A2A6A14Q4		TRANSISTOR: Item 65.	7-74

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14Q5 and A2A6A14Q6		TRANSISTOR: Item 64.	7-74
A2A6A14Q7		TRANSISTOR: Item 65.	7-74
A2A6A14Q8 and A2A6A15Q9		TRANSISTOR: Item 64.	7-74
A2A6A14R1		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/8 w; MIL type RCR05G821JS.	7-74
A2A6A14R2		RESISTOR: Item 30.	7-74
A2A6A14R3		RESISTOR: Item 32.	7-74
A2A6A14R4		RESISTOR, FIXED, COMPOSITION: 240 ohms ±5%, 1/8 w; MIL type RCR05G241JS.	7-74
A2A6A14R5		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-74
A2A6A14R6		RESISTOR: Item 32.	7-74
A2A6A14R7		RESISTOR, VARIABLE, WIRE-WOUND: 1000 ohms ±5%, 3/4 w; MIL type M39015-3-007XM.	7-74
A2A6A14R8		RESISTOR: Item 29.	7-74
A2A6A14R9 and A2A6A14R10		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/8 w; MIL type RCR05G471JS.	7-74
A2A6A14R11		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/8 w; MIL type RCR05G821JS.	7-74
A2A6A14R12		RESISTOR: Item 30.	7-74
A2A6A14R13		RESISTOR: Item 32.	7-74
A2A6A14R14		RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/8 w; MIL type RCR05G121JS.	7-74
A2A6A14R15		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-74
A2A6A14R16		RESISTOR: Item 32.	7-74
A2A6A14R17		RESISTOR, VARIABLE WIRE-WOUND: 1000 ohms ±5%, 3/4 w; MIL type M39015-3-007XM.	7-74
A2A6A14R18		RESISTOR: Item 29.	7-74
A2A6A14R19 and A2A6A14R20		RESISTOR, FIXED, COMPOSITION: 240 ohms ±5%, 1/8 w; MIL type RCR05G241JS.	7-74
A2A6A14R21		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/8 w; MIL type RCR05G821JS.	7-74
A2A6A14R22		RESISTOR: Item 30.	7-74
A2A6A14R23		RESISTOR: Item 32.	7-74
A2A6A14R24		RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/8 w; MIL type RCR05G221JS.	7-74

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14R25		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-74
A2A6A14R26		RESISTOR: Item 32.	7-74
A2A6A14R27		RESISTOR, VARIABLE, WIRE-WOUND: 1000 ohms ±5%, 3/4 w; MIL type M39015-3-007XM.	7-74
A2A6A14R28		RESISTOR: Item 29.	7-74
A2A6A14R29 and A2A6A14R30		RESISTOR, FIXED, COMPOSITION: 430 ohms ±5%, 1/8 w; MIL type RCR05G431JS.	7-74
A2A6A14R31		RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/8 w; MIL type RCR05G221JS.	7-74
A2A6A14TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-74
A2A6A14TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-74
A2A6A14TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-74
A2A6A14TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-02.	7-74
A2A6A14TP5		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-07.	7-74
A2A6A14TP6		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-08.	7-74
A2A6A14TP7		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-10.	7-74
A2A6A14W1 thru A2A6A14W6		CABLE, RF, COAXIAL: MIL type RG-316/U.	7-74
A2A6A15		CIRCUIT CARD ASSEMBLY, POWER SUPPLY: 5.75 in. long, 3.0 in. w; mfr 98738, part no. 01A228311-02.	7-75
A2A6A15C1		CAPACITOR, FIXED, MICA: 470 pF ±2%, 500 Vdc working; MIL type CMR06F471GPDM.	7-75
A2A6A15C2		CAPACITOR, FIXED, ELECTROLYTIC: 47 uF ±20%, 35 Vdc working; MIL type M39003-01-2313.	7-75
A2A6A15C3		CAPACITOR: Item 19.	7-75
A2A6A15C4		CAPACITOR: Item 16.	7-75
A2A6A15C5		CAPACITOR, FIXED, CERAMIC: 2200 pF ±20%, 200 Vdc working; MIL type M39014-02-1207.	7-75
A2A6A15C6		CAPACITOR, FIXED, CERAMIC: 0.022 uF ±10%, 100 Vdc working; MIL type M39014-02-1222.	7-75
A2A6A15C7 and A2A6A15C8		Not used.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15C9 and A2A6A15C10		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF ±10%, 20 Vdc working; MIL type M39003-01-2302.	7-75
A2A6A15C11		CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014-01-1237.	7-75
A2A6A15C12 thru A2A6A15C16		CAPACITOR: Item 19.	7-75
A2A6A15CR1		DIODE: MIL type JAN1N751A.	7-75
A2A6A15CR2		SEMICONDUCTOR DEVICE, DIODE: Mfr 85072, part no. IN5828, 98738, dwg 48P228424-01. (Attaching Parts) AM(1) FA(1)	7-75
A2A6A15E1		TERMINAL, STUD: Solder only.	7-75
A2A6A15E2		TERMINAL LUG: 0.80 in. long, 0.38 in. w; mfr 98738, dwg no. 29S111221-7.	7-75
A2A6A15E3		Not used.	
A2A6A15E4 thru A2A6A15E6		TERMINAL STUD: Solder only.	7-75
A2A6A15L1		INDUCTOR, POWER: 1.37 in. dia, 0.75 in. long; mfr 96253, part no. TT111786, 98738, dwg 24A226361-01. (Attaching Parts) L(1) AB(1)	7-75
A2A6A15L2		INDUCTOR, POWER: 1.00 in. dia, 0.56 in. long; mfr 81815, part no. S017, 98738, dwg 25P228280-01. (Attaching Parts) AB(1) L(1)	7-75
A2A6A15MP1		BRACKET, RIGHT ANGLE: 0.546 in. x 0.560 in, 0.5 in. w, 0.062 in. thk; aluminum alloy; mfr 98738, part no. 07P238806-21-11. (Attaching Parts) FB(2)	7-75
A2A6A15MP2		COVER: 1.562 in. long, 1.359 in. w; mfr 98738, part no. 15P226757-24-11.	7-75
A2A6A15MP3 and A2A6A15MP4		PAD, TRANSISTOR MOUNTING: Mfr 13103, part no. 7717-109, 98738, dwg 14S132171-39A-9.	7-75
A2A6A15Q1 and A2A6A15Q2		TRANSISTOR: Item 65.	7-75
A2A6A15Q3		TRANSISTOR: Mfr 04713, part no. 2N5428, 98738, dwg 48P226466-01. (Attaching Parts) DY(2) K(2) L(2) M(2)	7-75
A2A6A15R1		RESISTOR, FIXED, COMPOSITION: 20K ohms ±5%, 1/4 w; MIL type RCR07G203JS.	7-75
A2A6A15R2		RESISTOR, FIXED, COMPOSITION: 82K ohms ±5%, 1/4 w; MIL type RCR07G823JS.	7-75
A2A6A15R3		RESISTOR, FIXED, COMPOSITION: 20K ohms ±5%, 1/4 w; MIL type RCR07G203JS.	7-75

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15R4		RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4 w; MIL type RCR07G393JS.	7-75
A2A6A15R5		RESISTOR, FIXED, COMPOSITION: 4300 ohms ±5%, 1/4 w; MIL type RCR07G432JS.	7-75
A2A6A15R6		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.	7-75
A2A6A15R7		RESISTOR: Item 39.	7-75
A2A6A15R8		RESISTOR: Item 36.	7-75
A2A6A15R9		RESISTOR, FIXED, WIRE-WOUND: 0.15 ohm ±1%, 2 w; MIL type RWR80SR150FM.	7-75
A2A6A15R10		RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w; MIL type RCR07G680JS.	7-75
A2A6A15R11		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-75
A2A6A15R12		RESISTOR: Item 36.	7-75
A2A6A15R13		RESISTOR: Item 38.	7-75
A2A6A15R14		RESISTOR, FIXED, FILM: 3600 ohms ±2%, 1/4 w; MIL type RLR07C362GR.	7-75
A2A6A15R15A	1	RESISTOR, FIXED, FILM: 330 ohms ±2%, 1/4 w; MIL type RLR07C331GR.	7-75
A2A6A15R15B	1	RESISTOR, FIXED, FILM: 390 ohms ±2%, 1/4 w; MIL type RLR07C391GR.	7-75
A2A6A15R15C	1	RESISTOR, FIXED, FILM: 470 ohms ±2%, 1/4 w; MIL type RLR07C471GR.	7-75
A2A6A15R15D	1	RESISTOR FIXED, FILM: 560 ohms ±2%, 1/4 w; MIL type RLR07C561GR.	7-75
A2A6A15R15E	1	RESISTOR, FIXED, FILM: 680 ohms ±2%, 1/4 w; MIL type RLR07C681GR.	7-75
A2A6A15R15F	1	RESISTOR, FIXED, FILM: 820 ohms ±2%, 1/4 w; MIL type RLR07C821GR.	7-75
A2A6A15R15G	1	RESISTOR, FIXED, FILM: Item 58.	7-75
A2A6A15R15H	1	RESISTOR, FIXED, FILM: 1200 ohms ±2%, 1/4 w; MIL type RLR07C122GR.	7-75
A2A6A15R15J	1	RESISTOR, FIXED, FILM: 1500 ohms ±2%, 1/4 w; MIL type RLR07C152GR.	7-75
A2A6A15R15K	1	RESISTOR, FIXED, FILM: 1800 ohms ±2%, 1/4 w; MIL type RLR07C182GR.	7-75
A2A6A15R15L	1	RESISTOR, FIXED, FILM: 300 ohms ±2%, 1/4 w; MIL type RLR07C301GR.	7-75
A2A6A15R16		RESISTOR, FIXED, FILM: 3600 ohms ±2%, 1/4 w; MIL type RLR07C362GR.	7-75
A2A6A15TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-75
A2A6A15TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-75
A2A6A15TP3		Not used.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-02.	7-75
A2A6A15U1		INTEGRATED CIRCUIT: MIL type M38510-10304BGC.	
A2A6A15U2		INTEGRATED CIRCUIT: Mfr 27014, part no. LM105H883, 98738, dwg 48P226461-01.	7-75
A2A6A16		CIRCUIT CARD ASSEMBLY: Frequency Generator, 5.750 in. long, 3.0 in. w; mfr 98738, part no. 01A228330-01.	7-69
A2A6A16C1 and A2A6A16C2		Not used.	
A2A6A16C3 and A2A6A16C4		CAPACITOR: Item 11.	7-69
A2A6A16C5 thru A2A6A16C12		CAPACITOR: Item 15.	7-69
A2A6A16C13 and A2A6A16C14		CAPACITOR: Item 19.	7-69
A2A6A16C15		CAPACITOR: Item 15.	7-69
A2A6A16C16 thru A2A6A16C18		CAPACITOR: Item 19.	7-69
A2A6A16C19		Not used.	
A2A6A16C20		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uF ±10%, 20 Vdc working; MIL type M39003-01-2283.	7-69
A2A6A16C21		CAPACITOR: Item 11.	7-69
A2A6A16C22		CAPACITOR, FIXED, CERAMIC: 0.018 uF ±10%, 50 Vdc working; MIL type M39014-01-1460.	7-69
A2A6A16C23 and A2A6A16C24		CAPACITOR: Item 19.	7-69
A2A6A16C25		CAPACITOR: Item 11.	7-69
A2A6A16C26		CAPACITOR, FIXED, ELECTROLYTIC: 56 uF ±10%, 10 Vdc working; MIL type M39003-01-2246.	7-69
A2A6A16C27		Not used.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16C28 and A2A6A16C29		CAPACITOR: Item 15.	7-69
A2A6A16C30		CAPACITOR, FIXED, MICA: 20 pF ±5%, 500 Vdc working; MIL type CMR04E200JPDM.	7-69
A2A6A16C31		CAPACITOR: Item 15.	7-69
A2A6A16C32		CAPACITOR: Item 19.	7-69
A2A6A16C33 thru A2A6A16C37		CAPACITOR: Item 15.	7-69
A2A6A16CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N827.	7-69
A2A6A16CR2 and A2A6A16CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-69
A2A6A16CR4		SEMICONDUCTOR DEVICE, DIODE: Item 61.	7-69
A2A6A16CR5		SEMICONDUCTOR DEVICE, DIODE: 0.30 in. long, 0.104 in. dia, 120 pF; 98738, dwg 48P226450-02.	7-69
A2A6A16L1 and A2A6A16L2		Not used.	
A2A6A16L3		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-69
A2A6A16L4		Not used.	
A2A6A16L5		INDUCTOR ASSEMBLY: 4.1 uH; mfr 98738, part no. 24A226360-22-11.	7-69
A2A6A16L6		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-69
A2A6A16L7		COIL, RF: 100 uH; MIL type MS75085-7.	7-69
A2A6A16MP1 and A2A6A16MP2		EJECTOR, CIRCUIT CARD: Item 28.	7-69
A2A6A16MP3 and A2A6A16MP4		FERRULE, GROUNDING: 0.45 in. long, 0.80 in. dia; mfr 08795, part no. D-144-34, 06845, dwg 4017497-0703.	7-69
A2A6A16P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.182 in. long, 0.329 in. w, 0.494 in. thk; mfr 25330, part no. GCM53514-1287; 98738, dwg 09P226666-03. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-69
A2A6A16P1A1 thru A2A6A16P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 25.	7-69
A2A6A16Q1 thru A2A6A16Q5		TRANSISTOR: Item 64.	7-69

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16Q6		TRANSISTOR: MIL type JAN2N2907A.	7-69
A2A6A16R1		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-69
A2A6A16R2		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/8 w; MIL type RCR05G822JS.	7-69
A2A6A16R3		RESISTOR, FIXED, COMPOSITION: 3300 ohms ±5%, 1/8 w; MIL type RCR05G332JS.	7-69
A2A6A16R4		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-69
A2A6A16R5		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/8 w; MIL type RCR05G361JS.	7-69
A2A6A16R6 and A2A6A16R7		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R8		RESISTOR: Item 29.	7-69
A2A6A16R9		RESISTOR: Item 33.	7-69
A2A6A16R10 and A2A6A16R11		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/8 w; MIL type RCR05G471JS.	7-69
A2A6A16R12		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R13 and A2A6A16R14		RESISTOR: Item 34.	7-69
A2A6A16R15 and A2A6A16R16		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R17		RESISTOR, FIXED, FILM: 150K ohms ±1%, 1/10 w, at 125°C; MIL type RNC55H1503FM.	7-69
A2A6A16R18		RESISTOR, VARIABLE, WIRE-WOUND: 10K ohms ±5%, 3/4 w; MIL type M39015-3-010XM.	7-69
A2A6A16R19		RESISTOR, FIXED, FILM: 36500 ohms ±1%, 1/20 w, at 125°C; MIL type RNC50H3652FM.	7-69
A2A6A16R20		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R21		RESISTOR, FIXED, FILM: 7500 ohms ±1%, 1/20 w, at 125°C; MIL type RNC50H7501FR.	7-69
A2A6A16R22		RESISTOR, VARIABLE, WIRE-WOUND: 5K ohms ±5%, 3/4 w; MIL type M39015-3-009XM.	7-69
A2A6A16R23		RESISTOR, FIXED, FILM: 3010 ohms ±1%, 1/20 w, at 125°C; MIL type RNC50H3011FS.	7-69
A2A6A16R24		RESISTOR, FIXED, COMPOSITION: Item 54.	7-69
A2A6A16R25 and A2A6A16R26		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16R27		RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/8 w; MIL type RCR05G121JS.	7-69
A2A6A16R28		RESISTOR, FIXED, COMPOSITION: 300K ohms ±5%, 1/8 w; MIL type RCR05G304JS.	7-69
A2A6A16R29		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R30		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R31		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R32		RESISTOR, FIXED, COMPOSITION: 6200 ohms ±5%, 1/8 w; MIL type RCR05G622JS.	7-69
A2A6A16R33		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16R34		RESISTOR: Item 33.	7-69
A2A6A16R35 and A2A6A16R36		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/8 w; MIL type RCR05G471JS.	7-69
A2A6A16R37		RESISTOR: Item 36.	7-69
A2A6A16R38		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/2 w; MIL type RCR20G361JS.	7-69
A2A6A16R39		RESISTOR, FIXED, COMPOSITION: 3K ohms ±5%, 1/8 w; MIL type RCR05G302JS.	7-69
A2A6A16TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-69
A2A6A16TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-69
A2A6A16TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-69
A2A6A16TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms, 60 Hz; MIL type M39024-18-02.	7-69
A2A6A16U1		INTEGRATED CIRCUIT: MIL type M38510-00105BCB.	7-69
A2A6A16U2 thru A2A6A16U5		INTEGRATED CIRCUIT: MIL type M38510-01307BCB.	7-69
A2A6A16U6		INTEGRATED CIRCUIT: MIL type M38510-00104BCB.	7-69
A2A6A16U7		INTEGRATED CIRCUIT: Mfr 18723, part no. CA3140S3, 98738, dwg 48P226682-01.	7-69
A2A6A16U8		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4324DCBS, 98738, dwg 48P226457-01.	7-69
A2A6A16U9		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-69
A2A6A16U10		INTEGRATED CIRCUIT: Mfr 18723, part no. CA3140S3, 98738, dwg 48P226682-01.	7-69

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16U11		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228371-01.	7-69
A2A6A16U12		INTEGRATED CIRCUIT: MIL type M38510-00105BCB.	7-69
A2A6A16U13		INTEGRATED CIRCUIT: MIL type M38510-00205BCB.	7-69
A2A6A16U14		INTEGRATED CIRCUIT: MIL type M38510-01302BCB.	7-69
A2A6A16U15 and A2A6A16U16		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228370-01.	7-69
A2A6A16U17		INTEGRATED CIRCUIT: MIL type M38510-01302BCB.	7-69
A2A6A17		100 kHz CIRCUIT CARD ASSEMBLY: 5.75 in. long, 3.0 in. w; mfr 98738, part no. 01A228327-01.	7-70
A2A6A17C1		CAPACITOR: Item 19.	7-70
A2A6A17C2		CAPACITOR: Item 18.	7-70
A2A6A17C3		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006-09-8318.	7-70
A2A6A17C4		Not used.	
A2A6A17C5		CAPACITOR: Item 19.	7-70
A2A6A17C6		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±10%, 50 Vdc working; MIL type M39003-01-2269.	7-70
A2A6A17C7 thru A2A6A17C12		Not used.	
A2A6A17C13 and A2A6A17C14		CAPACITOR: Item 15.	7-70
A2A6A17C15		CAPACITOR, FIXED, MICA: 82 pF ±2%, 500 Vdc working; MIL type CMR04E820GPDM.	7-70
A2A6A17C16		CAPACITOR: Item 15.	7-70
A2A6A17C17		CAPACITOR, FIXED, CERAMIC: 120 pF ±2%, 500 Vdc working; MIL type CMR04F121GPDM.	7-70
A2A6A17C18		CAPACITOR, FIXED, MICA: 82 pF ±2%, 500 Vdc working; MIL type CMR04E820GPDM.	7-70
A2A6A17C19 thru A2A6A17C21		CAPACITOR: Item 15.	7-70
A2A6A17C22		Not used.	
A2A6A17C23		CAPACITOR: Item 11.	7-70
A2A6A17C24		Not used.	
A2A6A17C25 thru A2A6A17C27		CAPACITOR: Item 15.	7-70

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17C28		CAPACITOR: Item 19.	7-70
A2A6A17C29 thru A2A6A17C32		CAPACITOR: Item 15.	7-70
A2A6A17C33		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±20%, 50 Vdc working; MIL type M39003-01-2357.	7-70
A2A6A17C34		CAPACITOR: Item 19.	
A2A6A17C35		CAPACITOR, FIXED, CERAMIC: 2,200 pF ±10%, 200 Vdc working; MIL type M39014/01-1230.	7-70
A2A6A17C36		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±20%, 50 Vdc working; MIL type M39003-01-2357.	7-70
A2A6A17L1 and A2A6A17L2		Not used.	
A2A6 A17L3		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-70
A2A6A17L4		COIL, RF: 0.82 uH; MIL type MS75083-12.	7-70
A2A6A17L5		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-70
A2A6A17L6		COIL, RF: 0.82 uH; MIL type MS75083-12.	7-70
A2A6A17L7		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-70
A2A6A17L8		COIL, RF: 1 uH; MIL type MS75083-13.	7-70
A2A6A17L9		Not used.	
A2A6A17L10		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-70
A2A6A17MP1 and A2A6A17MP2		EJECTOR, CIRCUIT CARD: Item 28.	7-70
A2A6A17P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; mfr 98738, part no. 09P226666-01. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-70
A2A6A17P1A1 and A2A6A17PlA2		CONNECTOR, PLUG, ELECTRICAL: Item 25.	7-70
A2A6A17Q1 thru A2A6A17Q5		TRANSISTOR: Item 64.	7-70
A2A6A17Q6 and A2A6A17Q7		TRANSISTOR: MIL type JAN2N2369A.	7-70
A2A6A17Q8		TRANSISTOR: MIL type JAN2N2907A.	7-70
A2A6A17R1		RESISTOR: Item 36.	7-70
A2A6A17R2		RESISTOR: Item 38.	7-70
A2A6A17R3		RESISTOR: Item 35.	7-70
A2A6A17R4		RESISTOR, FIXED, COMPOSITION: Item 52.	7-70

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17R5		RESISTOR: Item 35.	7-70
A2A6A17R6		RESISTOR: Item 49.	7-70
A2A6A17R7		RESISTOR: Item 35.	7-70
A2A6A17R8		RESISTOR, FIXED, COMPOSITION: 2.2K ohms ±5%, 1/4 w; MIL type RCR07G223JS.	7-70
A2A6A17R9		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4 w; MIL type RCR07G201JS.	7-70
A2A6A17R10		RESISTOR, VARIABLE, WIRE-WOUND: 1000 ohms ±5%, 3/4 w; 27 Vdc working; MIL type M39015-3-007XM.	7-70
A2A6A17R11		RESISTOR: Item 45.	7-70
A2A6A17R12 and A2A6A17R13		RESISTOR, FIXED, COMPOSITION: 3000 ohms ± 5%, 1/4 w; MIL type RCR07G301JS.	7-70
A2A6A17R14		RESISTOR: Item 37.	7-70
A2A6A17R15		RESISTOR: Item 38.	7-70
A2A6A17R16		RESISTOR: Item 39.	7-70
A2A6A17R17		RESISTOR: Item 38.	7-70
A2A6A17R18 thru A2A6A17R21		Not used.	
A2A6A17R22 thru A2A6A17R27		RESISTOR: Item 38.	7-70
A2A6A17R28 and A2A6A17R29		RESISTOR, FIXED, COMPOSITION: Item 49.	7-70
A2A6A17R30		RESISTOR: Item 38.	7-70
A2A6A17R31		RESISTOR: Item 47.	7-70
A2A6A17R32		RESISTOR: Item 36.	7-70
A2A6A17R33		RESISTOR, FIXED, COMPOSITION: 430 ohms ±5%, 1/4 w; MIL type RCR07G431JS.	7-70
A2A6A17R34		RESISTOR: Item 36.	7-70
A2A6A17R35		RESISTOR, FIXED, COMPOSITION: Item 52.	7-70
A2A6A17R36		RESISTOR: Item 45.	7-70
A2A6A17TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-70
A2A6A17TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-70
A2A6A17TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-70
A2A6A17U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344DCBS, 98738, dwg 48P226446-01.	7-70

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17U2 and A2A6A17U3		Not used.	
A2A6A17U4		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12513DEBS, 98738, dwg 48P226458-01.	7-70
A2A6A17U5		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514DEBS, 98738, dwg 48P226459-01.	7-70
A2A6A17U6 thru A2A6A17U8		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228370-01.	7-70
A2A6A17W1 and A2A6A17W2		CABLE, RF, COAXIAL: MIL type RG-316/U.	7-70
A2A6A17A1		VCO ASSEMBLY: Mfr 98738, part no. 01A226758-21-11.	7-70
A2A6A18		CIRCUIT CARD ASSEMBLY: 10 kHz/1 kHz/100 Hz; mfr 98738, part no. 01A228324-01.	7-71
A2A6A18C1		CAPACITOR: Item 11.	7-71
A2A6A18C2 thru A2A6A18C12		CAPACITOR: Item 15.	7-71
A2A6A18C13		CAPACITOR: Item 19.	7-71
A2A6A18L1		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-71
A2A6A18MP1 and A2A6A18MP2		EJECTOR, CIRCUIT CARD: Item 28.	7-71
A2A6A18P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; mfr 25330, part no. GBM53513-1363; 98738, dwg 09P226666-01. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-71
A2A6A18P1A1 and A2A6A18P1A2		CONNECTOR, PLUG, ELECTRICAL: Item 25.	7-71
A2A6A18Q1 thru A2A6A18Q8		TRANSISTOR: Item 64.	7-71
A2A6A18R1		RESISTOR: Item 39.	7-71
A2A6A18R2 and A2A6A18R3		RESISTOR: Item 56A.	7-71
A2A6A18R4		RESISTOR: Item 39.	7-71

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A18R5 and A2A6A18R6		RESISTOR: Item 56A.	7-71
A2A6A18R7		RESISTOR: Item 39.	7-71
A2A6A18R8 and A2A6A18R9		RESISTOR: Item 56A.	7-71
A2A6A18R10		RESISTOR: Item 39.	7-71
A2A6A18R11 and A2A6A18R12		RESISTOR: Item 56A.	7-71
A2A6A18R13 thru A2A6A18R26		RESISTOR: Item 38.	7-71
A2A6A18TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-71
A2A6A18TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-71
A2A6A18U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12513DEBS, 98738, dwg 48P226458-01.	7-71
A2A6A18U2		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514DEBS, 98738, dwg 48P226459-01.	7-71
A2A6A18U3 thru A2A6A18U7		INTEGRATED CIRCUIT: Mfr 98738, part no. 48P228370-01.	7-71
A2A6A18U8 thru A2A6A18U10		INTEGRATED CIRCUIT: Mfr 01295, part no. SNC54184J, 98738, dwg 48P228344-01.	7-71
A2A6A18W1 and A2A6A18W2		CABLE, RF, COAXIAL: MIL type RG-316/U.	7-71

Table 7-2A. Radio Receiver R-1051G/URR, Parts List

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6		TRANSLATOR/SYNTHESIZER ASSEMBLY: 8.19 in. long, 7.40 in. w, 4.50 in. h; mfr 50097, part no. BO4000-002. (Attaching Parts) CE(4)	7-66
A2A6AT1		TERMINATION, COAXIAL: Right angle, 0.734 in. long; mfr 50097, part no. BO4080-001.	7-66
A2A6AT1P1		CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial, 0.73 in. long; male contact; 50097, dwg C21092-006	7-66
A2A6AT1R1		RESISTOR: Item 70.	7-66
A2A6AT2		TERMINATION, COAXIAL: Right angle, 0.734 in. long; mfr 50097, part no. BO4080-002.	7-66
A2A6AT2P1		CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial, 0.734 in. long, male contact; 50097, dwg C21092-006.	7-66
A2A6AT2R1		RESISTOR, FIXED, COMPOSITION: 50 ohms ±5%, 1/8 w; MIL type RCR05G500JS.	7-66
A2A6C1		CAPACITOR, FIXED, ELECTROLYTIC: 820 uF ±10%, 7 Vdc working; MIL type M39018-1-0705.	7-66
A2A6C2		CAPACITOR, FIXED, CERAMIC: 1,000 pF ±10%, 200 Vdc working; MIL type M39014-01-1237.	7-66
A2A6C3		CAPACITOR, FIXED, CERAMIC: 680 pF ±10%, 200 Vdc working; MIL type M39014-01-1236.	7-66
A2A6E1 and A2A6E2		TERMINAL: Solder only.	7-66
A2A6E3		TERMINAL, LUG: MIL type MS77068-3.	7-66
A2A6E4		TERMINAL: Solder only.	7-66
A2A6E5		TERMINAL, LUG: MIL type MS77068-3.	7-66
A2A6E6		TERMINAL: Solder only.	7-66
A2A6E7		TERMINAL, LUG: MIL type MS77068-3.	7-62
A2A6E8 and A2A6E9		Not used.	
A2A6E10		TERMINAL, LUG: MIL type MS77068-3.	7-66
A2A6E11		TERMINAL, LUG: 1.34 in. long, 0.7 in. w; mfr 26344, part no. 20315, 50097, part no. C21081-001. (Attaching Parts) F(1) U(1) BZ(1) DQ(1)	7-66
A2A6E12 and A2A6E13		TERMINAL: Solder only.	7-66
A2A6E14 and A2A6E15		Not used.	
A2A6E16 and A2A6E17		TERMINAL, LUG: MIL type MS77068-3. (Attaching Parts) A(1) BM(1)	7-66
A2A6E18 and A2A6E19		TERMINAL, LUG: Tinned copper; 1.34 in. long, 0.070 in. w, mfr 26344, part no. 20315, 50097, dwg C21081-001. (Attaching Parts) U (1) F (1) BZ (1) DQ (1)	7-66
A2A6FL1		FILTER, RFI: 1.057 in. long, 0.30 in. dia; MIL type M15733-24-0007.	7-66

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6FL2 and A2A6FL3		Not used.	
A2A6FL4		FILTER RFI: 1.057 in. long, 0.350 in. dia; MIL type M15733-24-0007.	7-66
A2A6FL5		FILTER, ASSY: 1.06 in. long, 0.35 in. dia; mfr 50097, part no. BO4081-001. (Attaching Parts) AL (2) AQ (2) AU(2)	7-66
A2A6J1 thru A2A6J7		Not used.	
A2A6J8		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-19.	7-66
A2A6J9		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-15.	7-66
A2A6J10		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-14.	7-66
A2A6J11		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-13.	7-66
A2A6MP1		COVER, BOTTOM: 8.030 in. long, 6.120 in. w, 0.062 in. thk; aluminum alloy; mfr 50097, part no. BO4005-001. (Attaching Parts) DL(6)	
A2A6MP2	2	COVER, SIDE: 8.178 in. long, 4.40 in. w, 0.062 in. thk; aluminum alloy; mfr 50097, part no. BO4004-001. (Attaching Parts) DK (6) CQ (6) AL(6)	7-66
A2A6MP3		COVER, TOP: 8.187 in. long, 7.350 in. w, 0.062 in. thk; aluminum alloy; mfr 50097, part no. BO4003-001. (Attaching Parts) CQ (13)	7-66
A2A6MP4		SPRING, WASHER, LOCK: MIL type MS35338-137.	7-66
A2A6MP5 thru A2A6MP7		Not used.	
A2A6MP8		COUPLING ASSEMBLY: Consists of A2A6MP9 thru A2A6MP11; 0.485 in. long, 0.875 in. dia; mfr 50097, part no. BO4057-001. (Attaching Parts) BD (2)	
A2A6MP9		COUPLING, TOP: 0.485 in. long, 0.875 in. dia; mfr 50097, part no. BO4058-001.	7-66
A2A6MP10		PIN: 0.225 in. long, 0.0936 in. dia; mfr 06845, part no. 4032181-0001.	7-66
A2A6MP11		SPRING, HOLD DOWN: 0.72 in. dia, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) CR (2) G (2)	7-66

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6MP12		COUPLING ASSEMBLY: Consists of A2A6MP13 thru A2A6MP15; 0.485 in. long, 0.875 in. dia; mfr 50097, part no. BO4057-001. (Attaching Parts) BD (2)	7-66
A2A6MP13		COUPLING, TOP: 0.485 in. long, 0.875 in. dia; mfr 50097, part no. BO4058-001.	7-66
A2A6MP14		PIN: 0.225 in. long, 0.0936 in. dia; mfr 06845, part no. 4032181-0001.	7-66
A2A6MP15		SPRING, HOLD DOWN: 0.720 in. dia, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) CR (2) G (2)	7-66
A2A6MP16		COUPLING ASSEMBLY: Consists of A2A6MP17 thru A2A6MP19; 0.485 in. long, 0.875 in. dia; mfr 50097, part no. BO4057-001. (Attaching Parts) BD (2)	7-66
A2A6MP17		COUPLING, TOP: 0.485 in. long, 0.875 in. dia; mfr 50097, part no. BO4058-001.	7-66
A2A6MP18		PIN: 0.225 in. long, 0.0936 in. dia; mfr 06845, part no. 4032181-0001.	7-66
A2A6MP19		SPRING, HOLD DOWN: 0.790 in. dia, 0.015 in. thk; mfr 06845, part no. 4032183-0001. (Attaching Parts) CR (2) G (2)	7-66
A2A6MP20		PAD, RUBBER: 3.0 in. long, 0.5 in. w; mfr 50097, part no. BO4066-003.	7-66
A2A6MP21		INSULATOR: L-Shaped, 5.88 in. long, 1.38 in. w; mfr 50097, part no. BO4065-004.	7-66
A2A6MP22		INSULATOR: 2.5 in. long, 1.75 in. w; mfr 50097, part no. BO4065-003.	7-66
A2A6MP23		BRACKET, STAKED: 1.25 in. long attached clip; mfr 50097, part no. BO4082-001. (Attaching Parts) AL (2) AQ (2)	7-66
A2A6MP24		CONNECTOR AND HARNESS ASSEMBLY: Consists of A2A6MP25, A2A6P1, and A2A6XA9P1 thru A2A6XA14P1; mfr 50097, part no. BO4009-001.	7-66
A2A6MP25		PRINTED CIRCUIT, FLEXIBLE: Mfr 50097, part no. BO4010-001.	7-66 7-66
A2A6MP26 thru A2A6MP32		INSULATOR: 8.0 in. long, 3.0 in. w; mfr 50097, part no. BO4065-001.	7-66
A2A6P1		CONNECTOR, PLUG, ELECTRICAL: 2.182 in. long, 0.329 in. w, 0.494 in. thk; mfr 50097, part no. C21083-001. (Attaching Parts) AL (2) DJ (2)	7-66
A2A6P1A1		CONNECTOR, PLUG, ELECTRICAL: right angle coaxial; 50097/C21092-006.	7-66

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6P1A2		TERMINATION: COAXIAL; 50097/BO4080-001.	
A2A6P1A3		TERMINATION: COAXIAL; 50097/BO4080-002.	
A2A6P2		CONNECTOR, PLUG, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. dia; mfr 50097, dwg C21083-002. (Attaching Parts) AL (2) DJ (2)	7-66
A2A6P2A1 and A2A6P2A2		CONNECTOR, PLUG, ELECTRICAL: Right angle, coaxial, 0.734 in. long, male contact; Refer to A2A6A8W4, A2A6A8W5 respectively.	7-66 7-68
A2A6P3		CONNECTOR, PLUG, ELECTRICAL: 1.541 in. long, 0.494 in. w, 0.422 in. dia; mfr 50097, dwg C21083-002. (Attaching Parts) AL (2) DJ (2)	7-66
A2A6P3A1 and A2A6P3A2		CONNECTOR, PLUG, ELECTRICAL: Right angle, coaxial, 0.734 in. long, male contact; Refer to A2A6A8W6, A2A6A8W7 respectively.	7-66 7-68
A2A6S1 and A2A6S2		SWITCH, CODING, ASSEMBLY: 2.102 in. long, 0.725 in. w, 0.812 in. dia; mfr 50097, part no. BO4068-001. (Attaching Parts) DM (2) DN (2) DP (2)	7-66
A2A6S3		SWITCH, CODING, ASSEMBLY: 2.102 in. long, 0.725 in. w, 0.812 in. dia; mfr 50097, part no. BO4069-001. (Attaching Parts) DM (1) DN (1) DP (1)	7-66
A2A6W1	2	CABLE ASSEMBLY, RF: 1.50 in. long, mfr 50097, part no. BO4079-001.	7-66
A2A6W2	2	CABLE ASSEMBLY, RF: 2.37 in. long, mfr 50097, part no. BO4079-002.	7-66
A2A6W3	2	CABLE ASSEMBLY, RF: 2.40 in. long, mfr 50097, part no. BO4079-003.	7-66
A2A6W4 thru A2A6W9		Not used.	
A2A6W10	2	CABLE ASSEMBLY, RF: 5.75 in. long, mfr 50097, part no. BO4097-004.	7-66
A2A6W11	2	CABLE ASSEMBLY, RF: 2.50 in. long; mfr 50097, part no. BO4097-005.	7-66
A2A6W12	2	CABLE ASSEMBLY, RF: 6.22 in. long; mfr 50097, part no. BO4097-006.	7-66
A2A6W13	2	CABLE ASSEMBLY, RF: 1.87 in. long; mfr 50097, part no. BO4097-007.	7-66
A2A6W14	2	CABLE ASSEMBLY, RF: 4.77 in. long; mfr 50097, part no. BO4097-008.	7-66
A2A6W15	2	CABLE ASSEMBLY, RF: 4.75 in. long; mfr 50097, part no. BO4097-009.	7-66

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6XA1P1 thru A2A6XA11P1		Not used.	
A2A6XA12P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 50097, dwg C21082-001. (Attaching Parts) BZ (2) F (2) G (2) DQ (2)	7-66
A2A6XA12 P1A1 thru A2A6XA12 P1A3		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA12 P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 27. Refer to A2A6A8W2.	7-66 7-68
A2A6XA13P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.156 in. long, 0.308 in. w, 0.494 in. thk; mfr 50097, dwg C21082-003. (Attaching Parts) BZ (2) F (2) G (2) DQ (2)	7-66
A2A6XA13 P1A1 A2A6XA13 P1A4		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA14P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 50097, dwg C21082-001. (Attaching Parts) BZ (2) F (2) G (2) DQ (2)	7-66
A2A6XA14 P1A1 thru A2A6XA14 P1A3		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA14 P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 27. Refer to A2A6A8W1.	7-66 7-68
A2A6XA15P1		Not used.	
A2A6XA16P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.156 in. long, 0.308 in. w, 0.494 in. thk; mfr 50097, dwg C21082-003. (Attaching Parts) BZ (2) F (2) G (2) DQ (2)	7-66
A2A6XA16 P1A1 thru A2A6XA16 P1A4		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6XA17P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 50097, dwg C21082-002. (Attaching Parts) BZ (2) F (2) G (1) DQ (2)	7-66
A2A6XA17 PIA1		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6XA17 P1A2		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 27.	7-66
A2A6XA18P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.508 in. long, 0.308 in. w, 0.494 in. thk; mfr 50097, dwg C21082-002. (Attaching Parts) BZ (2) F (2) G (1) DQ (2)	7-66
A2A6XA18 P1A1 A2A6XA18 P1A2		CONNECTOR, RECEPTACLE, ELECTRICAL: Item 26.	7-66
A2A6A1 thru A2A6A6		Not used.	
A2A6A7		FILTER ASSEMBLY: 4.50 in. long, 1.82 in. w, mfr 50097, part no. BO4011-001. (Attaching Parts) DL (2)	7-67
A2A6A7C1 and A2A6A7C2		CAPACITOR, FIXED, ELECTROLYTIC: 390 uF, -10 to + 30 %, 30 Vdc working; MIL type M39018-01-0630.	7-67
A2A6A7E1 thru A2A6A7E11		Not used.	
A2A6A7E12 and A2A6A7E13		TERMINAL STUD: Item 62. (Attaching Parts) V (1)	7-67
A2A6A7E14 and A2A6A7E15		TERMINAL STUD: dwg C21076-001. (Attaching Parts) V (1)	7-67
A2A6A7MP1		STAKED, FILTER: 4.50 in. long, 1.82 in. w; mfr 50097, part no.BO4011-003	7-67
A2A6A7MP2 and A2A6A7MP3		MOUNTING BRACKET: MIL type M24066/2-122. (Hardware MS20426A3-2, Riveted).	7-67
A2A6A7 R1 and A2A6A7R2		Not used.	
A2A6A7R3 and A2A6A7R4		RESISTOR, FIXED, COMPOSITION: 3 ohms, ±5%, 1 w, MIL type RCR32G3ROJS.	7-67
A2A6A8		RF TRANSLATOR ASSEMBLY: 8.03 in. long, 4.125 in. w; mfr 50097, part no. BO4012-001. (Attaching Parts) AL (6) AQ (6) NAS620-C4	7-66 7-68
A2A6A8C1		CAPACITOR: Item 19.	7-68
A2A6A8C2		CAPACITOR, FIXED, MICA: 820 pF ±2%, 500 Vdc working; MIL type CMR06F821GPDM.	7-68

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8C3 and A2A6A8C4		CAPACITOR: Item 19.	7-68
A2A6A8C5		CAPACITOR: Item 12.	7-68
A2A6A8C6 thru A2A6A8C11		CAPACITOR: Item 19.	7-68
A2A6A8C12		CAPACITOR, FIXED, MICA: 1000 pF ±2%, 500 Vdc working; MIL type CMR06F102GPDM.	7-68
A2A6A8C13 thru A2A6A8C15		CAPACITOR: Item 19.	7-68
A2A6A8C16		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014-01-1207.	7-68
A2A6A8C17		CAPACITOR: Item 19.	7-68
A2A6A8C18		CAPACITOR: Item 16.	7-68
A2A6A8C19		CAPACITOR: Item 19.	7-68
A2A6A8C20		CAPACITOR: Item 16.	7-68
A2A6A8C21 thru A2A6A8C23		CAPACITOR: Item 19.	7-68
A2A6A8C24 and A2A6A8C25		CAPACITOR: Item 16.	7-68
A2A6A8C26 and A2A6A8C27		CAPACITOR: Item 19.	7-68
A2A6A8C28		CAPACITOR: Item 12.	7-68
A2A6A8C29		CAPACITOR: Item 19.	7-68
A2A6A8C30		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014-01-1207.	7-68
A2A6A8C31 thru A2A6A8C33		CAPACITOR: Item 19.	7-68
A2A6A8C34		CAPACITOR: Item 16.	7-68
A2A6A8C35 and A2A6A8C36		CAPACITOR: Item 19.	7-68
A2A6A8C37 and A2A6A8C38		CAPACITOR: Item 16.	7-68
A2A6A8C39		CAPACITOR: Item 19.	7-68
A2A6A8C40 and A2A6A8C41		CAPACITOR: Item 16.	7-68

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8C42 and A2A6A8C43		CAPACITOR: Item 19.	7-68
A2A6A8C44 and A2A6A8C45		CAPACITOR: Item 16.	7-68
A2A6A8C46 and A2A6A8C47		CAPACITOR: Item 19.	7-68
A2A6A8C48		CAPACITOR: Item 16.	7-68
A2A6A8C49 and A2A6A8C50		CAPACITOR: Item 19.	7-68
A2A6A8C51		CAPACITOR: Item 16.	7-68
A2A6A8C52 and A2A6A8C53		CAPACITOR: Item 19.	7-68
A2A6A8C54		CAPACITOR, FIXED, CERAMIC: 22 pF ±10%, 200 Vdc working; MIL type M39014-01-1207.	7-68
A2A6A8C55		CAPACITOR: Item 19.	7-68
A2A6A8C56 thru A2A6A8C58		CAPACITOR: Item 16.	7-68
A2A6A8C59		CAPACITOR, FIXED, CERAMIC: 300 pF ±2%, 500 Vdc working; MIl type CMR05F301GPDM.	7-68
A2A6A8C60 thru A2A6A8C62		CAPACITOR: Item 19.	7-68
A2A6A8C63		CAPACITOR: Item 16.	7-68
A2A6A8C64 and A2A6A8C65		CAPACITOR: Item 19.	7-68
A2A6A8C66		CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014-01-1237.	7-68
A2A6A8CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3020B.	7-68
A2A6A8CR2 thru A2A6A8CR20		SEMICONDUCTOR DEVICE, DIODE: Item 60.	7-68
A2A6A8E1 thru A2A6A8E15		Not used.	
A2A6A8E16 * thru A2A6A8E19 *		CONTACT, ELECTRICAL: Brass, acid-plated; 0.070 in. OD; mfr 71279, part no. 460-2971-2-03, 50097, dwg C21078-001.	
		* Electrical contacts into which J4 thru J7 plug, respectively. (not listed on Fig. 7-68).	

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8FL1		FILTER, BANDPASS. 20 MHz: 3.00 in. long, 1 in. w; mfr 50097, part no. C27002-001. (Attaching Parts) AL (2) AG (2)	7-68
A2A6A8FL2		FILTER, BANDPASS, 30 MHz: 3.00 in. long, 1 in. w; mfr 50097, part no. C27001-001. (Attaching Parts) AL(2) AG(2)	7-68
A2A6A8FL3		FILTER, BANDPASS, 2.85 MHz: 3.00 in. long, 1 in. w; mfr 50097, part no. C27003-001. (Attaching Parts) AL (2) AG (2)	7-68
A2A6A8J1		CONNECTOR, TEST-POINT TYPE: MIL type M39024-12-15. Refer to A2A6FL5-2, (Fig. 7-66).	7-68
A2A6A8J2 and A2A6A8J3		Not used.	
A2A6A8J4		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-16.	7-68
A2A6A8J5		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-20.	7-68
A2A6A8J6		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-13.	7-68
A2A6A8J7		CONNECTOR, TEST POINT TYPE: MIL type M39024-12-17.	7-68
A2A6A8L1		COIL, RF: 1 mH; MIL type MS75089-23.	7-68
A2A6A8L2		COIL, RF: 22 uH; MIL type MS75089-3.	7-68
A2A6A8L3		COIL, RF: 47 uH; MIL type MS75089-7.	7-68
A2A6A8L4 and A2A6A8L5		COIL, RF; 1 mH; MIL type MS75089-23.	7-68
A2A6A8L6 and A2A6A8L7		COIL RF: 47 uH; MIL type MS75089-7.	7-68
A2A6A8L8		COIL, RF: 22 uH; MIL type MS75089-3.	7-68
A2A6A8L9		COIL, RF: 12 uH; MIL type MS14046-5.	7-68
A2A6A8L10		COIL, RF: 47 uH; MIL type MS75089-7.	7-68
A2A6A8L11		COIL, RF: 12 uH; MIL type MS14046-5.	7-68
A2A6A8L12		COIL, RF: 1 mH; MIL type MS75089-23.	7-68
A2A6A8L13		COIL, RF: 22 uH; MIL type MS75089-3.	7-68
A2A6A8L14		COIL, RF: 0.22 uH ±10%, mfr 50097, part no. C18009-001.	7-68
A2A6A8L15		COIL, RF: 22 uH; MIL type MS75084-16.	7-68

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8Q1		TRANSISTOR: Item 64.	7-68
A2A6A8R1		RESISTOR: Item 40.	7-68
A2A6A8R2		RESISTOR: Item 54.	7-68
A2A6A8R3		RESISTOR: Item 37.	7-68
A2A6A8R4		RESISTOR, FIXED, COMPOSITION: 1200 ohms ±5%, 1/4 w; MIL type RCR07G122JS.	7-68
A2A6A8R5		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-68
A2A6A8R6		RESISTOR: Item 45.	7-68
A2A6A8R7		RESISTOR: Item 38.	7-68
A2A6A8R8 and A2A6A8R9		RESISTOR: Item 39.	7-68
A2A6A8R10		RESISTOR: Item 45.	7-68
A2A6A8R11		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-68
A2A6A8R12		RESISTOR: Item 45.	7-68
A2A6A8R13		RESISTOR, FIXED, COMPOSITION: 270 ohms ±5%, 1/4 w; MIL type RCR07G271JS.	7-68
A2A6A8R14		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-68
A2A6A8R15 thru A2A6A8R17		RESISTOR: Item 46.	7-68
A2A6A8R18		RESISTOR: Item 45.	7-68
A2A6A8R19		RESISTOR: Item 46.	7-68
A2A6A8R20 thru A2A6A8R22		RESISTOR: Item 45.	7-68
A2A6A8R23 thru A2A6A8R26		RESISTOR: Item 46.	7-68
A2A6A8R27		RESISTOR: Item 41.	7-68
A2A6A8R28 and A2A6A8R29		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-68
A2A6A8R30		RESISTOR: Item 45.	7-68
A2A6A8R31		RESISTOR: Item 41.	7-68
A2A6A8R32		RESISTOR: Item 45.	7-68
A2A6A8R33		RESISTOR: Item 37.	7-68
A2A6A8R34 and A2A6A8R35		RESISTOR: Item 41.	7-68

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8R36		RESISTOR, VARIABLE: 1000 ohms, 1/4 w; MIL type RJR26FW102M.	7-68
A2A6A8R37 and A2A6A8R38		RESISTOR: Item 41.	7-68
A2A6A8R39		RESISTOR: Item 45.	7-68
A2A6A8R40		RESISTOR: Item 41.	7-68
A2A6A8R41		RESISTOR: Item 45.	7-68
A2A6A8R42 and A2A6A8R43		RESISTOR: Item 46.	7-68
A2A6A8R44		RESISTOR: Item 41.	7-68
A2A6A8R45 and A2A6A8R46		RESISTOR: Item 46.	7-68
A2A6A8R47 and A2A6A8R48		RESISTOR, FIXED, COMPOSITION: 300 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-68
A2A6A8R49		RESISTOR: Item 41.	7-68
A2A6A8R50		RESISTOR, FIXED, COMPOSITION: 82 ohms ±5%, 1/4 w; MIL type RCR07G820JS.	7-68
A2A6A8R51		RESISTOR: Item 37.	7-68
A2A6A8R52		RESISTOR, VARIABLE: 100 ohms, 1/4w; MIL type RJR26FW101M.	7-68
A2A6A8R53 and A2A6A8R54		RESISTOR: Item 45.	7-68
A2A6A8R55		RESISTOR: Item 37.	7-68
A2A6A8R56 thru A2A6A8R58		RESISTOR, FIXED, COMPOSITION: 75 ohms ±5%. 1/4 w; MIL type RCR07G750JS.	7-68
A2A6A8R59		RESISTOR, FIXED, COMPOSITION: 8200 ohms ±5%, 1/4 w; MIL type RCR07G822JS.	7-68
A2A6A8R60		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-68
A2A6A8R61		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w ; MIL type RCR07G562JS.	7-68
A2A6A8R62		RESISTOR: Item 38.	7-68
A2A6A8R63		RESISTOR: (Same as R59)	7-68
A2A6A8R64		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-68
A2A6A8R65		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-68
A2A6A8R66		RESISTOR: Item 31.	7-68
A2A6A8R67		RESISTOR: (Same as R59).	7-68

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8R68		RESISTOR, FIXED, COMPOSITION: 3900 ohms ±5%, 1/4 w; MIL type RCR07G392JS.	7-68
A2A6A8R69		RESISTOR, FIXED, COMPOSITION: 5600 ohms ±5%, 1/4 w; MIL type RCR07G562JS.	7-68
A2A6A8R70		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-68
A2A6A8RT1 thru A2A6A8RT3		THERMISTOR: Negative coefficient, 200 ohms, ±10%, at 25 deg. C, 1/2 w; mfr 15801 part no. KB22J1, 50097, dwg C53001-001.	7-68
A2A6A8T1		TRANSFORMER, RF: 0.490 in. long, 0.422 in. dia; mfr 03765, part no. AC8334, 50097, dwg C56008-001.	7-68
A2A6A8T2 and A2A6A8T3		TRANSFORMER, RF: 0.5 in. long, 0.38 in. w, 0.375 in. h; mfr 06978, part no. 70-122-02, 50097, dwg C56009-001.	7-68
A2A6A8T4 thru A2A6A8T7		TRANSFORMER, RF: 0.53 in. long, 0.53 in. w, mfr 81815, part no. BT8, 50097, dwg C56010-001.	7-68
A2A6A8TP1 thru A2A6A8TP4		Not used.	
A2A6A8TP5		CONNECTOR, ELECTRICAL, TEST-POINT, GREEN: 1500 Vrms, 60 Hz; MIL type M39024-11-05.	7-68
A2A6A8TP6		CONNECTOR, ELECTRICAL, TEST-POINT, BLUE: 1500 Vrms, 60 Hz; MIL type M39024-11-07.	7-68
A2A6A8TP7		CONNECTOR, ELECTRICAL, TEST-POINT, VIOLET: 1500 Vrms, 60 Hz; MIL type M39024-11-10.	7-68
A2A6A8TP8		CONNECTOR, ELECTRICAL, TEST-POINT, GRAY: 1500 Vrms, 60 Hz; MIL type M39024-11-09.	7-68
A2A6A8U1	1	INTEGRATED CIRCUIT: Mfr 54590, part no. CA3049T/3, 50097, dwg BO4112-001.	7-68
A2A6A8U2	1	INTEGRATED CIRCUIT: Mfr 54590, part no. CA3049T/3, 50097, BO4112-002.	7-68
A2A6A8U3	1	INTEGRATED CIRCUIT: Mfr 54590, part no. CA3049T/3, 50097, BO4112-003.	7-68
A2A6A8W1		CABLE ASSEMBLY, RF: 11.125 in. long; mfr 50097; part no. BO4072-001.	7-68
A2A6A8W1P1		Refer to A2A6XA14P1A4.	
A2A6A8W2		CABLE ASSEMBLY, RF: 7.38 in. long; mfr 50097, part no. BO4072-002.	7-68
A2A6A8W2P1		Refer to A2A6XA12P1A4.	
A2A6A8W3		CABLE ASSEMBLY, RF: 5.00 in. long; mfr 50097, part no. BO4074-001.	7-68
A2A6A8W3P1		Refer to A2A6FL5, (Fig. 7-66)	
A2A6A8W4		CABLE ASSEMBLY, RF: 6.00 in. long; mfr 50097, part no. BO4073-001.	7-68
A2A6A8W4P1		Refer to A2A6P2A1.	

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A8W5	2	CABLE ASSEMBLY, RF: 6.39 in. long; mfr 50097, part no. B04073-002.	7-68
A2A6A8W5P1	2	Refer to A2A6P2A2.	
A2A6A8W6	2	CABLE ASSEMBLY, RF: 5.88 in. long; mfr 50097, part no. B04073-003.	7-68
A2A6A8W6P1	2	Refer to A2A6P3A1.	
A2A6A8W7	2	CABLE ASSEMBLY, RF: 6.12 in. long; mfr 50097, part no. B04073-004.	7-68
A2A6A8W7P1	2	Refer to A2A6P3A2.	
A2A6A9 thru A2A6A11		Not used.	
A2A6A12		CIRCUIT CARD ASSEMBLY, 10 kHz/1 kHz/100 Hz Synthesizer NO. 2: 5.75 in. long, 3.0 in. w; mfr 50097, part no. B04027-001.	7-72A
A2A6A12C1		CAPACITOR: Item 11.	7-72A
A2A6A12C2		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006-09-8318.	7-72A
A2A6A12C3 and A2A6A12C4		CAPACITOR: Item 15.	7-72A
A2A6A12C5		CAPACITOR: Item 19.	7-72A
A2A6A12C6 and A2A6A12C7		CAPACITOR: Item 15.	7-72A
A2A6A12C8		CAPACITOR: Item 19.	7-72A
A2A6A12C9		CAPACITOR: Item 15.	7-72A
A2A6A12C10		CAPACITOR, FIXED, MICA: 1200 pF ±2%, 500 Vdc working; MIL type CMR06F122GPDM.	7-72A
A2A6A12C11		CAPACITOR, FIXED, MICA: 1800 pF ±2%, 500 Vdc working; MIL type CMR06F182GPDM.	7-72A
A2A6A12C12		CAPACITOR, FIXED, MICA: 1200 pF ±2%, 500 Vdc working; MIL type CMR06F122GPDM.	7-72A
A2A6A12C13		Not used.	
A2A6A12C14		CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF ±10%, 35 Vdc working; MIL type M39003-01-2304.	7-72A
A2A6A12C15		CAPACITOR: Item 15.	7-72A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A12L1		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-72A
A2A6A12L2 thru A2A6A12L5		Not used.	
A2A6A12L6		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-72A
A2A6A12L7		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-72A
A2A6A12L8		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-72A
A2A6A12L9		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-72A
A2A6A12L10		COIL, RF: 3.3 uH; MIL type MS75084-6.	7-72A
A2A6A12L11 and A2A6A12L12		Not used.	
A2A6A12L13		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-72A
A2A6A12MP1 and A2A6A12MP2		EJECTOR, CARD: Mfr 13103, part no. 5005-08N, 50097, dwg C25046-001.	7-72A
A2A6A12P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1.534 in. long, 0.329 in. w, 0.494 in. thk; 50097, dwg C21080-002. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-72A
A2A6A12P1A1 thru A2A6A12P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 25.	7-72A
A2A6A12Q1		TRANSISTOR: MIL type JAN2N2369A.	7-72A
A2A6A12Q2		TRANSISTOR: MIL type JAN2N2907A.	7-72A
A2A6A12Q3		TRANSISTOR: MIL type JAN2N2369A.	7-72A
A2A6A12R1		RESISTOR, FIXED, COMPOSITION: 820 ohms $\pm$5%, 1/4 w; MIL type RCR07G821JS.	7-72A
A2A6A12R2		RESISTOR, FIXED, COMPOSITION: 200 ohms $\pm$5%, 1/4 w; MIL type RCR07G201JS.	7-72A
A2A6A12R3	*	Not used.	
A2A6A12R3A	1	RESISTOR, FIXED, COMPOSITION: 10 megohms $\pm$5%, 1/4 w; MIL type RCR07G106JS.	7-72A
A2A6A12R3B	1	RESISTOR, FIXED, COMPOSITION: 22 megohms $\pm$5%, 1/4 w; MIL type RCR07G226JS.	7-72A
A2A6A12R4		RESISTOR, FIXED, COMPOSITION: 200 ohms $\pm$5%, 1/4 w; MIL type RCR07G201JS.	7-72A
A2A6A12R5		RESISTOR, FIXED, COMPOSITION: 820 ohms $\pm$5%, 1/4 w; MIL type RCR07G821JS.	7-72A
A2A6A12R6		RESISTOR: Item 49.	7-72A
A2A6A12R7		RESISTOR, FIXED, COMPOSITION: 27K ohms $\pm$5%, 1/4 w; MIL type RCR07G273JS.	7-72A
A2A6A12R8		RESISTOR, FIXED, COMPOSITION: 820 ohms $\pm$5%, 1/4 w; MIL type RCR07G821JS.	7-72A
		* No usage preferred.	

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A12R9		RESISTOR: Item 39.	7-72A
A2A6A12R10		RESISTOR, FIXED, COMPOSITION: 130K ohms ±5%, 1/4 w; MIL type RCR07G134JS.	7-72A
A2A6A12R11 thru A2A6A12R13		RESISTOR: Item 37.	7-72A
A2A6A12R14		RESISTOR, FIXED, COMPOSITION: 360 ohms ±5%, 1/4 w; MIL type RCR07G361JS.	7-72A
A2A6A12R15		RESISTOR: Item 40.	7-72A
A2A6A12R16		RESISTOR, VARIABLE, WIRE-WOUND: 100 ohms 3/4 w; MIL type M39015/3-004XM.	7-72A
A2A6A12R17		Not used.	
A2A6A12R18		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-72A
A2A6A12R19		RESISTOR: Item 38.	7-72A
A2A6A12TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-72A
A2A6A12TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-72A
A2A6A12TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-72A
A2A6A12U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344BCBJS, 50097, dwg C31351-001.	7-72A
A2A6A12U2		INTEGRATED CIRCUIT: MIL type M38510/07003BCB.	7-72A
A2A6A12U3		INTEGRATED CIRCUIT: Mfr 01295, part no. SNJ4196J, 50097, dwg C31311-002.	7-72A
A2A6A12W1		ASSEMBLY, COAXIAL: 5.38 in. long; mfr 50097, dwg B04070-012.	7-72A
A2A6A12W2		ASSEMBLY, COAXIAL: 3.88 in. long; mfr 50097, dwg B04070-006.	7-72A
A2A6A12W3		ASSEMBLY, COAXIAL: 5.62 in. long; mfr 50097, dwg B04070-013.	7-72A
A2A6A12W4		ASSEMBLY, COAXIAL: 6.12 in. long; mfr 50097, dwg B04070-014.	7-72A
A2A6A12A1		VCO CIRCUIT ASSEMBLY: Mfr 50097, part no. B04030-001.	7-72A
A2A6A13		CIRCUIT CARD ASSEMBLY, 10 MHz/1 MHz: 5.75 in. long, 3.0 in. w, mfr 50097, part no. B04033-001.	7-73A
A2A6A13C1		CAPACITOR: Item 15.	7-73A
A2A6A13C2		CAPACITOR: Item 19.	7-73A
A2A6A13C3		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 50 Vdc working; MIL type M39006-09-8318.	7-73A
A2A6A13C4		CAPACITOR: Item 19.	7-73A
A2A6A13C5		Not used.	

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13C6		CAPACITOR, FIXED, ELECTROLYTIC: 56 uF ±10%, 6 Vdc working; MIL type M39003-01-2246.	7-73A
A2A6A13C7		CAPACITOR: Item 19.	7-73A
A2A6A13C8 and A2A6A13C9		CAPACITOR: Item 15.	7-73A
A2A6A13C10		Not used.	
A2A6A13C11		CAPACITOR: Item 11.	7-73A
A2A6A13C12		Not used.	
A2A6A13C13		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF ±10%, 10 Vdc working; MIL type M39003-01-2261.	7-73A
A2A6A13C14 thru A2A6A13C16		CAPACITOR: Item 15.	7-73A
A2A6A13C17		CAPACITOR: Item 19.	7-73A
A2A6A13C18 thru A2A6A13C24		CAPACITOR: Item 15.	7-73A
A2A6A13CR1 and A2A6A13CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-73A
A2A6A13CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N964B.	7-73A
A2A6A13CR4		SEMICONDUCTOR DEVICE, DIODE: Mfr 18518, part no. HA-142, 50097 dwg C48022-001.	7-73A
A2A6A13CR5 thru A2A6A13CR7		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-73A
A2A6A13L1		Not used.	
A2A6A13L2		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-73A
A2A6A13L3 and A2A6A13L4		Not used.	
A2A6A13L5		INDUCTOR ASSEMBLY: 0.465 mH; Mfr 50097, part no. C18004-003.	7-73A
A2A6A13L6 thru A2A6A13L10		COIL, RF: 470 uH: MIL type MS75085-15.	7-73A
A2A6A13MP1 and A2A6A13MP2		EJECTOR CARD: Mfr 13103, part no. 5005-08N, 50097, dwg C25046-001.	7-73A
A2A6A13P1A1 thru A2A6A13P1A4		CONNECTOR: Item 25.	7-73A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13 and A2A6A13Q2		TRANSISTOR: Item 64.	7-73A
A2A6A13R1 thru A2A6A13R5		RESISTOR: Item 31.	7-73A
A2A6A13R6 and A2A6A13R7		RESISTOR, FIXED, COMPOSITION: 9100 ohms $\pm 5\%$, 1/8 w; MIL type RCR05G912JS.	7-73A
A2A6A13R8		RESISTOR, FIXED, COMPOSITION: 180 ohms $\pm 5\%$, 1/8 w; MIL type RCR05G181JS.	7-73A
A2A6A13R9		RESISTOR: Item 30.	7-73A
A2A6A13R10		RESISTOR, FIXED, COMPOSITION: 9100 ohms $\pm 5\%$, 1/8 w; MIL type RCR05G912JS.	7-73A
A2A6A13R11		RESISTOR, FIXED, COMPOSITION: 1800 ohms $\pm 5\%$, 1/8 w; MIL type RCR05G182JS.	7-73A
A2A6A13R12 thru A2A6A13R19		RESISTOR: Item 30.	7-73A
A2A6A13R20		RESISTOR, FIXED, COMPOSITION: 1 megohm $\pm 5\%$, 1/8 w; MIL type RCR05G105JS.	7-73A
A2A6A13R21 thru A2A6A13R25		RESISTOR: Item 29.	7-73A
A2A6A13R26 and A2A6A13R27		RESISTOR: Item 34.	7-73A
A2A6A13R28 thru A2A6A13R30		RESISTOR: Item 30.	7-73A
A2A6A13R31		RESISTOR: Item 33.	7-73A
A2A6A13R32		RESISTOR, FIXED, COMPOSITION: 1 megohm $\pm 5\%$, 1/8 w; MIL type RCR05G105JS.	7-73A
A2A6A13R33		RESISTOR: Item 36.	7-73A
A2A6A13R34		RESISTOR: Item 38.	7-73A
A2A6A13TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-73A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-73A
A2A6A13TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-73A
A2A6A13U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344BCBJS, 50097, dwg C31351-001.	7-73A
A2A6A13U2		INTEGRATED CIRCUIT: Mfr 02735, part no. CA3140S/3, 50097 dwg C31312-002.	7-73A
A2A6A13U3		INTEGRATED CIRCUIT: Mfr 04713, part no. MC1648MBCBJS, Mfr 50097, dwg C31352-001.	7-73A
A2A6A13U4		INTEGRATED CIRCUIT: MIL type, M38510/07301BCB.	7-73A
A2A6A13U5		INTEGRATED CIRCUIT: Mfr 01295, part no. SNJ54197, 50097, C31353-001.	7-73A
A2A6A13U6		INTEGRATED CIRCUIT: MIL type, M38510/07301BCB.	7-73A
A2A6A13U7		INTEGRATED CIRCUIT: MIL type M38510-00401BCB.	7-73A
A2A6A13U8		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514BEBJS, 50097, C31354-001.	7-73A
A2A6A13U9 and A2A6A13U10		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4316BEBJS, 50097, C31355-001.	7-73A
A2A6A13U11		INTEGRATED CIRCUIT: PROGRAMMED, Mfr 50097 dwg M31310-002.	7-73A
A2A6A13W1		ASSEMBLY, COAXIAL; PROGRAMMED, Mfr 50097, dwg B04075-002.	7-73A
A2A6A13A1		FILTER ASSEMBLY, TRANSLATOR/SYNTHESIZER: Mfr 50097, part no. B04036-001. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-73A
A2A6A13A1 CR1 thru A2A6A13A1 CR5		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3611.	7-73A
A2A6A13A1 FL1 thru A2A6A13A1 FL5		FILTER, RFI: 1 uF min, capacitance, 50 Vdc working; 0.858 in. long, 0.203 in dia; mfr 33095, part no. 54-786-004-105m, 50097, C27004-001.	7-73A
A2A6A13A1		BRACKET, FILTER: Brass, 2.70 in. long, 1.0 in. w, 0.42 in. thk; mfr 50097 part no. B04053-001.	7-73A
A2A6A13A1 MP2 and A2A6A13A1 MP3		STRAP, GROUND: Brass, 0.44 in. long, 0.12 in. w, mfr 50097, part no. B04059-001.	7-73A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A13A1P1		CONNECTOR, PLUG, ELECTRICAL: 2.729 in. long, 0.494 in. w; Mfr 25330, part no. GCMM-2WA4PD-7, 50097, dwg C21080-003.	7-73A
A2A6A13A1 P1A1 thru A2A6A13A1 P1A4		CONNECTOR: Item 25.	7-73A
A2A6A13A1W1		ASSEMBLY, COAXIAL: 2.62 in. long; Mfr 50097 dwg B04070-001.	7-73A
A2A6A13A1W2		ASSEMBLY, COAXIAL: 4.38 in. long; Mfr 50097 dwg B04070-008.	7-73A
A2A6A13A1W3		ASSEMBLY, COAXIAL: 3.62 in. long; Mfr 50097 dwg B04070-005.	7-73A
A2A6A13A1W4		ASSEMBLY, COAXIAL: 3.12 in. long; Mfr 50097 dwg B04070-003.	7-73A
A2A6A14		CIRCUIT CARD ASSEMBLY, FILTER 10 MHz/1 MHz; 5.75 in. long, 3.0 in. w; Mfr 50097, part no. B04037-001.	7-74A
A2A6A14C1 and A2A6A14C2		CAPACITOR: Item 19.	7-74A
A2A6A14C3		CAPACITOR, FIXED, MICA: 200 pF ±2%, 500 Vdc working; MIL type CMR04F201GPDM.	7-74A
A2A6A14C4		CAPACITOR: Item 19.	7-74A
A2A6A14C5		CAPACITOR, FIXED, MICA: 330 pF ±2%, 100 Vdc working: MIL type CMR04F331GPAM.	7-74A
A2A6A14C6		CAPACITOR, FIXED, MICA: 200 pF ±2%, 500 Vdc working; MIL type CMR04F201GPDM.	7-74A
A2A6A14C7 thru A2A6A14C9		CAPACITOR: Item 19.	7-74A
A2A6A14C10 and A2A6A14C11		CAPACITOR: Item 15.	7-74A
A2A6A14C12		CAPACITOR, FIXED, MICA: 180 pF ±2%, 500 Vdc working; MIL type CMR04F181GPDM.	7-74A
A2A6A14C13		CAPACITOR: Item 15.	7-74A
A2A6A14C14		CAPACITOR, FIXED, MICA: 300 pF ±2%, 300 Vdc working; MIL type CMR04F301GPCM.	7-74A
A2A6A14C15		CAPACITOR, FIXED, MICA: 180 pF ±2%, 500 Vdc working; MIL type CMR04F181GPDM.	7-74A
A2A6A14C16 thru A2A6A14C20		CAPACITOR: Item 15.	7-74A
A2A6A14C21		CAPACITOR, FIXED, MICA: 56 pF ±2%, 500 Vdc working; MIL type CMR04E560GPDM.	7-74A
A2A6A14C22		CAPACITOR: Item 15.	7-74A
A2A6A14C23		CAPACITOR, FIXED, MICA: 91 pF ±2%, 500 Vdc working; MIL type CMR04F910GPDM.	7-74A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14C24		CAPACITOR, FIXED, MICA: 56 pF ±2%, 500 Vdc working; MIL type CMR04E560GPDM.	7-74A
A2A6A14C25 thru A2A6A14C27		CAPACITOR: Item 15.	7-74A
A2A6A14C28		CAPACITOR: Item 11.	7-74A
A2A6A14C29		CAPACITOR: Item 19.	7-74A
A2A6A14L1		COIL, RF: 22 uH; MIL type MS75084-16.	7-74A
A2A6A14L2		COIL, RF: 8.2 uH; MIL type MS75084-11.	7-74A
A2A6A14L3		COIL, RF: 22 uH; MIL type MS75084-16.	7-74A
A2A6A14L4		COIL, RF: 8.2 uH; MIL type MS75084-11.	7-74A
A2A6A14L5		COIL, RF: 22 uH; MIL type MS75084-16.	7-74A
A2A6A14L6		COIL, RF: 1 uH; MIL type MS75083-13.	7-74A
A2A6A14L7		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-74A
A2A6A14L8		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74A
A2A6A14L9		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-74A
A2A6A14L10		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74A
A2A6A14L11		COIL, RF: 2.7 uH; MIL type MS75084-5.	7-74A
A2A6A14L12		COIL, RF: 1 uH; MIL type MS75083-13.	7-74A
A2A6A14L13		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-74A
A2A6A14L14		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74A
A2A6A14L15		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-74A
A2A6A14L16		COIL, RF: 1.8 uH; MIL type MS75084-3.	7-74A
A2A6A14L17		COIL, RF: 2.2 uH; MIL type MS75084-4.	7-74A
A2A6A14L18		COIL, RF: 1 uH; MIL type MS75083-13.	7-74A
A2A6A14L19		COIL, RF: 27 uH; MIL type MS75089-4.	7-74A
A2A6A14MP1 and A2A6A14MP2		EJECTOR, CIRCUIT CARD: Mfr 13103, part no. 5005-8N, 50097, dwg C25046-001.	7-74A
A2A6A14MP3 thru A2A6A14MP5		PAD, TRANSISTOR MOUNTING: Mfr 13103, part no. 7717-114DAP; 50097, dwg C48023-001.	7-74A
A2A6A14P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.088 in. long, 0.754 in. w, 0.494 in. thk; mfr 25330, part no. GBMM-9W4PD-7, 50097, dwg C21080-002. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2).	7-74A
A2A6A14P1A1 thru A2A6A14P1A4		CONNECTOR, PLUG, ELECTRICAL: Item 25.	7-74A
A2A6A14Q1		TRANSISTOR: Item 65.	7-74A
A2A6A14Q2 and A2A6A14Q3		TRANSISTOR: Item 64.	7-74A
A2A6A14Q4		TRANSISTOR: Item 65.	7-74A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14Q5 and A2A6A14Q6		TRANSISTOR: Item 64.	7-74A
A2A6A14Q7		TRANSISTOR: Item 65.	7-74A
A2A6A14Q8 and A2A6A14Q9		TRANSISTOR: Item 64.	7-74A
A2A6A14R1		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5% 1/8 w; MIL type RCR05G821JS.	7-74A
A2A6A14R2		RESISTOR: Item 30.	7-74A
A2A6A14R3		RESISTOR: Item 32.	7-74A
A2A6A14R4		RESISTOR, FIXED, COMPOSITION: 240 ohms ±5% 1/8 w; MIL type RCR05G241JS.	7-74A
A2A6A14R5		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-74A
A2A6A14R6		RESISTOR: Item 32.	7-74A
A2A6A14R7		RESISTOR, VARIABLE, WIRE-WOUND: 1000 ohms 3/4 w; MIL type M39015-3-007XM.	7-74A
A2A6A14R8		RESISTOR: Item 29.	7-74A
A2A6A14R9 and A2A6A14R10		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/8 w; MIL type RCR05G471JS.	7-74A
A2A6A14R11		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/8 w; MIL type RCR05G821JS.	7-74A
A2A6A14R12		RESISTOR: Item 30.	7-74A
A2A6A14R13		RESISTOR: Item 32.	7-74A
A2A6A14R14		RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/8 w; MIL type RCR05G121JS.	7-74A
A2A6A14R15		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-74A
A2A6A14R16		RESISTOR: Item 32.	7-74A
A2A6A14R17		RESISTOR, VARIABLE WIRE-WOUND: 1000 ohms 3/4 w; MIL type M39015-3-007XM.	7-74A
A2A6A14R18		RESISTOR: Item 29.	7-74A
A2A6A14R19 and A2A6A14R20		RESISTOR, FIXED, COMPOSITION: 240 ohms ±5%, 1/8 w; MIL type RCR05G241JS.	7-74A
A2A6A14R21		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/8 w; MIL type RCR05G821JS.	7-74A
A2A6A14R22		RESISTOR: Item 30.	7-74A
A2A6A14R23		RESISTOR: Item 32.	7-74A
A2A6A14R24		RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/8 w; MIL type RCR05G221JS.	7-74A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A14R25		RESISTOR, FIXED, COMPOSITION: 51 ohms ±5%, 1/8 w; MIL type RCR05G510JS.	7-74A
A2A6A14R26		RESISTOR: Item 32.	7-74A
A2A6A14R27		RESISTOR, VARIABLE, WIRE-WOUND: 1000 ohms 3/4 w; MIL type M39015-3-007XM.	7-74A
A2A6A14R28		RESISTOR: Item 29.	7-74A
A2A6A14R29 and A2A6A14R30		RESISTOR, FIXED, COMPOSITION: 430 ohms ±5%, 1/8 w; MIL type RCR05G431JS.	7-74A
A2A6A14R31		RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/8 w; MIL type RCR05G221JS.	7-74A
A2A6A14TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-74A
A2A6A14TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-74A
A2A6A14TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-74A
A2A6A14TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-02.	7-74A
A2A6A14TP5		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-07.	7-74A
A2A6A14TP6		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-08.	7-74A
A2A6A14TP7		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-10.	7-74A
A2A6A14W1 thru A2A6A14W6		ASSEMBLY, COAXIAL; 50097/B04070-003, 50097/B04070-004, 50097/B04070-008, 50097/B04075-003, 50097/B04075-001 respectively.	7-74A
A2A6A15		CIRCUIT CARD ASSEMBLY, POWER SUPPLY: 5.75 in. long, 3.0 in. w; mfr 50097, part no. B04040-001.	7-75A
A2A6A15C1		CAPACITOR, FIXED, MICA: 470 pF ±2%, 500 Vdc working; MIL type CMR06F471GPDM.	7-75A
A2A6A15C2		CAPACITOR, FIXED, ELECTROLYTIC: 47 uF ±20%, 35 Vdc working; MIL type M39003-01-2313.	7-75A
A2A6A15C3		CAPACITOR: Item 19.	7-75A
A2A6A15C4		CAPACITOR: Item 16.	7-75A
A2A6A15C5		CAPACITOR, FIXED, CERAMIC: 2200 pF ±20%, 200 Vdc working; MIL type M39014-02-1207.	7-75A
A2A6A15C6		CAPACITOR, FIXED, CERAMIC: 0.022 uF ±10%, 100 Vdc working; MIL type M39014-02-1222.	7-75A
A2A6A15C8		Not used.	

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15C9 and A2A6A15C10		CAPACITOR, FIXED, ELECTROLYTIC: 100 uF ±20% 20 Vdc working; MIL type M39003-01-2302.	7-75A
A2A6A15C11		CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014-01-1237.	7-75A
A2A6A15C12		CAPACITOR: Item 19.	7-75A
A2A6A15C13		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10%, 50 Vdc working; MIL type M39014/01-1455.	7-75A
A2A6A15C14 thru A2A6A15C16		CAPACITOR: Item 19.	7-75A
A2A6A15C17		CAPACITOR, FIXED, CERAMIC: 0.01 uF ±10% 20 Vdc working; MIL type M39014/01-1455.	7-75A
A2A6A15CR1		DIODE: MIL type JAN1N751A.	7-75A
A2A6A15CR2		SEMICONDUCTOR DEVICE, DIODE: Mfr 04713, part no. 1N5828, 50097, dwg C48024-001. (Attaching Parts) AM(1) FA(1)	7-75A
A2A6A15E1		TERMINAL, STUD: Solder only.	7-75A
A2A6A15E2		TERMINAL LUG: 0.80 in. long, 0.38 in. w; mfr 50097, dwg no. C21114-001.	7-75A
A2A6A15E3		Not used.	
A2A6A15E4 thru A2A6A15E6		TERMINAL STUD: Solder only.	7-75A
A2A6A15L1		INDUCTOR, POWER: 1.37 in. dia, 0.75 in. long; mfr 93292, part no. 500-02564, dwg C18006-001. (Attaching Parts) L(1) AB(1)	7-75A
A2A6A15L2		INDUCTOR, POWER: 1.00 in. dia, 0.56 in. long; mfr 81815, part no. S017, 50097, dwg C18005-001. (Attaching Parts) AB(1) L(1)	7-75A
A2A6A15MP1		BRACKET, RIGHT ANGLE: 0.75 in x 0.560 in. 0.5 in. w, 0.062 in. thk; aluminum alloy; mfr 50097, part no. B04055-001. (Attaching Parts) FB(2)	7-75A
A2A6A15MP2		COVER: 1.562 in. long, 1.359 in. w; mfr 50097, part no. B04052-002.	7-75A
A2A6A15MP3 and A2A6A15MP4		PAD, TRANSISTOR MOUNTING: Mfr 13103, part no. 7717-114-N, 50097, dwg C48023-001.	7-75A
A2A6A15Q1 and A2A6A15Q2		TRANSISTOR: Item 65.	7-75A
A2A6A15Q3		TRANSISTOR: Mfr 04713, part no. 2N5428, 50097, dwg C48025-001. (Attaching Parts) DY(2) K(2) L(2) M(2)	7-75A
A2A6A15R1		RESISTOR, FIXED, COMPOSITION: 20K ohms ±5%, 1/4 w; MIL type RCR07G203JS.	7-75A
A2A6A15R2		RESISTOR, FIXED, COMPOSITION: 82K ohms ±5%, 1/4 w; MIL type RCR07G823JS.	7-75A
A2A6A15R3		RESISTOR, FIXED, COMPOSITION: 20K ohms ±5%, 1/4 w; MIL type RCR07G203JS.	7-75A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15R4		RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/4w; MIL type RCR07G393JS.	7-75A
A2A6A15R5		RESISTOR, FIXED, COMPOSITION: 4300 ohms ±5%, 1/4w; MIL type RCR07G432JS.	7-75A
A2A6A15R6		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4w; MIL type RCR07G273JS.	7-75A
A2A6A15R7		RESISTOR: Item 39.	7-75A
A2A6A15R8		RESISTOR: Item 36.	7-75A
A2A6A15R9		RESISTOR, FIXED, WIRE-WOUND: 0.15 ohm ±1%, 2w; MIL type RWR80SR150FM.	7-75A
A2A6A15R10		RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4w; MIL type RCR07G680JS.	7-75A
A2A6A15R11		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4w; MIL type RCR07G201JS.	7-75A
A2A6A15R12		RESISTOR: Item 36.	7-75A
A2A6A15R13		RESISTOR: Item 38.	7-75A
A2A6A15R14		RESISTOR, FIXED, FILM: 4700 ohms ±2%, 1/4w; MIL type RLR07C701GR.	7-75A
A2A6A15R15A		RESISTOR, FIXED, FILM: 330 ohms ±2%, 1/4w; MIL type RLR07C331GR.	7-75A
A2A6A15R15B		RESISTOR, FIXED, FILM: 390 ohms ±2%, 1/4w; MIL type RLR07C391GR.	7-75A
A2A6A15R15C		RESISTOR, FIXED, FILM: 470 ohms ±2%, 1/4w; MIL type RLR07C471GR.	7-75A
A2A6A15R15D		RESISTOR, FIXED, FILM: 560 ohms ±2%, 1/4w; MIL type RLR07C561GR.	7-75A
A2A6A15R15E		RESISTOR, FIXED, FILM: 680 ohms ±2%, 1/4w; MIL type RLR07C681GR.	7-75A
A2A6A15R15F		RESISTOR, FIXED, FILM: 820 ohms ±2%, 1/4w; MIL type RLR07C821GR.	7-75A
A2A6A15R15G		RESISTOR, FIXED, FILM: Item 58.	7-75A
A2A6A15R15H		RESISTOR, FIXED, FILM: 1.2K ohms ±2%, 1/4w; MIL type RLR07C1201GR.	7-75A
A2A6A15R15J		RESISTOR, FIXED, FILM: 1500 ohms ±2%, 1/4w; MIL type RLR07C152GR.	7-75A
A2A6A15R15K		RESISTOR, FIXED, FILM: 1800 ohms ±2%, 1/4w; MIL type RLR07C182GR.	7-75A
A2A6A15R15L		RESISTOR, FIXED, FILM: 300 ohms ±2%, 1/4w; MIL type RLR07C301GR.	7-75A
A2A6A15R16		RESISTOR, FIXED, FILM: 3000 ohms ±2%, 1/4w; MIL type RLR07C3001GR.	7-75A
A2A6A15TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-75A
A2A6A15TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-75A
A2A6A15TP3		Not used.	

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A15TP4		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: MIL type M39024-18-02.	7-75A
A2A6A15U1		INTEGRATED CIRCUIT: MIL type M38510-10304BGC.	7-75A
A2A6A15U2		INTEGRATED CIRCUIT: Mfr 27014, part no. LM105H883B, 50097, dwg C31356-001.	7-75A
A2A6A16		CIRCUIT CARD ASSEMBLY: Frequency Generator, 5.750 in. long, 3.0 in. w; mfr 50097, part no. B04015-001.	7-69
A2A6A16C1 and A2A6A16C2		Not used.	
A2A6A16C3 and A2A6A16C4		CAPACITOR: Item 11.	7-69
A2A6A16C5 thru A2A6A16C12		CAPACITOR: Item 15.	7-69
A2A6A16C13 and A2A6A16C14		CAPACITOR: Item 19.	7-69
A2A6A16C15		CAPACITOR: Item 15.	7-69
A2A6A16C16 thru A2A6A16C18		CAPACITOR: Item 19.	7-69
A2A6A16C19		Not used.	
A2A6A16C20		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uF ±10%, 20 Vdc working; MIL type M39003-01-2283.	7-69
A2A6A16C21		CAPACITOR: Item 11.	7-69
A2A6A16C22		CAPACITOR, FIXED, CERAMIC: 0.018 uF ±10% 50 Vdc working; MIL type M39014-01-1460.	7-69
A2A6A16C23 and A2A6A16C24		CAPACITOR: Item 19.	7-69
A2A6A16C25		CAPACITOR: Item 11.	7-69
A2A6A16C26		CAPACITOR, FIXED, ELECTROLYTIC: 56 uF ±10%, 6 Vdc working; MIL type M39003-01-2246.	7-69
A2A6A16C27		Not used.	

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16C28 and A2A6A16C29		CAPACITOR: Item 15.	7-69
A2A6A16C30		CAPACITOR, FIXED, MICA: 20 pF ±5%, 500 Vdc working; MIL type CMR04E200JPDM.	7-69
A2A6A16C31		CAPACITOR: Item 15.	7-69
A2A6A16C32		CAPACITOR: Item 19.	7-69
A2A6A16C33 thru A2A6A16C37		CAPACITOR: Item 15.	7-69
A2A6A16CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N827.	7-69
A2A6A16CR2 and A2A6A16CR3		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N914.	7-69
A2A6A16CR4		SEMICONDUCTOR DEVICE, DIODE: Item 61.	7-69
A2A6A16CR5		SEMICONDUCTOR DEVICE, DIODE: Mfr 18518, part no. HA142, 50097, dwg C48022-001.	7-69
A2A6A16L1 and A2A6A16L2		Not used.	
A2A6A16L3		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-69
A2A6A16L4		Not used.	
A2A6A16L5		INDUCTOR ASSEMBLY: 4.1 uH; mfr 50097, part no. C18004-001.	7-69
A2A6A16L6		COIL, RF: 3.9 uH; MIL type MS75084-7.	7-69
A2A6A16L7		COIL, RF: 100 uH; MIL type MS75085-7.	7-69
A2A6A16MP1 and A2A6A16MP2		EJECTOR, CARD: Mfr 13103, part no. 5005-08N, 50097, dwg C25046-001.	7-69
A2A6A16MP3 and A2A6A16MP4		FERRULE, GROUNDING: 0.45 in. long, 0.80 in. dia; mfr 08795, part no. D-144-34, 06845, dwg 4017497-0703.	7-69
A2A6A16P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.729 in. long, 0.754 in. w, 0.494 in. thk; mfr 25330, part no. GCMM-21WA4PD7, 50097, dwg C21080-003. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-69
A2A6A16P1A1 thru A2A6A16P1A4		CONNECTOR: Item 25.	7-69
A2A6A16Q1 thru A2A6A16Q5		TRANSISTOR: Item 64.	7-69

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A16U11		INTEGRATED CIRCUIT: Mfr 50097, part no. C31352-001.	7-69
A2A6A16U12		INTEGRATED CIRCUIT: MIL type M38510-00105BCB.	7-69
A2A6A16U13		INTEGRATED CIRCUIT: MIL type M38510-00205BCB.	7-69
A2A6A16U14		INTEGRATED CIRCUIT: MIL type M38510-01302BCB.	7-69
A2A6A16U15 and A2A6A16U16		INTEGRATED CIRCUIT: Mfr 50097, part no. C31355-001.	7-69
A2A6A16U17		INTEGRATED CIRCUIT: MIL type M38510-01302BCB.	7-69
A2A6A16W1		ASSEMBLY, COAXIAL: 3.62 in. long; mfr 50097, part no. B04070-007.	7-69
A2A6A16W2		ASSEMBLY, COAXIAL: 5.12 in. long; mfr 50097, part no. B04070-009.	7-69
A2A6A16W3		ASSEMBLY, COAXIAL: 2.188 in long; mfr 50097, part no. B04071-002.	7-69
A2A6A16W4		ASSEMBLY, COAXIAL: 2.188 in. long; mfr 50097, part no. B04071-001.	7-69
A2A6A16W5		ASSEMBLY, COAXIAL: 3.00 in. long; mfr 50097, part no. B04075-001.	7-69
A2A6A17		100 kHz CIRCUIT CARD ASSEMBLY: 5.75 in. long 3.0 in. w; mfr 50097, part no. B04018-001.	7-70A
A2A6A17C1		CAPACITOR: Item 19.	7-70A
A2A6A17C2		CAPACITOR: Item 18.	7-70A
A2A6A17C3		CAPACITOR, FIXED, ELECTROLYTIC: 10 uF ±10%, 10 Vdc working; MIL type M39006-09-8318.	7-70A
A2A6A17C4		Not used.	
A2A6A17C5		CAPACITOR: Item 19.	7-70A
A2A6A17C6		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±10%, 50 Vdc working; MIL type M39003-01-2269.	7-70A
A2A6A17C7 thru A2A6A17C12		Not used.	
A2A6A17C13 and A2A6A17C14		CAPACITOR: Item 15.	7-70A
A2A6A17C15		CAPACITOR, FIXED, MICA: 82 pF ±2%, 500 Vdc working; MIL type CMR04E820GPDM.	7-70A
A2A6A17C16		CAPACITOR: Item 15.	7-70A
A2A6A17C17		CAPACITOR, FIXED, CERAMIC: 120 pF ±1%, 500 Vdc working; MIL type CMR04F121FDPM.	7-70A
A2A6A17C18		CAPACITOR, FIXED, MICA: 82 pF ±2%, 500 Vdc working; MIL type CMR04E820GPDM.	7-70A
A2A6A17C19 thru A2A6A17C21		CAPACITOR: Item 15.	7-70A
A2A6A17C22		Not used.	
A2A6A17C23		CAPACITOR: Item 11.	7-70A
A2A6A17C24		Not used.	
A2A6A17C25 thru A2A6A17C27		CAPACITOR: Item 15.	7-70A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17C28		CAPACITOR: Item 19.	7-70A
A2A6A17C29 thru A2A6A17C32		CAPACITOR: Item 15.	7-70A
A2A6A17C33		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±20%, 50 Vdc working; MIL type M39003-01-2357.	7-70A
A2A6A17C34		CAPACITOR: Item 19.	
A2A6A17C35		CAPACITOR, FIXED, CERAMIC: 2,200 pF ±10%, 200 Vdc working; MIL type M39014/01-1230.	7-70A
A2A6A17C36		CAPACITOR, FIXED, ELECTROLYTIC: 1 uF ±20%, 50 Vdc working; MIL type M39003-01-2357.	7-70A
A2A6A17CR1		SEMICONDUCTOR DEVICE, DIODE: Mfr 50097 dwg C48036-001.	7-70A
A2A6A17L1 and A2A6A17L2		Not used.	
A2A6A17L3		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-70A
A2A6A17L4		COIL, RF: 0.82 uH; MIL type MS75083-12.	7-70A
A2A6A17L5		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-70A
A2A6A17L6		COIL, RF: 0.82 uH; MIL type MS75083-12.	7-70A
A2A6A17L7		COIL, RF: 0.68 uH; MIL type MS75083-11.	7-70A
A2A6A17L8		COIL, RF: 1 uH; MIL type MS75083-13.	7-70A
A2A6A17L9		Not used.	
A2A6A17L10		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-70A
A2A6A17MP1 and A2A6A17MP2		EJECTOR, CARD: Mfr 13103, part no. 5005-08N, 50097, dwg C25046-001.	7-70A
A2A6A17P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.088 in. long, 0.754 in. w, 0.494 in. thk; mfr 71785, part no. 6BMM-17W2PD-7, 50097, C21080-001. (Attaching Parts) AG(2) AL(2) CQ(2) DS(2)	7-70A
A2A6A17P1A1 and A2A6A17P1A2		PLUG, CONNECTOR, 0.938 in. long; mfr 58161, part no. 15-0020-0671D, 50097, dwg C21092-001.	7-70A
A2A6A17Q1 thru A2A6A17Q5		TRANSISTOR: Item 64.	7-70A
A2A6A17Q6 and A2A6A17Q7		TRANSISTOR: MIL type JAN2N2369A.	7-70A
A2A6A17Q8		TRANSISTOR: MIL type JAN2N2907A.	7-70A
A2A6A17R1		RESISTOR: Item 36.	7-70A
A2A6A17R2		RESISTOR: Item 38.	7-70A
A2A6A17R3		RESISTOR: Item 35.	7-70A
A2A6A17R4		RESISTOR, FIXED, COMPOSITION: Item 52.	7-70A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17R5		RESISTOR: Item 35.	7-70A
A2A6A17R6		RESISTOR: Item 49.	7-70A
A2A6A17R7		RESISTOR: Item 35.	7-70A
A2A6A17R8		RESISTOR, FIXED, COMPOSITION: 2.2K ohms ±5%, 1/4w; MIL type RCR07G223JS.	7-70A
A2A6A17R9		RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/4w; MIL type RCR07G201JS.	7-70A
A2A6A17R10		RESISTOR, VARIABLE, WIRE-WOUND: 1000 ohms 3/4 w; MIL type M39015-3-007XM.	7-70A
A2A6A17R11		RESISTOR: Item 45.	7-70A
A2A6A17R12 and A2A6A17R13		RESISTOR, FIXED, COMPOSITION: 3000 ohms ±5%, 1/4 w; MIL type RCR07G301JS.	7-70A
A2A6A17R14		RESISTOR: Item 37.	7-70A
A2A6A17R15		RESISTOR: Item 38.	7-70A
A2A6A17R16		RESISTOR: Item 39.	7-70A
A2A6A17R17		RESISTOR: Item 38.	7-70A
A2A6A17R18 thru A2A6A17R21		Not used.	
A2A6A17R22 thru A2A6A17R27		RESISTOR: Item 38.	7-70A
A2A6A17R28 and A2A6A17R29		RESISTOR, FIXED, COMPOSITION: Item 49.	7-70A
A2A6A17R30		RESISTOR: Item 38.	7-70A
A2A6A17R31		RESISTOR: Item 47.	7-70A
A2A6A17R32		RESISTOR: Item 36.	7-70A
A2A6A17R33		RESISTOR, FIXED, COMPOSITION: 430 ohms ±5%, 1/4w; MIL type RCR07G431JS.	7-70A
A2A6A17R34		RESISTOR: Item 36.	7-70A
A2A6A17R35		RESISTOR, FIXED, COMPOSITION: Item 52.	7-70A
A2A6A17R36		RESISTOR: Item 45.	7-70A
A2A6A17TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-70A
A2A6A17TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-70A
A2A6A17TP3		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 23.	7-70A
A2A6A17U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC4344BCBJS, 50097, dwg C31531-001.	7-70A

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A17U2 and A2A6A17U3		Not used.	
A2A6A17U4		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12513BEBJS, 50097, dwg C31358-001.	7-70A
A2A6A17U5		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514BEBJS, 50097, dwg C31354-001.	7-70A
A2A6A17U6 thru A2A6A17U8		INTEGRATED CIRCUIT: Mfr 50097, part no. C31355-001.	7-70A
A2A6A17W1		ASSEMBLY, COAXIAL: 3.88 in. long; mfr 50097, part no. B04070-006.	7-70A
A2A6A17W2		ASSEMBLY, COAXIAL: 5.12 in. long; mfr 50097, part no. B04070-011.	7-70A
A2A6A17A1		VCO ASSEMBLY: Mfr 50097, part no. B04021-001.	7-70A
A2A6A18		10 kHz/1 kHz/100 Hz SYNTHESIZER NO. 1 CIRCUIT CARD ASSEMBLY: mfr 50097, part no. B04024-001.	7-71
A2A6A18C1		CAPACITOR: Item 11.	7-71
A2A6A18C2 thru A2A6A18C12		CAPACITOR: ITEM 15.	7-71
A2A6A18C13		CAPACITOR: Item 19.	7-71
A2A6A18L1		COIL, RF: 0.33 uH; MIL type MS75087-7.	7-71
A2A6A18MP1 and A2A6A18MP2		EJECTOR, CARD: Mfr 13103, part no. 5005-08N, 50097, dwg C25046-001.	7-71
A2A6A18P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 2.088 in. long, 0.754 in. w. 0.494 in. thk; mfr 25330, part no. GMM-17W2PD-7; 50097, dwg C21080-001. (Attaching parts) AG(2) AL(2) CQ(2) DS(2)	7-71
A2A6A18P1A1 and A2A6A18P1A2		PLUG, CONNECTOR; 0.938 in. long; mfr 58161, part no. 15-0020-671D, 50097, dwg C21092-001.	7-71
A2A6A18Q1 thru A2A6A18Q8		TRANSISTOR: Item 64.	7-71
A2A6A18R1		RESISTOR: Item 39.	7-71
A2A6A18R2 and A2A6A18R3		RESISTOR: Item 56A.	7-71
A2A6A18R4		RESISTOR: Item 39.	7-71

Table 7-2A. Radio Receiver R-1051G/URR, Parts List (Continued)

TRANSLATOR/SYNTHESIZER ASSEMBLY A2A6 (ALTERNATE)

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A6A18R5 and A2A6A18R6		RESISTOR: Item 56A	7-71
A2A6A18R7		RESISTOR: Item 39.	7-71
A2A6A18R8 and A2A6A18R9		RESISTOR: Item 56A.	7-71
A2A6A18R10		RESISTOR: Item 39.	7-71
A2A6A18R11 and A2A6A18R12		RESISTOR: Item 56A.	7-71
A2A6A18R13 thru A2A6A18R26		RESISTOR: Item 38.	7-71
A2A6A18TP1		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 21.	7-71
A2A6A18TP2		CONNECTOR, ELECTRICAL, TEST-POINT TYPE: Item 22.	7-71
A2A6A18U1		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12513BEBJS, 50097, dwg C31358-001.	7-71
A2A6A18U2		INTEGRATED CIRCUIT: Mfr 04713, part no. MC12514BEBJS, 50097, dwg C31354-001.	7-71
A2A6A18U3 thru A2A6A18U7		INTEGRATED CIRCUIT: Mfr 50097, part no. C31355-001.	7-71
A2A6A18U8 thru A2A6A18U10		INTEGRATED CIRCUIT PROGRAMMED: 50097, dwg M31310-003.	7-71
A2A6A18W1		ASSEMBLY, COAXIAL: 4.88 in. long; mfr 50097, part no. B04070-010.	7-71
A2A6A18W2		ASSEMBLY, COAXIAL: 4.38 in. long; mfr 50097, part no. B04070-008.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

CODE GENERATOR ASSEMBLY A2A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A7		CODE GENERATOR ASSEMBLY: 5.14 in. long, 3.4 in. w, 1.864 in. h; mfr 98738, part no. 01A226054-22-11. (Attaching Parts) AB(2) M(2)	7-4/ 7-76
A2A7A1		SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226501-21-11.	7-76
A2A7A2		SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w; 0.60 in. thk; mfr 98738, part no. 01A226500-21-11.	7-76
A2A7A3		SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226502-21-11.	7-76
A2A7A4		SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226503-21-11.	7-76
A2A7A5		SWITCH ASSEMBLY: 5.0 in. long, 2.74 in. w, 0.60 in. thk; mfr 98738, part no. 01A226504-21-11.	7-76
A2A7MP1 and A2A7MP2		SHAFT, SWITCH: 1.76 in. long, 0.249 in. dia, Cres; mfr 58189, part no. 666231-235. (Attaching Parts) DU(2)	7-76
A2A7MP3 and A2A7MP4		DISC, COUPLING: CRES, 0.750 in. dia, 0.284 in. thk; mfr 58189, part no. 666231-236. (Attaching Parts) EV(2)	7-76
A2A7MP5 and A2A7MP6		BEARING, FLANGED: 0.50 in. dia; mfr 58189, part no. 810000-563.	
A2A7MP7 and A2A7MP8		WASHER, SPRING TENSION: 0.495 in. OD, 0.254 in. ID, 0.010 in. thk. Spring steel Cadmium plated; mfr 58189, part no. 688017-026.	7-76
A2A7MP9		PLATE, SWITCH MOUNTING: 5.14 in. long, 3.40 in. w, 0.09 in. thk; aluminum alloy sheet; mfr 58189, part no. 666273-014. (Attaching Parts) M(2) DC(5) K(5)	7-76
A2A7MP10		SCREW, CAPTIVE: 0.375 in. long, 0.094 in. dia; mfr 98738, part no. 03P226506-21-11.	7-76
A2A7MP11		CLAMP, CABLE: 0.240 in. ID, 0.375 in. w; mfr 02198, part no. HP5N, 06845, dwg 4032230-0704.	7-76
A2A7MP12		SCREW, PANHEAD: MIL type MS51957-37. (Attaching Parts) K(1) DC(1) M(1)	7-76
A2A7MP13 thru A2A7MP16		SCREW, PANHEAD: MIL type MS51957-36. (Attaching Parts) K(1) DC(1) M(1)	7-76
A2A7MP17 thru A2A7MP21		SPACER, TUBULAR: Aluminum alloy, 0.165 in. OD, 0.144 in. ID, 0.125 in. long; mfr 98738, part no. 43P226507-23-11.	7-76

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

CODE GENERATOR ASSEMBLY A2A7

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A7MP22 thru A2A7MP40		SPACER, TUBULAR: Aluminum alloy; 0.250 in. OD, 0.148 in. ID, 0.186 in. long; mfr 98738, part no. 43P226507-21-11.	7-76
A2A7MP41		SPACER, TUBULAR, INSULATED: Nylon; 0.250 in. OD, 0.152 in. ID, 0.186 in. long; mfr 98738, part no. 43P226508-21-11.	7-76
A2A7MP42 thru A2A7MP46		SPACER, INSULATED: Laminated glass cloth; 1.750 in. OD, 0.255 in. ID, 0.031 in. thk; mfr 58189, part no. 666273-067.	7-76
A2A7MP47 and A2A7MP48		WASHER, FLAT: CRES; 0.562 in. OD, 0.257 in. ID, 0.012 in. thk; mfr 58189, part no. 688001-028.	7-76
A2A7P1		CONNECTOR, PLUG, ELECTRICAL: MIL type M24308-3-3.	7-76
A2A7S1 and A2A7S2		Not used.	
A2A7S3 and A2A7S4		See Switch Assemblies A2A7A1 thru A2A7A5.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER POWER SUPPLY A2A8

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A8		POWER SUPPLY, RECEIVER: 4.06 in. long, 3.00 in. w, 0.62 in. thk; mfr 98738, part no. 01A226170-22-11. (Attaching Parts) See A2MP95.	7-4 and 7-77
A2A8C1 and A2A8C2		Not used.	
A2A8C3		CAPACITOR, FIXED, ELECTROLYTIC: 43 uF ±10%, 100 Vdc working; MIL type M39006-09-8390.	7-77
A2A8C4		CAPACITOR, FIXED, ELECTROLYTIC: 33 uF ±10%, 75 Vdc working; MIL type M39006-09-8364.	7-77
A2A8C5		Not used.	
A2A8C6		CAPACITOR, FIXED, ELECTROLYTIC: 15 uF ±20%, 10 Vdc working; MIL type M39003-01-2378.	7-77
A2A8C7		CAPACITOR, FIXED, ELECTROLYTIC: 120 uF +75% --15%, 40 Vdc working; 0.858 in. long, 0.375 in. dia; mfr 26769, part no. TO314-120UFP75M15PCT-40VDCW, 06845, dwg 4031980-0701.	7-77
A2A8CR1 thru A2A8CR4		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N649-1.	7-77
A2A8CR5 thru A2A8CR8		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5550.	7-77
A2A8CR9 thru A2A8CR12		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N645.	7-77
A2A8CR13 and A2A8CR14		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3024B.	7-77
A2A8CR15		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N5711.	7-77
A2A8CR16		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N963B.	7-77
A2A8CR17		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N750A.	7-77
A2A8MP1		HEAT SINK: 0.500 in. dia, 0.376 in. long; mfr 18915, part no. 3AL697-2R, 06845, dwg 4032573-0701.	7-77
A2A8MP2 thru A2A8MP5		MOUNTING PAD, TRANSISTOR: 0.34 in. dia, 0.09 in. thk; mfr 24227, part no. 7717-109, 98738, dwg 14S132171-39A-9.	7-77
A2A8Q1		TRANSISTOR: MIL type JAN2N3634.	7-77
A2A8Q2 thru A2A8Q4		TRANSISTOR: MIL type JAN2N2219A.	
A2A8R1 and A2A8R2		RESISTOR, FIXED, COMPOSITION: 91 ohms ±5%, 1 w; MIL type RCR32G910JS.	7-77

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RECEIVER POWER SUPPLY A2A8

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A8R3		RESISTOR: Item 37.	7-77
A2A8R4		RESISTOR, FIXED, COMPOSITION: 1K ohms ±5%, 1/2 w; MIL type RCR20G102JS.	7-77
A2A8R5		RESISTOR, FIXED, COMPOSITION: 47 ohms ±5%, 1/2 w; MIL type RCR20G470JS.	7-77
A2A8R6		RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/2 w; MIL type RCR20G152JS.	7-77
A2A8R7		RESISTOR: Item 55.	7-77
A2A8R8		RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4 w; MIL type RCR07G821JS.	7-77
A2A8R9		RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/4 w; MIL type RCR07G681JS.	7-77
A2A8R10 and A2A8R11		RESISTOR: Item 55.	7-77
A2A8R12		RESISTOR: Item 38.	7-77
A2A8R13		RESISTOR, FIXED, COMPOSITION: 1,500 ohms ±5%, 1/4 w; MIL type RCR07G152JS.	7-77
A2A8R14		RESISTOR, VARIABLE, WIRE-WOUND: 500 ohms ±5%, 3/4 w; MIL type M39015-1-003PM.	7-77
A2A8R15		RESISTOR: Item 48.	7-77.
A2A8R16		RESISTOR, VARIABLE, NON WIRE-WOUND: 500 ohms ±3%, 1/2 w; MIL type RJR24CX501M.	7-77

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

ANTENNA OVERLOAD ASSEMBLY A2A9

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A9		ANTENNA CUT-OUT: 2.05 in. long, 1.86 in. w, mfr 98738, part no. 01A226171-21-11. (Attaching Parts) See A2MP112.	7-4 and 7-78
A2A9C1		CAPACITOR, FIXED, CERAMIC: 1000 pF ±20%, 1000 Vdc working; MIL type CK60AW102M.	7-78
A2A9C2		CAPACITOR, FIXED, CERAMIC: 0.250 in. long, 0.160 in. dia, 5.1 pF ±5%, 500 Vdc working; mfr 78488, part no. GA5-1PFPORM5PCT, 06845, dwg 4031973-0735.	7-78
A2A9C3		CAPACITOR, FIXED, CERAMIC: 0.260 in. long, 0.160 in. dia, 3 pF ±5%, 500 Vdc working; mfr 78488, part no. GA3-OPFPORM5PCT, 06845, dwg 4031973-0729.	7-78
A2A9C4		CAPACITOR, FIXED, ELECTROLYTIC: 4.7 uF ±20%, 50 Vdc working; MIL type M39003-01-2369.	7-78
A2A9CR1 and A2A9CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4148-1.	7-78
A2A9K1		RELAY, ELECTRICAL: DPDT, 2 amp, mfr 71482, part no. HFW1201K33, 06845, dwg 4032287-0701.	7-78
A2A9Q1 and A2A9Q2		TRANSISTOR: MIL type JAN2N1613.	7-78
A2A9R1		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/2 w; MIL type RCR20G273JS.	7-78
A2A9R2		RESISTOR, FIXED, COMPOSITION: 39K ohms ±5%, 1/2 w; MIL type RCR20G393JS.	7-78
A2A9R3		RESISTOR, FIXED, COMPOSITION: 56K ohms ±5%, 1/4 w; MIL type RCR07G563JS.	7-78
A2A9R4		RESISTOR, FIXED, COMPOSITION: Item 42.	7-78
A2A9R5		RESISTOR, FIXED, COMPOSITION: Item 54.	7-78
A2A9R6		RESISTOR, FIXED, COMPOSITION: 27K ohms ±5%, 1/4 w; MIL type RCR07G273JS.	7-78
A2A9R7		RESISTOR, FIXED, COMPOSITION: Item 42.	7-78
A2A9R8		RESISTOR, FIXED, COMPOSITION: 2700 ohms ±5%, 1/2 w; MIL type RCR20G272JS.	7-78
A2A9R9		RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/2 w; MIL type RCR20G221JS.	7-78
A2A9R10		RESISTOR, FIXED, COMPOSITION: 5,100 ohms ±5%, 2 w; MIL type RCR42G512JS.	7-78

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

20-30 MHZ FILTER ASSEMBLY A2A10

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A10		20-30 MHZ FILTER ASSEMBLY: 3.45 in. long, 1.10 in. w; mfr 98738, part no. 01A226172-21-11. (Attaching Parts) AU(2) AL(2) DT(2) AQ(2)	7-4 and 7-79
A2A10C1 and A2A10C2		CAPACITOR, FIXED, CERAMIC: Item 19.	7-79
A2A10C3A	1	CAPACITOR, FIXED, CERAMIC: 820 pF ±2%, 500 Vdc working; MIL type CMR06F821GPDM.	7-79
A2A10C3B	1	CAPACITOR, FIXED, CERAMIC: 910 pF ±2%, 500 Vdc working; MIL type CMR06F911GPDM.	7-79
A2A10C4		CAPACITOR, FIXED, CERAMIC: 390 pF ±1%, 500 Vdc working; MIL type CMR05F391FPDM.	7-79
A2A10C5 and A2A10C6		CAPACITOR, FIXED, CERAMIC: 27 pF ±2%, 500 Vdc working; MIL type CMR05E270GPDM.	7-79
A2A10C7		CAPACITOR, FIXED, CERAMIC: Item 19.	7-79
A2A10CR1 thru A2A10CR4		SEMICONDUCTOR DEVICE, DIODE: Item 60.	7-79
A2A10CR5		SEMICONDUCTOR DEVICE, DIODE: Item 61.	7-79
A2A10L1		COIL, RF: MIL type MS75089-7.	7-79
A2A10L2		COIL, RF, VARIABLE: 0.490 in. long, 0.422 in. dia, 21.500 MHz, 822 pF ±5%; mfr 93292, part no. 500-2397, 06845, dwg 4032440-0701.	
A2A10L3		COIL, RF, VARIABLE: 0.490 in. long, 0.422 in. dia, 31.100 MHz, 393 pF ±4%, mfr 93292, part no. 500-2431, 06845, dwg 4032440-0702.	7-79
A2A10L4		COIL, RF, VARIABLE: 0.490 in. long, 0.422 in. dia, 19.600 MHz, 28 pF ±4%, mfr 93292, part no. 500-2432, 06845, dwg 4032440-0703.	7-79
A2A10L5		COIL, RF, VARIABLE: 0.490 in. long, 0.422 in. dia, 29.000 MHz, 28 pF ±5%, mfr 93292, part no. 500-2398, 06845, dwg 4032440-0704.	7-79
A2A10L6		COIL, RF: MIL type MS75089-7.	7-79
A2A10R1 and A2A10R2		RESISTOR: Item 41.	7-79
A2A10R3		RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/2 w; MIL type RCR20G471JS.	7-79

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RADIO RECEIVER 100 Hz CONTROL AND VERNIER ASSEMBLY A2A11

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A11		SWITCH, VERNIER, ASSEMBLY: Mfr 98738, part no. 01A226227-21-11. (Attaching Parts) DM(1) BC(1) DW(1)	7-7 and 7-80
A2A11MP1		PLATE, SWITCH: 1.66 in. long, 1.44 in. w, 0.090 in. thk; aluminum alloy 5052; mfr 98738, part no. 64P226773-21-11.	7-80
A2A11R1		RESISTOR, VARIABLE, NON-WIRE WOUND: 2.375 in. long, 1.062 in. dia; 25K ohms ±5%, 2 w; mfr 32997; part no. 3862C762-253H, 98738, dwg 18P226772-01.	7-80
A2A11S1		SWITCH, ROTARY: 1.404 in. long, 1.531 in. dia; mfr 76854, part no. 5-26313-210, 06845, dwg 4010008-0701. (Attaching Parts) AL(2)	7-80
A2A11A1		CIRCUIT CARD ASSEMBLY: 2 in. long, 1.525 in. w; mfr 98738, part no. 01A226161-21-11. (Attaching Parts) AF(2) AL(2) AU(2)	7-7 and 7-81
A2A11A1C1		CAPACITOR: Item 13.	7-81
A2A11A1C2		CAPACITOR: Item 15.	7-81
A2A11A1C3		Not used.	
A2A11A1C4		CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.55 in. long, 0.36 in. w, 0.23 in. thk; 0.2 uF ±20%; mfr 99515, part no. EP36D4, 06845, dwg 4032429-0704.	7-81
A2A11A1CR1		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N3824A.	7-81
A2A11A1CR2		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N746A.	7-81
A2A11A1R1		RESISTOR, FIXED, FILM: 30K ohms ±2%, 1/4 w; MIL type RLR07C303GR.	7-81
A2A11A1R2		RESISTOR, VARIABLE, WIRE-WOUND: 5K ohms, 3/4 w; MIL type M39015-2-006PM.	7-81
A2A11A1R3		RESISTOR, FIXED, FILM: 5100 ohms ±2%, 1/4 w; MIL type RLR07C512GR.	7-81
A2A11A1R4		RESISTOR, FIXED, COMPOSITION: 1K ohms ±5%, 1/2 w; MIL type RCR20G102JS.	7-81
A2A11A1R5		Not used.	
A2A11A1R6		RESISTOR, FIXED, FILM: 20K ohms ±2%, 1/2 w; MIL type RLR20C203GR.	7-81
A2A11A1R7		RESISTOR, FIXED, COMPOSITION: 4.7 megohms ±5%, 1/2 w; MIL type RCR20G475JS.	7-81

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

METER DRIVER CIRCUIT CARD ASSEMBLY A2A12

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A2A12		METER AMPLIFIER ASSEMBLY: Mfr 98738, dwg 01A228028-01. (Attached to A2MP155) (Attaching Parts) AF(3) AU(3)	7-84
A2A12C1		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uF ±10%, 20 Vdc working; MIL type M39003-01-2283.	7-84
A2A12C2 and A2A12C3		CAPACITOR: Item 19.	7-84
A2A12CR1 thru A2A12CR4		SEMICONDUCTOR DEVICE, DIODE: MIL type JAN1N4148-1.	7-84
A2A12CR5		SEMICONDUCTOR DEVICE, ZENER DIODE: MIL type JAN1N968B.	7-84
A2A12R1		RESISTOR: Item 38.	7-84
A2A12R2		RESISTOR, FIXED, WIRE-WOUND: 54.9K ohms, ±1%, 1/8 w; MIL type RNC50H5942FM.	7-84
A2A12R3		RESISTOR, FIXED, WIRE-WOUND: 6040 ohms, ±1%, 1/8 w; MIL type RNC50H6041FM.	7-84
A2A12R4		RESISTOR, FIXED, WIRE-WOUND: 590 ohms, ±1%, 1/8 w; MIL type RNC50H5900FM.	7-84
A2A12R5		RESISTOR, FIXED, WIRE-WOUND: 274 ohms, ±1%, 1/8 w; MIL type RNC50H2740FM.	7-84
A2A12R6		RESISTOR: Item 38.	7-84
A2A12R7 thru A2A12R14		RESISTOR, FIXED, WIRE-WOUND: 10K ohms ±1%, 1/8 w; MIL type RNC50H1002FM.	7-84
A2A12S1		SWITCH, ROTARY: 1.884 in. long, 0.687 in. dia; mfr 81073, part no. 71BSF36-03-1-10N-C, 98738, dwg 40P228039-01.	7-84
A2A12U1		INTEGRATED CIRCUIT: MIL type M38510/11003BCA.	7-84

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

RADIO RECEIVER CONNECTOR KIT, MATING: A3

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A3		CONNECTOR KIT, MATING: Mfr 98738, part no. 78A226005-21-11.	7-82
A3MP1 and A3MP2		BOOT, STRAIN RELIEF, HEAT SHRINKABLE: 2.16 in. long, 1.12 in. dia; mfr 08796, part no. 202A132-03, 06845, dwg 4032585-0701.	7-82
A3MP3		CLAMP, CABLE: MIL type MS3057-8A.	7-82
A3P1 and A3P2		Not used.	
A3P3		CONNECTOR, PLUG, ELECTRICAL: MIL type MS3106A16S-5S.	7-82
A3P4		CONNECTOR, PLUG, ELECTRICAL: MIL type MS3116F14-12S.	7-82
A3P5 and A3P6		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type MS3106A10SL-4S.	7-82
A3P7 thru A3P22		Not used.	
A3P23		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type M39012-01-0005.	7-82
A3P24		CONNECTOR, PLUG, ELECTRICAL: MIL type M39012-16-0001.	7-82
A3P25		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type M39012-01-0005.	7-82
A4		Not used.	

Table 7-2. Radio Receiver R-1051G/URR, Parts List (Continued)

SHOCK AND VIBRATION MOUNT ASSEMBLY A5

REFERENCE DESIGNATION	NOTES	NAME AND DESCRIPTION	FIGURE NUMBER
A5		SHOCK AND VIBRATION MOUNT ASSEMBLY: 19.687 in. long, 16.625 in. w, 3.589 in. h; mfr 98738, part no. 01A226007-21-11.	7-83
A5MP1		BASE, MOUNTING: 19.687 in. long, 16.625 in. w; 3.589 in. h; mfr 98738, part no. 01A226064-21-11.	7-83
A5MP2		BRACKET, MOUNTING, LEFT: 14.22 in. long, 6.62 in. h, 1.06 in. d; aluminum alloy; 0.125 in. thk; mfr 98738, part no. 07P226206-21-11.	7-83
A5MP3		BRACKET, MOUNTING, RIGHT: 14.22 in. long, 6.62 in. h, 1.06 in. d; 0.125 in. thk; mfr 98738, part no. 07P226206-22-11.	7-83

Table 7-3. List of Common Item Descriptions

ITEM	DESCRIPTION
1	BLOCK, CONTACT: Molded diallyl phthalate, 16 silver alloy contacts; 3.903 in. long, 0.520 in. w, mfr 98738, part no. 39P228459-01.
2	CAPACITOR, FIXED, MICA: 130 pF, ±2%, 500 Vdc working; MIL type CMR05F131GPDM.
3	CAPACITOR, FIXED, MICA: 150 pF, ±1%, 500 Vdc working: MIL type CMR05F151FPDM.
4	CAPACITOR, FIXED, MICA: 820 pF, ±5%, 500 Vdc working; MIL type CMR06F82AJPDM.
5	CAPACITOR, FIXED, MICA: 104 pF, ±2%, 300 Vdc working; 0.45 in. long, 0.358 in. w, 0.172 in. thk; mfr 06845, part no. 4030786-0704.
6	CAPACITOR, FIXED, MICA: 96 pF, ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, part no. 4031978-0737.
7	CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.05 uF, ±20%, 100 Vdc working; 0.500 in. long, 0.222 in. dia; mfr 99515, part no. EP36D2, 06845, dwg 4032429-0702.
8	CAPACITOR, FIXED, MYLAR DIELECTRIC: 1.0 uF ±20%, 75 Vdc working; MIL type M39003/01-2400.
9	CAPACITOR, FIXED, CERAMIC: 1.5 pF, ±5%, 500 Vdc working; 0.330 in. long, 0.160 in. dia, mfr 78488, part no. GA1-5PFPORM5PCT, 06845, dwg 4031973-0722.
10	CAPACITOR, FIXED, CERAMIC: 2.0 pF, ±5%, 500 Vdc working; 0.290 in. long, 0.160 in. dia, mfr 78488, part no. GA2-0PFPORM5PCT, 06845, dwg 4031973-0725.
11	CAPACITOR, FIXED, ELECTROLYTIC: 10 uF, ±10%, 20 Vdc working; MIL type M39003-01-2286.
12	CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF, ±20%, 35 Vdc working: MIL type M39003-01-2305.
13	CAPACITOR, FIXED, ELECTROLYTIC: 1 uF, ±20%, 50 Vdc working; MIL type M39003-01-2357.
14	CAPACITOR, FIXED, CERAMIC: 1000 pF, ±20%, 200 Vdc working; MIL type M39014-01-1238.
15	CAPACITOR, FIXED, CERAMIC: 0.01 uF, ±10%, 100 Vdc working; MIL type M39014-01-1455.
16	CAPACITOR, FIXED, CERAMIC: 0.01 uF, ± uF, ±10%, 200 Vdc working; MIL type M39014-02-1218.
17	CAPACITOR, FIXED, CERAMIC: 0.01 uF, ±20%, 200 Vdc working; MIL type M39014-02-1219.
18	CAPACITOR, FIXED, CERAMIC: 0.047 uF, ±10%, 100 Vdc working; MIL type M39014-02-1225.
19	CAPACITOR, FIXED, CERAMIC: 0.1 uF, ±10%, 100 Vdc working; MIL type M39014-02-1230.
20	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms 60 Hz; MIL type M39024/11-01.
20A	CAPACITOR, FIXED, CERAMIC: 0.1 uF, ±10%, MIL type M39014-02-1310.

Table 7-3. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
21	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024-18-03.
22	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024-28-04.
23	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024-18-05.
24	CONNECTOR, RECEPTACLE, ELECTRICAL: Mfr 71785, part no. DM53642-5001, 98738, dwg 09P226565-18.
25	CONNECTOR, PLUG, ELECTRICAL: 0.938 in. long; Mfr 71785, part no. DM53740-5001, 98738, dwg 09P226565-17 or Mfr 71785, part no. 15-0020-0671D, 50097, dwg C21092-001.
26	CONNECTOR, RECEPTACLE, ELECTRICAL: Right angle coaxial; 0.734 in. long, female contact; mfr 71785, part no. DM53743-5001, 98738, dwg 09P226565-20, or 50097, dwg C21092-002.
27	CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial, 0.734 in. long, female contact; mfr 71785, part no. 318-11-99-283, 06845, dwg 4032484-0729, or 50097, dwg C21092-003.
28	EJECTOR, CIRCUIT CARD: 1.25 in. long, 0.28 in. w, 0.56 in. h; nylon; mfr 13103, part no. 5005-08N, 98738, dwg 55P226279-21-11.
29	RESISTOR, FIXED, COMPOSITION: 100 ohms $\pm5\%$, 1/8 w; MIL type RCR05G101JS.
30	RESISTOR, FIXED, COMPOSITION: 1000 ohms $\pm5\%$, 1/8 w; MIL type RCR05G102JS.
31	RESISTOR, FIXED, COMPOSITION: 10K ohms $\pm5\%$, 1/8 w; MIL type RCR05G103JS.
32	RESISTOR, FIXED, COMPOSITION: 2,400 ohms $\pm5\%$, 1/8 w; MIL type RCR05G242JS.
33	RESISTOR, FIXED, COMPOSITION: 510 ohms $\pm5\%$, 1/8 w; MIL type RCR05G511JS.
34	RESISTOR, FIXED, COMPOSITION: 5100 ohms $\pm5\%$, 1/8 w; MIL type RCR05G512JS.
35	RESISTOR, FIXED, COMPOSITION: 820 ohms $\pm5\%$, 1/4 w; MIL type RCR07G821JS.
36	RESISTOR, FIXED, COMPOSITION: 10 ohms $\pm5\%$, 1/4 w; MIL type RCR07G100JS.
37	RESISTOR, FIXED, COMPOSITION: 100 ohms $\pm5\%$, 1/4 w; MIL type RCR07G101JS.
38	RESISTOR, FIXED, COMPOSITION: 1000 ohms $\pm5\%$, 1/4 w; MIL type RCR07G102JS.
39	RESISTOR, FIXED, COMPOSITION: 10K ohms $\pm5\%$, 1/4 w; MIL type RCR07G103JS.
40	RESISTOR, FIXED, COMPOSITION: 120 ohms $\pm5\%$, 1/4 w; MIL type RCR07G121JS.
41	RESISTOR, FIXED, COMPOSITION: 1,200 ohms $\pm5\%$, 1/4 w; MIL type RCR07G122JS.
42	RESISTOR, FIXED, COMPOSITION: 12K ohms $\pm5\%$, 1/4 w; MIL type RCR07G123JS.

Table 7-3. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
43	RESISTOR, FIXED, COMPOSITION: 15K ohms ±5%, 1/4 w; MIL type RCR07G153JS.
44	RESISTOR, FIXED, COMPOSITION: 22 ohms ±5%, 1/4 w; MIL type RCR07G220JS.
45	RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/4 w; MIL type RCR07G221JS.
46	RESISTOR, FIXED, COMPOSITION: 2,200 ohms ±5%, 1/4 w; MIL type RCR07G222JS.
47	RESISTOR, FIXED, COMPOSITION: 2,700 ohms ±5%, 1/4 w; MIL type RCR07G272JS.
48	RESISTOR, FIXED, COMPOSITION: 330 ohms ±5%, 1/4 w; MIL type RCR07G331JS.
49	RESISTOR, FIXED, COMPOSITION: 3,300 ohms ±5%, 1/4 w; MIL type RCR07G332JS.
50	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.
51	RESISTOR, FIXED, COMPOSITION: 33 ohms ±5%, 1/4 w; MIL type RCR07G330JS.
52	RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.
53	RESISTOR, FIXED, COMPOSITION: 47 ohms ±5%, 1/4 w; MIL type RCR07G470JS.
54	RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.
55	RESISTOR, FIXED, COMPOSITION: 4,700 ohms ±5%, 1/4 w; MIL type RCR07G472JS.
56	RESISTOR, FIXED, COMPOSITION: 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.
56A	RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.
57	RESISTOR, FIXED, COMPOSITION: 560 ohms ±5%, 1/4 w; MIL type RCR07G561JS.
58	RESISTOR, FIXED, FILM: 1K ohms ±2%, 1/4 w; MIL type RLR07C102GR.
59	RESISTOR, FIXED, FILM: 51 ohms ±2%, 1/4 w; MIL type RLR07C510GR.
60	SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N4454.
61	SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N758A.
62	TERMINAL, STUD: MIL type SE206D01.
63	TERMINAL, STUD: 0.593 in. long, 0.050 in. dia, brass; mfr 71279, part no. 2380-1, 06845, dwg 4032159-0701.
64	TRANSISTOR: MIL type JAN2N2222A.
65	TRANSISTOR: MIL type JAN2N2905A.

Table 7-3. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
66	TERMINAL, STUD: 0.250 in. hex base, 0.719 in. long; mfr 71279, part no. 2381-1, 06845, dwg 4032159-0702.
67	CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014-01-1317.
68	CAPACITOR, FIXED, CERAMIC: 0.047 uF ±10%, 100 Vdc working; MIL type M39014-02-1305.
69	CAPACITOR, FIXED, CERAMIC: 0.001 uF ±10%, 200 Vdc working; MIL type M39014-01-1237.
70	RESISTOR, FIXED, COMPOSITION: 300 ohm ±5%, 1/8 w; MIL type RCR05G301JS.

Table 7-3A. List of Common Item Descriptions

ITEM	DESCRIPTION
1	BLOCK, CONTACT: Molded diallyl phthalate, 16 silver alloy contacts; 3.903 in. long, 0.520 in. w, mfr 98738, part no. 39P228459-01.
2	CAPACITOR, FIXED, MICA: 130 pF, ±2%, 500 Vdc working; MIL type CMR05F131GPDM.
3	CAPACITOR, FIXED, MICA: 150 pF, ±1%, 500 Vdc working; MIL type CMR05F151FPDM.
4	CAPACITOR, FIXED, MICA: 820 pF, ±5%, 500 Vdc working; MIL type CMR06F821JPDM.
5	CAPACITOR, FIXED, MICA: 140 pF, ±2%, 300 Vdc working; 0.45 in. long, 0.358 in. w, 0.172 in. thk; mfr 06845, part no. 4030786-0704.
6	CAPACITOR, FIXED, MICA: 96 pF, ±1%, 500 Vdc working; 0.460 in. long, 0.360 in. w, 0.180 in. thk; mfr 06845, part no. 4031978-0737.
7	CAPACITOR, FIXED, MYLAR DIELECTRIC: 0.05 uF, ±20%, 100 Vdc working; 0.500 in. long, 0.222 in. dia; mfr 99515, part no. EP36D2, 06845, dwg 4032429-0702.
8	CAPACITOR, FIXED, MYLAR DIELECTRIC: 1.0 uF ±20%, 75 Vdc working; MIL type M39003/01-2400.
9	CAPACITOR, FIXED, CERAMIC: 1.5 pF, ±5%, 500 Vdc working; 0.330 in. long, 0.160 in. dia, mfr 78488, part no. GA1-5PFPORM5PCT, 06845, dwg 4031973-0722.
10	CAPACITOR, FIXED, CERAMIC: 2.0 pF, ±5%, 500 Vdc working; 0.290 in. long, 0.160 in. dia, mfr 78488, part no. GA2-OPFPORM5PCT, 06845, dwg 4031973-0725.
11	CAPACITOR, FIXED, ELECTROLYTIC: 10 uF, ±10%, 20 Vdc working; MIL type M39003-01-2286.
12	CAPACITOR, FIXED, ELECTROLYTIC: 6.8 uF, ±10%, 35 Vdc working; MIL type M39003-01-2305.
13	CAPACITOR, FIXED, ELECTROLYTIC: 1 uF, ±20%, 50 Vdc working; MIL type M39003-01-2357.
14	CAPACITOR, FIXED, CERAMIC: 1000 pF, ±20%, 200 Vdc working; MIL type M39014-01-1238.
15	CAPACITOR, FIXED, CERAMIC: 0.01 uF, ±10%, 100 Vdc working; MIL type M39014-01-1455.
16	CAPACITOR, FIXED, CERAMIC: 0.01 uF, ±10%, 200 Vdc working; MIL type M39014-02-1218.
17	CAPACITOR, FIXED, CERAMIC: 0.01 uF, ±20%, 200 Vdc working; MIL type M39014-02-1219.
18	CAPACITOR, FIXED, CERAMIC: 0.047 uF, ±10%, 100 Vdc working; MIL type M39014-02-1225.
19	CAPACITOR, FIXED, CERAMIC: 0.1 uF, ±10%, 100 Vdc working; MIL type M39014-02-1230.
20	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1500 Vrms 60 Hz; MIL type M39024/11-01.
20A	CAPACITOR, FIXED, CERAMIC: 0.1 uF, ±10%, MIL type M39014-02-1310.

Table 7-3A. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
21	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024-18-03.
22	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024-18-04.
23	CONNECTOR, ELECTRICAL, TEST-POINT TYPE: 1000 Vrms maximum; MIL type M39024-18-05.
24	CONNECTOR, RECEPTACLE, ELECTRICAL: Mfr 71785, part no. DM53642-5001, 98738, dwg 09P226565-18.
25	CONNECTOR, PLUG, ELECTRICAL: 0.938 in. long; mfr 71785, part no. 15-0020-0671D, 50097, dwg C21092-001.
26	CONNECTOR, RECEPTACLE, ELECTRICAL: Right angle coaxial; 0.734 in. long, female contact; 50097, dwg C21092-002.
27	CONNECTOR, PLUG, ELECTRICAL: Right angle coaxial, 0.734 in. long, female contact; 50097, dwg C21092-003.
28	EJECTOR, CIRCUIT CARD: 1.25 in. long, 0.28 in. w, 0.56 in. h; nylon; mfr 13103, part no. 5005-08N, 98738, dwg 55P226279-21-11.
29	RESISTOR, FIXED, COMPOSITION: 100 ohms ±5%, 1/8w; MIL type RCR05G101JS.
30	RESISTOR, FIXED, COMPOSITION: 1000 ohms ±5%, 1/8w; MIL type RCR05G102JS.
31	RESISTOR, FIXED, COMPOSITION: 10K ohms ±5%, 1/8w; MIL type RCR05G103JS.
32	RESISTOR, FIXED, COMPOSITION: 2,400 ohms ±5%, 1/8w; MIL type RCR05G242JS.
33	RESISTOR, FIXED, COMPOSITION: 510 ohms ±5%, 1/8w; MIL type RCR05G511JS.
34	RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/8w; MIL type RCR05G512JS.
35	RESISTOR, FIXED, COMPOSITION: 820 ohms ±5%, 1/4w; MIL type RCR07G821JS.
36	RESISTOR, FIXED, COMPOSITION: 10 ohms ±5%, 1/4w; MIL type RCR07G100JS.
37	RESISTOR, FIXED, COMPOSITION: 100 ohms ±5%, 1/4w; MIL type RCR07G101JS.
38	RESISTOR, FIXED, COMPOSITION: 1000 ohms ±5%, 1/4w; MIL type RCR07G102JS.
39	RESISTOR, FIXED, COMPOSITION: 10K ohms ±5%, 1/4w; MIL type RCR07G103JS.
40	RESISTOR, FIXED, COMPOSITION: 120 ohms ±5%, 1/4w; MIL type RCR07G121JS.
41	RESISTOR, FIXED, COMPOSITION: 1,200 ohms ±5%, 1/4w; MIL type RCR07G122JS.
42	RESISTOR, FIXED, COMPOSITION: 12K ohms ±5%, 1/4w; MIL type RCR07G123JS.

Table 7-3A. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
43	RESISTOR, FIXED, COMPOSITION: 15K ohms ±5%, 1/4 w; MIL type RCR07G153JS.
44	RESISTOR, FIXED, COMPOSITION: 22 ohms ±5%, 1/4 w; MIL type RCR07G220JS.
45	RESISTOR, FIXED, COMPOSITION: 220 ohms ±5%, 1/4 w; MIL type RCR07G221JS.
46	RESISTOR, FIXED, COMPOSITION: 2,200 ohms ±5%, 1/4 w; MIL type RCR07G222JS.
47	RESISTOR, FIXED, COMPOSITION: 2,700 ohms ±5%, 1/4 w; MIL type RCR07G272JS.
48	RESISTOR, FIXED, COMPOSITION: 330 ohms ±5%, 1/4 w; MIL type RCR07G331JS.
49	RESISTOR, FIXED, COMPOSITION: 3,300 ohms ±5%, 1/4 w; MIL type RCR07G332JS.
50	RESISTOR, FIXED, COMPOSITION: 27 ohms ±5%, 1/4 w; MIL type RCR07G270JS.
51	RESISTOR, FIXED, COMPOSITION: 33 ohms ±5%, 1/4 w; MIL type RCR07G330JS.
52	RESISTOR, FIXED, COMPOSITION: 390 ohms ±5%, 1/4 w; MIL type RCR07G391JS.
53	RESISTOR, FIXED, COMPOSITION: 47 ohms ±5%, 1/4 w; MIL type RCR07G470JS.
54	RESISTOR, FIXED, COMPOSITION: 470 ohms ±5%, 1/4 w; MIL type RCR07G471JS.
55	RESISTOR, FIXED, COMPOSITION: 4,700 ohms ±5%, 1/4 w; MIL type RCR07G472JS.
56	RESISTOR, FIXED, COMPOSITION: 47K ohms ±5%, 1/4 w; MIL type RCR07G473JS.
56A	RESISTOR, FIXED, COMPOSITION: 5100 ohms ±5%, 1/4 w; MIL type RCR07G512JS.
57	RESISTOR, FIXED, COMPOSITION: 560 ohms ±5%, 1/4 w; MIL type RCR07G561JS.
58	RESISTOR, FIXED, FILM: 1K ohms ±2%, 1/4 w; MIL type RLR07C102GR.
59	RESISTOR, FIXED, FILM: 51 ohms ±2%, 1/4 w; MIL type RLR07C510GR.
60	SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N4454.
61	SEMICONDUCTOR DEVICE, DIODE: Silicon, voltage regulator; MIL type JAN1N758A.
62	TERMINAL, STUD: MIL type SE206D01.
63	TERMINAL, STUD: 0.593 in. long, 0.050 in. dia, brass; mfr 71279, part no. 2380-1, 06845, dwg 4032159-0701.
64	TRANSISTOR: MIL type JAN2N2222A.
65	TRANSISTOR: MIL type JAN2N2905A.

Table 7-3A. List of Common Item Descriptions (Continued)

ITEM	DESCRIPTION
66	TERMINAL, STUD: 0.250 in. hex base, 0.719 in. long; mfr 71279, part no. 2381-1, 06845, dwg 4032159-0702.
67	CAPACITOR, FIXED, CERAMIC: 1000 pF ±10%, 200 Vdc working; MIL type M39014-01-1317.
68	CAPACITOR, FIXED, CERAMIC: 0.047 uF ±10%, 100 Vdc working; MIL type M39014-02-1305.
69	CAPACITOR, FIXED, CERAMIC: 0.001 uF ±10%, 200 Vdc working; MIL type M39014-01-1237.
70	RESISTOR, FIXED, COMPOSITION: 300 ohm ±5%, 1/8w; MIL type RCR05G301JS.

Table 7-4. List of Attaching Hardware

ITEM LETTER	DESCRIPTION
A	NUT, PLAIN, HEX, MACHINE SCREW: No. 8-32 UNC-2B x 0.344 across flats, 0.130 in. thk, MIL type MS35649-284.
B	WASHER, LOCK-SPRING, HELICAL: No. 8, 0.175 in. ID, 0.293 in. OD, 0.040 in. thk, MIL type MS35338-137.
C	NUT, PLAIN, HEXAGON: No. 8-32 UNC-2B x 0.250 in. across flats, 0.289 in. thk; mfr 06845, part no. 4030942-0703.
D	WASHER, FLAT, SPECIAL: 0.173 in. ID, 0.437 in. OD, 0.036 in. thk; mfr 06845, part no. 4031924-0009.
E	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82° CROSS-RECESSED, CRES: No. 2-56 UNC-2A x 3/4 in. long, MIL type MS51959-9.
F	NUT, PLAIN, HEX, MACHINE SCREW: No. 2-56 UNC-2B x 0.187 across flats, 0.066 in. thk; MIL type MS35649-224.
G	WASHER, LOCK-SPRING, HELICAL: No. 2, 0.094 in. ID, 0.172 in. OD, 0.020 in. thk; MIL type MS35338-134.
H	WASHER, FLAT - METAL, ROUND; CRES: No. 10, 0.188 in. ID, 0.375 in. OD, 0.049 in. thk; MIL type MS15795-807.
I	Not used.
J	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82° CROSS-RECESSED, CRES: No. 2-56 UNC-2A x 3/8 in. long; MIL type MS51959-5.
K	NUT, PLAIN, HEX, MACHINE SCREW: No. 6-32 UNC-2B x 0.312 across flats, 0.114 in. thk; MIL type MS35649-264.
L	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.156 in. ID, 0.312 in. OD, 0.035 in. thk; MIL type MS15795-805.
M	WASHER, LOCK-SPRING, HELICAL: No. 6, 0.148 in. ID, 0.250 in. OD, 0.031 in. thk; MIL type 35338-136.
N	SCREW, CAP, HEX HEAD, CRES: UNC-2A, 5/16 x 0.625 in. long, 0.435 in. across flats; MIL type MS35307-331.
O	Not used.
P	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.344 in. ID, 0.688 in. OD, 0.065 in. thk; MIL type MS15795-812.
Q	WASHER, LOCK-SPRING, HELICAL: No. 5/16, 0.328 in. ID, 0.586 in. OD, 0.078 in. thk; MIL type MS35338-140.
R	SCREW, EXTERNALLY RELIEVED BODY: 0.391 in. long, 0.121 in. w; mfr 06845, part no. 4031920-0002.
S	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82° CROSS-RECESSED, CRES: No. 2-56 UNC-2A, 7/16 in. long, MIL type MS51959-6.
T	NUT, SELF-LOCKING, HEXAGON: No. 2-56 UNC-3B x 0.158 in, across flats, 0.095 in. thk; mfr 06845, part no. 4031923-0701.
U	WASHER, LOCK, FLAT - INTERNAL TOOTH; No. 2, 0.095 in. ID, 0.200 in. OD, 0.015 in. thk; MIL type MS35333-69.
V	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82° CROSS-RECESSED, CRES: No. 10-32 UNF-2A, 1/2 in. long, MIL type MS24693-C1
W	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 8-32 UNC-2A, 7/16 in. long, MIL type MS51957-44.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
X	STANDOFF, CRES: No. 8-32 UNC-2B x 3.972 in. long, 0.375 in. w, mfr 98738, part no. 43P226764-21-11.
Y	SCREW, CAPTIVE: No. 10-32 UNC-2A x 0.980 in. long; mfr 06845, part no. 4030574-0001.
Z	SCREW, PANEL: No. 10-32 UNC-2A x 1.07 in. long, with plastic cap; mfr 06845, part no. 4032255-0501.
AA	WASHER, LOCK, EXTERNAL TOOTH: No. 4, 0.115 in. ID, 0.245 in. OD, 0.015 in. thk; MIL type MS35335-57.
AB	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A, 5/16 in. long; MIL type MS51957-27.
AC	NUT, PLAIN, HEXAGON: No. 6-32 UNC-2B x 0.250 in. across flats, 0.095 in. thk; mfr 06845, part no. 4030942-0702.
AD	NUT, PLAIN, HEXAGON: No. 4-40 UNC-2B x 0.187 in. across flats, 0.066 in. thk; mfr 06845, part no. 4030942-0701.
AE	WASHER, LOCK, EXTERNAL TOOTH: No. 6, 0.141 in. ID, 0.305 in. OD, 0.016 in. thk; MIL type MS35335-58.
AF	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A, 5/16 in. long; MIL type MS51957-14.
AG	NUT, PLAIN, HEX, MACHINE SCREW: No. 4-40 UNC-2B x 0.250 across flats, 0.114 in. thk; MIL type MS35649-244.
AH	WASHER, RUBBER: 0.390 in. ID, 0.69 in. OD, 0.32 in. thk; mfr 06845, part no. 2058889-0008.
AI	Not used.
AJ	NUT, SELF LOCKING, HEXAGON: Mfr 06845, part no. 4031923-0702, 0.190 across flats, 0.110 in. thk.
AK	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82° CROSS-RECESSED, CRES: No. 4-40 UNC-2A, 3/8 in. long; MIL type MS51959-15.
AL	WASHER, LOCK - SPRING, HELICAL: No. 4, 0.121 in. ID, 0.209 in. OD, 0.025 in. thk; MIL type MS35338-135.
AM	NUT, PLAIN - HEXAGON, MACHINE SCREW: No. 10-32 UNF-2B x 0.375 in. across flats, 0.130 in. thk; MIL type MS35650-304.
AN	WASHER, LOCK-SPRING, HELICAL: No. 10, 0.202 in. ID, 0.334 in. OD, 0.047 in. thk; MIL type MS35338-138.
AO	Not used.
AP	SCREW, CAP, HEX SOCKET HEAD: No. 6-32 UNC-3A, 0.500 in. long, mfr 06845, part no. 4032180-0701.
AQ	SCREW, MACHINE, PAN HEAD, CROSS RECESSED, CRES: No. 4-40 UNC-2A x 1/4 in. long; MIL type MS51957-13.
AR	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 1/2 in. long; MIL type MS51957-17.
AS	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.125 in. ID, 0.312 in. OD, 0.032 in. thk; MIL type MS15795-804.
AT	SCREW, MACHINE, HEX HEAD: No. 4-40 UNC-2A x 0.50 in. long; 0.187 in. hex; mfr 06845, part no. 4032182-0701.
AU	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.125 in. ID, 0.250 in. OD, 0.022 in. thk; MIL type MS15795-803.
AV	WASHER, RUBBER: 0.985 in. ID, 1.48 in. OD, 0.032 in. thk; mfr 06845, part no. 2058889-0003.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
AW	WASHER, RUBBER: 0.610 in. ID, 1.00 in. OD, 0.032 in. thk; mfr 06845, part no. 2058889-0001.
AX	WASHER, FLAT: 0.640 in. ID, 1.0 in. OD, 0.012 in. thk; mfr 06845, part no. 4032130-0003.
AY	WASHER, FLAT: 1.015 in. ID, 1.48 in. OD, 0.012 in. thk; mfr 06845, part no. 4032130-0004.
AZ	SPACER, MOUNTING: 0.173 in. ID, 0.220 in. OD, 0.160 in. long; mfr 06845, part no. 2058941-0001.
BA	WASHER, RUBBER: 0.32 in. ID, 1.00 in. OD, 0.032 in. thk; mfr 98738, part no. 32P226780-21-11.
BB	NUT, PLAIN, HEX, CRES: 0.564 in. across flats, 3/8-32 UNEF-2B, 0.093 in. thk; MIL type MS25082-20.
BC	WASHER, LOCK, FLAT - INTERNAL TOOTH: No. 3/8, 0.384 in. ID, 0.670 in. OD, 0.032 in. thk; MIL type MS35333-76.
BD	SET SCREW, HEX SOCKET, CUP POINT, ALY. STEEL: No. 4-40 UNC-3A x 0.187 in. long; mfr 06845, part no. 2031167-0702.
BE	PIN, GROOVED: 0.066 in. dia., 0.500 in. long; MIL type MS35675-3.
BF	SET SCREW - HEX SOCKET, CUP POINT, PLAIN, CRES: UNC-3A, 0.500 in. long, 0.250 in. w. across flats; MIL type MS51021-36.
BG	SET SCREW - HEX SOCKET, CUP POINT, PLAIN, CRES: UNC-3A, 0.250 in. long; 0.125 in. across flats; MIL type MS51021-32.
BH	PIN, STRAIGHT, HEADLESS, ALY. STEEL: 0.250 in. long, 0.0784 in. OD; MIL type MS16555-9.
BI	Not used.
BJ	PIN, SPRING - TUBULAR, SLOTTED, CRES: 0.188 in. long, 0.199 in. dia, 0.182 chamber dia., MIL type MS16562-189.
BK	SET SCREW, HEX SOCKET, CUP POINT, ALY. STEEL, PLAIN: UNC-3A x 0.250 in. long, 0.125 in. w. across flats; MIL type MS51963-22.
BL	SET SCREW, HEX SOCKET, CUP POINT, ALY. STEEL, PLAIN: UNC-3A x 0.250 in. long, 0.125 in. across flats; MIL type MS51963-11.
BM	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 3/8 in. long; MIL type MS51957-43.
BN	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 5/8 in. long; MIL type MS51957-46.
BO	Not used.
BP	SHIM, ALUMINUM: 0.312 in. dia, 0.012 in. thk; mfr 06845, part no. 2058976-0001.
BQ	SHIM, ALUMINUM: 0.312 in. dia, 0.020 in. thk; mfr 06845, part no. 2058976-0002.
BR	SHIM, ALUMINUM: 0.312 in. dia, 0.032 in. thk; mfr 06845, part no. 2058976-0003.
BS	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD: 82° CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 3/16 in. long; MIL type MS51959-25.
BT	Not used.
BU	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 3/8 in. long; MIL type MS51959-43.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
BV	SCREW, MACHINE, SELF SEALING: 0.62 in. long, 10-32 thread; mfr 07631, part no. R1032 x 0.62, 06845, dwg 4032168-0703.
BW	WASHER, FLAT, SPECIAL: 1.0 in. long, 0.380 in. w, 0.156 in. dia, aluminum, dimpled; mfr 06845, part no. 4030896-0001.
BX	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100° CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/4 in. long; MIL type MS24693-C24.
BY	SPACER, HEX: No. 6-32 UNC-2B internal threads, 0.437 in. long, 0.438 in. hex across flats, 82° countersunk x 0.188 in. dia, mfr 06845, part no. 4032128-0006.
BZ	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CRES: No. 2-56 UNC-2A x 3/8 in. long; MIL type MS51957-5.
CA	WASHER, FLAT, SPECIAL, CRES: 0.096 in. ID, 0.187 in. OD, 0.016 in. thk; mfr 06845, part no. 4031924-0003.
CB	SCREW, MACHINE, FLAT COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CRES: NO. 6-32 UNC-2A x 3/4 in. long; MIL type MS51957-32.
CC	NUT, SELF-LOCKING, HEXAGON, CRES: 0.1380 - 32 UNJC-3B, 0.313 in. w. across flats, 0.161 in. ID, 0.072 in. thk; MIL type MS21044-C06.
CD	SPACER, TABULAR, CRES: 0.147 in. ID, 0.250 in. OD, 0.346 in. long; mfr 06845, part no. 4030905-0007.
CE	SCREW, CAPTIVE, CRES: 10-32 UNF-2A x 4.84 in. long; mfr 06845, part no. 03P228175-01.
CF	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 5/16 in. long; MIL type MS51959-14.
CG	WASHER, FLAT, SPECIAL: 0.125 in. ID, 0.250 in. OD, 0.032 in. thk; mfr 06845, part no. 4031924-0007.
CH	SPACER, TABULAR: 0.166 in. ID, 0.220 in. OD, 0.140 in. long, aluminum; mfr 06845, 4030905-0005.
CI	Not used.
CJ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: NO. 4-40 UNC-2A x 3/16 in. long; MIL type MS51957-12.
CK	Not used.
CL	PIN, SPRING, CRES: 0.438 in. long, 0.094 in. dia; MIL type MS171495.
CM	RING, RETAINING, EXTERNAL, "E", CRES: 0.0188 in. shaft dia. 0.0145 in. free dia., 0.025 in. thk; MIL type MS16633-4018.
CN	SCREW, TRUSS HEAD: No. 2-56 UNC-2A x 0.187 in. long; mfr 06845, part no. 4032431-0701.
CO	Not used.
CP	PIN, SPRING, CRES: 0.375 in. long, 0.094 in. dia; MIL type MS171494.
CQ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 3/8 in. long; MIL type MS51957-15.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
CR	SCREW, MACHINE, PAN HEAD, CROSS RECESSED, CRES: No. 2-56 UNC-2A x 1/8 in. long; MIL type MS51957-1.
CS	RIVET, SOLID, COUNTERSUNK 100°, Aluminum alloy: 9/32 in. long, 3/32 in. dia; MIL type MS20426-AD3-4-5.
CT	RIVET, SOLID, UNIVERSAL HEAD, ALUMINUM ALLOY 2117: 0.375 in. long, 3/32 in. dia; MIL type MS20470AD3-6.
CU	RIVET - TUBULAR, OVAL HEAD - ALUMINUM ALLOY: 0.156 in. long, 0.061 in. body dia., 0.044 in. hole dia.; MIL type MS16535-23.
CV	RIVET, TUBULAR, OVAL HEAD, ALUMINUM ALLOY: 0.125 in. long, 0.061 in. body dia., 0.044 in. hole dia.; MIL type MS16535-22.
CW	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 7/16 in. long; MIL type MS51957-16.
CX	RIVET, TUBULAR, OVAL HEAD, NICKEL-PLATED BRASS: 0.087 in. dia., 1/8 in. long; mfr 06845, part no. 2074266-2303.
CY	RIVET, TUBULAR, OVAL HEAD, NICKEL-PLATED BRASS: 0.087 in. dia., 9/64 in. long; mfr 06845, part no. 2074266-2303.
CZ	RIVET, TUBULAR, OVAL HEAD, NICKEL-PLATED BRASS: 0.087 in. dia., 27/64 in. long; mfr 06845, part no. 2074266-2322.
DA	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 5/8 in. long; MIL type MS51957-18.
DB	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 7/16 in. long; MIL type MS51957-29.
DC	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.156 in. ID, 0.375 in. OD, 0.049 in. thk; MIL type MS15795-806.
DD	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 1/4 in. long; MIL type MS51959-13.
DE	RIVET, SOLID, COUNTERSUNK, 100°, COPPER: 3/8 in. long, 0.065 in. dia., MIL type MS20427C2-6.
DF	Not used.
DG	Not used.
DH	WASHER, FLAT - PLASTIC (NYLON): No. 4, 0.127 in. ID, 0.297 in. OD, 0.049 in. thk; MIL type MS51859-2.
DI	Not used.
DJ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: no. 4-40 UNC-2A x 3/4 in. long; MIL type MS51957-19.
DK	WASHER, FLAT, SPECIAL: 0.120 in. ID, 0.218 in. OD, 0.015 in. thk; mfr 06845, part no. 4031924-0005.
DL	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100° CROSS-RECESSED, CRES: No. 4-40, UNC-2A x 3/8 in. long; MIL type MS24693-C4.
DM	NUT, PLAIN, HEX, CRES: No. 3/8-32 UNEF-2B, 0.564 in. across flats, 0.093 in. thk, MIL type MS25082-C20.
DN	WASHER, LOCK-SPRING, HELICAL: No. 8, 0.175 in. ID, 0.055 in. OD, 0.040 in. thk; MIL type MS35338-42.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
DO	Not used.
DP	WASHER, ANTI-TURN: Mfr 81073, part no. 44J1111; available with switch rotary; mfr 98738, dwg 40P226296-08.
DQ	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.094 in. ID, 0.250 in. OD, 0.020 in. thk; MIL type MS15795-802.
DR	WASHER, NON-METALLIC, FIBERGLASS: 0.250 in. OD, 0.107 in. ID, 0.015 in. thk; mfr 06845, part no. 2074908-3110.
DS	WASHER, MICA: 0.250 in. ID, 0.125 in. OD, 0.005 in. thk; mfr 98738, part no. 04P226362-01, or Mfr. 50097, part no. C28042-001.
DT	STUD, EXTENSION, HEX: No. 4-40 UNC-2 threads, 0.93 in. long, 0.187 across flats, cres; mfr 06845, part no. 4032199-0005.
DU	RING, RETAINING, EXTERNAL, "E", CAD. STEEL PLATED: 0.250 in. shaft dia., 0.207 in. free dia., 0.025 in. thk; MIL type MS16633-1025.
DV	RING, RETAINING: 0.472 in. OD, 0.382 in. ID, 0.025 in. thk; mfr 77339, part no. TRC-820.
DW	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.080 in. OD, 0.012 in. thk; mfr 06845, part no. 4031924-0015.
DX	RIVET, TUBULAR: 0.061 in. OD, 0.125 in. length, 0.017 in. thk., mfr 98738, part no. 05S111345-5.
DY	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 3/8 in. long; MIL type MS51957-28.
DZ	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100° CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 5/16 in. long; MIL type MS24693-C25.
EA	WASHER, RUBBER: 0.50 in. ID, 0.88 in. OD; mfr 06845, part no. 4010006-0001.
EB	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.680 in. OD, 0.036 in. thk; mfr 06845, part no. 4031924-0017.
EC	WASHER, KEY KNOB: 0.261 in. ID, 0.480 in. OD, 0.325 in. thk; mfr 06845, part no. 4032101-0001.
ED	WASHER, KEY: 0.50 in. ID, 0.74 in. OD, 0.185 in. thk; mfr 06845, part no. 4032102-0001.
EE	RING, RETAINING, INTERNAL, CRES: 0.512 in. ID, 0.560 in. OD, 0.035 in. thk; MIL type MS16625-4051.
EF	WASHER, SPRING TENSION: 0.257 in. ID, 0.510 in. OD, 0.010 in. thk; mfr 78189, part no. 3502-14-47-0544B, 06845, dwg 4032104-0701.
EG	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.680 in. OD, 0.078 in. thk; mfr 06845, part no. 4031924-0016.
EH	SCREW, MACHINE, SELF-SEALING: No. 10-32, 0.753 in. long, 0.403 in. w; mfr 97539; part no. R/1032 x .62, 06845, dwg 4032168-0703.
EI	Not used.
EJ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/2 in. long; MIL type MS51957-30.
EK	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82° CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 5/8 in. long; MIL type MS51959-46.

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Table 7-4A. List of Attaching Hardware (Alternate)

ITEM LETTER	DESCRIPTION
DO	Not Used.
DP	WASHER, ANTI-TURN: Mfr 81073, part no. 44J1111, available with switch rotary; mfr 98738, dwg 40P226296-08.
DQ	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.094 in. ID. 0.250 in. OD, 0.020 in. thk; MIL type MS15795-802.
DR	WASHER, NON-METALLIC, FIBERGLASS: 0.250 in. OD, 0.107 in ID, 0.015 in. thk; mfr 06845, part no. 2074908-3110.
DS	WASHER, MICA: 0.250 in. ID, 0.125 in. OD, 0.005 in. thk; mfr 50097, part no. C28042-001.
DT	STUD, EXTENSION, HEX: No. 4-40 UNC-2 threads, 0.93 in. long, 0.187 across flats, cres; mfr 06845, part no. 4032199-0005.
DU	RING, RETAINING, EXTERNAL, "E", CAD. STEEL PLATED: 0.250 in. shaft dia., 0.207 in. free dia., 0.025 in. thk; MIL type MS16633-1025.
DV	RING, RETAINING: 0.472 in. OD, 0.382 in. ID, 0.025 in. thk; mfr 77339, part no. TRC-820.
DW	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.080 in. OD, 0.012 in thk; mfr 06845, part no. 4031924-0015.
DX	RIVET, TUBULAR: 0.061 in. OD, 0.125 in. length, 0.017 in. thk., mfr 98738, part no. 05S111345-5.
DY	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: NO. 6-32 UNC-2A x 3/8 in. long; MIL type MS51957-28.
DZ	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100° CROSS-RECESSED, CRES: No. 6-32 UNC -2A x 5/16 in. long; MIL type MS24693-C25.
EA	WASHER, RUBBER: 0.50 in. ID, 0.88 in. OD; mfr 06845, part no. 4010006-0001.
EB	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.680 in. OD, 0.036 in. thk; mfr 06845, part no. 4031924-0017.
EC	WASHER, KEY KNOB: 0.261 in. ID, 0.480 in. OD, 0.325 in. thk; mfr 06845, part no. 4032101-0001.
ED	WASHER, KEY: 0.50 in. ID, 0.74 in. OD, 0.185 in. thk; mfr 06845, part no. 4032102-0001.
EE	RING, RETAINING, INTERNAL, CRES: 0.512 in. ID, 0.560 in OD 0.035 in. thk; MIL type MS16625-4051.
EF	WASHER, SPRING TENSION: 0.257 in. ID, 0.510 in OD, 0.010 in. thk; mfr 78189, part no. 3502-14-47-0544B, 06845, dwg 4032104-0701.
EG	WASHER, FLAT, SPECIAL: 0.380 in. ID, 0.680 in. OD, 0.078 in thk; mfr 06845, part no. 4031924-0016.
EH	SCREW, MACHINE, SELF-SEALING: No. 10-32, 0.753 in. long, 0.403 in. w; mfr 97539; part no. R/1032 x .62, 06845, dwg 4032168-0703.
EI	Not used.
EJ	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/2 in. long; MIL type MS51957-30.
EK	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82° CROSS-RECESSED, CRES: No. 8-32 UNC-2A x 5/8 in. long; MIL type MS51959-46.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
EL	STUD, TURNLOCK FASTENER: 3.00 in. long, 0.312 in. dia; mfr 72794, part no. F3-30, 06845, dwg 4032170-0701.
EM	WASHER, FLAT, SPECIAL: 0.173 in. ID, 0.437 in. OD, 0.036 in. thk; mfr 06845, part no. 4031924-0001,
EN	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82° CROSS-RECESSED: No. 2-56 UNC-2A x 1/4 in. long; MIL type MS51959-3.
EO	Not used.
EP	WASHER, LOCK, EXTERNAL TOOTH: 0.267 in. ID, 0.365 in. OD, 0.32 in. thk; mfr 06845, part no. 2074905-2305.
EQ	WASHER, SPECIAL, METALLIC: 0.265 in. ID, 0.375 in. OD, 0.032 in. thk; mfr 06845, part no. 4030901-0002.
ER	SCREW, MACHINE, PAN HEAD, CROSS-RECESSED, CRES: No. 4-40 UNC-2A x 7/16 in. long; MIL type MS51957-16.
ES	PIN, SPRING, CRES: 0.438 in. long; MIL type MS171435.
ET	Not used.
EU	PIN, GROOVED: 0.066 in. dia, 0.375 in. long; MIL type MS35672-7.
EV	RING, RETAINING: 0.382 in. ID, 0.472 in. OD; steel cadmium plate; mfr 77339, part no. TRC-520, 58189, dwg 666231-603.
EW	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100°, CROSS-RECESSED: 4-40 UNC-2A, 0.375 in. long; MIL type MS24693-4.
EX	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 100° CROSS-RECESSED: 4-40 UNC-2A, 0.050 in. long; MIL type MS24693-2.
EY	PIN, SPRING, CRES: 0.188 in. long, 0.62 in. dia; MIL type 171431.
EZ	SCREW, MACHINE, PAN HEAD, CROSS RECESSED, CRES: No. 6-32 UNC-2A x 5/8 in. long, MIL type MS51957-31.
FA	WASHER, LOCK, FLAT - INTERNAL TOOTH: No. 10, 0.195 in. ID, 0.365 in. OD, 0.020 in. thk; MIL type MS35333-73.
FB	RIVET: 0.06 in. OD, 0.17 in. length; mfr 98738, part no. 05S111345-8.
FC	SHIM, ALUMINUM: 2.00 in. w, 0.30 in. thk; mfr 14304, part no. 0026-1012-1.
FD	SHIM, ALUMINUM: 2.0 in. w, 0.16 in. thk; mfr 14304, part no. 0026-1012-2.
FE	WASHER, FLAT: 0.516 in. ID, 0.80 in. OD, 0.012 in. thk; mfr 06845, part no. 4032130-0002.
FF	WASHER, NYLON: No. 4, 0.120 in. ID, 0.25 in. OD, 0.020 in. thk; mfr 98738, part no. 04S131026-5.
FG	WASHER, FLAT - METAL, ROUND, CRES: No. 10, 0.219 in. ID, 0.438 in. OD, 0.049 in. thk; MIL type MS15795-808.
FH	SCREW, MACHINE, FLAT, COUNTERSINK HEAD, 82°, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/4 in. long; MIL type MS51959-26.
FI	Not used.

Table 7-4. List of Attaching Hardware (Continued)

ITEM LETTER	DESCRIPTION
FJ	WASHER, FLAT: 0.19 in. ID, 0.50 in. OD, 0.02 in. thk; 06845, part no. 4032130-0001.
FK	SHIM, CRES: 0.20 in. dia, 0.01 in. thk; mfr 06845, part no. 2074903-3404.
FL	SCREW, MACHINE, HEX HEAD: No. 4-40 UNC-2A x 0.56 in. long; mfr 98738, part no. 03P228279-01.
FM	SCREW, CAP, SOCKET HEAD, SELF-LOCKING, CAD. STEEL ALLOY: No. 4-40 UNC-3A, 0.50 in. long, 0.112 in. body dia., MI: type MS16997-11.
FN	SCREW, CAP, SOCKET HEAD, SELF-LOCKING, CAD. STEEL ALLOY: No. 6-32 UNC-3A, 0.138 in. long, 0.138 in. body dia.; MIL type MS16997-21.
FO	Not used.
FP	RING, RETAINING: 0.208 in. dia, shaft, 0.203 in. dia free, 0.029 in. thk; MIL type MS16632-4023.
FQ	SETSCREW - HEXAGON SOCKET, CRES: 40 UNC-3A, 0.125 in. long, 0.061 point dia.; MIL type MS51021-9.
FR	WASHER, DETENT: Teflon; 0.265 in. ID, 0.62 in. OD, 0.10 in. thk; mfr 06845, part no. 4032137-0001.
FS	SCREW, MACHINE, FLAT HEAD: No. 40-UNC, 0.12 in. long, 0.11 in. dia; MIL type MS51959-12.
FT	SCREW, MACHINE - PAN HEAD, SLOTTED, TEFLON: No. 6-32 UNC-2A x 0.50 in. long; mfr 98738, part no. 03P228453-30.
FU	SCREW, MACHINE, FLAT, COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CRES: No. 6-32 UNC-2A x 1/4 in. long; MIL type MS51959-27.
FV	RIVET, TUBULAR, OVAL HEAD, BRASS: 0.094 in. long, 0.089 in. body dia.; MIL type MS16535-53.
FW	NUT, PLAIN, CLINCH: 0.112-40 UNC-2B x 0.250 in. OD, 0.092 in. thk; 0.166 in. stem dia.; MIL type M45938/1-3C.
FX	NUT, PLAIN, SPLINE FASTENER: No. 10-32-2B threads, 0.272 in. ID, 3/8 in. OD, 1/8 in. thk; mfr 46384, part no. KFS2-032, 98738, dwg no. 02S132160-7.

Table 7-5. List of Manufacturers

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
00136	McCoy Electronics Co. Watts & Chestnut Sts. Mt. Holly Springs, PA 17065	02768	Illinois Tool Works Inc. Fastex Division 195 Algonquin Rd. Des Plaines, IL 60016
00141	Benrus Corp., PIC Design Div. P.O. Box 335 Benrus Center Ridgefield, CT 06877	04347	The Hysol Div. of Dexter Corp. 211 Franklin St. Olean, NY 14760
00213	Nytronics Components Group Division of Nytronics Orange St. Darlington, S.C. 29532	04713	Motorola, Inc. Semiconductor Group P.O. Box 2953 5005 E. McDowell Rd. Phoenix, AZ 85062
00328	Sterling Instrument, Div. of Designatronics, Inc. 55 S. Denton Ave. New Hyde Park, NY 11040	04963	Minnesota Mining and Mfr. Co. Adhesives, Coatings and Sealers Div., 3M center St. Paul, MN 55101
00799	Amp Inc. Eisenhower Blvd. Harrisburg, PA 17105	05236	Jonathan Mfg. Co. 1101 S. Acacia Ave. Fullerton, CA 92631
01121	Allen-Bradley Co. 1201 S. 2nd St. Milwaukee, WI 53204	05972	Loctite Corp. 705 N. Mountain Road Newington, CT 06111
01295	Texas Instruments, Inc. Semiconductor Group P.O. Box 5012 13500 N. Central Expressway Dallas, TX 75222	06845	The Bendix Corp. Communications Division E. Joppa Rd. Baltimore, MD 21204
01961	Pulse Engineering, Inc. 7250 Convoy Court San Diego, CA 92111	06848	The Bendix Corp. Energy Controls Div. 717 N. Bendix Dr. South Bend, IN 46620
02697	Parker Seal Co., O-Ring Div. of Parker-Hannifin Corp. 2360 Palumbo Dr. Lexington, KY 40509	06978	Alladin Electronics, Div. of Alladin Industries, Inc. 701 Murfreesboro Rd. Nashville, TN 37210
02735	RCA Corp., Solid State Div. Rt 202 Somerville, N.J. 08876	07047	The Ross Milton Co. 511 Second St. Pike Southampton, PA 18966

Table 7-5. List of Manufacturers (Continued)

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
07263	Fairchild Camera and Instrument Corp. Semiconductor Div. 464 Ellis St. Mountain View, CA 94042	13556	TRW Cinch Connectors 1015 S. Sixth St. Minneapolis, MN 55415
08289	The Blinn Delbert Co., Inc. 1678 E. Mission Blvd. P.O. Box 2007 Pomona, CA 91766	14482	Watkins-Johnson Co. 3333 Hillview Ave. Palo Alto, CA 94304
08795	Rayclad Tubes, Inc. Menlo Park, CA 94025	17069	Circuit Structures Lab. 3200 N. San Fernando Blvd. Burbank, CA 91504
08800	General Electric Co. Insulating Materials Product Section One Campbell Rd. Schenectady, NY 12306	18324	Signetics Sunnyvale, CA
09021	Airco Speer Electronics Bradfort, PA 16701	18518	MST Electronics, Inc. 34-32 57th St. Woodside, NY 11377
09922	Burndy Corp. Richards Ave. Norwalk, CT 06852	18723	RCA Corp. Solid State Div. Electro-Optics and Devices 415 South 5th St. Harrison, NJ 07029
11433	Control Knobs, Inc. 105 - 56 Tuckerton St. Jamaica, NY 11433	18736	Voltronics Corp. West St. Hanover, NJ 07936
11534	Duncan Electronics, Inc. 2865 Fairview Rd. Costa Mesa, CA 92626	18915	The Birtcher Corp. Industrial Div. 4371 Valley Blvd. Los Angeles, CA 90032
12436	General Dynamics Corp. Electronics Div. P.O. Box 81127 5011 Kearney Villa Rd. San Diego, CA 92138	19057	Filtech Corp. 1250 Pratt Arlington Heights, IL 60007
12639	Northfield Precision Instrument Corp. 4400 Austin Blvd. Island Park, NY 11558	25140	TRW/Globe Motors An Electronic Components Div. of TRW, Inc. 2275 Stanley Ave. Dayton, OH 45404
13103	Thermalloy Co., Inc. P.O. Box 34829 2021 W. Valley View Lane Dallas, TX 75234	25330	General Connector Corp. Newton, Mass. 02158
		26344	Mite Corporation 466 Blake St. New Haven, CT 06515

Table 7-5. List of Manufacturers (Continued)

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
26769	NCI, Inc. 5900 Australian Ave. West Palm Beach, FL 33407	51181	Keytronics, Inc. 707 North St. Endicott, NY 13760
27014	National Semiconductor Corp 2900 Semiconductor Dr. Santa Clara, CA 95051	56289	Sprague Electric Co. North Adams, MA 61247
28994	Gladding Keystone Corp. Endicott, N.Y.	57533	Sterling Precision Corp. Comeau Bldg., Suite 900 319 Clematis St. West Palm Beach, FL 33401
29440	Winfreberg Corp. 499 Ocean Ave. E. Rockaway, L.I., New York 11518	58189	General Dynamics Corp. Electronics Div. San Diego, CA 92138
32828	Keene Corp. Kaydon Bearing Div. 2860 McCracken St. Muskegon, MI 49443	60380	The Torrington Co. Bearings Div. 59 Field St. Torrington, CT 06790
33417	Union Corp. Jones St. Verona, PA 15147	70472	Associated Spring Corp. 18 Main St. Bristol, CT 06010
40920	Miniature Bearing Div. MPB Corp. Optical Ave. Precision Park Keene, NH 03431	70485	Atlantic India Rubber Works,Inc. 571 W. Polk St. Chicago, IL 60607
43710	The J.M. Ney Co. Maplewood Ave. Bloomfield, CT 06002	71279	Cambridge Thermionic Corp. 445 Concord Ave. Cambridge, MA 02138
46384	Penn Engineering & Mfr. Corp. P.O. Box 311 Doylestown, PA 18901	71468	ITT Cannon Electric 666 East Dyer Rd. Santa Ana, CA 92702
48615	Precision Resistor Co., Inc. 113 U.S. Hwy 22 Hillside, NJ 07205	71482	C. P. Clare & Co. 3101 Pratt Blvd. Chicago, IL 60645
50097	Radionics Incorporated 920 Holt Road Webster, NY 14580	71785	TRW Cinch Connectors 1501 Morse Ave. Elk Grove Village, IL 60007
		72136	Electro Motive Corp. P.O. Box 7600, Lauter Ave. Florence, SC 29501

Table 7-5. List of Manufacturers (Continued)

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
72259	Nytronics, Inc. 105 Madison Ave. New York, NY 10016	82219	GTE Sylvania, Inc. Electronics Component Group Electronic Tube Div. W. Third St. Emporium, PA 15834
72914	Grimes Manufacturing Co. 515 N. Russell Urbana, OH 43078	82389	Switchcraft, Inc. 5555 N. Elston Ave. Chicago, IL 60630
72962	Esna Div. of Amerace Corp. 2330 Vauxhall Road Union, NJ 07083	84411	TRW Electronic Components TRW Capacitors 112 W. First St. Ogallala, NE 69153
75263	Keystone Carbon Co. 1935 State Street St. Marys, PA 15857	84971	TA Mfg. Corp. A Viking Industries Co. 375 W. Arden Ave. Glendale, CA 91203
76854	Oak Industries Inc. Switch Div. S. Main St. Crystal Lake, IL 60014	88245	Litton Systems, Inc. Useco Div. 13536 Saticoy St. Van Nuys, CA 91409
77339	National Lock Washer Co. P.O. Box 5115 Industrial Parkway North Branch, NJ 08876	91146	ITT Cannon Elect. Inc. Los Angeles, CA 90031
77820	The Bendix Corp. Electrical Components Div. Sherman Ave. Sidney, NY 13838	91506	Augat, Inc. P.O. Box 779 633 Perry Ave. Attleboro, MA 02703
78189	Illinois Tool Works, Inc. Shakeproof Division St. Charles Road Elgin, IL 60120	91662	Elco Corp. Maryland Rd. and Computer Ave. Willow Grove, PA 19090
78488	Stackpole Carbon Co. St. Marys, PA 15857	91737	ITT-Cannon/Gremar 922 S. Lyon St. Santa Ana, CA 92705
79963	Zierick Mfg. Co. Radio Circle Mt. Kisco, NY 10549	93292	Central Coil Co., Inc. Box 348A, RR2 Camby, IN 46113
81073	Grayhill, Inc. La Grange, IL 60525	93928	Forbes and Wagner Inc. 345 Central Ave. Silver Creek, NY 14136
81815	Communication Coil Co. 2839 N. Narragansett Ave. Chicago, IL 60634		

Table 7-5. List of Manufacturers (Continued)

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
94025	Mill Supply Div. of Pelta Brothers, Inc. 3499 Inventors Rd. Norfolk, VA 23502	98291	Sealectro Corp. 225 Hoyt Mamaroneck, N.Y. 10544
95105	Rockwell International Grp. Collins Radio Group 4311 Jamboree Rd. Newport Beach, CA 92663	98738	Stewart-Warner Corp. Electronics Div. 1300 N. Kostner Ave. Chicago, IL 60651
95712	Bendix Corp. Electrical Components Div. Microwave Devices Plant Hurricane Rd. Franklin, IN 46131	98978	International Electronic Research Corp. 135 W. Magnolia Blvd. Burbank, CA 91502
95987	Weckessar Co., Inc. 4444 West Irving Park Rd. Chicago, IL 60641	99378	Atlee Corp. 8 Gill St. Woburn, MA 01801
96253	Transformer Technicians, Inc 4447 W. Armitage Ave. Chicago, IL 60639	99515	ITT Jennings Monrovia Plant Div. 1960 Walker Ave. Monrovia, CA 91016
96256	Thordarson-Meissner Inc. A subsidiary of Components Corporation of America Electronic Center Mt. Carmel, IL 62863	99941	X-Acto 48-41 Van Dam St. Long Island City, NY 11101
97539	APM-Hexseal Corp. 44 Honeck St. Englewood, NJ 07631		

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Table 7-5. List of Manufacturers (Continued)

CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS	CODE NUMBER	MANUFACTURER'S NAME AND ADDRESS
95105	Rockwell International Group Collins Radio Group 4311 Jamboree Rd. Newport Beach, CA 92663	98291	Sealectro Corp. 225 Hoyt Mamaroneck, NY 10544
95712	Bendix Corp. Electrical Components Div. Microwave Devices Plant Hurricane Rd. Franklin, IN 46131	98738	Stewart-Warner Corp. Electronics Div. 1300 N. Kostner Ave. Chicago, IL 60651
95987	Weckessar Co., Inc. 4444 West Irving Park Rd. Chicago, IL 60641	98978	International Electronic Research Corp. 135 W. Magnolia Blvd. Burbank, CA 91502
96253	Transformer Technicians, Inc. 4447 W. Armitage Ave. Chicago, IL 60639	99378	Atlee Corp. 8 Gill St. Woburn, MA 01801
96256	Thordarson-Meissner Inc. A subsidiary of Components Corporation of America Electronic Center Mt. Carmel, IL 62863	99515	ITT Jennings Monrovia Plant Div. 1960 Walker Ave. Monrovia, CA 91016
97539	APM-Hexseal Corp. 44 Honeck St. Englewood, NJ 07631	99941	X-Acto 48-41 Van Dam St. Long Islang City, NY 11101

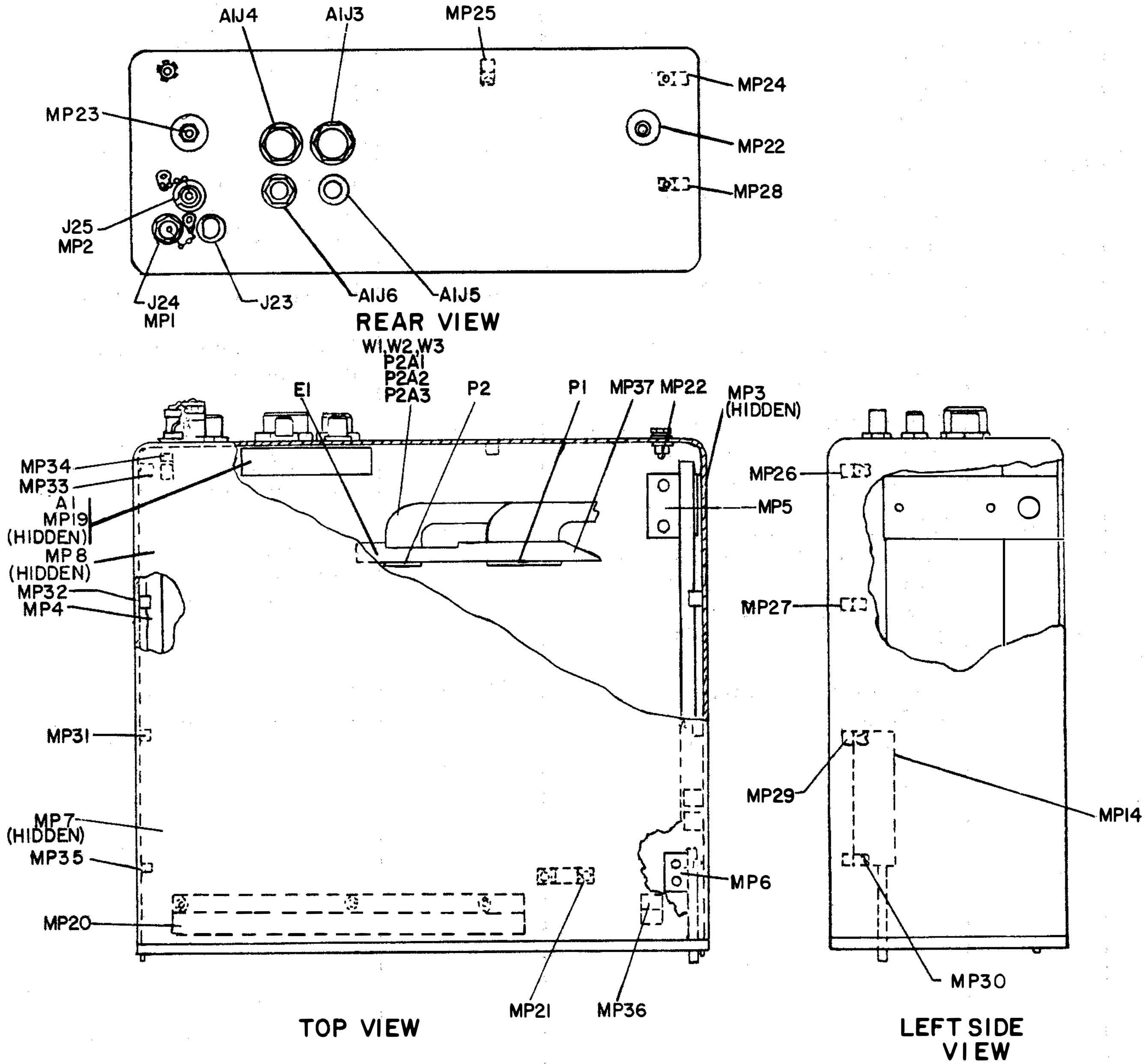


Figure 7-1. Case Assembly 1A1,
Component Locations

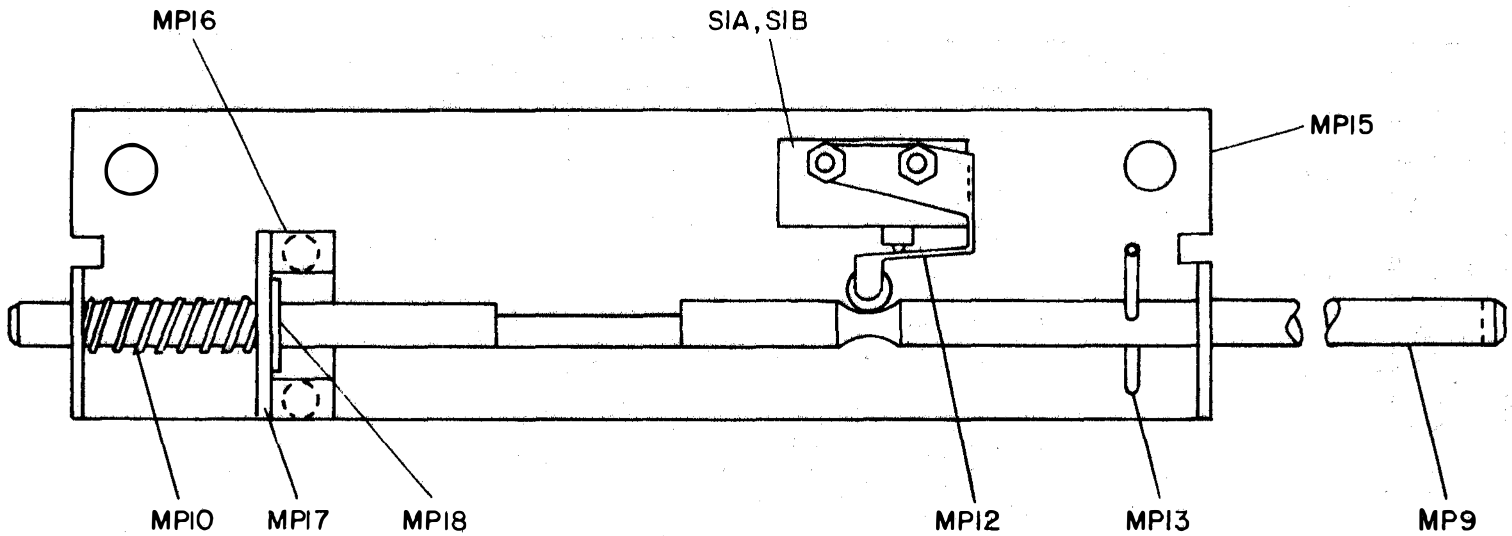


Figure 7-2. Interlock Switch Assembly A1MP14, Component Locations

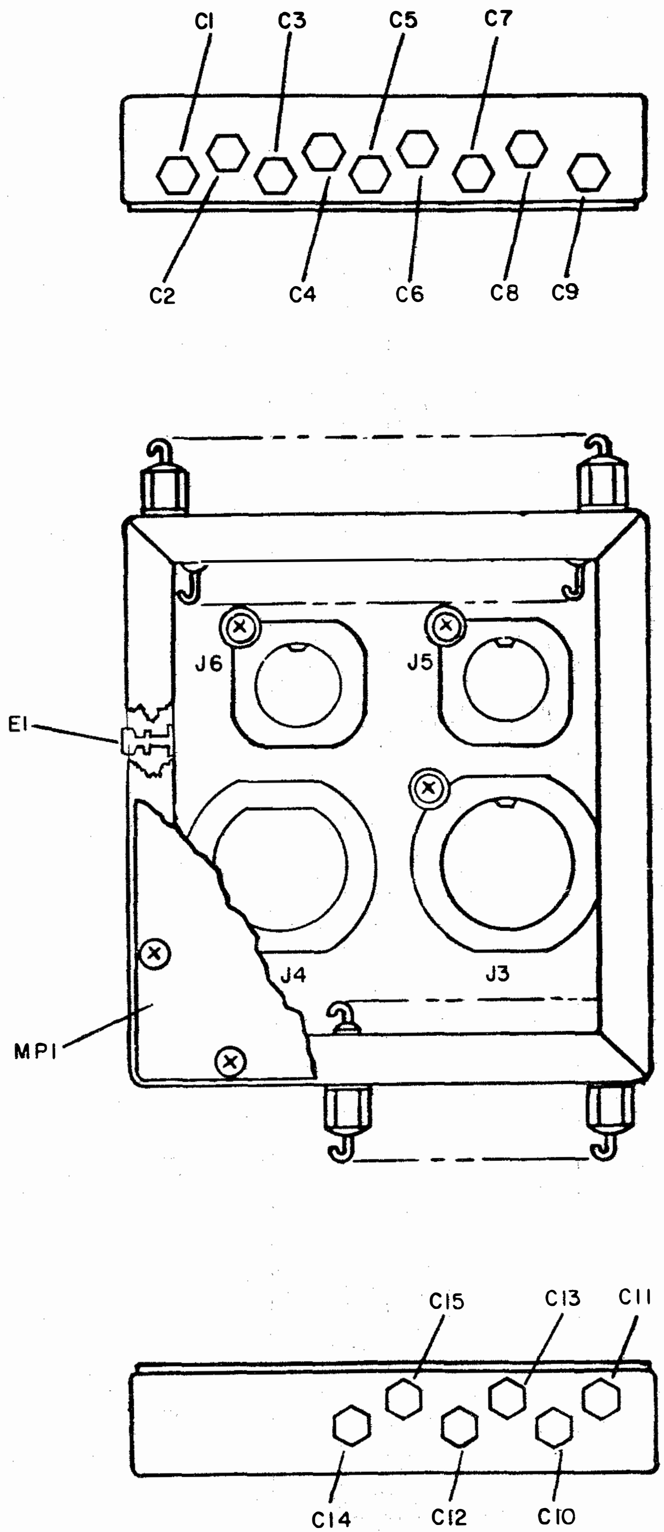


Figure 7-3. Filter Box Assembly A1A1, Component Locations

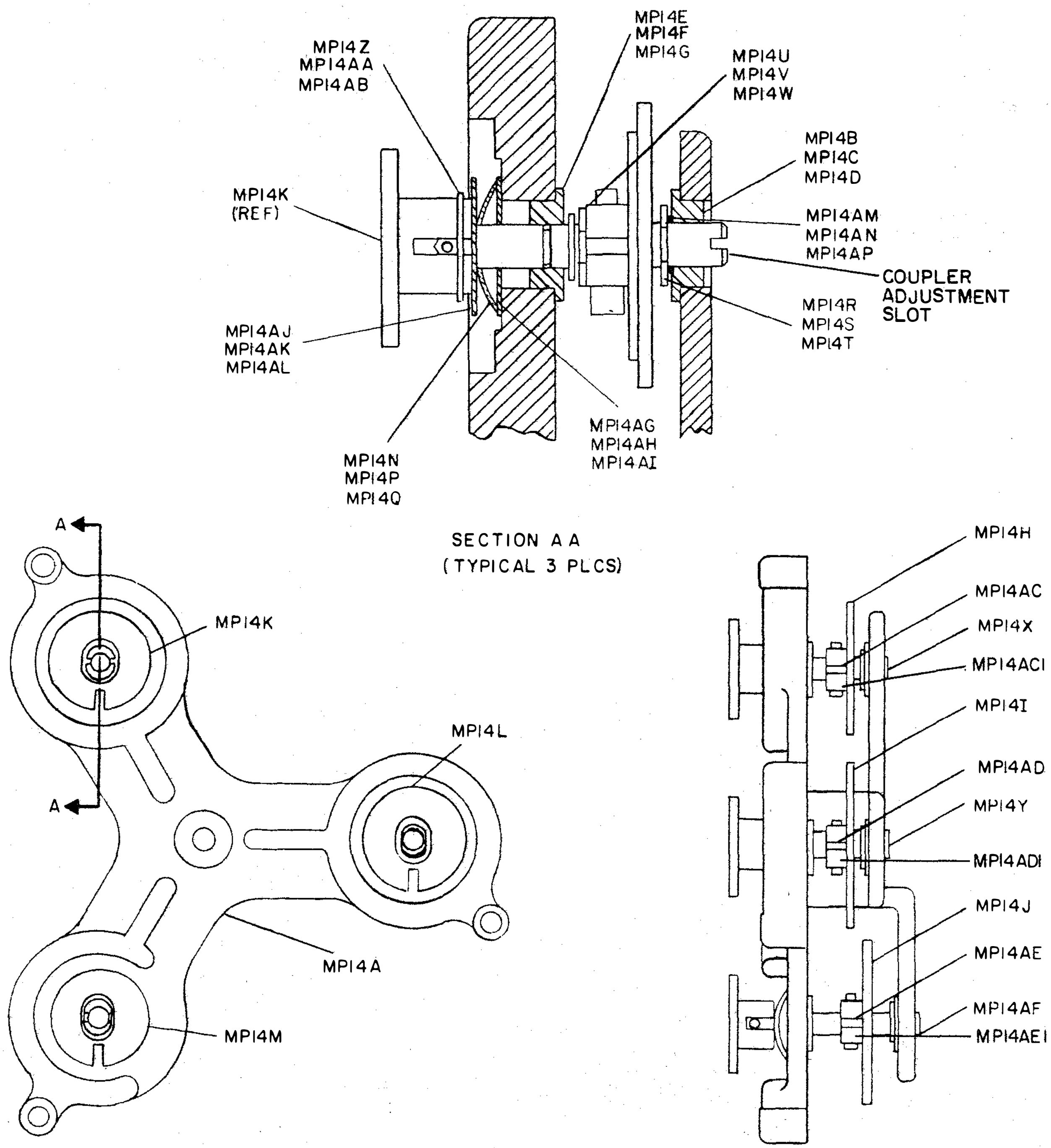


Figure 7-5. Triple Sprocket Assembly A2MP14, Component Locations

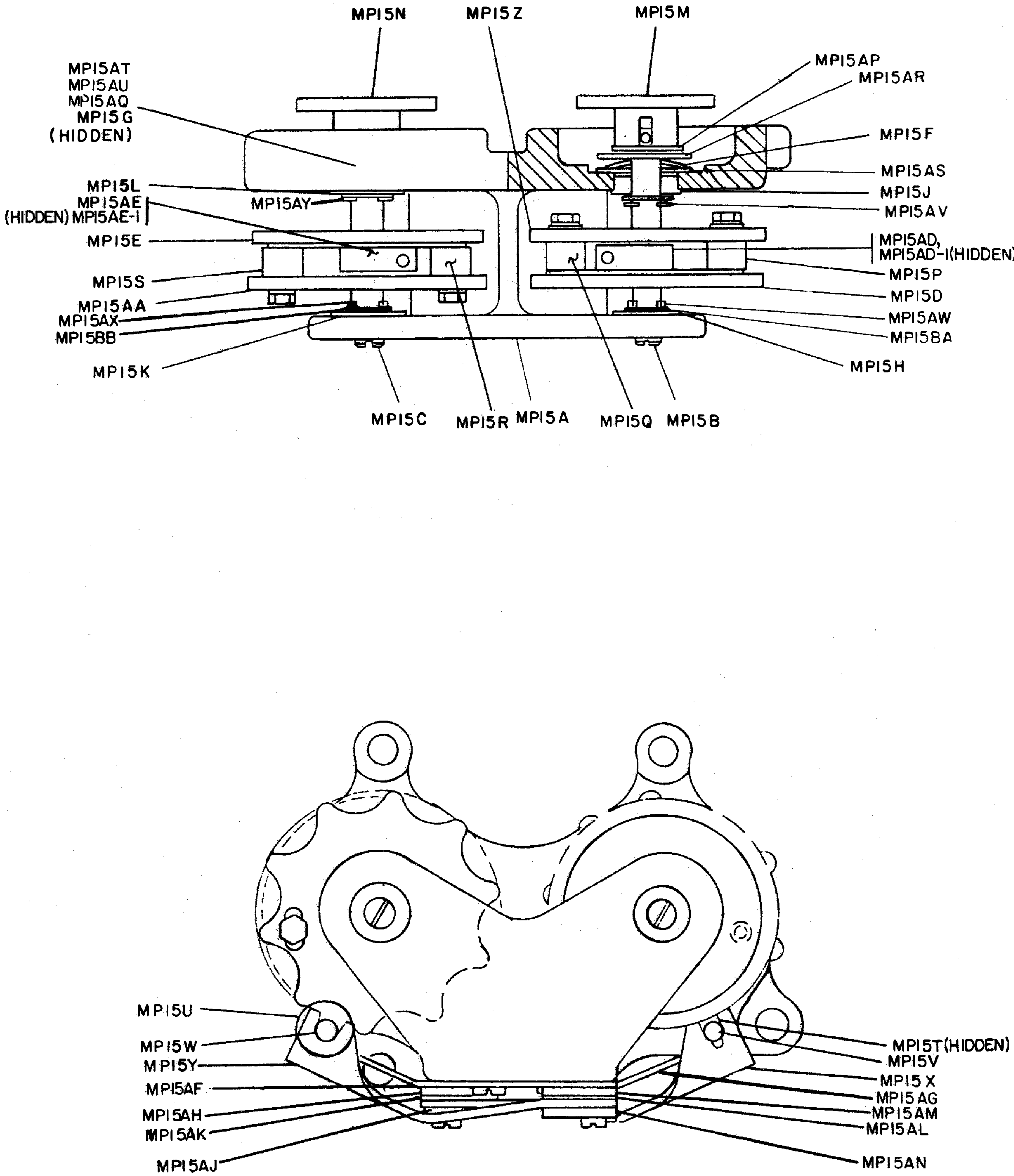


Figure 7-6. Dual-Sprocket Assembly A2MP15, Component Locations

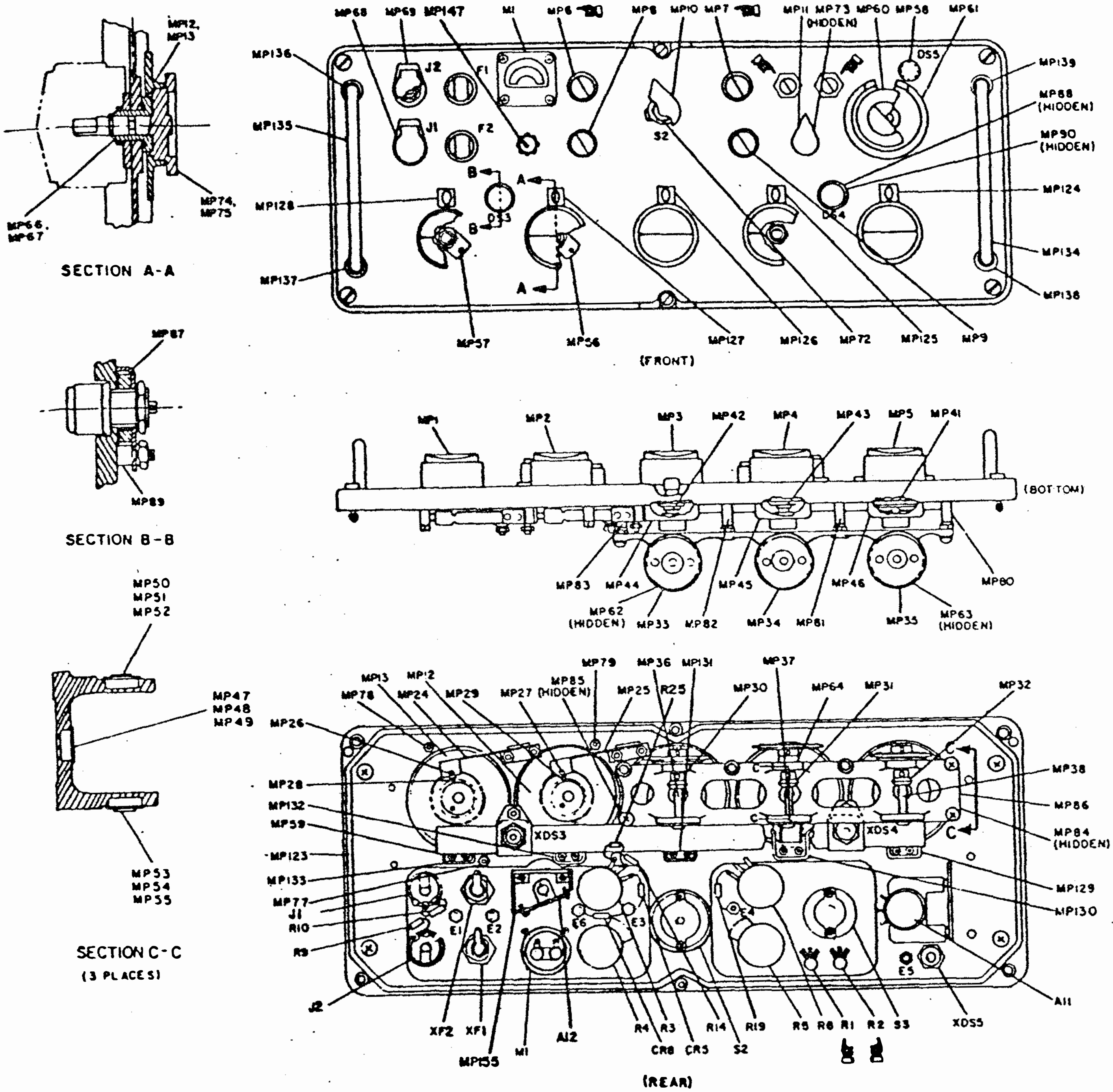


Figure 7-7. Front Panel Assembly (P/O A2), Component Locations

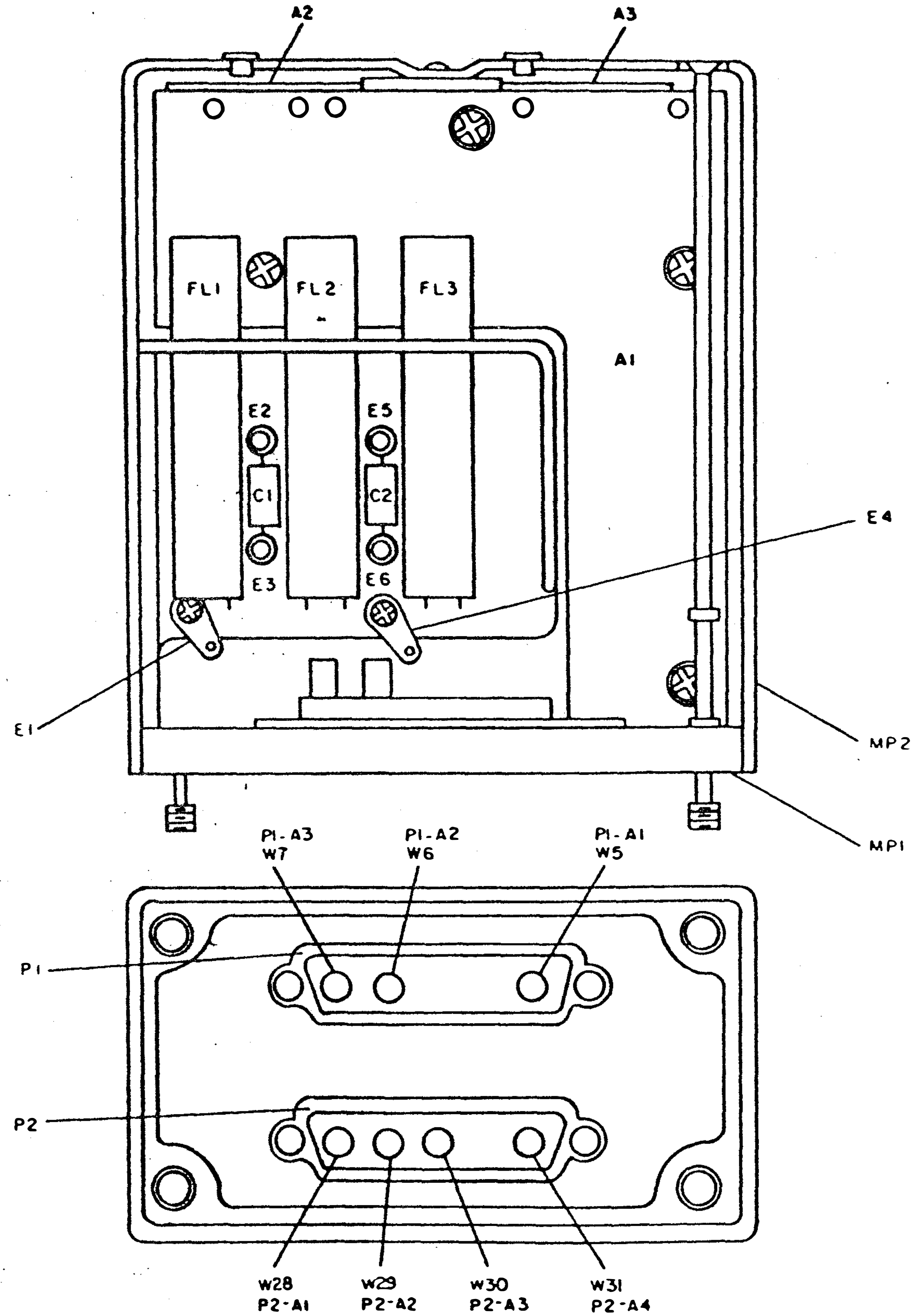


Figure 7-8. Receiver Mode Selector Assembly A2A1, Component Locations

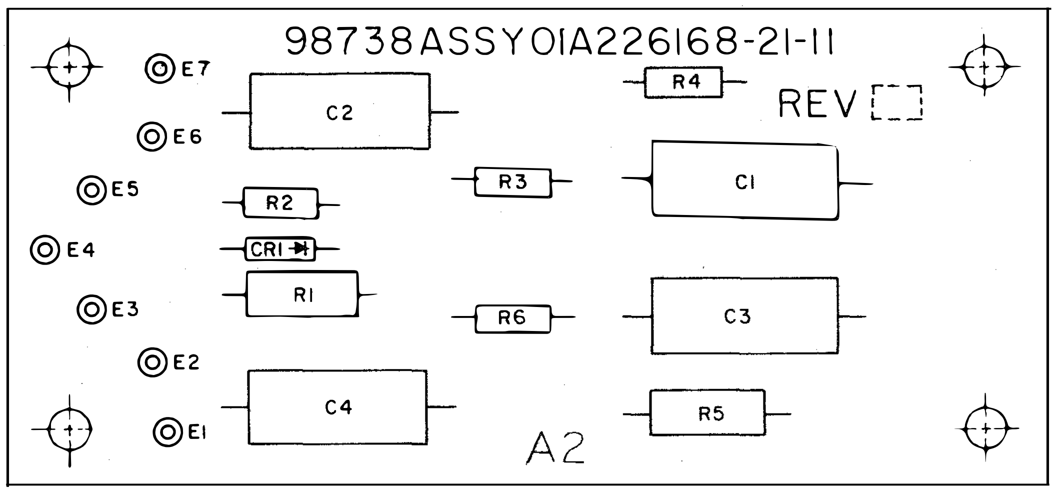
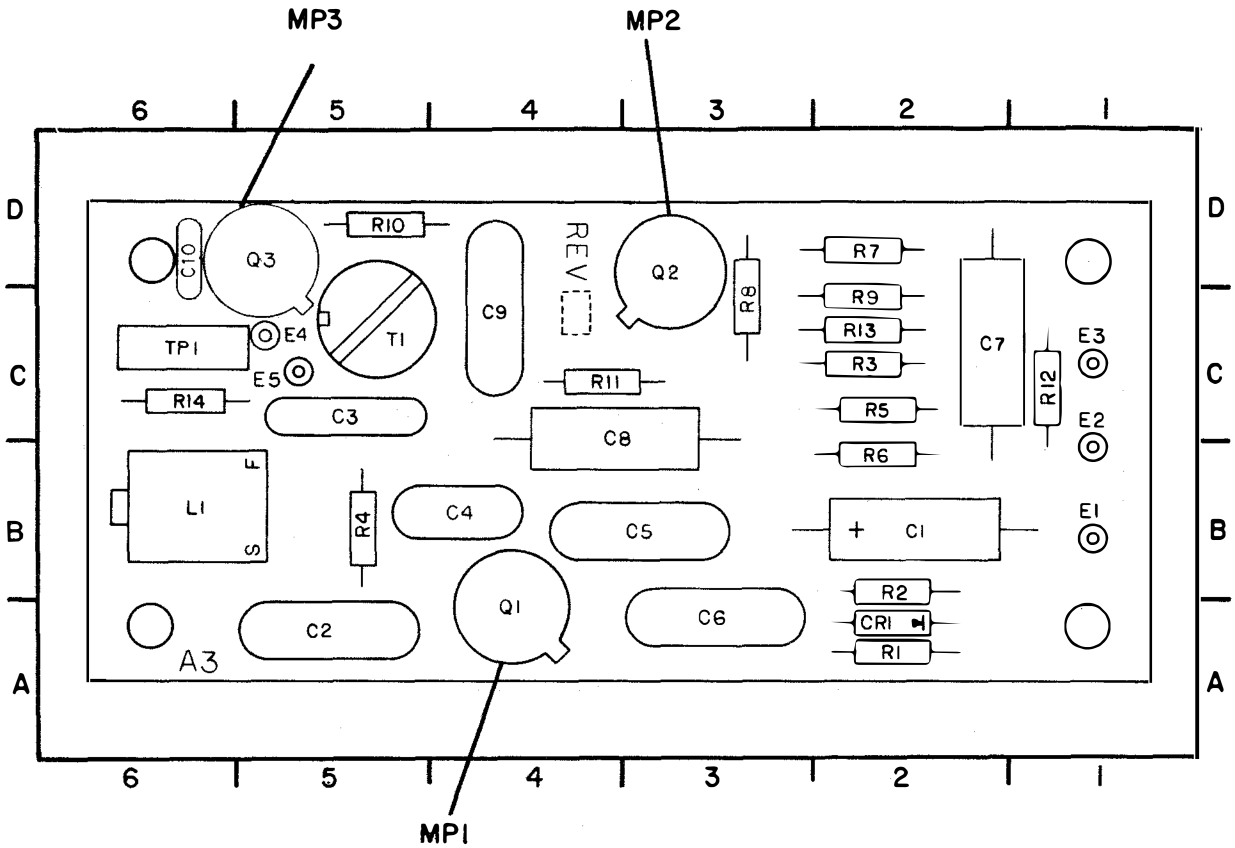


Figure 7-10. 500 kHz Gate Subassembly A2A1A2,
Component Locations



PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A1A3C1	2B	* A2A1A3E2	1C	A2A1A3R5	2C
C2	5A	* E3	1C	R6	2B
C3	5C	* E4	5C	R7	2D
C4	4B	* E5	5C	R8	3C
C5	3B	L1	6B	R9	2C
C6	3A	Q1	4A	R10	5D
C7	2C	Q2	3D	R11	4C
C8	4C	Q3	5D	R12	1C
C9	4C	R1	2A	R13	2C
C10	6D	R2	2B	R14	6C
CR1	2A	R3	2C	T1	5C
* E1	1B	R4	5B	TP1	6C

* Wiring termination - for reference only.

Figure 7-11. Beat Frequency Oscillator and Amplifier Subassembly A2A1A3, Component Locations

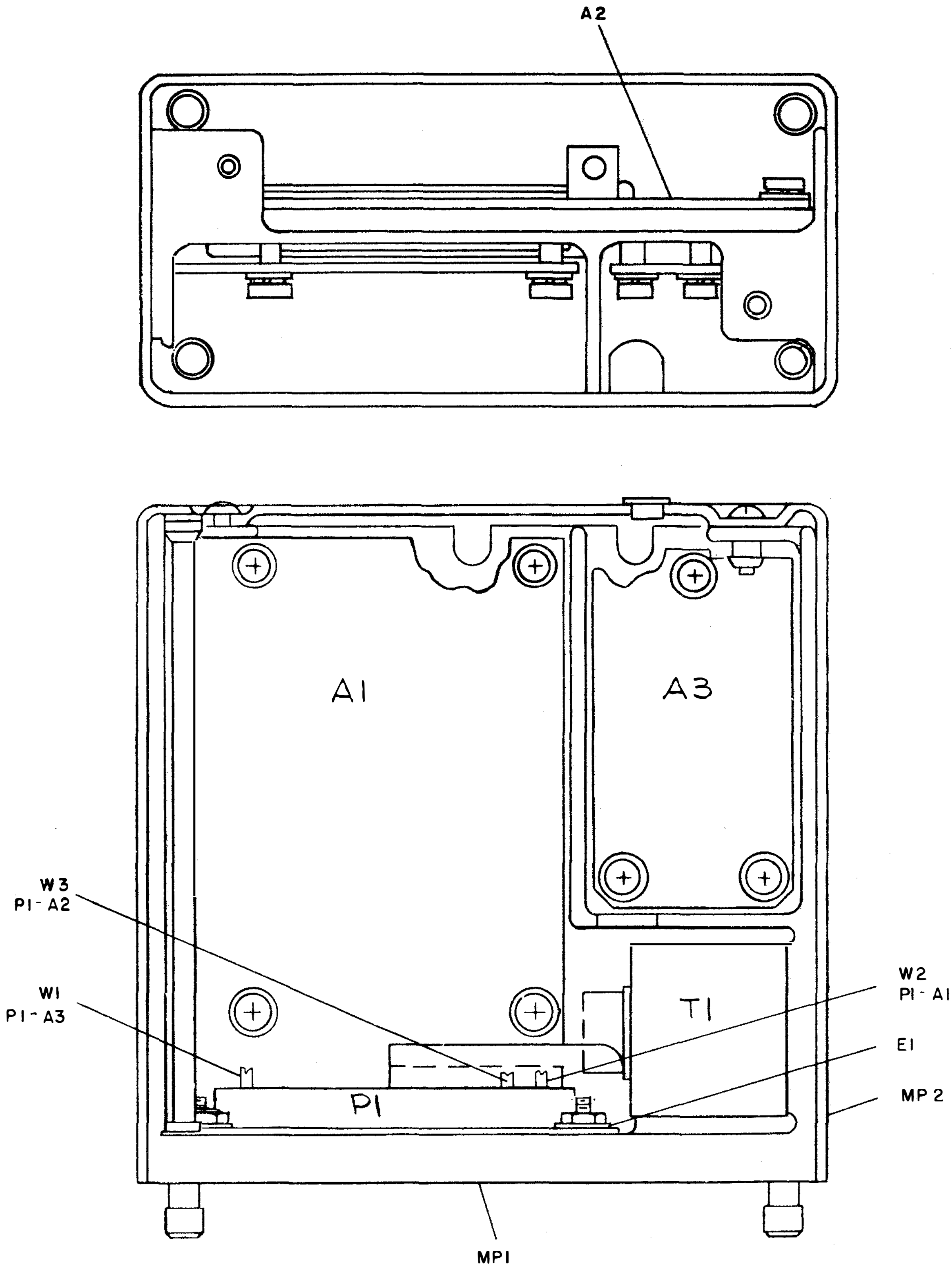
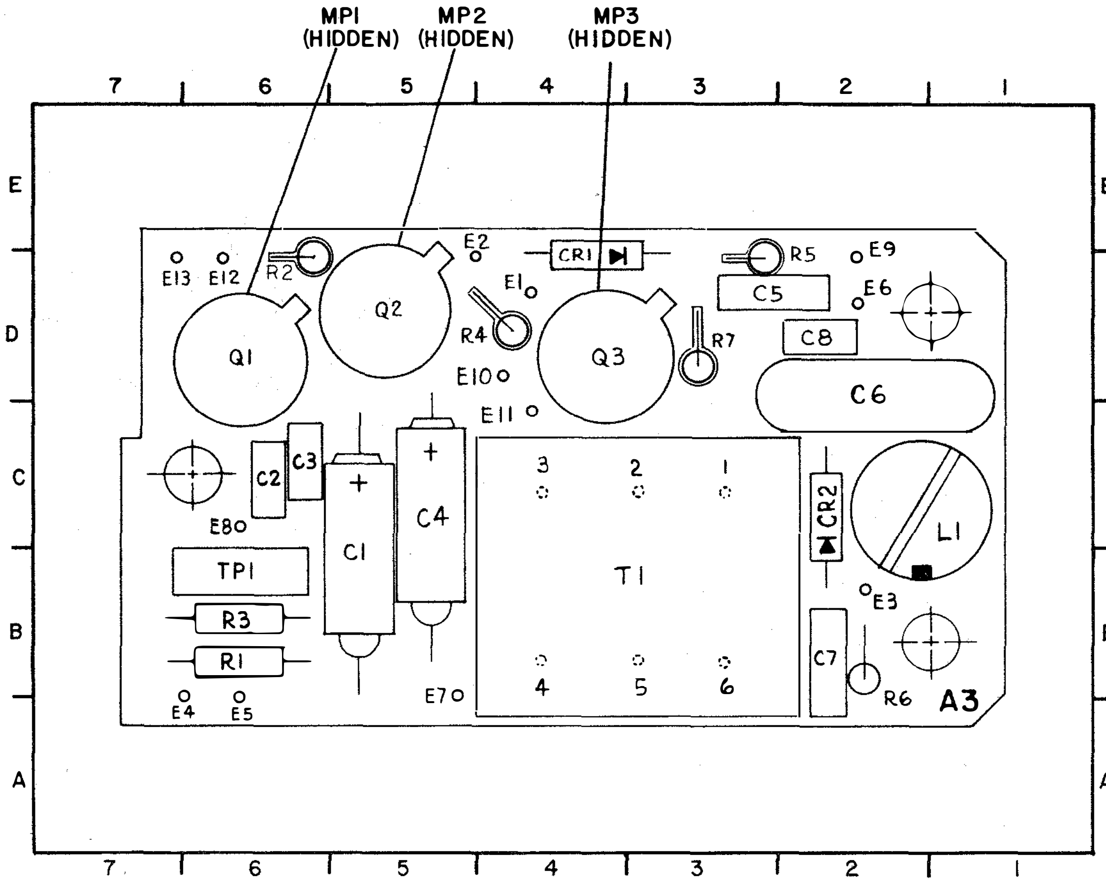


Figure 7-12. Receiver IF/Audio Amplifier Assemblies A2A2 and A2A3, Component Locations



PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A2A3C1	5C	** A2A2A3E5	6B	A2A2A3Q2	5D
C2	6C	** E6	2D	Q3	4D
C3	6C	** E7	5B	R1	6B
C4	5C	** E8	6C	R2	6D
C5	3D	** E9	2D	R3	6B
C6	2D	** E10	4D	R4	4D
C7	2B	** E11	4C	R5	3D
C8	2D	** E12	6D	R6	2B
CR1	4D	** E13	7D	R7	3D
CR2	2C	L1	2C	T1	3B
** E1	4D	MP1	6D	TP1	6B
** E2	5D	MP2	5D		
** E3	2B	MP3	4D	A2A3 identical to	
** E4	6B	Q1	6D	A2A2	

** Wiring termination - for reference only.

Figure 7-15. SSB/AM Detector Subassemblies A2A2A3 and A2A3A3, Component Locations

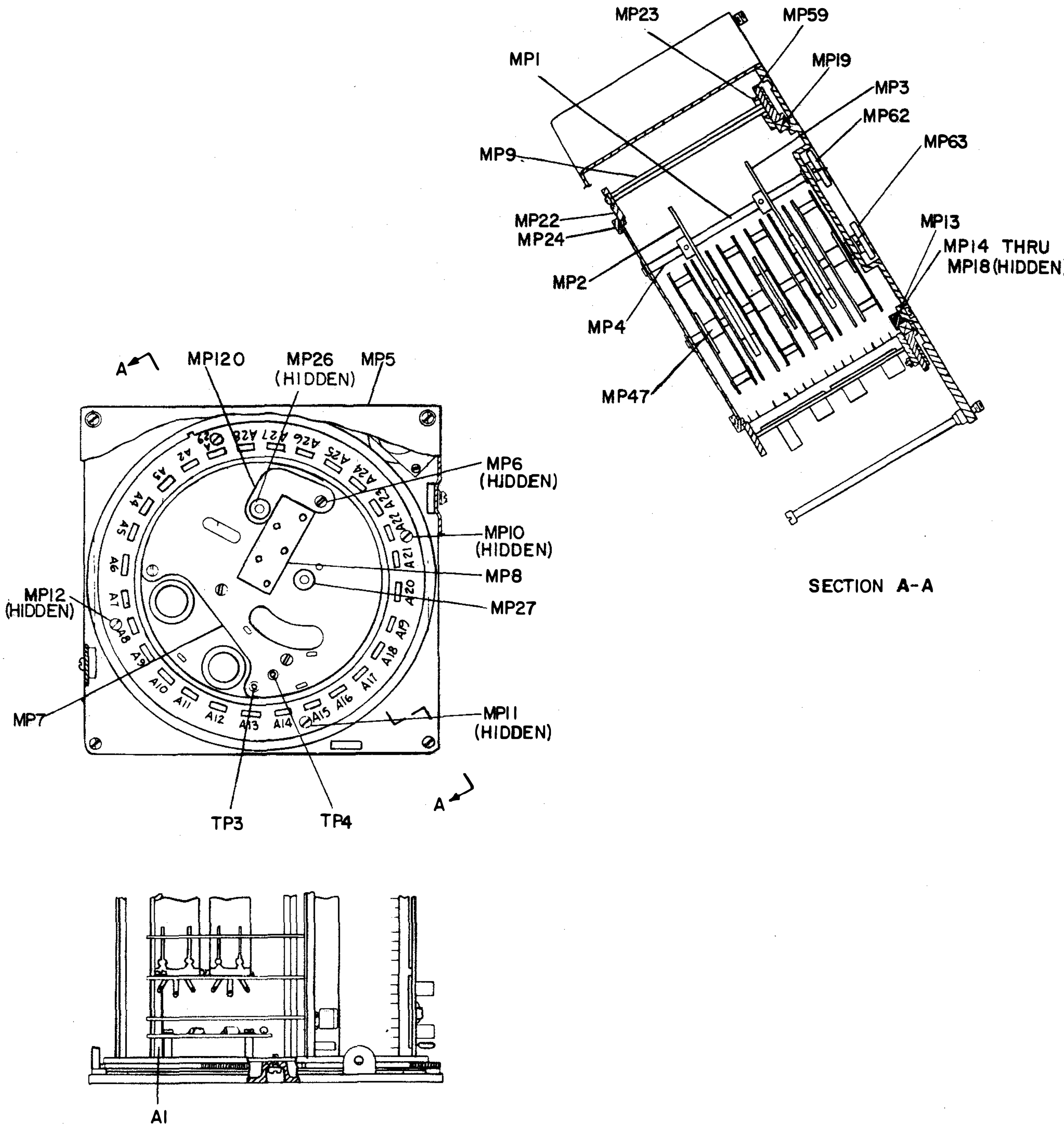
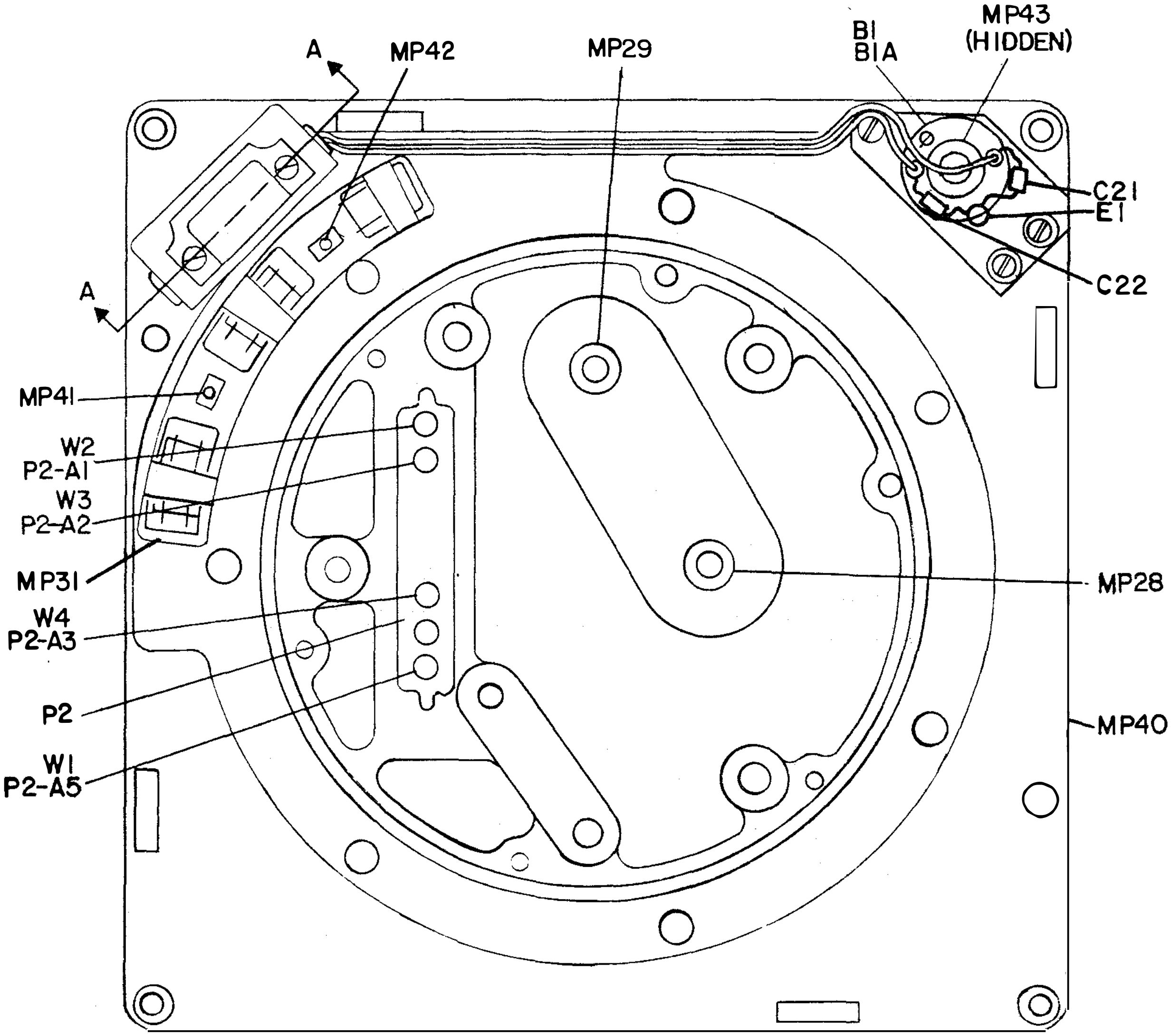
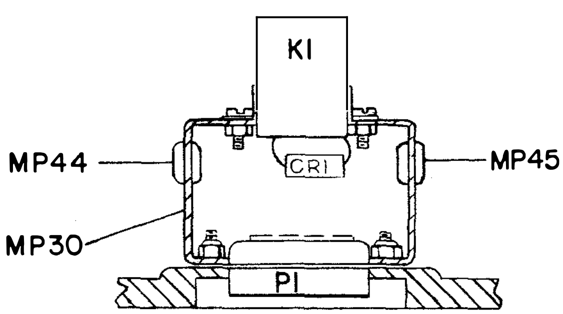


Figure 7-16. RF Amplifier Assembly A2A4,
Component Locations





SECTION A-A

Figure 7-17. Mounting Base Assembly (P/O A2A4), Component Locations

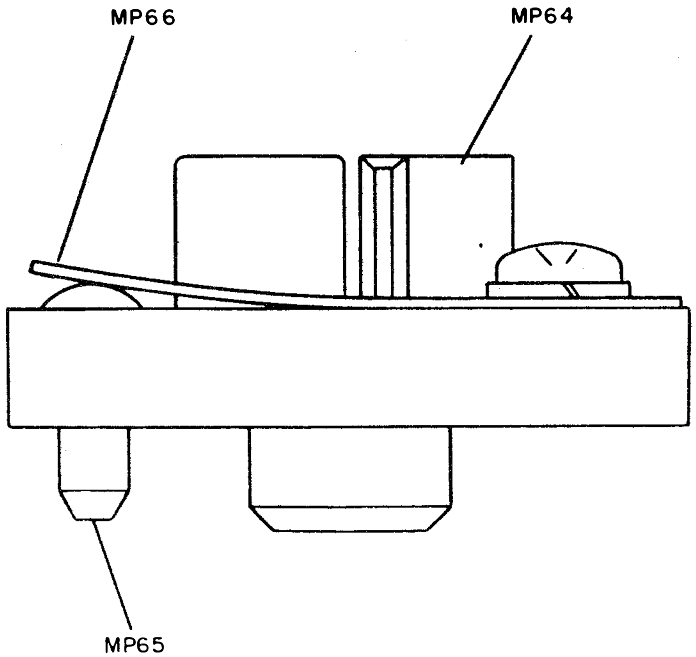


Figure 7-18. Top Coupling Assembly A2A4MP62
and A2A4MP63, Component Locations

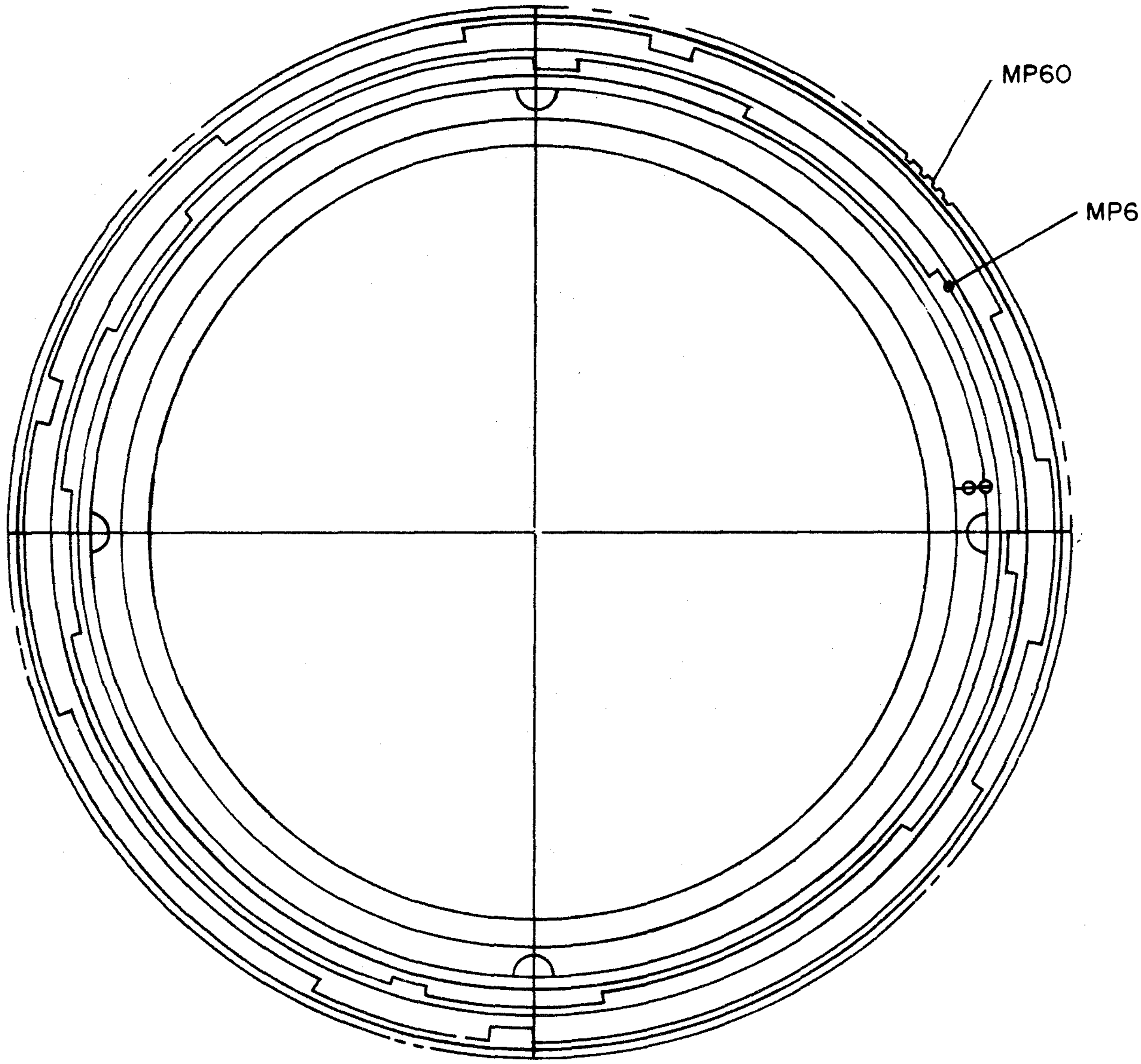
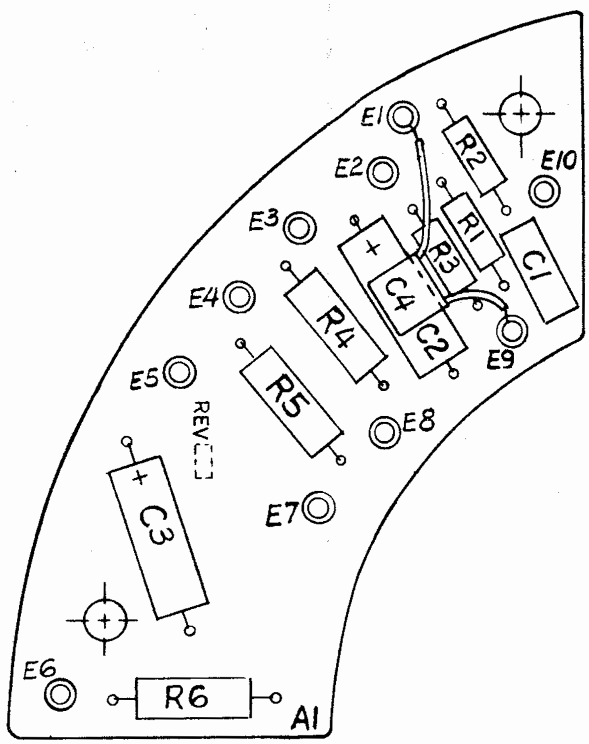


Figure 7-20. Turret Drive Gear Assembly (P/O A2A4), Component Locations



E1 thru E8 and E10 are wiring terminations and are shown for reference only.

Figure 7-21. RF Amplifier Subassembly A2A4A1, Component Locations

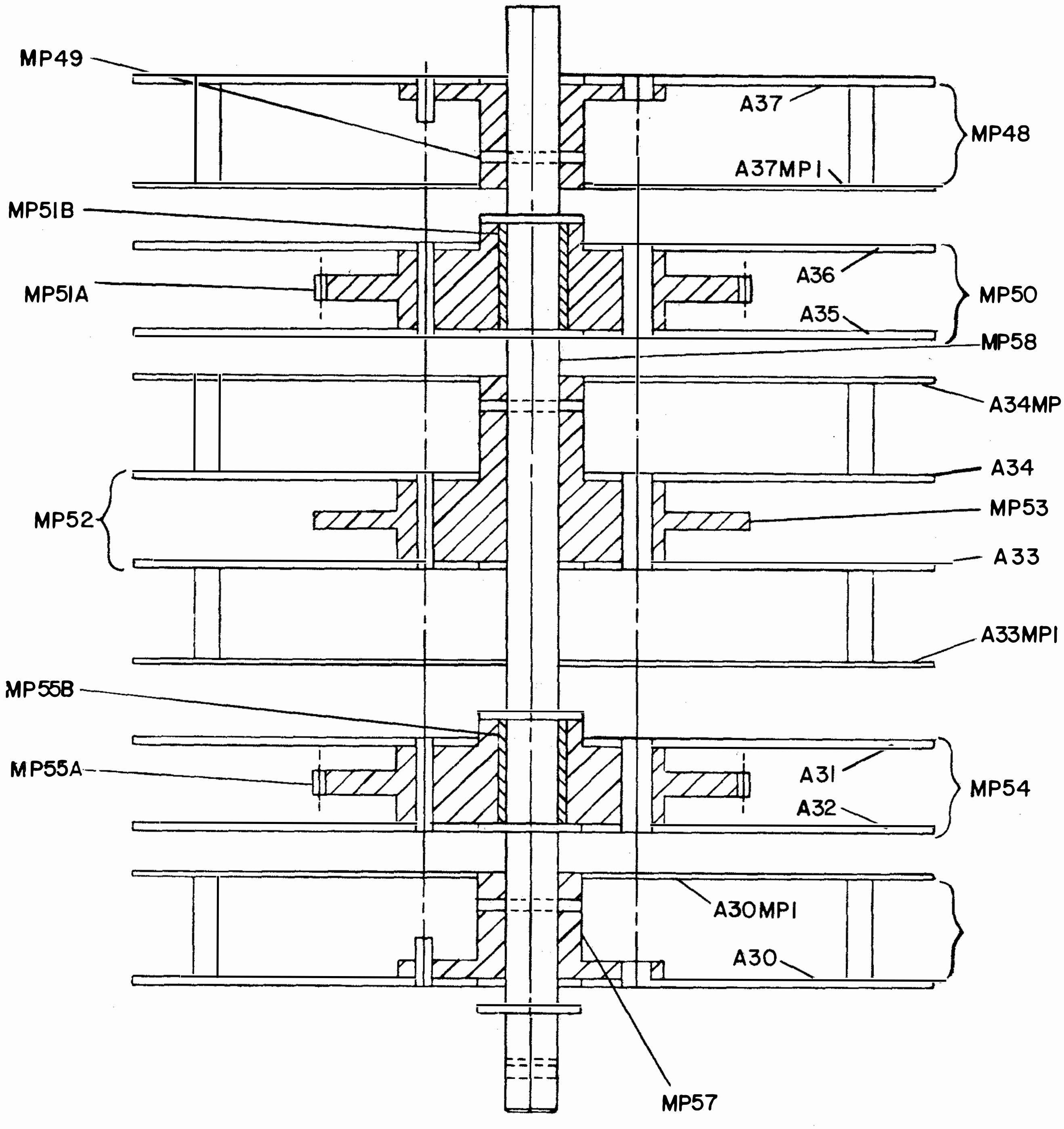


Figure 7-22. Tuning Rotor Assembly A2A4MP47, Component Locations

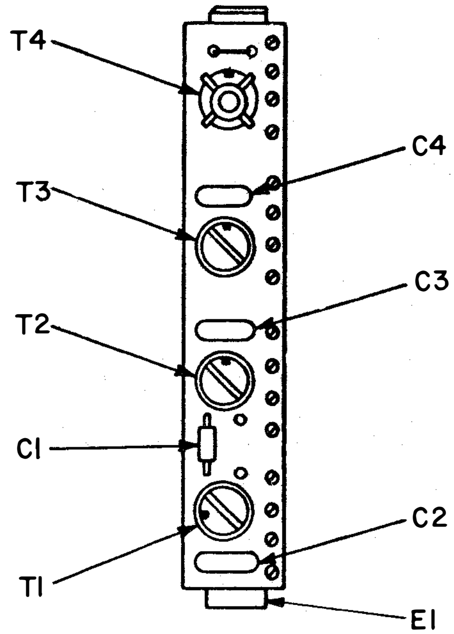


Figure 7-23. 12 MHz Subassembly A2A4A2,
Component Locations

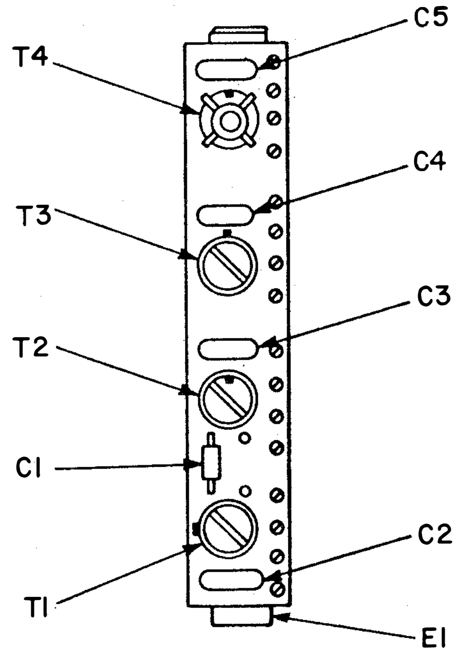


Figure 7-24. 13 MHz Subassembly A2A4A3, Component Locations

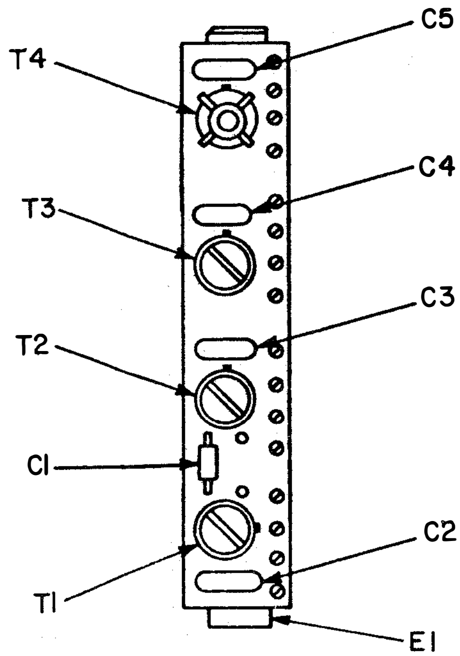


Figure 7-25. 14 MHz Subassembly A2A4A4, Component Locations

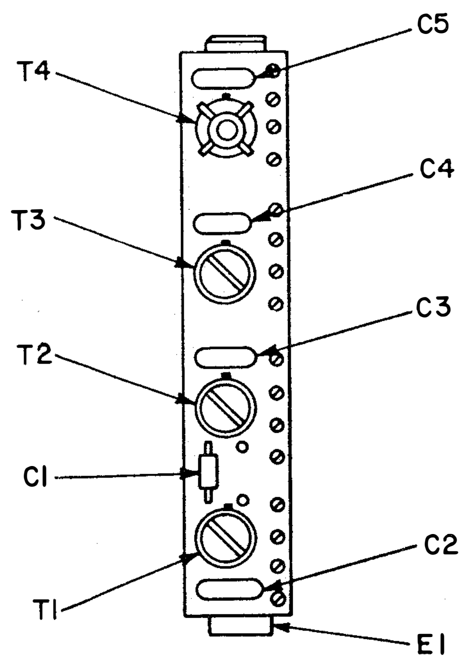


Figure 7-26. 15 MHz Subassembly A2A4A5, Component Locations

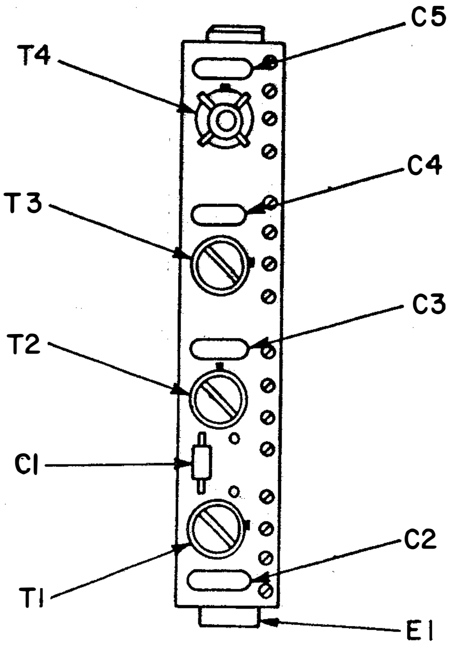


Figure 7-27. 16 MHz Subassembly A2A4A6, Component Locations

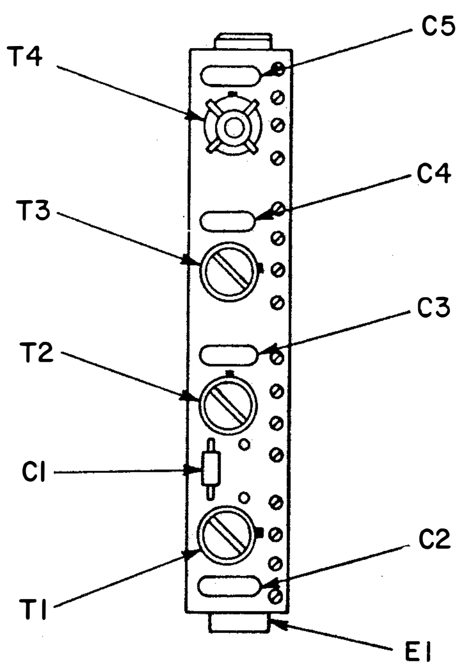


Figure 7-28. 17 MHz Subassembly A2A4A7, Component Locations

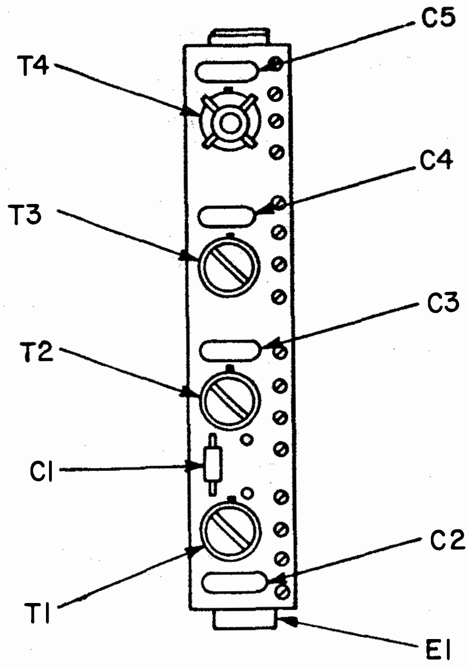


Figure 7-29. 18 MHz Subassembly A2A4A8,
Component Locations

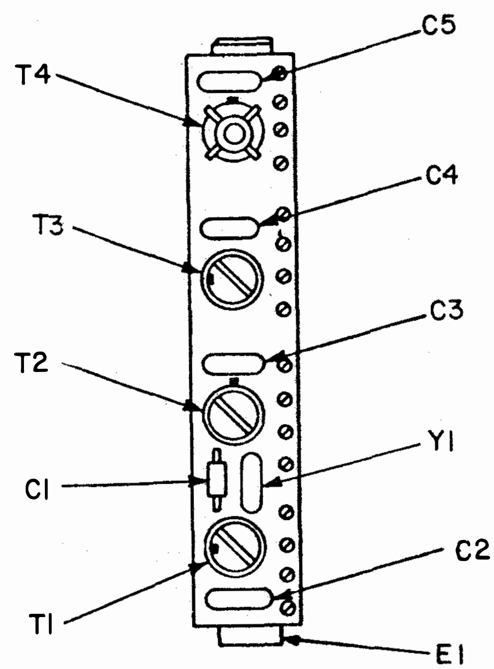


Figure 7-30. 19 MHz Subassembly A2A4A9,
Component Locations

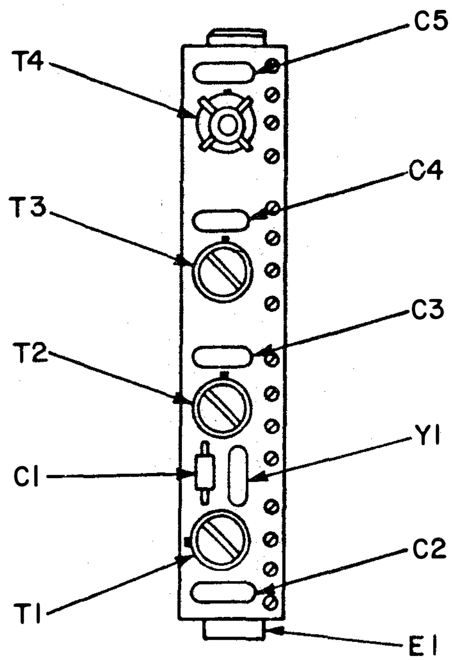


Figure 7-31. 20 MHz Subassembly A2A4A10, Component Locations

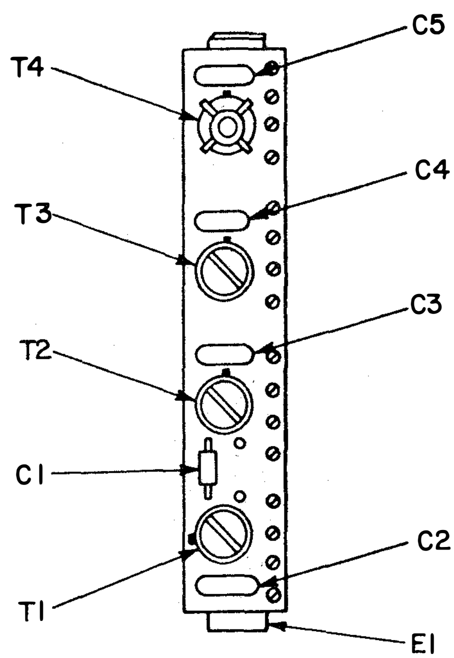


Figure 7-32. 21 MHz Subassembly A2A4A11, Component Locations

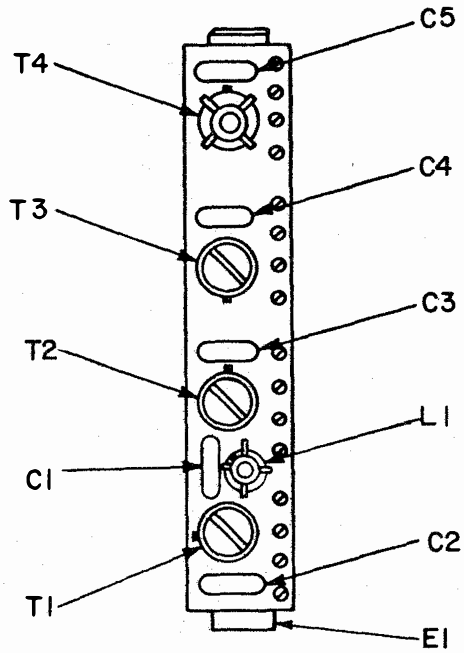


Figure 7-33. 22 MHz Subassembly A2A4A12, Component Locations

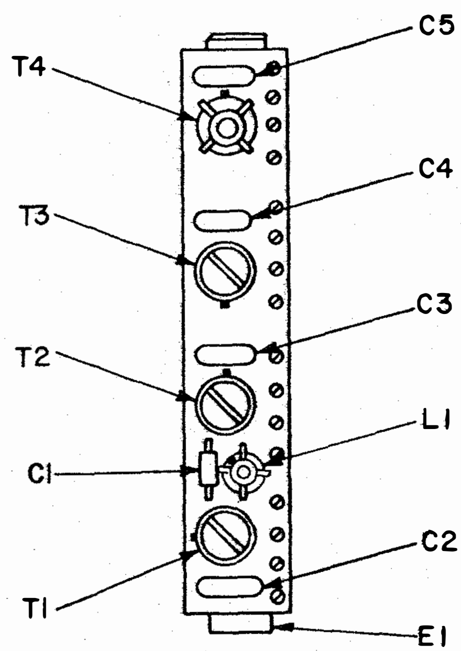


Figure 7-34. 23 MHz Subassembly A2A4A13, Component Locations

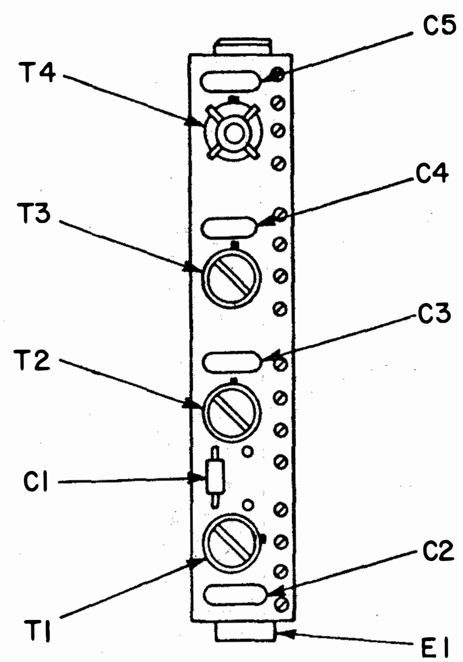


Figure 7-35. 24 MHz Subassembly A2A4A14,
Component Locations

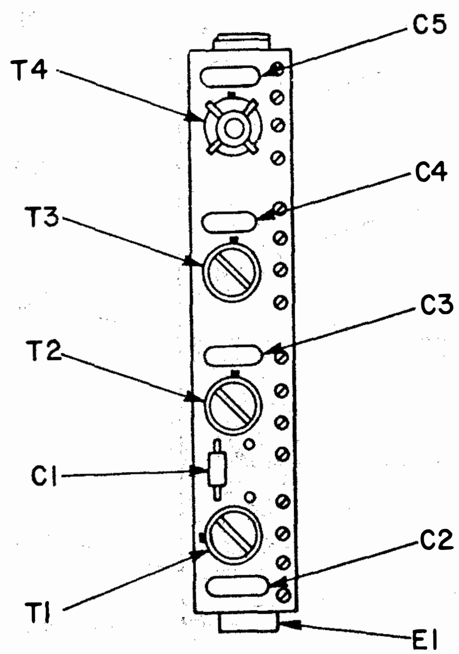


Figure 7-36. 25 MHz Subassembly A2A4A15,
Component Locations

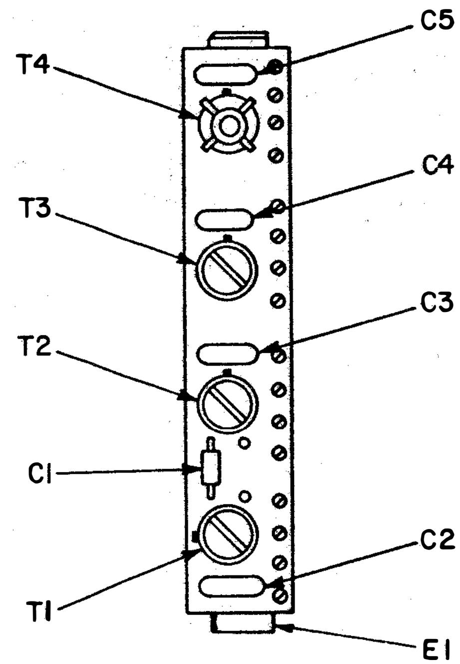


Figure 7-37. 26 MHz Subassembly A2A4A16, Component Locations

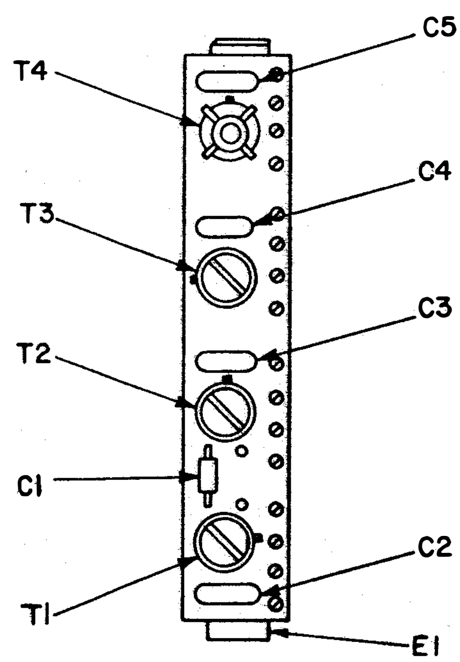


Figure 7-38. 27 MHz Subassembly A2A4A17, Component Locations

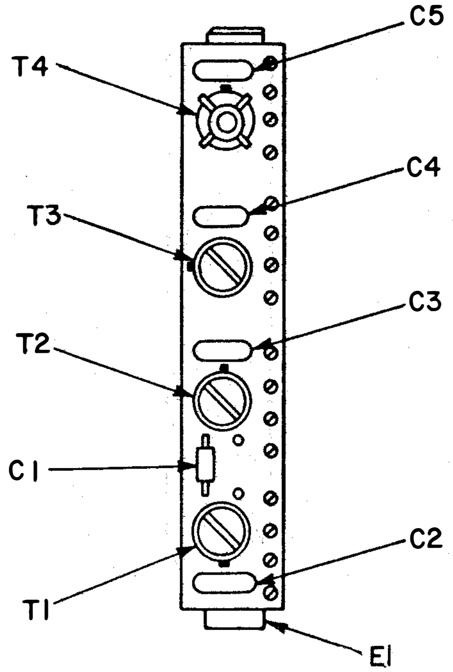


Figure 7-39. 28 MHz Subassembly A2A4A18, Component Locations

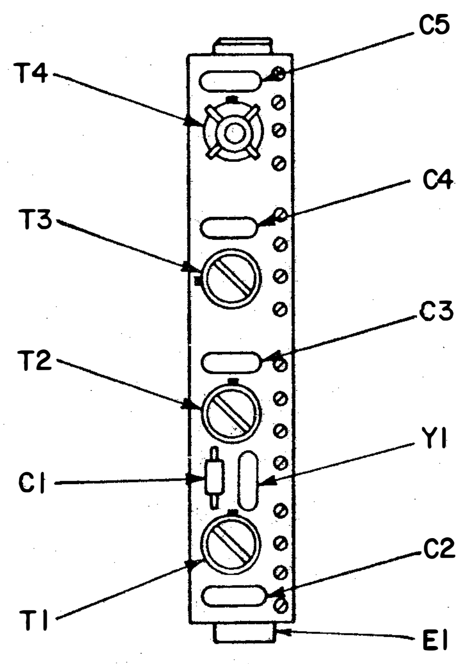


Figure 7-40. 29 MHz Subassembly A2A4A19, Component Locations

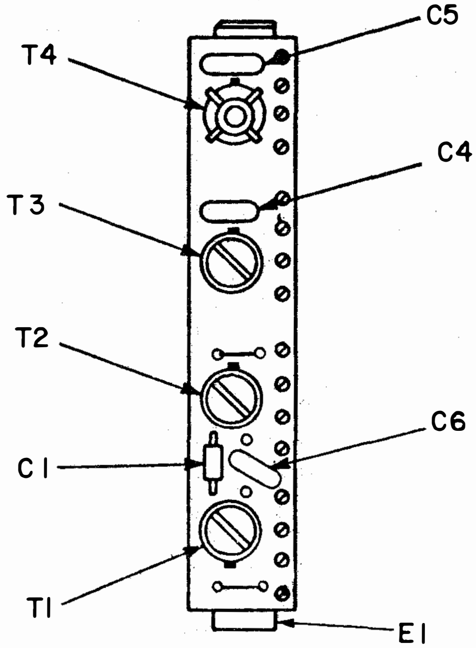


Figure 7-41. 2 MHz Subassembly A2A4A20, Component Locations

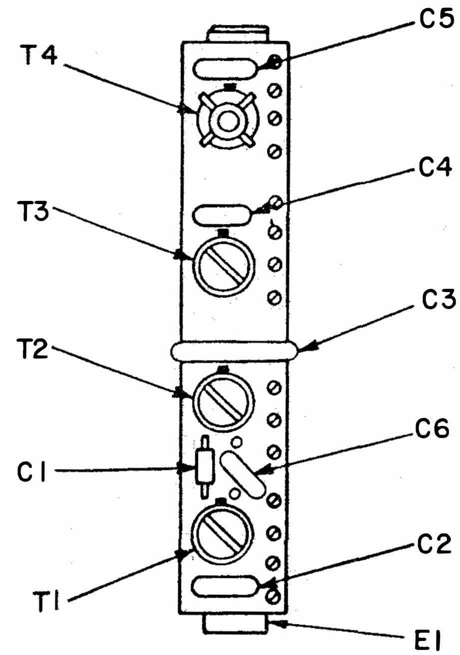


Figure 7-42. 3 MHz Subassembly A2A4A21, Component Locations

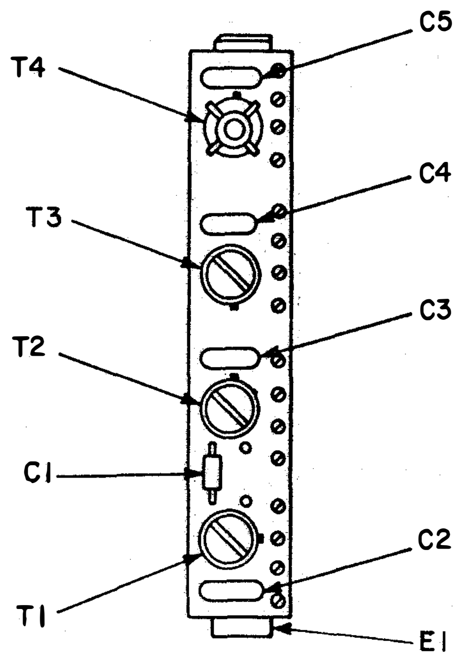


Figure 7-43. 4 MHz Subassembly A2A4A22, Component Locations

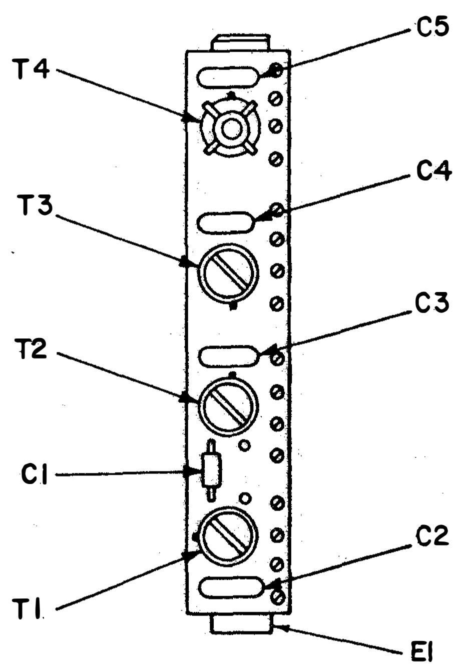


Figure 7-44. 5 MHz Subassembly A2A4A23, Component Locations

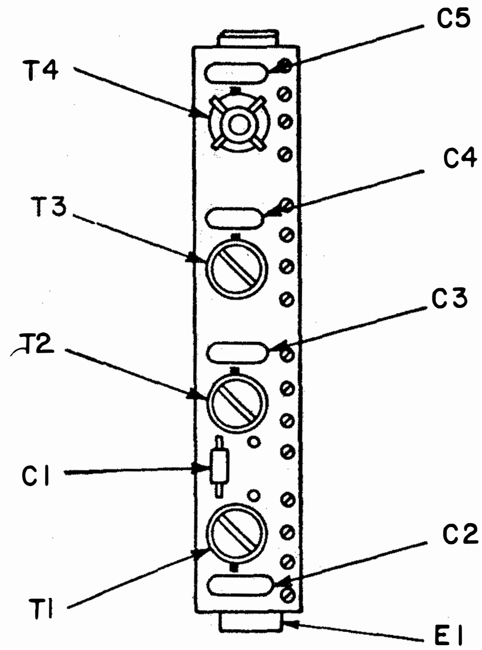


Figure 7-45. 6 MHz Subassembly A2A4A24, Component Locations

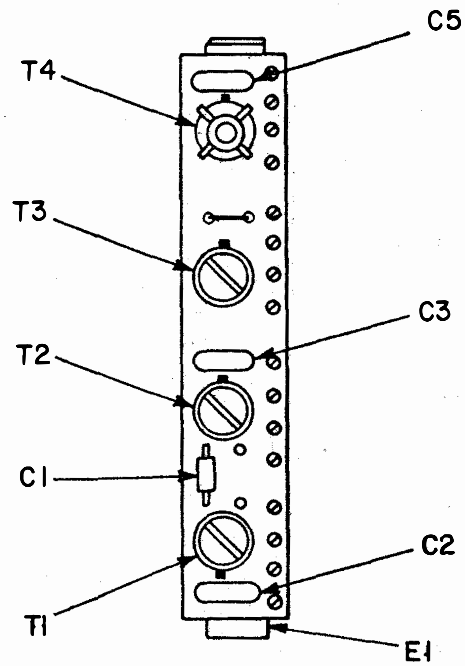


Figure 7-46. 7 MHz Subassembly A2A4A25, Component Locations

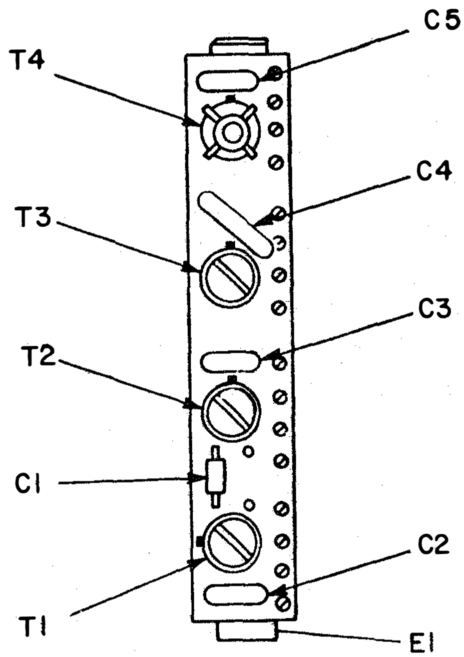


Figure 7-47. 8 MHz Subassembly A2A4A26,
Component Locations

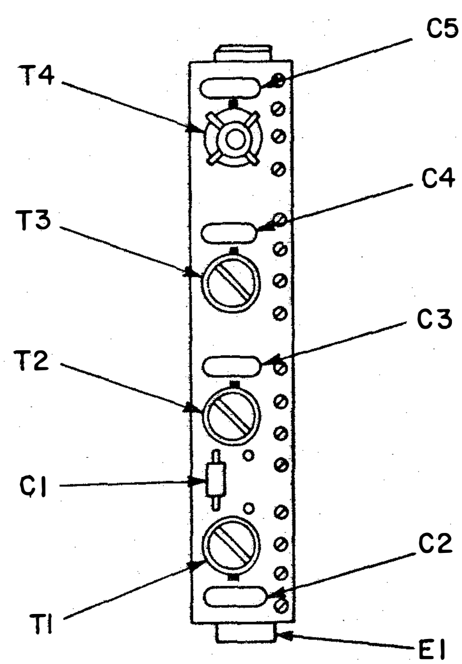


Figure 7-48. 9 MHz Subassembly A2A4A27,
Component Locations

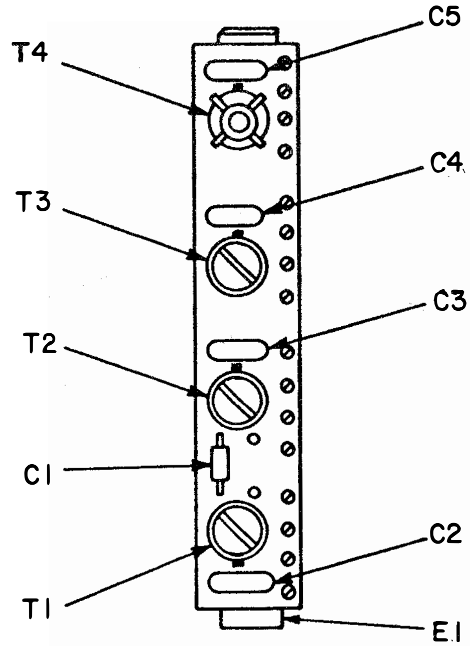


Figure 7-49. 10 MHz Subassembly A2A4A28, Component Locations

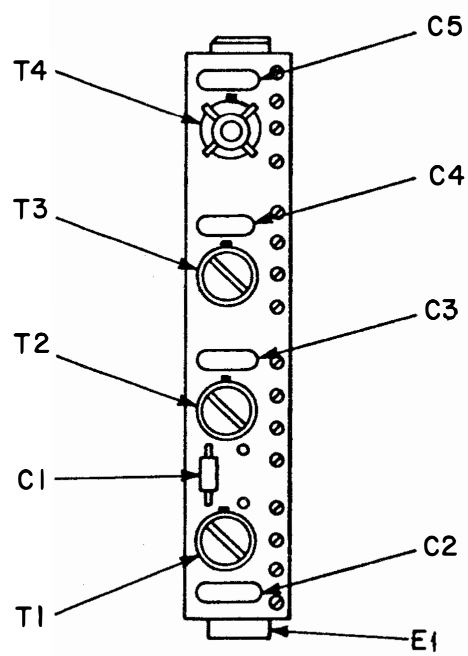


Figure 7-50. 11 MHz Subassembly A2A4A29, Component Locations

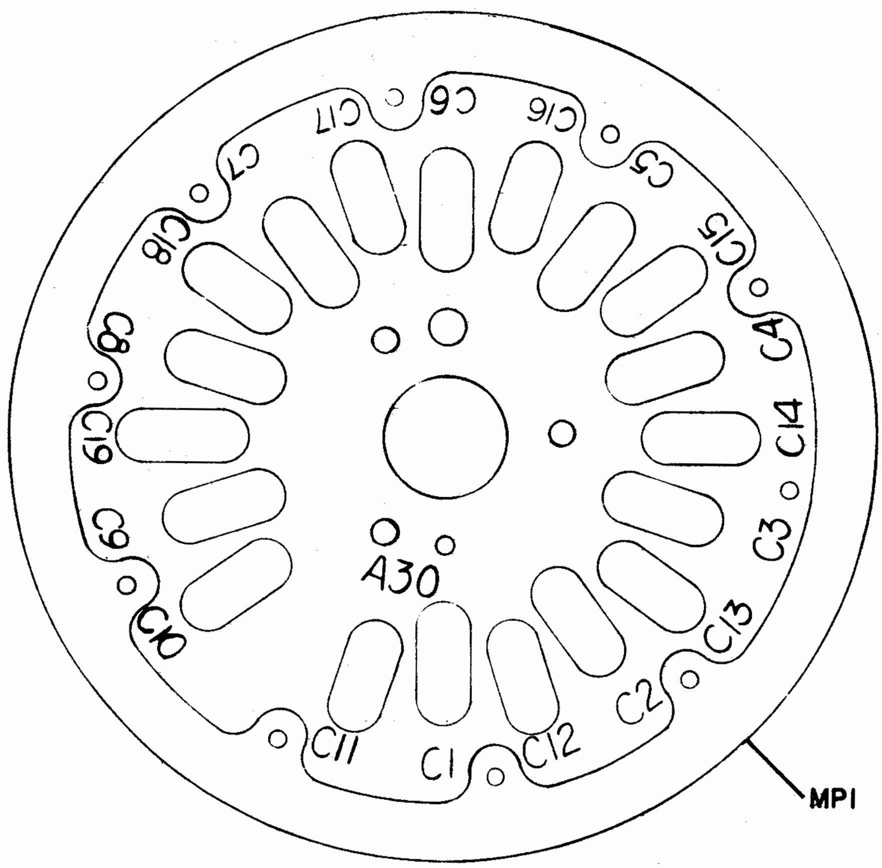


Figure 7-51. 100 kHz Rotor Subassembly A2A4A30,
Component Locations

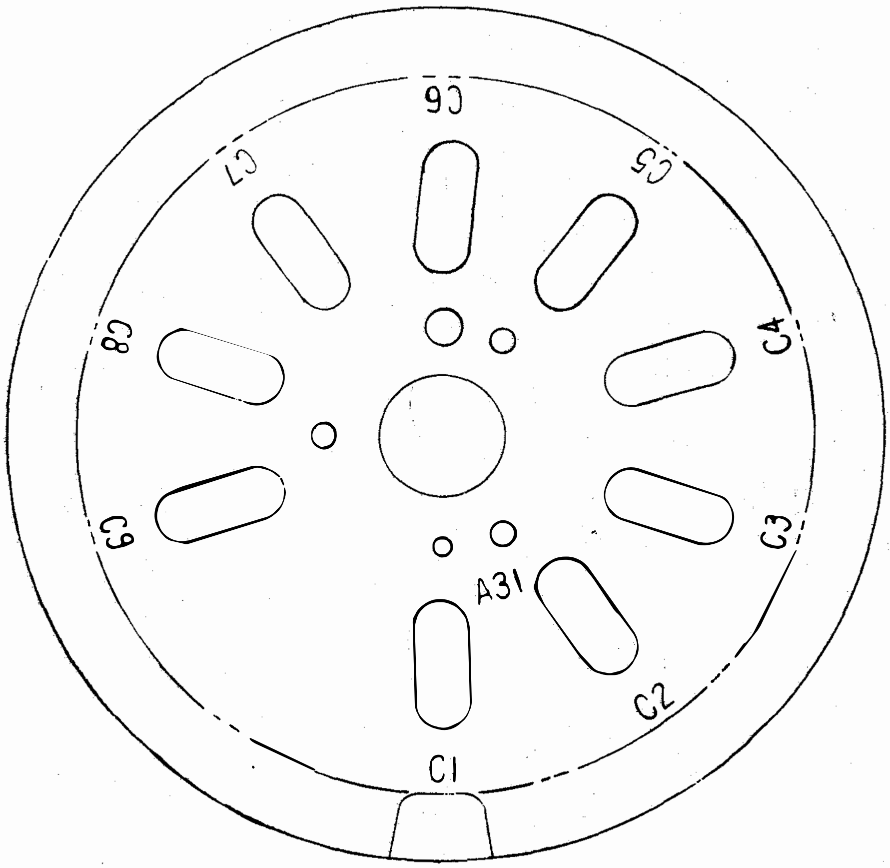


Figure 7-52. 10 kHz Rotor Subassembly A2A4A31, Component Locations

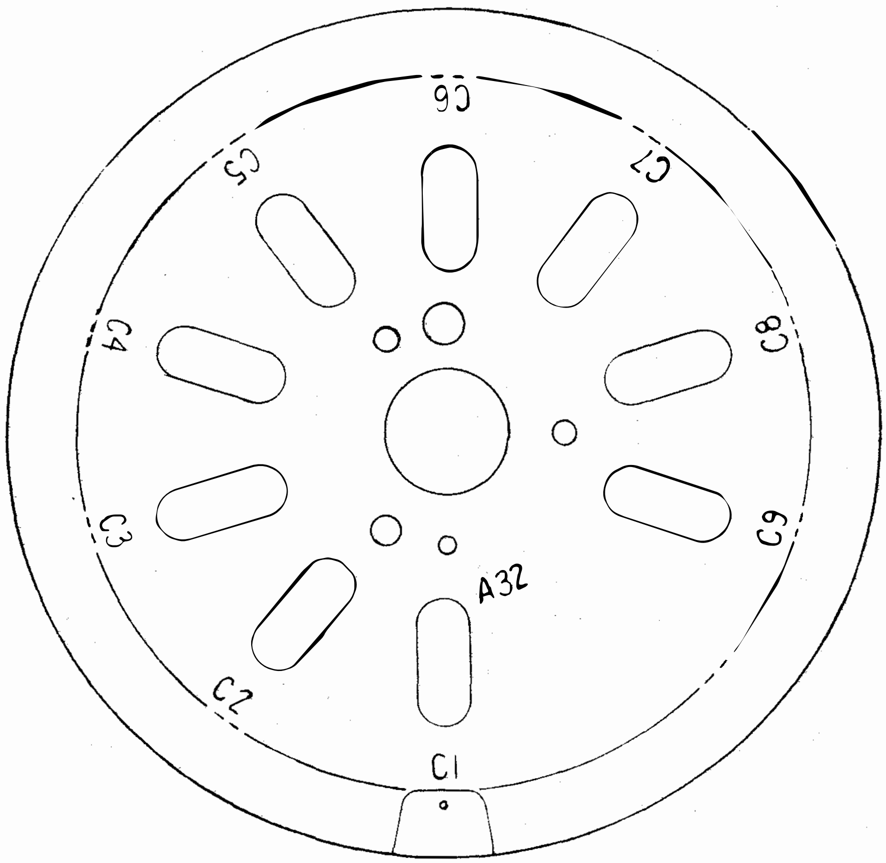


Figure 7-53. 10 kHz Rotor Subassembly A2A4A32,
Component Locations

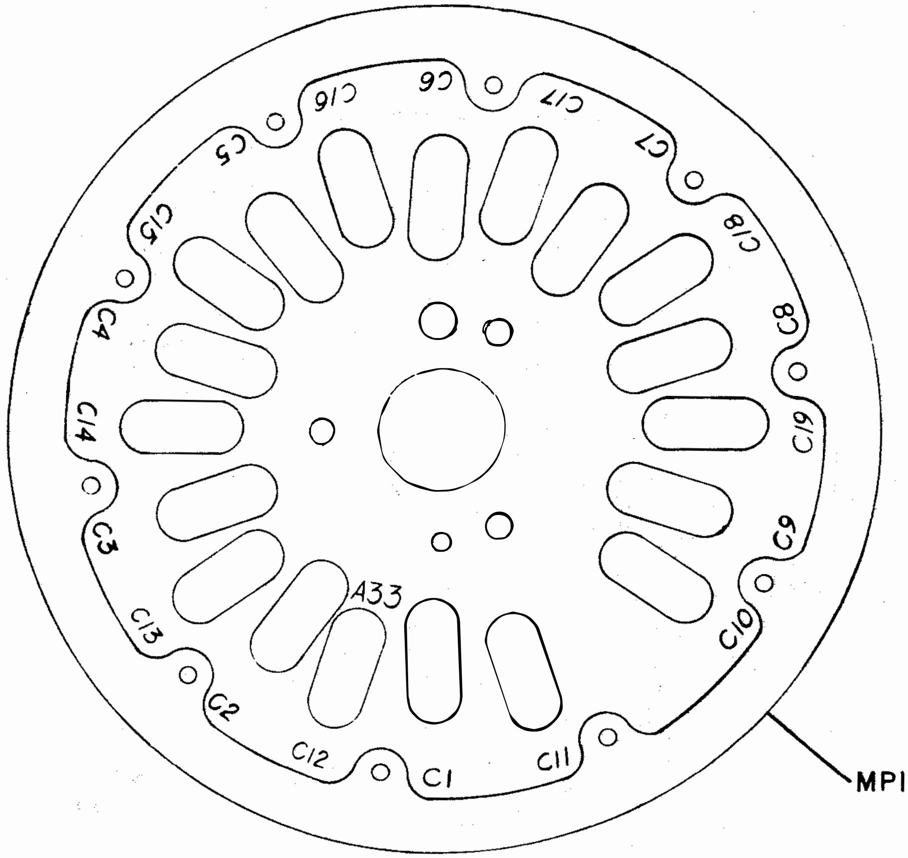


Figure 7-54. 100 kHz Rotor Subassembly A2A4A33,
Component Locations

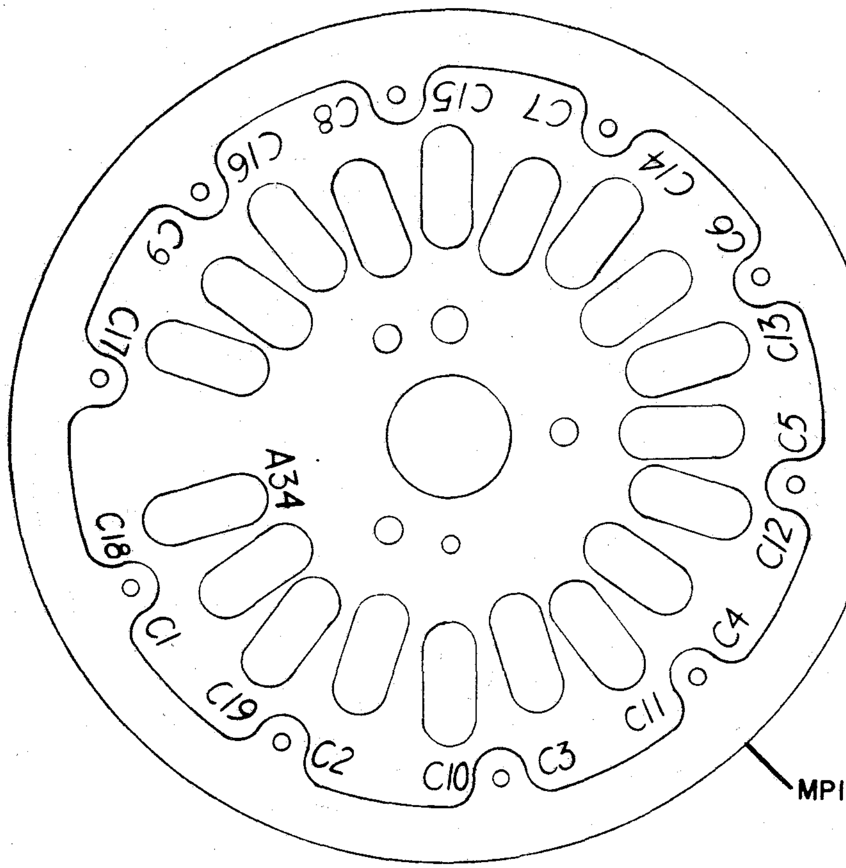


Figure 7-55. 100 kHz Rotor Subassembly A2A4A34, Component Locations

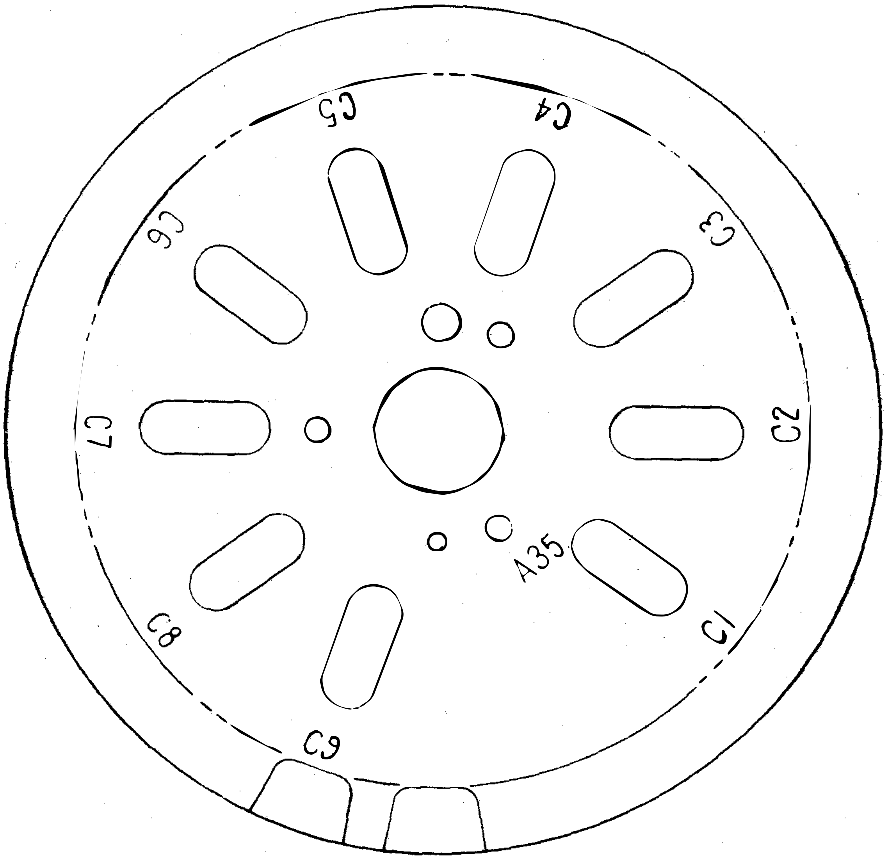


Figure 7-56. 100 kHz Rotor Subassembly A2A4A35,
Component Locations

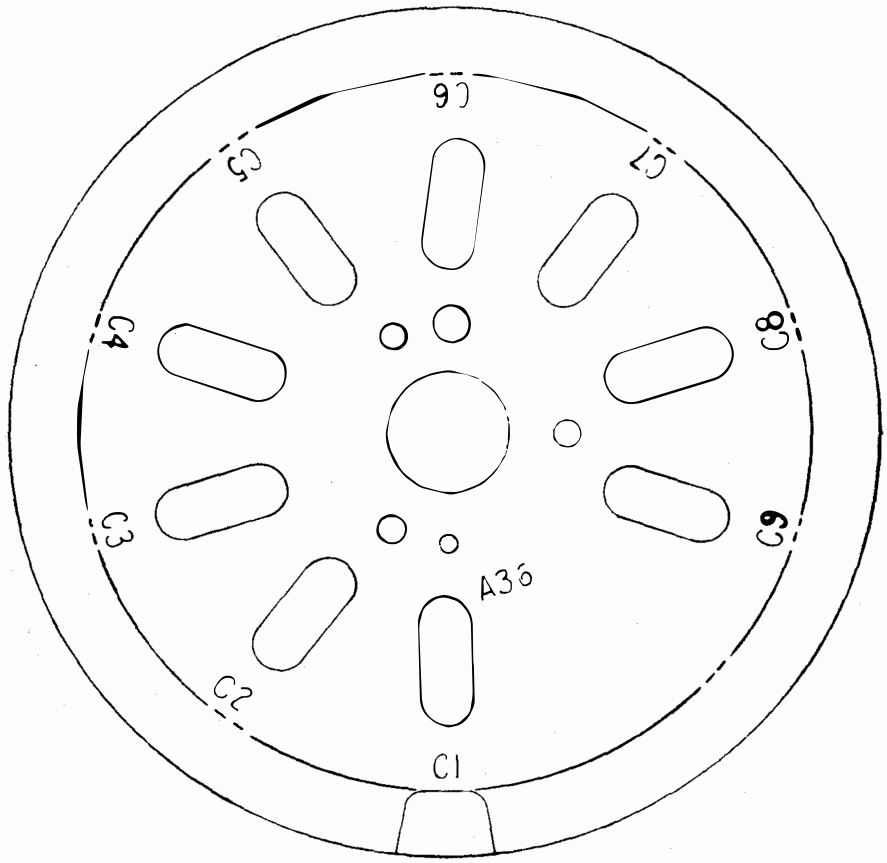


Figure 7-57. 10 kHz Rotor Subassembly A2A4A36,
Component Locations

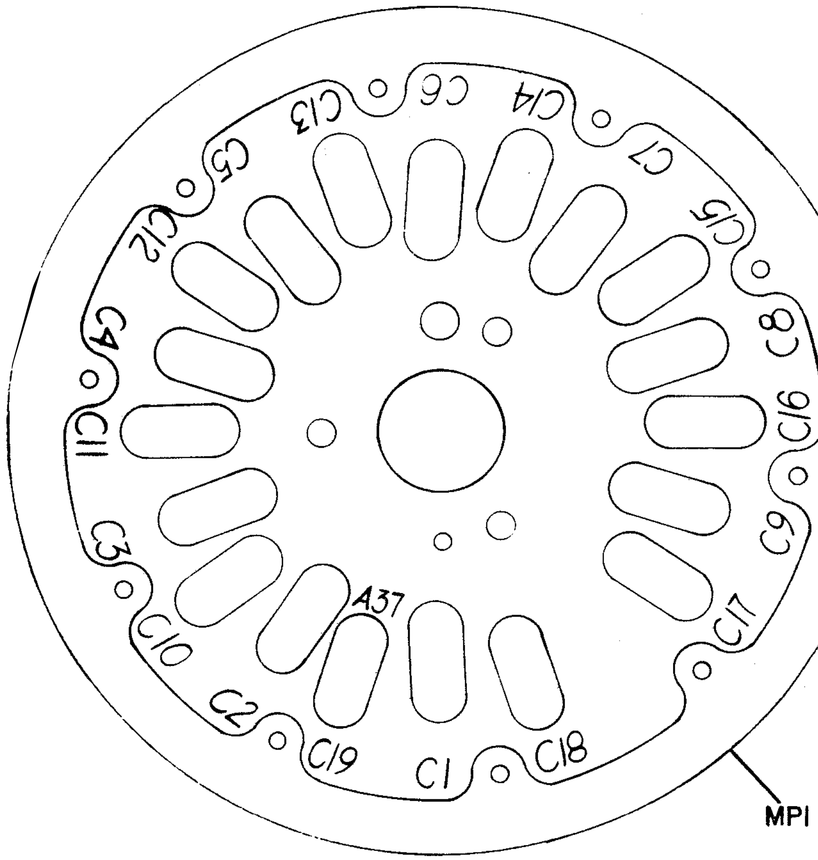


Figure 7-58. 100 kHz Rotor Subassembly A2A4A37, Component Locations

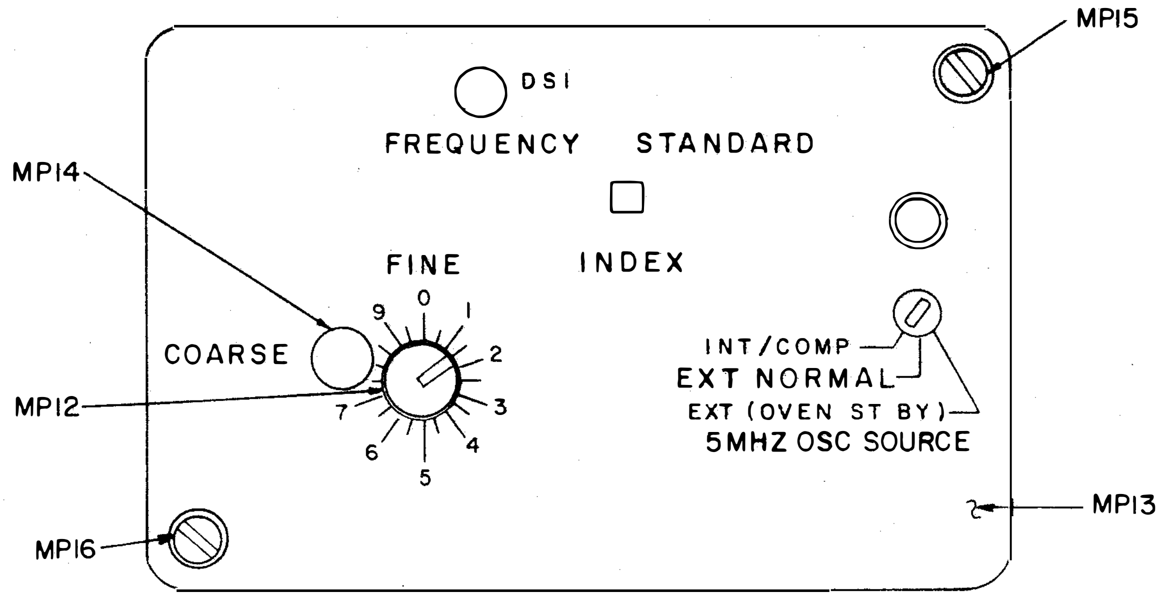


Figure 7-60. Frequency Standard Assembly A2A5, Component Locations

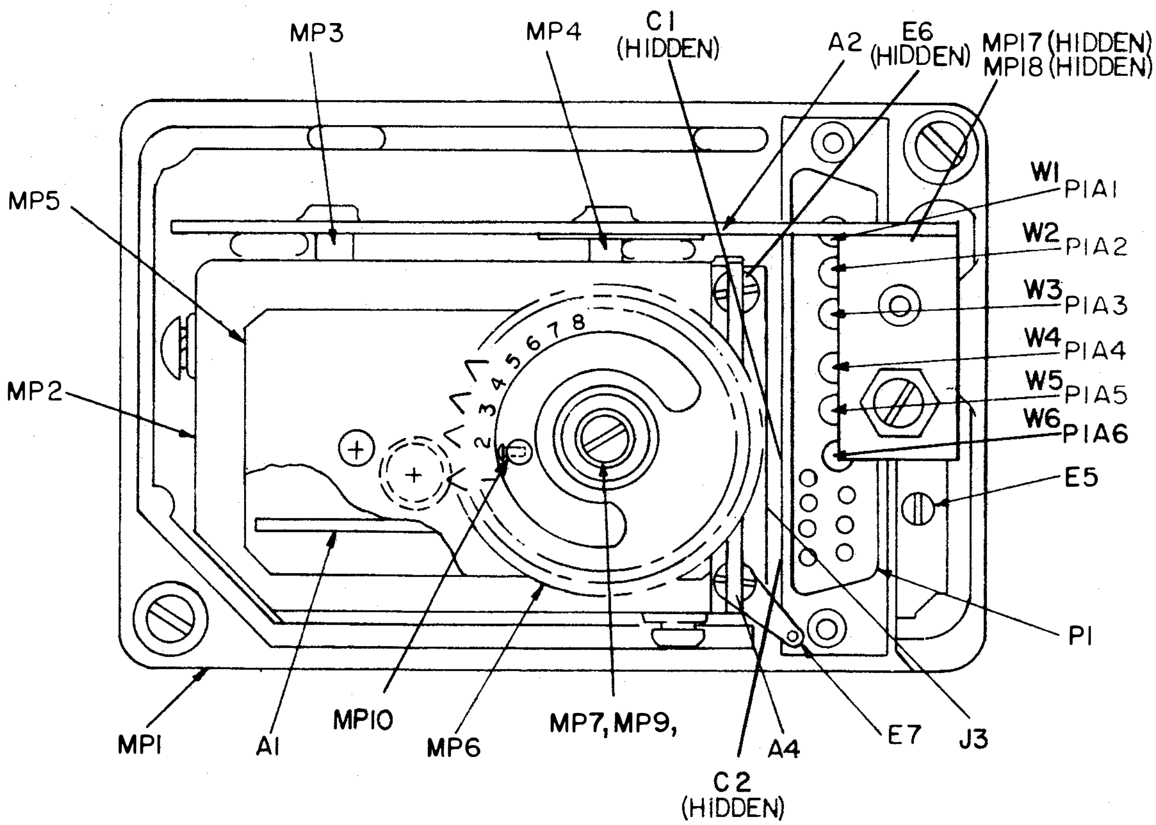


Figure 7-61. Frequency Standard Assembly A2A5, Housing Removed, Top View, Component Locations

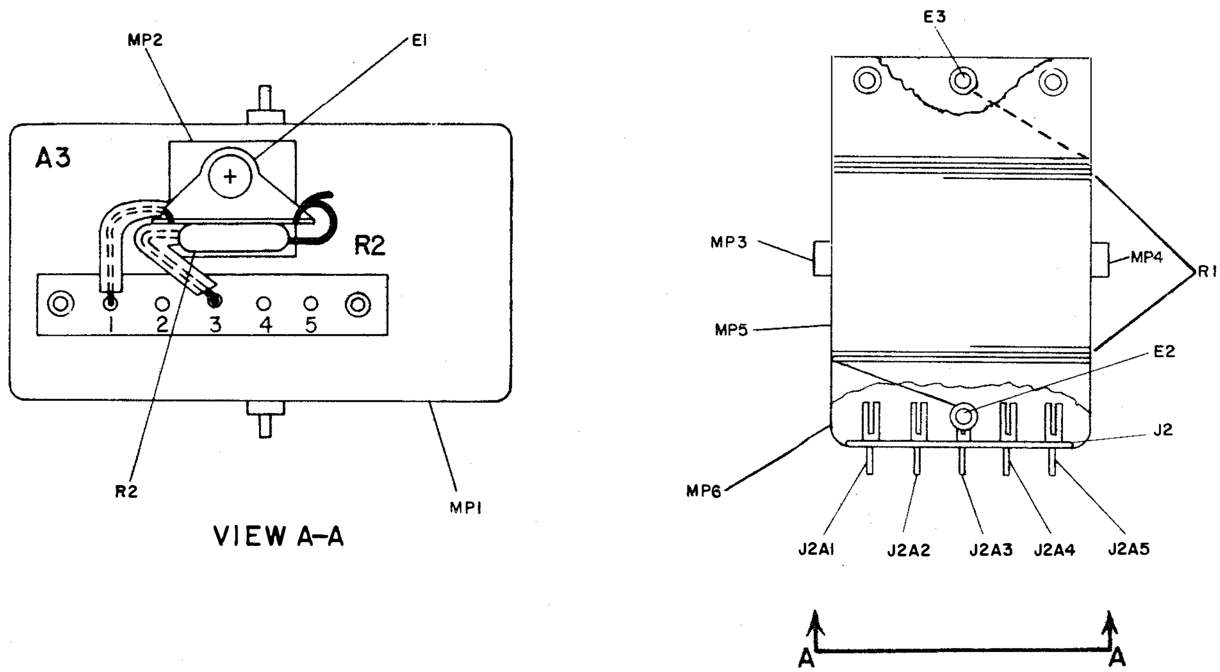
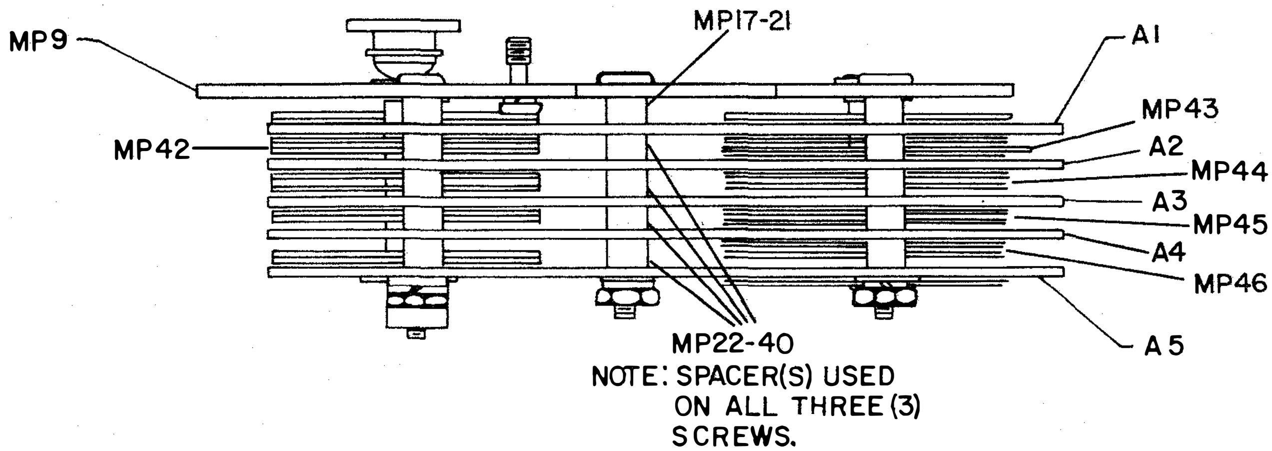


Figure 7-64. Oven Body Subassembly A2A5A3, Component Locations



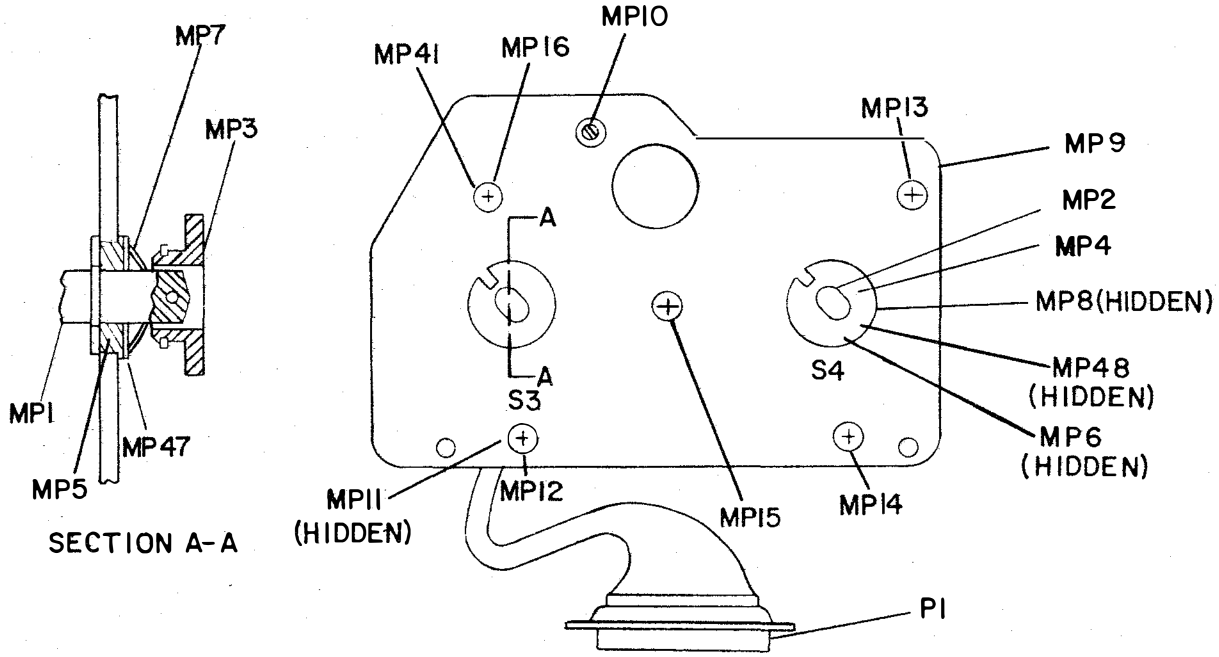
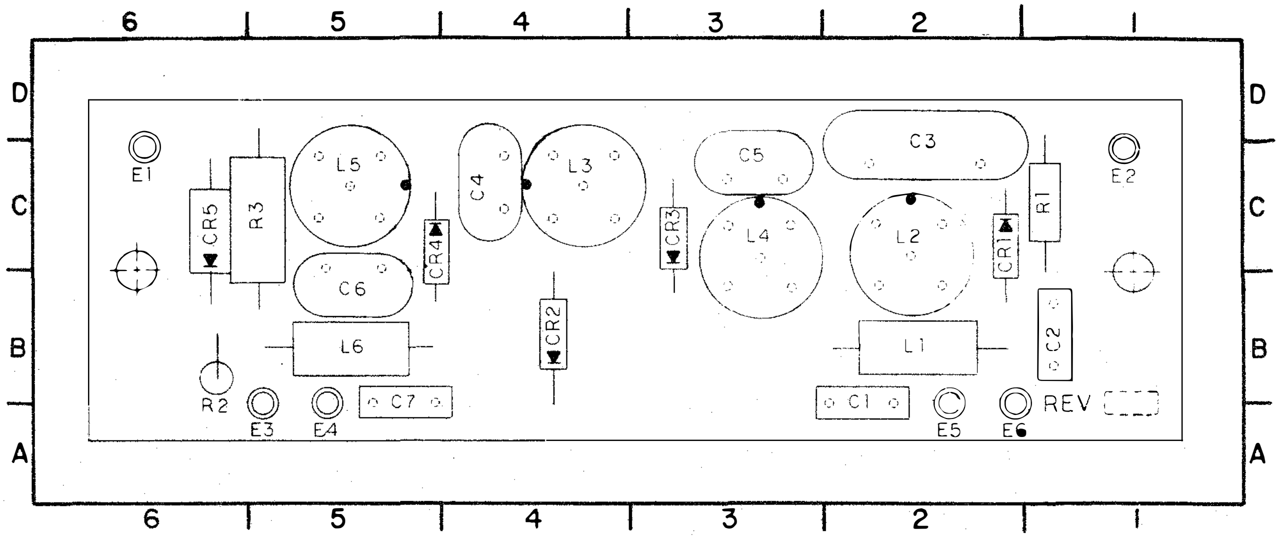


Figure 7-76. Code Generator Assembly A2A7, Component Locations



PART LOCATION INDEX

REF DES	ZONE	REF DES	ZONE	REF DES	ZONE
A2A10C1	2A	A2A10CR3	3C	A2A10L1	2B
C2	1B	CR4	5C	L2	2C
C3	2C	CR5	6C	L3	4C
C4	4C	* E1	6C	L4	3C
C5	3C	* E2	1C	L5	5C
C6	5B	* E3	5A	L6	5B
C7	5A	* E4	5A	R1	1C
CR1	2C	* E5	2A	R2	6B
CR2	4B	* E6	2A	R3	5C

* Wiring termination - for reference only.

Figure 7-79. 20 and 30 MHz Filter Assembly A2A10, Component Locations

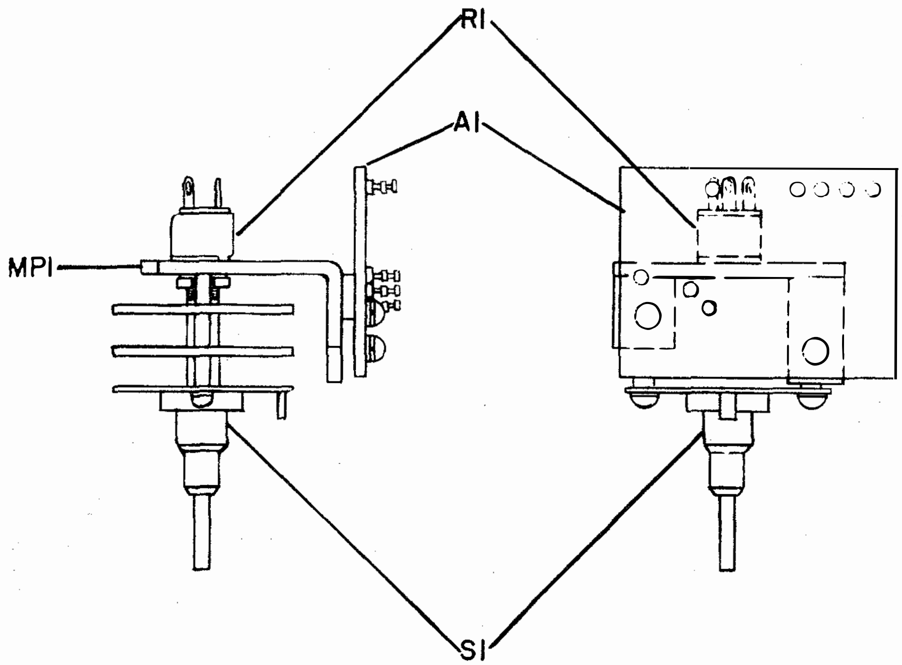


Figure 7-80. 100 Hz Control and Vernier Assembly
A2A11, Component Locations

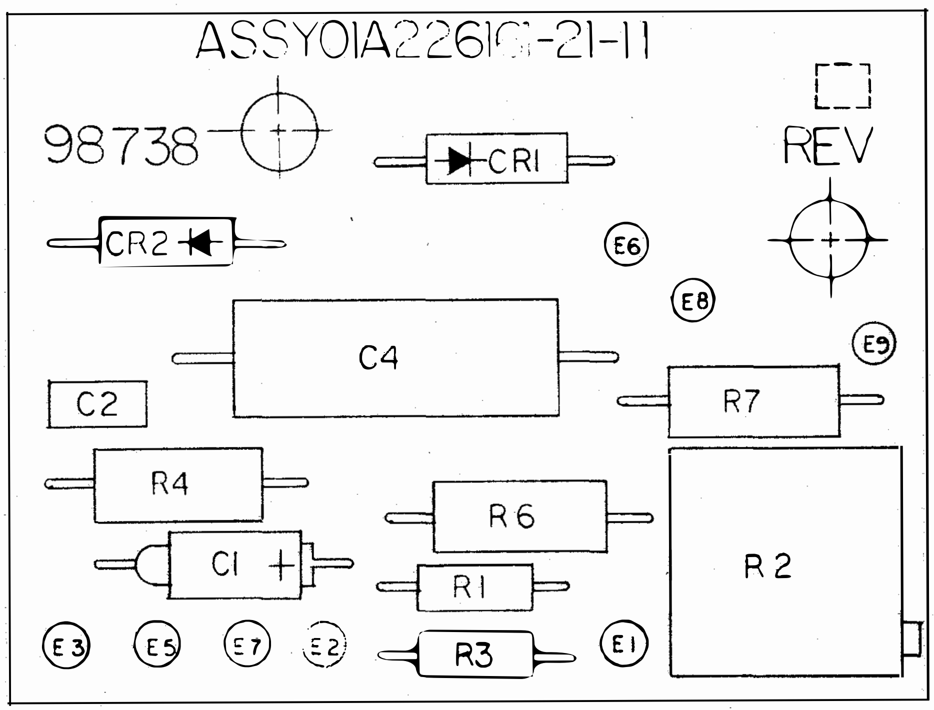


Figure 7-81. 4 Volt Power Supply Subassembly A2A11A1, Component Locations

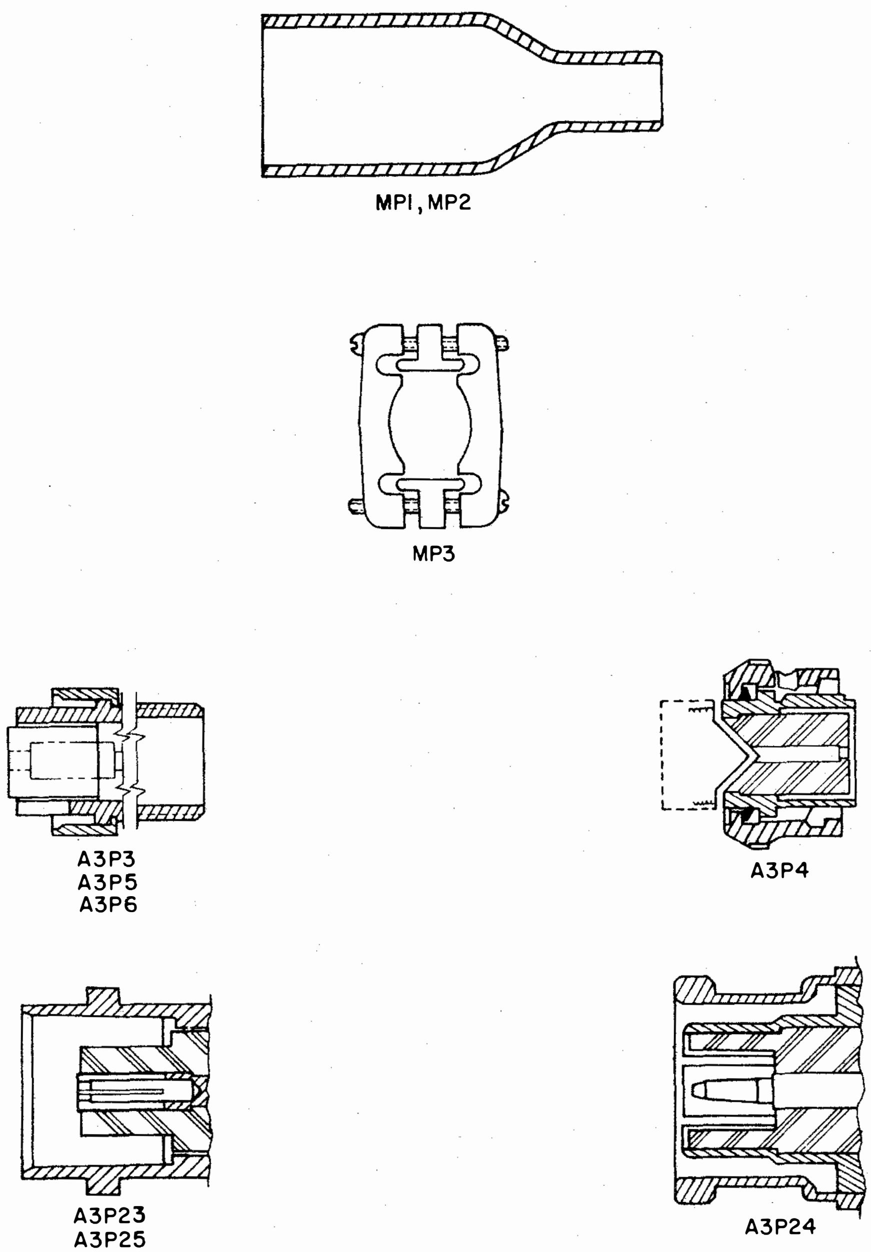


Figure 7-82. Mating Connector Kit A3

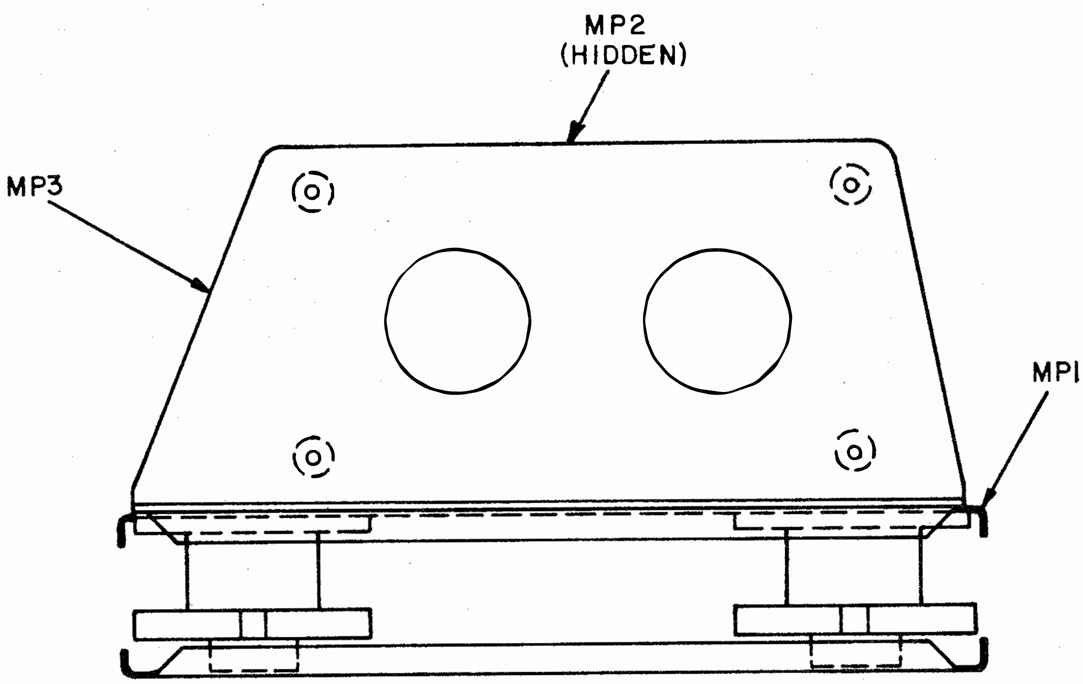


Figure 7-83. Shock and Vibration Mount
Assembly A5, Component Locations

CHAPTER 8

INSTALLATION

8-1. GENERAL.

8-2. This chapter provides information necessary for the unpacking, installation, inspection, checkout, initial turn-on, and installation verification of Radio Receiver R-1051G/URR. Connections to peripheral equipment are shown in figure 8-1.

8-3. SITE SELECTION (See figure 8-2).

8-4. The installation site must allow sufficient space around R-1051G/URR to provide for servicing the slide mounted main frame when extended from the case, shock mount deflection (when MT-3114/UR is used), and cable bends. Proximity to associated equipment must also be considered.

8-5. REFERENCE PUBLICATIONS.

8-6. General reference should be made to NAVSHIPS 0967-000-0110, Electronic Installation Maintenance Book - Installation Standards; MIL-STD-1310, Shipboard Bonding, Grounding, and Other Techniques for Electromagnetic Compatibility and Safety, and to the separate manuals for the ancillary equipment (such as antenna system and teletype terminals) being used.

8-7. TOOLS AND MATERIALS REQUIRED FOR INSTALLATION.

8-8. No special tools are required for installation. Materials required are listed in table 8-1 and figure 8-3.

8-9. UNPACKING AND REPACKING.

8-10. Unpacking Radio Receiver R-1051G/URR is accomplished by carefully removing it from the shipping container. Be careful not to damage controls and connectors. Repack the R-1051G/URR for shipment or storage in accordance with MIL-P-116.

8-11. INSTALLATION PROCEDURES.

8-12. The method of installation of Radio Receiver R-1051G/URR to be used is determined by the using activity. Three types of installation are available; independent shock mounting on MT-3114/UR, rack mounting, and cabinet mounting.

8-13. INDEPENDENT SHOCK MOUNTING. Shock mounting R-1051G/URR on MT-3114/UR requires the use of Shock and Vibration Mount Assembly 98738- 01A226007-21-11, which includes brackets and hardware for mounting. To mount Radio Receiver R-1051G/URR, proceed as follows (see figure 8-2).

1. Attach left and right brackets to the receiver case. To attach a bracket use four each MS51958-63 machine screws, MS15795-809 flat washers, and MS35338-138 lock washers.

WARNING

Do not overstress mounting bolts. Shock may cause bolts to shear.

2. Fasten the brackets to threaded inserts in Shock and Vibration Mount MT-3114/UR, using three each MS35307-332 cap screws, MS15795-812 flat washers, and MS35338-140 lock washers in each bracket.

3. To attach Mounting Base MT-3114/UR to the foundation, refer to figure 8-2.

8-14. RACK OR CABINET MOUNTING. The R-1051G/URR may be mounted in a rack conforming to MIL-STD-189. For this purpose brackets will be furnished by the using activity, or if necessary, can be fabricated in accordance with Detail A of figure 8-2, sheet 2. For mounting in a cabinet such as CY-4516( )/S, proceed as follows:

WARNING

Do not overstress mounting bolts. Shock may cause bolts to shear.

1. Attach brackets as instructed in paragraph 8-13, step 1.

2. Fasten brackets to rack or cabinet with hardware furnished by the using activity.

Table 8-1. Radio Receiver R-1051G/URR, Interconnecting Cable Assemblies

CABLE TYPE	CONDUCTORS	FROM: CONNECTOR PART NO.	FROM: CONNECTOR REF DES	TO UNIT
TNW-3	3	MS3106A16S-5S	A1A1J3 (AC PWR IN)	External primary power source
		Cable Clamp MS3057-8A		
TTSU-1-1/2	2	MS3106A10SL-4S with 06845-4032585-0701 strain relief boot	A1A1J5 (USB AUDIO OUT)	Remote audio output equipment
TTSU-1-1/2	2	MS3106A10SL-4S with 06845-4032585-0701 strain relief boot	A1A1J6 (LSB AUDIO OUT)	Remote audio output equipment
RG-213/U	Coaxial	M39012/01-0005	A1J23 (ANT 50 OHMS)	Antenna or antenna coupler (antenna lead-in)
RG-213/U	Coaxial	M39012/16-0001	A1J24 (INT 5 MHZ OUT)	External remote or test equipment
RG-213/U	Coaxial	M39012/01-0005	A1J25 (EXT 5 MHZ IN)	Optional external frequency standard
Cable type to be selected by installing activity to suit special applications		MS3114E14-12P	A1A1J4 (Remote control connector)	

8-15. BONDING AND GROUNDING.

8-16. Ground straps Type III per MIL-STD-1310 are to be furnished by the installing activity. If necessary, remove paint from the surfaces to which ground straps are to be attached. Attach ground straps as shown in figure 8-2, sheet 2. An alternate ground stud ALTN GND is provided at the rear of the case (see figure 8-2, sheet 1).

8-17. PRIMARY POWER REQUIREMENTS (See figure 8-3).

8-18. The primary power requirement of Radio Receiver R-1051G/URR is 115 Vac, +10%, 48 to

420 Hz, single phase. Power consumption is 70 watts.

CAUTION

Do not connect primary power to AC PWR IN connector A1A1J3 on rear of R-1051G/URR case before measuring actual source voltage. If necessary, perform the procedure of paragraph 8-19.

8-19. POWER SUPPLY ADAPTATION. The power input is connected to the 115 volt tap on the primary side of power transformer A2T1 when the R-1051G/URR is shipped. If the supply voltage is not 115 Vac, the input connection must be changed to the appropriate tap. To change the power transformer tap connection:

1. Set mode selector switch A2S2 to OFF, and disconnect primary power cable from AC PWR IN connector A1A1J3 on rear of receiver case.

2. Loosen six captive screws on receiver front panel and slide main frame out from case until slides lock.

CAUTION

Hand guide main frame cable at rear of chassis over front edge of case when tilting main frame to vertical position.

3. Release latches and tilt main frame up 90 degrees to expose bottom. Be sure latches engage at 90 degree position.

4. Remove four flat head machine screws which fasten protective plate covering power supply A2A8 component board, and lift protective plate from chassis.

5. Unscrew four hexagon spacers which hold A2A8 component board and remove ground lug which is fastened at right center of board. Swing board aside to expose bottom of power transformer.

6. Unsolder wire connected to terminal 1 of power transformer and resolder to appropriate tap (terminal 2, 3, 4, or 5, see figure 5-32, sheet 1).

NOTE

Do not unsolder common lead connected to transformer terminal 6.

7. Reassemble parts loosened and removed in steps 4 and 5, above.

8. Return main frame to horizontal position. Release slide locks and slide main frame into case. Secure main frame to case with six front panel screws.

9. Reconnect primary power cable to A1A1J3.

8-20. TRANSFORMERS IN BALANCED, GROUNDED, CENTER-TAP CIRCUIT. As supplied, the audio transformers in the IF/Audio Amplifier Assemblies A2A2 and A2A3 of R-1051G/URR do not have grounded center taps. If it is required that these transformers work into a balanced center-tap circuit, proceed as follows:

CAUTION

Do not ground center taps if working into an unbalanced circuit.

1. Perform steps 1, 2, and 3 of paragraph 8-19, above.

2. Solder a jumper wire from A2E21 to A2E22, and a jumper wire from A2E34 to A2E35.

3. Perform steps 8 and 9 of paragraph 8-19, above.

8-21. <u>INTERCONNECTING CABLING.</u>

8-22. Interconnecting cabling shall be accomplished in accordance with figure 8-4, using cable and connectors specified in table 8-1.

8-23. INTERCONNECTIONS. All connections are made at the rear of R-1051G/URR, except the receiver headset. When R-1051G/URR is installed separately, rf input is obtained by mating an M39012/01-0005 connector and the necessary length of RG-213/U coaxial cable with ANT connector A1J23. See figure 8-2.

8-24. OPERATION AS A REMOTE UNIT. When the R-1051G/URR is to be operated as a remote unit, make connections as follows:

1. Connect antenna as instructed in paragraph 8-23.

2. Connect switchboard remote audio lines to USB AUDIO OUT connector A1A1J5 and LSB AUDIO OUT connector A1A1J6 at rear of case, using cable assemblies specified in table 8-1.

3. Further instructions depend on equipment to be used with R-1051G/URR, and are therefore beyond the scope of this publication. Refer to the technical manuals for the associated equipments.

8-25. OPERATION AS AN INDEPENDENT UNIT. To operate the R-1051G/URR as an independent unit make connections as follows:

1. Connect antenna as instructed in paragraph 8-23.

2. For USB, ISB (USB), RATT, CW, and AM modes of operation connect headset to PHONE USB jack A2J2 on front panel of receiver. For LSB mode of operation, connect headset to PHONE LSB jack A2J1 on front panel of receiver.

NOTE

Headset may be used for monitoring when R-1051G/URR is operated as a remote unit. Connect headset in same manner as for independent operation.

8-26. OPERATION USING INTERNAL FREQUENCY STANDARD. For operation with the R-1051G/URR internal frequency standard, proceed as follows:

1. Set mode selector switch A2S2 to STD BY.

2. Loosen six front panel screws and slide main frame from case.

3. Check that 5 MHZ OSC SOURCE switch A2A5A2S1 at top of Frequency Standard Assembly A2A5 is in INT/COMP position.

NOTE

Assembly A2A5 is located at right rear of chassis.

4. Return main frame to case and secure with six front panel screws.

5. Set mode selector switch A2S2 to desired operating mode.

8-27. OPERATION USING EXTERNAL FREQUENCY STANDARD. The R-1051G/URR is normally operated using an external frequency standard. Proceed as follows:

1. Connect external frequency standard output to EXT 5 MHZ IN connector A1J25 at rear of case. See table 8-1 for connector and cabling.

2. Set mode selector switch A2S2 to STD BY.

3. Loosen six front panel screws and slide main frame from case.

4. Set 5 MHZ OSC SOURCE switch A2A5-A2S1 to EXT NORM.

5. Return main frame to case and secure with six front panel screws.

6. Set mode selector switch A2S2 to desired operating mode.

8-28. OPERATION OF ANOTHER UNIT USING R-1051G/URR FREQUENCY STANDARD OUTPUT. If it is required to use the output of the R-1051G/URR internal frequency standard to operate another unit, proceed as follows:

1. Set mode selector switch A2S2 to STD BY.

2. Loosen six front panel screws and slide main frame from case.

3. Set 5 MHz OSC SOURCE switch A2A5-A2S1 to INT/COMP.

4. Return main frame to case and secure with six front panel screws.

5. Connect cable between INT 5 MHZ OUT connector A1J24 at rear of case and frequency standard input connector of other unit. See table 8-1 for connector and cabling.

6. Set mode selector switch A2S2 to desired operating mode.

NOTE

The output of the internal frequency standard (at INT 5 MHZ OUT connector A1J24) is disabled when the receiver is in the STD BY or OFF mode, and is momentarily interrupted when the front panel MHz control setting is changed.

8-29. USE OF EXTERNAL FREQUENCY STANDARD FOR CALIBRATION. If it is required to use an external frequency standard for calibration of internal Frequency Standard Assembly A2A5, proceed as follows:

CAUTION

Do not adjust Frequency Standard Assembly A2A5 unless power has been applied and mode selector switch A2S2 has been in a position other than OFF for at least 96 hours. Most drift will occur during the first 60 minutes of warmup. Thereafter, the error should be less than 1 part per 10^7 (0.5 Hz at 5 MHz).

1. Loosen six front panel screws and slide main frame from case.

2. Set 5 MHz OSC SOURCE switch A2A5-A2S1 to INT/COMP.

3. Defeat interlock switch A1S1 by pulling plunger forward, place mode selector switch A2S2 in STD BY, and allow 96 hours warmup.

4. Connect external frequency standard to EXT 5 MHZ IN connector A1J25 at rear of case. See table 8-1 for connector and cabling.

5. Observe indicator A2A5A2DS1. The difference, if any, between the output of Frequency Standard Assembly A2A5 and the frequency of the external standard is indicated by the flashing rate of A2A5A2DS1. For example: if the error is 1 part per 10^7, the flashing rate is once every two seconds.

NOTE

Indicator A2A5A2DS1 is an incandescent lamp. The lamp does not flash from fully off to on. The flashing to be observed is from dim to somewhat brighter Observe carefully.

CAUTION

Do not attempt to adjust output frequency of A2A5 until it has been determined that the frequency is in error by a minimum five minute observation.

6. If required, calibrate the output frequency of A2A5 as instructed in steps 4.f. and 4.g. of table 6-1.

NOTE

If proper calibration cannot be achieved, Frequency Standard Assembly A2A5 requires depot repair.

7. Disconnect external frequency standard and set 5 MHz OSC SOURCE switch A2A5A2S1 to normal operating position.

8. Return main frame to case and secure it.

9. Set mode selector switch A2S2 to desired operating mode.

8-30. INSTALLATION CHECKOUT.

8-31. The procedures in the paragraphs which follow are intended to demonstrate that Radio Receiver R-1051G/URR has been properly installed, and that it operates within tolerance in the test phases.

8-32. PHASE 1 - INSTALLATION INSPECTION AND PRE-ENERGIZING PROCEDURES. Check each item in the following list by visual inspection or performance to ensure that all essentials of installation have been performed and that provisions for servicing have been made. Refer to figures 8-1 through 8-4 for verification.

( ) Mounting of Radio Receiver R-1051G/URR is secure.

( ) Bonding and grounding is in accordance with MIL-STD-1310.

( ) Auxiliary equipments have been installed.

( ) Antenna has been properly installed and connected.

( ) Continuity exists in all interconnections.

( ) Test equipment listed in table 1-5 is on board.

( ) Documents listed in table 1-5 are on board.

( ) Test equipment is operating satisfactorily.

( ) Test equipment has been calibrated.

( ) APL is on board.

( ) COSAL includes the equipment data.

( ) All field changes, shipalts, and mandatory retrofits have been accomplished.

( ) Sufficient clearance exists at front of installation to service R-1051G/URR properly.

( ) Sufficient clearance exists at rear of installation for access to rear connectors.

( ) Power transformer A2T1 adapted to existing primary input voltage.

( ) Radio Receiver R-1051G/URR can be turned on safely.

8-33. PHASE 2 - INITIAL TURN-ON AND PRELIMINARY TEST. Perform all steps of table 5-5.

8-34. PHASE 3 - INSTALLATION VERIFICATION TEST. Perform all performance tests of Chapter 4 of this manual. Enter results in appropriate spaces on installation standards summary sheet, table 8-2. Troubleshooting references, where applicable, are given at the end of each step in Chapter 4.

8-35. INSTALLATION STANDARDS SUMMARY SHEET. This sheet is provided for the purpose of recording the results of all installation checkout procedures and is located at the end of this chapter. Each space is identified by paragraph or step numbers which provide the instructions for accomplishment.

Table 8-2. Radio Receiver R-1051G/URR, Installation Standards Summary

Input Voltage ____________ Vac

Input Frequency ____________Hz

(When reference standard tests are made)

Date ____________________

Serial Number or Model ____________________

Installed in (ship or station)____________________

____

Length of transmission line ____________________

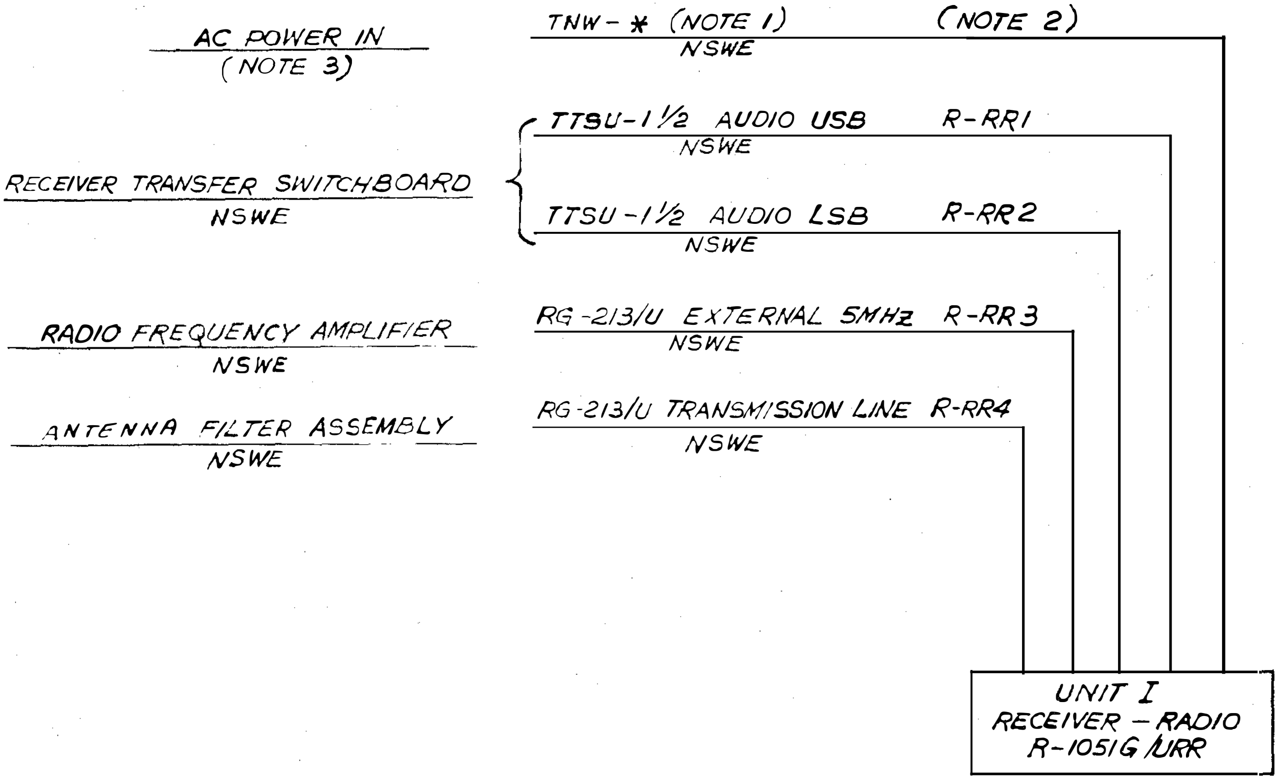
____

Record on this summary sheet the test indications which have been obtained during the installation verification test.

Table	Test No.	Ref. Std.	Table	Test No.	Ref. Std.
4-3	(a)	________Check	4-9	(e)	________dB
				(f)	________dB
4-4	(a)	________Check		(g)	________dB
	(b)	________Check		(h)	________dB
	(c)	________Sec		(i)	________dB
				(j)	________dB
4-5	(a)	________Check		(k)	________dB
	(b)	________Check		(l)	________dB
	(c)	________Check		(m)	________dB
	(d)	________Vdc		(n)	________dB
				(o)	________dB
4-6	(a)	________uV		(p)	________dB
	(b)	________uV			
	(c)	________uV	4-10	(a)	________Vdc
	(d)	________uV		(b)	________Vdc
	(e)	________uV		(c)	________mVrms
				(d)	________Vdc
4-7	(a)	________Hz		(e)	________Vdc
	(b)	________Hz		(f)	________Vdc
	(c)	________Hz		(g)	________mVrms
	(d)	________Hz		(h)	________mVrms
	(e)	________Hz		(i)	________mVrms
	(f)	________Hz			
	(g)	________Hz	4-11	(a)	________dBm
	(h)	________Hz		(b)	________dBm
	(i)	________Check		(c)	________dBm
	(j)	________Hz		(d)	________dBm
	(k)	________Hz		(e)	________dBm
	(l)	________Check		(f)	________dBm
	(m)	________Check		(g)	________dBm
				(h)	________dBm
4-9	(a)	________dB			
	(b)	________dB	4-12	(a)	________mV
	(c)	________dB		(b)	________dB
	(d)	________dB		(c)	________mV

Table 8-2. Radio Receiver R-1051G/URR, Installation Standards Summary (Continued)

Table	Test No.	Ref. Std.	Table	Test No.	Ref. Std
4-13	(a)	________Hz	4-15	(a)	________Vac
	(b)	________mVrms		(b)	________Vac
	(c)	________mVrms		(c)	________Vac
	(d)	________Check		(d)	________dBm
				(e)	________Vac
4-14	(a)	________mV		(f)	________Vac
	(b)	________mV		(g)	________dBm
	(c)	________mV			
	(d)	________mV			
	(e)	________mV	4-16	(a)	________mV
	(f)	________mV		(b)	________mV
	(g)	________kHz		(c)	________Hz
	(h)	________kHz		(d)	________mV



NOTES:

1. POWER CABLE IS TO BE TNW-3, ITS LENGTH SHALL NOT EXCEED 190 FEET.

2. THE INSTALLING ACTIVITY WILL ASSIGN THE NAVY CABLE DESIGNATION TO THE POWER CABLE.

3. PRIMARY POWER SOURCE REQUIREMENTS:
   a) 115 VAC ±10%
   b) SINGLE PHASE
   c) 48Hz TO 420 Hz
   d) 1 PHASE, TYPE I POWER
   e) 0.6 AMPS P.F. 0.89
   f) POWER WATTS
      OPERATING -70
      STARTING - 35
      STAND BY - 18
      SECURED - 0

Figure 8-1. Radio Receiver R-1051G/URR, Pictorial System Diagram

ALPHABETICAL INDEX

ALPHABETICAL INDEX (Cont)

Subject	Paragraph, Figure, Table Number

C (Cont)

ALPHABETICAL INDEX (Cont)

Subject	Paragraph, Figure, Table Number

F (Cont)

I

ALPHABETICAL INDEX (Cont)

ALPHABETICAL INDEX (Cont)

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ALPHABETICAL INDEX (Cont)

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R (Cont)

S

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