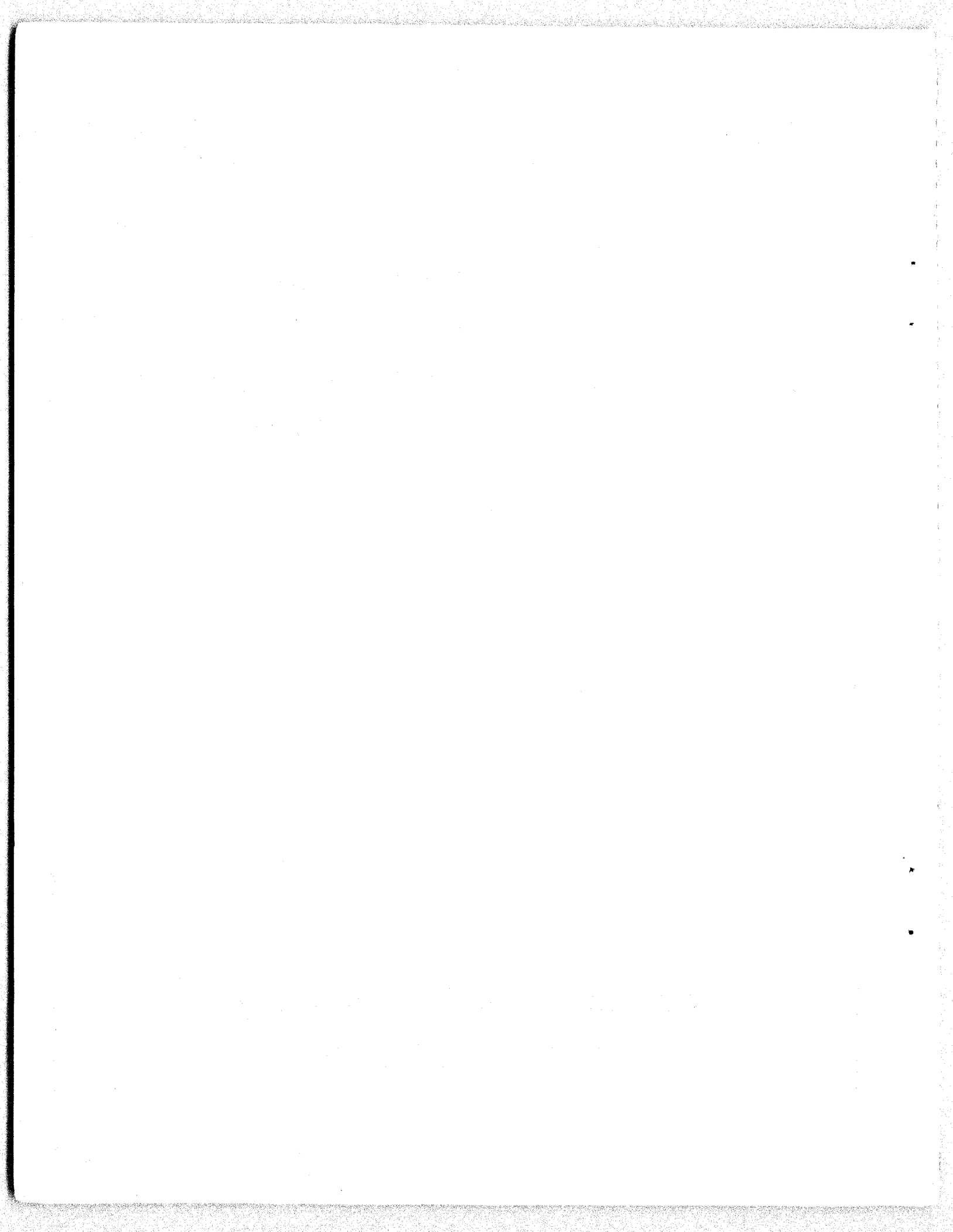


NAVSHIPS 95718

Non-Registered

TECHNICAL MANUAL
for
COMMUNICATION PATCHING PANELS
SB-1203A/UG, SB-1210A/UGQ

DEPARTMENT OF THE NAVY
BUREAU OF SHIPS



LIST OF EFFECTIVE PAGES

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
Title page	ORIGINAL	4-1 to 4-3	ORIGINAL
ii to vii	ORIGINAL	5-1 to 5-4	ORIGINAL
1-1 to 1-3	ORIGINAL	6-1 to 6-3	ORIGINAL
2-1 to 2-5	ORIGINAL	7-1 to 7-5	ORIGINAL
3-1 to 3-3	ORIGINAL		

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TABLE OF CONTENTS

SECTION 1 - GENERAL INFORMATION

Paragraph	Page
1-1. Purpose and Basic Principles	1-1
1-2. Functional Description	1-1
a. General	1-1
b. Communication Patching Panels SB-1203A/UG and SB-1210A/UGQ	1-1
1-3. Box and Cover, Cable Entrance	1-1
1-4. Quick Reference Data	1-1

SECTION 2 - INSTALLATION

2-1. General	2-1
2-2. Unpacking	2-1
a. General	2-1
b. Unpacking	2-1
c. Inspection	2-1
2-3. Power Requirement	2-1
2-4. Installation	2-1
a. Location	2-1
b. Mounting	2-1
c. Cable Connections	2-1
2-5. Inspection and Adjustments	2-2
2-6. Preparation for Reshipment	2-2

SECTION 3 - OPERATOR'S SECTION

3-1. Functional Operation	3-1
3-2. Operating Procedures	3-1
a. Description of Controls	3-1
b. Sequence of Operation	3-2

SECTION 3 - OPERATOR'S SECTION

Paragraph	Page
3-3. Test Procedures	3-3
3-4. Operator's Maintenance	3-3

SECTION 4 - PRINCIPLES OF OPERATION

4-1. Over-all Functional Description	4-1
4-2. Circuit Analysis	4-1

SECTION 5 - TROUBLESHOOTING

5-1. Troubleshooting Procedures	5-1
a. Visual Check	5-1
b. Troubleshooting Chart	5-2
c. Reference Diagrams	5-2

SECTION 6 - MAINTENANCE AND REPAIR

6-1. Failure Report	6-1
6-2. Routine Maintenance	6-1
6-3. Cleaning	6-2
6-4. Removal, Repair, Replacement, Reassembly of Component Parts	6-2
a. Removal	6-2
b. Repair and Replacement	6-3

SECTION 7 - PARTS LIST

7-1. Introduction	7-1
7-2. Maintenance Parts List	7-1
7-3. List of Manufacturers	7-1
7-4. Notes	7-1

LIST OF ILLUSTRATIONS

SECTION 1 - GENERAL INFORMATION

SECTION 3 - OPERATOR'S SECTION

Figure	Page
1-1. Communication Patching Panels SB-1203A/UG and SB-1210A/UGQ	1-2

Figure	Page
3-1. Method of Connecting Removable Straps for Remote or Local Current .	3-2

SECTION 2 - INSTALLATION

SECTION 4 - PRINCIPLES OF OPERATION

2-1. Unpacking Procedure . . .	2-2
2-2. Outline Dimensions	2-4
2-3. Communication Patching Panel, SB-1203A/UG, Interconnection Diagram .	2-3
2-4. Communication Patching Panel, SB-1210A/UGQ, Interconnection Diagram .	2-4

4-1. Communication Patching Panel SB-1203A/UG, Single Channel Simplified Schematic Diagram	4-2
4-2. Set Jack Detail	4-3

SECTION 5 - TROUBLESHOOTING

5-1. Communication Patching Panel SB-1203A/UG, Schematic Diagram	5-3
5-2. Communication Patching Panel SB-1210A/UGQ, Schematic Diagram	5-4

LIST OF TABLES

SECTION 1 - GENERAL INFORMATION

Table	Page
1-1. Quick Reference Data . . .	1-3

SECTION 2 - INSTALLATION

2-1. Communication Patching Panels SB-1203A/UG and SB-1210A/UGQ, Looping Circuit Terminal Board Connections	2-5
---	-----

SECTION 3 - OPERATOR'S SECTION

3-1. Limitation and Capability	3-1
3-2. Routine Check Chart . . .	3-3

SECTION 5 - TROUBLESHOOTING

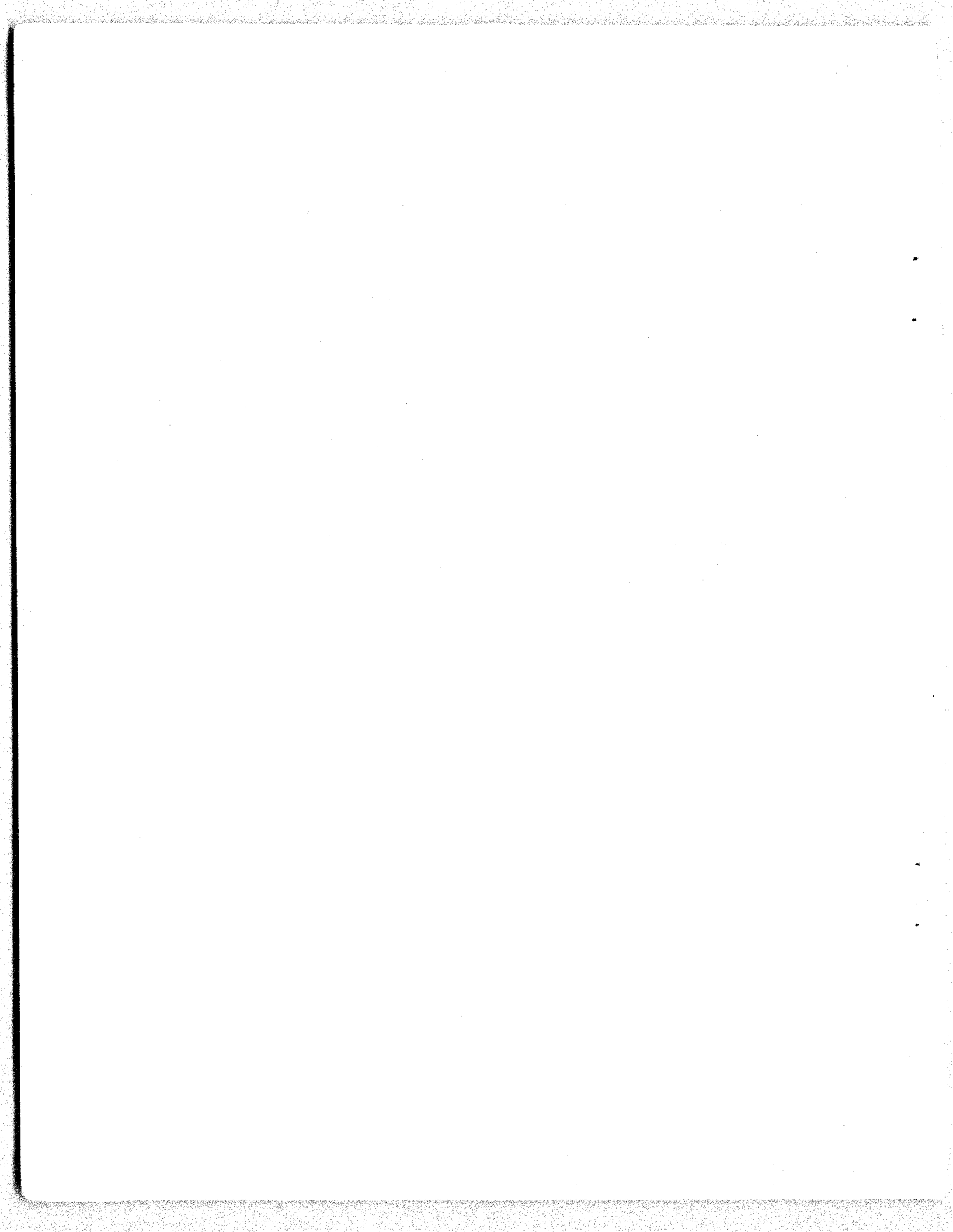
Table	Page
5-1. Over-all Troubleshooting Chart	5-1
5-2. Typical Troubles	5-2

SECTION 6 - MAINTENANCE AND REPAIR

6-1. Routine Maintenance Check Chart	6-2
---	-----

SECTION 7 - PARTS LIST

7-1. Maintenance Parts List . .	7-2
---------------------------------	-----



GENERAL INFORMATION

1-1. PURPOSE AND BASIC PRINCIPLE

Communication Patching Panels SB-1203A/UG and SB-1210A/UGQ are intended for shipboard use to facilitate interconnection and transfer of teletypewriters and various types of terminal equipments. Except for minor differences in wiring, and some electrical components, the models covered in this manual are basically alike. For simplicity of explanation, the information in this manual will apply to all models, for serial no. 2000 up.

1-2. FUNCTIONAL DESCRIPTION

a. GENERAL. - Components of the patching panels are housed in an aluminum cabinet. Most of the electrical parts are mounted on the front panel. The front panel is hinged at the bottom and secured close to the top of the cabinet by two screws. The front panel is in one piece. Each panel provides six channels, each comprising a circuit of two looping jacks, at least one set jack, and a rheostat for adjusting line current. Line current is monitored by a milliammeter which can be switched to any one channel by a rotary selector switch. There are six miscellaneous jacks to which may be connected any teletypewriter units not regularly assigned to a channel. Entry for cables terminating at the main terminal board inside the cabinet is made through a rectangular hole (4-1/16" x 2") on top of the cabinet. (Top box cover)

b. COMMUNICATION PATCHING PANELS SB-1203A/UG and SB-1210A/UGQ. - The SB-1203A/UG and SB-1210/UGQ are identical in essentials of operation or function. (See figure 1-1.) The SB-1210A/UGQ is a modification of the SB-1203A/UG and has been designed for patching requirements of secure teletypewriter channels. The panels are designed for mounting side-by-side when more than six channels are required. These panels are 12-1/8 inches high, 5-13/16 inches wide, and 6 inches deep.

1-3. BOX AND COVER, CABLE ENTRANCE

Use of the Cable Entrance Box is optional. Unused Cable Entrance Boxes may be disposed of at discretion of the installing activity. A box to cover the cable entrance is provided separately with each panel. This box is 2-7/8 inches high, 5-13/16 inches wide, and 5-7/8 inches deep. The cover box is attached to the panel with four #8 machine screws, pan head, four locking tooth washers, and four #8 hex nuts.

1-4. QUICK REFERENCE DATA

The data tabulated in table 1-1 shows the relationship between units as well as quick reference data.

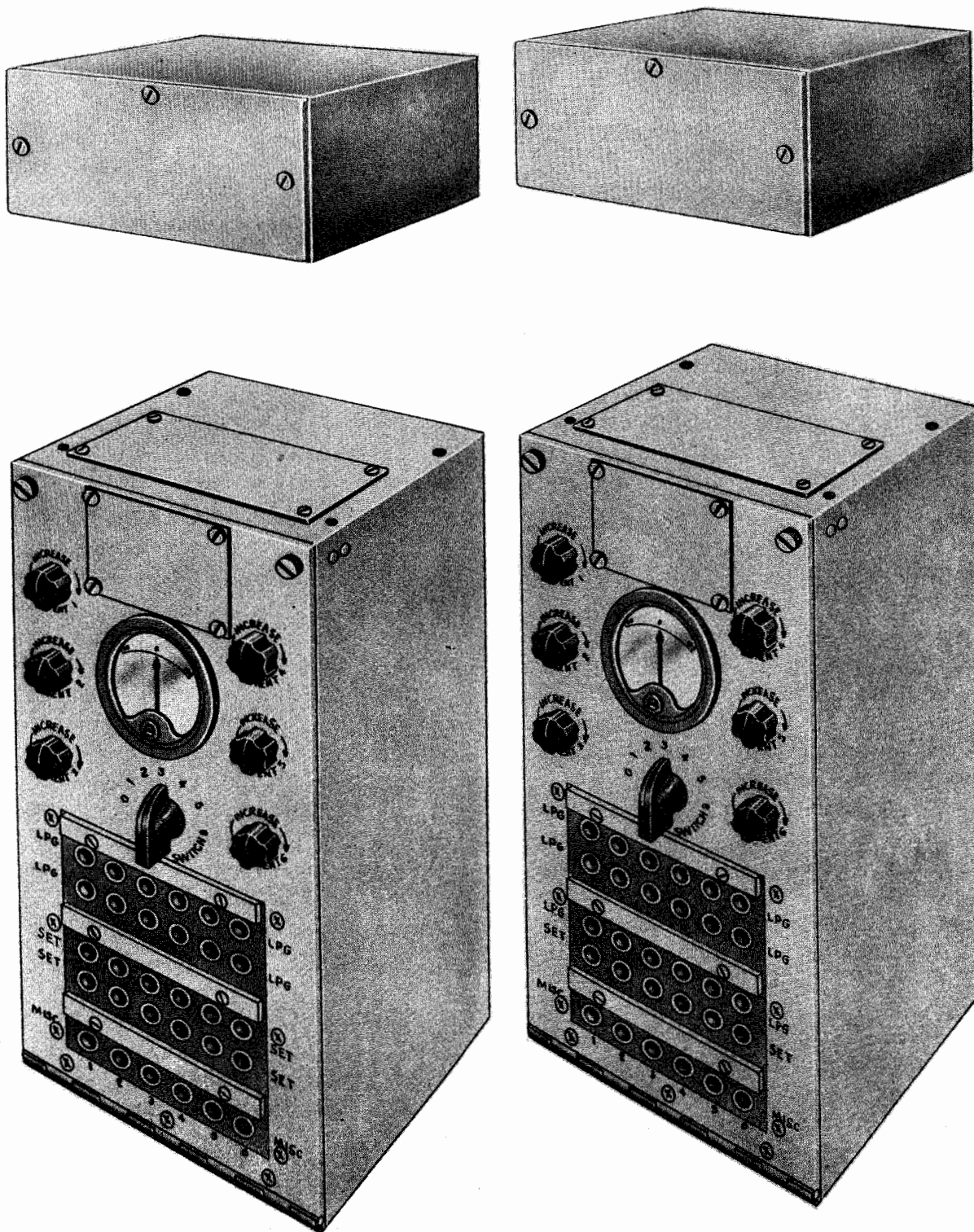
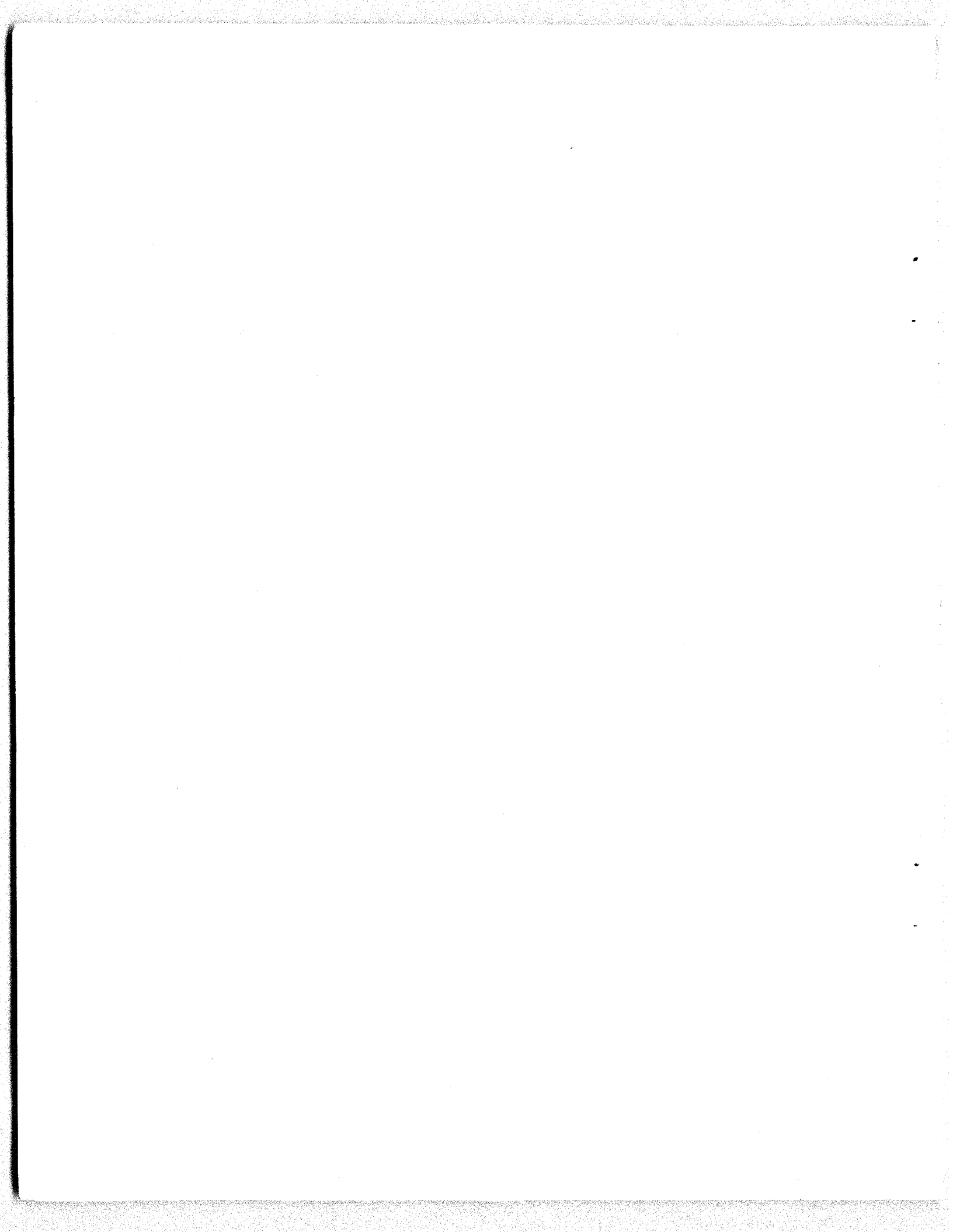


Figure 1-1. Communication Patching Panels SB-1203A/UG and SB-1210A/UGQ

TABLE 1-1. QUICK REFERENCE DATA

Name and Designation	Number Jacks Per Channel			Manufacturer and Address	Contract or Order Number
	Set	Looping	Misc.		
Communication Patching Panel SB-1203A/UG	1	3	1	INDMAN, PRNC Wash., D.C.	3-0313 3-1022
Communication Patching Panel SB-1210A/UGQ	2	2	1	INDMAN, PRNC Wash., D.C.	3-0313 3-1022



INSTALLATION

2-1. GENERAL

These instructions contain information pertinent to unpacking, location, mounting, and installation of the panels described herein. They include initial checks and adjustments required to put the equipment in proper operating condition.

2-2. UNPACKING

a. GENERAL. - All units including accessories have been carefully packed and crated prior to shipment to insure proper protection during shipment. Extreme care must be exercised while handling and unpacking the unit to prevent damage.

b. UNPACKING. - The equipment should be unpacked with caution and should be handled in the same manner as any electrical or electronic instrument. The units are packed in cartons within a wooden box (See figure 2-1.) Two copies of the technical manual come packed inside the top cover of the carton marked "Communication Patching Panel" or "Teletypewriter Panel". When the shipping carton has been opened, inspect for signs of damage as a result of shipment. When satisfied that the container is in proper condition, unpack carefully so that no damage occurs to the panel face, meter, or knobs.

c. INSPECTION. - Check the equipment for possible damage as a result of shipment before installation. Loosen screws around the edge of the front panel; lower the front panel until it is in the horizontal position; then carefully inspect component mounting boards, switches,

solder connections, etc. If repairs are required, refer to Section 5 of this manual.

2-3. POWER REQUIREMENT

The line current is supplied to a panel from either a local or remote 115v.d.c. source. A 600-ohm resistor is inserted into each looping circuit to limit line current to a maximum of approximately 100 ma.

2-4. INSTALLATION

a. LOCATION. - The panel is designed for shipboard use. It should be located at a place that has ample room for personnel to operate and maintain the unit. See figure 2-2 for over-all dimensions. Allow 15 inches for the front of the panel, which is hinged at the bottom, to swing open for access to interior components.

b. MOUNTING. - Mounting to the bulkheads is accomplished by means of four 1/4-inch mounting holes located on the back panel of the cabinet.

c. CABLE CONNECTIONS. - A cable entry hole 4 inches long and 2 inches wide at the top of the box is provided for interconnecting cables terminating at terminal boards inside the panels.

(1) All cables coming into the panel are terminated on the applicable terminal blocks TB-101 through TB-104 (also TB-105 on model SB-1210A/UGQ). See figures 2-3 and 2-4. All teletypewriter equipment desired to be permanently connected in a looping circuit should be con-

nected to SET jack through TB-102 (also TB-104 on SB-1210A/UGQ). Miscellaneous teletypewriter equipments may be connected to MISC jack through TB-103.

(2) All radio adapters such as frequency shift keyers, converters, and tone modulated terminal equipment should be connected to TB-101 (LINE). (Refer to Table 2-1.)

(3) Connected loops which require local line current are supplied by connecting the removable straps as shown in figure 3-1.

(4) Loops furnishing their own line current are connected by strapping across the two lower terminals shown in figure 3-1, immediately over the word "REMOTE".

2-5. INSPECTION AND ADJUSTMENTS

All units have been checked prior to shipment and should require only minor initial inspection. A close visual inspec-

tion should be made to assure that there is no physical damage due to rough handling during shipment. There are no adjustments necessary before placing the unit in operation.

2-6. PREPARATION FOR RESHIPMENT

a. If the equipment is to be packed for reshipment, the equipment should be water-proofed and crated for overseas shipment except where overseas shipment is not required.

b. The unit should be packed in accordance with the procedure used for shipment of delicate electronic equipment.

c. When required, packages shall be water-vapor-proofed by enclosing the equipment with the right amount of activated desiccant within a water-vapor-proofed barrier. Refer to Navy standard packaging instructions and Military Specification MIL-E-17555.

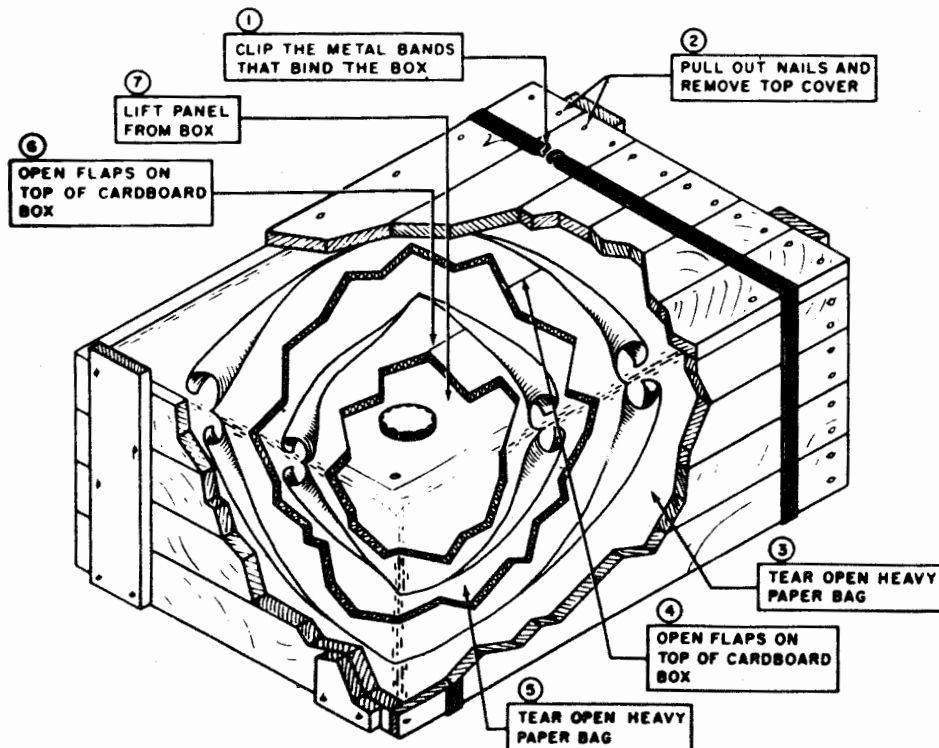


Figure 2-1. Unpacking Procedures

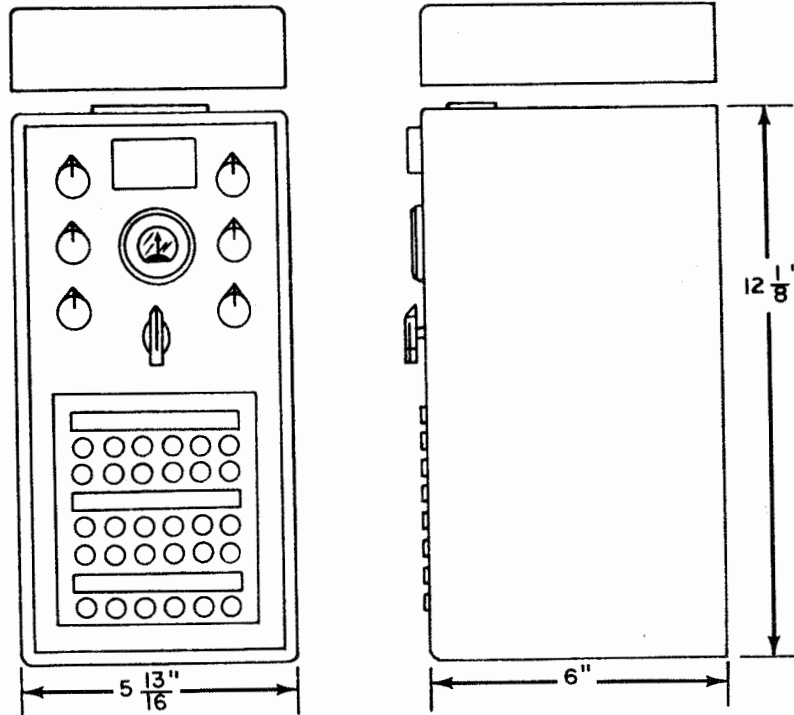


Figure 2-2. Outline Dimensions of SB-1203A/UG and SB-1210A/UGQ

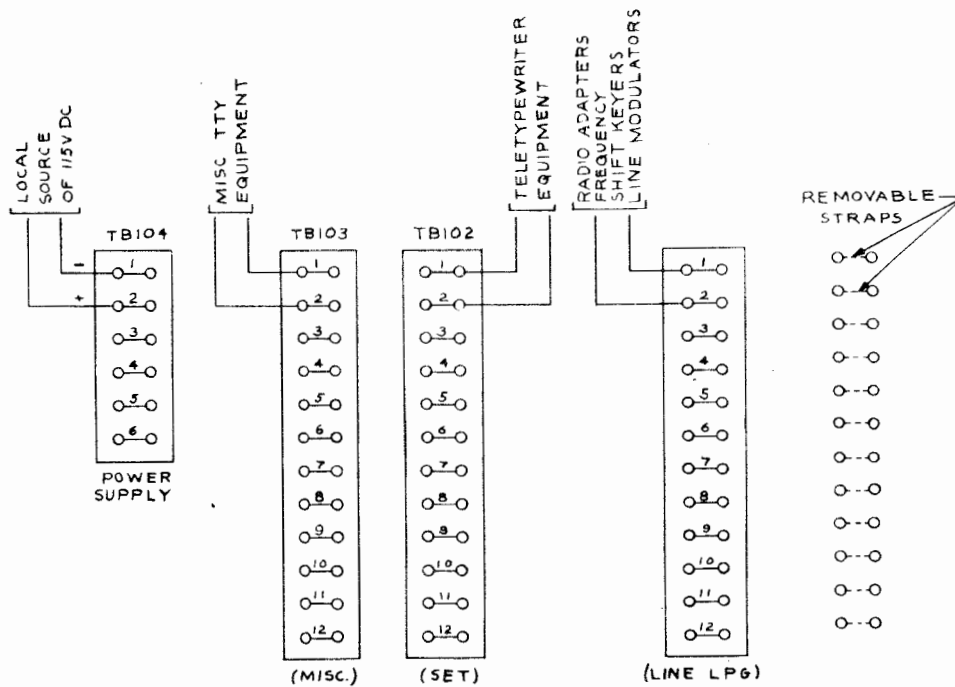


Figure 2-3. Communication Patching Panel, SB-1203A/UG, Interconnection Diagram

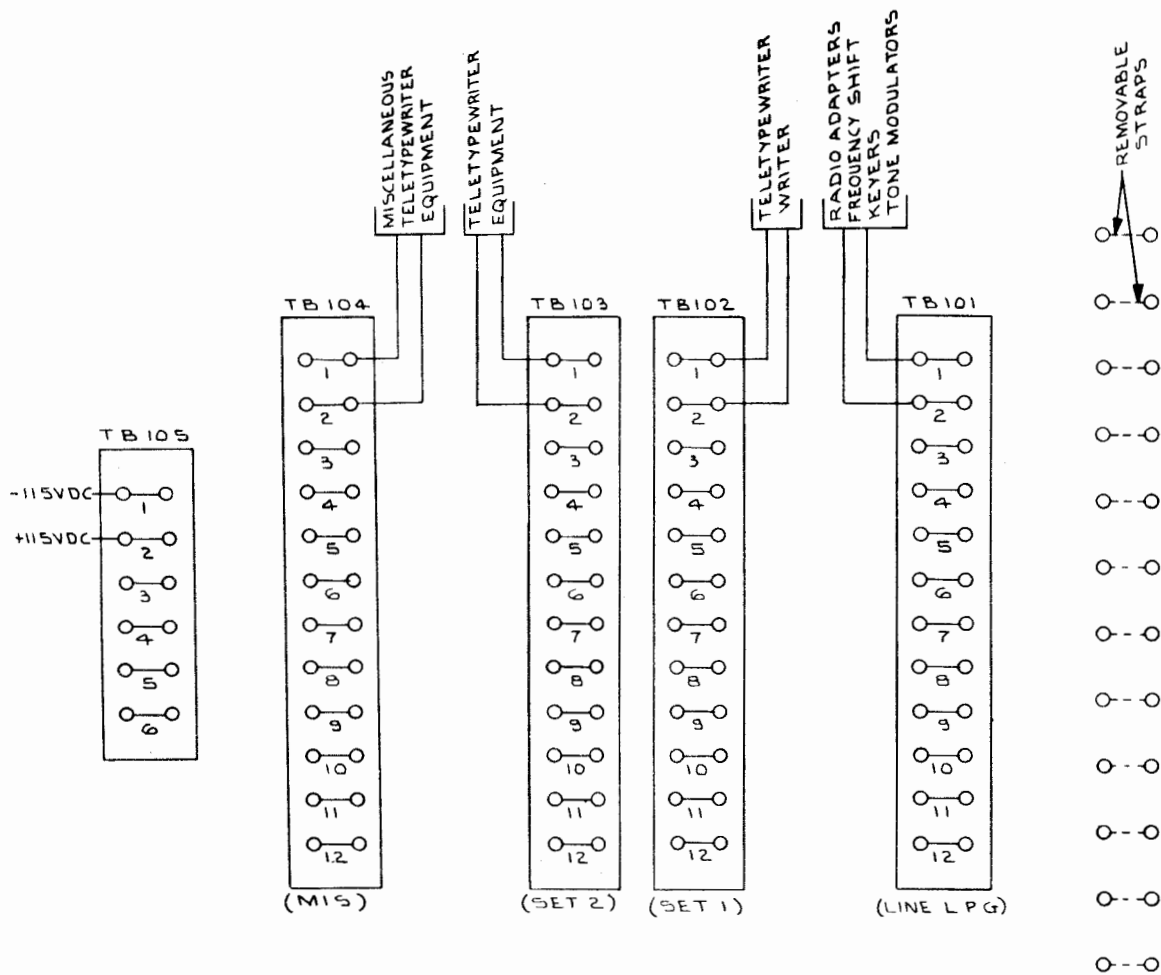
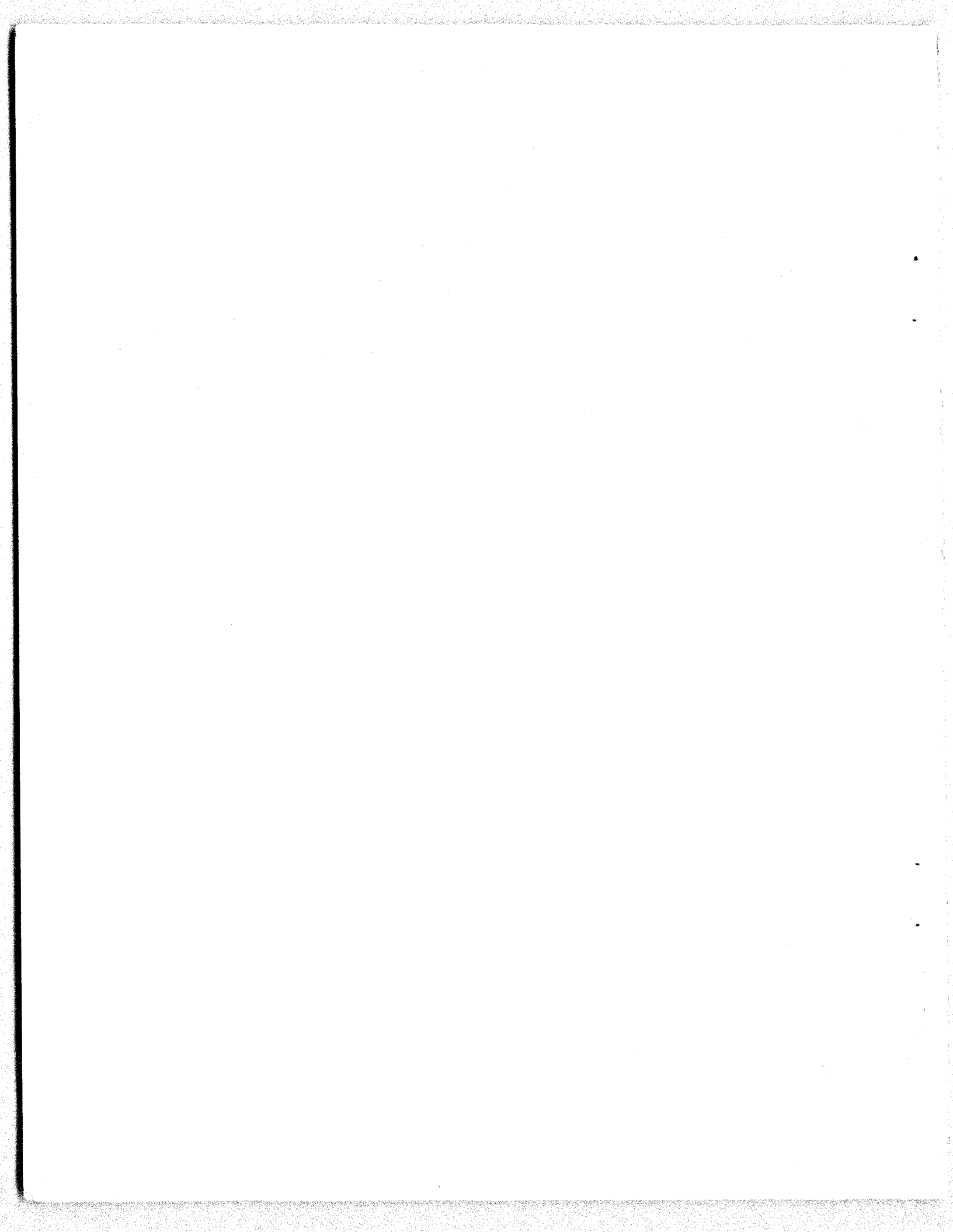


Figure 2-4. Communication Patching Panel, SB-1210A/UGQ, Interconnection Diagram

TABLE 2-1. COMMUNICATION PATCHING PANELS SB-1203A/UG and SB-1210A/UGQ LOOPING CIRCUIT TERMINAL BOARD CONNECTIONS

CONNECTIONS		CHANNELS					
		1	2	3	4	5	6
JACKS	TERMINAL BOARD	Term.	Term.	Term.	Term.	Term.	Term.
LOOPING SET - 1 SET - 2* MISCELLANE- OUS	TB - 101 (LINE)	1-2	3-4	5-6	7-8	9-10	11-12
	TB - 102 (SET)	1-2	3-4	5-6	7-8	9-10	11-12
	TB - 103 (SET)	1-2	3-4	5-6	7-8	9-10	11-12
	TB - 103 (MISC)	1-2	3-4	5-6	7-8	9-10	11-12
	SB-1203A/UG TB - 104 SB-1210A/UGQ	1-2	3-4	5-6	7-8	9-10	11-12
POWER SUPPLY	TB - 104 (BAT) SB-1203A/UG	1-2	1-2	1-2	1-2	1-2	1-2
	TB - 105 SB-1210A/UGQ	1-2	1-2	1-2	1-2	1-2	1-2

* Model SB-1210A/UGQ only.



OPERATOR'S SECTION

3-1. OVER-ALL FUNCTIONAL OPERATION

Each panel contains six channels. As shown in Table 3-1, there is a slight variation between models in the quantity of jacks assigned for each channel. These jacks are divided into three groups, set jacks (SET), looping jacks (LPG), and miscellaneous jacks (MISC). Permanent and patching connections provide many circuit possibilities. The panel also controls the line current in these circuits. Components which are common in both panels are: a line current meter with local selector switch, and a rheostat for adjusting the line current. Also common to each channel is a terminal block located within the panel cabinet.

TABLE 3-1.
LIMITATION AND CAPABILITY

Equip. Design	No. of Chan.	Set Jacks*	Loop Jacks*	Misc. Jacks*
SB-1203A/ UG**	6	1	3	1
SB-1210A/ UGQ***	6	2	2	1

*Number per channel.

**Designed for side-by-side mounting when more than six channels are required.

***Modification of SB-1203A/UG for secure teletypewriter channels.

3-2. OPERATING PROCEDURES

a. DESCRIPTION OF CONTROLS. - All controls are identified by the front panel

markings for ease of identification, and are arranged for ease of operation. Figures 1-1 and 2-2 illustrate the meter, control knobs, switches, and the multiple rows of jacks.

(1) Six LINE CURRENT rheostats are located on the upper left and right sides of the front panel. Each control allows individual channel current to be adjusted. The current is usually set for 60 milliamperes.

(2) The METER SWITCH is located directly below the CURRENT METER in the center of the front panel. Its purpose is to place the CURRENT METER into any of the six channels. The METER SWITCH is a two-pole rotary type, seven-position control. Positions are marked from 0 to 6. The METER is not connected in any circuit in the 0 position.

(3) CURRENT METER. - The CURRENT METER is a d.c. ammeter which indicates the line current in each channel. When the METER SWITCH is turned to any of the six channels, line current in the selected channel will be indicated on the CURRENT METER scale. Calibration of the scale is 100-0-100 ma.

(4) The lower portion of the front panel is composed of multiple rows of JACKS for patching operations. The JACKS identified as LPG and MISC are identical and are the standard type phone jacks. The jacks labelled SET incorporate a double-throw-double-pole switch. By inserting a DUMMY PLUG into the SET jack, the teletypewriter originally in this channel is disconnected. If a teletypewriter is not wired into the same channel as the converter to be used, a patch-cord is inserted into the proper teletypewriter SET jack and the other end in either one of the looping (LPG) jacks in the converter channel.

b. SEQUENCE OF OPERATION. -

- (1) Turn all line current rheostats counterclockwise to allow passage of minimum current.
- (2) Turn on local line current supply at distribution panel. There are no ON-OFF switches in these panels; once panels are connected to local line current, they are operative.

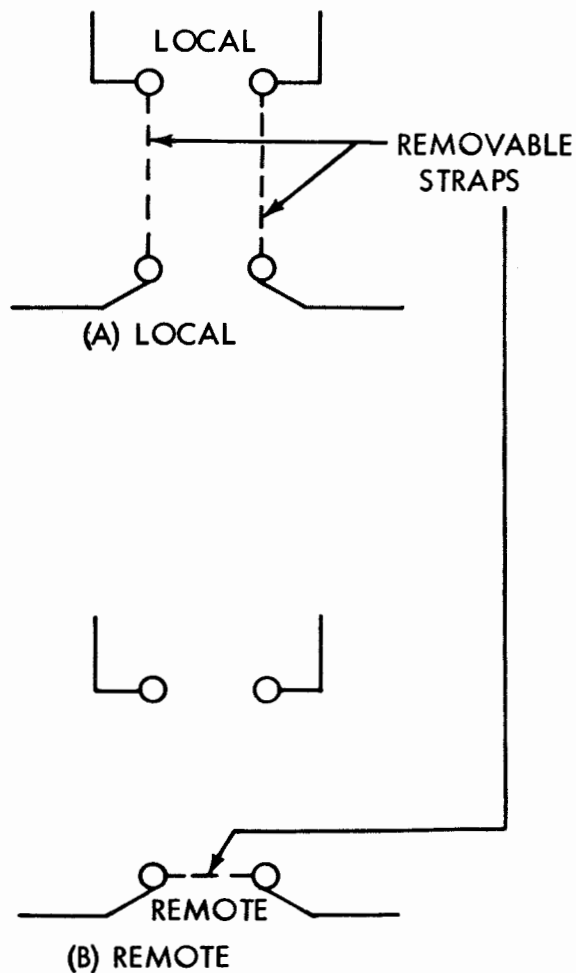
(3) If the desired teletypewriter equipment is wired in the same looping channel as the radio adapter to be used, no patchcords are required.

(4) If the radio adapter supplies own line current, relocate the removable straps located inside the panel cabinet, as shown in figure 3-1.

(5) Turn meter selector switch to desired channel and adjust corresponding line current rheostat to 60 ma.

(6) If the desired teletypewriter is not wired in the same looping channel as the radio adapter to be used, insert one end of a moulded patchcord (supplied with panel) in the proper teletypewriter jack and the other end in either one of the two looping jacks in the desired channel. The teletypewriter originally in this channel may be disconnected by inserting a dummy plug (supplied with panel) in the set jack, or it may be patched to the looping jacks of another channel in the same manner as described above.

rupt the circuit and may place 110 volts d. c. on the plug at the free end. Always plug into the SET jack before plugging into the LPG jack.



WARNING

When patchcords are plugged in, 110 volts d. c. may appear between a nut and surrounding panel. To prevent inadvertent contact, synthetic rubber sleeves should be on plugs.

If a patchcord is plugged first into a looping jack, it will inter-

Figure 3-1. Method of Connecting Removable Straps for REMOTE or LOCAL Current

3-3. TEST PROCEDURES

Signal distortion test equipment can be permanently connected into one channel instead of a radio adapter. Teletypewriter equipment on the same panel or adjacent panels may be patched into this channel for test purposes.

3-4. OPERATOR'S MAINTENANCE

a. ROUTINE CHECK CHART. - The following chart, Table 3-2, is a routine check chart for items to be checked hourly.

TABLE 3-2. ROUTINE CHECK CHART

WHAT TO CHECK	HOW TO CHECK	
Line current	Read line current meter on the panel face	Maintain at 60 ma for normal operation; rotate proper channel rheostat clockwise for increase and counterclockwise for decrease of current. If no current reading, call maintenance technician.

PRINCIPLES OF OPERATION

4-1. OVER-ALL FUNCTIONAL DESCRIPTION

Each panel contains facilities for six identical channels. The diagram shown in figure 4-1 is a simplified schematic drawing for one typical channel or circuit. For simplicity of explanation and brevity, no attempt has been made to show simplified schematics for models covered in this manual. However, the diagram shown can apply to all models, since all models are functionally alike. The slight circuit variations which exist between models are easily detected by comparing the over-all schematic diagrams shown in figures 4-1 and 4-2.

4-2. CIRCUIT ANALYSIS

The following circuit is for one typical channel. The remaining five channels are exactly the same with the exception of component symbol numbers. A radio adapter is connected to terminals 1 and 2 of terminal board TB-101 (LINE). When line current is not supplied by the loop, provisions are made to connect a local source of 115 volts d.c. across terminals 1 and 2 of TB-104. These connections are paralleled across the corresponding terminals of each loop and local current can be connected in or out of each loop by means of removable straps.

It should be noted that this local current is required for loops in which line current is not supplied. The 600-ohm resistor R-119 limits the current in any loop to a maximum of approximately 100 milliamperes.

The meter circuit consists of the milliammeter M-101, and 890-ohm resistor R-101, and a 10-ohm meter shunt resistor R-102. The meter selector switch S-101 is used to place the meter into any of the six channels or in the "0" position.

Line current in each channel is controlled by a 1500-ohm rheostat R-108. One terminal of the rheostat is connected to the first jack J-101 of a pair of looping jacks. The second looping jack J-107 is joined to a set jack J-113. The set jack is connected to the teletypewriter equipment at terminals 1 and 2 of TB-102. This completes the circuit between the radio adapter and the teletypewriter equipment.

By inserting a plug into the set jack J-119 the sleeve and tip of the plug are connected to terminals 1 and 2 of TB-102 respectively. Refer to figure 4-2. This action connects the plug to the teletypewriter equipment wired at terminals 1 and 2. In addition, the remainder of the channel circuit is simultaneously disconnected from terminals 1 and 2 and closed.

Thus, if it is desired to transfer a teletypewriter from one channel to any other channel, the teletypewriter is patched from its corresponding set jack to one of the two looping jacks in the channel to be used. If it is preferred that the teletypewriter equipment wired in this channel not operate, a dummy plug is inserted into the set jack J-119.

An additional teletypewriter may be connected to the miscellaneous jack and can be patched into any of the channels.

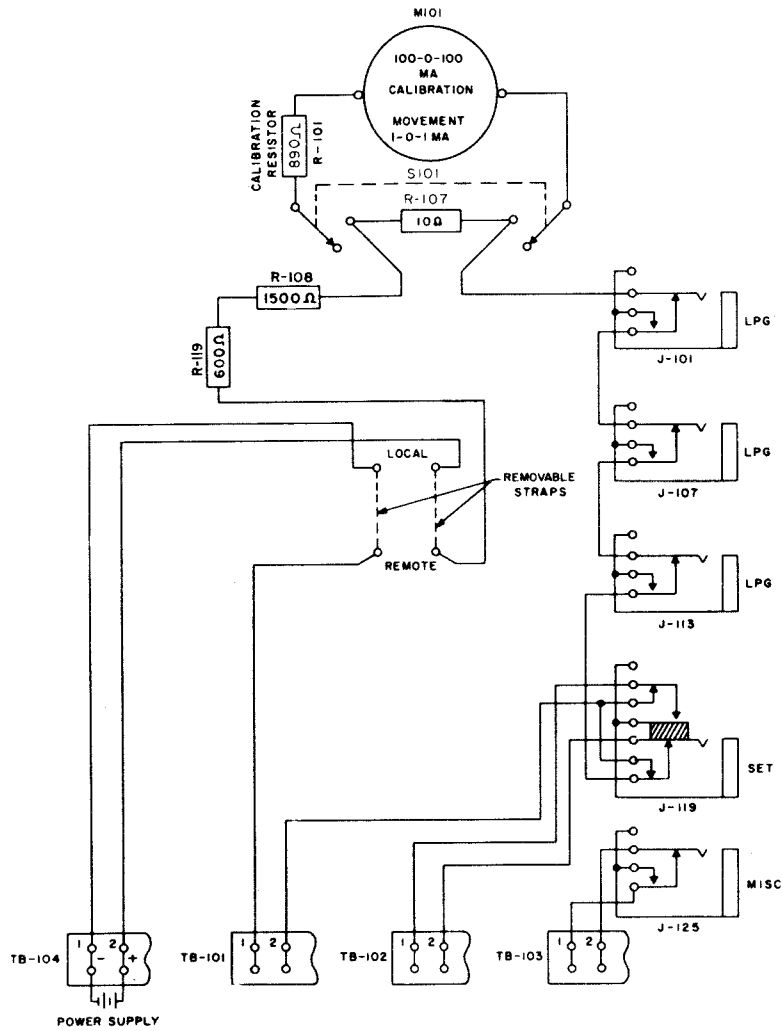


Figure 4-1. Communication Patching Panel SB-1203A/UG, Single Channel Simplified Schematic Diagram

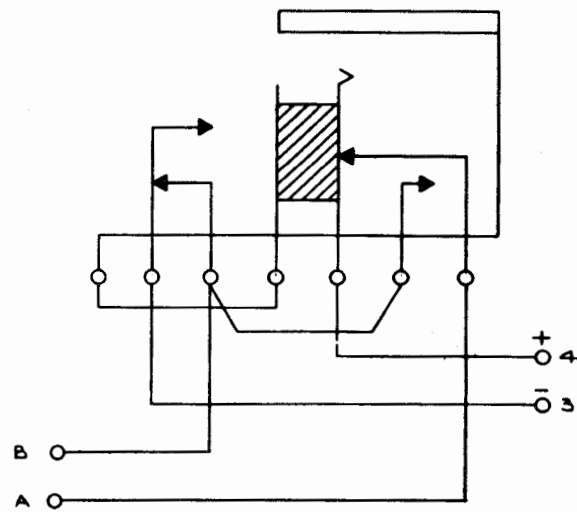
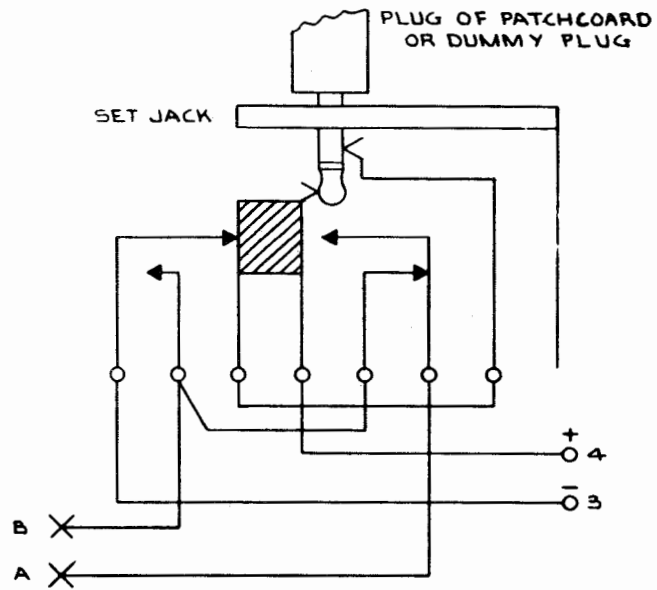
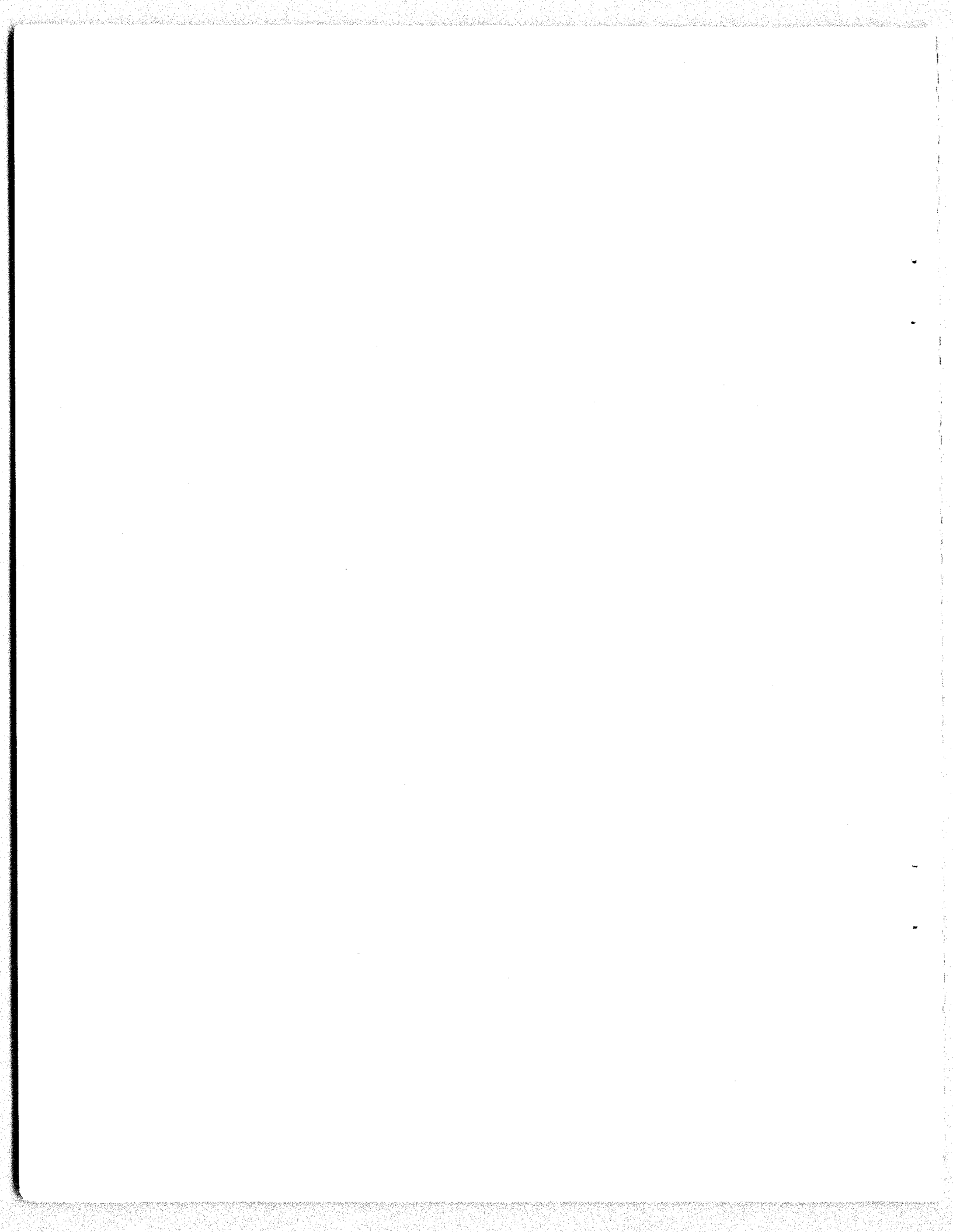


Figure 4-2. Set Jack Detail



TROUBLESHOOTING

5-1. TROUBLESHOOTING PROCEDURES

Trouble is located best by making a visual check first and then checking the system functions. If only one function is inoperative, the circuits concerned solely with that function should be investigated. If two or more functions are inoperative, it is likely that the fault lies in a common circuit. Due to the basic circuits used, troubleshooting the panel is relatively easy. Therefore, when a malfunction is

observed in the equipment, it is advisable to make a quick check of all functions before attempting to localize the fault.

a. VISUAL CHECK. - A careful visual inspection should be the first action in any form of troubleshooting.

(1) Check for arcing, broken wires, and charred insulation.

(2) Check for loose cables, equipment not secured properly, and any evidence of physical damage.

TABLE 5-1. OVER-ALL TROUBLESHOOTING CHART

STEP	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Rotate the METER SWITCH (S-101) to each of the positions 1 through 6	CURRENT METER (M-101) should indicate 60 ma for each position after adjustment of the applicable LINE CURRENT rheostat.	If there is no indication or low indication on CURRENT METER (M-101) for: (a) All positions of S-101, go to next step. (b) One position of S-101, go to step 3.
2	Connect multimeter AN/PSM-4 between terminals 1 and 2 of TB-104 on SB-1203A/UG, and terminals 1 and 2 of TB-105 on SB-1210A/UGQ.	Multimeter should indicate between 110 and 120 volts d. c. NOTE If power is being supplied by radio adapter, this check must be made at the adapter output instead of the panel terminal board.	If reading is not within limits, check power supply. If it is within limits, check meter calibration resistor and meter (M-101).
3	Turn power supply off. Using multimeter, check continuity and resistance of all components in defective channel.	Resistance readings should be within 10% of values on schematic for the model under test.	If all readings are normal, check other equipment (teletypewriter, etc.) connected in loop.

TABLE 5-2. TYPICAL TROUBLES

TROUBLE	NATURE OF TROUBLE	CORRECTIVE MEASURES
No line current	No reading on meter with strap in remote	Check continuity of channel through all cable connections, switches, jacks, meter, resistors, and rheostat with ohmmeter. Repair or replace components and secure connections.
No local line current	No reading on meter with strap in local	Check power supply and connections with voltmeter. If meter does not read with continuity, check continuity of channel as above.
No control of line current	No change in meter readings when the channel rheostat is rotated	Check connections of rheostats. Check continuity within rheostat with ohmmeter; or replace.

b. TROUBLESHOOTING CHART. - The troubleshooting chart, Table 5-1, indicates the steps to follow after the visual check is completed; this chart lists the troubles, symptoms, and corrections for the teletypewriter panel. Table 5-2 tabulates typical troubles, their nature, and corrective measures.

c. REFERENCE DIAGRAMS. - Included in this section are functional schematic diagrams (figures 5-1 and 5-2) which cover the circuits of each individual model referenced in this manual; test points and individual voltages can be found also on these diagrams.

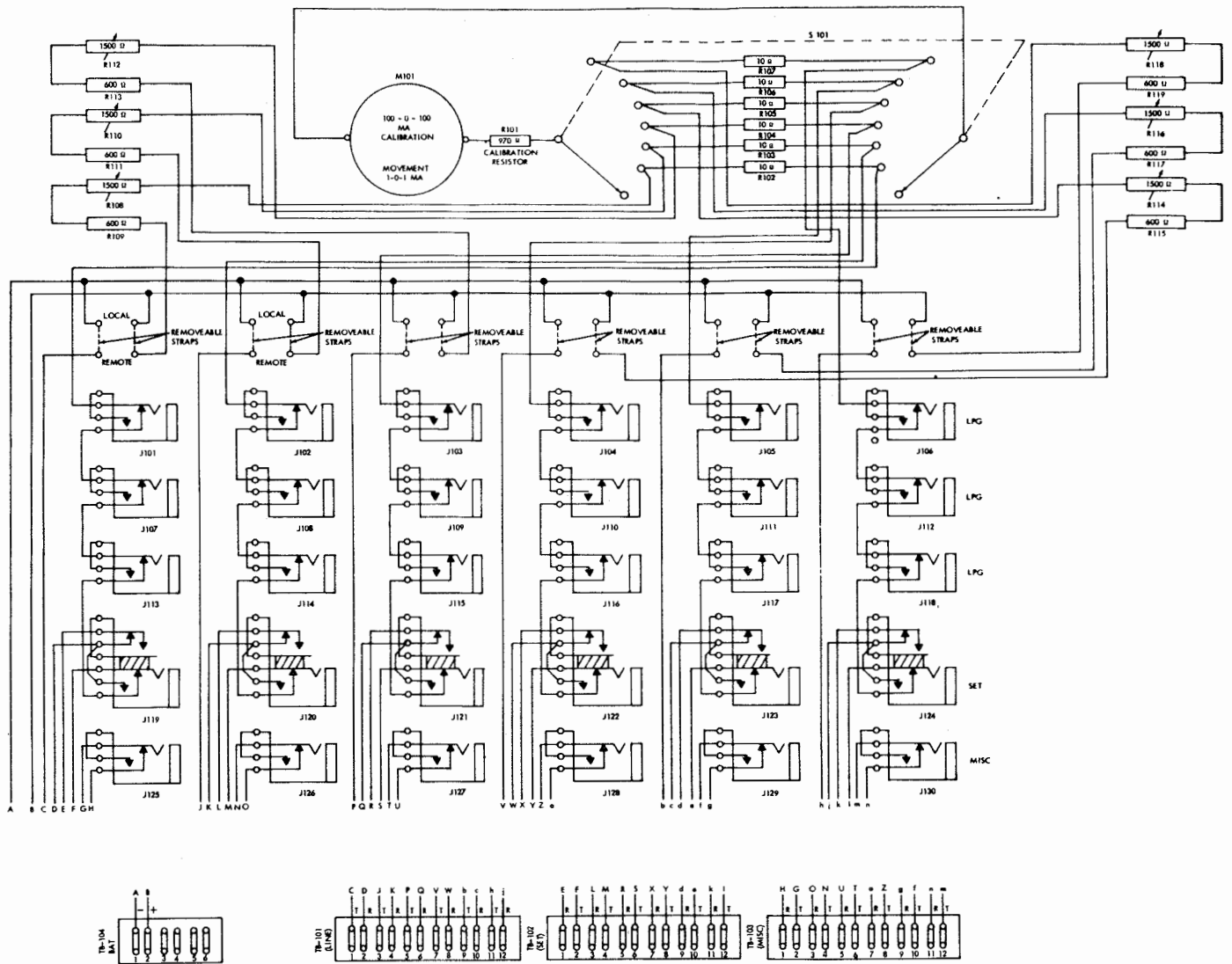


Figure 5-1. Communication Patching Panel SB-1203A/UG, Schematic Diagram

Figure 5-2

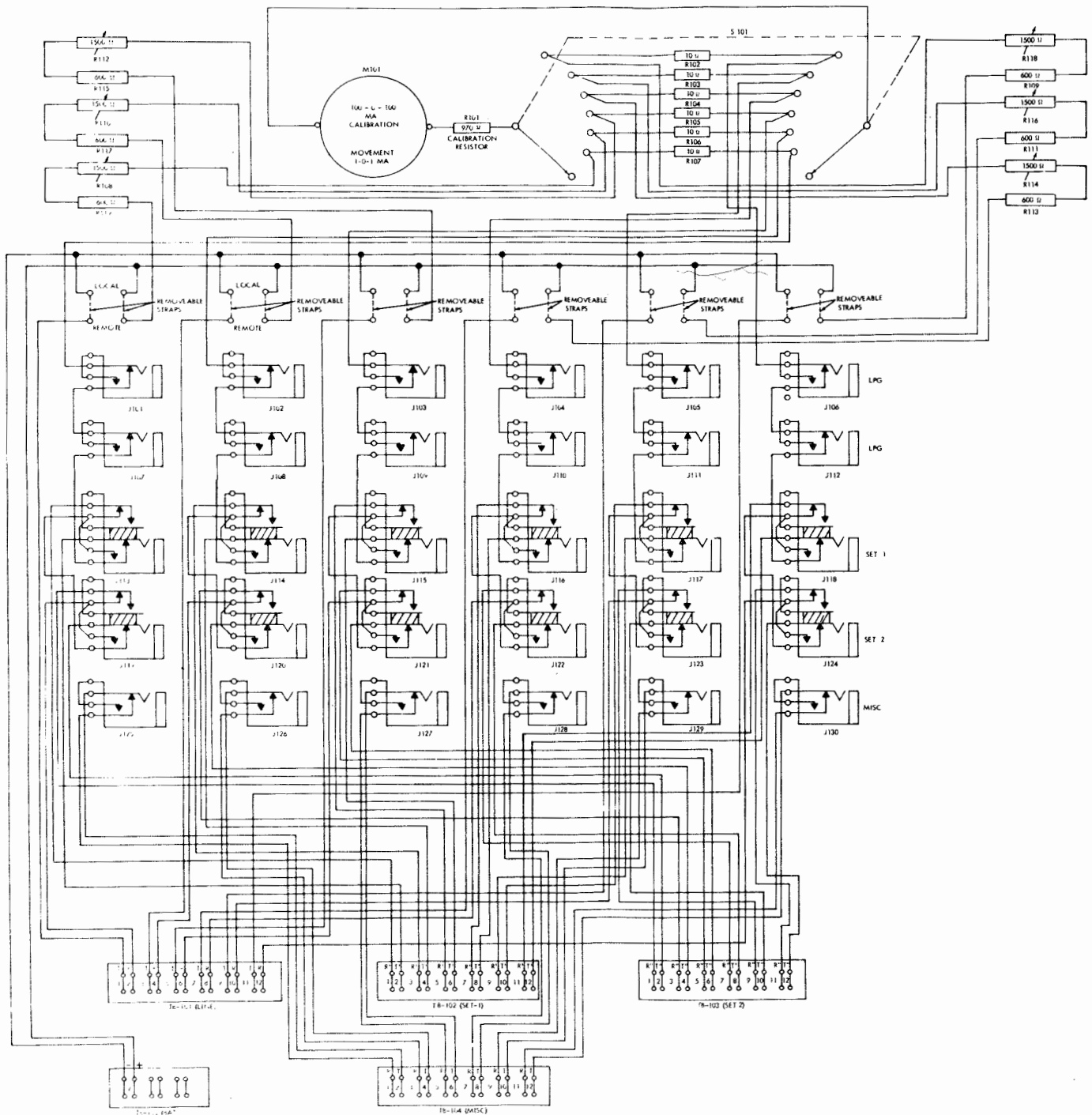


Figure 5-2. Communication Patching Panel SB-1210A/UGQ, Schematic Diagram

MAINTENANCE AND REPAIR

6-1. FAILURE REPORT

FAILURE REPORT

"Report each failure of the equipment, whether caused by a defective part, wear, improper operation, or an external cause. Use ELECTRONIC FAILURE REPORT form DD787. Each pad of the forms includes full instructions for filling out the forms and forwarding them to the Bureau of Ships. However, the importance of providing complete information cannot be emphasized too much. Be sure that you include the model designation and serial number of the equipment (from the equipment identification plate), the type number and serial number of the major unit (from the major unit identification plate), and the type number and reference designation of the particular defective part (from the technical manual). Describe the cause of the failure completely, continuing on the back of form if necessary. Do not substitute brevity for clarity, and remember there are two sides to the failure report:

YOUR SIDE

Every FAILURE REPORT is a boost for you:

1. It shows that you are doing your job.
2. It helps make your job easier.
3. It insures available replacement.
4. It gives you a chance to pass your knowledge to every man on the team.

BUREAU SIDE

The Bureau of Ships uses the information to:

1. Evaluate present equipment.
2. Improve future equipment.
3. Order replacements for stock.
4. Prepare field changes.
5. Publish maintenance data.

Always keep a supply of failure report forms on board. You can get them from the nearest District Publications and Printing Office."

6-2. ROUTINE MAINTENANCE

The routine maintenance check chart, Table 6-1, contains a tabulation of periodic routine mechanical and electrical checks and maintenance procedures. These checks should be performed to assure peak performance.

WARNING

HIGH VOLTAGES DANGEROUS TO LIFE ARE PRESENT IN THIS EQUIPMENT. OBSERVE HIGH-VOLTAGE SAFETY REGULATIONS AT ALL TIMES. DE-ENERGIZE THE EQUIPMENT BEFORE PERFORMING ANY MAINTENANCE OR REPAIRS INSIDE ANY UNIT.

TABLE 6-1. ROUTINE MAINTENANCE CHECK CHART

ITEM	PROCEDURE	INTERVAL	PRECAUTIONS
Line current	See check chart 3-2.	EW	Technician should check source of supply current, if necessary.
Jacks	Check for grease, dust, and dirt.	W	Clean to prevent faulty contact. (See paragraph 6-3.)
Rheostats	Check for proper operation of toggle switches and switch dial. Check connections. Inspect for dirt.	W	If necessary, clean dial and shaft. Tighten connections.
Cables and Terminals	Inspect firmness of connections and check for grease and dirt. Inspect for wear on cables.	M	Tighten connections, if necessary. Clean terminals with dry cloth. Replace worn cables.
Resistors	Inspect for discoloration, bulging and proper connections.	M	Replace faulty resistors; tighten connections; clean when necessary.

EW - Each Watch

W- Weekly

M - Monthly

6-3. CLEANING

Cleaning the equipment and its components is a major factor in the prevention of breakdown in operation. A dry cloth should be used in removing dust and dirt from electrical components. Orange stick, cotton, and an approved cleaning solvent should be used for cleaning such items as jacks and keys of grease and dirt. (Refer to Bureau of Ships Manual, Chapter 67, paragraph 67-306, entitled CLEANING OF ELECTRONIC EQUIPMENT.)

6-4. REMOVAL, REPAIR, REPLACEMENT, REASSEMBLY OF COMPONENT PARTS

The following paragraphs include procedures for the removal, repair, and replacement of parts expected to need replacement.

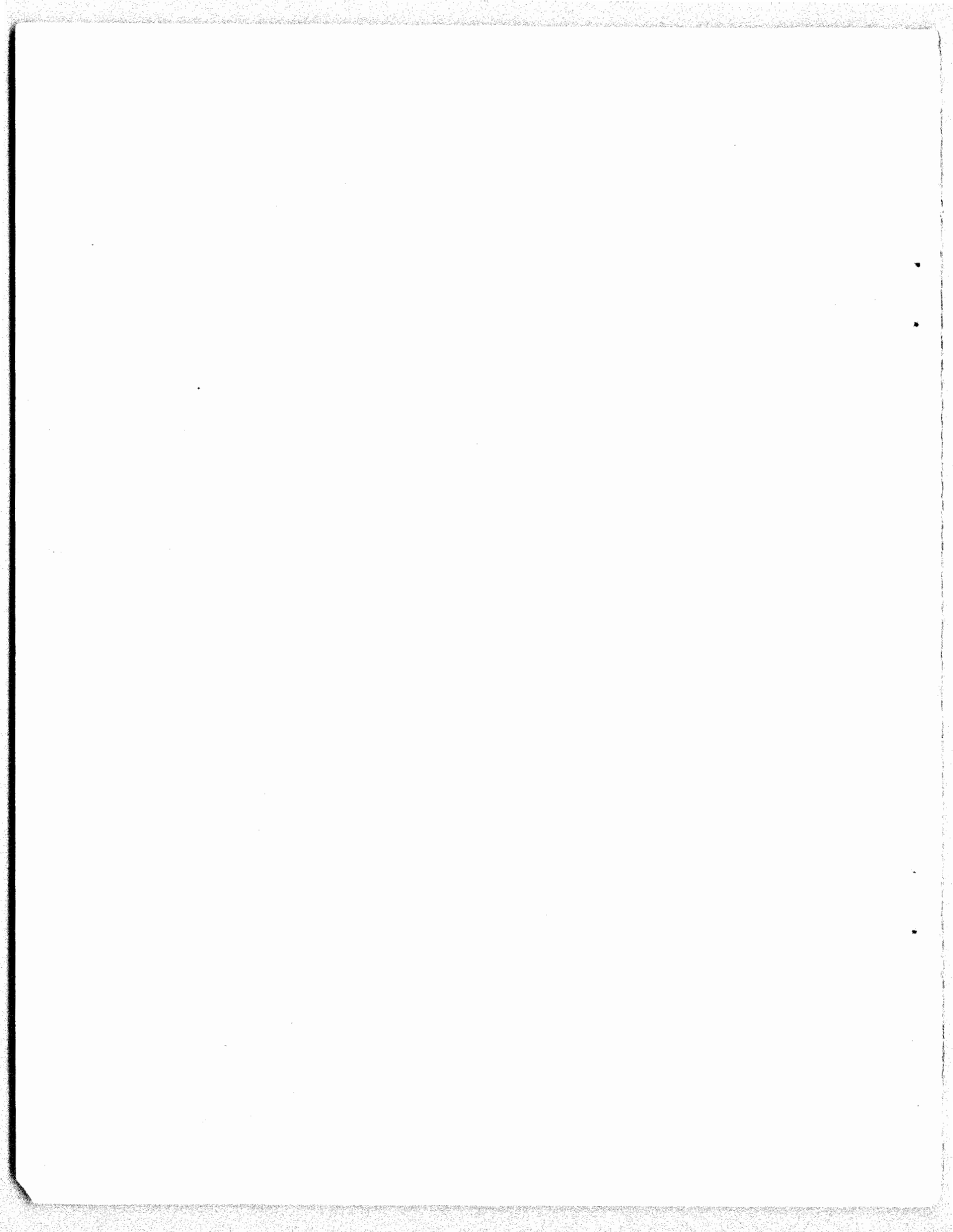
a. REMOVAL. - To obtain access to all components for the purpose of repair and replacement, unscrew the machine screws located at the two uppermost corners of the panel. The panel will then swing out and down since it is hinged at the bottom of the panel.

b. REPAIR AND REPLACEMENT. - Repair of the panel consists primarily of replacing any defective parts or components. Due to the simplicity and similarity in manner of replacement for all parts, detailed instructions have been omitted.

Particular care should be taken to run any replacement wiring in the same posi-

tion and manner as the original wiring.

Soldering should be done with rosin-core solder only. The smallest amount of solder necessary for good mechanical and electrical joints should be used. Do not permit excess solder to drop on other components or remain within the chassis.



PARTS LIST

7-1. INTRODUCTION

Reference designations (previously referred to as circuit symbols) have been assigned to identify all electronic maintenance parts of the equipment. They are used for marking the equipment (adjacent to the part they identify), and are included on drawings and parts list. The letters of reference designation indicate the kind of part (generic group), such as meters, resistors and switches.

7-2. MAINTENANCE PARTS LIST

Table 7-1 lists all maintenance parts. The parts of each major component are grouped together. Column 1 lists the reference designations of the various parts in alphabetical and numerical order. Column 2 refers to the explanatory notes that appear in paragraph 7-4. Column 3 gives the name and describes the various parts. Column 4 indicates how the part is used and gives its functional location in the equipment; it also includes the figure number of the pictorial illustration on which the part is identified.

7-3. LIST OF MANUFACTURERS

Table 7-2 lists manufacturers of parts used in the equipment. The first column gives the manufacturer's identifying code; column 2 gives the name of the manufacturer; and column 3 gives the manufacturer's address.

7-4. NOTES

All items listed in Table 7-1 apply to all models unless otherwise indicated. The numbers appearing in column 2 are explained as follows:

1. Model SB-1203A/UG
2. Model SB-1210A/UGQ
3. Model SB-1203A/UG and SB-1210A/UGQ
4. Not supplied with Models SB-1203A/UG and SB-1210A/UGQ.

TABLE 7-1. MAINTENANCE PARTS LIST

REF DES	NOTES	NAMES AND DESCRIPTION	LOCATING FUNCTION
SB-1203A/UG	1	PANEL, Patching, communication - INDMAN, PRNC, Washington, D. C. Order 3-0813(SB-1203A/UG)	
SB-1210A/UGQ	2	PANEL, Patching, communication - INDMAN, PRNC, Washington, D. C. Order 3-0313(SB-1210A/UGQ)	
A-101	3	BOX, Patching, communication, aluminum, QQ-A-52SH34, BuShips Dwg. RW10D1523Rev A	Housing of components
A-102	1	PANEL, Patching, aluminum, QQ-A-52SH34 BuShips Dwg. RW10D1520Rev D	Front panel mounts components
A-102	2	PANEL, Patching, aluminum, QQ-A-52SH34 BuShips Dwg. RW10D1521Rev E	Front panel mounts components
A-103	3	PANEL, Jack, plastic phenolic resin type CFG, black MIL-SPEC. MIL-P-14D	Insulator for panel
H-101	3	HINGE, Piano, 1" wd. OA x 5-1/2" lg. stainless steel.	Hinges to panel cabinet
J-101	1	JACK, equal to: 303A mfd by WECO	Looping jack
J-102 thru J-118	1	Same as J-101	Same as J-101
J-125 thru J-130	1	Same as J-101	Same as J-101
J-101	2	JACK, equal to: 303A mfd by WECO	Looping jack
J-102 thru J-112	2	Same as J-101 (NOTE 2)	Same as J-101
J-125 thru J-130	2	Same as J-101 (NOTE 2)	Same as J-101
J-119	1	JACK, equal to: 438C mfd by WECO	Set jack
J-120 thru J-124	1	Same as J-119	Same as J-119

TABLE 7-1. MAINTENANCE PARTS LIST (CONT)

REF DES	NOTES	NAMES AND DESCRIPTION	LOCATING FUNCTION
J-115	2	JACK, equal to: 438C mfd by WECO	Set jack
J-116 thru J-124	2	Same as J-115 (NOTE 2)	Same as J-115.
MP-101	3	KNOB, MS 91328 - 1 PID, 1/3" shaft	Knob for line current rheostat.
MP-102	3	KNOB, pointer, black phenolic molded, equal to: P-120 mfd by Centralab	Channel selector switch knob
M-101	3	METER, milliampere, d.c. Scale: 100-0-100 DC MA equal to: 2X1381, Govt. No. MR26W1U1DCMAR	Measure current in channel
N-101	3	STRIP, Dwg. No. RW 10A1814	
N-103	1	NAMEPLATE, aluminum alloy; mfd in accord w/MIL-P-15024B	Nameplate for unit
N-103	2	NAMEPLATE, aluminum alloy; mfd in accord w/MIL-P-15024B	Nameplate for unit
P-101	4	PLUG, telephone; 2 cond, single shank, tabular, black bakelite shell; dimensions: a. shank, 1/4" diam., 1-1/4" lg; b. shell, 1/2" diam; c. over-all length, 2-7/8"; plug cable termination; PJ-055P engraved on shell	Used as dummy plug
R-101	3	RESISTOR, fixed, wirewound, 970 ohms $\pm 1\%$ Tol., 1W, vitreous enamel, 2 radial wire leads; equal to: MIL TYPE RB15AE 970ROOF MIL-R-93A	Meter resistor
R-102	3	RESISTOR, fixed, wirewound; 10 ohms $\pm 1\%$ Tol., 1W, vitreous enamel; 15/32" lg. w/lug terminals; equal to: RB 15AE10ROOF, MIL-R-93A	Meter shunt resistor
R-103 thru R-107	3	Same as R-102	Same as R-102

TABLE 7-1. MAINTENANCE PARTS LIST (CONT)

REF DES	NOTES	NAMES AND DESCRIPTION	LOCATING FUNCTION
R-108 thru R-118	3	RHEOSTAT, wirewound, 1500 ohms, 12- 1/2W, ceramic vitreous enamel terminals and tinned wire leads; equal to: Model "E" stock No. 0121; mfd by OHMITE	Used to vary line current in channels
R-109 thru R-119	3	Fixed Resistors, wirewound, 600 ohms, 10 watts, ceramic vitreous enamel with terminals and wire leads; equal to: "Brown Devil" mfd by OHMITE	Same as R-108
S-101	3	SWITCH, Rotary, laminated, phenolic insulation with positive 30° index; 2-pole 2-section, 1 pole per section, 7 positions; equal to: 1413 Centralab	Channel selector switch
TB-101	1	BLOCK, terminal, 12 terminals (double row); miniature, 5" lg. x 11/16" wd; equal to: Navy Type 26TB12 (double)	Terminal board for panel
TB-102 to TB-103	1	Same as TB-101	Same as TB-101
TB-104	1	BLOCK, terminal, 6 terminals (double row); miniature, 2-5/8" lg. x 11/16" wd; equal to: Navy Type 26TB6 (double)	Terminal board for panel
TB-101	2	BLOCK, terminal, 12 terminals (double row); miniature, 5" lg. x 11/16" wd; equal to: Navy Type 26TB12 (double)	
TB-102	2	Same as TB-101	Same as TB-101
TB-103	2	Same as TB-101	Same as TB-101
TB-104	2	Same as TB-101	Same as TB-101
TB-105	2	BLOCK, terminal, 6 terminals (double row); miniature, 2-5/8" lg. x 11/16" wd; equal to: Navy Type 26TB6 (double)	
W-101	4	CORD, switchboard, CX-6932/U (18 inches) FSN N5995-675-4540	Patching cord
W-102	4	CORD, switchboard, CX-6932/U (36 inches) FSN N5995-675-4587	Patching cord