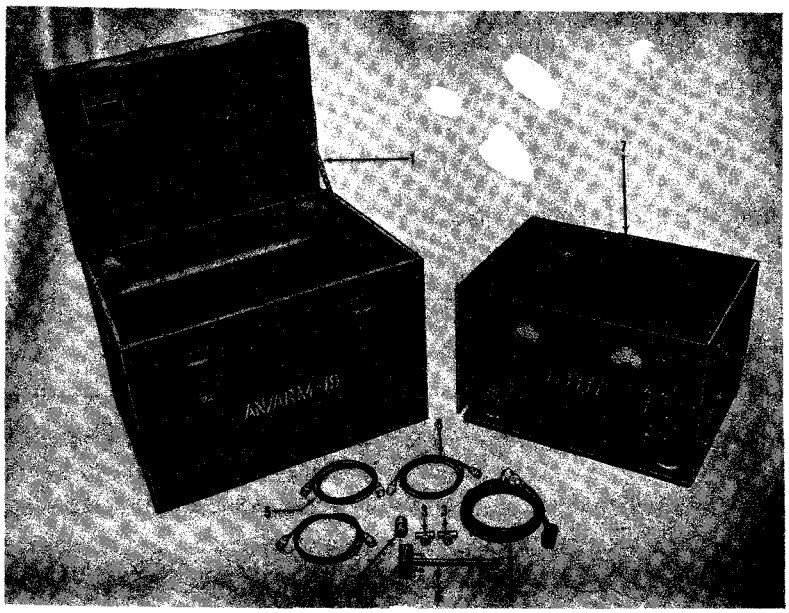
26 November 1962 SIGNAL, GENERATOR AN/ARM-19

Cog Service: USN FSN: Functional Class:

USA	USN	USAF
TYPE CLASS:	Used by	Used by

MANUFACTURER'S NAME/CODE NUMBER: Babcock Radio Engineering Incorporated, (82050).



Signal, Generator AN/ARM-19

FUNCTIONAL DESCRIPTION:

The Signal, generator AN/ARM-19 generates accurately controlled Radio Frequency (RF) signals on the integral megacycle points from 406 to 420 megacycle (MC) inclusive. The output is continuously variable from 13 to 100,000 microvolts (UV). Carrier is frequency modulated by six (6) audio frequencies of uniform amplitude individually or severally selected by front panel switches. Deviation is adjustable, however, calibration is at porm 300 kilocycles (KC) only. Means for external modulation by one or more tones from an external source with frequencies between 1 kc and 100 kc is provided. Accessory antenna allows broadcasting of signal for testing control receivers mounted in aircraft or vehicles.

No field changes in effect at time of preparation (26 September 1962).

AN/ARM-19 SIGNAL, GENERATOR

TECHNICAL CHARACTERISTICS:

CARRIER
- FREQUENCY RANGE: 406 to 420 mc.
- NUMBER OF FREQUENCIES: 15.
- CALIBRATION ACCURACY: Porm 0.01%.
- TYPE OF FREQUENCY CONTROL: Crystal.

SIGNAL OUTPUT: 0.3 uv to 100000 uv porm 1 db.
INTERNAL MODULATION: FM, 7.50 kc; 10.76 kc; 8.46 kc; 12.4 kc; 9.54 kc and 13.70 kc.
TERMINALS FOR EXTERNAL MODULATION: 1 to 100 kc.
OPERATING POWER RQMT: 115 v ac; 50 to 1000 cps, single ph.

RELATION TO OTHER EQUIPMENT:

The AN/ARM-19 is designed to be used with, but not part of AN/ARW-59, AN/ARW-67, R-570/ARW.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/ARM-19 consists of:		15-1/2 x 18 x 22	
1	Case Assy Transit CY-1887/ARM-19		15-1/2 x 18 x 22	
1	Signal Generator Assy N.T. 2001			
1	Adapter, Coaxial UG-201A/U		13/16 dia x 1-5/16 lg	
2	Tee, Coaxial UG-274/U			
1	Cable, Assy, Power CX-3422/U (N.T. 2072)			
3	Cable, Assy, Audio CG-409A/U (N.T. 2073.1)			
1	Antenna Assy, Accessory AT-643/ARM-19			
1	Signal Generator SG-134/ARM-19		10-1/2 x 14-1/4 x 18	

REFERENCE DATA AND LITERATURE:

NAVAEA 16-30ARM19-504: Technical Manual for Signal Generator AN/ARM-19.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2WA (15) 12AT7WB (6) 12AU7 (1) 5R4WGB (3) 6AH6WA (3) 6AU6WB

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuAer

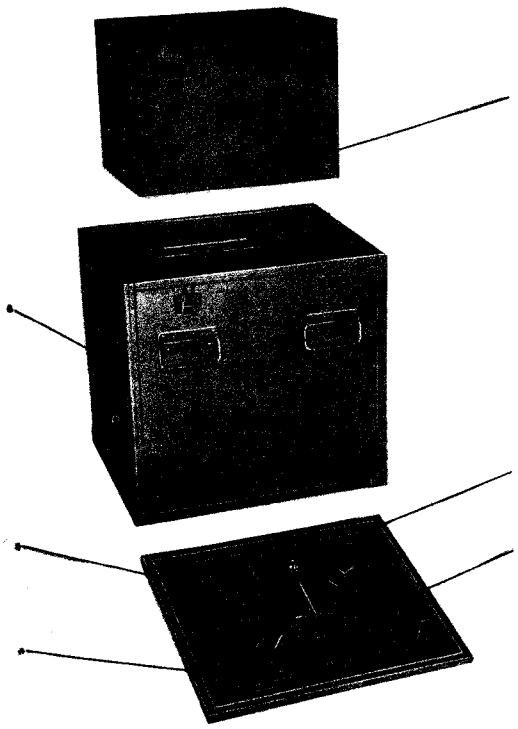
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Babcock Radio Engineering Inc. Dwg no. 2006	Van Nuys, California	NOas 54-784	

23 November 1962 SIGNAL, GENERATOR AN/ARM-24

Cog Service: USN FSN: Functional Class:

USA	USN	USAF
TYPE CLASS:	Used by	Used by

MANUFACTURER'S NAME/CODE NUMBER: Boonton Radio Corporation, (07980).



Signal, Generator AN/ARM-24

FUNCTIONAL DESCRIPTION:

The Signal, Generator AN/ARM-24 is capable of furnishing radio frequency test signals at an accurately adjustable frequency and power level and shall include provisions for both external and internal frequency modulation.

No field changes in effect at time of preparation (25 September 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 400 to 550 mc.
FIXED FREQUENCY: 151 mc.
FREQUENCY ACCURACY: Porm 0.002%.
TYPE OF FREQUENCY CONTROL: Crystal.
SIGNAL OUTPUT DATA

AN/ARM-24 SIGNAL, GENERATOR

VARIABLE LEVEL: 1 to 100,000 uv.
FIXED LEVEL: 2.1 v min.
VARIATION: Less than porm 1.0 db.
IMPEDANCE: 50 ohms nominal.

MODULATION DATA
TYPE: Internal and external fm.
FREQUENCY: 400, 1,000 cps.

OPERATING POWER RQMT: 115 v ac, 50 to 420 cps, single ph.

RELATION TO OTHER EQUIPMENT:

The AN/ARM-24 is designed to be used with, but not part of, AN/ARW-56 and AN/ARW-59.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal, Generator AN/ARM-54 consists of:		19 x 21-1/4 x 23-1/4	157
1	Signal, Generator SG-199/ARM-24		15 x 17-1/4 x 19-3/4	115
1	Case, Signal Generator CY-2070/ARM-24		20 x 21-3/8 x 24	55
3	Cable Assy, RF CG-1522/U		74 lg	
1	Cable Assy, Power, Electrical CX-3135/U			
2	Adapter, Connector UG-1222/U		5/8 x 1-3/8 x 2	
2	Plug AN3108B-14S-2P			
2	Cable Clamp AN3037-6			

REFERENCE DATA AND LITERATURE:

NAVAER 16-30ARM24-501: Technical Manual for Signal Generator AN/ARM-24.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2WA (9) 12AT7WB (2) 5R4WGB (1) 5Y3WGTB (2) 5651 (6) 5654-6AK5W
(1) 5691 (1) 5718 (2) 5725 (4) 5726-6AL5W (2) 5751 (2) 5814A (1) 5896
(3) 6AH6WA (2) 6AN4 (8) 6AU6WB (1) 6E5 (1) 6005-6AQ5W (2) 6080WA

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N25

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

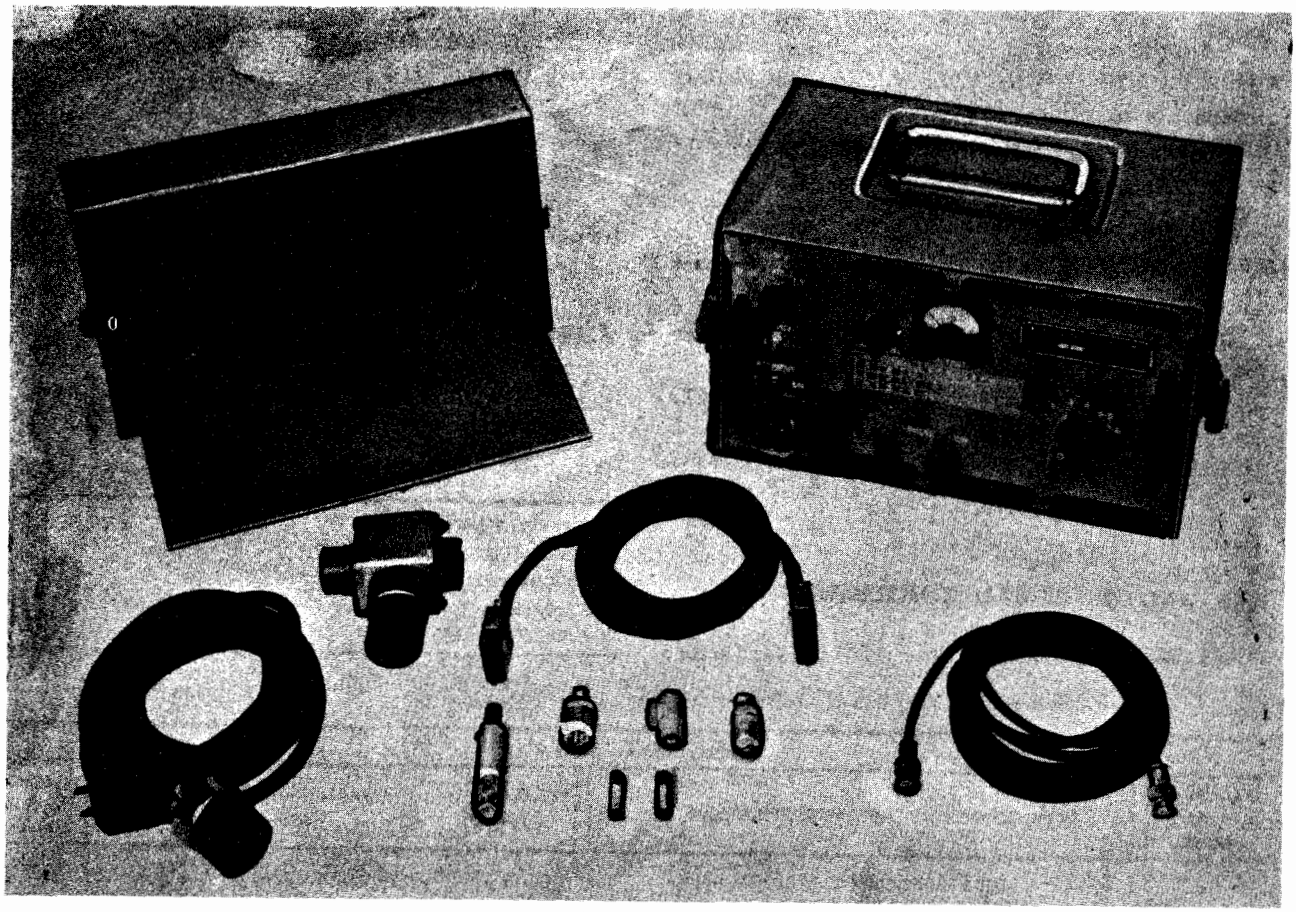
DESIGN COG: USN, BuAer

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Boonton Radio Corporation	Boonton, New Jersey	NOas 55-724-f	

December 1956

SIGNAL GENERATOR

AN/GPM-15



Signal Generator AN/GPM-15

FUNCTIONAL DESCRIPTION

The AN/GPM-15 is a compact, portable test generator used in pre-flight checking of airborne Loran receivers such as Radar Receivers AN/APN-9, AN/APN-9A and AN/APN-70. The signal generator provides crystal-controlled RF signals for all standard Loran channels, simulating the normal signals received by the Loran receiver during actual operation and thus allowing a complete functional test to be performed upon the receiver.

It is designed to facilitate the following checks on Loran receivers:

- Accuracy of time delay measurements.
- Receiver alignment and sensitivity.
- Timer performance and crystal oscillator frequency.
- Stability of sweep generating circuits.
- Receiver distortion due to insufficient signal handling capacility on all receiver channels.
- VIDEO distortion.
- Performance of "Gain" and "Amplitude Balance" controls.
- Performance of "Left-Right" control.

No field changes in effect at time of preparation (16 July 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF TRANSMISSION: CW or pulse-modulated RF.

FREQUENCY RANGE: Six fixed crystal-controlled frequencies, 100, 180, 1750, 1850, and 1950 kc.

POWER OUTPUT: Either 15 uv, 1 mv or 1 v across 50 ohms output impedance.

OUTPUT SIGNAL CHARACTERISTICS: Pulse-modulated at 303.03 cps rate so as to provide normal indicator pattern on Loran receivers.

RF CHANNELS: Numbered 1, 2, 3, 4, 5-6 and 7-8

ACCURACIES

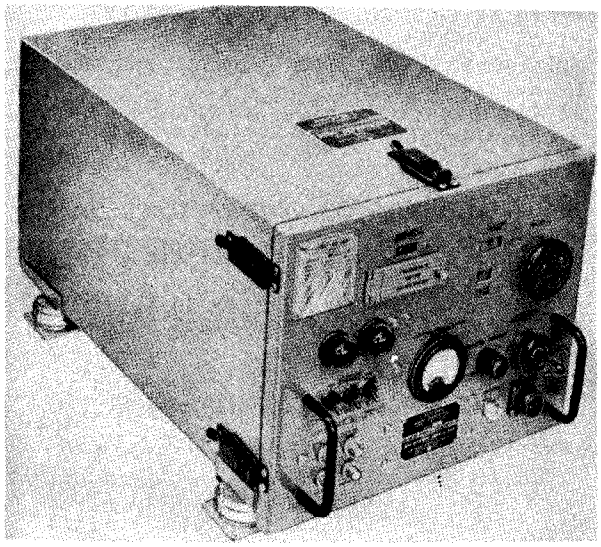
RF CHANNEL FREQUENCY: ±0.005% for Channels 1-4; ±0.02% for Channels 5-6 and 7-8.

PULSE MODULATING FREQUENCY: Sufficient to allow delay readings with accuracy.

Test-Signal Generating

April 1958

TARGET TRANSMITTER AN/SPM-1



Target Transmitter AN/SPM-1

FUNCTIONAL DESCRIPTION

The AN/SPM-1 is a generator of radar type pulses for use in calibrating and testing of radar direction finder equipments. In normal use, the equipment is operated aboard a small vessel which is steered on a circular course around the ship carrying the equipment under test.

The AN/SPM-1 may also be used as a general purpose, low power pulse generator in the range from 3800 to 5000 megacycles.

No field changes in effect at time of preparation (10 December 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: Pedestal AS-236/SPT or AS-263/UPT, or a suitable platform is required for installing the horn antenna during tests.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 3800 to 5000 mc, continuous band.
PEAK POWER OUTPUT: 30 W min.
PULSE RATE: 1200 to 1600 pps.
PULSE WIDTH: 1.3 usec.
POWER SOURCE REQUIRED: 115 v, 60 cps, single ph, 100 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Raytheon Mfg Co, Waltham, Mass.
Contract NObsr-42417 dated 23 June 1948.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 2C43
(1) 3B29
(1) 5R4WGB
(1) 6SN7WGTA
(1) 3C45
Total Tubes: (5)

(1) 1N23B
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91640(A), Technical Manual for Target Transmitter AN/SPM-1.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	C/O (1) Radar Transmitter T-247/SPM-1 (1) Cable Assy CX-2037/U (2) Cable Assy CG-912/U (2) Connector Plug UG-21B/U (2) Technical Manuals (1) Antenna AT-151/UPT (1) Set Special Ant Spare	10.3	20 X 24 X 38	151
2	(1) Set Equip Spares	3.0	14 X 15 X 24	85

Test-Signal Generating

AN/SPM-1 TARGET TRANSMITTER

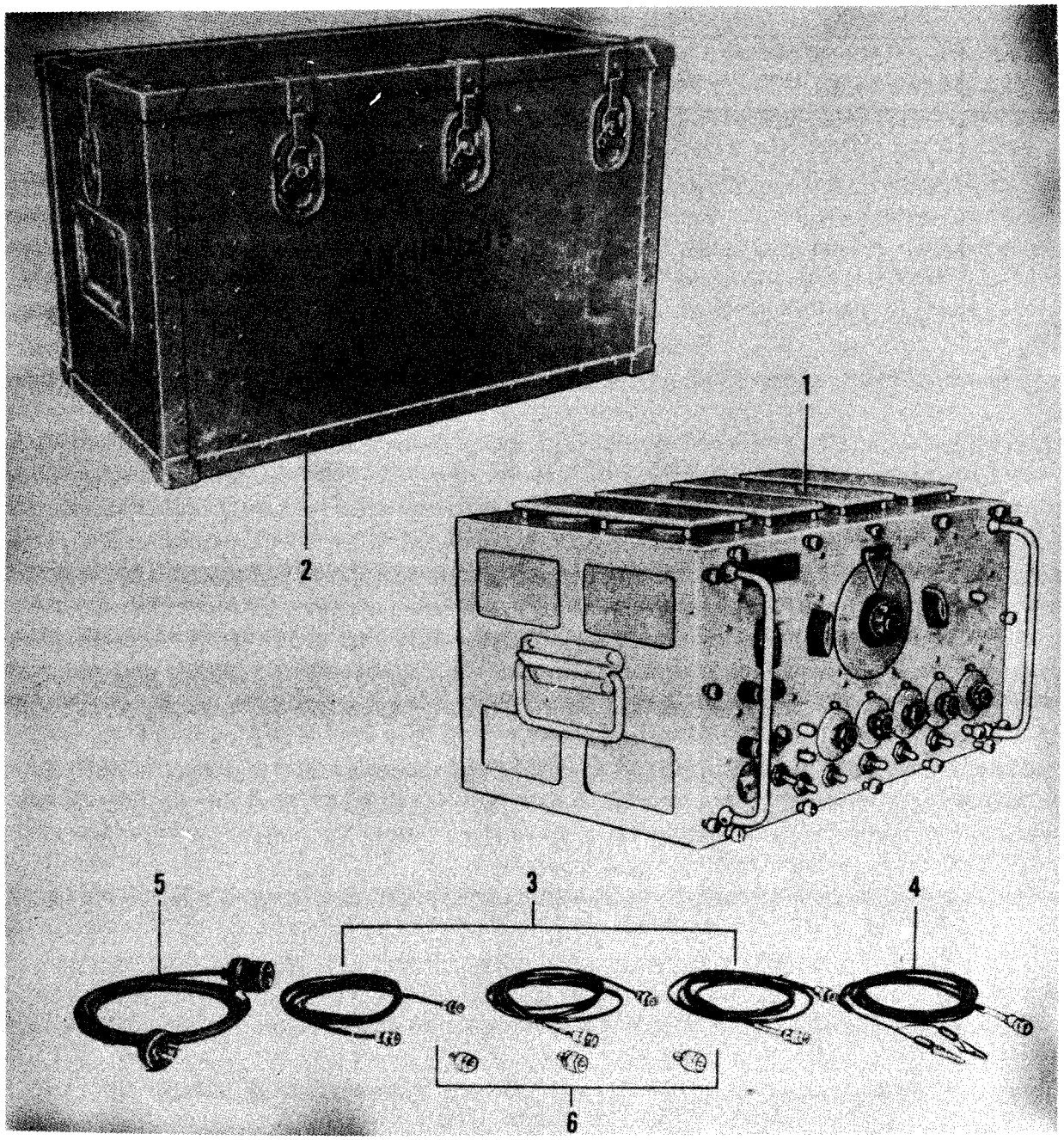
April 1958

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radar Transmitter T-247/SPM-1	12-1/2 X 15-3/4 X 23-9/16	68
1	Antenna AT-151/UPT	4 X 6-3/8 X 7	2.75
1	Set of Special Antenna Spares		
2	Cable CG-912/U		180
2	Radio Freq Plug UG-21B/U		
1	Power Cable CX-2037/U		303
1	Set of Equipment Spares		

Test-Signal Generating

PULSE GENERATOR SET AN/UPM-15



Pulse Generato Set AN/UPM-15

1. Pulse Generator TS-592A/UPM-15
2. Transit Case CY-672/U
3. Cord CG-409A/U
4. Cord CG-521A/U
5. Cord CX-337/U
6. Adapter UG-273/U

Test-Signal Generating

AN/UPM-15 PULSE GENERATOR SET

January 1958

FUNCTIONAL DESCRIPTION

The AN/UPM-15 is a general purpose video electronic generator. It is intended to be used in the calibration of radar equipment, in field and depot maintenance and in laboratory work. It produces output wave shapes that are essentially rectangular. By means of manual controls it is possible to produce a wide range of pulse amplitudes, widths, repetition rates, and delays. It is possible to synchronize the equipment either with an internal oscillator or with external sources producing wide varieties of wave forms, frequencies and amplitudes.

No field changes in effect at time of preparation (6 May 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUTS: 1.5 usec sync pulse; one or two rectangular pulses other than sync.
AVAILABLE TIME BASE: 250 usec.
MINIMUM SEPARATION: 2 usec.
EXTERNAL SIGNAL AMPLITUDE: 5 to 100 v.
EXTERNAL SIGNAL FREQUENCY: 50 to 10,000 cps.
SAWTOOTH FREQUENCY: 250 cps.
AMBIENT TEMPERATURE RANGE: -40° C to $+55^{\circ}$ C.
ACCURACY: ±10%.
POWER SOURCE REQUIRED: 115 v, 50 to 1000 cps, single ph, 275 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Stamford Electronics Corp., Stamford, Conn.
Contract NO. AF33(038)-30107.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 6AU6	(1) 6D4	(2) 5725
(4) 12AT7	(5) 5814	(1) 6AN5
(1) 829B	(2) 6AH6	(1) 6005
(2) 6AS7G	(1) 5R4WGY	(1) OA2
(1) OB2	(1) 6X4W	

Total Tubes: (25)
(9) 1N69
Total Crystals: (9)

REFERENCE DATA AND LITERATURE

TM11-1177, Technical Manual for Pulse Generator Set AN/UPM-15.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Generator TS-592A/UPM-15		
1	Transit Case CY-672/U		
1	Cord CX-337/U	6 ft lg	
3	Cord CG-409A/U	6 ft lg	
1	Cord CG-521A/U	6 ft lg	
3	Adapters UG-273/U		

28 May 1962 — PULSE GENERATOR AN/UPM-55

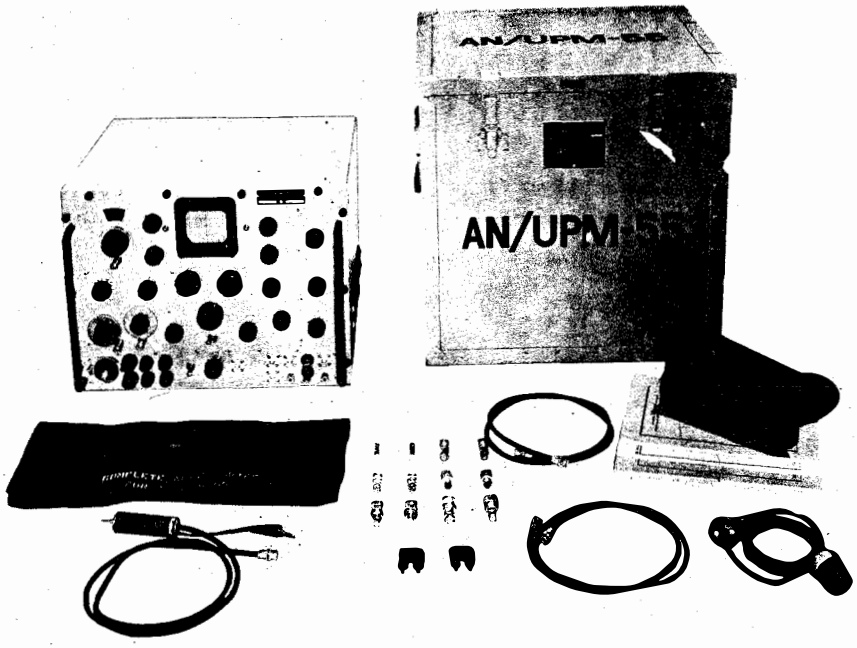
Cog Service: USN — FSN: 6625-643-2821 — Functional Class: 4.3

USA	USN	USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Sylvania Electric Products Inc., (00011).



Pulse Generator AN/UPM-55

FUNCTIONAL DESCRIPTION:

Pulse Generator AN/UPM-55 is basically a pulse generator and a quantitative cathode-ray synchroscope combined into one compact unit. It is designed for use in testing and servicing radar and other electronic equipment.

No field changes in effect at time of preparation (8 February 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 550 W, 115 v porm 10%, 50 to 420 cyc, single ph.
INPUT CURRENT: 5.0 amp, max.
PULSE DURATION: 0.2 to 20 usec.
PULSE AMPLITUDE: 0.5 to 45 v.
PULSE RISE TIME: 0.1 usec or less.
PULSE REPETITION FREQUENCY: 20 to 20,000 pps

AN/UPM-55 PULSE GENERATOR

PULSE DELAY: 2 to 200 usec.
TRIGGER AMPLITUDE: 50 v, min.
SWEEP DURATION: 1.0 to 625 usec.
SWEEP DELAY: 2.0 to 200 usec.
VERTICAL AMPLIFIER RISE TIME: 0.05 usec.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Pulse Generator AN/UPM-55 includes:			110
1	Pulse Generator Case CY-1537/UPM-55		18-3/4 x 18-3/4 x 21	30
1	Pulse Generator SG-30/UP		13 x 17-3/16 x 17-5/8	75
1	Accessory Bag			
2	Connector Adapter UG-201/U			
2	Connector Adapter UG-255/U		5/8 dia x 1-5/16	
2	Connector Adapter UG-349/U			
2	Connector Adapter, BNC double female			
2	Connector Adapter, BNC male to type "N" male			
2	Electrical Plug Connectors			
1	Power Cord Assy CX-337/U		72 lg	
2	RF Cable Assy CG-530/U		48 lg	
1	Test Prod Assy MX-1587/UPM-55		7/8 dia x 6-9/16	
1	Fluoroscopic Screen Hood Assy			
1	Handbook of Operation Instructions NAVWEPS 16-30UPM55-501			
1	Handbook of Service Instructions NAVWEPS 16-30UPM55-502			
1	Illustrated Parts Breakdown NAVWEPS 16-30UPM55-504			

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30UPM55-501: Handbook of Operation Instructions for Pulse Generators AN/UPM-55 and AN/UPM-55A.
NAVWEPS 16-30UPM55-502: Handbook of Service Instructions for Pulse Generators AN/UPM-55 and AN/UPM-55A.
NAVWEPS 16-30UPM55-503: Handbook of Overhaul Instructions for Pulse Generators AN/UPM-55 and AN/UPM-55A.
NAVWEPS 16-30UPM55-504: Illustrated Parts Breakdown for Pulse Generators AN/UPM-55 and AN/UPM-55A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (2) 1Z2 (1) 12AT7 (8) 12AU7 (4) 12AV7 (2) 5R4WG (1) 5Y3WGT
(1) 5654/6AK5W (1) 5687 (1) 5725/6AS6W (6) 5726/6AL5W (3) 5763 (1) 6AG7
(6) 6AH6 (2) 6AS7G (2) 6AU6 (1) 6BN6 (2) 6C4 (1) 6L6WGB (1) 6X4W
(1) K1065P1

CRYSTALS: None used.

SEMI-CONDUCTORS: (2) 1N38 (1) 1N55A (2) 1N70

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: MIL-G-7789A(AER)
DESIGN COG: USN, BuWeps

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Sylvania Electric Products Inc.	Buffalo, N. Y.	NOas-52-856r NOas-53-801f, 19 April 1955	

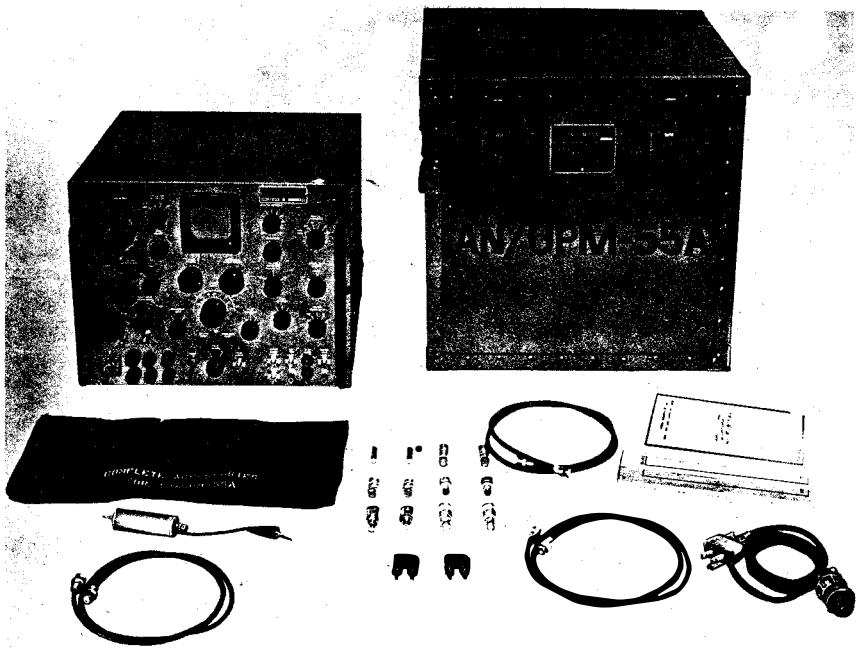
25 May 1962 | PULSE GENERATOR AN/UPM-55A

Cog Service: USN | FSN: | Functional Class: 4.3

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Schaevitz Engineering Company, (93190).



Pulse Generator AN/UPM-55A

FUNCTIONAL DESCRIPTION:

Pulse Generator AN/UPM-55A is basically a pulse generator and a quantitative cathode-ray synchroscope combined into one compact unit. It is designed for use in testing and servicing radar and other electronic equipment.

No field changes in effect at time of preparation (8 February 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 550 W, 115 v porm 10%, 50 to 420 cyc, single ph.
INPUT CURRENT: 5.0 amp, max.
PULSE DURATION: 0.2 to 20 usec.
PULSE AMPLITUDE: 0.5 to 45 v.
PULSE RISE TIME: 0.1 usec or less.
PULSE REPETITION FREQUENCY: 20 to 20,000 pps.

AN/UPM-55A PULSE GENERATOR

PULSE DELAY: 2 to 200 usec.
TRIGGER AMPLITUDE: 50 v, min.
SWEEP DURATION: 1.0 to 625 usec.
SWEEP DELAY: 2.0 to 200 usec.
VERTICAL AMPLIFIER RISE TIME: 0.05 usec.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Pulse Generator AN/UPM-55A includes:			110
1	Pulse Generator Case CY-1537/UPM-55		18-3/4 x 18-3/4 x 21	30
1	Pulse Generator SG-30A/UP		13 x 17-3/16 x 17-5/8	75
1	Accessory Bag			
2	Connector Adapter UG-201/U			
2	Connector Adapter UG-255/U		5/8 dia x 1-5/16	
2	Connector Adapter UG-273/U		23/32 dia x 1-7/32	
2	Connector Adapter UG-349A/U			
2	Connector Adapter UG-914/U			
2	Connector Adapter UG-1034/U			
2	Connector Adapter UG-1035/U			
1	Electrical Power Cable Assy CX-3135/U		72 lg	
3	R.F. Cable Ass'y CG-530/U			
1	Test Prod Ass'y MX-1587A/UPM-55		7/8 dia x 6-9/16	
1	Handbook of Operation Instructions NAVWEPS 16-30UPM55-501			
1	Handbook of Service Instructions NAVWEPS 16-30UPM55-502			
1	Illustrated Parts Breakdown NAVWEPS 16-30UPM55-504			

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30UPM55-501: Handbook of Operation Instructions for Pulse Generators AN/UPM-55 and AN/UPM-55A.
NAVWEPS 16-30UPM55-502: Handbook of Service Instructions for Pulse Generators AN/UPM-55 and AN/UPM-55A.
NAVWEPS 16-30UPM55-503: Handbook of Overhaul Instructions for Pulse Generators AN/UPM-55

and AN/UPM-55A.
NAVWEPS 16-30UPM55-504: Illustrated Parts Breakdown for Pulse Generators AN/UPM-55 and AN/UPM-55A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (2) 1Z2 (1) 12AT7 (8) 12AU7 (4) 12AV7 (2) 5R4WG (1) 5Y3WGT (1) 5654/6AK5W (1) 5687 (1) 5725/6AS6W (6) 5726/6AL5W (3) 5763 (1) 6AG7 (6) 6AH6 (2) 6AS7G (2) 6AU6 (1) 6BN6 (2) 6C4 (1) 6L6WGB (1) 6X4W (1) K1065P1
CRYSTALS: None used.

SEMI-CONDUCTORS: (2) 1N38 (1) 1N55A (2) 1N70

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuWeps
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Schaevitz Engineering Co.	Camden, New Jersey		

28 May 1962 SIMULATOR, RADAR SIGNAL AN/UPM-81

Cog Service: USN FSN: Functional Class: 4.1.2.

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hazeltine Electronics Corp., (80249).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Simulator, Radar Signal AN/UPM-81 is a portable unit, designed for testing moving target indicator radars operating at frequencies between 1215 and 1355 mc.

No field changes in effect at time of preparation (1 March 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 100 W, 115 v, 50 to 1,000 cyc, single ph.
FREQUENCY RANGE: 1215 to 1355 mc.
PULSE REPETITION FREQUENCY: 100 to 1,000 pps.
PULSE WIDTH: 1.0 to 10 usec.
PEAK POWER: 30 to 3,000 W.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radar Signal Simulator AN/UPM-81 includes:			
1	Cover, Radar Signal Simulator CW-416/UPM-81		3-1/2 x 10-1/2 x 16	
1	Simulator, Radar Signal SM-96/UPM-81		10-1/2 x 14 x 16	
1	Cable, RF			
1	Cable, Electrical, Power			

REFERENCE DATA AND LITERATURE: None.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 12AT7WB (1) 2C40 (1) 5651WA (6) 5654/6AK5W (2) 5725/6AS6W (2) 6X4WA (1) 6080WA (1) 6173

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N25 (3) 1N277 (6) 1N70A

AN/UPM-81 SIMULATOR, RADAR SIGNAL

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-S-15293B(SHIPS), Amend 1

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hazeltine Electronics Corp. Part no. A-19459	Little Neck, N. Y.	NObsr-64822	$1,192.50

3 April 1962 | GENERATOR SIGNAL AN/URM-117( )

Cog Service: | FSN: | Functional Class:

USA | USN | USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Jowil Electronics Incorporated.

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

The Generator Signal AN/URM-117( ) is designed for testing Radio Receiving Sets AN/ARR-26, AN/ARR-26A, and AN/ARR-58 either before or after installation in aircraft.

No field changes in effect at time of preparation (25 July 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF FREQUENCY CONTROL: Crystal.

OUTPUT IMPEDANCE: 50 ohms.

TYPE OF MODULATION

ONE: Internal amplitude pulse modulation with 4-8 microseconds pulse width and PRR of 200 to 800 cps. Adjustable to at least 50%.

TWO: Internal sine wave frequency modulation with a 100 porm 5 cps modulating frequency and frequency deviation of 0-75 kc with less than 5% distortion.

THREE: Internal noise frequency modulation by the simultaneous application of the 100 cps signal and 10-5000 cps band of noise.

FOUR: External frequency modulation by means of a carbon microphone.

FIVE: External sine wave frequency modulation from any frequency in the range of 50-3500 cps with frequency deviation of 125 kc. At 75 kc deviation, the distortion is less than 5%.

NUMBER OF CHANNELS: 16 fixed.

OPERATING FREQUENCY RANGE: 162.25 to 173.50 mc.

OPERATING POWER RQMT: 103.5/126.5 v ac, 50 to 420 cps, single ph; 115 porm 1 v rms, single ph.

RELATION TO OTHER EQUIPMENT:

The AN/URM-117( ) is designed to be used with, but not part of, Radio Receiving Sets AN/ARR-26, -26A, and -58.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Microphone, Carbon Type 9104.

AN/URM-117( ) GENERATOR SIGNAL

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Generator, Signal AN/URM-117( )		10-7/16 x 13 x 15-1/4	
	consists of:			
1	Generator, Signal SG- /URM-117			
1	Case, Signal Generating CY- /URM-117			
1	Antenna AT- /URM-117			
1	R.F. Cable Ass'y			
1	Adapter Connector UG-636/A			

REFERENCE DATA AND LITERATURE:

NAVAER 20-20A2-39: Technical Manual for Electronic Equipments and Test Equipments Generator, Signal AN/URM-117( ).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

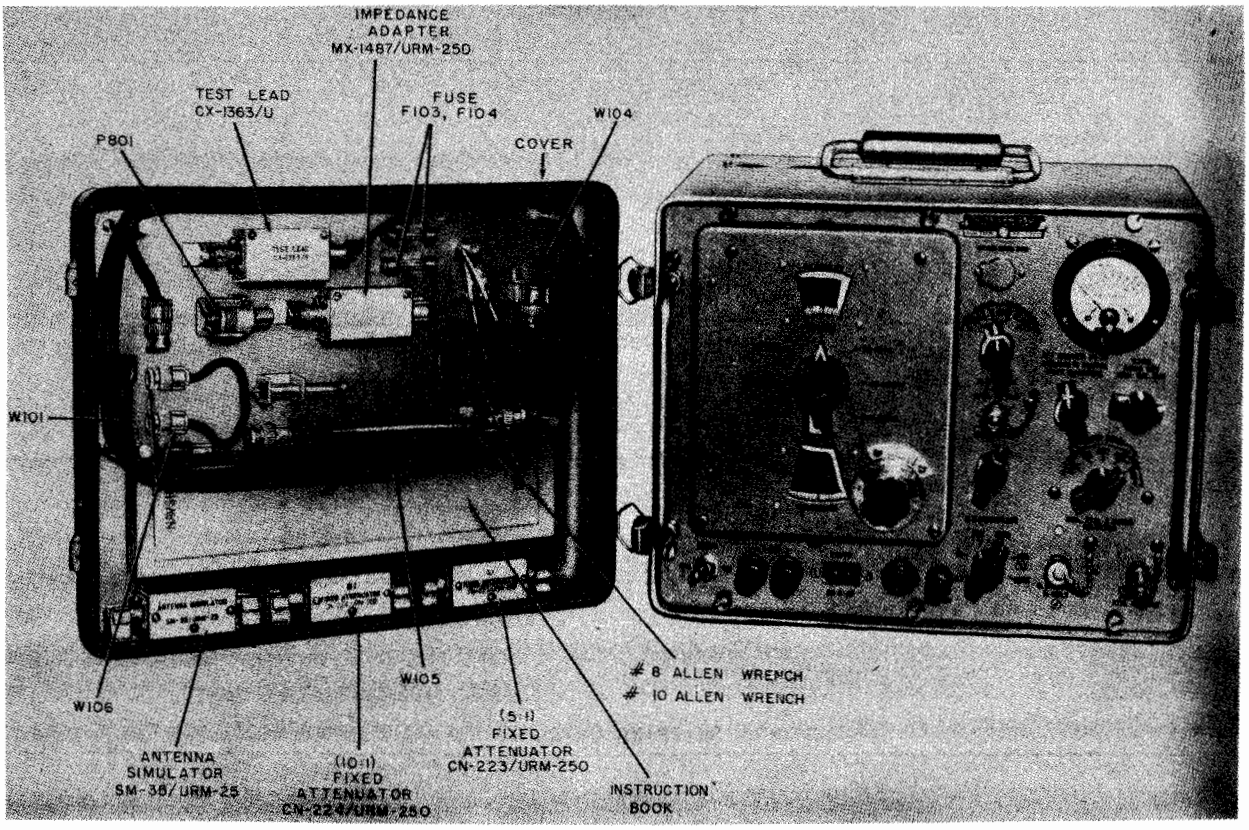
PROCURING SERVICE: DESIGN COG: USN, BuAer
SPEC &/OR DWG: MIL-G-19660 Amend 1

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Jowil Electronics Inc. Pt no. AL-17350	Philadelphia, Pa.	N600(A)46311	

December 1956

R.F. SIGNAL GENERATOR SET

AN/URM-25 thru 25F



R.F. Signal Generator Set AN/URM-25 thru F

FUNCTIONAL DESCRIPTION

The AN/URM-25, A, B, C, D, E, and F are test equipments intended primarily for bench testing of electronic equipment. Radio frequency signals, either modulated or unmodulated can be generated over a continuous range of frequencies from 10 to 50000 kc. All units including the power supply are incorporated in a single portable cabinet and has been miniaturized physically without loss of accuracy or applicability.

No field changes in effect at time of preparation (25 July 1956).

RELATION TO OTHER EQUIPMENT

All equipments are similar in operation but incorporated basically different mechanical and electrical design.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY DATA

RANGE: 10 to 50000 kc.

ACCURACY

AN/URM-25, 25A: ±0.5%.

AN/URM-25B,C,D,E,F: 0.5%; 1 to 50 mc ±0.05% when calibrated against integral crystal.

NUMBER OF BANDS AND RANGE

	AN/URM-25,A,B,C	AN/URM-25D,E	AN/URM-25F
BAND A:	10 to 27 kc	10 to 30 kc	10 to 26 kc
BAND B:	27 to 80 kc	30 to 95 kc	26 to 75 kc
BAND C:	80 to 230 kc	95 to 300 kc	75 to 220 kc
BAND D:	230 to 680 kc	300 to 950 kc	220 to 600 kc
BAND E:	0.68 to 2 mc	0.95 to 3 mc	0.6 to 1.5 mc
BAND F:	2 to 8.3 mc	3 to 9.5 mc	1.5 to 3.8 mc
BAND G:	8.3 to 18 mc	9.5 to 30 mc	3.8 to 10 mc
BAND H:	18 to 50 mc	30 to 50 mc	10 to 25 mc
BAND I:			25 to 50 mc

TYPES OF MODULATION

AMPLITUDE MODULATION

AN/URM-25,A,B: 0 to 80%(indicated accuracy within ±10%).

AN/URM-25C,D,E,F: 0 to 50%(indicated accuracy within ±10%).

INTERNAL MODULATION FREQUENCIES: 400 cps ±5%; 1000 cps ±5%.

EXTERNAL MODULATION FREQUENCIES: 100 to 15000 cps.

AN/URM-25 thru 25F

R.F. SIGNAL GENERATOR SET

December 1956

OUTPUT VOLTAGE (RF)

AN/URM-25,A,B: 0.1 to 100000 uv (±10%) continuously variable (across a 53.5 ohm external load); approx 2 v adjustable (across a high load impedance).

AN/URM-25C: 0.05 to 50000 uv (±10%) continously variable (across a 53.5 ohm external load); approx 1 v adjustable (across a high load impedance).

AN/URM,D,E,F: 0.1 to 100000 uv (±10%) continously variable (across a 50 ohm external load); approx 2 v adjustable (across a high load impedance).

OUTPUT IMPEDANCE (OHMS)

OUTPUT JACKS	AN/URM-25	25A	25B	25C	25D	25E	25F
X MULT RF OUTPUT	53.5	53.5	53.5	53.5	50	50	
X 20000 RF OUTPUT	500	500	500	500	500	500	
AUDIO OUTPUT			0 to 90,000	0 to 90,000			50,000
EXT MOD IN-AUDIO-OUT-XTAL CAL OUT					15000 33000	15000 33000	
RF OUTPUT							50
HIGH RF OUTPUT							500

POWER REQUIREMENTS

AN/URM-25,A: 115 v, 50 to 1600 cps, single ph.

AN/URM-25B,C,D,E,F: 115 v 50 to 1000 cps, single ph.

POWER CONSUMPTION

AN/URM-25,A,B,C: 45 W approx.

AN/URM-25D,E: 48 W approx.

AN/URM-25F: 55 W approx.

OUTPUT VOLTAGE (AUDIO)

FREQUENCY: 400 to 1000 cps (AN/URM-25 B, C,D,E,F).

VOLTAGE

AN/URM-25B,C: Approx 0 to 4 v adjustable (across approx 100000 ohms).

AN/URM-25D,E: Approx 0 to 3 v adjustable (across approx 15000 ohms).

AN/URM-25F: Approx 0 to 6 v adjustable (across approx 10000 ohms).

CALIBRATION

AN/URM-25B,C,D,E,F: Proportional to reading of % modulation.

MANUFACTURER'S OR CONTRACTOR'S DATA

Harvy-Wells Electronics, Inc., Southbridge, Mass.
Contract: NObsr-63060, dated 30 September 1952 (AN/URM-25E).
Approximate Cost: $480.00 with equipment spares.

Manufacturing and Engineering Corp., Brooklyn, N.Y.
Contract: NObsr-43410, dated 30 June 1949, (AN/URM-25).
Contract: NObsr-49203, dated 13 June 1950, (AN/URM-25A).
Contract: NObsr-52099, dated 8 December 1950, (AN/URM-25B).
Contract: NObsr-52453, dated 21 May 1951 (AN/URM-25C).
Approximate Cost: $730.00 with equipment spares (AN/URM-25).
Approximate Cost: $800.00 with equipment spares (AN/URM-25A).
Approximate Cost: $630.00 with equipment spares (AN/URM-25B).
Approximate Cost: $750.00 with equipment spares (AN/URM-25C).

Trad Television Corp., Asbury Park, New Jersey.
Contract: NObsr-52725, dated 30 June 1951, (AN/URM-25D).
Contract: NObsr-59494, dated 30 June 1952, (AN/URM-25D).
Approximate Cost: $500.00 with equipment spares.

New London Instrument Co., New London, Conn.
Contract: NObsr-59613, (AN/URM-25F)
Approximate Cost: $380.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

AN/URM-25,25A
(1) OD3W
(1) 6J4WA
(1) 6J6WA
(1) 6X4WA
(1) 5726/6AL5W
(2) 6189
(1) 9006
Total Tubes: (8)

AN/URM-25B
(1) OD3W
(1) 6J4WA
(1) 6J6WA
(1) 6X4WA
(1) 5726/6AL5W
(2) 6189
(1) 9006
(1) 5750/6BE6W
Total Tubes: (9)

AN/URM-25C
(1) OD3W
(2) 6AH6
(1) 6J6WA
(1) 6X4WA
(1) 5726/6AL5W
(1) 5750/6BE6W
(2) 6189
Total Tubes: (9)

AN/URM-25D,25E
(1) 6626/OA2WA
(1) 6AG7Y
(3) 6AH6
(1) 6X4WA
(1) 5726/6AL5W
(1) 5750/6BE6W
(1) 5814A
Total Tubes: (9)

AN/URM-25F
(1) OA3
(1) 6AG7Y
(5) 6AH6
(1) 6X4WA
Total Tubes: (8)

AN/URM-25C
(1) 1N34A
Total Crystals: (1)

AN/URM-25D
(2) 1N198
Total Crystals: (2)

AN/URM-25F
(2) 1N69 (2) 1N145
Total Crystals: (4)

December 1956

R.F. SIGNAL GENERATOR SET

AN/URM-25 thru 25F

REFERENCE DATA AND LITERATURE

NAVSHIPS 91283: Technical Manual for R.F. Signal Generator Set AN/URM-25.
NAVSHIPS 91379: Technical Manual for R.F. Signal Generator Set AN/URM-25A.
NAVSHIPS 91472: Technical Manual for R.F. Signal Generator Set AN/URM-25B.
NAVSHIPS 91633: Technical Manual for R.F. Signal Generator Set AN/URM-25C.
NAVSHIPS 92134(A): Technical Manual for R.F. Signal Generator Set AN/URM-25D.
NAVSHIPS 92556: Technical Manual for R.F. Signal Generator Set AN/URM-25E.
NAVSHIPS 92495: Technical Manual for R.F. Signal Generator Set AN/URM-25F.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	CS-1223 (AN/URM-25) MIL-R-15281 (AN/URM-25A thru E)
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	AN/URM-25			
1	RF Signal Generator Set AN/URM-25 including *Set of Equipment Spares *Note Spares Shipped with BuShips and Coast Guard Shipments only	2.5	16 X 19 X 25	55
	AN/URM-25A			
1	RF Signal Generator Set AN/URM-25A	2.0	17 X 17 X 20	50
1	Set of Equipment Spares	1.76	7 X 10 X 13	10
	AN/URM-25B			
1	RF Signal Generator Set AN/URM-25B	2.0	17 X 17 X 20	50
1*	Set of Equipment Spares *NOTE: Dim for Marine Corps 4" X 5" X 9"	1.76	7 X 10 X 13	10
	AN/URM-25C			
1	RF Signal Generator Set AN/URM-25C	2.0	17 X 17 X 20	50
	AN/URM-25D			
1	RF Signal Generator Set AN/URM-25D and Equipment Spares	1.5	12-1/2 X 13 X 21	44
	AN/URM-25E			
1	RF Signal Generator Set AN/URM-25E and Equipment Spares	1.9	14 X 15-1/2 X 22	58
	AN/URM-25F			
1	RF Signal Generator Set AN/URM-25F	1.6	14-1/2 X 14-1/2 X 19	45
1	Set Equipment Spares		6 X 8 X 12	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	AN/URM-25		
1	RF Signal Generator Set AN/URM-25 consisting of:	10-1/4 X 10-1/4 X 13	35
1	RF Signal Generator SG-44/URM-25		
	Power Supply PP-562/URM-25		

AN/URM-25 thru 25F

R.F. SIGNAL GENERATOR SET

December 1956

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	AN/URM-25		
1	Impedance Adapter MX-1074/URM-25		
1	Antenna Simulator SM-35/URM-25		
1	Fixed Attenuator (5:1) CN-132/URM-25		
1	Fixed Attenuator (10:1) CN-136/URM-25		
1	Test Lead CX-1363/U		
1	RF Cable Assembly CG-409/U	48 lg	
2	RF Cable Assembly CG-409/U	84 lg	
1	AC Line Cable Assembly		
1	Coaxial Adapter UG-201/U		
1	Cord-Filter CX-1595/URM-25		
1	Technical Manual Navships 91283		
1*	Set of Equipment Spares	6 X 9 X 12	8
*NOTE Not supplied on BUAER Shipments			
	AN/URM-25A		
1	RF Signal Generator Set AN/URM-25A consisting of:	10-1/4 X 10-1/4 X 13	35
1	RF Signal Generator SG-44A/URM-25		
1	Power Supply PP-562A/URM-25		
1	Impedance Adapter MX-1074/URM-25		
1	Antenna Simulator SM-35/URM-25		
1	Fixed Attenuator (5:1) CN-132/URM-25		
1	Fixed Attenuator (10:1) CN-136/URM-25		
1	Test Lead CX-1363/U		
1	RF Cable Assembly CG-409/U	48 lg	
2	RF Cable Assembly CG-409/U	84 lg	
1	AC Line Cable Assembly		
1	Coaxial Adapter UG-201/U		
1	Technical Manual NAVSHIPS 91379		
1	Set of Equipment Spares	6 X 9 X 12	8
	AN/URM-25B		
1	RF Signal Generator Set AN/URM-25B consisting of:	10-1/4 X 10-1/4 X 13	35
1	RF Signal Generator SG-44B/URM-25		
1	Power Supply PP-562A/URM-25		
1	Impedance Adapter MX-1074/URM-25		
1	Antenna Simulator SM-35/URM-25		
1	Fixed Attenuator (5:1) CN-132/URM-25		
1	Fixed Attenuator (10:1) CN-136/URM-25		
1	Test Lead CX-1363/U		

R.F. SIGNAL GENERATOR SET

AN/URM-25 thru 25F

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	AN/URM-25B		
1	RF Cable Assembly CG-409A/U	48 lg	
2	RF Cable Assembly CG-409A/U	84 lg	
1	AC Line Cable Assembly		
1	Coaxial Adapter UG-201/U		
1	Connector Adapter UG-684/U		
1	Technical Manual NAVSHIPS 91472		
1*	Set of Equipment Spares	6 X 9 X 12	8
*NOTE: Dim 3 X 4 X 8 for Marine Corps Shipment			
	AN/URM-25C		
1	RF Signal Generator Set AN/URM-25C consisting of:	10-1/4 X 10-1/4 X 13	35
1	RF Signal Generator SG-44C/URM-25		
1	Power Supply PP-562A/URM-25		
1	Impedance Adapter MX-1074/URM-25		
1	Antenna Simulator SM-35/URM-25		
1	Fixed Attenuator (5:1) CN-132/URM-25		
1	Fixed Attenuator (10:1) CN-136/URM-25		
1	Test Lead CX-1363/U		
1	RF Cable Assembly CG-409A/U	48 lg	
2	RF Cable Assembly CG-409A/U	84 lg	
1	AC Line Cable Assembly		
1	Coaxial Adapter UG-201/U		
1	Connector Adapter UG-684/U		
1	Technical Manual NAVSHIPS 91633		
	AN/URM-25D		
1	RF Signal Generator Set AN/URM-25 consisting of:	10-3/4 X 11-1/4 X 14	37
1	RF Signal Generator SG-85/URM-25D		
1	Power Supply PP-477/URM-25D		
1	Fixed Attenuator (5:1) CN-223/URM-25D		
1	Fixed Attenuator (10:1) CN-224/URM-25D		
1	Impedance Adapter MX-1487/URM-25D		
1	Test Lead CX-1363/U		
1	Antenna Simulator SM-35/URM-25		
1	Output RF Cable Assembly CG-409/U	47 lg	
2	Output RF Cable Assembly CG-409/U	5 lg	
1	AC Line Cable Assembly CX-2647/U	72-5/8	
1	Coaxial Adapter UG-201A/U		

AN/URM-25 thru 25F

R.F. SIGNAL GENERATOR SET

EQUIPMENT SUPPLIED DATA

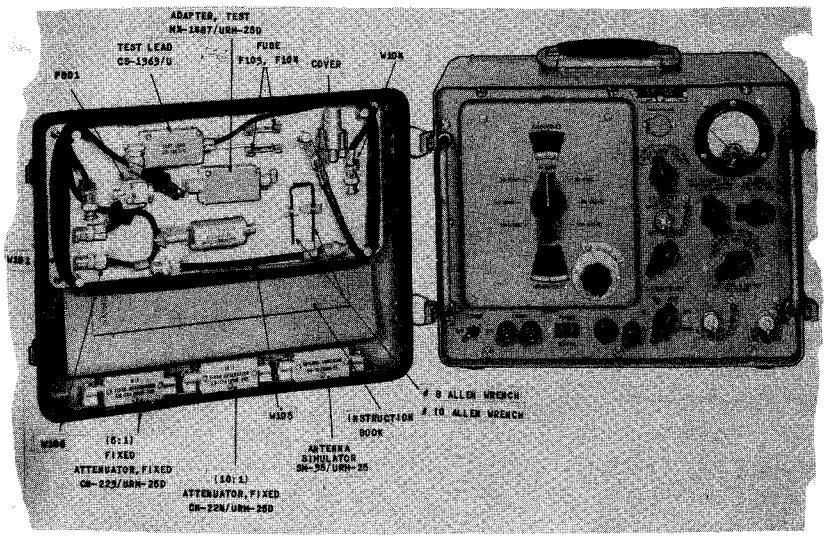
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	AN/URM-25D		
1	Connector Adapter UG-684A/U		
1	Connector Adapter		
1	Technical Manual NAVSHIPS 92134(A)		
1	Set of Equipment Spares		
	AN/URM-25E		
1	RF Signal Generator Set AN/URM-25E consisting of:	10-5/8 X 11-1/4 X 14-1/8	36.25
1	RF Signal Generator SG-111/URM-25E		
1	Power Supply PP-1205/URM-25E		
1	Cover, Signal Generator CW-355/URM-25E		
2	Cable Assembly, R.F. CG-409/U	6 lg	
1	Cable Assembly, R.F. CG-409/U	48	
1	Test Lead CX-2962/U		
1	Network, Impedance Matching CU-410/URM-25E		
1	Network, Impedance Matching CU-411/URM-25E		
1	Attenuator, Fixed CN-283/U		
1	Attenuator, Fixed CN-284/U		
1	Dummy Load, Electrical DA-106/URM-25E		
2	Technical Manuals NAVSHIPS 92556		
	AN/URM-25F		
1	Generator, Signal SG-103/URM-25F	11-1/8 X 11-1/4 X 14-3/4	35
1	Cover, Signal Generator CW-346/URM-25F		
1	Network, Impedance Matching CU-406/URM-25F		
1	Network, Impedance Matching CU-408/URM-25F		
1	Dummy Load, Electrical DA-109/URM-25F		
1	Lead, Test CX-2919/U		
1	Cord CG-409A/U	30 lg	
2	Cord CG-409A/U	6 lg	
1	Allen Wrench No. 4		
1	Allen Wrench No. 6		
1	Allen Wrench No. 8		

21 March 1963 F6625-643-0805 RF SIGNAL GENERATOR SET AN/URM-25D
Cog Service: USN FSN: F6625-643-3273 W/S Functional Class: 4.1.2

USA USN USAF

TYPE CLASS: Std

MANUFACTURER'S NAME/CODE NUMBER: J. H. Keeney and Co., Inc., (93111).



RF Signal Generator Set AN/URM-25D

FUNCTIONAL DESCRIPTION:

RF Signal Generator Set AN/URM-25D is a test equipment intended primarily for bench testing of electronic equipment. Radio frequency signals, either modulated or unmodulated, can be generated by this Signal Generator Set over a continuous range of frequencies from 10 to 50,000 kc.

No field changes in effect at time of preparation (5 February 1963).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10 to 50,000 kc, porm 0.5%; 10 to 50 mc, porm 0.25% when calibrated against integral crystal.

TUNING BANDS

BAND A: 10 to 30 kc.
BAND B: 30 to 95 kc.
BAND C: 95 to 300 kc.
BAND D: 300 to 950 kc.

AN/URM-25D RF SIGNAL GENERATOR SET

BAND E: 0.95 to 3.0 mc.
BAND F: 3 to 9.5 mc.
BAND G: 9.5 to 30 mc.
BAND H: 30 to 50 mc.

TYPES OF AMPLITUDE MODULATION: 0 to 50% within indicated accuracy within 10%.
INTERNAL MODULATION FREQUENCIES: 400 cps, porm 5%; 1,000 cps, porm 5%.
EXTERNAL MODULATION FREQUENCY: 1000 to 15,000 cps.
OUTPUT VOLTAGE (RF): 0.1 to 100,000 uv, porm 10% when terminated by 50 ohm external load; 2 v adjustable across a high load impedance.
OUTPUT VOLTAGE (AUDIO)
FREQUENCY: 400 or 1,000 cyc.
VOLTAGE: 0 to approx 3 v adjustable, across output impedance of approx 15,000 ohms.
ADJUSTMENT: Voltage varied by front panel control.
CALIBRATION: Proportional to reading of % modulation.
OUTPUT IMPEDANCE: 50 ohms, 500 ohms, 15,000 ohms.
POWER REQUIREMENTS: 48 W, 115 v, porm 10%, 50 to 1,000 cyc, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	RF Signal Generator Set AN/URM-25D including:		10-3/4 x 11-1/4 x 14	37
1	RF Signal Generator SG-85/URM-25D			
1	Power Supply PP-977/URM-25D			
1	Fixed Attenuator CN-223/URM-25D			
1	Fixed Attenuator CN-224/URM-25D			
1	Impedance Adapter MX-1487/URM-25D			
1	Test Lead CX-1363/U			
1	Antenna Simulator SM-35/URM-25			
1	Output RF Cable Assembly CG-409/U		47 lg	
2	Output RF Cable Assembly CG-409/U		5 lg	
1	Connector, Adapter			
1	Coaxial Adapter UG-201A/U			
1	Connector Adapter UG-684A/U			
1	Equipment Spares Box			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 92134(A): Technical Manual for RF Signal Generator Set AN/URM-25D.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2WA (1) 6AG7 (3) 6AH6 (1) 6X4WA (1) 5726/6AL5W/6097
(1) 5750/6BE6W/5814A

CRYSTALS: (1) CR-18/U

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.5	44

PROCUREMENT DATA

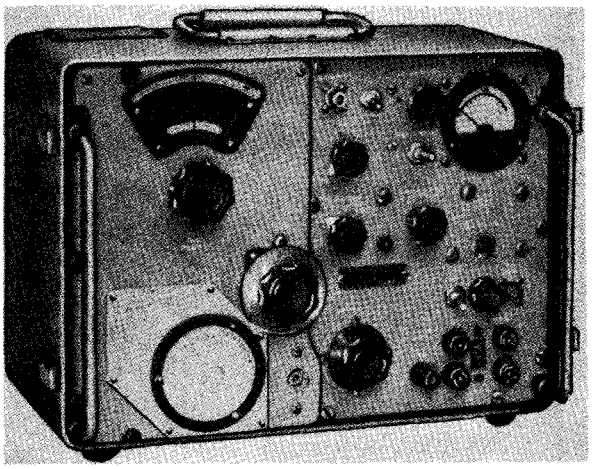
PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-G-15281B(SHIPS), Amend 1

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
J. H. Keeney and Co., Inc.	Chicago, Illinois	NObsr-64698	$320.10
Trad Electronics Corp.	Asbury Park, New Jersey	NObsr-52725, 30 June 1951	
		NObsr-59494, 30 June 1952	
		NObsr-71121	$289.50
		NObsr-71304	$323.74
		NObsr-71760	$358.00
		NObsr-75306(FBM)	$364.00

April 1958

Test-Signal Generating

RF SIGNAL GENERATOR SET AN/URM-26



RF Signal Generator Set AN/URM-26

FUNCTIONAL DESCRIPTION

The RF Signal Generator Set AN/URM-26 is a compact general purpose signal generator designed to produce modulated or unmodulated RF Signals in the 4 to 408 mc frequency band.

It can be modulated internally (AM) by a source of sine wave voltage or externally (PM) by pulsed voltages.

It is intended for use in the alignment and sensitivity tests of radio receivers, and for other test applications where a source of CW or MCW signals is required.

No field changes in effect at time of preparation (8 April 1958).

RELATION TO OTHER EQUIPMENT

This signal generator supersedes Navy Model LX Series UHF Signal Generators.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 4 to 408 mc.
FREQUENCY ACCURACY: ±0.5% or better.

MODULATION, SINE WAVE
- AMPLITUDE: 0 to 50%.
- AMPLITUDE ACCURACY: ±10% up to 100 mc, ±20% from 100 mc to 408 mc.
- INTERNAL: 400 to 1000 cps.
- EXTERNAL: 100 to 20,000 cps.
- SPURIOUS FM: Less than 0.035% at 15%. modulation or 0.08% at 30% modulation.

MODULATION, PULSE EXT
- AMPLITUDE: 40 v min.
- PULSE RATE: 50 to 5000 pps.
- PULSE WIDTH: 2 to 40 usec up to 100 mc, 1 to 40 usec from 100 to 408 mc.

RF OUTPUT VOLTS: 0.1 uv to 100000 uv (−127 dbm to −7 dbm).
- ATTENUATION ACCURACY: ±10% to 100 mc, ±20% from 100 to 408 mc.
- LOAD IMPEDANCE: 50 ohms.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Mfg and Engineering Corp, Brooklyn, N.Y.
Contract NObsr-43410, dated 30 June 1949.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0D3W
(1) 12AU7
(2) 6X4WA
(1) 6005/6AQ5W
(1) 6F4
Total Tubes: (6)

(3) 1N69
Total Crystals: (3)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91474: Technical Manual for RF Signal Generator AN/URM-26.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	RF Signal Generator Set AN/URM-26		16 X 19 X 25	

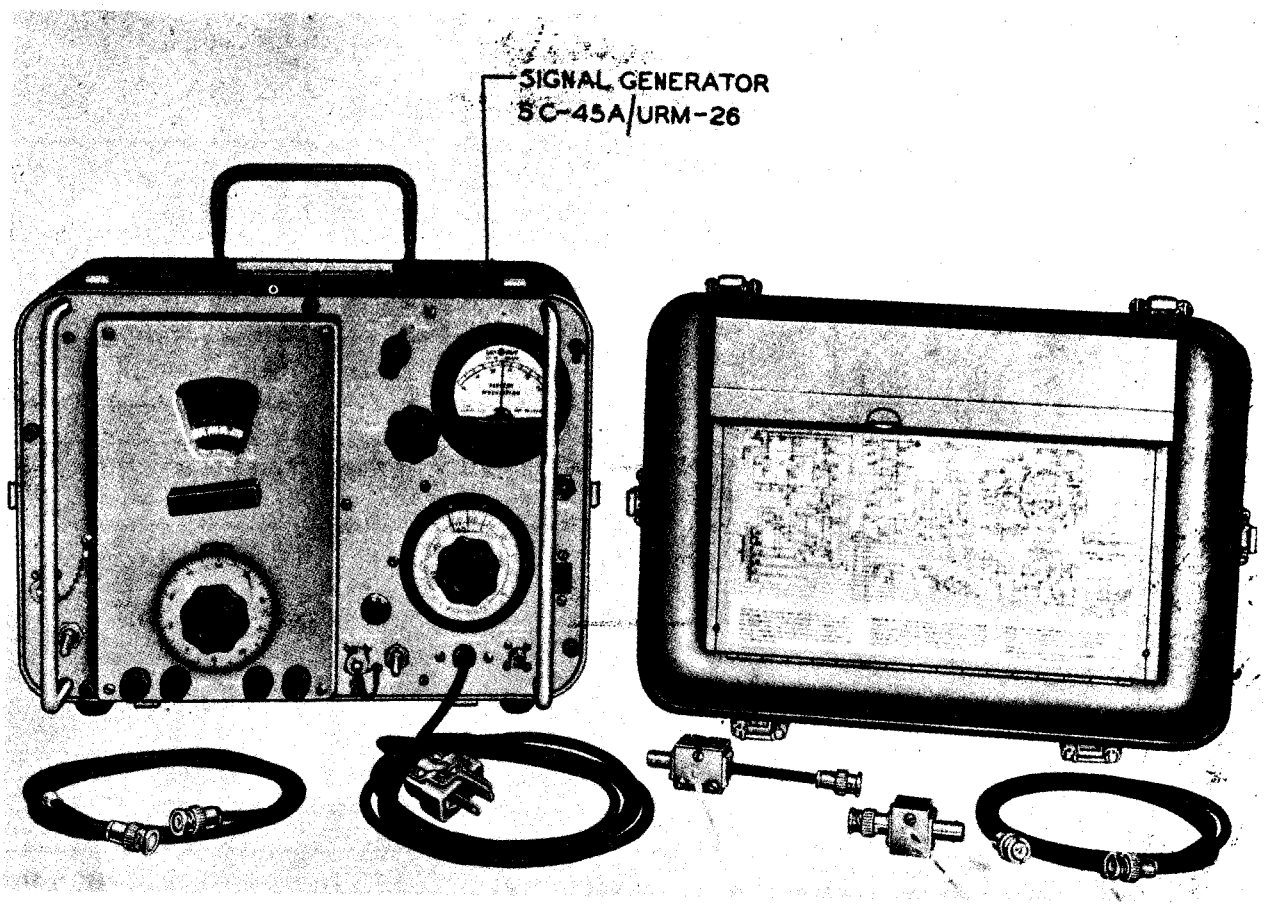
AN/URM-26 RF SIGNAL GENERATOR SET

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	RF Signal Generator Set AN/URM-26 including: (1) RF Signal Generator SG-45/URM-26 (1) Power Supply PPR-644/URM-26 (1) Test Adapter MX-1247/URM-26 (1) 10:1 Fixed Attenuator CN-147/URM-26 (1) 2:1 Fixed Attenuator CN-163/URM-26 (1) RF Cable Assembly (4 ft) CG-409/U (2) RF Cable Assembly (7 in.) CG-409/U (1) AC Line Cable (1) Accessory Power Cable (2) Technical Manual NAVSHIPS-91474	10 X 10 X 14	38
1	Equipment Maintenance Parts	6 X 9 X 12	8

R.F. SIGNAL GENERATOR SET

AN/URM-26A



RF Signal Generator Set AN/URM-26A

FUNCTIONAL DESCRIPTION

The AN/URM-26A is designed for testing and determining the characteristics of radio frequency receivers, amplifiers, filters and similar equipment operating in the specified frequency range.

No field changes in effect at time of preparation (19 July 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF EMISSION: A1, A2, P1.
FREQUENCY RANGE: 3 to 405 mc. (6 bands)
TUNING RANGE OF EACH BAND
- BAND A: 3 to 7 mc.
- BAND B: 7 to 15 mc.
- BAND C: 15 to 30 mc.
- BAND D: 30 to 78 mc.
- BAND E: 78 to 180 mc.
- BAND F: 180 to 405 mc.

TYPE OF FREQUENCY CONTROL: Inductance-capacitance.
OUTPUT VOLTAGE
- NOMINAL: 0.05 v max across 50- ohm load.
- RANGE: 0.1 uv to 50,000 uv.

OUTPUT IMPEDANCE: 50 ohms.
MODULATION FREQUENCIES
- INTERNAL: 400 to 1000 cps.
- EXTERNAL: 100 to 20,000 cps.

POWER SOURCE REQUIRED: 115 v, 50 to 1000 cycles, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurements Corp., Boonton, New Jersey.
Contract: NObsr 52212, dated 10 January 1951.
Approximate Cost: $440.00 with equipment spares.

AN/URM-26A R.F. SIGNAL GENERATOR SET

March 1957

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6005	(1) 6X4WA
(2) 6AU6WA	(1) 5814
(1) 6F4	(1) 12AU7
Total Tubes: (10)	(1) 5751

REFERENCE DATA AND LITERATURE

NAVSHIPS 92482: Technical Manual for RF Signal Generator Set AN/URM-26A.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE MIL-S-15463 (MOD)
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	RF Signal Generator Set AN/URM-26A	2.9	15-3/4 x 16-7/8 x 18-1/16	58
1*	Set of Equipment Spares			

*NOTE: Not always included
Not always same when included

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	RF Signal Generator Set AN/URM-26A consisting of:	10-3/4 x 11-1/2 x 15-1/8	36.5
1	RF Signal Generator SG-45A/URM-26	10-3/4 x 11-1/2 x 15-1/8	35.7
2	Cord CG-409/U	48 lg.	0.3
1	Fixed Attenuator CN-179/URM-26A	3/4 x 1-1/16 x 5	0.3
1	Test Adapter MX-1289/URM-26A	3/4 x 1-1/16 x 2-7/16	0.2
2	Technical Manuals NAVSHIPS 92482		
1*	Set of Equipment Spares		

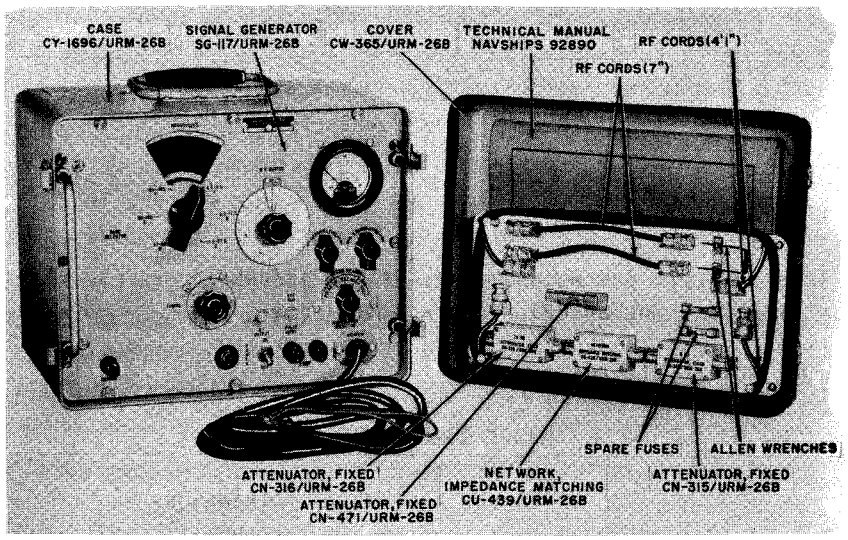
*NOTE: Not always included and not always same when included.

15 February 1963	F6625-578-5193	RF SIGNAL GENERATOR SET AN/URM-26B
Cog Service: USN	FSN: F6625-648-8729 W/S	Functional Class: 4.1.2

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Trad Electronics Corp., (93111).



RF Signal Generator Set AN/URM-26B

FUNCTIONAL DESCRIPTION:

The AN/URM-26B is a portable standard signal generator designed to produce modulated or unmodulated radio-frequency signals in the 4 to 405 megacycle frequency range. It generates continuous wave or amplitude modulated signals internally at 400 or 1000 cycles sine wave and has facilities for external modulation by sine waves or pulses.

It is intended for bench testing of electronic equipment and is most generally used for alignment and determination of receiver sensitivity, selectivity and gain.

No field changes in effect at time of preparation (6 February 1963).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 4 to 405 mc.
CALIBRATION ACCURACY: Porm 0.5%.

AN/URM-26B RF SIGNAL GENERATOR SET

RF OUTPUT VOLTAGE: 0.1 to 100000 uv into 50 ohms.
OUTPUT VOLTAGE ACCURACY: Porm 10% to 100 mc, porm 20% to 405 mc.
MODULATION DATA
SINE WAVE AMPLITUDE MODULATION (0 to 50%).
INTERNAL MODULATION: 400 or 1000 cps porm 5%.
EXTERNAL MODULATION: 100 to 20000 cps.
INPUT IMPEDANCE: Approx 5000 ohms at 1000 cps.
EXTERNAL PULSE MODULATION
AMPLITUDE: 40 v min, positive-going.
REPETITION RATE: 50 to 5000 pps.
DURATION
4 TO 100 MC: 2 to 40 usec.
100 TO 405 MC: 1 to 40 usec.
INPUT IMPEDANCE: 70 ohms nom at pulse frequencies specified.
OPERATING POWER RQMTS: 115 v porm 10%, 50 to 1000 cps, single ph.
POWER CONSUMPTION: Approx 38 W.

RELATION TO OTHER EQUIPMENT:

The AN/URM-26B is similar to preceding models of the AN/URM-26 series. It incorporates, however, completely different mechanical and electrical designs.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	RF Signal Generator Set AN/URM-26B consisting of:		10-1/2 x 11-1/4 x 12	31
1	Case CY-1696/URM-26B		8-1/4 x 10 x 13	
1	Signal Generator SG-117/URM-26B		10-1/2 x 11 x 14	
1	Power Supply PP-1215/URM-26B		5-5/32 x 7-1/16 x 7-5/8	
1	Signal Generator Cover CW-365/URM-26B		1-7/8 x 10-7/32 x 13-7/32	
2	RF Cord		49 lg	
2	RF Cord		84 lg	
1	Impedance Matching Network CU-439/URM-26B		1-1/8 x 2-7/8 x 15/16	
1	Fixed Attenuator CN-315/URM-26B		15/16 x 1-1/8 x 2-7/8	
1	Fixed Attenuator CN-316/URM-26B		15/16 x 1-1/8 x 2-7/8	
1	Fixed Attenuator CN-471/URM-26B		25/32 dia x 2-7/32	
1	Socket Drive Wrench no. 6			
1	Socket Drive Wrench no. 8			
2	Technical Manual NAVSHIPS 92890			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 92890: Technical Manual for RF Signal Generator Set AN/URM-26B.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0B2WA (1) 5675 (1) 5814A (1) 6X4WA (1) 6005/6AQ5W

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N69 (1) 1N82 (1) CK710

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.8	46

PROCUREMENT DATA

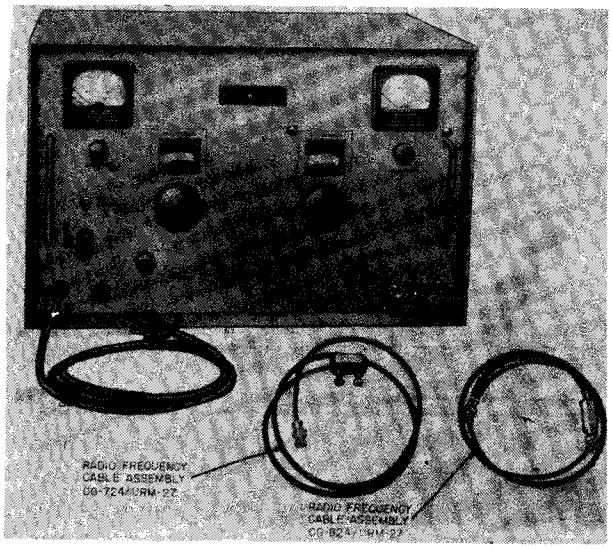
PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-G-15463B(SHIPS), Amend 1

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Trad Electronics Corp. Pt Dwg no. 118-1D-16	Asbury Park, New Jersey	NObsr-59607	
Kings Electronics Co., Inc.	Tuckahoe, New York	NObsr-75368	
Jetronic Industries Inc.	Philadelphia Pa.	NObsr-81404	$340.00
Jetronic Industries Inc.	Philadelphia Pa.	NObsr-87368	$298.98

April 1959

Test-Signal Generating

SIGNAL GENERATOR SET AN/URM-27



Signal Generator Set AN/URM-27

FUNCTIONAL DESCRIPTION

Signal Generator Set AN/URM-27 is designed for testing the band width, alignment, and sensitivity of FM receivers, especially Radio Sets AN/GRC-3 thru 8.

No field changes in effect at time of preparation (10 April 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v, 50 to 60 cy, 1 ph, 65 W.
FREQUENCY RANGE: 18 to 109 mc ±1%.
TYPE OF OUTPUT: Modulated or unmodulated.
FREQUENCY OF INTERNAL MODULATION: 400 or 1,000 cps.
AF FREQUENCY MODULATION: 100 to 10,000 cps (external).
FREQUENCY DEVIATION: 0 to 30 kc, or 0 to 150 kc ±5%.
OUTPUT IMPEDANCE
CG-724/URM-27: 25 ohms ±3 ohm.
CG-824/URM-27: 9 ohms ±1 ohm.

MANUFACTURER'S OR CONTRACTOR'S DATA

Dale Pollack, New London, Conn.
Type No. 100A.
Order No. 15743-PHILA-50-7.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6AQ5	(1) 6AS5	(1) 6AV5
(1) 6BJ6	(1) 6BH6	(1) 12AU7
(1) 5651		

Total Tubes: (7)

No Crystals used.

REFERENCE DATA AND LITERATURE

TM11-5522: Technical Manual for Signal Generator Set AN/URM-27

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator Set AN/URM-27		21 X 21 X 28	55

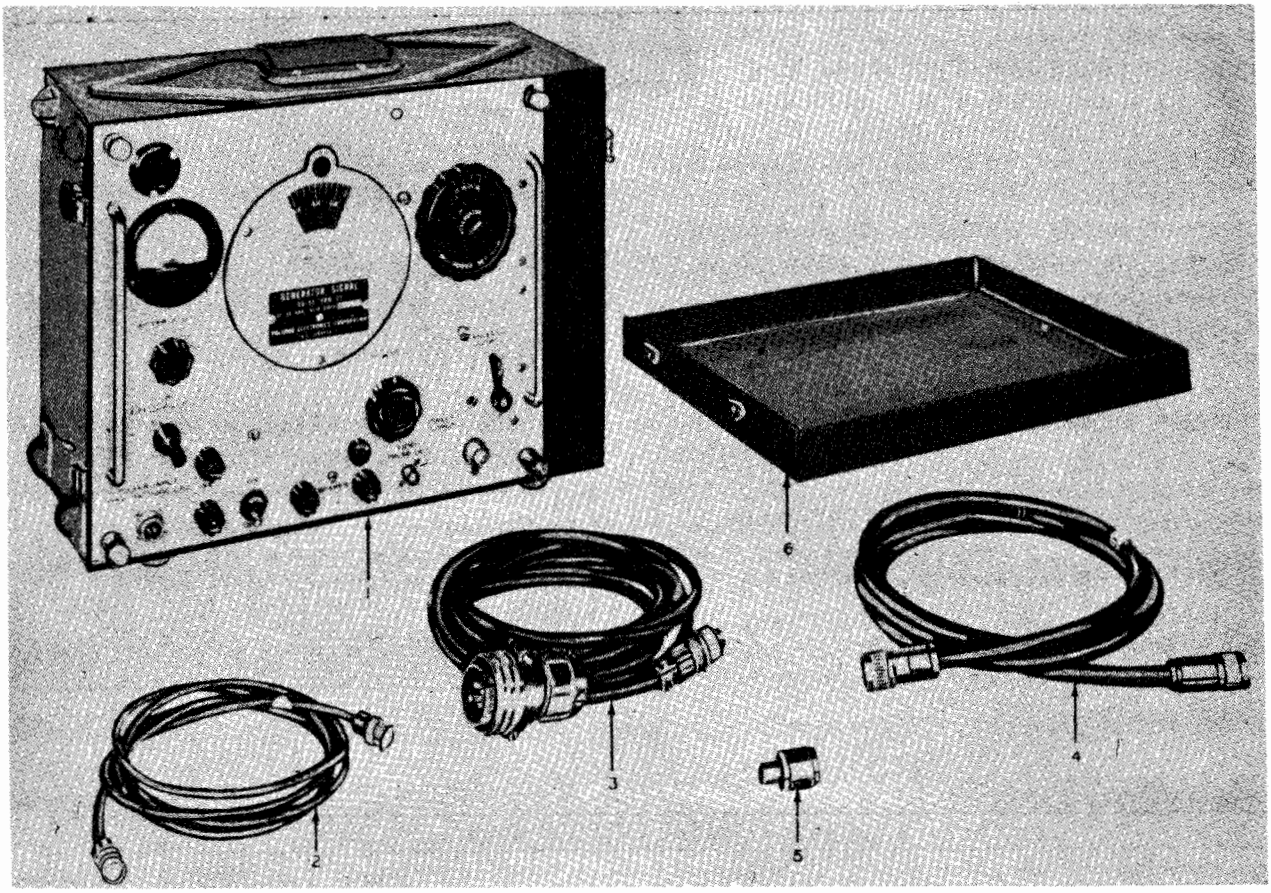
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator Set AN/URM-27 Including:	12-5/16 X 13-1/8 X 19-3/8	45
1	Cable Ass'y CG-724/URM-27	36 lg	0.5
1	Cable Ass'y CG-824/URM-27	36 lg	0.5

February 1960

Test-Signal Generating

SIGNAL GENERATOR AN/URM-33



Signal Generator AN/URM-33

FUNCTIONAL DESCRIPTION

Signal Generator AN/URM-33 is a portable rf set used in the preflight operational check of broad-band radar receivers, antennas, transmission lines, and indicators employed with search and direction-finder equipment. Rf output is available at either a panel jack or a horizontally polarized antenna. The equipment furnishes a video signal to check various types of pulse equipment. Circuit test point terminals are available for locating the most probable circuit malfunctions.

No field changes in effect at time of preparation (18 June 1959).

RELATION TO OTHER EQUIPMENT

This equipment similar to SIGNAL GENERATORS AN/URM-34, AN/URM-35 and AN/URM-36, except for frequency range.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 270 W (max), 115 v ±10%, 380 to 1,000 cy, 1 ph.
FREQUENCY RANGE: 1,000 to 2,300 mc.
TYPE OF TRANSMISSION: CW, PM.
POWER OUTPUT: 0 to -100 dbm ±3 db (continuously variable).
AMPLITUDE OF VIDEO PULSES: 1.25 v ±0.5 v.

Test-Signal Generating

February 1960

AN/URM-33 SIGNAL GENERATOR

PULSE WIDTH: 3.5 usec ±0.5 usec (at 50% peak amplitude).
PULSE REPETITION RATE: 1,000 pps ±100 pps.
PULSE RISE AND DECAY TIME: 0.35 usec (between 10% and 90% amplitude points).
PULSE VARIATION: 10% (max) of peak pulse amplitude.
DIRECT RF OUTPUT IMPEDANCE: 50 ohms (nom).
VIDEO OUTPUT TERMINATING IMPEDANCE: 50 ohms (resistive).
ANTENNA BEAM WIDTH: 15° (at half-pwr pt).
FREQUENCY STABILITY
CW: 0.025% incidental FM (max).
PULSE: 0.2% freq shift (max).

MANUFACTURER'S OR CONTRACTOR'S DATA

Polarad Electronics Corp, Brooklyn, New York.
Contract AF33(604)5758.
Approximate Cost: $450.00.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3WGT-A (2) 0B2 (1) 5R4WGY
(1) 6AU6 (3) 6X4 (4) 12AT7
(1) 6005/6AQ5 (3) 5651 (1) 5837
(1) 6098/CT
Total Tubes: (18)
(1) 1N69
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

T.O. 33A1-8-14-1: Handbook Operating Instructions for SIGNAL GENERATOR AN/URM-33.

TYPE CLASSIFICATION:
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE USAF EXHIBIT
STOCK NO. WCE-301; SPEC MIL-E-15090
PDR IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator AN/URM-33 Including:	8-5/8 X 11-1/2 X 12-3/4	30
1	Cord CG-92B/U	72 lg	
1	Cord CG-409C/U	72 lg	
1	Cord CX-2470/U	120 lg	
1	Signal Generator SG-54/URM-33		
1	Adapter UG-273/U		
1	Combination Case	8-5/8 X 11-1/2 X 12-3/4	
1	Technical Manual		

October 1957

Test-Signal Generating

SIGNAL GENERATOR AN/URM-33X

FUNCTIONAL DESCRIPTION

The AN/URM-33X is used for preflight, go-no go checks of search receivers and direction finding systems. The output will be cw or pulsed r-f signals available at a panel jack or a polarized built-in antenna. It operates from 50 to 1000 cps in lieu of 38 to 1000 cps.

No field changes in effect at time of preparation (1 May 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1000 to 2300 mc.
NUMBER OF BANDS: Single.
CALIBRATION ACCURACY: ±1%.
OUTPUT IMPEDANCE: 50 ohms.
MODULATION: Pulse modulated internally at 1000 cps.
PULSE WIDTH: 1 usec.
POWER SOURCE REQUIRED: 115 v, 50 to 1000 cps, 190 w.

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Signal Generator AN/URM-33X dated 26 October 1956.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

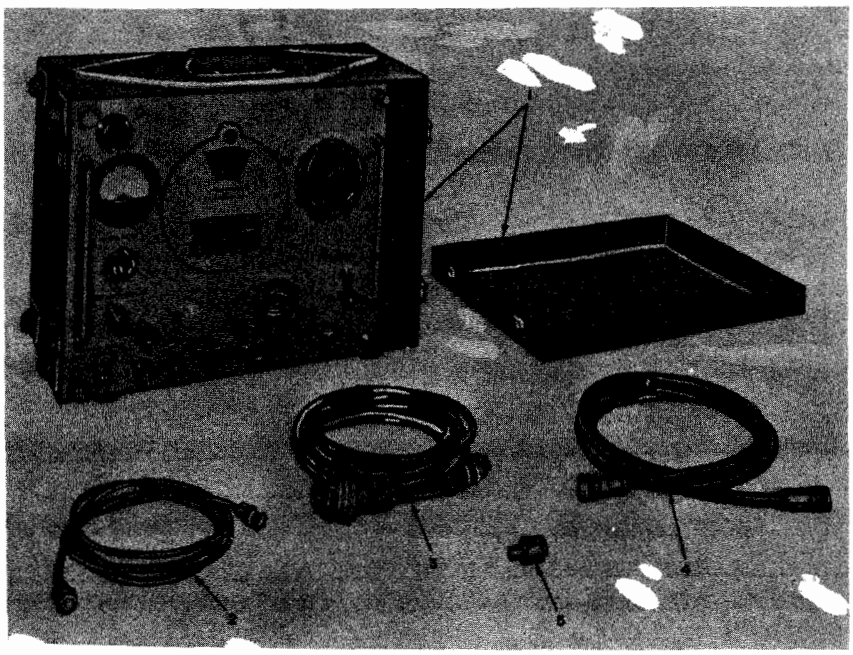
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator SG-190/URM-33X		
1	Cord CG-92B/U (6 ft 0 in.)		
1	Cord CG-409E/U (6 ft 0 in.)		
1	Adapter UG-273/U		
1	Electrical Power Cable Assembly CX-3916/U (10' 0")		

Cog Service: USAF FSN: Functional Class: 4.1.2

USA USN USAF

TYPE CLASS: S/Std

MANUFACTURER'S NAME/CODE NUMBER: Polarad Electronics Corp., (82199).



Signal Generator AN/URM-34

FUNCTIONAL DESCRIPTION:

Signal Generator AN/URM-34 is a microwave signal generator which provides video, continuous-wave and pulsed cw signals. The outputs are used in pre-flight checking the system performance of broadband radar search and direction-finding equipment.

No field changes in effect at time of preparation (5 February 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 2,150 to 4,600 mc.
FREQUENCY STABILITY
CW: 0.025% incidental frequency modulation or less.
PULSE: 0.2% frequency shift or less, at operating frequency.
MODULATION
REPETITION RATE: 1,000 porm 100 pps.

VIDEO PULSE WIDTH: 3.7 porm 0.3 usec at 50% peak amplitude points.
R.F. PULSE WIDTH: 3.5 porm 0.5 usec at 50% peak amplitude points.
PULSE RISE AND DECAY TIME: 0.35 usec measured between 10 to 90% amplitude points.
VIDEO PULSE AMPLITUDE: 1.25 porm 0.5 v terminated into a 50 ohm resistive load.
OUTPUT IMPEDANCE
VIDEO PULSE OUT: 50 ohms resistive.
DIRECT R.F. OUTPUT: 50 ohms.
POWER OUTPUT: 0 to M100 dbm porm 3 db (continuously variable).
ANTENNA BEAM WIDTH: 15 deg at half-power points.
POWER REQUIREMENTS: 270 W (max), 115 v porm 10%, 380 to 1,000 cyc, single ph.

RELATION TO OTHER EQUIPMENT:

This equipment is similar to Signal Generator AN/URM-33, AN/URM-35 and AN/URM-36, except for frequency range.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/URM-34 includes:			
1	Signal Generator SG-55/URM-34		8-5/8 x 11-1/2 x 12-3/4	34
1	Cord CG-92B/U		72 lg	0.75
1	Cord CG-409C/U		72 lg	0.75
1	Cord, Power CX-2470/U		120 lg	0.75
1	Adapter UG-273/U			

REFERENCE DATA AND LITERATURE:

TO 33A1-8-15-1: Handbook of Operating Instructions for Signal Generator AN/URM-34.
TO 33A1-8-15-2: Handbook of Service Instructions for Signal Generator AN/URM-34.
TO 33A1-8-15-4: Illustrated Parts Breakdown for Signal Generator AN/URM-34.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0B2 (1) 5R4WGY (1) 5Y3WGT-A (1) 6AU6 (3) 6X4W (4) 12AT7 (3) 5651
(1) 5836 (1) 6005/6AQ5W (1) 6098/CT

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N69

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		

PROCUREMENT DATA

PROCURING SERVICE: USAF
DESIGN COG: USAF, WADC
SPEC &/OR DWG: USAF Exhibit WCE-302

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Polarad Electronics Corp.	Long Island City, N. Y.	AF33(604)5758	$450.00

August 1957

Test-Signal Generating

SIGNAL GENERATOR AN/URM-34X

FUNCTIONAL DESCRIPTION

The AN/URM-34X is used for preflight, go - no go checks of search receivers and direction finding systems. The output will be cw or pulsed if signals available at a panel jack or a polarized built-in-antenna.

No field changes in effect at time of preparation (13 December 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2150 to 4600 mc, 1 band.
ACCURACY: ±1%.
SIGNAL OUTPUT: 1 to -100 dbm ±3 db.
OUTPUT IMPEDANCE: 50 ohms.
PULSE MODULATION: 1000 cps, internal.
PULSE WIDTH: 5 usec.
OPERATING POWER: 115 v, 50 to 1000 cps, 190 w.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for SIGNAL GENERATOR AN/URM-34X.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator SG-191/URM-34X		
1	Cord CG-92B/U	72 lg	
1	Cord CG-409E/U	72 lg	
1	Adapter UG-273/U		
1	Power Cable Assy CX-3916/U	120 lg	

January 1958

Test-Signal Generating

GENERATOR, SIGNAL AN/URM-35X

FUNCTIONAL DESCRIPTION

The AN/URM-35X is for pre-flight, go-no go checks of search receivers and direction finding systems. The output will be cw or pulsed r-f signals available at a panel Jack or a polarized built-in antenna. The equipment operates from 50 to 1000 cps power source in lieu of 38 to 1000 cps source.

No field changes in effect at time of preparation (17 May 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 4450 to 8000 mc.
NUMBER OF BANDS: Single.
CALIBRATION ACCURACY: ± 1%.
TUNING: Continuous.
MEASUREMENT UNIT: dbm.
RANGE: 1 to −100 dbm ± 3 db.
OUTPUT IMPEDANCE: 50 ohms.
MODULATION DATA
TYPE: Pulse.
SOURCE: Internal.
FREQUENCY: 1000 pulses per sec (pps).
WIDTH: 1 usec.
POWER SOURCE REQUIRED: 115 v, 50 to 1000 cps, 190 w.

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Generator Signal AN/-URM-35X dated 26 October 1956.

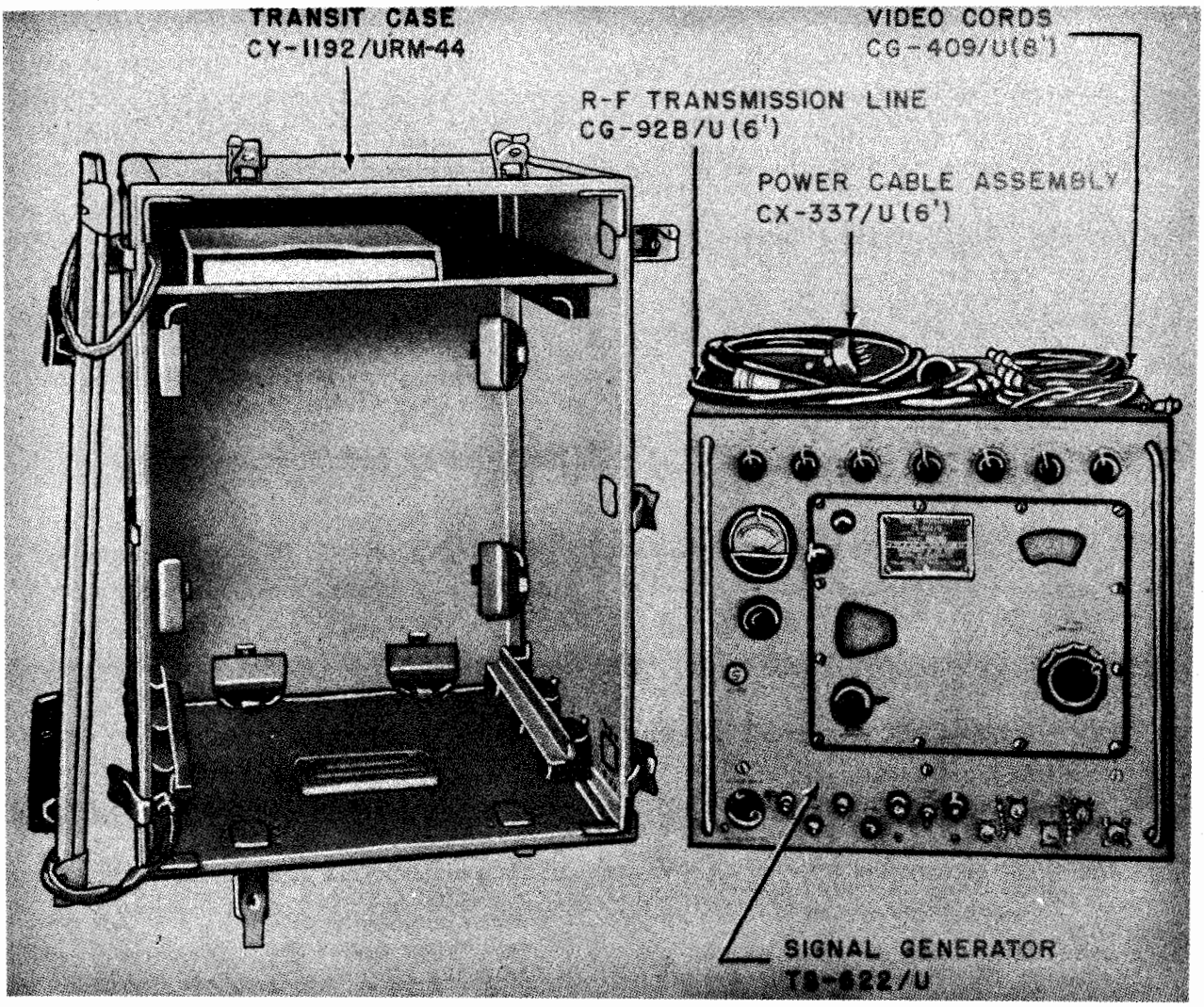
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE MIL-S-26821
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator SG-192/URM-35X		
1	Cord CG-92B/U	6 ft lg	
1	Cord CG-409E/U	6 ft lg	
1	Adapter UG-273/U		
1	Electrical Power Cable Assembly CX-2916/U	10 ft lg	

December 1956

RADIO TEST SET AN/URM-44 (TS-622/U)



Radio Test Set AN/URM-44 (TS-622/U)

FUNCTIONAL DESCRIPTION

The AN/URM-44 (TS-622/U) is designed to provide either cw or modulated RF signals accurately calibrated in frequency and power output level, in the frequency range from 7000 to 10,750 mc respectively. Modulation is obtained either by an internal modulator or by an external source of pulses or square waves. Synchronization of the leading pulse can be accomplished with an external source of sine waves or pulses of either polarity.

Two video output pulses are available, one of which is delayed by a variable amount in the same manner as the RF pulse. Frequently modulation of the carrier, internal or external, is also available.

No field changes in effect at time of preparation (27 June 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 7000 to 10,750 mc.
ACCURACY OF DIAL: ±1%.
TYPE OF EMISSION: C-W, A-M (pulse-modulated), on FM.
ATTENUATION
RANGE: 10 to 127 dbm
ACCURACY: Within ±1 db over the range

RATED LOAD: 52 ohms, resistive.
MODULATION, INTERNAL
PULSE RATE: 40 to 4000 pps.
PULSE WIDTH: 0.5 to 5 usec.
RISE AND DELAY TIMES: 0.5 usec max, between 10% and 90% max.
PULSE DELAY: 3 to 300 usec, from trigger pulse.
FRM DEVIATION: ±3 mc, adjustable.
RATE: 40 to 4000 cps.
MODULATION, EXTERNAL
POSITIVE SQUARE WAVE: 200 to 500 cps.
NEGATIVE SQUARE WAVE: 100 to 5000 cps.
PULSE RATE: 40 to 4000 pps.
PULSE WIDTH: 0.5 to 2500 usec
REQUIRED AMPLITUDE: 15 to 70 v.
SYNCHRONIZATION EXT PULSES
REQUIRED PEAK AMPLITUDE: 5 to 50 v.
POLARITY: Postive or negative.
REQUIRED DURATION: 0.5 to 5 usec.
REQUIRED RISE TIME: 0.5 usec, between 10% and 90% max. points.
REQUIRED FLATNESS: Flat above 90% max amplitude.
DC LEVEL: -10 to +10 v.
RATE: 40 to 4000 pps.
EXTERNAL SINE WAVES
AMPLITUDE: 5 to 50 v.
FREQUENCY: 40 to 4000 cps.
VIDEO OUTPUT
UNDELAYED
AMPLITUDE: 25 to 100 v, positive
PULSE WIDTH: 0.5 to 5 usec.
PULSE RATE: 40 to 4000 pps.
PULSE RISE AND DECAY TIMES: Less than 1 usec.
REQUIRED LOAD: 500 to 100000 ohms, resistive, shunted by a 500 uuf capacitance.
DELAYED
AMPLITUDE: 25 to 100 v, positive.
PULSE WIDTH: 0.5 to 5 usec
PULSE RATE: 40 to 4000 pps.
PULSE RISE AND DECAY: Less than 1 usec.
REQUIRED LOAD: 500 to 100000 ohms, shunted by a 500 uuf capacitance.
RF OUTPUT: 52 ohms.
POWER REQUIREMENTS: 103.5 to 126.5 v, 50 to 1000 cps.
POWER CONSUMPTION OF EQUIPMENT: 400 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Polarad Electronics Corp., Brooklyn 11, New York.
Contract NOas 51-1179.
Approximate Cost: $2,570.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6AS7G	(1) 5721/6390
(2) OB2	(3) 807
(4) 5R4WGY	(2) 6X4W
(13) 12AT7	(5) 6AU6
(3) 6AK6	(5) 5651

Total Tubes: (39)

(6) 1N69
Total Crystals: (6)

REFERENCE DATA AND LITERATURE

AN 16-30URM44-1: Technical Manual for RADIO TEST SET AN/URM-44.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

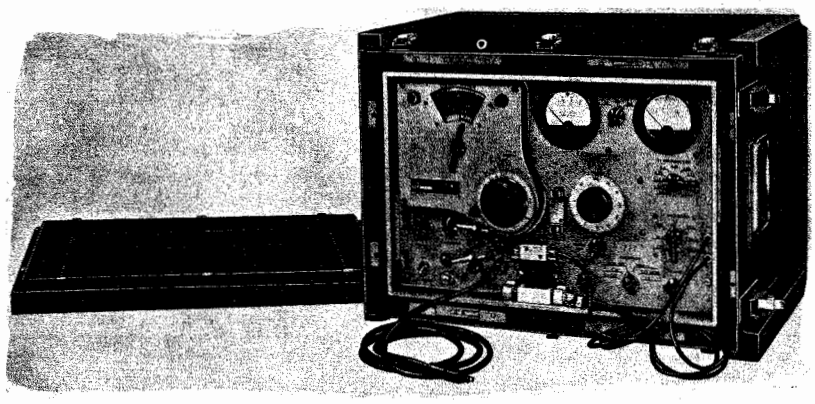
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	RF Signal Generator TS-622/U	15 x 17-1/4 x 19-1/2	100
1	Transit Case CY-1192/URM-44	18 x 22-1/2 x 23-1/4	33
1	Power Cable CX-337/U	72 (lg)	0.62
1	RF Cable CG-92 B/U	72 (lg)	1
1	Video Cord CG-409/U	96 (lg)	0.25

13 February 1963 GENERATOR, SIGNAL AN/URM-48

Cog Service: USA FSN: Functional Class: 4.1.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	

MANUFACTURER'S NAME/CODE NUMBER: A. R. F. Products, (83450).



Generator, Signal AN/URM-48

FUNCTIONAL DESCRIPTION:

Generator, Signal AN/URM-48 is a portable, field type instrument used in servicing fm receivers. It provides calibrated signals for the alignment of RF and IF circuits and for the measurement of operating sensitivity, stage gain, and receiver fidelity (with external audio oscillator).

No field changes in effect at time of preparation (7 June 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 75 W, 115/230 v, 50 to 1000 cyc, single ph.

FREQUENCY RANGE

RF: 19.5 to 102 mc in five bands.

IF: 1.4, 2.515, 2.65, 2.88, 4.3, 4.45, 5.0, 5.35, 15.0, mc.

TYPES OF OUTPUT

RF: Unmodulated.
FREQUENCY-MODULATED: 3 deviation ranges 0 to 25 kc, 0 to 50 kc, 0 to 100 kc.
IF: Unmodulated.

ACCURACY
RF (DIRECT READING): 0.5%.
RF (INDIRECT READING): Better than 0.03%.
DEVIATION: Porm 1.0 db (porm 12.5%).

TYPE OF CALIBRATION: 1 mc and/or 2 mc crystal markers.
FREQUENCY OF INTERNAL MODULATION: 1000 cps porm 5%.
AF RANGE FOR EXTERNAL MODULATION: 100 to 20000 cyc.
OUTPUT VOLTAGE (CONTROLLED BY CALIBRATED ATTENUATOR)
RF OUTPUT: 0.05 uv to 0.01 v.
IF OUTPUT: 0.5 uv to 1.0 v.
OUTPUT VOLTAGE ACCURACY: Porm 2 db.
RF OUTPUT IMPEDANCE: 10 ohms porm 10%.
IF OUTPUT IMPEDANCE: 25 ohms.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/URM-48 includes:			
1	Case, Signal Generator CY-1217/U		15-5/8 x 16-5/8 x 21-5/8	34
1	Dummy Load, Electrical DA-69/URM-48		3/4 x 3/4 x 3-1/4	
1	Signal Generator SG-12/U		12 x 12 x 18	72
2	Technical Manual TM11-1257			

REFERENCE DATA AND LITERATURE:

TM11-1257: Technical Manual for Signal Generator AN/URM-48.
TO 16-30URM48-5: Technical Manual for Signal Generator AN/URM-48.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2 (1) 5Y3GT (6) 6AH6 (1) 6AK6 (3) 6C4 (1) 6J6 (1) 12AU7

CRYSTALS: (10) CR-19/U

SEMI-CONDUCTORS: (1) 1N21B (4) 1N69

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	9.5	180

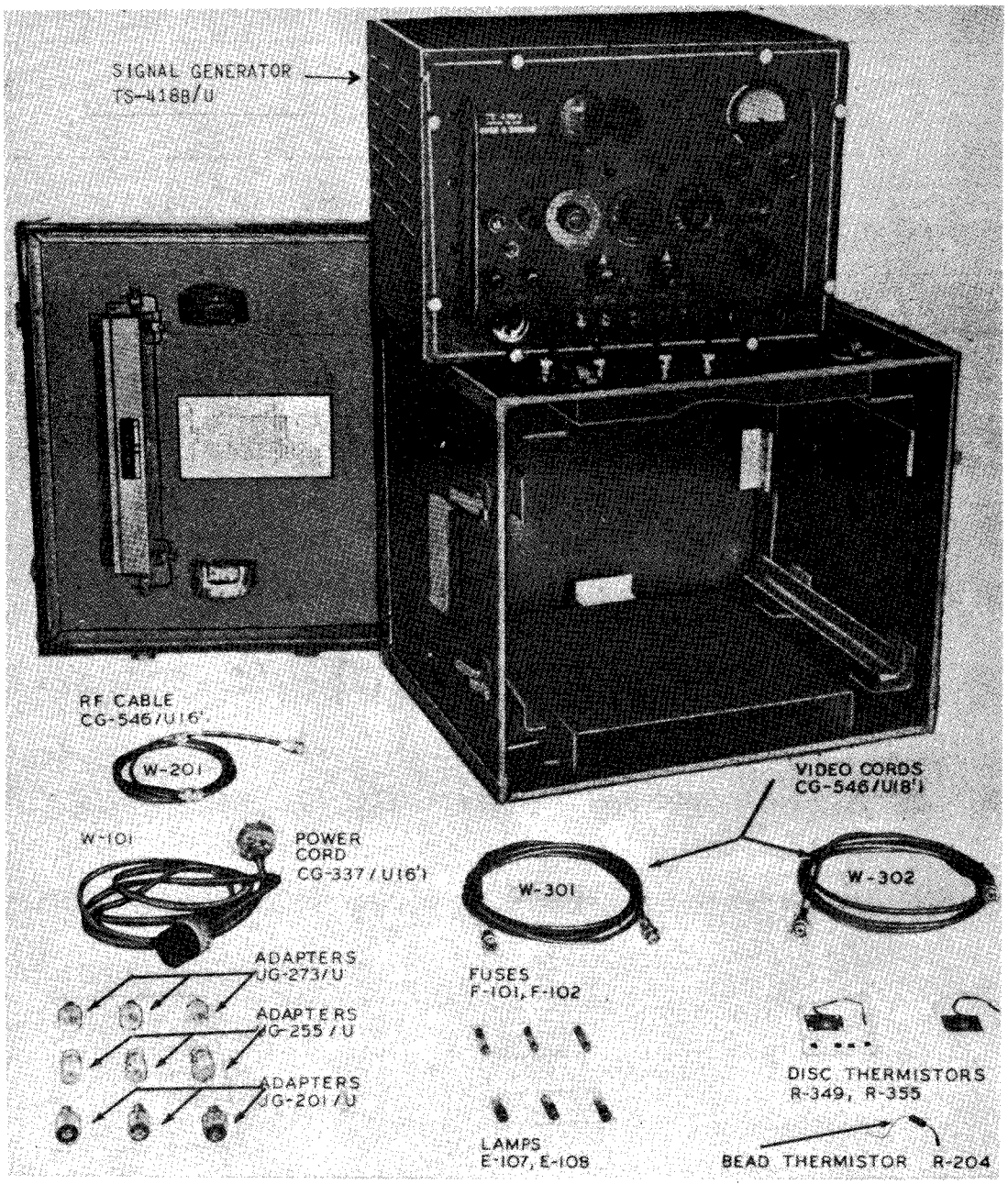
PROCUREMENT DATA

PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-S-10484(Sig C)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
A.R.F. Products	River Forest, Ill.	14210-Phila-51-93	$1,950.00

Test-Signal Generating

SIGNAL GENERATOR AN/URM-49



Signal Generator AN/URM-49

FUNCTIONAL DESCRIPTION

Signal Generator AN/URM-49 is a portable test equipment used with radio and radar receivers in measuring standing wave ratios, antenna characteristics, transmission line characteristics, conversion gain, and receiver sensitivity. It consists essentially of an rf oscillator, a power supply, an rf power monitor, a modulator section, including

AN/URM-49 SIGNAL GENERATOR

a pulse generator, and an output section.

No field changes in effect at time of preparation (15 April 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 130 W, 115 v ±10%, 50 to 1,600 cy, 1 ph, 0.9 pf.
FREQUENCY RANGE: 400 to 1,000 mc ±1%.
TYPE OF EMISSION: AM, CW, PM.
POWER OUTPUT: 1 mw.
OUTPUT IMPEDANCE: 50 ohms ±2%.
ATTENUATION: 0.2 uv (-120 db) to 200,000 uv (0 db).
INTERNAL MODULATION
RATE: 40 to 4,000 pps.
WIDTH: 0.5 to 10 usec.
DELAY: 3 to 300 usec.
EXTERNAL MODULATION
PULSE: 40 to 6,000 pps, 0.5 to 20 usec, ±40 to ±70 v.
SINE WAVES: 100 cy to 100 kc at 3 v for 30% modulation.
SYNC OUT PULSE: 65 v peak, no load; 42 v peak into 500 ohm load shunted by 1,500 uuf; 5 usec (max) width.

MANUFACTURER'S OR CONTRACTOR'S DATA

Lavoie Labs Inc., Morganville, New Jersey.
Contract N383s-57446.
Contract N383s-57474.
Contract N383s-57475.
Contract N383s-59384.
Contract N383s-59768.
Contract N383s-60282.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2	(1) 2C36	(1) 5R4GY
(1) 5Y3GT	(2) 6AG7	(1) 6AK5
(1) 12AX7	(2) 12AT7	(4) 6J6

Total Tubes: (15)

No Crystals used.

REFERENCE DATA AND LITERATURE

AN 16-30URM49-3: Technical Manual for Signal Generators TS-418/U, TS-418A/U and TS-418B/U.

TYPE CLASSIFICATION STD
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE MIL-G-17995(AER)
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator AN/URM-49 including:		
1	Cable CG-546/U	72 lg	0.3
2	Cable CG-546/U	96 lg	0.4
1	Cord CX-337/U	72 lg	0.6
1	Transit Case CY-741/U	16 X 18-5/8 X 21-7/8	24
1	Signal Generator TS-418B/U	12-3/8 X 13-1/2 X 17-5/8	54.5
3	Adapter UG-201/U	1-9/16 X 3/4 od	0.1
3	Adapter UG-255/U	1-3/8 X 5/8 od	0.1
3	Adapter UG-273/U	1-7/32 X 23/32 dia	0.1

April 1959

Test-Signal Generating

SIGNAL GENERATOR AN/URM-49A

FUNCTIONAL DESCRIPTION

Signal Generator AN/URM-49A is a portable test equipment used with radio and radar receivers in measuring standing wave ratios, antenna characteristics, transmission line characteristics, conversion gain, and receiver sensitivity. It consists essentially of an rf oscillator, a power supply, an rf power monitor, a modulator section, including a pulse generator, and an output section.

No field changes in effect at time of preparation (15 April 1959).

RELATION TO OTHER EQUIPMENT

This equipment similar to Signal Generator AN/URM-49, differs in having a new 3-wire Cable Assy CX-3277/U in lieu of the old 2-wire cord.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 130 W, 115 v ±10%, 50 to 1,600 cy, 1 ph, 0.9 pf.
FREQUENCY RANGE: 394 to 1,000 mc ±1%.
TYPE OF EMISSION: AM, CW, PM.
POWER OUTPUT: 1 mw.
OUTPUT IMPEDANCE: 50 ohms ±2%.
ATTENUATION: 0.2 uv (-120 db) to 200,000 uv (0 db).
INTERNAL MODULATION
  RATE: 40 to 4,000 pps.
  WIDTH: 0.5 to 10 usec.
  DELAY: 3 to 300 usec.
EXTERNAL MODULATION
  PULSE: 40 to 6,000 pps, 0.5 to 20 usec, ±40 to ±70 v.
  SINE WAVE: 100 cy to 100 kc at 3 v for 30% modulation.
SYNC OUT PULSE: 65 v peak, no load; 42 v peak into 500 ohm load shunted by 1,500 uuf; 5 usec (max) width.

MANUFACTURER'S OR CONTRACTOR'S DATA

Lavoie Labs Inc., Morganville, N.J.
Contract N383-29602A.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2	(1) 2C36	(1) 5Y3GT
(1) 5Y3GT	(2) 6AG7	(1) 6AK5
(4) 6J6	(2) 12AT7	(1) 12AX7

Total Tubes: (15)

No Crystals used.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Signal Generator AN/URM-49A.
AN 16-30URM49-3: Technical Manual for TS-418/U, TS-418A/U, TS-418B/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE MIL-G-17995A (AER)
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

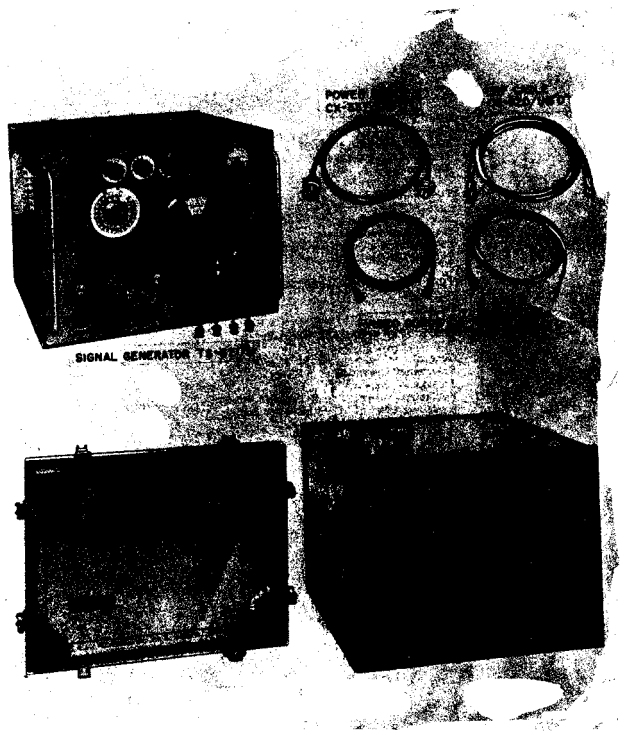
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator AN/URM-49A including:		
1	Signal Generator TS-418C/U	12-3/8 X 13-1/2 X 17-5/8	
1	Transit Case CY-741/U	16 X 18-5/8 X 21-7/8	24
1	Cable CG-546/U	72 lg	0.3
2	Cable CG-546/U	96 lg	0.4
1	Cord CX-3277/U	72 lg	
3	Adapter UG-201A/U	1-9/16 X 3/4 od	0.1
3	Adapter UG-255/U	1-3/8 X 5/8 od	0.1
3	Adapter UG-273/U	1-7/32 X 23/32 dia	0.1

23 May 1962 6625-643-1534 SIGNAL GENERATOR AN/URM-52

Cog Service: USN FSN: 6625-668-5451 W/S Functional Class: 4.1.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	T/Std

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Signal Generator AN/URM-52

FUNCTIONAL DESCRIPTION:

Signal Generator AN/URM-52 is a portable, general purpose self-contained test instrument for use in the testing, calibrating, and aligning of various types of electronic equipment and for other applications requiring small amounts of RF power such as measuring standing wave ratios, antenna and transmission line characteristics, conversion gain, alignment and calibration of receivers, and similar uses. Frequency and output power are indicated on direct reading dials.

No field changes in effect at time of preparation (13 December 1961).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v porm 10%, 50 to 1,000 cyc, single ph, 2 amp.
FREQUENCY RANGE: 3,800 to 7,500 mc, one band.
TYPE OF EMISSION: CW, FM, pulse, square wave.

OUTPUT VOLTAGE: 0.1 to 100,000 uv.
POWER OUTPUT: 1 mw (max.), M10 to M127 dbm.
OUTPUT IMPEDANCE: 52 ohms.
INTERNAL PULSE MODULATION
- REPETITION RATE: 40 to 4,000 pps.
- WIDTH: 0.5 to 10.0 usec between the points that are 50% of the max. amplitude of the initial rise.
- FINAL DECAY AND INITIAL RISE TIME: Less than 0.5 usec between 10% and 90% of the max. amplitude of the initial rise.
- TIMING: 3 to 300 usec, but not greater than 75% of the pulse period.

EXTERNAL PULSE MODULATION
- POLARITY: Pos or neg.
- RATE: 40 to 4,000 pps.
- AMPLITUDE: 15 to 70 v.
- WIDTH: 0.5 to 2,500 usec.
- PULSE SEPARATION: 1 to 2,500 usec.
- DECAY AND RISE: 0.1 to 1.0 usec.

INTERNAL FREQUENCY MODULATION
- RATE: 40 to 4,000 sawtooths/sec.
- DEVIATION: 0 to porm 3 mc.
- PEAK AMPLITUDE: Equal to the CW amplitude porm 1 db; variation of no more than 3 db during the deviation.

OUTPUT SYNCHRONIZING SIGNAL
- POLARITY: Pos.
- RATE: 40 to 4,000 pps.
- AMPLITUDE: 25 to 100 v.
- WIDTH: 0.5 to 5 usec.
- DECAY AND RISE: Less than 1 usec.
- TIMING: 1 usec before to 1 usec after the pulse modulated RF test signal.
- RATED LOAD: 500 to 100,000 ohms, 500 uuf.

EXTERNAL SYNCHRONIZATION
- SINE WAVES
  - FREQUENCY RANGE: 40 to 4,000 cyc.
  - AMPLITUDE: 5 to 50 v, rms.
- PULSE SIGNALS
  - REPETITION RATE: 40 to 4,000 cyc.
  - PEAK AMPLITUDE: 5 to 50 v.
  - WIDTH: 0.5 to 5 usec.
  - RISE TIME: 0.1 to 1 usec.

ACCURACY: Porm 1% of dial indication in freq, porm 2 db from M7 to M127 dbm.

RELATION TO OTHER EQUIPMENT:

This equipment, formerly known as Signal Generator TS-621/U, is similar to Hewlett-Packard Model 618B.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS	WEIGHT (LBS)
1	Signal Generator AN/URM-52 includes:			
1	Signal Generator TS-621/U		14 x 17 x 17-5/8	85
1	Case, Transit CY-1294/U		16 x 19-1/8 x 19-1/2	45
1	Cable Assy, RF CG-92D/U		72 lg	1.00
2	Cable Assy, Video CG-409/U		96 lg	
1	Cable Assy, Power CX-337/U		72 lg	0.62
4	Allen Wrench			
1	Hexagonal Socket Wrench			
2	Contact Springs for V-114			

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30URM52-1: Handbook of Operation Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
NAVWEPS 16-30URM52-2: Handbook of Service Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
NAVWEPS 16-30URM52-3: Handbook of Overhaul Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
NAVWEPS 16-30URM52-4: Illustrated Parts Breakdown for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-1: Handbook of Operation Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-2: Handbook of Service Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-3: Handbook of Overhaul Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-4: Illustrated Parts Breakdown for Signal Generator AN/URM-52 and AN/URM-52A.
TM11-6625-214-24: Organizational and Field Maintenance Manual for Signal Generator AN/URM-52 and AN/URM-52A.
TM11-6625-214-50: Depot Maintenance Manual for Signal Generator AN/URM-52 and AN/URM-52A-

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 0A2 (1) 0A3 (1) 2D21 (3) 5R4WGY (2) 6AS7 (3) 6AU6 (2) 12AT7
(3) 5726 (1) 5763 (7) 5814 (1) 6236

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

AN/URM-52 SIGNAL GENERATOR

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	9.6	190

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuWeps
SPEC &/OR DWG: MIL-G-7141(AER)

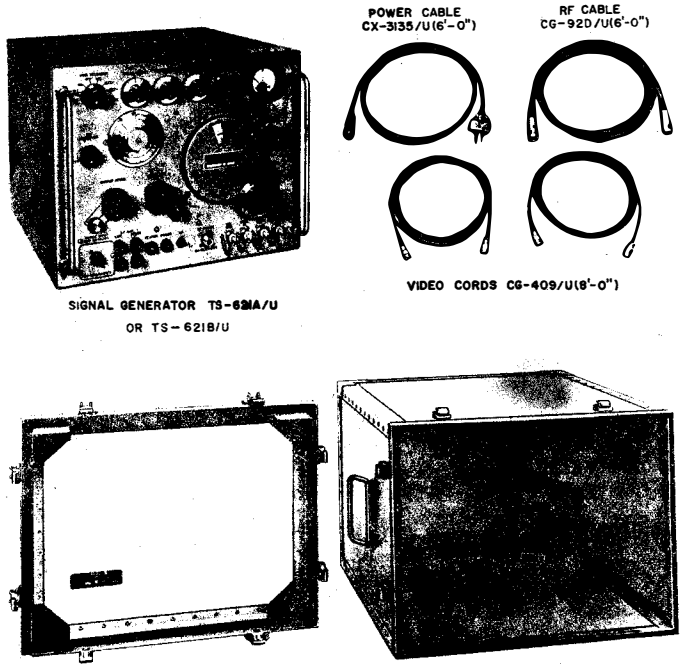
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co.	Palo Alto, Calif.	NOas 51-1167	

9 April 1962 SIGNAL GENERATOR AN/URM-52A

Cog Service: USN FSN: 6625-592-5742 Functional Class: 4.1.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co.



Signal Generator AN/URM-52A

FUNCTIONAL DESCRIPTION:

Signal Generator AN/URM-52A is a portable unit used for testing, calibrating, and aligning aircraft radio and radar receivers, as well as other electronic equipments.

No field changes in effect at time of preparation (13 December 1961).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v porm 10%, 50 to 1,000 cyc, single ph, 2 amp.
FREQUENCY RANGE: 3,800 to 7,500 mc.
TYPE OF EMISSION: CW, FM, pulse.
OUTPUT VOLTAGE: 0.1 to 100,000 uv.
POWER OUTPUT: 1 mw (max), M10 to M127 dbm.
OUTPUT IMPEDANCE: 52 ohms.

AN/URM-52A SIGNAL GENERATOR

INTERNAL PULSE MODULATION
- REPETITION RATE: 40 to 4,000 pps.
- WIDTH: 0.5 to 10.0 usec between the points that are 50% of the max amplitude of the initial rise.
- FINAL DECAY AND INITIAL RISE TIME: Less than 0.5 usec between 10% and 90% of the max amplitude of the initial rise.
- TIMING: 3 to 300 usec, but not greater than 75% of the pulse period.

EXTERNAL PULSE MODULATION
- POLARITY: Pos or neg.
- RATE: 40 to 4,000 pps.
- AMPLITUDE: 15 to 70 v.
- WIDTH: 0.5 to 2,500 usec.
- PULSE SEPARATION: 1 to 2,500 usec.
- DECAY AND RISE: 0.1 to 1 usec.

INTERNAL FREQUENCY MODULATION
- RATE: 40 to 4,000 sawtooth/sec.
- DEVIATION: 0 to porm 3 mc.
- PEAK AMPLITUDE: Equal to the cw amplitude porm 1 db; variation of no more than 3 db during the deviation.

OUTPUT SYNCHRONIZING SIGNAL
- POLARITY: Pos.
- RATE: 40 to 4,000 pps.
- AMPLITUDE: 25 to 100 v.
- WIDTH: 0.5 to 5 usec.
- DECAY AND RISE: Less than 1 usec.
- TIMING: 1 usec before, to 1 usec after the pulse modulated rf test signal.
- RATED LOAD: 500 to 100,000 ohms, 500 uuf.

EXTERNAL SYNCHRONIZATION
- SINE WAVES
  - FREQUENCY RANGE: 40 to 4,000 cyc.
  - AMPLITUDE: 5 to 50 v rms.
- PULSE SIGNALS
  - REPETITION RATE: 40 to 4,000 cyc.
  - PEAK AMPLITUDE: 5 to 50 v.
  - WIDTH: 0.5 to 5 usec.
  - RISE TIME: 0.1 to 1 usec.

ACCURACY: Porm 1% of dial indication in freq, porm 2 db from M10 to M127 dbm.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/URM-52A includes:			
1	Signal Generator TS-621A/U or		14 x 17 x 17-5/8	85

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
	TS-621B/U			
1	Case, Transit CY-2109/URM-52A		16 x 19-1/8 x 19-1/2	45
1	Cable Ass'y, R.F. CG-92D/U		72 lg	1.00
2	Cable Ass'y, Video CG-409/U		96 lg	
1	Cable Ass'y, Power CX-3135/U		72 lg	0.62
4	Allen Wrench			
1	Hexagonal Socket Wrench			
2	Contact Springs for V-114			

REFERENCE DATA AND LITERATURE:

NAVWEPS 16-30URM52-1: Handbook of Operation Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
NAVWEPS 16-30URM52-2: Handbook of Service Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
NAVWEPS 16-30URM52-3: Handbook of Overhaul Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
NAVWEPS 16-30URM52-4: Illustrated Parts Breakdown for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-1: Handbook of Operation Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-2: Handbook of Service Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-3: Handbook of Overhaul Instructions for Signal Generator AN/URM-52 and AN/URM-52A.
TO 33A1-8-20-4: Illustrated Parts Breakdown for Signal Generator AN/URM-52 and AN/URM-52A.
TM11-6625-214-24: Organizational and Field Maintenance Manual for Signal Generator AN/URM-52 and AN/URM-52A.
TM11-6625-214-50: Depot Maintenance Manual for Signal Generator AN/URM-52 and AN/URM-52A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 0A2WA (1) 0A3 (1) 2D21 (3) 5R4WGB (3) 6AU6WA (2) 12AT7WA (3) 5726
(1) 5763 (7) 5814 (2) 6080WA (1) 6236

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

AN/URM-52A SIGNAL GENERATOR

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuWeps
SPEC &/OR DWG: MIL-G-7141A(AER)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co.	Palo Alto, Calif.		

28 May 1962 SIGNAL GENERATOR AN/URM-54

Cog Service: USAF FSN: Functional Class: 4.1.2

USA USN USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER:

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Signal Generator AN/URM-54 is a portable equipment designed to provide continuous-wave or pulsed signals for checking the performance of receivers. The output is continuously variable by means of an attenuator calibrated in 5 db divisions and is available from a panel jack or may be radiated from a built-in antenna. The power level to the attenuator is set by standard reference level control.

No field changes in effect at time of preparation (5 March 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 30 to 250 mc.
BANDS: 3.
CALIBRATION ACCURACY: Porm 1%.
SIGNAL OUTPUT: Calibrated 1 mw to M80 dbm porm 3 db.
OUTPUT IMPEDANCE: 50 ohms.
MODULATION DATA
TYPE: Pulse modulated internally.
PULSE DATA
RATE: 1000 porm 100 pps.
WIDTH: 5 usec.
POWER REQUIREMENTS: 24 to 29 v dc, 150 W max at 27.5 v dc.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator SG-79/URM-54		8 x 10 x 12	
1	Set of Cables and Adapters			

REFERENCE DATA AND LITERATURE: None.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

AN/URM-54 SIGNAL GENERATOR

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USAF DESIGN COG: USAF

SPEC &/OR DWG: USAF Exhibit MCREE-872

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST

October 1957

Test-Signal Generating

SIGNAL GENERATOR AN/URM-61

FUNCTIONAL DESCRIPTION

The AN/URM-61 provides frequency modulated and pulse modulated radio frequency signals in the frequency range from 1800 to 4000 mc for use in the maintenance of airborne radar and equipment.

No field changes in effect at time of preparation (7 March 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1800 to 4000 mc.
NUMBER OF BANDS: single.
CALIBRATION ACCURACY: ±1%.
POWER LEVEL CALIBRATED RANGE: -10 to -120 db below 1 mw.
POWER LEVEL INDICATION ERROR: Less than 2 db for RF test signals.
OUTPUT IMPEDANCE: 50 ohms
MODULATION DATA:
TYPE: Pulse and FM.
PULSE RATE: 40 to 4000 pulses per sec (pps).
PULSE WIDTH: 0.5 to 10.0 usec.
FM RATE: 40 to 4000 sawtooth per sec.
DEGREE OF PULSE MODULATION: 100%.
POWER SOURCE REQUIRED: 115 V, 50 to 1500 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett Packard Co, Palo Alto, California
Contract N383s-74507, N383s-74917.
Approximate Cost: $1060.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) OA2WA
(1) 2K28A
(1) 5R4WGB
(4) 604WA
(3) 6J6WA
(1) 6SL7WGT
(2) 6X5WGT
(2) 6Y6G
Total Tubes: (17)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Signal Generator AN/URM-61 dated 26 September 1952.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE 16G4 (AER)
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-403A/U		
1	Cord CG-409/U (8')		
1	Cord CX-337/U (6')		
1	Cord CG-92B/U (6')		
1	Case CY-669A/U		

December 1956

GENERATOR, SIGNAL AN/URM-61A

FUNCTIONAL DESCRIPTION

The AN/URM-61A provides accurately pulse modulated, frequency modulated and continuous wave radio frequency signals from 1800 to 4000 mc for testing radio and radar receiving and other electronic equipment when such usage requires less than 1.0 mw of rf power.

No field changes in effect at time of preparation (8 August 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE TEST: Alignment of radio frequency circuits.
FREQUENCY RANGE: 1800 to 4000 mc.
OUTPUT: 0.224 v to 0.1 uv.
INTERNAL MODULATION: FM, 40 to 4000 pps.
OPERATING POWER: 103.5 to 126.5 v, 50 to 1000 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Generator, Signal AN/URM-61A

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

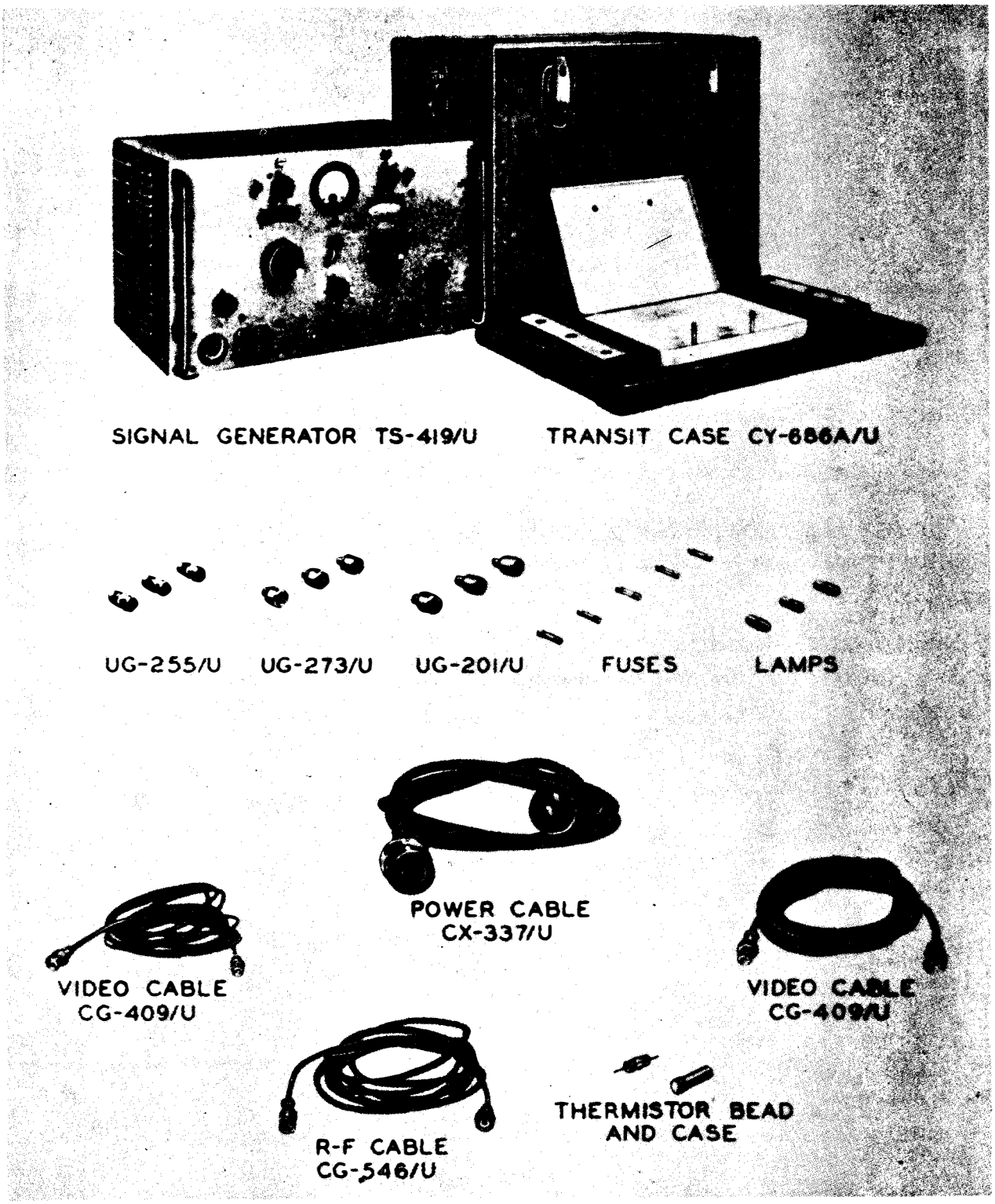
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Generator, Signal TS-403B/U		
1	Case CY-669A/U	17-1/8 X 17-5/8 X 21	
1	Cable Assembly, Power, Electrical CX-3277/U		
2	Cord CG-409A/U		
1	Cord CG-92B/U	72 lg	
3	Adapter UG-273/U		

October 1957

Test-Signal Generating

SIGNAL GENERATOR AN/URM-64



Signal Generator AN/URM-64

Test-Signal Generating

October 1957

AN/URM-64 SIGNAL GENERATOR

FUNCTIONAL DESCRIPTION

The AN/URM-64 is a portable, self-contained, directly calibrated generator of continuous-wave or pulse-modulated radio-frequency signals. It is used to provide an accurate signal source in testing the operation of radio and radar equipment operating in the frequency range of 900 to 2100 megacycles, and for receiver measurements and other applications that require less than one milliwatt of CW or pulsed type RF signals in this band of frequencies. It is provided with facilities for synchronizing external equipment with pulsed RF signals, and for synchronizing the TS-419/U with sine waves or pulses from external equipment.

No field changes in effect at time of preparation (27 February 1957).

RELATION TO OTHER EQUIPMENT

The AN/URM-64 is the same as TS-419/U, except the AN/URM-64 includes accessories

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 900 to 2100 mc.
FREQUENCY CONTROL ACCURACY: ±1%.
FREQUENCY STABILITY
  WARM-UP DRIFT: Less than 0.2%.
  AMBIENT DRIFT: Less than 0.005% per deg C.
POWER OUTPUT: 0 to -120 dbm continuously adjustable by control accurate to ±2 dbm.
OUTPUT IMPEDANCE: 50 ohms with 2 to 1 VSWR.
EMISSION: CW or pulse amplitude modulated. No provision for frequency modulation or square wave modulation.
SPURIOUS MODULATION (CW CONDITION)
  FM: Approx ±0.01%.
  AM: Less than 0.5%.
RF PULSE SHAPE
  RISE TIME: Less than 0.5 usec.
  DELAY TIME: Less than 0.9 usec.
  FLATNESS: Within 10% of amplitude of initial rise.
MODULATION
  EXTERNAL PULSES
  TYPE: Positive or negative.
  PEAK AMPLITUDE: 40 to 70 v.
    WIDTH: 0.5 to 10 usec.
    RATE: 40 to 4000 pps.
  INTERNAL PULSES
    WIDTH: 0.5 to 10 usec.
    DELAY: 3 to 300 usec not exceeding 75% of pulse period.
  RATE: 40 to 4000 pps.
SYNC IN
  PULSE
    TYPE: Positive or negative.
    AMPLITUDE: 10 to 50 v peak.
    WIDTH: 0.5 to 20 usec.
    RATE: 40 to 4000 pps.
  SINE WAVE
    AMPLITUDE: 10 to 50 v rms.
    FREQUENCY: 40 to 4000 cps.
SYNC OUT
  UNDELAYED
    OCCURRENCE: within 1.5 usec of leading edge of sync input or internally generated rate pulse.
  AMPLITUDE: 20 to 50 v into 500 ohms. min load shunted by less than 1500 uuf.
    RISE TIME: 1.2 usec.
    WIDTH: 1 to 4 usec.
  DELAYED
    OCCURRENCE: within 1 usec of leading edge of RF pulse.
    AMPLITUDE: 20 to 50 v into 500 ohm max load shunted by less than 1500 uuf.
    RISE TIME: Less than 0.5 usec.
    WIDTH: 1 to 3 usec.
PULSE CONTROLS DATA
  PULSE WIDTH: 0.5 to 10 usec ±25% +0.5 usec.
  PULSE DELAY: 3 to 300 usec ±25%.
  PULSE RATE: 40 to 4000 pps ±30%.
POWER REQUIREMENTS: 115 v ±10%, 50 to 1600 cps, single ph, 250 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Aircraft Radio Corporation, Boonton, N.J.
Contract NOa(s)-9748, dated 4 April 1948.
Technicraft Corporation, Kansas City, Mo.
Contract NOa(s)-12279, dated 23 June 1950.
Approximate Cost: $1850.00 with Equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(8) 6V6GTY	(5) 6626/OA2WA
(2) 5R4WGB	(6) 7F8W
Total Tubes: (22)	(1) 6BM6A

REFERENCE DATA AND LITERATURE

NAVSHIPS 91434: Technical Manual for Signal Generator TS-419/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	16G5(Aer)
STOCK NO.	
R.D.B. IDENT. NO.	

SIGNAL GENERATOR AN/URM-64

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator AN/URM-64	8	24 x 24 x 24	80

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-419/U	10-7/8 x 14 x 17-3/8	43
1	Transit Case CY-686/U or	13-1/2 x 16-1/2 x 21-1/16	18
	CY-686A/U	13-1/2 x 16-1/2 x 21-1/16	26.5
1	Power Cable CX-337/U	1-1/2 dia x 72	0.75
1	RF Cable CG-546/U	27/64 dia x 72	0.25
2	Video Cable CG-409/U or	27/64 dia x 72	0.25
	Video Cable CG-409/U	27/64 dia x 96	0.35
3	Adapter UG-255/U	3/4 dia x 1-5/8	0.06
3	Adapter UG-201/U	3/4 dia x 1-9/16	0.06
3	Adapter UG-273/U	3/4 dia x 1-5/8	0.06
2	Technical Manual NAVSHIPS 91434	1/2 x 9 x 11-1/2	

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/URM-64A includes:			
1	Signal Generator TS-419A/U		10-7/8 x 14 x 17-3/8	43
1	Signal Generator Case CY-686C/U		13-1/2 x 16-3/4 x 20-3/4	25.25
1	Cable Assy, Electrical, Power CX-3135/U		23/32 x 1-17/32 x 72	0.75
1	Cable Assy, R.F. CG-546/U		27/64 x 74	0.25
2	Cord CG-409A/U		27/64 x 98	0.25
3	Adapter UG-255/U		3/4 x 1-5/8	0.06
3	Adapter UG-201/U		3/4 x 1-9/16	0.06
3	Adapter UG-273/U		3/4 x 1-5/8	0.06
3	Lamp		1-3/32 x 3-3/8	0.02
3	Fuse F02G3R00A		1/4 x 1-1/4	0.02
1	Bead Thermistor and Case		3/4 x 1-3/8	0.02

REFERENCE DATA AND LITERATURE:

AN16-30URM64-3: Maintenance Instructions for Signal Generators AN/URM-64 and AN/URM-64A.
NAVSHIPS 91434: Technical Manual for Signal Generators AN/URM-64 and AN/URM-64A.
TM11-6625-299-15: Operator, Organizational Field and Depot Maintenance Manual for Signal Generators AN/URM-64 and AN/URM-64A.
TO 33A1-8-86-2: Maintenance Instructions for Signal Generator AN/URM-64.
TO 33A1-8-86-14: Spare Parts List for Signal Generator AN/URM-64.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 0A2WA (2) 5R4WGA (1) 6BM6A (8) 6V6GTY (6) 7F8W

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8	80

PROCUREMENT DATA

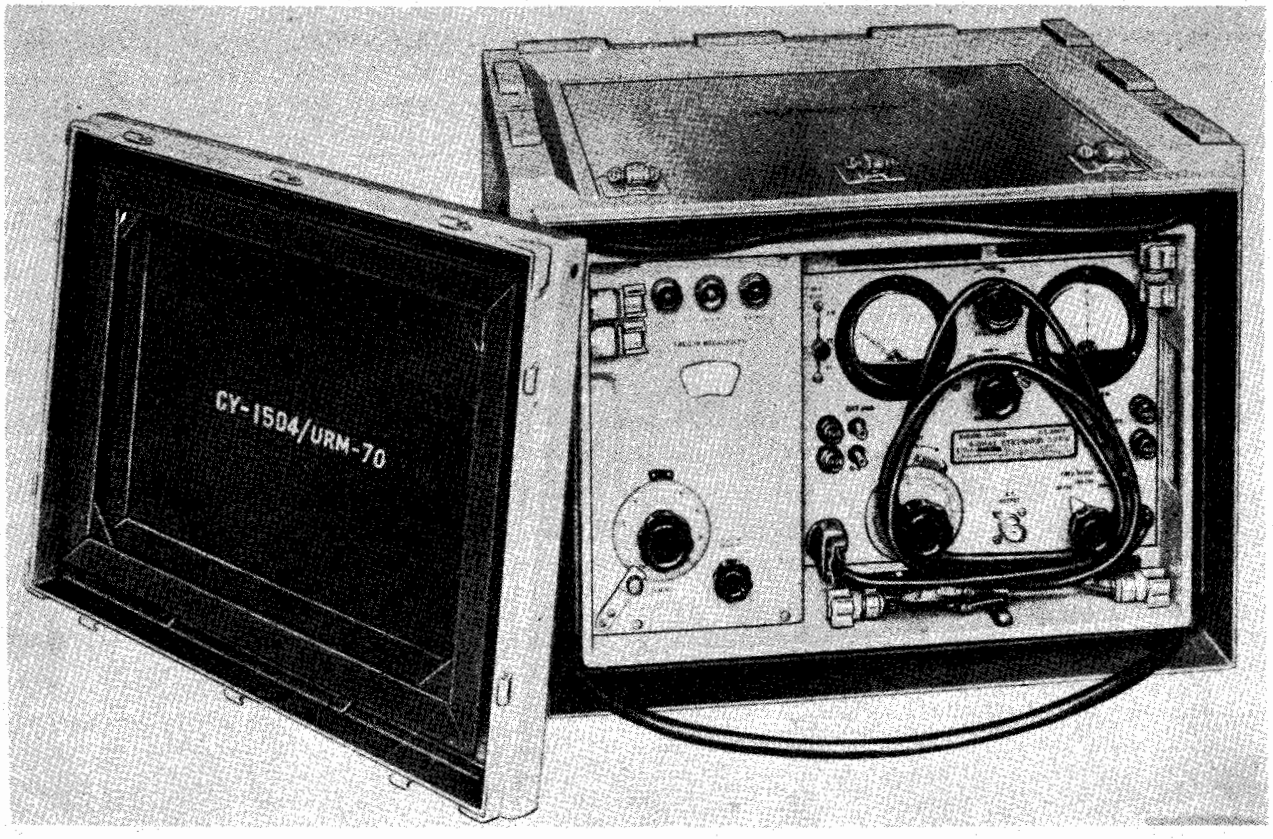
PROCURING SERVICE: USN
DESIGN COG: USN, BuWeps
SPEC &/OR DWG: MIL-G-17994A(AER)

AN/URM-64A SIGNAL GENERATOR

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Van Norman Industries Inc., Electronics Div.	Manchester, N.H.	N383s-16939A N383s-31275A N383-46093A	$684.84

Test-Signal Generating

SIGNAL GENERATOR AN/URM-70



Signal Generator AN/URM-70

FUNCTIONAL DESCRIPTION

The AN/URM-70 is a portable signal generator designed to provide very-high frequency test signals for field or laboratory measurements, testing, and alignment. It provides a radio-frequency test signal variable between 50 and 400 megacycles in three bands. The output signal can be frequency-modulated by an external source or by the internal audio oscillator.

It is intended primarily for use as test and maintenance apparatus for Radio Sets AN/TRC-24, AN/TRQ-2, AN/GRC-10, AN/TRC-8, and AN/TRC-1.

No field changes in effect at time of preparation (22 July 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 50 to 400 mc.
TYPE OF OUTPUT (50 TO 400 MC)
  UNMODULATED RF: CW.
  FREQUENCY-MODULATED RF: Internally modulated at 1000, 1600, or 20000 cps or externally modulated at 250 to 70 kc.
FM FREQUENCY DEVIATION
  BAND A: 0 to 15, 0 to 75, and 0 to 150 kc.
  BAND B: 0 to 30, 0 to 150, and 0 to 300 kc.
  BAND C: 0 to 60, 0 to 300, and 0 to 600 kc.
TYPE INTERNAL MODULATION: FM.
OUTPUT SIGNAL LEVEL: 0.1 to 100000 uv max.
OUTPUT VOLTAGE ACCURACY: ±25%.
MODULATION DISTORTION (FULL SCALE READING)
  DEV MULT IN X5: 0.5%.
  DEV MULT IN X10: 5%.
FREQUENCY STABILITY: ±0.03% per half hr after 2 hr warmup.
SPURIOUS FM: 55 db below rated deviation.
DEVIATION ACCURACY: ±25%.
SPURIOUS AM: 15% max.
RF DISTORTION
  HARMONIC: 3%.
  SUBHARMONIC: 10%.
VSWR (MAX): 1.5% of output impedance.
OUTPUT IMPEDANCE: 50 ohms.

Test-Signal Generating

AN/URM-70 SIGNAL GENERATOR

DIAL CALIBRATION ACCURACY: ±1%.
POWER REQUIREMENTS: 115 v ±10%, 50 to 60 cps, 125 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Order 6895-PHILA-51-93.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA2WA	(1) 5R4WGA
(12) 5654	(1) 5751
(1) 6005	(1) 6080WA

Total Tubes: (17)

No Crystals Used.

REFERENCE DATA AND LITERATURE

TM11-1258: Technical Manual for Signal Generator AN/URM-70.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE MIL-S-11107(SIG)
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

SHIPPING DATA

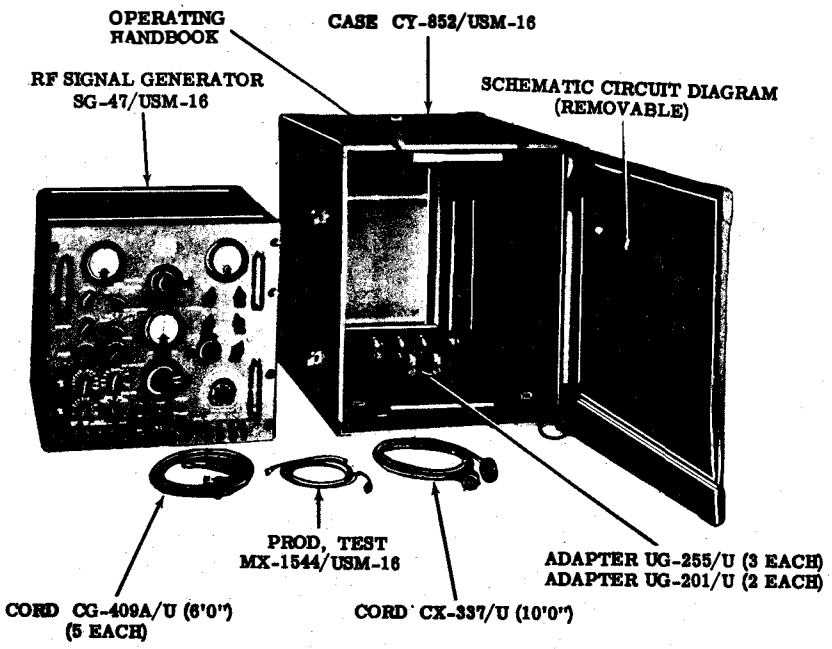
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator AN/URM-70	6.4	19 X 22-1/2 X 26	160

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator SG-3/U	11-3/16 X 14-7/8 X 17-1/4	72
1	Transit Case CY-1504/URM-70	14-15/16 X 18-1/32 X 20-5/8	33
2	Test Adapter	5-1/2 lg	
1	Adapter Connector UG-643/U		
1	Adapter Connector UG-564/U		
1	Adapter Connector UG-637/U		
2	Rf Cable Assembly CG-718/U	48 lg	
2	Technical Manual TM11-1258	1/4 X 8 X 10-1/4	

USA	USN	USAF
TYPE CLASS:	Used by	Std

MANUFACTURER'S NAME/CODE NUMBER: Byron Jackson Co., Electronic Div., (80135).



Signal Generator Set AN/USM-16

FUNCTIONAL DESCRIPTION:

Signal Generator Set AN/USM-16 is a portable multi-purpose set for use in applications requiring a source of continuous-wave, amplitude-modulated, frequency-modulated, pulse-modulated, or swept-frequency output at carrier frequencies of 10 to 400 mc.

No field changes in effect at time of preparation (22 March 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v, 50 to 450 cyc, single ph.
FREQUENCY RANGE: 10 to 440 mc.
TYPE OF EMISSION: AM, FM, PM.
OUTPUT VOLTAGE: 0.25 to 100,000 uv (calibrated); 1 v (uncalibrated).
OUTPUT IMPEDANCE: 50 ohms.
POWER OUTPUT: M6 to M120 dbm (calibrated).

AN/USM-16 SIGNAL GENERATOR SET

MODULATION DATA
AMPLITUDE MODULATION: 400, 1,000 cyc (int); 20 cyc to 20 kc (ext).
FREQUENCY SWING: Porm 0.0125 to porm 7.5 mc in two ranges.
PULSE REPETITION RATE: 50 to 5,000 pps.
PULSE WIDTH: 1 to 30 usec.
PULSE DELAY: 1 to 100 usec.
ACCURACY
FREQUENCY: Porm 0.5% of indicated value, porm 0.002% (with int crystal calibrator).
POWER OUTPUT: Porm 1 db.
FREQUENCY SWING: Porm 5%.
PULSE REPETITION RATE: Porm 10%.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Oscilloscope AN/USM-24 or equivalent; (1) Headset HS-33.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator Set AN/USM-16 includes:		22-1/4 x 24-1/4 x 26-3/4	163
1	R. F. Signal Generator SG-47/USM-16		17-3/4 x 19-1/4 x 20	95
1	Transit Case CY-852/USM-16		22-1/4 x 24-1/4 x 26-3/4	57
1	Cord CX-337/U		120 lg	
5	Cord CG-409A/U		72 lg	
1	Test Prod MX-1544/USM-16		72 lg	
3	Adapter UG-255/U			
2	Adapter UG-201/U			
2	Miniature Lamp No. 47			
2	Miniature Lamp No. 43			
10	Fuse (10 amp, 250 v, 3AB)			
5	Crystal Rectifier 1N69			
5	Crystal Rectifier 1N126			
5	Crystal Rectifier 1N128			
5	Crystal Rectifier (SP750549 Rollin)			
3 pr	Crystal Rectifier (SP750631 Rollin)			
2 pr	Crystal Rectifier MP3013			

REFERENCE DATA AND LITERATURE:

NAVAER 16-30USM16-1: Handbook of Operation Instructions for Signal Generator AN/USM-16.
NAVAER 16-30USM16-2: Handbook of Service Instructions for Signal Generator AN/USM-16.
NAVAER 16-30USM16-3: Handbook of Overhaul Instructions for Signal Generator AN/USM-16.

NAVAER 16-30USM16-4: Illustrated Parts Breakdown for Signal Generator AN/USM-16.
TO 33A1-8-23-1: Handbook of Operation Instructions for Signal Generator AN/USM-16.
TO 33A1-8-23-2: Handbook of Service Instructions for Signal Generator AN/USM-16.
TO 33A1-8-23-3: Handbook of Overhaul Instructions for Signal Generator AN/USM-16.
TO 33A1-8-23-4: Illustrated Parts Breakdown for Signal Generator AN/USM-16.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (2) 082 (3) 2C39A (2) 5R4GY (3) 6AS6 (1) 6BF7W (17) 6BH6
(4) 6BN6 (3) 6D4 (12) 12AT7 (1) 5651 (2) 5675 (1) 5687 (1) 5726/6AL5W
(6) 5814 (2) 6080

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N69 (2) 1N72 (8) 1N126 (5) 1N128 (2) G7B (2) MP3013

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USAF
SPEC &/OR DWG: MIL-S-4071A
DESIGN COG: USAF, WADC

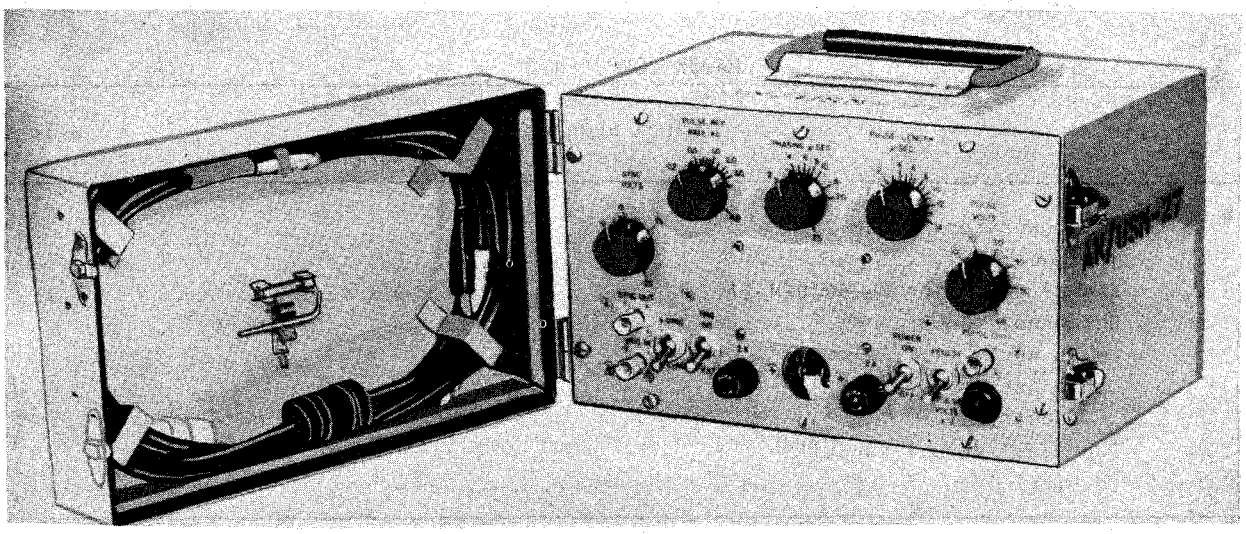
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Byron Jackson Co., Electronic Div.	Pasadena, California	AF33(038)-30078	$4,600.00

Cog Service: USN FSN: 6625-642-8715 **Functional Class: 4.3**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Harvey Wells Electronics Inc., (81635).



Signal Generator AN/USM-27

FUNCTIONAL DESCRIPTION:

Signal Generator AN/USM-27 is a highly efficient general purpose portable pulse generator providing positive and negative output pulses of substantially rectangular form. The equipment is intended for use in pulsing signal generators, radar equipment, radiac equipment, and for other general uses.

No field changes in effect at time of preparation (19 March 1962).

TECHNICAL CHARACTERISTICS:

MODULATION

OUTPUT PULSE: Approx. 0.5 to 11 usec long.

PHASING: From 3.0 to 20 usec from the input or output of the synchronizing pulse.

REPETITION RATE: From 120 to 4,000 cyc.

OUTPUT

POSITIVE PULSE: 0 to 60 v.
NEGATIVE PULSE: 0 to 120 v.
SYNCHRONIZING PULSE: 0 to porm 25 max v as selected.
OUTPUT IMPEDANCE
POSITIVE: Approx. 70 ohms porm 20%.
NEGATIVE: Not exceeding 10,000 ohms (approx. 300 ohms).
POWER REQUIREMENTS: 105 to 125 v, 60 cyc, single ph, 1 amp.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/USM-27 includes:			
1	Signal Generator SG-60/USM-27		7 x 9 x 11-1/2	19
1	Detachable Cover			
3	Cable Ass'y, R.F.			
1	Cable Ass'y, Power, Electrical			
2	Technical Manual NAVSHIPS 91561			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91561: Technical Manual for Signal Generator AN/USM-27.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (1) 5Y3GT (1) 6AG7 (2) 12AT7 (2) 12AU7

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N34

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.4	27

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-G-15473(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Harvey Wells Electronics Inc.	South Bridge, Mass.	NObsr-49168, 9 June 1950 NObsr-52362, 3 March 1951	

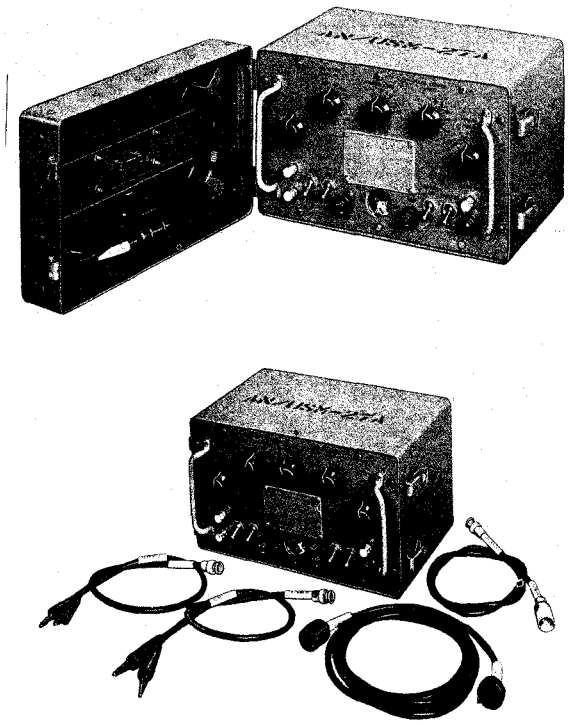
19 June 1962 | 5840-644-4837 W/S | SIGNAL GENERATOR AN/USM-27A

Cog Service: USN FSN: 6625-642-8714 Functional Class: 4.3

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Harvey Wells Electronics Inc.,(81635).



Signal Generator AN/USM-27A

FUNCTIONAL DESCRIPTION:

Signal Generator AN/USM-27A is a highly efficient general purpose portable pulse generator providing positive and negative output pulses of substantially rectangular form. The equipment is intended for use in pulsing signal generators, radar equipment, radiac equipment, and for other general uses.

No field changes in effect at time of preparation (16 March 1962).

TECHNICAL CHARACTERISTICS:

MODULATION

OUTPUT PULSE: Approx 0.5 to 11 usec long.

PHASING: From 3.0 to 20 usec from the input or output of the synchronizing pulse.

REPETITION RATE: From 120 to 4,000 cyc.

OUTPUT

POSITIVE PULSE: 0 to 60 v.
NEGATIVE PULSE: 0 to 120 v.
SYNCHRONIZING PULSE: 0 to porm 25 max v as selected.

OUTPUT IMPEDANCE

POSITIVE: Approx 70 ohms porm 20%.
NEGATIVE: Not exceeding 10,000 ohms (approx 300 ohms).

POWER REQUIREMENTS: 105 to 125 v, 60 cyc, single ph, 1 amp.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/USM-27A includes:			
1	Signal Generator SG-60A/USM-27		7 x 9 x 11-1/2	19
1	Detachable Cover			
3	Cable Assy, R.F.			
1	Cable Assy, Power, Electrical			
2	Technical Manual NAVSHIPS 91826			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91826: Technical Manual for Signal Generator AN/USM-27A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (1) 5Y3GT (1) 6AG7 (2) 12AT7 (2) 12AU7

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N34

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.4	27

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-G-15473A(SHIPS), Amend 1

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Harvey Wells Electronics Inc.	Southbridge, Mass.	NObsr-57233, 27 February 1950	$233.12

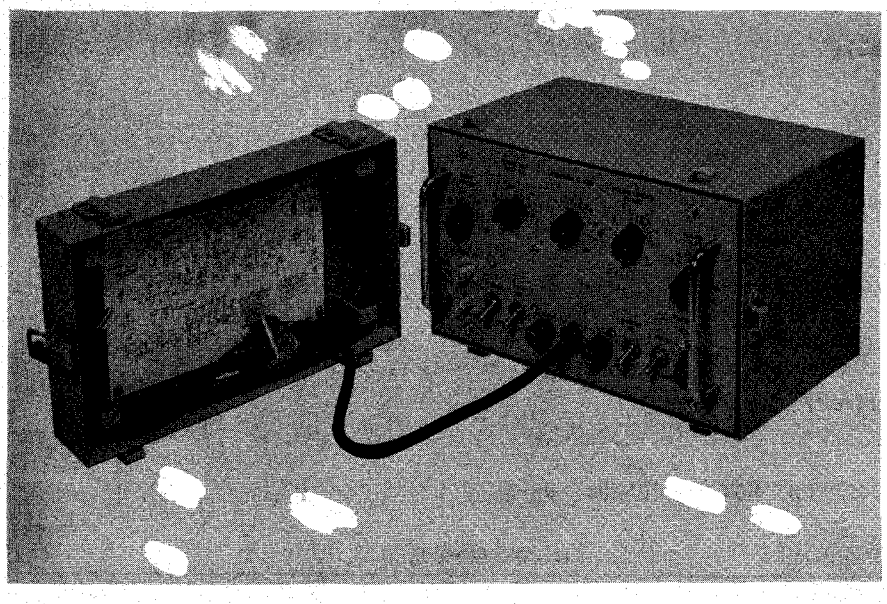
3 April 1962 | 6625-665-2587 | SIGNAL GENERATOR AN/USM-27B

Cog Service: USN FSN: 5840-643-1920 W/S | Functional Class: 4.3

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Specialty Assembling and Packing Co. Inc.



Signal Generator AN/USM-27B

FUNCTIONAL DESCRIPTION:

Signal Generator AN/USM-27B is a highly efficient general purpose portable pulse generator providing positive and negative output pulses of substantially rectangular form. The equipment is intended for use in pulsing signal generators, radar equipment, radiac equipment, and for other general uses.

No field changes in effect at time of preparation (19 March 1962).

TECHNICAL CHARACTERISTICS:

MODULATION

OUTPUT PULSE: Approx. 0.5 to 11 usec long.

PHASING: From 3.0 to 20 usec from the input or output of the synchronizing pulse.

REPETITION RATE: From 120 to 4,000 cyc.

AN/USM-27B SIGNAL GENERATOR

OUTPUT
POSITIVE PULSE: 0 to 60 v.
NEGATIVE PULSE: 0 to 70 v.
SYNCHRONIZING PULSE: 0 to porm 25 max v as selected.
OUTPUT IMPEDANCE
POSITIVE: Approx. 70 ohms porm 20%.
NEGATIVE: Not exceeding 10,000 ohms (approx. 300 ohms).
POWER REQUIREMENTS: 105 to 125 v, 60 cyc, single ph at 1 amp.

RELATION TO OTHER EQUIPMENT:

CHARACTERISTIC	AN/USM-27B	OCD	SG-18/U
Pulse Length (microseconds)	.5 to 11	.5 to 50	3 to 40
Repetition rate (pulses per sec)	120 to 4000 independent of pulse length	3000–6000 dependent on pulse length	3000–6000 dependent on pulse length
Output amplitude	Positive 0–60 v Negative 0–70 v Variable	Minus 240 v not variable	Plus 150 v not variable
Sync. Output	0 to porm 25 v variable	0 to porm 40 v variable	0 to porm 25 v variable
External Triggering	Has facilities	No facilities	No facilities
Phasing (time which output lags primary trigger)	3 to 20 microseconds	No facilities	No facilities

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/USM-27B includes:			
1	Signal Generator SG-60B/USM-27		6-5/8 x 9 x 11	15
1	Detachable Cover			
3	Cable Ass'y, R.F.			
2	Technical Manual NAVSHIPS 92016			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 92016: Technical Manual for Signal Generator AN/USM-27B.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (1) 5Y3WGTA (1) 6AG7 (2) 12AT7WA (2) 5814

CRYSTALS: None used.

4.4 AN/USM-27B: 2

SEMI-CONDUCTORS: (1) 1N34A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	1.4	23

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-G-15473D(SHIPS), Amend 2

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Specialty Assembling and Packing Co. Inc.	Brooklyn, N. Y.	NObsr-63292, 13 August 1953	$152.80
Gilliland Instrument Co.	Oakland, Calif.	NObsr-71243	$123.55
		NObsr-75080	$159.37
Metronix Inc.	Chesterland, Ohio	NObsr-71820	$114.40
Waterman Products Co. Inc.	Philadelphia, Pa.	NObsr-75655	$119.37

18 February 1963 GENERATOR, SIGNAL AN/USM-28

Cog Service: USA FSN: Functional Class: 4.1.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	

MANUFACTURER'S NAME/CODE NUMBER: Kay Electric Co., (80138).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Generator, Signal AN/USM-28 is a frequency-sweeping oscillator which may be used with a cathode-ray oscilloscope to display the frequency response characteristics of RF and IF circuits. A sawtooth voltage, synchronized with the sweep rate, is available for use as an oscilloscope sweep voltage.

No field changes in effect at time of preparation (11 June 1962).

TECHNICAL CHARACTERISTICS:

CENTER FREQUENCIES: 30, 60 mc.
DEVIATION: Porm 10 mc; porm 1.5 mc.
SWEEP RATE: Variable around 60 cps; locks to line frequency.
RF OUTPUT AMPLITUDE: Continuously variable from 0 to 250 v rms; flat within 0.05 db/mc.
ATTENUATION: 20, 20 and 10 db fixed; 0 to 6 db variable.
MARKERS: Four supplied at 25, 35, 55, 65 mc; switching provision in front panel for others which are not supplied.
MARKER AMPLITUDE: 0 to 10 v positive.
SAW TOOTH AMPLITUDE: 0 to 7 v.
POWER REQUIREMENTS: 115 v porm 10%, 50 to 60 cps, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Generator, Signal AN/USM-28 includes:		10-1/2 x 11 x 18	
1	Signal Generator			
1	Case			
1	Cable Assy			

REFERENCE DATA AND LITERATURE:

AN/USM-28 GENERATOR, SIGNAL

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USA

DESIGN COG: USA, Sig C

SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Kay Electric Co.	Pine Brook, N. J.		

20 June 1962 — GENERATOR, SIGNAL AN/USM-30

Cog Service: USAF FSN: — Functional Class: 4.1.2

USA USN USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER:

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Signal Generator AN/USM-30 generates audio super-sonic and low radio frequencies. It is used as a general test oscillator in the field for free point servicing of various radio equipments.

No field changes in effect at time of preparation (22 May 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 20 to 200,000 cyc, 4 bands.
SIGNAL OUTPUT: 0 to 10 v (variable), 7 ranges.
POWER REQUIREMENTS: 110 v, 50 to 1,000 cyc, single ph.

RELATION TO OTHER EQUIPMENT:

This equipment is interchangeable with Audio Oscillator TS-382/U, but of a different design and miniaturized.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/USM-30 includes:			
1	Generator, Signal SG-72/USM-30			
1	Cord CX-237/U			
1	Cord CX-409/U			
1	Adapter Connector UG-514/U			
1	Dummy Load, Electrical DA-35/U			
2	Technical Manual			

REFERENCE DATA AND LITERATURE: None.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

AN/USM-30 GENERATOR, SIGNAL

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

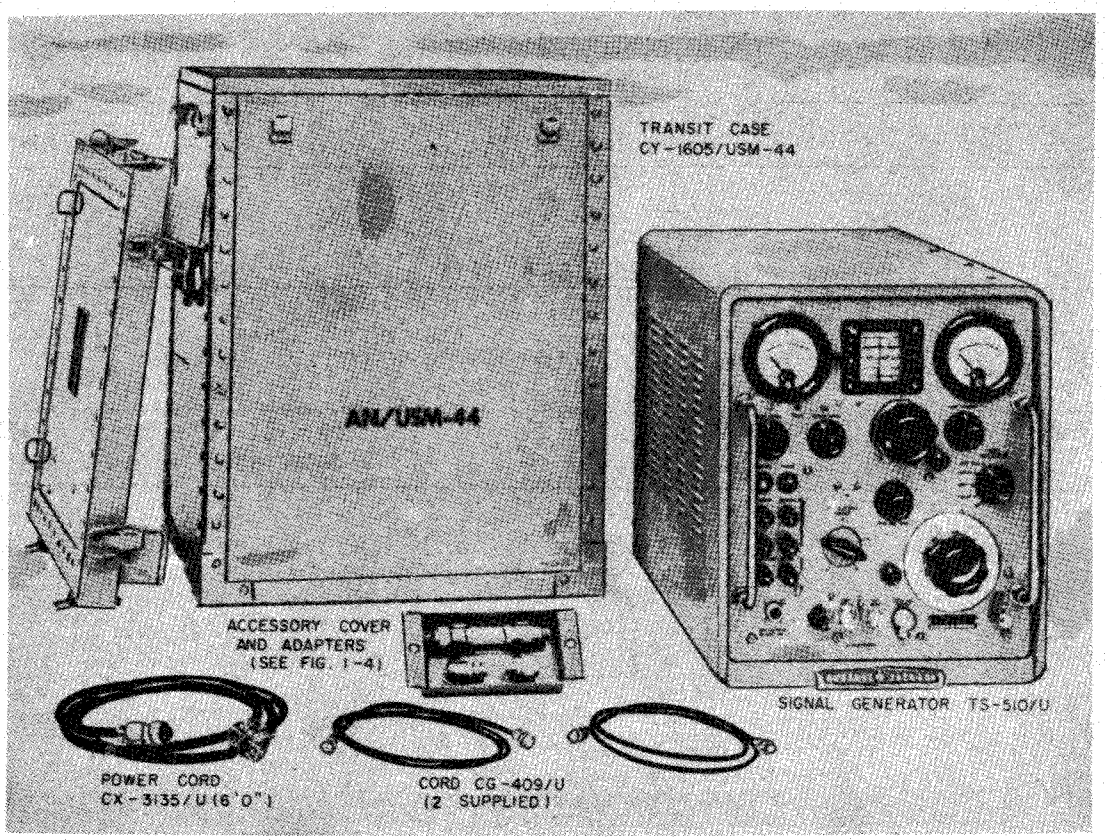
PROCURING SERVICE: USAF DESIGN COG: USAF
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST

April 1959

Test-Signal Generating

SIGNAL GENERATOR AN/USM-44



Signal Generator AN/USM-44

FUNCTIONAL DESCRIPTION

Signal Generator AN/USM-44 is a portable instrument for testing, calibrating, or troubleshooting VHF radio equipment and measuring standing wave ratios, antenna and transmission line characteristics, and receiver sensitivity when used in conjunction with other test equipment.

No field changes in effect at time of preparation (22 June 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v or 230 v, 50 to 1,000 cy, 1 ph.
FREQUENCY RANGE: 10 to 420 mc in five bands.
TYPE OF EMISSION: AM, CW, PM.
OUTPUT VOLTAGE: 0.1 uv to 0.5 v.
MODULATION FREQUENCY: 400 cy to 1,000 cy (int) ±5%; 100 cy to 20 kc (ext).
FREQUENCY STABILITY: Less than 0.005%.
INPUT IMPEDANCE
EXTERNAL SINE MODULATION: 20,000 ohms shunted by 50 uuf.
EXTERNAL PULSE MODULATION: 50,000 ohms shunted by 40 uuf.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co., Palo Alto, California.
Contract NOas-53-853-i, dated 15 September 1954.

AN/USM-44 SIGNAL GENERATOR

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5651	(1) 5670
(1) 5675	(1) 5687
(1) 5876	(1) 5726/6AL5W
(2) 6080	(2) 5814/12AU7
(2) 6AH6	(3) 6AU6WA
(1) 6BD4	(3) 6CL6
(2) 12AT7WA	

Total Tubes: (21)

(1) G11A	(1) 1N34
(2) 1N82	

Total Crystals (4)

REFERENCE DATA AND LITERATURE

NAVAER 16-30USM44-501: Handbook Operating Instructions for SIGNAL GENERATOR AN/USM-44 and AN/USM-44A.

NAVAER 16-30USM44-502: Handbook Service Instructions for SIGNAL GENERATOR AN/USM-44 and AN/USM-44A.

NAVAER 16-30USM-44-503: Handbook Overhaul Instructions for SIGNAL GENERATOR AN/USM-44 and AN/USM-44A.

TYPE CLASSIFICATION STD
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE SPEC MIL-G-7702 (AER)
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

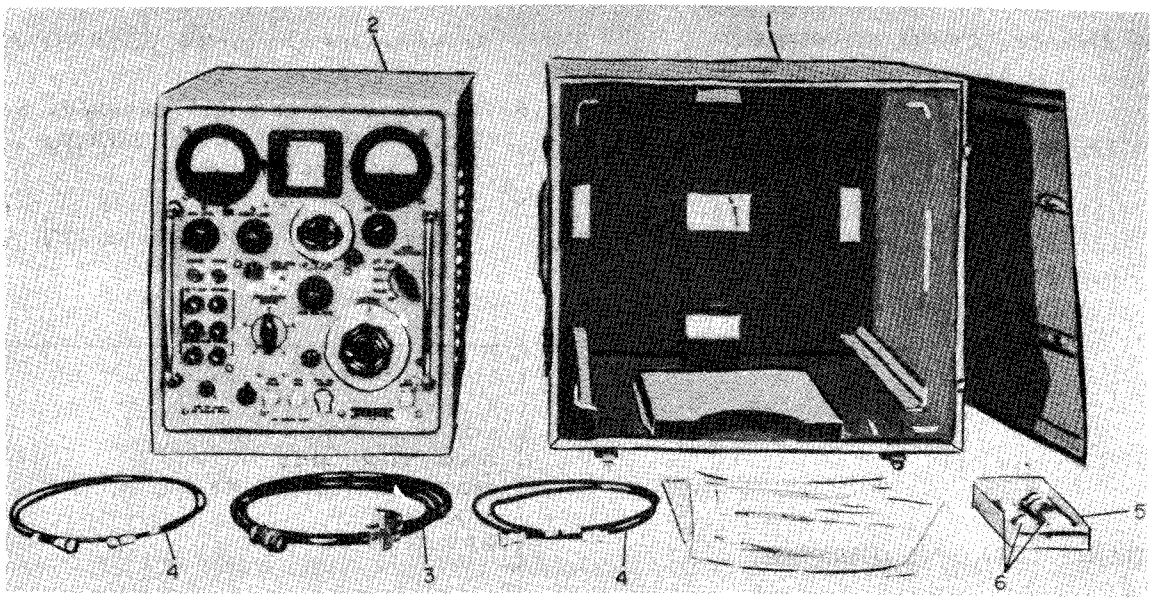
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator AN/USM-44 Including:		
1	Signal Generator TS-510/U	13-3/4 X 16 X 20	62
1	Transit Case CY-1605/USM-44	17-5/8 X 20 X 24	32
2	Cord CG-409/U	48 lg	0.2
1	Cord CX-3135/U	72 lg	0.6
1	Connector Adapter UG-201A/U		
1	Connector Adapter UG-349A/U		
1	RF Output Fuse Mount MX-1730/U	3/4 dia X 4-5/8	0.4
1	Wrench	3/4 dia X 2-7/8	0.2

April 1959

Test-Signal Generating

SIGNAL GENERATOR AN/USM-44A



Signal Generator AN/USM-44A

FUNCTIONAL DESCRIPTION

Signal Generator AN/USM-44A is a portable instrument for testing, calibrating, or troubleshooting VHF radio equipment and measuring standing wave ratios, antenna and transmission line characteristics, and receiver sensitivity when used in conjunction with other test equipment.

No field changes in effect at time of preparation (22 June 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v, 50 to 420 cy, 1 ph.
FREQUENCY RANGE: 10 to 420 mc in five bands.
TYPE OF EMISSION: AM, CW, PM.
OUTPUT VOLTAGE: 0.1 uv to 0.5 v.
MODULATION FREQUENCY: 400 cy to 1,000 cy (int) ±5%; 100 cy to 20 kc (ext).
FREQUENCY STABILITY: Less than 0.005%.
INPUT IMPEDANCE
EXTERNAL SINE MODULATION: 20,000 ohms shunted by 50 uuf.
EXTERNAL PULSE MODULATION: 50,000 ohms shunted by 40 uuf.

MANUFACTURER'S OR CONTRACTOR'S DATA

Nuclear Electronics Corp., Philadelphia, Pa.
Contract N383s-17765A, dated 15 October 1957.
Hewlett-Packard Co., Palo Alto, California.
Contract N383-3733A.
Contract N383-36708A.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5651	(1) 5670
(1) 5675	(1) 5687
(1) 5726/6AL5W	(2) 5814/12AU7
(1) 5876	(2) 6080
(2) 6AH6	(2) 6AU6WA
(1) 6BD4	(3) 6CL6
(1) 6U8	(2) 12AT7WA

Total Tubes: (21)

Test-Signal Generating

April 1959

AN/USM-44A SIGNAL GENERATOR

(1) G11A (1) 1N34 (2) 1N82

Total Crystals: (4)

NAVAER 16-30USM44-503: Handbook Overhaul Instructions for SIGNAL GENERATOR AN/USM-44 and AN/USM-44A.

REFERENCE DATA AND LITERATURE

NAVAER 16-30USM44-501: Handbook Operating Instructions for SIGNAL GENERATOR AN/USM-44 and AN/USM-44A.

NAVAER 16-30USM44-502: Handbook Service Instructions for SIGNAL GENERATOR AN/USM-44 and AN/USM-44A.

TYPE CLASSIFICATION STD

DESIGN COGNIZANCE BUAER

PROCUREMENT COGNIZANCE SPEC MIL-G-7702A (AER)

STOCK NO.

R.D.B. IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator AN/USM-44A Including:		
1	Signal Generator TS-510A/U	13-3/4 X 16 X 20	62
1	Transit Case CY-2105A/USM-44A	17-5/8 X 20 X 24	32
2	Cord CG-409/U	48 lg	0.2
1	Cord CX-3135/U	72 lg	0.6
1	Connector Adapter UG-201A/U		
1	Connector Adapter UG-349A/U		
1	RF Output Fuse Mount MX-1730/U	3/4 dia X 4-5/8	0.4
1	Wrench	3/4 dia X 2-7/8	0.2

25 February 1963 — GENERATOR, SIGNAL AN/USM-47

Cog Service: USN FSN: — Functional Class: 4.1.2

USA | USN | USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Company, (28480).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Generator, Signal AN/USM-47 is a portable instrument for testing VHF radio equipment. No field changes in effect at time of preparation (10 August 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10,000 to 15,500 mc.
OUTPUT RANGE: 10 mw to 1 pw.
MODULATION: Internal or external pulsed, fm, or square wave.
INTERNAL PULSE MODULATION: Repetition rate variable from 40 to 4,000 pps.
INTERNAL SQUARE WAVE MODULATION: Variable 40 to 4,000 cps.
INTERNAL FREQUENCY MODULATION: Power line frequency, deviation up to porm 5 mc.
EXTERNAL PULSE MODULATION
AMPLITUDE: 15 to 70 v peak, pos or neg.
WIDTH: 0.5 to 2,500 usec.
EXTERNAL FREQUENCY MODULATION: Max deviation approx porm 5 mc.
POWER REQUIREMENTS: 200 W, 115 v porm 10%, 50 to 60 cyc, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator AN/USM-47 includes:			
1	Signal Generator SG-227/USM-47		14 x 15 x 17	
1	Adapter, Waveguide UG-1247/U			
1	Adapter, Waveguide UG-1248/U			
1	Case, Signal Generator CY-2147/USM			
1	Cable Assy, RF CG-409/U			
1	Waveguide Assy CG-1556/U			
1	Cable Assy, Power, Electrical CX-3277/U			

AN/USM-47 GENERATOR, SIGNAL

REFERENCE DATA AND LITERATURE:

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2WA (4) 12AT7WB (1) 5651WA (1) 5687WA (2) 5696 (2) 5726/6AL5W
(3) 6AU6WB (1) 6X4WA (1) 6005/6AQ5W (1) 6080WA (1) V-39B

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N198

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuWeps
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Company Model no. 626A	Palo Alto, California		

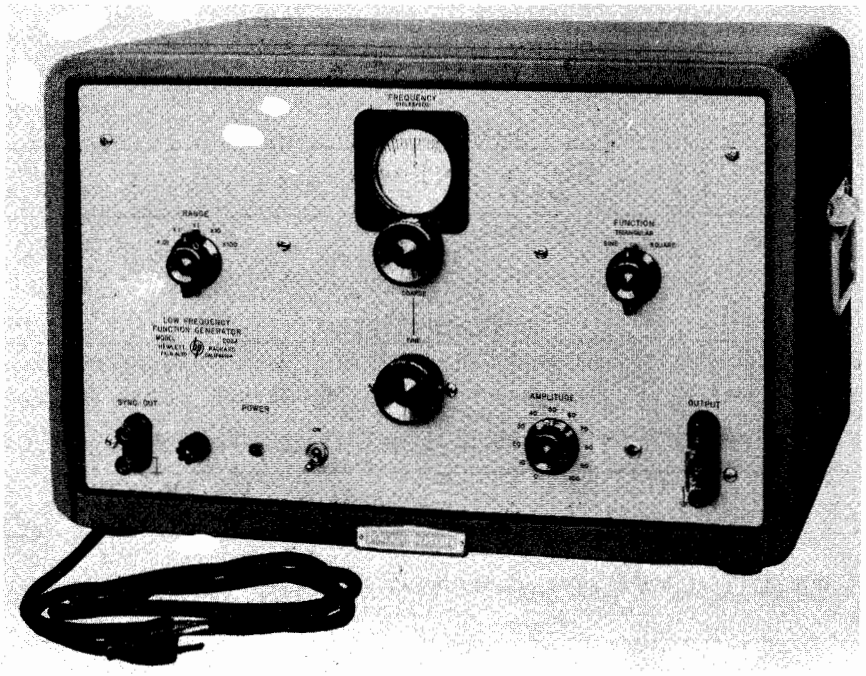
27 June 1962 | LOW FREQUENCY FUNCTION GENERATOR CAQI-202A

Cog Service: | FSN: 6625-649-2032 | Functional Class:

USA | USN | USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co.



Low Frequency Function Generator CAQI-202A

FUNCTIONAL DESCRIPTION:

Low Frequency Function Generator 202A is a compact and versatile source of transient-free test voltages between 1,200 and 0.008 cycles per second. It is useful for any general purpose low frequency testing application. Three types of output waveform are available; sine, square, and triangular. Also, a sync output pulse is available for external use.

No field changes in effect at time of preparation (28 February 1961).

TECHNICAL CHARACTERISTICS:

PORTABLE
FREQUENCY RANGE: 0.008 to 1,200 cps in five decade ranges.
DIAL ACCURACY: 2% from 1.2 to 12; 3% from 0.8 to 1.2.
FREQUENCY STABILITY: Within 1% including warm-up drift.

CAQI-202A LOW FREQUENCY FUNCTION GENERATOR

OUTPUT WAVEFORMS: Sinusoidal, square, and triangular.
MAXIMUM OUTPUT VOLTAGE: At least 30 v peak-to-peak across rated load (4,000 ohms) for all three waveforms.
INTERNAL IMPEDANCE: Approx. 40 ohms over the entire range.
SINE WAVE DISTORTION: Less than 2% on a 100 range. Less than 1% on all other ranges.
FREQUENCY RESPONSE: Constant within 0.2 db.
HUM LEVEL: Less than 0.01% of maximum output.
SYNC PULSE: 10 v peak negative, less than 5 usec duration. Sync pulse occurs at crest of sine and triangular wave output.
POWER: 115/230 v porm 10%, 50/1,000 cps, 175 W.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Cable Assemblies AC-16A or AC-16B.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Low Frequency Function Generator 202A		12.5 x 14.5 x 20.5	43

REFERENCE DATA AND LITERATURE:

Technical Manual for Low Frequency Function Generator HP model 202A, serial 3007 and above.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (1) 0A3 (1) 5U4GA/B (3) 6AL5 (3) 6AU6 (2) 6AV5GT/6AU5GT (1) 6C4 (3) 12AU7 (3) 12AX7 (1) HP-212-G11A (12) HP-G29A-45A

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1*	4.76	63
1**	6.77	68

* Packaged for Domestic Shipment.
** Packaged for Export Shipment.

PROCUREMENT DATA

PROCURING SERVICE:
SPEC &/OR DWG:

DESIGN COG: Commercial

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 202A	Palo Alto, Calif.	NObsr-75109	$485.83

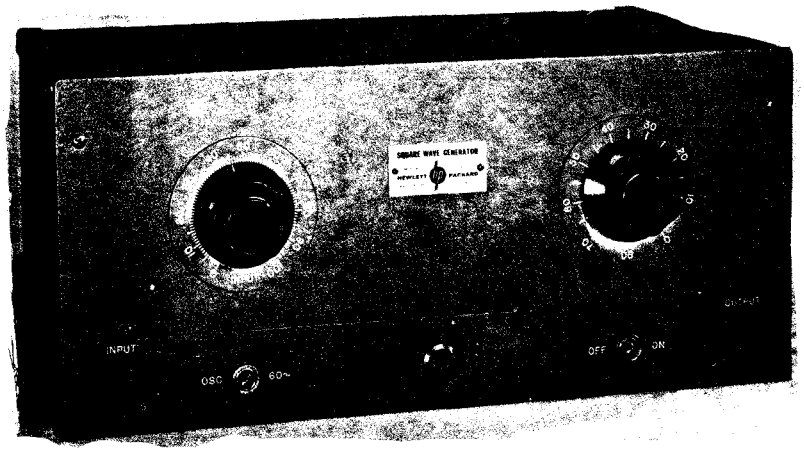
17 May 1962 | SQUARE WAVE GENERATOR CAQI-210A

Cog Service: USN FSN: 6625-669-9559 | Functional Class: 4.3

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Square Wave Generator CAQI-210A

FUNCTIONAL DESCRIPTION:

Square Wave Generator CAQI-210A is a portable instrument providing an internally generated square-wave voltage output at the frequency of the line voltage. Synchronized with an external sine wave generator, it is used in testing the frequency and transient response of audio amplifiers or networks as well as in timing measurements.

No field changes in effect at time of preparation (5 March 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 100 W, 115 v, 50 to 60 cyc, single ph.
FREQUENCY RANGE: 20 cyc to 10 kc.
INPUT VOLTAGE: 2 to 200 v.
INPUT IMPEDANCE: 25,000 ohms.
OUTPUT VOLTAGE: 50 v peak to peak, open circuit.

CAQI-210A SQUARE WAVE GENERATOR

OUTPUT VOLTAGE WAVE SHAPE: Voltage rises to 90% of max in 1 usec. Flat top of wave decays less than 1%.
OUTPUT IMPEDANCE: 1,000 ohms balanced to grd.
OUTPUT ATTENUATOR: 0 to 70 db in 5 db steps.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Square Wave Generator CAQI-210A		7-1/4 x 10-5/8 x 15-1/4	37

REFERENCE DATA AND LITERATURE:

Instruction and Operating Manual for Square Wave Generator Model 210A, serial 1112 and above.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 5Y3GT (1) 6SF5 (2) 6SJ7 (4) 6V6

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: Commercial
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co.	Palo Alto, Calif.		

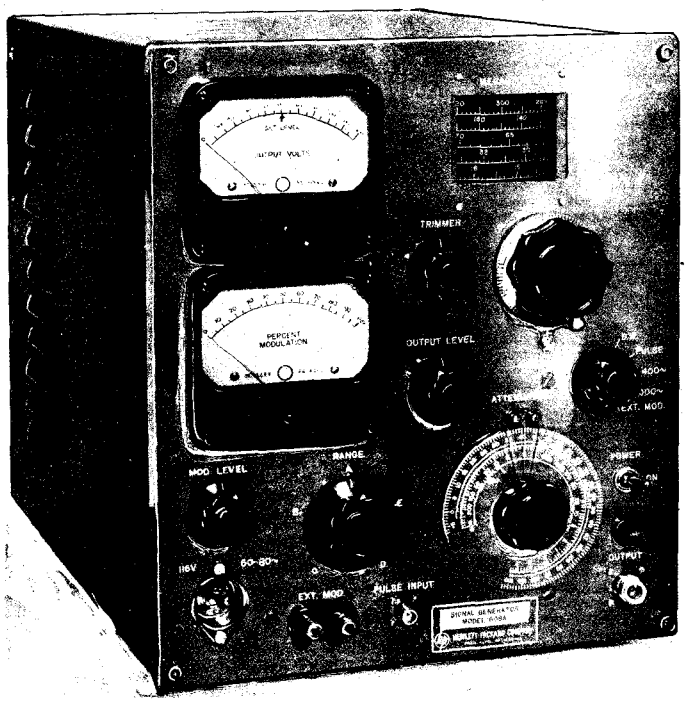
1 March 1963 | SIGNAL GENERATOR CAQI-608A

Cog Service: USN | FSN: F6625-643-1540 | Functional Class: 4.1.2

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Signal Generator CAQI-608A

FUNCTIONAL DESCRIPTION:

Signal Generator CAQI-608A provides 0.1 uv to 1.0 v rf signals between 10 and 500 mc. It may be sine-wave modulated internally or externally and pulse modulated externally.

No field changes in effect at time of preparation (25 August 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10 to 500 mc, 5 bands.
TUNING CONTROL: Main dial calibrated in mc.
FREQUENCY CALIBRATION ACCURACY: Porm 1% full range.
RESETTABILITY: Better than 1 mc at high frequencies.
OUTPUT LEVEL: 0.1 uv to 1.0 v into 50 ohm resistive load.
VOLTAGE ACCURACY: Porm 1 db full range.
GENERATOR IMPEDANCE: 50 ohms, max SWR 1.2.

CAQI-608A SIGNAL GENERATOR

MODULATION PERCENTAGE: 0 to 90%.
ENVELOPE DISTORTION: Less than 2.5% at 30% modulation.
INTERNAL MODULATION: 400 cps porm 10% and 1000 cps porm 10%.
EXTERNAL MODULATION: 0 to 90%, 50 cps to 1 mc.
EXTERNAL PULSE MODULATION: 4 v peak pulse required. Good pulse shape at 1 usec.
POWER REQUIREMENTS: 115 or 230 v porm 10%, 50 to 60 cps, 150 W.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-608A		12 x 15 x 20-1/4	55

REFERENCE DATA AND LITERATURE:

Instruction and Operating Manual for Model 608A VHF Signal Generator.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 5U4G (2) 6AC7 (1) 6AS7 (1) 6H6 (2) 6L6 (1) 6SJ7 (1) 6SN7 (1) 5876
(1) 5893 (1) VR75

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N34A (1) G7

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		75

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: Commercial
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 608A	Palo Alto, Calif.	NObsr-52351	

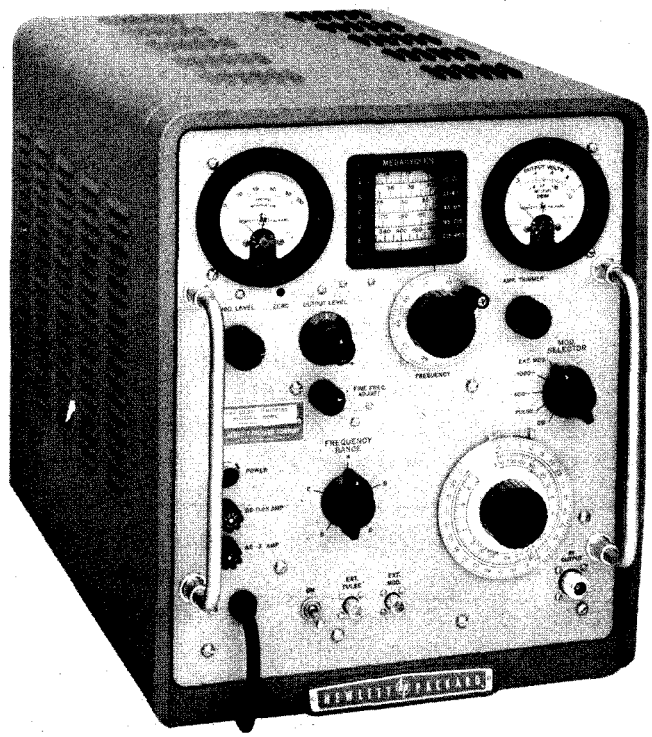
18 February 1963 | Generator, Signal CAQI-608C

Cog Service: USN FSN: F6625-538-9879 | Functional Class: 4.1.2

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Company, (28480).



Generator, Signal CAQI-608C

FUNCTIONAL DESCRIPTION:

Generator, Signal CAQI-608C is a general purpose test instrument which provides 0.1 uv to 1.0 v rf signals between 10 and 480 mc. It may be sine-wave modulated internally or externally and pulse modulated externally.

No field changes in effect at time of preparation (25 August 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10 to 480 mc, 5 bands.

TUNING CONTROL: Main dial calibrated in mc. Vernier interpolation dial. 45 in. scale length. Calibrated every other mc, 130 to 270 mc; every 5 mc, above 270 mc.

FREQUENCY CALIBRATION ACCURACY: Porm 1% full range.

RESETTABILITY: Better than porm 0.1% after warm-up.

FREQUENCY DRIFT: Less than 0.005% over 10 minute interval after warm-up (except following a

band change).
OUTPUT LEVEL: 0.1 uv to 1.0 v into 50 ohm resistive load.
VOLTAGE ACCURACY: Porm 1 db full range.
GENERATOR IMPEDANCE: 50 ohms, max. SWR 1.2.
MODULATION PERCENTAGE: 0 to 95% at output of 0 dbm and below.
ENVELOPE DISTORTION: Less than 5% at 30% sine wave modulation; less than 10% at 50% sine wave modulation.
INTERNAL MODULATION: 400 cps porm 10% and 1000 cps porm 10%.
EXTERNAL MODULATION: 0 to 95%, 20 cps to 20 kc. For rf output above 100 mc, modulation frequencies up to 1 mc produce at least 30% modulation.
EXTERNAL PULSE MODULATION: 5 v peak pulse required. Good pulse shape at 1 usec.
POWER REQUIREMENTS: 220 W, 115/230 v porm 10%, 50 to 1000 cyc, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

Available as accessories are the Hewlett-Packard Model 608A-16D Output Cable, AC-16K Video Cable Assy, AC-16-F RF Cable Assy, 360A Low Pass Filter, and 608-95A Fuse Holder.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-608C		13-1/4 x 16-3/8 x 21	62

REFERENCE DATA AND LITERATURE:

Operating and Service Manual for Model 608C VHF Signal Generator, Serials Prefixed: 010-.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 6AH6 (2) 6AU6 (1) 6BQ7A (3) 6CL6 (2) 12AU7 (1) 5651 (1) 5675
(1) 5726/6AL5 (1) 5876 (2) 6080/6AS7 (1) 7119

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N218 (1) 1N38A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8	88

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: Commercial

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Company Model no. 608C	Palo Alto, California	NObsr-81333	$1,000.00
		NObsr-85138	925.06
		NObsr-85327	1,012.92
		NObsr-87114	1,017.06
		NObsr-87184	1,012.00

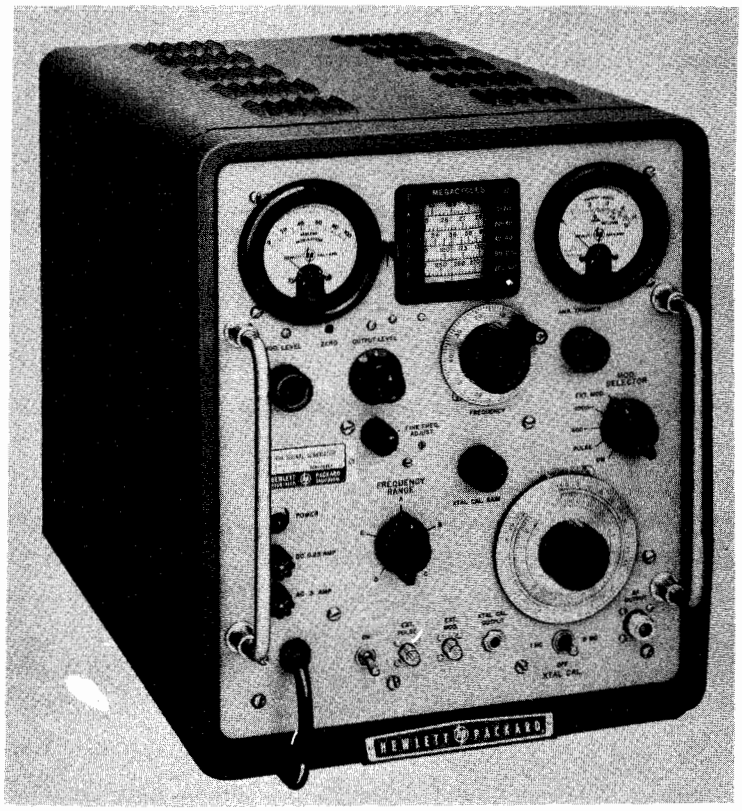
5 March 1963 SIGNAL GENERATOR CAQI-608D

Cog Service: USN FSN: F6625-649-5262 Functional Class: 4.1.2

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Company, (28480).



Signal Generator CAQI-608D

FUNCTIONAL DESCRIPTION:

Signal Generator CAQI-608D provides 0.1 uv to 0.5 v rf signals between 10 and 420 mc. It may be sine-wave modulated internally or externally and pulse modulated externally.

No field changes in effect at time of preparation (25 August 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10 to 420 mc, 5 bands.

TUNING CONTROL: Main dial calibrated in mc. Vernier interpolation dial. 45 in. scale length. Calibrated every other mc, 130 to 270 mc; every 5 mc, above 270 mc.

FREQUENCY CALIBRATION ACCURACY: Porm 0.5% full range.

RESETTABILITY: Better than porm 0.1% after warm-up.

CRYSTAL CALIBRATOR: Frequency check points every 1 and 5 mc through range. Headphone jack for audio frequency output.

CAQI-608D SIGNAL GENERATOR

FREQUENCY DRIFT: Less than 0.005% over 10-minute interval after warm-up (except following a band change).
OUTPUT LEVEL: 0.1 uv to 0.5 v into 50-ohm resistive load.
VOLTAGE ACCURACY: Porm 1 db full range.
GENERATOR IMPEDANCE: 50 ohms, maximum SWR 1.2.
MODULATION PERCENTAGE: 0 to 95% at output of 0 dbm and below.
ENVELOPE DISTORTION: Less than 5% at 30% sine wave modulation; less than 10% at 50% sine wave modulation.
INTERNAL MODULATION: 400 cps porm 10% and 1,000 cps porm 10%.
EXTERNAL MODULATION: 0 to 95%, 20 cps to 20 kc. For rf output above 100 mc, modulation frequencies up to 1 mc produce at least 30% modulation.
EXTERNAL PULSE MODULATION: 5 v peak pulse required. Good pulse shape at 1 usec.
POWER: 115 or 230 v porm 10%, 50 to 1,000 cps, 220 W.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

Available as accessories are the Hewlett-Packard Model 608A-16D Terminated Output Cable, the Hewlett-Packard Model AC-16K Video Cable Assembly (for external modulation), the Hewlett-Packard Model AC-16F RF Cable Assembly, the Hewlett-Packard Model 360A Low Pass Filter, and the Hewlett-Packard Model 608A-95A Fuseholder.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-608D		13-1/4 x 16-3/8 x 21	62
2	Operating and Service Manual			1

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93338: Operating and Servicing Manual for Hewlett-Packard Model 608D VHF Signal Generator (Serials Prefixed: 010-).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 6AH6 (2) 6AU6 (1) 6AL5/5726 (1) 6BQ7A (1) 6BC4 (3) 6CL6 (1) 6U8
(2) 12AT7 (2) 12AU7 (1) 5651 (1) 5675 (1) 5687/7119 (1) 5876

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N21B (1) 1N38A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8	88

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: Commercial
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 608D	Palo Alto, Calif.	NObsr-75890, 26 June 1959	$1,145.08
		NObsr-81557, 27 June 1960	$1,022.51
		NObsr-85147	$1,100.00

14 February 1963 **GENERATOR, SIGNAL CAQI-612A**

Cog Service: USN **FSN: F6625-539-9674** **Functional Class: 4.1.2**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).

Generator, Signal CAQI-612A

FUNCTIONAL DESCRIPTION:

Generator, Signal CAQI-612A is an all-purpose, precision signal generator covering the frequency band between 450 and 1230 mc in one continuous range. It is used for measurements in UHF television broadcasting, studio-transmitter links, public service communications, citizen's radio, marine communication systems, and aeronautical radio-navigation networks. In the laboratory it is also a convenient power source for driving bridges, slotted lines, antennas and filter networks.

No field changes in effect at time of preparation (25 August 1962).

TECHNICAL CHARACTERISTICS:

PORTABLE

FREQUENCY RANGE: 450 to 1230 mc.

CALIBRATION ACCURACY: Within porm 1%.

CAQI-612A GENERATOR, SIGNAL

OUTPUT VOLTAGE: 0.1 uv to 0.5 v into 50-ohm load.
OUTPUT ACCURACY: Porm 1 db.
INTERNAL IMPEDANCE: 50 ohms. Maximum SWR 1.2.
AMPLITUDE MODULATION: 0 to 90% at af, indicated by panel meter. Accuracy, porm 10% of reading, 30% to 90% modulation.
FM DUE TO AMPLITUDE MODULATION: Less than 0.002% for 30% AM.
INTERNAL MODULATION: 400 cps and 1000 cps porm 10%. Envelope distortion less than 2% at 30% af modulation.
EXTERNAL MODULATION: 20 cps to 5 mc. Above 470 mc, 2 v rms produces 85% AM at modulating frequencies up to 1 mc; at least 40% AM at 5 mc. Modulation may be up or down from the carrier level or symmetrical about the carrier level.
PULSE MODULATION: Positive or negative. 4 to 40 v peak. Minimum rf output pulse length, 0.2 u sec for 20 db rf on-off ratio. Minimum rf output pulse length, 1.0 usec for no rf output during off time.
POWER: 115/230 v porm 10%, 50/1000 cps, 215 watts.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

The CAQI-AC-16F RF Cable Assy can be used to extend the rf output connection. The CAQI-AC-16K Video Cable Assy can be used to couple in a desired external modulation. The CAQI-360B Low Pass Filter can be used where harmonic output must be reduced to a minimum, as in slotted line measurements.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-612A		13.5 x 16.5 x 21.5	57
2	Technical Manual NAVSHIPS 93665		0.5 x 8.5 x 11	1

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93665: Operating and Service Manual for UHF Signal Generator Hewlett-Packard Model 612A (Serials Prefixed 004-).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 5671 (1) 5675 (1) 5687 (1) 5876 (2) 6AH6 (1) 6AL5 (2) 6AU6 (1) 6BQ7A (3) 6CL6 (2) 6080 (2) 12AU7

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N21B (1) 1N55A (4) 1N2071 (4) CAQI-212-147 (2) Transitron Type G12 (1) Transitron Type G11A

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	7.4	83

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: Commercial

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 612A	Palo Alto, Calif	NObsr-81557	
		NObsr-85138	$1,109.06
		NObsr-87114	$1,201.06

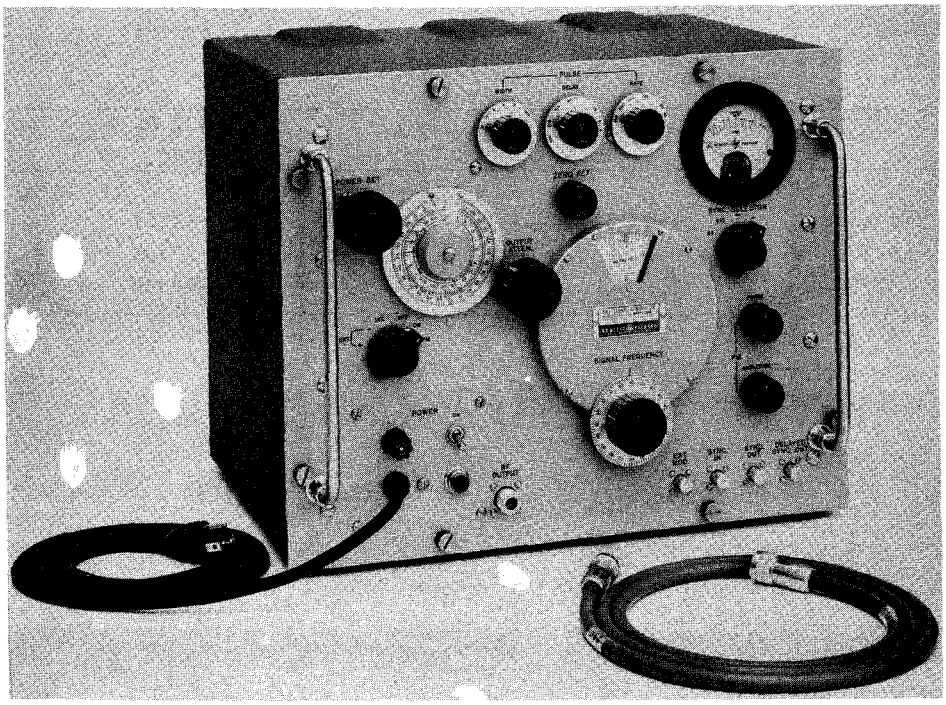
14 February 1963 | GENERATOR, SIGNAL CAQI-614A

Cog Service: USN | FSN: F6625-351-5958 | Functional Class: 4.1.2

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Generator, Signal CAQI-614A

FUNCTIONAL DESCRIPTION:

Generator, Signal CAQI-614A is a direct-reading, direct-control signal generator covering the frequency band between 800 and 2100 mc. It is used for testing and calibrating radar and UHF communications equipment, developing new equipment in the laboratory, and as a signal source for measuring standing wave ratio to determine the efficiency of antenna and transmission line systems.

No field changes in effect at time of preparation (25 August 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 800 to 2100 mc.
FREQUENCY CALIBRATION ACCURACY: Porm 1%.
FREQUENCY STABILITY: 0.005% deg C change in ambient temperature; line voltage changes of porm 10% cause less than 0.01% frequency change.

CAQI-614A GENERATOR, SIGNAL

OUTPUT RANGE: 1 mw or 0.223 v to 0.1 uv (0 dbm to M127 dbm). Attenuator accuracy porm 1 db from M10 dbm to M127 dbm.
INTERNAL IMPEDANCE: 50 ohms; SWR less than 1.6.
MODULATION: Internal or external pulse or fm.
INTERNAL PULSE MODULATION: PRR variable from 40 to 4000 per sec; pulse length variable from 1 to 10 usec; delay variable from 3 to 300 usec (between synchronizing signal and rf pulse). Pulse rise and decay less than 0.2 usec each.
EXTERNAL PULSE MODULATION: Pos or neg 40 to 70 v, width 1.0 usec to 2500 usec.
TRIGGER PULSE OUT: (1) Simultaneous with rf pulse; (2) In advance of rf pulse, variable 3 to 300 usec. (Both approx. 1.0 usec rise time, height 10 to 50 v).
EXTERNAL SYNC PULSE REQUIRED: 10 to 50 v, pos or neg; 1 to 20 usec width. May also be synchronized with sine waves.
FM MODULATION: Oscillator frequency sweeps at power line frequency. Phasing and sweep range controls provided. Max. deviation approx. porm 3 mc.
POWER REQUIREMENTS: 150 W, 115/230 v porm 10%, 50 to 1000 cyc, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

The Hewlett-Packard Model AC-16K Video Cable Assy can be used to couple in a desired external modulation. The Hewlett-Packard Model 3608 Low Pass Filter can be used to reduce harmonic output.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-614A		13.5 x 13.625 x 17.25	58
	includes:			
1	Cable Assy, RF CAQI-AC-16F		0.75 x 0.75 x 72	1
2	Technical Manual		0.5 x 8.5 x 11	1

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93666: Operating and Service Manual for Hewlett-Packard Model 614A, UHF Signal Generator (Serials Prefixed 289-).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2 (1) 082 (1) 5Y4GYA (1) 6AX5GT (4) 6C4 (3) 6J6 (1) 6SL7GT (1) 6Y6G (1) 12AT7 (1) 5837

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	6.7	82

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: Commercial
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 614A	Palo Alto, Calif.	NObsr-81333	$1,950.00
		NObsr-81557, 27 June 1960	
		NObsr-85147	$1,950.00

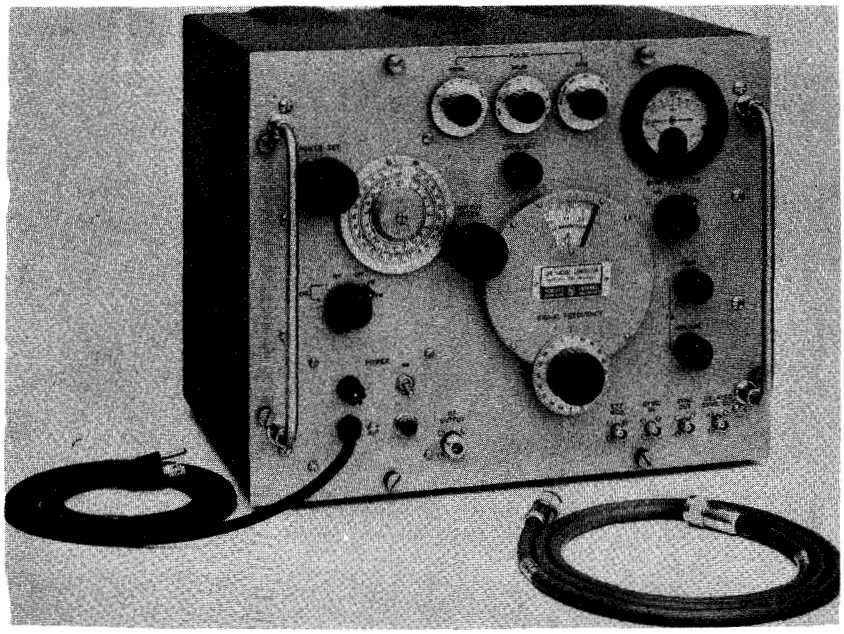
14 February 1963 SIGNAL GENERATOR CAQI-616B

Cog Service: USN FSN: F6625-783-6390 Functional Class: 4.1.2

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Signal Generator CAQI-616B

FUNCTIONAL DESCRIPTION:

Signal Generator CAQI-616B is a direct-reading, direct-control signal generator covering the frequency band between 1800 and 4200 mc. It is used for testing and calibrating radar and UHF communications equipment, developing new equipment in the laboratory, and as a signal source for measuring standing wave ratio to determine the efficiency of antenna and transmission line systems.

No field changes in effect at time of preparation (15 September 1960).

TECHNICAL CHARACTERISTICS:

PORTABLE

FREQUENCY RANGE: 1.8 to 4.2 kmc.

FREQUENCY CALIBRATION ACCURACY: Porm 1%.

FREQUENCY STABILITY: 0.005% deg C change in ambient temperature; line voltage changes of

porm 10 v cause less than 0.01% frequency change.
OUTPUT RANGE: 1 milliwatt or 0.223 v to 0.1 uv (0 dbm to M127 dbm).
ATTENUATOR ACCURACY: Within porm 1.5 db from M7 dbm to M127 dbm without correction charts.
INTERNAL IMPEDANCE: 50 ohms, nominal, SWR less than 1.8.
MODULATION: Internal or external pulse or fm.
INTERNAL PULSE MODULATION: PRR, 40 to 4000 per second; pulse length, 1 to 10 usec; and delay, 3 to 300 usec (between synchronizing signal and rf pulse).
EXTERNAL PULSE MODULATION: Positive or negative, 40 to 70 v, width 2 usec to 2500 usec.
TRIGGER PULSES OUT: (1) Simultaneous with rf pulse; (2) In advance of rf pulse, variable 3 to 300 usec. (Both approximately 1.0 usec rise time, height 10-50 volts.)
EXTERNAL SYNC PULSE REQUIRED: Positive or negative, 10 to 50 volts, 1 to 20 usec width. May also be synchronized with sine waves.
FM MODULATION: Oscillator frequency sweeps at power line frequency. Maximum deviation approximately porm 5 mc.
POWER: 115/230 v porm 10%, 50/1000 cps, 160 watts.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

The Hewlett-Packard Model AC-16K Video Cable Assembly can be used to couple in a desired external modulation. The Hewlett-Packard Model 360B Low Pass Filter can be used to reduce harmonic output.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-616B		13.5 x 13.63 x 17.25	60
1	RF Cable Assembly AC-16F (CAQI)		0.75 x 0.75 x 72	1
2	Technical Manual NAVSHIPS 93667		0.5 x 8.5 x 11	1

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93667: Operating and Service Manual for UHF Signal Generator 616B.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A2 (3) 0B2 (1) 5R4GYA (1) 5836 (4) 6C4 (2) 6AX5GT (3) 6J6
(1) 6SL7GT (1) 6Y6G (1) 12AT7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	6.7	83

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: Commercial
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 616B	Palo Alto, Calif.	NObsr-81557, 27 June 1960	$1,036.30
		NObsr-85147	$1,950.00

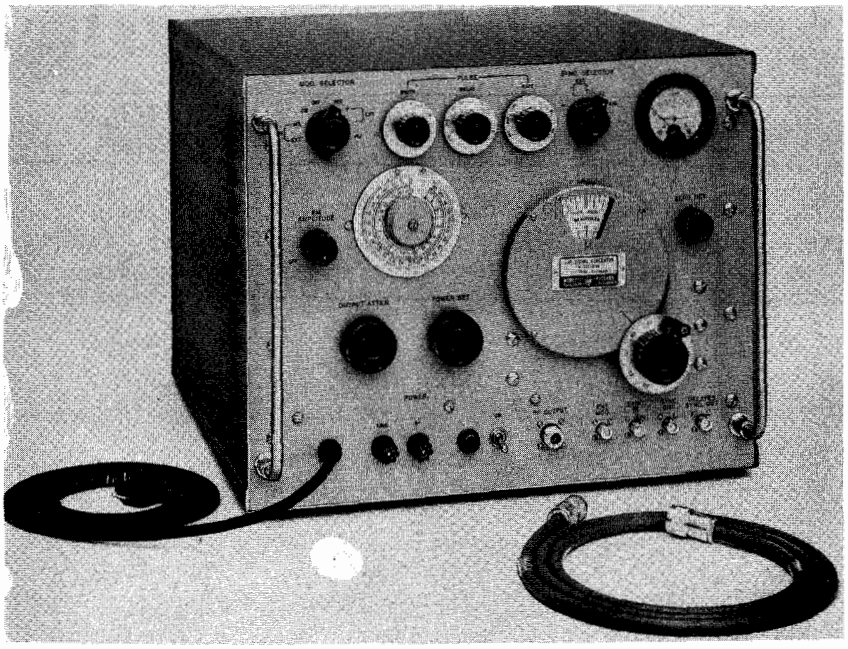
28 February 1963
Cog Service: USN FSN: F6625-816-3079

SIGNAL GENERATOR CAQI-618B
Functional Class: 4.1.2

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Signal Generator CAQI-618B

FUNCTIONAL DESCRIPTION:

Signal Generator CAQI-618B is a klystron-controlled signal generator covering the frequency band between 3800 and 7600 mc. It is used for nearly all measurements requiring precisely known and controllable SHF signals of varied pulsed and modulation characteristics.

No field changes in effect at time of preparation (5 February 1963).

TECHNICAL CHARACTERISTICS:

PORTABLE

FREQUENCY RANGE: 3800 to 7600 mc.

CALIBRATION: Direct reading. Frequency calibration accuracy better than 1%.

FREQUENCY STABILITY: Frequency variation less than 0.006% deg C change in ambient temp. Line voltage change of porm 10 volts causes less than 0.02% frequency change.

CAQI-618B SIGNAL GENERATOR

OUTPUT RANGE: 1 mw or 0.223 v to 0.1 uv (0 dbm to M127 dbm) into 50 ohms.
OUTPUT ACCURACY: Within porm 2 db, M7 dbm to M127 dbm into 50 ohms.
INTERNAL IMPEDANCE: 50 ohms nominal. SWR less than 2.
MODULATION: Internal or external pulse, fm, square wave.
INTERNAL PULSE MODULATION: PRR from 40 to 4000 pps, pulse width 0.5 to 10 usec.
SYNC OUT SIGNALS: Positive; simultaneous with rf pulse or from 30 to 300 usec in advance. Better than 1 usec rise time and 25 to 100 volts amplitude into 1000 ohm load.
EXTERNAL SYNCHRONIZATION; SINE WAVE: 40 to 4000 cps, 5 to 50 v rms.
PULSE: 0 to 4000 pps, 5 to 50 v, positive and negative, 0.5 to 5 usec, rise time 0.1 to 1 usec.
INTERNAL SQUARE WAVE MODULATION: Variable 40 to 4000 cps.
INTERNAL FREQUENCY MODULATION: Sweep rate 40 to 4000 cps. Deviation to porm 3 mc.
EXTERNAL PULSE MODULATION: Positive or negative, 15 to 70 volts, 0.5 to 2500 usec.
EXTERNAL FREQUENCY MODULATION: Capacitive coupling to klystron repeller. Devia to porm 5 mc.
POWER: 115/230 v porm 10%, 50/60 cps, 275 watts.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

The Hewlett-Packard Model AC-16K Video Cable Assembly can be used to couple in desired external modulation.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-618B		13.88 x 17.5 x19.5	95
1	RF Cable Assembly AC-16Q(CAQI)		0.75 x 0.75 x 72	1
2	Technical Manual NAVSHIPS 93668		0.5 x 8.5 x 11	1

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93668: Operating and Service Manual for SHF Signal Generator 618B.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 0A2 (1) 0A3 (1) 2D21 (1) 5R4GYA (1) 5763 (3) 6AL5 (2) 6AS7G (1) 6236 (3) 6AU6 (2) 12AT7 (7) 12AU7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8	118

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: Commercial

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 6188	Palo Alto, Calif.	NObsr-81557, 27 June 1960 NObsr-75862	$1,601.64 $2.250.00

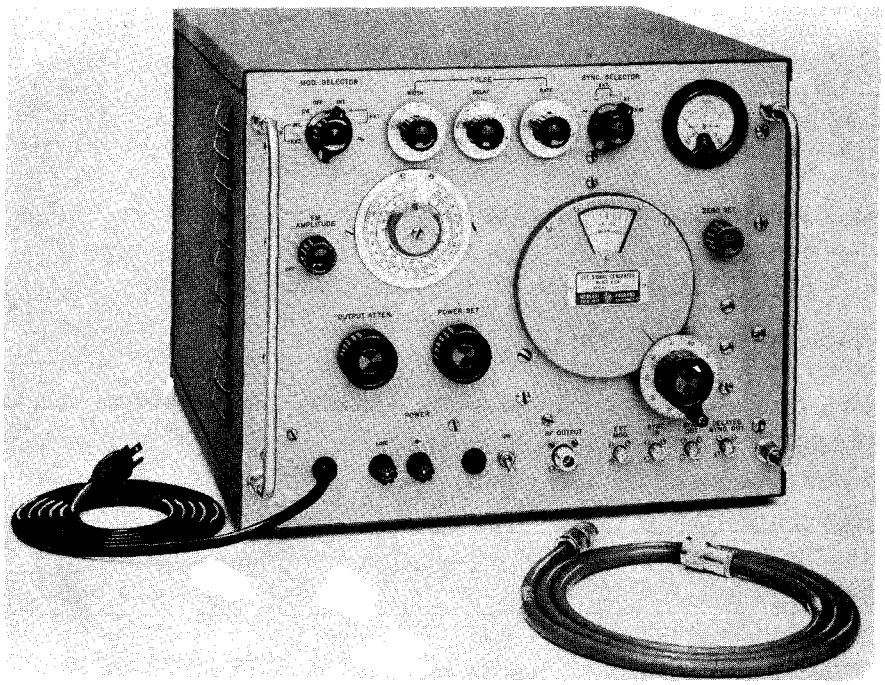
23 May 1962 SIGNAL GENERATOR CAQI-620A

Cog Service: FSN: 6625-553-1465 Functional Class:

USA USN USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co.



Signal Generator CAQI-620A

FUNCTIONAL DESCRIPTION:

Signal Generator CAQI-620A is a klystron-controlled signal generator covering the frequency band between 7,000 and 11,000 mc. It is used to measure receiver sensitivity, selectivity, signal-to-noise ratio, conversion gain, standing-wave ratio, antenna gain, and transmission-line characteristics.

No field changes in effect at time of preparation (15 September 1960).

TECHNICAL CHARACTERISTICS:

PORTABLE
FREQUENCY RANGE: 7,000 to 11,000 mc.
CALIBRATION: Direct reading. Frequency calibration accuracy better than 1%.
FREQUENCY STABILITY: Frequency variation less than 0.006%/deg C change in ambient temp. Line voltage change of porm 10 v causes less than 0.02% frequency change.

CAQI-620A SIGNAL GENERATOR

OUTPUT RANGE: 1 mw or 0.223 v to 0.1 uv (0 dbm to M127 dbm) into 50 ohms.
OUTPUT ACCURACY: Within porm 2 db, M7 dbm to M127 dbm into 50 ohms.
INTERNAL IMPEDANCE: 50 ohms nominal. SWR less than 2.
MODULATION: Internal or external pulse, FM, square wave.
INTERNAL PULSE MODULATION: PRR from 40 to 4000 pps, pulse width 0.5 to 10 usec.
SYNC OUT SIGNALS: Positive; simultaneous with RF pulse or from 30 to 300 usec in advance. Better than 1 usec rise time and 25 to 100 volts amplitude into 1000 ohm load.
EXTERNAL SYNCHRONIZATION SINE WAVE: 40 to 4000 cps, 5 to 50 v rms.
PULSE: 0 to 4000 pps, 5 to 50 v, positive and negative, 0.5 to 5 usec, rise time 0.1 to 1 usec.
INTERNAL SQUARE WAVE MODULATION: Variable 40 to 4000 cps.
INTERNAL FREQUENCY MODULATION: Sweep rate 40 to 4000 cps. Deviation to porm 3 mc.
EXTERNAL PULSE MODULATION: Positive or negative, 15 to 70 volts, 0.5 to 2500 usec.
EXTERNAL FREQUENCY MODULATION: Capacitive coupling to Klystron repeller. Deviation to porm 5 mc.
POWER: 115/230 v porm 10%, 50/60 cps, 275 watts.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

The Hewlett-Packard Model AC-16K Video Cable Assembly can be used to couple in desired external modulation.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator CAQI-620A		13.88 x 17.5 x 19.5	94
1	RF Cable Assembly CAQI-AC-16Q		0.75 x 0.75 x 72	1
2	Technical Manual NAVSHIPS 93669		0.5 x 8.5 x 11	1

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93669: Technical Manual for Signal Generator Model 620A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (5) 0A2 (1) 0A3 (1) 2D21 (1) 5R4GYA (3) 6AL5 (2) 6AS7G (3) 6AU6
(1) 6236 (2) 12AT7 (7) 12AU7 (1) 212-172 (Klystron)

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	8	117

PROCUREMENT DATA

PROCURING SERVICE:
SPEC &/OR DWG:

DESIGN COG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co. Model no. 620A	Palo Alto, Calif.	NObsr-75862	$2.250.00
		NObsr-81557, 27 June 1960	$1,075.68

4 April 1962 — LF-HF VIDEO TRANSLATOR CCUM/VT-132

Cog Service:	FSN:	Functional Class:
	USA USN USAF	

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Van Norman Industries Inc., Electronics Division.

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

The LF-HF Video Translator CCUM/VT-132, is a video-frequency, sweep generator developed as an accessory unit to extend the Transistron UHF-VHF Signal Generator SG-132 into the 20 kilocycle (KC) to 20 megacycle (MC) range. It may be used in conjunction with any sweep generator having outputs in the 50 to 70 mc band. It enables quantitative measurements of response peaks and valleys in video amplifier, low pass R.F. filters, and many other frequency-sensitivity networks.

No field changes in effect at time of preparation (3 July 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Portable, bench-mounted.
OUTPUT IMPEDANCE: 50 ohms.
OUTPUT LEVEL: M7 to M120 dbm.

RELATION TO OTHER EQUIPMENT:

The CCUM/VT-132 is designed to be used with, but not part of the Signal Generator SG-132.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	LF-HF Video Translator VT-132		7 x 8 x 13	13

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93400: Preliminary Data Form for LF-HF Video Translator CCUM/VT-132.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

CCUM/VT-132 LF-HF VIDEO TRANSLATOR

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: DESIGN COG: USN, BuShips
SPEC &/OR DWG: Commercial

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Van Norman Industries Inc., Electronics Division Model no. VT-132	Manchester, New Hampshire		

June 1957

SIGNAL GENERATOR

Test-Signal Generating

HP 200 AB

FUNCTIONAL DESCRIPTION

The 200 AB is designed for general purpose application, such as checking performance of audio amplifiers, broadcast transmitters and similar equipment.

No field changes in effect at time of preparation (10 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 cps to 40 kc, 4 bands.
ACCURACY: ±1%
SIGNAL OUTPUT: 1 W or 24.5 v.
FREQUENCY RESPONSE: ±1 db.
OUTPUT IMPEDANCE: 600 ohms.
OPERATING POWER: 115 v, 50 to 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard, Palo Alto, Calif.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Hewlett-Packard Electronics Catalog.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	Commercial
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT, PACKED (lbs.)
1	Signal Generator HP200AB			20

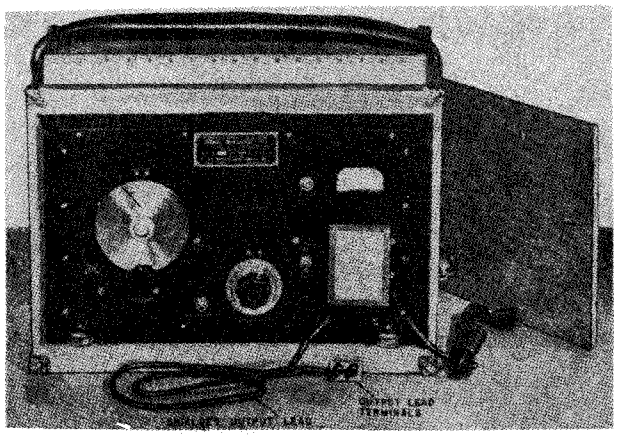
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator HP200AB	7 X 10-1/2 X 10-3/4	15

January 1958

Test-Signal Generating

SIGNAL GENERATOR I-122-A



Signal Generator I-122-A

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 15 mc to 25 mc, 90 mc to 125 mc.
NUMBER OF BANDS: 2.
PERCENT OF MODULATION: 30%.
AUDIO FREQUENCIES AVAILABLE: 400 and 625 cps.
POWER SOURCE REQUIRED: 110 to 120 v, 25 to 60 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3-G
(1) 6SJ7-GT
(2) 9002
(1) VR-150-30
(1) 6V6-GT/G
Total Tubes: (6)

FUNCTIONAL DESCRIPTION

The I-122-A consists of a 2-band radio frequency oscillator covering the ranges of from 15 mc to 25 mc and 90 mc to 125 mc; a modulator, a calibrated R. F. attenuator; a vacuum tube voltmeter to set the attenuator level; and a voltage regulated power supply.

No field changes in effect at time of preparation (18 July 1957).

REFERENCE DATA AND LITERATURE

TM11-1039; Technical Manual for Signal Generator I-122-A.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	4.1.2

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator I-122-A			

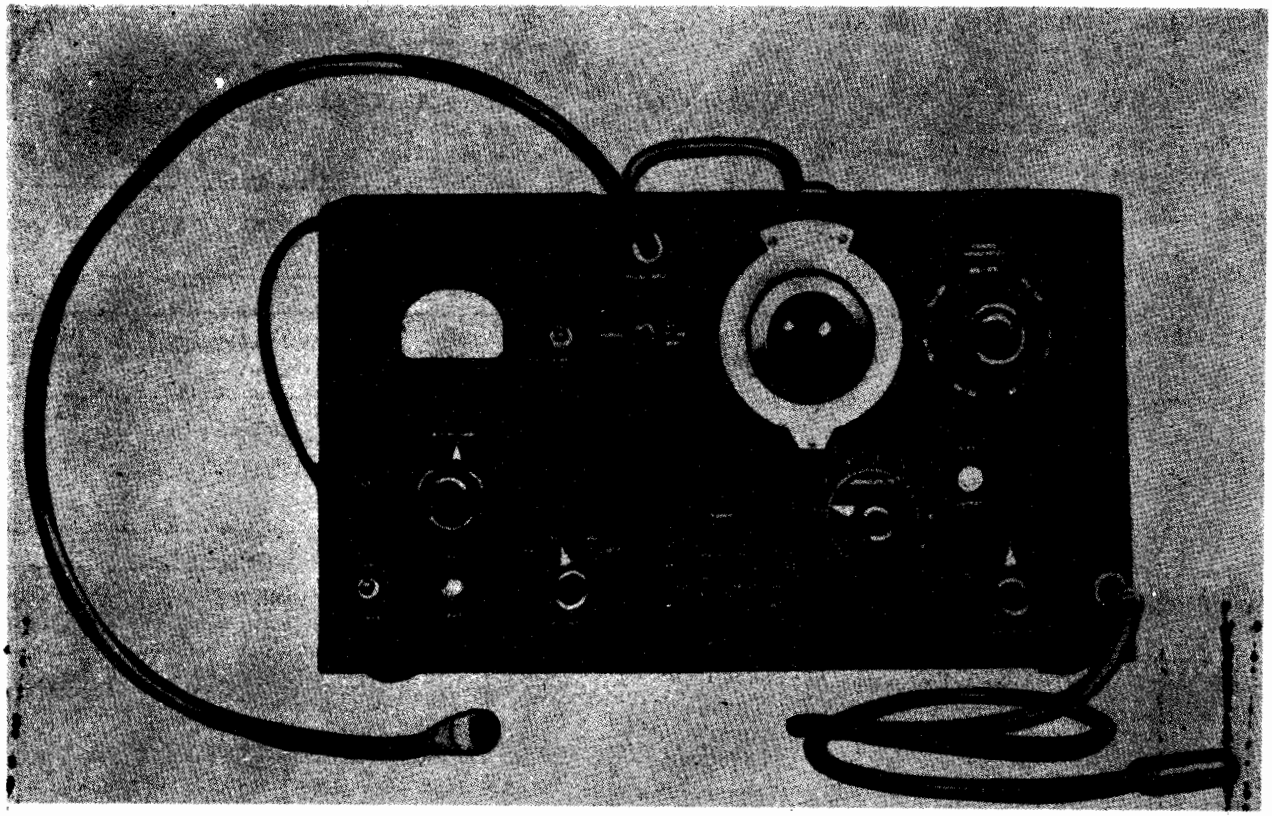
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-122-A	9-1/4 x 14 x 19-1/2	51.25

June 1957

Test-Signal Generating

SIGNAL GENERATOR I-126-B (FERRIS-18FS)



Signal Generator I-126-B (FERRIS-18FS)

FUNCTIONAL DESCRIPTION

The I-126-B is a compact portable signal generator covering the very high frequency portion of the radio spectrum, providing means for making accurate measurements of receiver sensitivity from 14 to 235 megacycles. It is used for the alignment of radio and intermediate frequency stages of radio receivers and for other test operations requiring a CW or modulated radio frequency voltage.

No field changes in effect at time of preparation (2 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 14 to 235 mc in 7 bands.
OUTPUT VOLTAGE: Continuously variable from a fraction of a uv to 100000 uv.
MODULATION DATA
INTERNAL: 30% at 400 or 1000 cps.
EXTERNAL: Adapter for pulse modulation (30% at 30 v).
CARRIER: Unmodulated.
IMPEDANCE OUTPUT: 30 ohms.
POWER REQUIREMENTS: 115 v 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Ferris Instrument Co. Boonton, N. J.
Model 18FS.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3-GT
(1) 9002
(2) VR90-30
(1) 6L5G
(1) 955

Total Tubes: (6)

Test-Signal Generating

June 1957

I-126-B (FERRIS-18FS) SIGNAL GENERATOR

REFERENCE DATA AND LITERATURE

Catalog No. 47.
Technical Manual of Signal Generators by Ferris Instrument Co.
TM-11-1200: Technical Manual for Radar Test Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator-I-126-B			31

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator-I-126-B Accessories: Calibration Chart Technical Manual	8 X 10-1/2 X 18	26

March 1957

SIGNAL GENERATOR

I-137-A

FUNCTIONAL DESCRIPTION

The I-137-A (Ferris Instrument Corp Model 18C) is a portable ultra high frequency range of 5 to 175 megacycles and is designed for operation from an AC power source. It is fungus and humidity resistant.

No field changes in effect at time of preparation (2 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 5 to 175 mc.

CALIBRATION ACCURACY: ⁻1/2%.

SIGNAL OUTPUT DATA

RANGE: Fraction of 1 uv to 100000 uv continuously variable calibrated output; approx 0.7 v rms uncalibrated output.

TOLERANCE: ⁻5% max (5 to 100 mc), ⁻5 and +10% max (100 to 175 mc).

IMPEDANCE: 30 ohms.

MODULATION DATA

EXTERNAL: 30% at approx 30 v rms.

INTERNAL: 30% at 400 or 1000 cps.

POWER REQUIREMENTS: 115 v, 60 cps, single ph, 25 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Ferris Instrument Corp., Boonton, N.J.
Contract NOs 86760, dated 30 June 1941.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT	(1) 6L5G
(2) 955	(1) VR150

Total Tubes: (5)

REFERENCE DATA AND LITERATURE

Ferris Instrument Corp Technical Manual for Signal Generator-Model 18C.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.

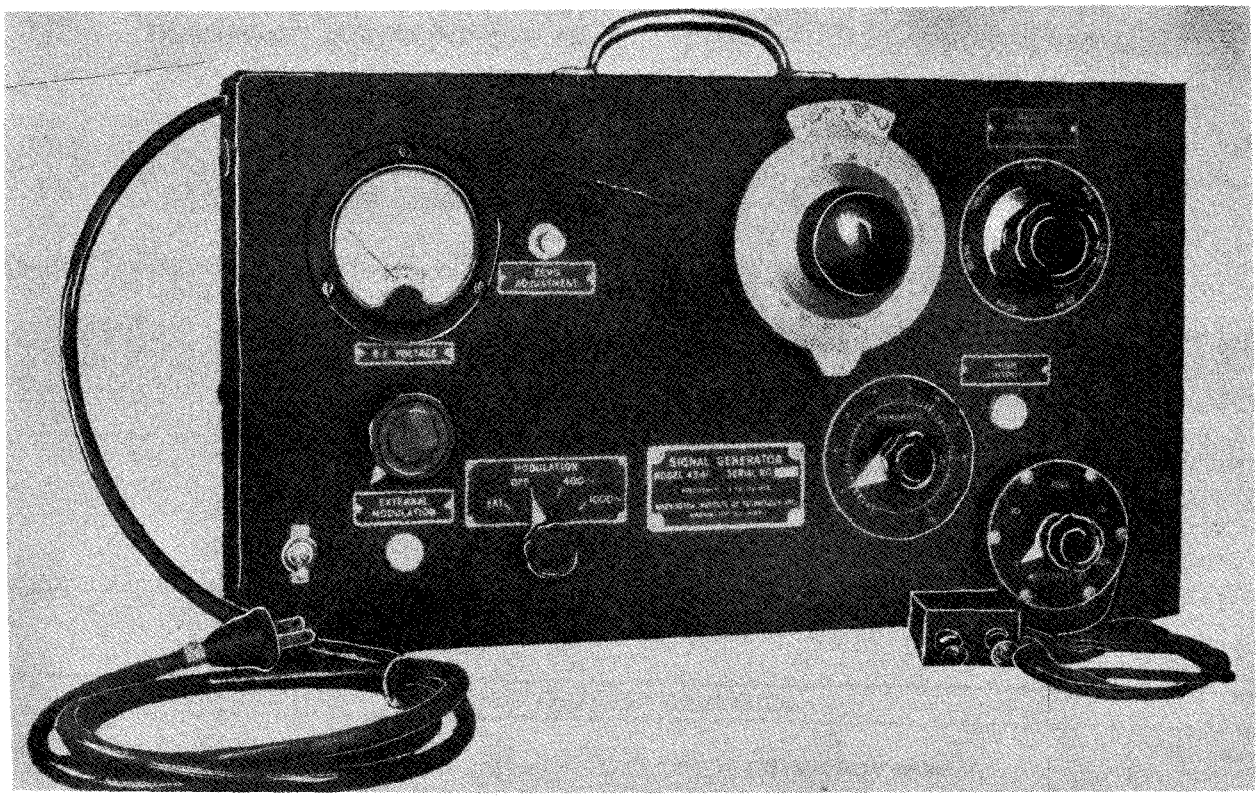
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-137-A	7-5/8 X 11-7/8 X 18-1/8	20

August 1957

Test-Signal Generating

SIGNAL GENERATOR I-137-B



Signal Generator I-137-B

FUNCTIONAL DESCRIPTION

The I-137-B is designed to provide a source of radio-frequency voltage for use in aligning, calibrating, and measuring the sensitivity of certain amplitude-modulated types of fixed, mobile, or airborne radar and communication receiving equipment.

No field changes in effect at time of preparation (20 November 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 5 to 175 mc, 7 bands, operating power: 105 to 125 v, 50 to 60 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6J5GT/G
(2) 955
(2) OB3/VR90
(1) 5Y3GT/G
Total Tubes: (6)

REFERENCE DATA AND LITERATURE

TM11-2641: Technical Manual for Signal Generator I-137-B.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-137-B	8-1/4 x 12 x 15-3/8	20.6
2	Plugs, Contact Male	11/16 dia x 1-1/4	
2	Calibration Chart	3/32 x 6-1/8 x 8-1/8	0.6
7	Calibration Curves	1/8 x 9-1/4 x 11-1/2	0.3

RF SIGNAL GENERATOR

FUNCTIONAL DESCRIPTION

The I-150 is used for receiver alignment and for other test purpose requiring a CW modulated R-F voltage.

No field changes in effect at time of preparation (26 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 14 to 25 mc, 90 to 135 mc and 195 to 230 mc, in 3 steps.
INTERNAL MODULATION: 400, 625, 8200 cps.
MODULATED: 30%.
OUTPUT: 1 to 100,000 uv.
OUTPUT IMPEDANCE: 14.5 and 30 meg.
OPERATING POWER: 115 v, 60 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

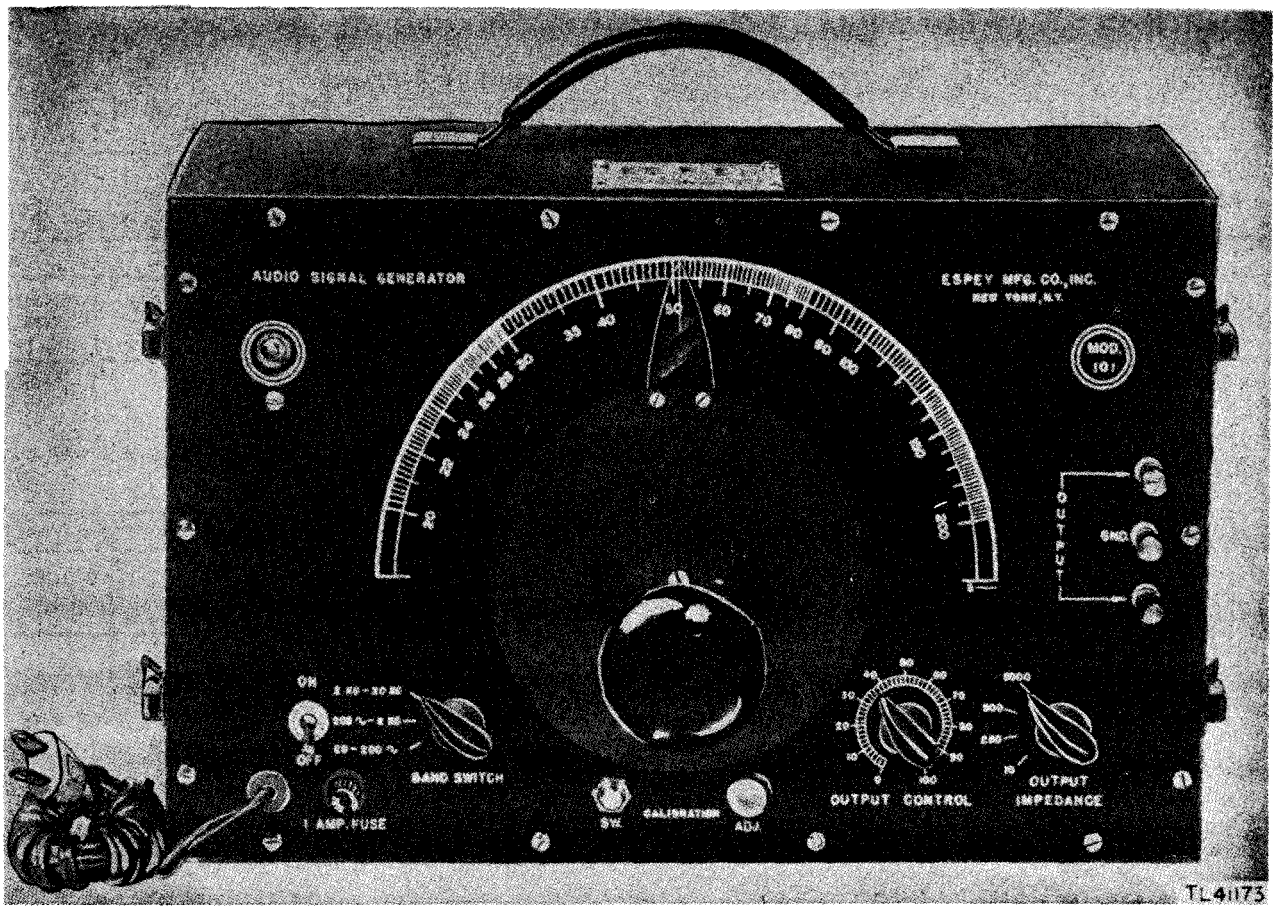
NAVSHIPS 900,155 VOL II: Technical Manual for Electronic Test Equipment.
TM11-1200: Technical Manual for Radar Test Equipment.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-150	7-1/2 x 12 x 15-1/2	25

OSCILLATOR I-151-A



Oscillator I-151-A

FUNCTIONAL DESCRIPTION

The I-151-A is a device for producing a audio signal of predetermined frequency which is used for various tests in electronic equipment. These tests are made by applying a test signal to various points of the circuit under test, and observing the effect of the circuit upon the injected signal. The audio oscillator with a calibrated frequency dial may also be used as a secondary frequency standard.

No field changes in effect at time of preparation (18 July 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 20000 cps.

NUMBER OF BANDS: Three; 20 to 200, 200 to 2000 and 2000 to 20000 cps.

OUTPUT IMPEDANCE: Variable in steps; 5000, 500, 250 and 10 ohms.

TYPE OF OSCILLATOR: Resistance-capacity tuned (Wien bridge) type.

POWER SOURCE REQUIRED: 110 to 120 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Espey Mfg Corp.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SJ7
(1) 6SN7-GT
(1) 6V6GT
(1) 6X5-GT

Total Tubes: (4)

Test-Signal Generating

January 1958

I-151-A OSCILLATOR

REFERENCE DATA AND LITERATURE

TM11-2524: Technical Manual for Oscillator I-151-A.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	4.1.1

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Oscillator I-151-A			

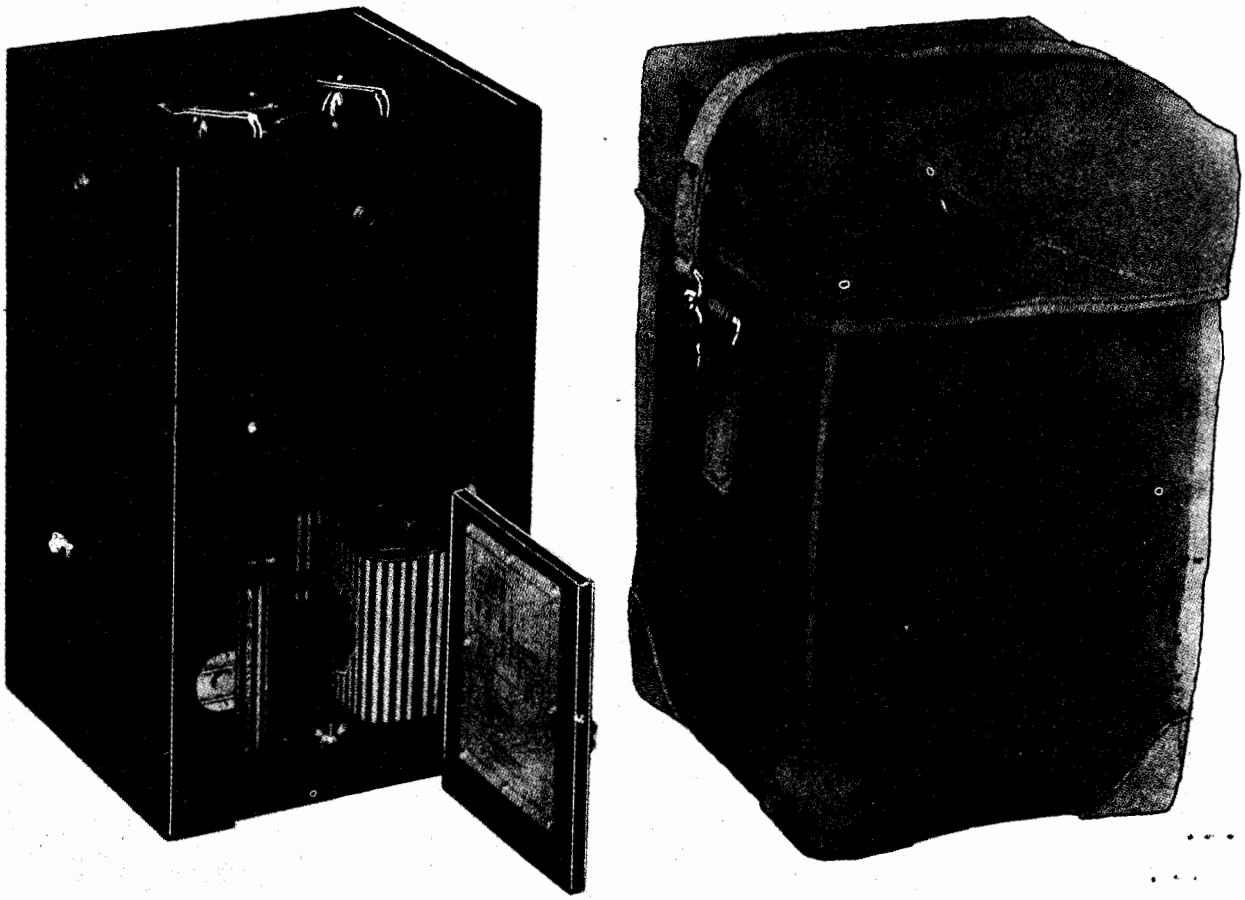
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Oscillator I-151-A	7 X 9-1/2 X 15	25

March 1957

SIGNAL GENERATOR

I-196-A,B



Signal Generator I-196-A or I-196-B and Carrying Case

FUNCTIONAL DESCRIPTION

The I-196-A or I-196-B is a portable self-contained test oscillator which furnished a pulse modulated RF signal used to check the operation of IFF systems and radar systems in the field.

The signal generators are mechanically and electrically identical, but differ in frequencies covered. The I-196-A covers the "I" and "G" bands, while Signal Generator I-196-B covers the "I", "G" and "RE" bands.

Power for the signal generator is furnished by self-contained batteries. The "B" supply from three 45 v batteries and the "A" supply is a 1-1/2 v battery.

No field changes in effect at time of preparation (16 July 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (2) 1.5 v batteries type BA-35-A, (4) 45 v batteries type BA-53-A, (1) Headset HS-23 or equivalent.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- I-196-A: "I" and "G" bands.
- I-196-B: "I" "G" and "RE" bands.

MODULATION
- TYPE: Pulse.
- FREQUENCY: Within the audio frequency range.
- CONTROL: Variation of RC time constant

by means of "TONE" control changes to pulse repetition rate.

POWER SOURCE REQUIRED: (3) 45 v batteries and (1) 1-1/2 v battery.

MANUFACTURER'S OR CONTRACTOR'S DATA

Philco Corporation, Chicago, Illinois,
Part No. 453-1615.
Contract 811-WF-42, not dated.
Contract 3348- WF-43, not dated.
Contract 7916-WF-43, not dated.
Approximate Cost: $28.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 957

Total Tubes: (1)

REFERENCE DATA AND LITERATURE

AN16-401196-2 Handbook of Maintenance Instructions for Signal Generators I-196-A and I-196-B.

T.O. 08-10-131 Technical Manual for operation of signal Generator I-196-A and Radio Receiver BC-1066-A.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	BUAER
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator I-196-A or I-196-B	0.87	10 X 10 X 15	18

EQUIPMENT SUPPLIED DATA

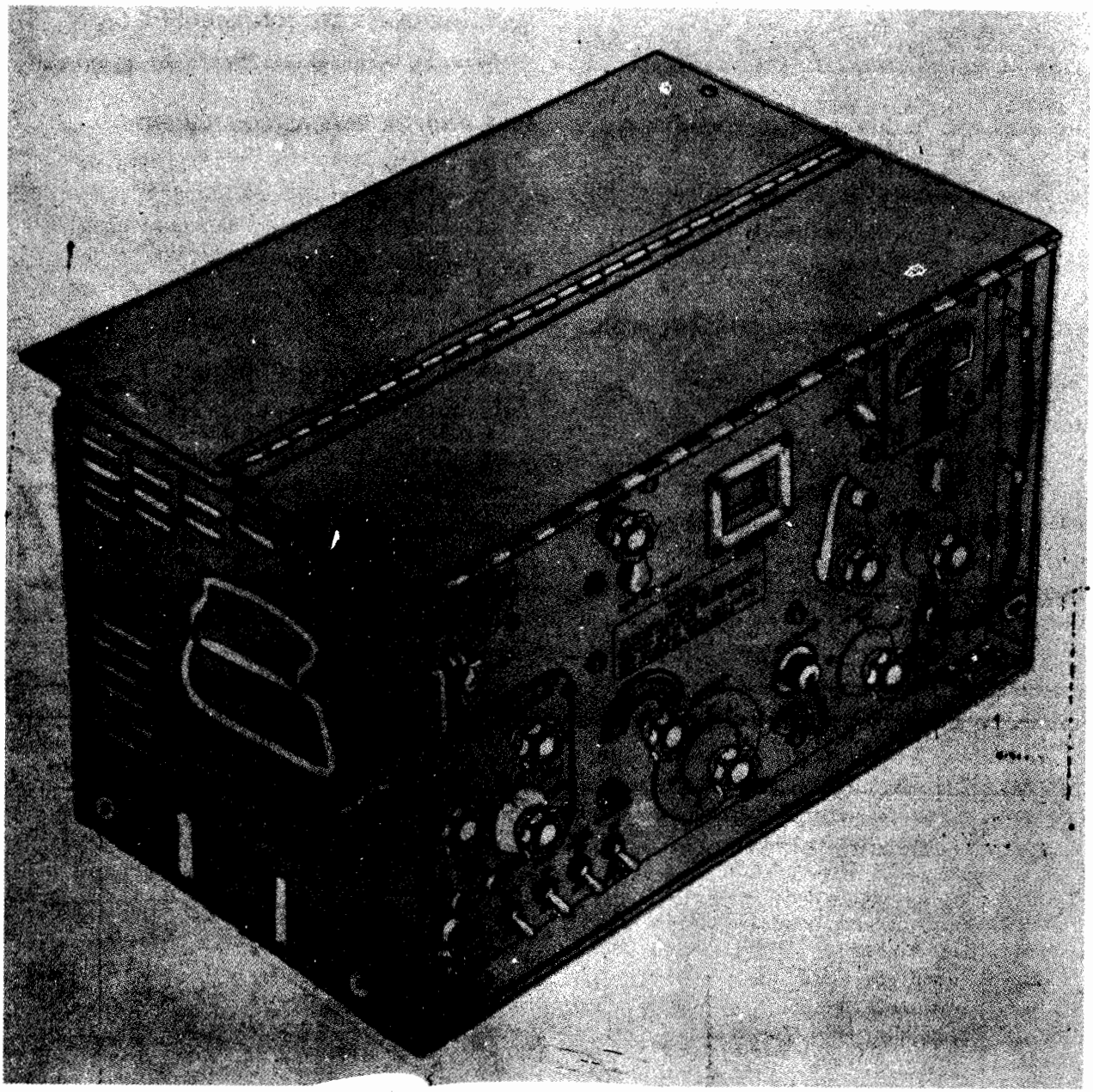
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-196-A or I-196-B	8-1/4 X 8-1/4 X 12-1/2	
1	Container Cover	8-3/4 X 8-3/4 X 14	
		Total	16

June 1957

Test-Signal Generating

SIGNAL GENERATOR

I-208,I-208-A



Signal Generator I-208,I-208-A

FUNCTIONAL DESCRIPTION

The I-208 or I-208-A is a general purpose, portable unit used as a frequency and voltage standard for testing frequency modulation radio equipment. It is used in the calibration, alignment and determination of sensitivity of FM receivers.

The signal generator output is controlled and measured by a calibrated attenuator, multiplier and vacuum tube voltmeter.

Test-Signal Generating

June 1957

I-208,I-208-A SIGNAL GENERATOR

The equipment may be either internally or externally modulated. An audio oscillator provides anyone of the five fixed modulation frequencies. The RF reference is provided by a 500 kc crystal oscillator in the calibration unit. This reference signal and the RF signal from the RF oscillator are combined to give an audio beat frequency signal for each multiple of 500 kc of the output RF.

No field changes in effect at time of preparation (6 November 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.9 to 4.5 mc and 19 to 45 mc.
FREQUENCY DEVIATION
1.9 to 4.5 mc: 0 to 5 kc.
19 to 45 mc: 0 to 50 kc.
FREQUENCY STABILITY: 0.03%.
MODULATION: 150, 400, 1000, 2500 and 5000 cps.
OUTPUT VOLTAGE: 100,000 mv.
OPERATING POWER: 115 v, 60 cps, single phase; or 12 v DC.

MANUFACTURER'S OR CONTRACTOR'S DATA

Detrola Corporation, Detroit, Michigan.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 12SN7GT
(2) 12A6
(1) 6AG7
(1) 5U4G
(1) 1H20
(3) 12SA7GT/G
(4) 12SH7
(1) 955
(1) OD3/VR150
(1) 6SQ7GT/G

Total Tubes: (17)
(1) DC-23-A
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

TM11-4012: Technical Manual for Signal Generators I-208 and I-208-A.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

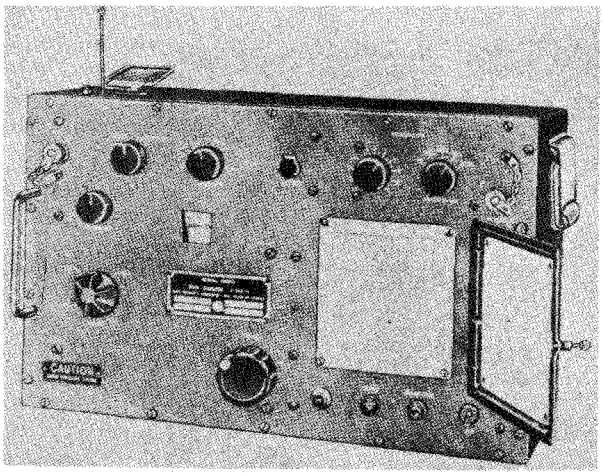
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-208 or I-208-A consists of:	11-1/2 X 12-1/8 X 19	105
1	Dynamotor DM-64-1	3-3/8 X 4-1/4 X 6-9/16	5.50
1	Power Cord CD-778	8 lg	0.50
1	Cable, High Output CD-749	40 lg	0.25
1	Cord, Service Extension DC-984	36 lg	0.37
9	Fuse FU-53	1/4 dia X 1-1/4	0.10
9	Fuse FU-54	1/4 dia X 1-1/4	0.10
6	Lamp LM-27	7/16 dia X 1-1/8	0.06
1	Spare Dial Film F/I-208	1-7/8 dia X 1-3/8	0.01
2	Sets of 3 Tubes		
2	Technical Manuals TM11-4012		0.25

January 1958

Test-Signal Generating

SIGNAL GENERATOR I-222-A



Signal Generator I-222-A

FUNCTIONAL DESCRIPTION

The I-222-A is a combination signal generator and heterodyne type wavemeter. It consists of a 5-megacycle crystal controlled oscillator, used as a frequency standard calibrator, a variable two range oscillator, an untuned detector with two stages of audio amplification, a set of headphones, one RF and one IF cable, a sliding-rod quarter-wave antenna, a rough pi-type attenuator and a power supply.

Its main purpose is to provide an accurate and reliable method of checking the frequency of radio equipment. It is used in monitoring the frequency output of transmitters and for aligning receivers.

No field changes in effect at time of preparation (23 July 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 8 to 15 mc and 135 to 230 mc.
POWER SOURCE REQUIRED: 117.5 v, 60 cps, single ph.
POWER CONSUMPTION: 40 W.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6J5
(1) 5Y3G
(1) 9006
(2) 6SJ7
(1) 9002
Total Tubes: (6)

(1) FT-243
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

TM11-1082, Technical Manual for Signal Generator I-222-A.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

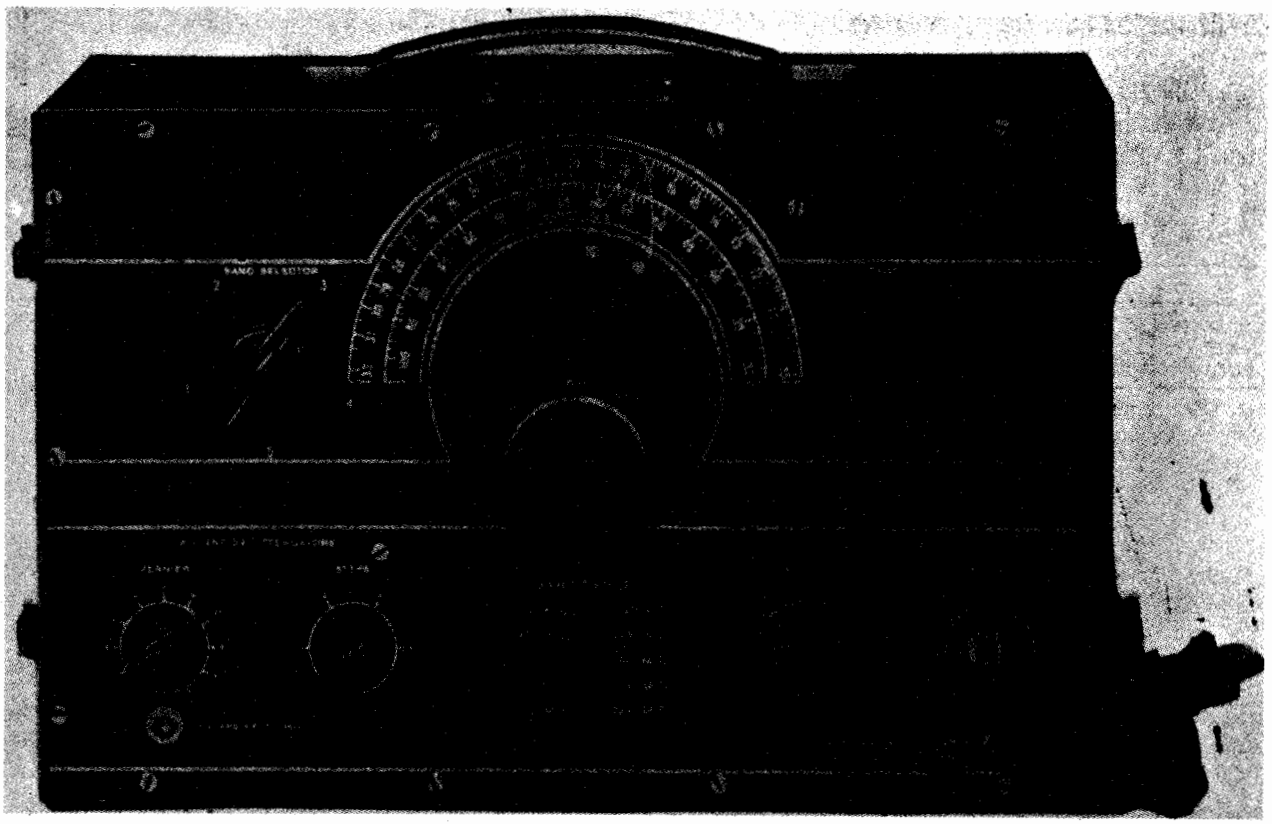
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator I-222-A			

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator Cabinet	7-1/2 X 12 X 19-1/2	50
1	Antenna	10-3/4 in. lg	
1	Power Cord	8 ft lg	
1	RF Cable	5 ft lg	
1	IF Cable	33 lg	
1	Phone Cord	60 lg	

SIGNAL GENERATOR

I-72-J



Signal Generator I-72-J

FUNCTIONAL DESCRIPTION

The I-72-J is a portable test unit used for aligning radio receivers, It has a variable rf oscillator and a fixed af oscillator. The circuits are so arranged that either an rf, an af, or a modulated rf signal may be obtained.

No field changes in effect at time of preparation (7 November 1956).

RELATION TO OTHER EQUIPMENT

Similar to I-72-A, B, C, D, E, F, G, H and K, except for a few mechanical and component changes.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE

BAND 1: 100 kc to 320 kc.
BAND 2: 320 kc to 1000 kc.
BAND 3: 1.0 mc to 3.2 mc.
BAND 4: 3.2 mc to 10.0 mc.
BAND 5: 10.0 mc to 32.0 mc.

POWER OUTPUT

400 CYCLES: 1.2 v.
100 KC TO 10,000 KC: 30,000 uv.
10,000 KC TO 20,000 KC: 10,000 uv.
20,000 KC to 32,000 KC: 30,000 uv.

OPERATING POWER: 110 to 125 v, 60 cps, single phase.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 76 (1) 80 (1) 6J5GT

Total Tubes: (3)

Test-Signal Generating

June 1957

I-72-J SIGNAL GENERATOR

REFERENCE DATA AND LITERATURE

TM11-4052: Technical Manual for Signal Generator I-72-A, B, C, D, E, F, G, H, J and K.

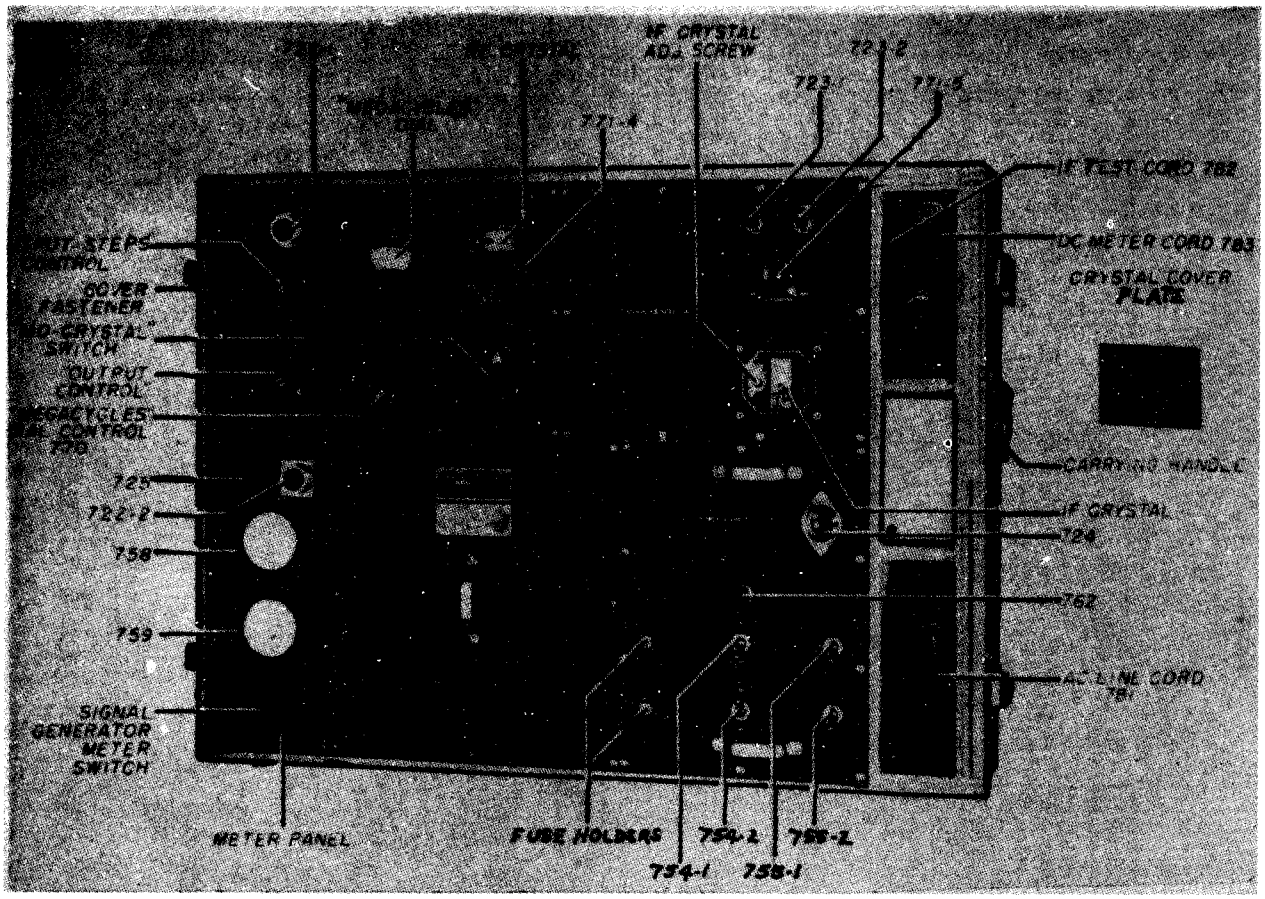
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-72-J	5-1/4 X 9-7/16 X 15-1/8	23

Test-Signal Generating

SIGNAL GENERATOR I-96-A



Signal Generator I-96-A

FUNCTIONAL DESCRIPTION

The I-96-A is used in tuning and aligning a radio receiver and radio transmitter.

No field changes in effect at time of preparation (28 September 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (5) Battery BA23, (8) Battery BA-2.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY
IF: 12 mc fixed.
RF: 100 to 156 mc, variable.
ACCURACY: ±0.002%.
INTERNAL MODULATION: 100 cycles.
MODULATED: 30%.
UNCALIBRATED RF OUTPUT: 0 to 5000 uv.
OPERATING POWER: 110 to 115, 50 to 60 cps or self-contained batteries.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 9002 (4) 9003
(1) 9D3/VR150 (1) 5Y3GT/G
Total Tubes: (8).

REFERENCE DATA AND LITERATURE

NAVAER 08-5S-78: Technical Manual for Airborne Electrical and Electronic Equipment.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

Test-Signal Generating

I-96-A SIGNAL GENERATOR

EQUIPMENT SUPPLIED DATA

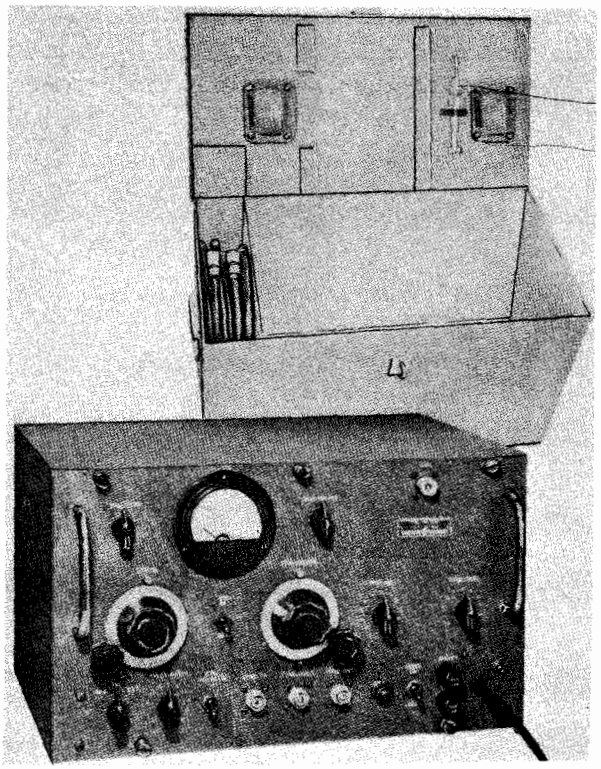
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator I-96-A consists of:	9-1/2 X 19 X 26-1/2	82
1	IF Test Cord	60 lg	
1	Cord AC Line		
1	Cord DC Meter	60 lg	

April 1958

Test-Signal Generating

UHF SIGNAL GENERATOR EQUIPMENT

LAD



Signal Generator LAD

FUNCTIONAL DESCRIPTION

The LAD is a generator of calibrated RF signals which are pulse modulated. It is used for testing the operation of radar equipment. The set may be either internally or externally triggered, and the power monitor provided will measure either internally or externally generated radio frequency power.

No field changes in effect at time of preparation (3 April 1958).

RELATION TO OTHER EQUIPMENT

The LAD is similar to Test Set TS-14/AP except that the TS-14/AP covers a frequency range of 3200 to 3370 megacycles.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2700 to 2900 mc.
POWER INPUT: 20 to 200 mw.
POWER OUTPUT: 1 mw max.
PULSE WIDTH: 1.0 to 2.8 usec.
PULSE PHASING: 10 to 200 usec. after trigger.
PULSE REPETITION:RATE: 300 to 2500 cps.
POWER SOURCE REQUIRED: 105 to 125 v, 50 to 800 cps, single ph, 800 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co, Schenectady, N.Y.
Contract NXss-26188, dated 19 March 1943.
Contract NXss-29460, dated 15 May 1943.
Contract NXss-29462, dated 15 May 1943.
Approximate Cost: $1000.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OC3W
(4) 6SN7WGTA
(1) 5Y3WGTB
(1) 6AC7WA
(1) 2C40

Total Tubes: (8)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95622; Technical Manual for Navy Model LAD Signal Generator.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

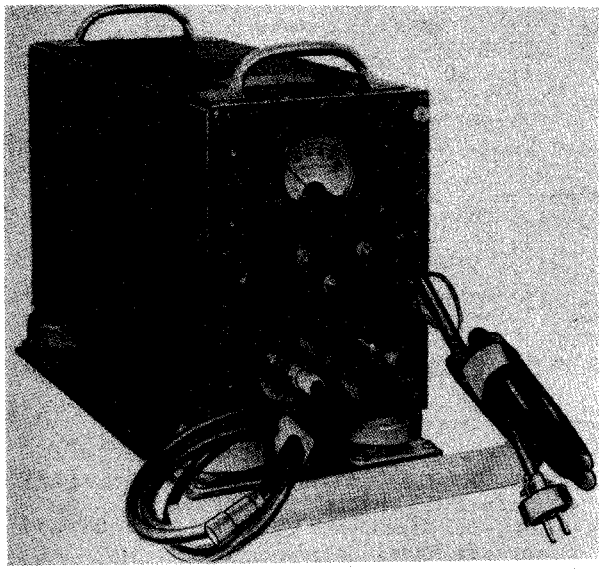
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	UHF Signal Generator Equipment LAD	9-3/4 x 11-1/4 x 16-3/4	40
1	Set of Equipment Spares and Accessories		

April 1958

Test-Signal Generating

RF SIGNAL GENERATOR EQUIPMENT LAE,LAE-1, thru -4



RF Signal Generator Equipment LAE, LAE-1 thru 4

FUNCTIONAL DESCRIPTION

The Model LAE Series Signal Generator Equipment operates over the frequency range of 520 to 1300 mc. The equipment is designed to produce a calibrated rf signal voltage which may be either unmodulated (CW) or pulse modulated. The output may also be pulse or amplitude modulated by using an internal source of modulation. The equipment is used for precision frequency measurements and aligning ultra-high frequency receivers.

No field changes in effect at time of preparation (3 April 1958).

RELATION TO OTHER EQUIPMENT

All Signal Generators in the LAE series are similar in general arrangement and theory of operation but differ in physical construction. Models LAE-3 and LAE-4 have interchangeable spare parts and only very minor differences.

They are superseded by a newer series of Signal Generators. Signal Generator TS-418/U (400 to 1000 mc) and Signal Generator TS-419/U (900 to 2100 mc) cover the frequency range of the Navy Model LAE Series Signal Generators.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SUPPLY: 105 to 125 v ac, 50 to 60 cps, 120 W.

FREQUENCY RANGE: 520 to 1300 mc.

ATTENUATION, 50 OHM LOAD: 0 to 100 db (-7 to -107 dbm).

OUTPUT IMPEDANCE: 50 ohms.

RF OUTPUT

- CONTINUOUS WAVE: 1 uv to 0.1 v continuously variable.
- AMPLITUDE MODULATIONS: Up to 30%.
- PULSE MODULATION: From internal pulser.

SYNCHRONIZATION: By internal or external pulses.

- PULSE REPETITION RATE: 60 to 2500 pps.
- PULSE LENGTH: 2 to 30 usec continuously variable.
- PULSE DELAY: 3 to 300 usec continuously variable.
- EXTERNAL: By positive or negative trigger.

ACCURACY

- STABILIZATION TIME: 30 minutes.
- RF OUTPUT: ±(1 db +1%) of attenuator reading.
- FREQUENCY: ±1% of calibration curve.
- STRAY LEAKAGE: 1 uv max.
- FREQUENCY CHANGE DUE TO SHOCK: 0.1% mac.

VENTILATION: Fan driven by shaded pole induction motor.

PRESENTATION AND CONTROLS: The frequency tuning control registers the number of turns of the handcrank on a three digit counter and a vernier dial which is divided into a hundred divisions. The frequency is obtained from the calibration curves of frequency vs. counter reading (chart 1013). Similarly, the attenuation control turns a three digit counter and has a vernier dial. The attenuation counter and vernier indicates the amount of attenuation of the output voltage directly in decibels. This may be converted to output in microvolts by using the calibration curves of counter reading vs. output in microvolts (charts 1033 and 1034). This reading must be corrected for frequency and room temperature by using the output correction factors (chart 1035). The type of output is determined by the "CW-PULSE-OFF" switch which provides continuous-wave, pulse or standby operation. The "PULSE LENGTH," "PULSE RATE" and "DELAY" controls are all uncalibrated, continuously variable controls. The "SYNCH" switch adjusts the equipment for use with a positive or negative external synchronizing pulse source.

MANUFACTURER'S OR CONTRACTOR'S DATA

Airadio Inc, Stamford, Conn.
Contract NXsr-37598, dated 19 September 1943 (LAE).

LAE, LAE-1, thru -4 RF SIGNAL GENERATOR EQUIPMENT

Contract NXsa-43378 (LAE-1).
Contract NXsr-56786, dated 19 April 1944 (LAE-2).
Contract NXsr-95147, dated 18 April 1945 (LAE-2).
Contract N5sr-5946, dated 12 June 1945 (LAE-3, -4).
Contract NObsr-39270, dated 24 June 1947 (LAE-3, -4).

TUBE AND/OR CRYSTAL COMPLEMENT

LAE

(2) OD3W	(1) 6AG7Y
(1) 2C40	(1) 6J5
(1) 5Z4	(1) 6SN7WGTA
(2) 6AC7WA	(1) 884

Total Tubes: (10)

LAE-1

(2) OD3W	(1) 6AGTY
(1) 2C40	(1) 6J5
(1) 5Z4	(1) 6SN7WGTA
(2) 6AC7WA	(1) 884

Total Tubes: (10)

LAE-2

(2) OD3W	(1) 6AG7Y
(1) 2C40	(1) 6J5
(1) 5Y3WGTB	(1) 6SN7WGTA
(2) 6AC7WA	(1) 884

Total Tubes: (10)

LAE-3

(2) OD3W	(1) 6AG7Y
(1) 2C40	(1) 6J5
(1) 5Y3WGTB	(1) 6SN7WGTA
(2) 6AC7WA	(1) 884

Total Tubes: (10)

LAE-4

(2) OD3W	(1) 6AG7Y
(1) 2C40	(1) 6J5
(1) 5Y3WGTB	(1) 6SN7WGTA
(2) 6AC7WA	(1) 884

Total Tubes: (10)

No Crystals Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900311: Technical Manual for LAE RF Signal Generator.
AN-08-45-7: Technical Manual for Signal Generator Model LAE-1.
NAVSHIPS 900518: Technical Manual for Signal Generator Equipment Model LAE-2.
NAVSHIPS 900806: Technical Manual for Signal Generator Equipment Models LAE-3 and LAE-4.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator LAE w/ Spare Parts and Accessories	6.877	17-3/4 X 25-7/8 X 25-7/8	183.0
1	Signal Generator Model LAE-1	3.36	11-3/8 X 18-3/4 X 27-1/4	80 (packed in paper cartons)
1	Signal Generator, LAE-2 w/ Spare Parts and Accessories	5.35	12-1/8 X 25-3/4 X 29-5/8	198.0
1	Signal Generator LAE-3 w/ Spare Parts and Accessories	5.35	12-1/8 X 25-3/4 X 29-5/8	198.0

RF SIGNAL GENERATOR EQUIPMENT LAE,LAE-1, thru -4

EQUIPMENT SUPPLIED DATA

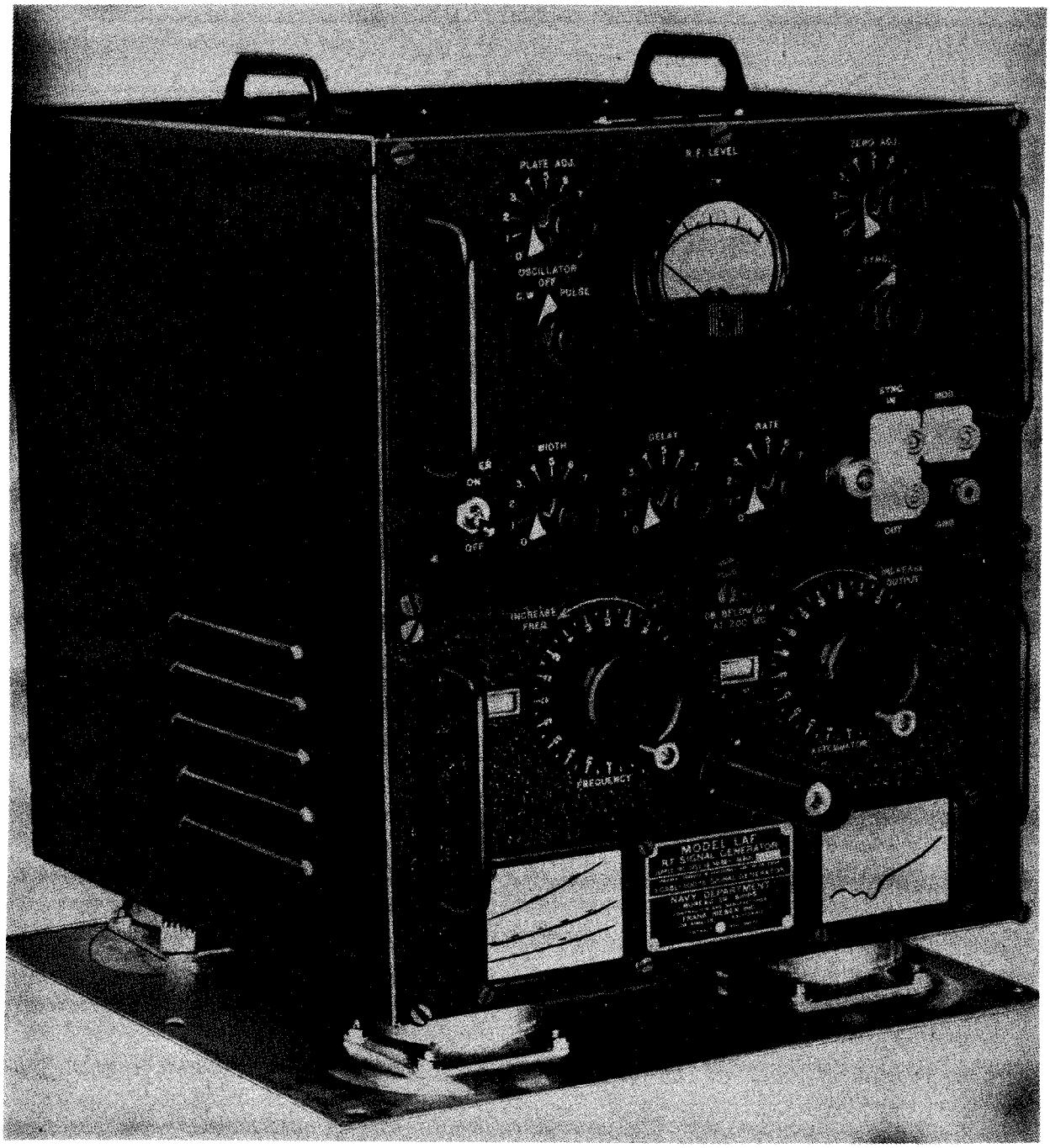
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	LAE		
1	Signal Generator Unit Shock Mounted	9 X 12-15/16 X 21-3/8	
1	Power Cord	78 lg	
1	Output Coaxial Cable	48 lg	
3	Cable Connectors	48 lg	
1	Set Calibration Charts		
1	Technical Manual NAVSHIPS 900,311		
1	Set Maintenance Repair Parts in Box	9-1/8 X 10-7/16 X 19-1/8	47.5
	LAE-1		
1	Signal Generator LAE-1	8 X 11-7/8 X 21-1/2	62.25
1	Output Cable Coaxial W-105		.63
1	Power Cord W-107		.71
3	Connector		1.31
1	Technical Manual		
1	Set of Calibration Charts		
1	Set of Maintenance Repair Operating Spares	3 X 10-1/2 X 26-1/2	5.00
	LAE-2		
1	LAE-2 Signal Generator Shock -60102 Mounted	9-1/2 X 13-1/4 X 22-3/4	75.00
1	Output Coaxial Cable -62337		0.63
1	Power Cord W-107		0.70
3	Connector Cables W-106		1.31
1	Set of Calibration Charts		
1	Set Maintenance Repair Parts in Box	9-1/8 X 10-7/16 X 19-1/8	52.00
2	Technical Manual NAVSHIPS 900,518		
	LAE 3 & 4		
1	Signal Generator LAE-3 Shock Mounted	9-1/2 X 13-1/4 X 22-3/4	75.00
1	Output Cable Coaxial W-105		.63
1	Power Cord W-107		.70
3	Connector Cables		1.31
1	Set Calibration Charts		
2	Technical Manuals		
1	Set Maintenance Repair Parts in Box	9-1/2 X 19-1/8 X 10-1/4	50.00

April 1958

Test-Signal Generating

RF SIGNAL GENERATOR EQUIPMENT

LAF,LAF-1,-2,-3



Signal Generator Navy Model LAF

FUNCTIONAL DESCRIPTION

The Navy Model LAF Series equipments have been designed for use in testing and aligning radio and radar receivers and for measurement work where an accurate, adjustable, and known radio-frequency voltage is required. They are designed to supply signals at any frequency within the 90 to 600 megacycle frequency band in the form of an un

LAF,LAF-1,-2,-3 RF SIGNAL GENERATOR EQUIPMENT

modulated continuous wave, or a continuous wave modulated by pulses. They contain provisions for external modulation of any form, and for synchronizing the internal pulser with an external signal of either polarity with respect to ground. A synchronizing voltage is also available for application to associated equipment. A pulse delay circuit is provided to give a continuously variable delay following the synchronizing pulses.

They all have essentially identical electrical characteristics but the LAF and LAF-3 differ in mechanical construction from the LAF-1 and LAF-2. The LAF with serial numbers below 46 differ from the LAF with serial numbers 46 and over only in cabinet style. The LAF-3 differs from the LAF in that the LAF-3 has changes in the RF output measuring circuit and extension of the power source frequency range.

No field changes in effect at time of preparation (7 April 1958).

RELATION TO OTHER EQUIPMENT

The Navy Model LAF Series equipments have been superseded by RF Signal Generator Set AN/URM-26, 3 to 403 mc, and Signal Generator TS-418/U, 400 to 1000 mc.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 90 to 600 mc.
RF OUTPUT
- ATTENUATION: 0 to −10 db from 0.1 v at 200 mc.
- IMPEDANCE: 50 ohms.
- VOLTAGE: 1 to 100000 v.

PULSED OUTPUT
- TYPE: Square wave, 100% modulated.
- SYNCHRONIZATION: Internal or external.
- PULSE DATA
  - REPETITION RATE: 60 to 2500 pps.
  - WIDTH: 2 to 30 usec.
  - DELAY (CONTINUOUSLY VARIABLE)
    - LAF, LAF-3: 6 to 500 usec.
    - LAF-1, LAF-2: 3 to 300 usec.

EXTERNAL MODULATION CAPABILITIES
- TYPE: Undistorted AM to 30% between 100 cps and 100 kc.
- INPUT IMPEDANCE: 5000 ohms.

EXTERNAL SYNC
- AMPLITUDE: ±10 v min.
- REPETITION RATE: 60 to 2500 pps.
- WIDTH: Up to 30 usec below 150 mc.
- INPUT IMPEDANCE: 10000 ohms.

POWER REQUIREMENTS
- LAF: 115 v, 50 to 60 cps, single ph, 1 to 1.5 amps.
- LAF-1, LAF-2: 105 to 125 v, 50 to 60 cps, single ph, 1.25 amps at 110 v, 120 W at 87% pf.
- LAF-3: 115 v, 50 to 1600 cps, single ph, 1 to 1.5 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Frank Rieber, Inc, Los Angeles, Calif.
- Contract NXsr-39273, dated 3 November 1943 (LAF).
- Contract NXsr-53363, dated 23 March 1944 (LAF-3).
- Contract NXsr-65319, dated 30 June 1944 (LAF-3).
- Contract NXsr-86333, dated 4 December 1944 (LAF-3).

Airadio Incorporated, Stamford, Conn.
- Contract NXsr-41050, dated 19 November 1943 (LAF-1).
- Contract NXsr-43378 (LAF-2).

TUBE AND/OR CRYSTAL COMPLEMENT

LAF	LAF-1,-2
(1) 0D3W	(1) 0D3W
(1) 2C40	(1) 2C40
(1) 5Y3WGTB	(1) 5Y3WGTB
(2) 6AC7WA	(2) 6AC7WA
(2) 6AG7Y	(1) 6AG7Y
(1) 6J5	(1) 6J5
(1) 6SA7GT	(1) 6SN7WGTA
(2) 6SN7WGTA	(1) 884
(1) 884	
Total Tubes: (12)	Total Tubes: (9)

LAF-3	
(1) 0D3W	(1) 2C40
(1) 5Y3WGTB	(1) 6AC7WA
(2) 6AG7Y	(1) 6J5
(1) 6SN7WGTA	(1) 884
Total Tubes: (9)	

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900516: Technical Manual for RF Signal Generators Model LAF and Model LAF-3.
NAVSHIPS 900585(A): Technical Manual for Signal Generator Equipment Model LAF-1.
AN08-45-32: Technical Manual for Signal Generator Model LAF-2.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE RE-9187
STOCK NO.
R.D.B. IDENT. NO.

RF SIGNAL GENERATOR EQUIPMENT LAF,LAF-1,-2,-3

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	LAF			
1	Signal Generator Navy Model			
	LAF (Ser 1 to 45) or	7	19-1/2 X 24 X 25-3/4	135
	Navy Model LAF (Ser 46 to 121)	7	19-1/2 X 24 X 25-3/4	142
1	Set of Equipment Spares			100
	LAF-1			
1	Signal Generator Navy Model LAF-1	7.6	19 X 25-3/4 X 26-3/4	161
1	Set of Equipment Spares	2.5	12-3/4 X 15-3/4 X 21-3/4	76
	LAF-2			
	Data Not Available			
	LAF-3			
1	Signal Generator Navy Model LAF-3	7	19-1/2 X 24 X 25-3/4	151
1	Set of Equipment Spares			95

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	LAF (Ser 1 to 45)		
1	Signal Generator NT-60076	14-5/8 X 18-5/8 X 19-1/2	93
3	Coaxial Cable RG-8/U	60 lg	
1	RF Cable RG-8/U	48 lg	
1	Power Cable MCOS-2	72 lg	
2	Test Cord	48 lg	
5	Calibration Chart		
1	Set of Equipment Spares		58
2	Technical Manual NAVSHIPS 900516	1/2 X 8-3/4 X 11-1/4	
	LAF (Ser 46 to 121)		
1	Signal Generator NT-60110	16-1/4 X 19-3/8 X 19-1/2	100
3	Coaxial Cable RG-8/U	60 lg	
1	RF Cable RG-8/U	48 lg	
1	Power Cable MCOS-2	72 lg	
2	Test Cord	48 lg	
5	Calibration Chart		
1	Set of Equipment Spares		58
2	Technical Manual NAVSHIPS 900516	1/2 X 8-3/4 X 11-1/4	
	LAF-1		
1	Signal Generator NT-60082	14-3/4 X 17-3/4 X 21-1/8	82
1	Output Cable	49 lg	
1	Power Cord	80 lg	
2	Connector Cable	49 lg	
2	Test Lead	48 lg	
2	Alligator Clip		
5	Calibration Chart		
1	Set of Equipment Spares	9-5/8 X 10-1/4 X 19-1/8	37
2	Technical Manual NAVSHIPS 900585(A)	1/2 X 8-1/2 X 11	
	LAF-2		
1	Signal Generator NT-60099	13-1/8 X 16-7/16 X 19-1/2	76
1	Output Cable	49 lg	
1	Power Cord	80 lg	
2	Connector Cable	48 lg	

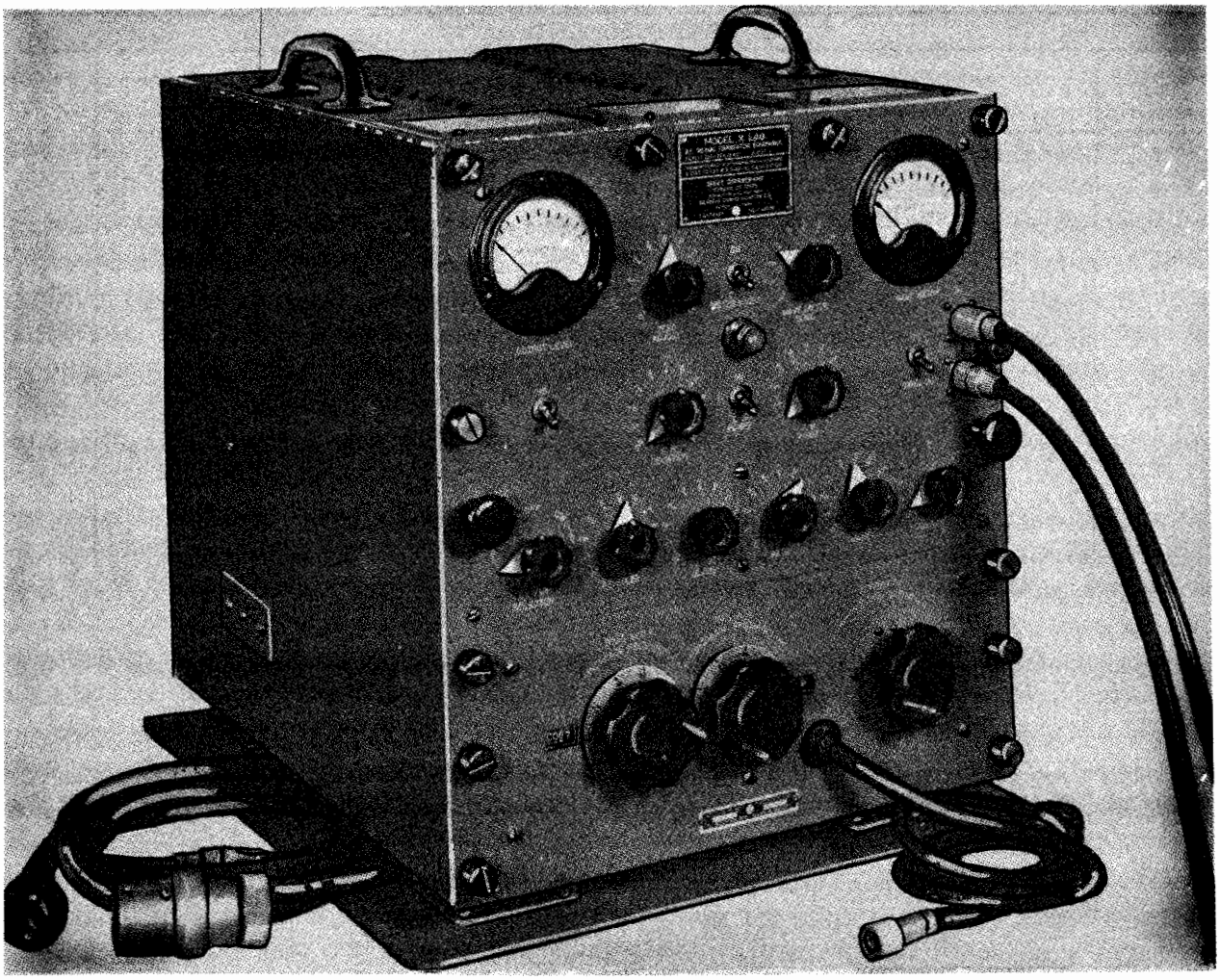
LAF,LAF-1,-2,-3 RF SIGNAL GENERATOR EQUIPMENT

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Test Lead	48 lg	
2	Alligator Clip		
5	Calibration Chart		
1	Set of Equipment Spares		
1	Technical Manual AN08-45-32	1/4 X 8-1/2 X 11	
	LAF-3		
1	Signal Generator NT-60114	16-1/4 X 19-1/2 X 20-3/4	102
3	Coaxial Cable RG-8/U	60 lg	
1	RF Cable RG-8/U	48 lg	
1	Power Cable MCOS-2	72 lg	
2	Test Cord	48 lg	
5	Calibration Chart		
1	Set of Equipment Spares		53
2	Technical Manual NAVSHIPS 900516	1/2 X 8-3/4 X 11-1/4	

RF SIGNAL GENERATOR

LAG, LAG-1



RF Signal Generator LAG

FUNCTIONAL DESCRIPTION

The Navy Models LAG and LAG-1 RF Signal Generators are designed to furnish an RF signal for the calibration and alignment of radar receivers, and for general laboratory work within the range of 1200 to 4000 mc. An unmodulated, pulse modulated, or frequency modulated signal may be selected.

The Navy Model LAG and LAG-1 RF Signal Generator Equipments differ only in the nameplate, the feet and shock mounting plate, and the mounting of the spare 707B tube.

No field changes in effect at time of preparation (8 April 1958).

RELATION TO OTHER EQUIPMENT

These equipments are superseded by a later series of signal generators: Signal Generator TS-419/U (900 to 2100 mc) and Signal Generator TS-403/U (1800 to 4000 mc).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1200 to 4000 mc.
ATTENUATION: 0 to 100 db.
OUTPUT VOLTAGE: 40,000 uv or greater at end of 6 ft 50 ohm output cable with attenuator at max coupling for all frequencies within range of oscillator, or 100,000 or greater at all frequencies above 2000 mc.

Test-Signal Generating

April 1958

LAG, LAG-1 RF SIGNAL GENERATOR

OUTPUT IMPEDANCE: 50 ohms.
ATTENUATION: 0 to 100 db.
MODULATION FREQUENCY
DEVIATION: 0 to 0.2%.
RATE: 60 cps.
PHASE: 0 to 180 deg (with respect to 60 cps supply).
MODULATION PULSE
RATE: 60 to 2500 cps.
LENGTH: 2 to 30 usec.
DELAY: 3 to 300 usec (with respect to external trigger).
SYNCHRONIZATION
INPUT POLARITY: Positive or negative.
IMPEDANCE: 10,000 ohms shunted by 30 uuf.
OUTPUT POLARITY: Positive.
POWER REQUIREMENTS: 105 to 125 v, 50 to 60 cps, 1 ph, 2 amp.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Co., Boston, Mass.
Contract NXsr 55642, dated 7 April 1944.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SN7WGTA (5) OD3W (3) 5Y3WGTP
(1) 6J5GT (4) 6AC7WA (1) 6AG7Y
(1) 884 (1) 6Y6G (1) 707B
Total Tubes: (18)

(1) 1N22
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

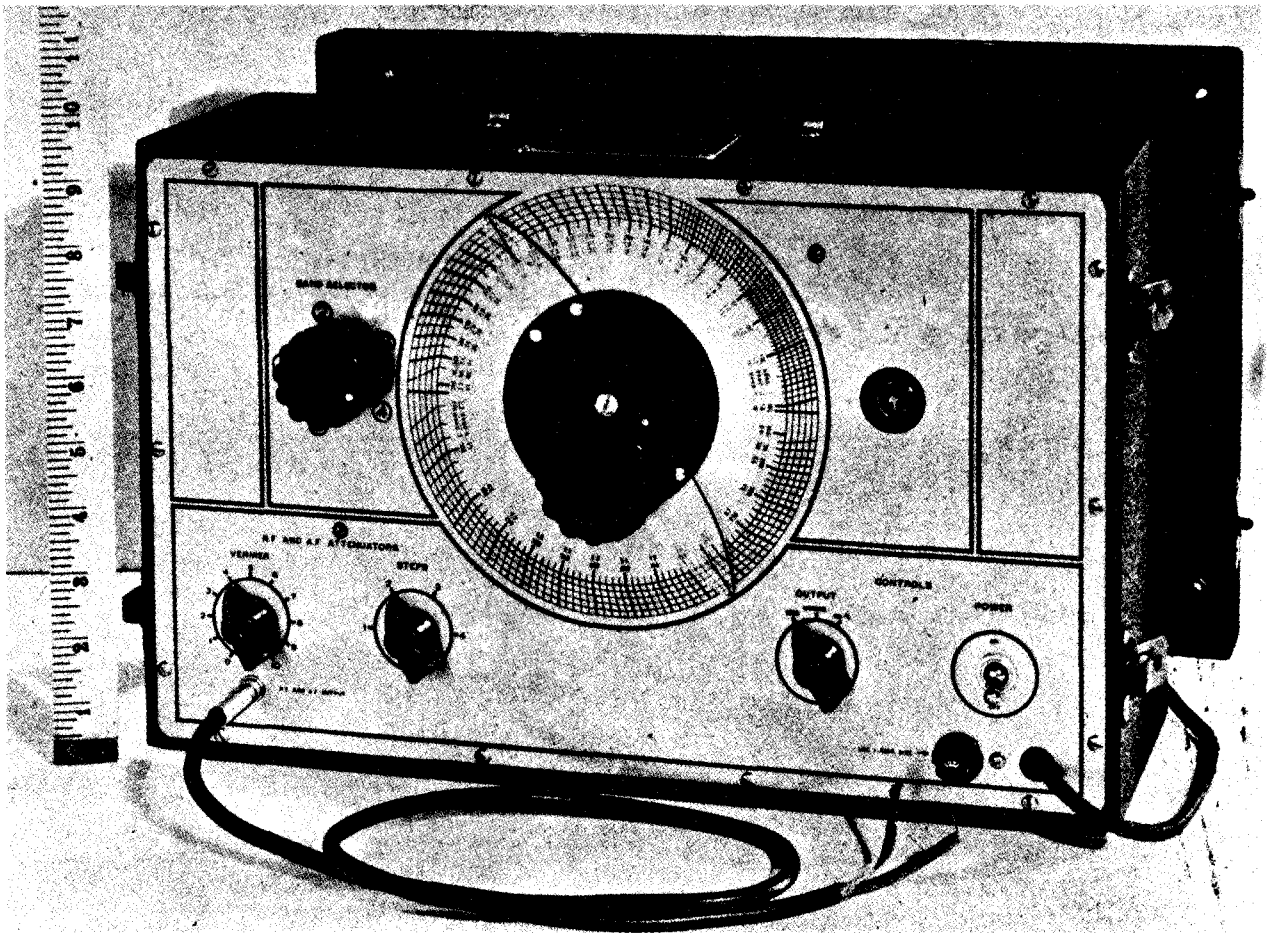
NAVSHIPS 900,645: Technical Manual of Maintenance Instructions for Models LAG and LAG-1 RF Signal Generators.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator NT-60083	16-13/16 X 19 X 20-11/16	130
1	Power Cord	89 lg	
1	Sync In Cable	60 lg	
1	Sync Out Cable	60 lg	
1	RF Cable	84 lg	
2	Set Calibration Curves		
2	Technical Manuals NAVSHIPS 900645		
2	Allen Wrenches		
2	Spare Fuses		

R.F. SIGNAL GENERATOR EQUIPMENT



Signal Generator LAH

FUNCTIONAL DESCRIPTION

The Model LAH is designed for general receiver testing and alignment, using either 400 cycle amplitude modulated wave or unmodulated continuous wave signal in the frequency range of 100 kilocycles to 32 megacycles. In addition, 400 cycle energy from the internal modulating oscillator is available through the attenuator for testing and trouble-shooting in the audio amplifier of the receiver.

No field changes in effect at time of preparation (30 July 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 kc to 32 mc.
BAND RANGES
BAND 1: 100 to 320 kc.
BAND 2: 320 to 1000 kc.
BAND 3: 1 to 3.2 mc.
BAND 4: 3.2 to 10 mc.
BAND 5: 10 to 32 mc.
ACCURACY OF INDICATED FREQUENCY.
BANDS 1 to 4: Within 1/2%.
BAND 5: Within 1%.
OUTPUT IMPEDANCE: 100 ohms approx.
RF OUTPUT VOLTAGE: 0 to 0.1 v RMS(approx).
400 CYCLE OUTPUT VOLTAGE: 0 to 1.2 v RMS.
MODULATION: 30% at 400 cycles (approx).
STABILITY: Less than 0.2% change in frequency after 1 hr operation starting from normal room temperature.
POWER REQUIREMENTS: 115 v 50 to 60 cps, single ph, 18 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Clough-Brengle Co., Chicago, Ill.
Contract NXsr-36739, dated 1 Sep 1943.
Contract NXsr-48397, dated 18 Feb 1944.

LAH R.F. SIGNAL GENERATOR EQUIPMENT

March 1957

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT (2) 6J5
Total Tubes: (3)

Signal Generator Equipment Navy Model LAH.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,550: Technical Manual for R.F.

EQUIPMENT SUPPLIED DATA

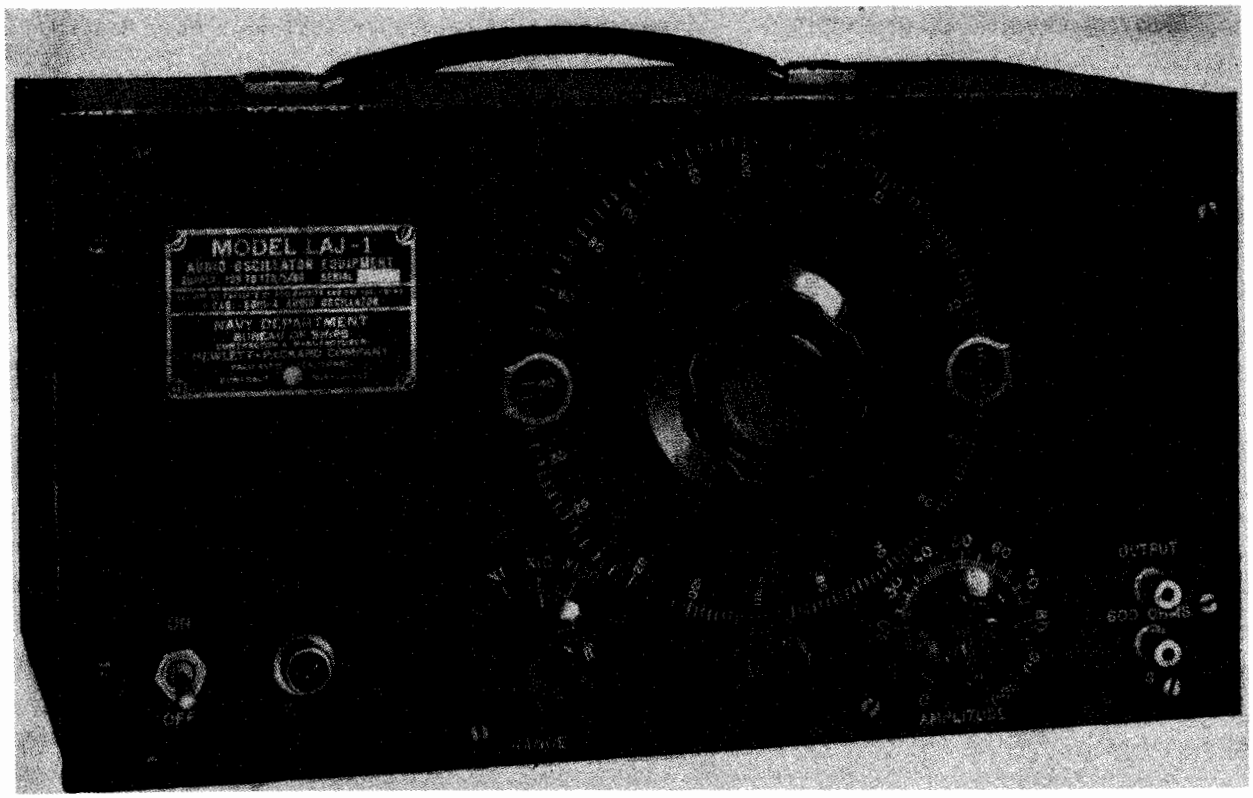
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	R.F. Signal Generator Equipment LAH consisting of:	6-3/4 X 10 X 16	23
1	Signal Generator NT-60074		
1	Coaxial Cable		

April 1958

Test-Signal Generating

AUDIO OSCILLATOR

LAJ, LAJ-1



Audio Oscillator Equipment, Navy Model LAJ-1

FUNCTIONAL DESCRIPTION

The Navy Models LAJ and LAJ-1 are general purpose portable test equipments designed to generate frequencies in the audio spectrum. The oscillator section of the circuit is of the resistance-capacitance type.

No field changes in effect at time of preparation (4 April 1958).

RELATION TO OTHER EQUIPMENT

Navy Models LAJ and LAJ-1 are mechanically and electrically equivalent. They are electrically equivalent to the LAJ-2 which differs in being smaller and lighter.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER INPUT: 105 to 125 v, 50 to 60 cps, 60 W.

FREQUENCY RANGE: 20 to 20,000 cps.

ACCURACY: ±2% of dial reading; ±3% at 20 cps.

POWER OUTPUT: 250 mw or 12.2 v min into a 600 ohm load.

PRESENTATION AND CONTROLS: The frequency dial is calibrated from 20 to 200 with a three range switch provided. The same dial is calibrated from 0 to 100 in linear divisions. The amplitude dial has linear divisions from 0 to 100. The output terminals are binding posts suitable for wire or banana plug connections.

CONSTRUCTION: The equipment is enclosed in an aluminum case with black wrinkle finish and a leather carrying handle on top.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co, Palo Alto, California.

Contract NXsr-62347, dated 29 May 1944 (LAJ).

Contract NObsr-30125, dated 24 June 1946 (LAJ-1).

Contract NObsr-39247, dated 17 June 1947.

Test-Signal Generating

April 1958

LAJ, LAJ-1 AUDIO OSCILLATOR

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SJ7 (2) 6V6GT/G (1) 6J5
(1) 5Y3GT/G
Total Tubes: (5)
No Crystals Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900378-A: Technical Manual for Audio Oscillator Equipment Navy Model LAJ.
NAVSHIPS 900956: Technical Manual for Audio Oscillator Equipment Navy Model LAJ-1.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	NO. RF-33738
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Oscillator Navy Model LAJ	3.3	14 X 15-1/2 X 26	50.0
1	Audio Oscillator Navy Model LAJ-1 (NObsr-30125)	3.3	14 X 15-1/2 X 26	50.0
1	Audio Oscillator Navy Model LAJ-1 including: Maintenance repair parts (NObsr-39247)	5.0	14 X 22-1/2 X 26	105.0

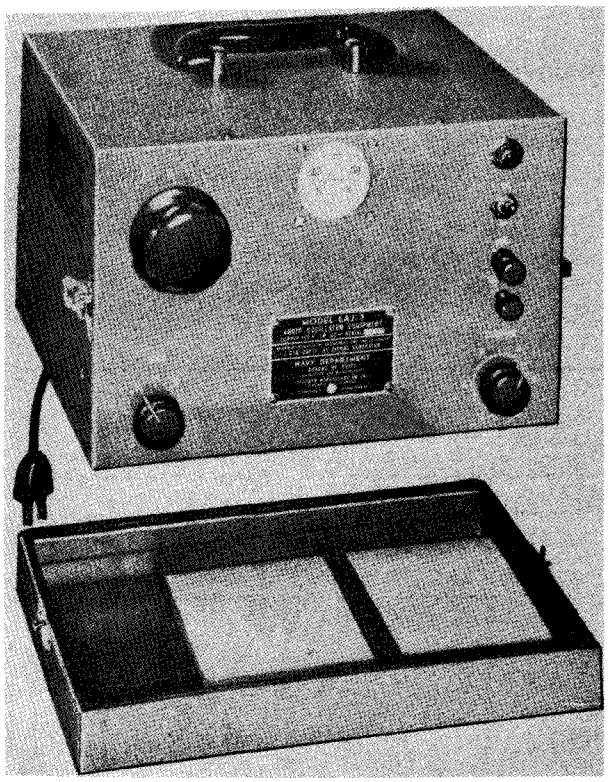
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	LAJ		
1	Audio Oscillator Model LAJ	9-7/16 X 10-1/4 X 15	36.0
2	Instruction Books NAVSHIPS 900378-A		
	LAJ-1		
1	Audio Oscillator Model LAJ-1	9-7/16 X 10-1/4 X 15	37.0
1	Maintenance Repair Parts	6-1/8 X 12-5/8 X 18-5/8	43.0
1	Instruction Book NAVSHIPS 900956		

April 1958

Test-Signal Generating

AUDIO OSCILLATOR LAJ-2



Audio Oscillator Equipment LAJ-2

FUNCTIONAL DESCRIPTION

The LAJ-2 is a portable, ac powered test equipment designed to generate frequencies in the audio spectrum. The oscillator section of the circuit is of the resistance-capacitance type.

No field changes in effect at time of preparation (3 April 1958).

RELATION TO OTHER EQUIPMENT

The LAJ-2 is electrically the same as Navy Models LAJ and LAJ-1. It is mechanically smaller and lighter.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER INPUT: 105 to 125 v, 50 to 60 cps, 45 W.

FREQUENCY RANGE: 20 to 20,000 cps.

ACCURACY: ±2% of dial reading (±3% at 20 cps).

POWER OUTPUT: 250 mw or 12.2 v into a 600 ohm load.

ATTENUATION: 0 to 50 db (600 ohm "T" pad).

PRESENTATION AND CONTROLS: The frequency dial is calibrated from 20 to 200 with a 3 range switch provided. The same dial is calibrated from 0 to 100 in linear divisions. The output terminals are binding posts suitable for wire or banana plug connections.

CONSTRUCTION: The equipment is enclosed in a metal case with plastic carrying handle on top and with a removable front cover.

MANUFACTURER'S OR CONTRACTOR'S DATA

Triumph Mfg Co., Chicago, Ill.
Contract NObsr-42438, dated 17 June 1948.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6AQ5 (2) 6AU6 (1) 6X4
Total Tubes: (5)
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91143: Instruction Book for Audio Oscillator Equipment Navy Model LAJ-2.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	AF Signal Generator LAJ-2	1.5	12 in. x 14-1/2 in. x 14-1/2 in.	36

LAJ-2 AUDIO OSCILLATOR

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Signal Generator LAJ-2	8 in. x 11 in. x 11-1/2 in.	25
2	Instruction Books		

January 1958 Test-Signals Generators

AUDIO OSCILLATOR EQUIPMENT LAJ-3

FUNCTIONAL DESCRIPTION

The Model LAJ-3 is a portable alternating current powered test set designed to generate voltages in the audio frequency range.

No field changes in effect at time of preparation (23 September 1957).

RELATION TO OTHER EQUIPMENT

The Model LAJ-3 is similar to other models of the LAJ series.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 20000 cps.
FREQUENCY BANDS: 3.
CALIBRATION ACCURACY: ±2%.
SIGNAL OUTPUT: 250 mw max.
FREQUENCY RESPONSE: Within 1 db max throughout frequency range.
OUTPUT IMPEDANCE: 600 ohms.
POWER REQUIREMENTS: 105 to 125 v, 50 to 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Teletronics Laboratory, Inc., Westbury, N. Y.

Contract NObsr-49213, dated 16 June 1950.
Contract NObsr-57457, dated 27 June 1952.
Contract NObsr-59244, dated 31 May 1951.
Approximate Cost: $135.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6AU6WA (1) 6X4WA (2) 6005/6AQ5W
Total Tubes: (5)

REFERENCE DATA AND LITERATURE

Federal Item Identification for Audio Oscillator Equipment Navy Model LAJ-3.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE SHIPS-0-1188
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

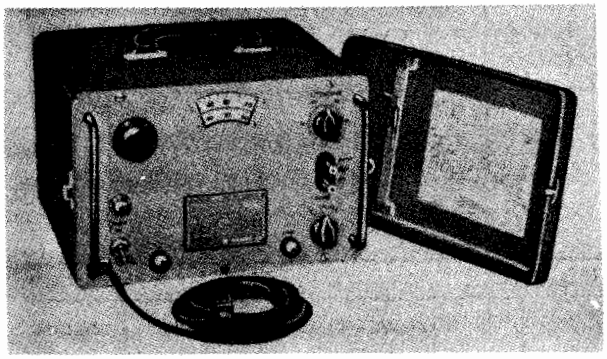
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator Equipment Navy Model LAJ-3	8 X 11 X 11-1/2	25
2	Technical Manual		
1	Set of Equipment Spares		

December 1956

Test-Signal Generating

AUDIO OSCILLATOR EQUIPMENT

LAJ-4



Audio Oscillator Equipment

FUNCTIONAL DESCRIPTION

The LAJ-4 is a portable AC powered test equipment that generates voltages in the audio frequency range and employs a resistance-capacitance frequency determining circuit.

No field changes in effect at time of preparation (9 August 1956).

RELATION TO OTHER EQUIPMENT

Similar to LAJ-2. Mechanical design changed and includes ruggedized tubes.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 20000 cps in 3 ranges.
POWER OUTPUT: 250 mw (12.2v) with 600 ohm resistive load.
FREQUENCY CONTROL: continuously variable dial.
FREQUENCY RESPONSE: less than 2 db from 20 to 20000 cps in output voltage variation
FREQUENCY STABILITY
  CALIBRATION ACCURACY: within 3% below, 2% above 30 cps.
  DRIFT: 2% max at room temperature.
  CHANGE DATA
    OUTPUT CONTROL SETTING: 0.05%
    INPUT VOLTAGE: 1% with sudden 10% voltage change
    RECOVERY TIME: 5 sec max after changing ranges.
  DISTORTION: 6% below and 1% above 30 cps.
IMPEDANCE DATA
  INTERNAL: Within 10% of 600 ohms at 1000 cps at full output. Essentially constant with output control setting.
  LOAD: 600 ohms.
POWER REQUIREMENTS: 105 to 125 v (117 v optimum); 50 to 60 cps, single phase, 56 w.

MANUFACTURER'S OR CONTRACTOR'S DATA

Teletronics Laboratory, Inc., Westbury, New York
Contract NObsr-57457 dated, 27 June 1952
Approximate Cost $140.00 With Equipment Spares

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6005 (2) 6AU6WA (1) 6X4W

Total Tubes: (5)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91884: Technical Manual for Audio Oscillator Equipment model LAJ-4.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

LAJ-4 AUDIO OSCILLATOR EQUIPMENT

December 1956

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	AF Signal Generator LAJ-4 (NT-601718)	2	14 X 14 X 18	41

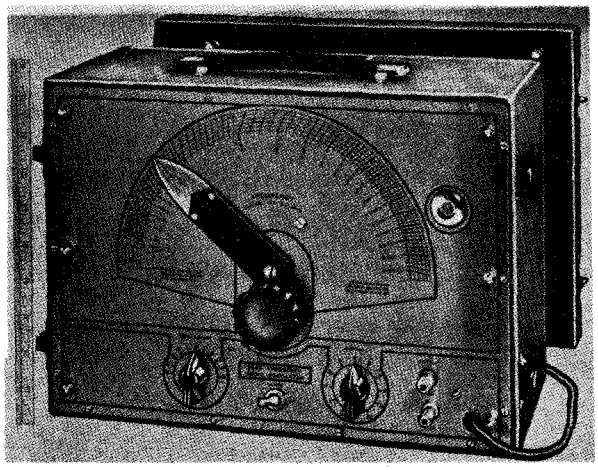
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Signal Generator LAJ-4 (NT-601718)	8-1/4 X 11 X 12-1/8	25
2	Technical Manual NAVSHIPS 91884	1/4 X 5-1/2 X 7-1/2	

April 1958

Test-Signal Generating

BEAT FREQUENCY OSCILLATOR LO, 1, 2, 3, 4



Beat Frequency Oscillator LO-4

FUNCTIONAL DESCRIPTION

The LO, 1, 2, 3 and 4 are audio frequency oscillators of the heterodyne or beat frequency type which have a continuously variable frequency range of 25 to 15000 cps.

Models LO, 1, 2, 3 and 4 are identical except for circuit improvements in each succeeding version.

No field changes in effect at time of preparation (9 April 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 25 to 15000 cps.
ACCURACY
- LO, 1, 2, 3: Below 1000 cps, to smallest dial division; above 1000 cps, 2%.
- LO-4: Below 500 cps, to smallest dial division; above 500 cps, 2%.

MAXIMUM POWER OUTPUT: 100 mw into 600 ohms.
MAXIMUM VOLTAGE OUTPUT: 7.74 v across 600 ohms.
OUTPUT IMPEDANCE: 600 ohms.
POWER REQUIREMENTS
- LO, 1, 2, 3: 110 to 115 v, 50 to 60 cps, single ph, 45 W.
- LO-4: 110 to 120 v, 50 to 60 cps, single ph, 40 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Clough-Brengle Co, Chicago, Illinois.
- Contract NOs-62888, dated 18 September 1938 (LO).
- Contract NOs-86615, dated 5 June 1941 (LO-1).
- Contract NOs-3868-A, dated 24 April 1942 (LO-2).
- Contract NXss-33176, dated 21 September 1943 (LO-3).
- Contract NXsr-60074, dated 18 February 1944 (LO-4).
- Approximate Cost: $300.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 6J5GT (1) 5U4G (1) 6E5
Total Tubes: (6)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900155, Vol II: Electronic Test Equipment Handbook (LO).
NAVSHIPS 95110: Technical Manual for Oscillator, Beat Frequency Navy Model LO-1.
NAVSHIPS 95111: Technical Manual for Oscillator, Beat Frequency Navy Model LO-2.
NAVSHIPS 900285-IB: Technical Manual for Navy Model LO-3 Beat Frequency Oscillator.
Preliminary Technical Manual for Navy Model LO-4 Beat Frequency Oscillator.

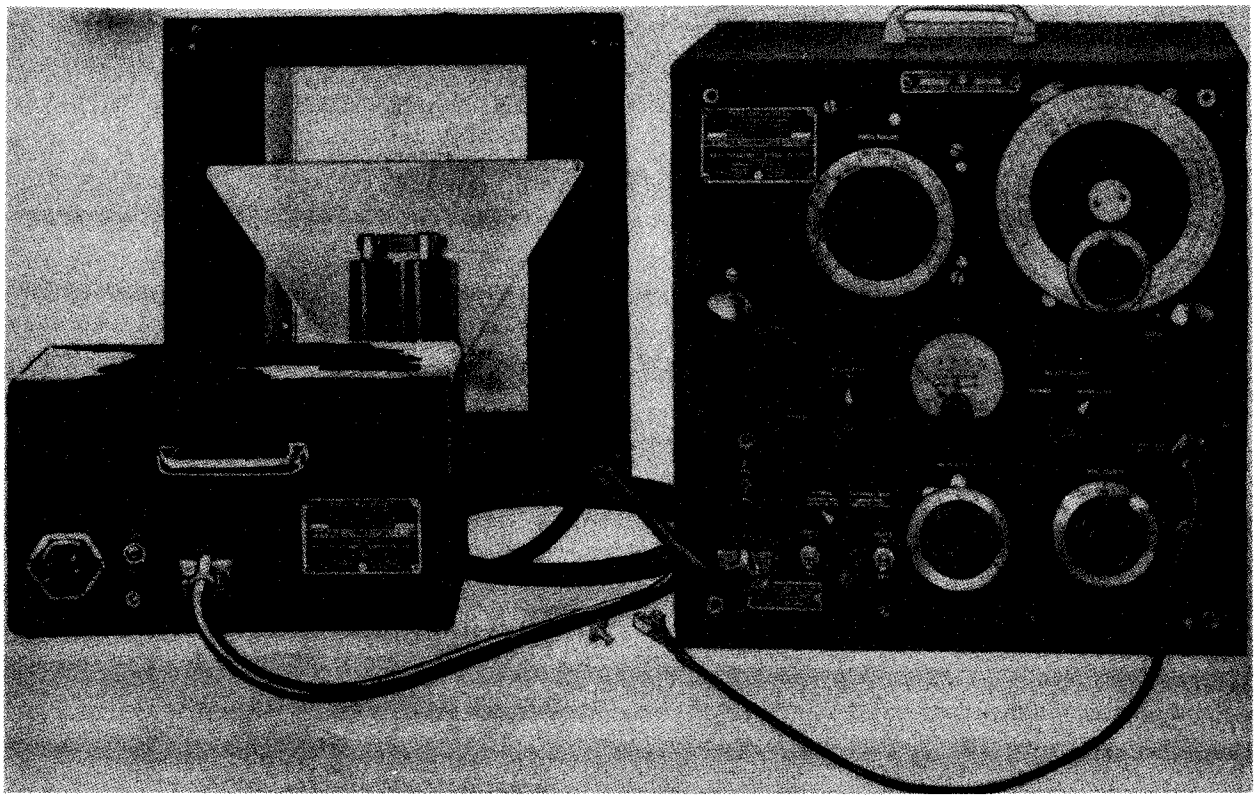
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT					NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
LO	1	2	3	4			
1	1	1	1	1	Beat Frequency Oscillator	8 X 10 X 14	20
1	1	1	1	1	Technical Manuals		
1	1	1	1	1	Set of Equipment Spares		

Test-Signal Generating

RF SIGNAL GENERATOR LP, 1, 2, 3, 4, 5



RF Standard Signal Generator Equipment Model LP-3

FUNCTIONAL DESCRIPTION

The LP Series Badio Frequency Signal Generators are used for producing radio frequency oscillations, either modulated or unmodulated, covering frequencies from 9.5 to 30,000 kc and so arranged and shielded that a continuously variable calibrated output voltage is obtainable across its output leads from 0.5 microvolts to 0.1 volts. An extended range from 30,000 to 50,000 kc is also provided. These equipments are designed and primarily for use in testing, servicing, and alignment of all types of radio receiving equipment.

The Models LP, LP-1, LP-2, LP-3, and LP-4 are identical except for name plate. Model LP-5 has improved tube sockets and minor internal changes.

No field changes in effect at time of preparation (10 April 1958).

RELATION TO OTHER EQUIPMENT

These equipments are superseded by RF Signal Generator AN/URM-25 Series.

Equipment Required but not Supplied: (1) Mating Jack Receptacle for Battery operation on LP-5.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 9.5 to 30,000 kc in 7 bands.
- ACCURACY: ±1%.
- EXTENDED RANGE: 30 to 50 mc, 1 band.
  - ACCURACY: ±3%.

POWER OUTPUT
- FIXED: 1 v.
- VARIABLE: 0.5 uv to 0.1 v.
  - ACCURACY: ±10% max.

OUTPUT IMPEDANCE
- OF GENERATOR BELOW 0.01 V: 10 ohms (first 4 positions of multiplier).
- OF GENERATOR ABOVE 0.01 V: 50 ohms.
- CABLE END: 90 ohms.

MODULATION
- INTERNAL: 1000 cps ±10%, 0 to 50%.
- EXTERNAL: 0 to 15000 cps.
  - AMPLITUDE: 4 v for 30% mod.
  - INPUT IMPEDANCE: 4000 ohms.

POWER REQUIREMENTS
- LP,1,2,3,4: 115 v ±10%, 60 ±2 cps, 42 W.
- LP-5: 115 v ±10%, 60 ±2 cps, 55 W.
- BATTERY OPERATION: 200 v, 40 ma and 6 v, 1.7 amp.

Test-Signal Generating

April 1958

LP, 1, 2, 3, 4, 5 RF SIGNAL GENERATOR

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Co., Cambridge, Mass.
- Contract NOs-64711, dated 21 January 1939 (LP).
- Contract NOs-72178, dated 9 April 1940 (LP-1).
- Contract NOs-86070, dated 21 May 1941 (LP-2).
- Contract NXs-13820, dated 5 October 1942 (LP-3).

Federal Manufacturing and Engineering Co., Brooklyn, N.Y.
- Contract NXsr-40979, dated 14 December 1943 (LP-5).
- Contract NXsr-62309, dated 25 May 1944 (LP-5).
- Contract NObsr-39320, dated 26 June 1947 (LP-5).
- Contract NObsr-42500, dated 30 June 1948 (LP-5).

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 76
(2) 84/6Z4
(1) 89Y
(1) 955

Total Tubes: (6)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95112: Technical Manual for Radio Frequency Standard Signal Generator Equipment Model LP.

NAVSHIPS 95113: Technical Manual for Radio Frequency Standard Signal Generator Equipment Model LP-1.

NAVSHIPS 95114: Technical Manual for Radio Frequency Standard Signal Generator Equipment Model LP-2.

NAVSHIPS 95115: Technical Manual for Radio Frequency Standard Signal Generator Equipment Model LP-3.

NAVSHIPS 900,425: Technical Manual for Radio Frequency Signal Generator Equipment Navy Model LP-5.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

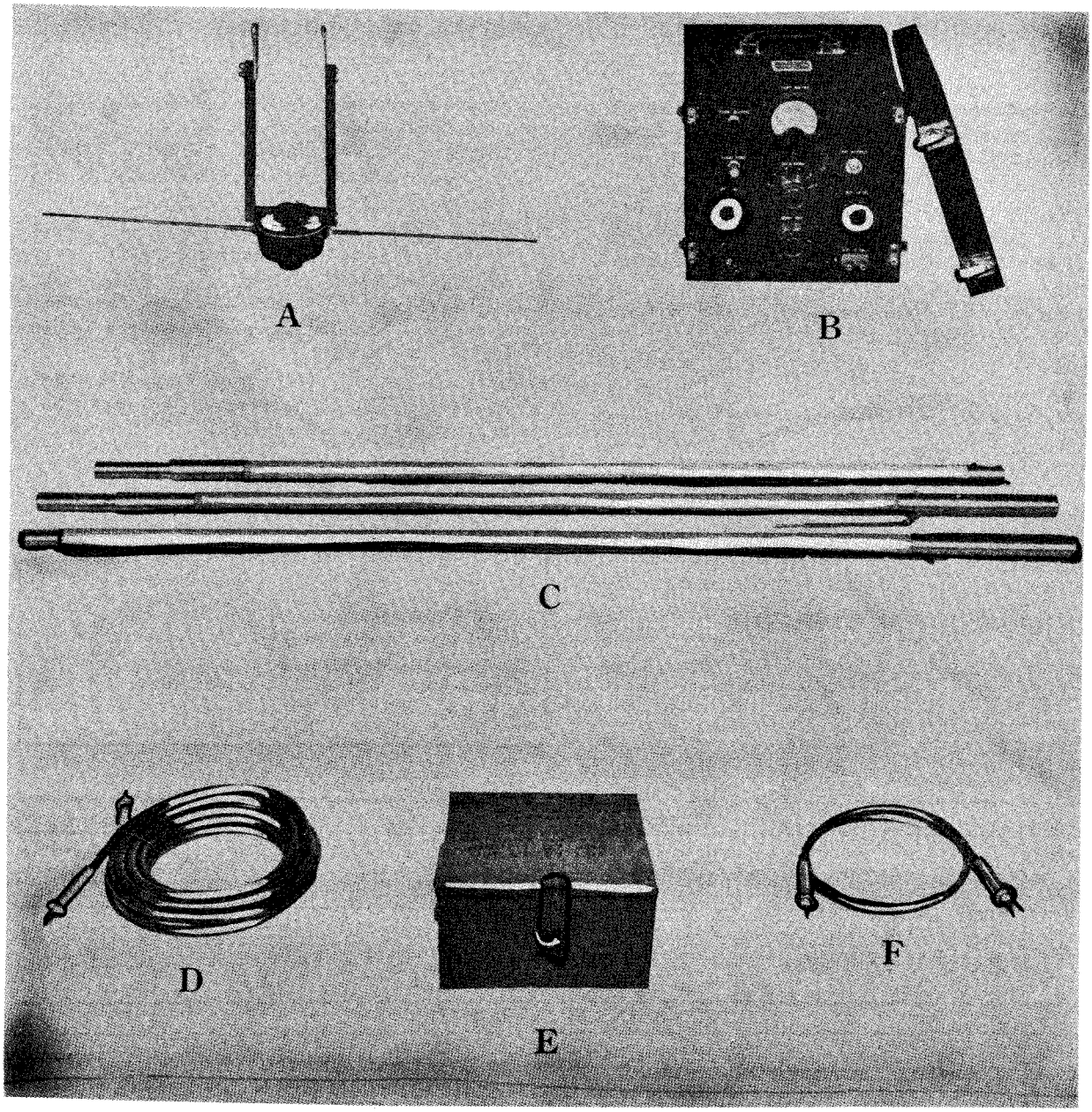
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	RF Signal Generator LP or LP-1, 2, 3, 4	6.4		124
1	RF Signal Generator LP-5	8.2	19 x 24 x 31	169

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
LP,1,2, 5				
3,4				
1		RF Signal Generator Unit NT-60006	11-1/2 x 15 x 17	55
	1	RF Signal Generator Unit NT-60006-A	11-1/2 x 15 x 17	55
1		Rectifier Power Unit NT-20080	5 x 7 x 12	20
	1	Rectifier Power Unit NT-20080-A	6 x 7 x 12	20
1	1	Dummy Antenna NT-66017		
1	1	10:1 Attenuator NT-63710		
1	1	Set Cables and Plugs		

December 1956

SIGNAL GENERATOR



LS-1 Squadron Signal Generator Equipment

A. Navy Type CML-66035 Signal Generator Antenna Assembly.
B. Navy Type CML-60049 Signal Generator and Front Cover.
C. Wood Pole, 3 Sections. (Assembles to 12 Foot Length).
D. 25 Foot Transmission Line. Contractor's No. 19930.
E. Kit of Operating Spare Parts. Contractor's No. 02477.
F. 3 Foot Transmission Line. Contractor's No. 19931.

LS-1 SIGNAL GENERATOR

December 1956

FUNCTIONAL DESCRIPTION

The LS-1 is a portable self-contained unit designed to generate and transfer a suitable signal to permit a uniform adjustment of the type 46120 Glide. Path Receiver Units which are a part of the model ZA Aircraft Radio Instrument Landing Equipment.

No field changes in effect at time of preparation (9 August 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (3) Batteries 45 v, (2) Batteries 4.5 v, (2) Batteries 1.5 v.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 90 to 95 mc.
TYPE EMISSION: Modulated Continuous Carrier.
TYPE MODULATION: Amplitude.
POWER SUPPLY: Dry Batteries.

MANUFACTURER'S OR CONTRACTOR'S DATA

Meissner Mfg. Company, Mt. Carmel, Ill.
Contract NXs 12130, dated 27 August 1942.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 1N5GT (2) 3A8GT (1) 1Q5GT
Total Tubes: (4)

(3) NT-40125
Total Crystals: (3)

REFERENCE DATA AND LITERATURE

Technical Manual for Signal Generator for Model LS-1.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

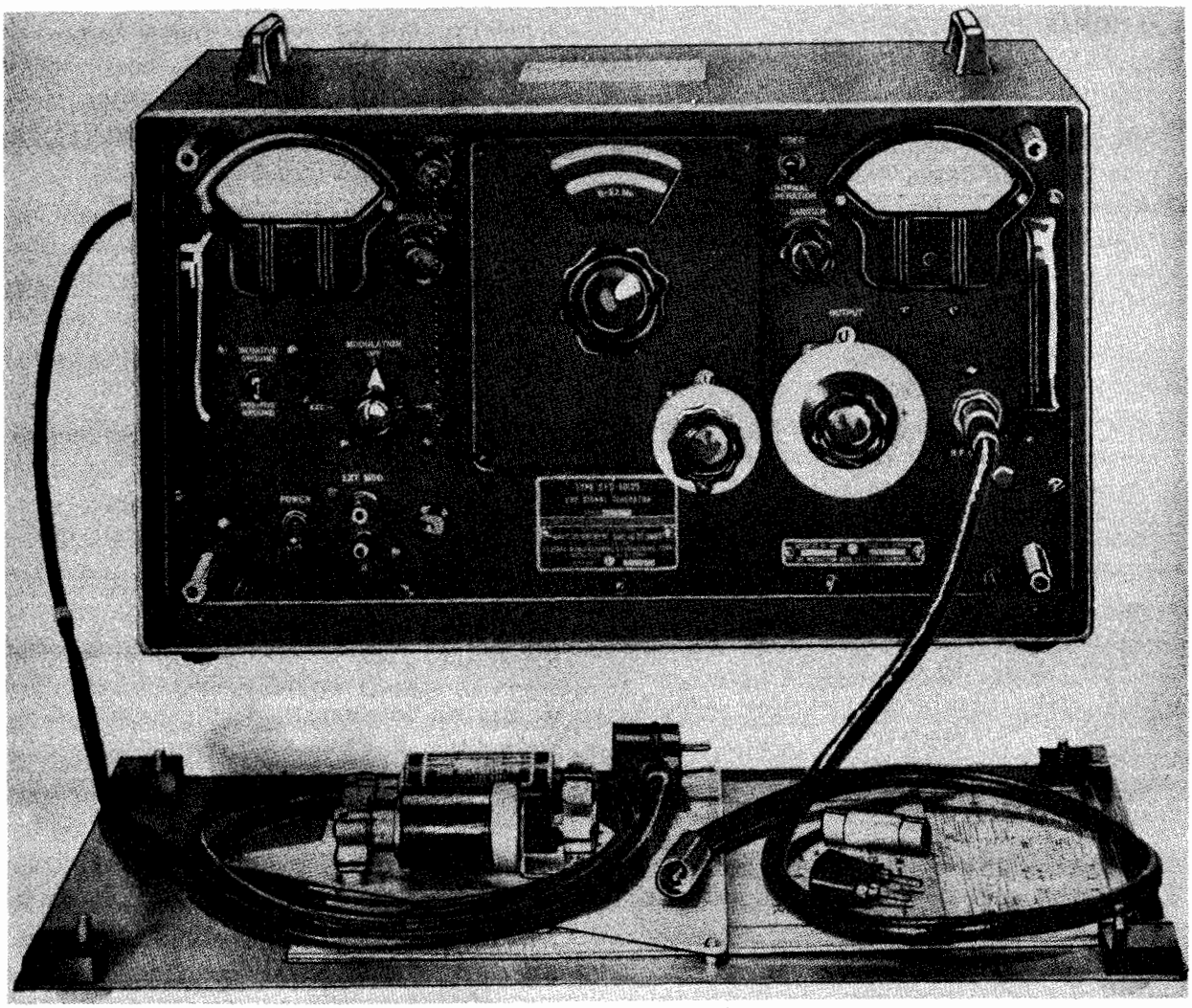
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator NT-60049	11 X 13 X 13	30
1	Antenna Assy NT-66035	4 X 6 X 15	
1	Set Accessories consisting of:		
1	Transmission Line (25 ft.)		
1	Transmission Line (3 ft.)		
1	Wood Pole Assy (12 ft.)		
1	Set Spare Parts		

April 1958

Test-Signal Generating

UHF SIGNAL GENERATOR

LX. 1, 2



UHF Signal Generator LX-1

FUNCTIONAL DESCRIPTION

The LX, LX-1, and LX-2 are portable units for test, alignment, and servicing of radio receiving equipment. They are capable of producing RF oscillations over a wide frequency band and are so arranged and shielded that a continuously variable and approximately known output voltage is available at all times. The units consist of an RF oscillator, modulator and calibrated attenuator. The LX, LX-1, and LX-2 are similar in operation and components with the exception that a polarity switch is not supplied with the LX.

No field changes in effect at time of preparation (9 April 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Video Pulse Generator OCD or equivalent.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 7.5 to 330 mc in 5 bands.
OUTPUT VOLTAGE: 1 to 20,000 uv below 100 mc; 1 to 10,000 uv above 100 mc.
ACCURACY: ±0.5 uv up to 25 mc.
INTERNAL MODULATION: 1000 cps ±5%.
EXTERNAL MODULATION: 200 cps to 10 kc ±1 db; 100 cps to 20 kc ±3 db.
MODULATION RANGE
INTERNAL: 0 to 60%.

Test-Signal Generating

April 1958

LX, 1, 2 UHF SIGNAL GENERATOR

EXTERNAL: 0 to 75%.
EMISSION: A1 and A2, internal or external; PO, external.
ATTENUATOR OUTPUT IMPEDANCE: 75 ohms.
POWER REQUIREMENTS: 105 to 125 or 210 to 250 v, 40 to 60 cps, single ph, 35 W.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6G6G
(1) OD3W
(1) 955
(1) 6X5WGT
Total Tubes: (4)
No Crystals used.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Co, Cambridge, Mass. (LX).
Contract NXs-2438, dated 7 April 1942.
Federal Mfg and Eng Corp, Brooklyn, N.Y. (LX-1).
Contract NXsr-51515, dated 10 April 1945.
Washington Institute of Technology, Inc. Washington, D.C. (LX-2).
Contract NObsr-39308, dated 27 June 1947.
Approximate Cost: $800.00 with equipment spares.

REFERENCE DATA AND LITERATURE

NAVSHIPS 95120: Technical Manual for UHF Signal Generator Equipment Navy Model LX.
NAVSHIPS 900,643: Technical Manual for UHF Signal Generator Equipment Navy Model LX-1.
NAVSHIPS 91130: Technical Manual for UHF Signal Generator Equipment Navy Model LX-2.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	UHF Signal Generator with spares LX-1	5.5	19-1/8 X 19-3/8 X 28-1/2	118
1	UHF Signal Generator with spares LX-2	7.6	17 X 19 X 40-1/2	135

EQUIPMENT SUPPLIED DATA

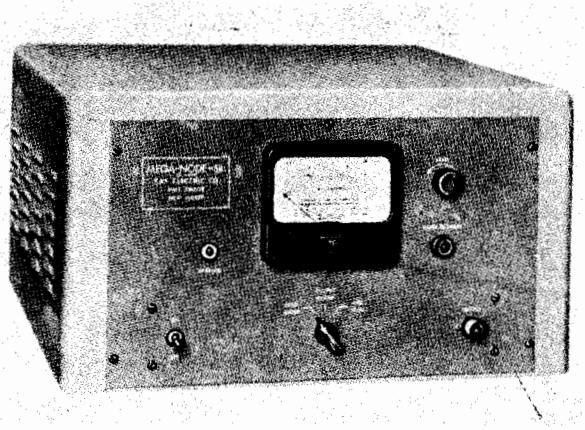
QUANTITY PER EQUIPT			NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
LX	1	2			
1			UHF Signal Generator NT-60040	10-1/2 X 11-1/2 X 21-7/8	
	1		UHF Signal Generator NT-60125	10-13/16 X 12-19/32 X 19-9/16	41
		1	UHF Signal Generator NT-60125-A	10-3/4 X 12-7/16 X 19-5/16	39.6
1	1	1	Attenuator Unit NT-631210	1-11/16 dia X 4-1/4	4.5
1	1	1	Terminal Unit NT-49182	1-3/8 dia X 2-15/16	0.25
1	1	1	Jack Connector NT-49181		
1	1	1	Double Plug NT-491518		
1	1	1	Set of Cables and Plugs		
1	1	1	Set of Equipment Spares		

Test-Signal Generating

March 1957

MEGA-NODE SR

MEGA-NODE SR



Mega-Node SR

FUNCTIONAL DESCRIPTION

The MEGA-NODE Sr is a calibrated random noise source providing output over the frequency range of 10 to 3000 megacycles. It is used for the measurement of noise figure, receiver gain and for the indirect calibration of standard signal source. Charts are supplied which provide diode transit time and mismatch corrections permitting more accurate noise figure at high frequencies. Comparative receiver sensitivity measurements may be made when the circuit band width is known and circuit noise is not excessive.

The instrument employs a coaxial type noise diode with a tungsten filament as a temperature-limited fluctuation noise generator. A special terminating network is incorporated to insure low VSWR at the output connector.

No field changes in effect at time of preparation (18 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 10 mc to 3000 mc.
OUTPUT IMPEDANCE: 50 ohms unbalanced.
NOISE FIGURE RANGE: 0 to 20 db.
METER CALIBRATION: Linear in DB noise figure, Logarithmic in DCMA.
FILAMENT VOLTAGE SUPPLY: From regulated high frequency supply.
POWER SOURCE: 117 v, 60 cps, single ph.
POWER CONSUMPTION: 130 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Kay Electric Co, Pine Brook, N.J.
Approximate Cost: $995.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) Eclipse Pioneer TT 1 diode

Total Tubes: (1)

REFERENCE DATA AND LITERATURE

Kay Electric Co Catalog of Electronic Instruments 1954-55, page 21, the MEGA Node SR.

TYPE CLASSIFICATION
DESIGN COGNIZANCE COMMERCIAL
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	MEGA-NODE SR	10 x 10 x 16	45

Test Signal Generating

TEST SET GROUP SUBASSEMBLY MX-1696/DSM

FUNCTIONAL DESCRIPTION

The MX-1696/DSM provides facilities for generating missile directive signals and code checking frequencies, measures missile response time and includes a power supply for the entire missile test set.

No field changes in effect at time of preparation (26 July 1956).

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes

REFERENCE DATA AND LITERATURE

Nomenclature Card for Test Set GROUP SUI ASSEMBLY MX-1696/DSM.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Set Group Subassembly MX-1696/DSM consist of:	12-7/8 x 20-3/4 x 25-3/16	
1	Command Modulator		
1	Microsecond Oscillator		
1	Pitch Oscillator		
1	Yaw Oscillator		
1	Burst Oscillator		
1	Power Supply		
1	Reference Oscillator		
1	Common Equipment, Lower Drawer		

September 1956

TEST SET GROUP SUBASSEMBLY MX-1701/DSM

FUNCTIONAL DESCRIPTION

The MX-1701/DSM provides signal generating and pulsing facilities for testing a guided missile on the ground with means intended for measuring RF power, frequency, and the missile burst time.

No field changes in effect at time of preparation (26 July 1956).

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Test Set Group-SUB-Assembly MX-1791/DSM.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

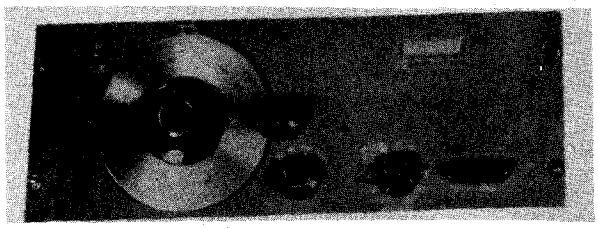
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (Inches)	WEIGHT (lbs.)
1	Test Set Group Subassembly MX-1701/DSM consists of:	12-7/8 X 20-3/4 X 23-1/2	
1	Common Equipment, Upper Drawer		
1	Pulser		
1	Oscilloscope		
1	Burst Timer		
1	RF Power Meter		
1	Pulse Selector		
1	Response Indicator		
1	RF Signal Generator		
1	Waveguide Assembly		

April 1959

Test-Signal Generating

AUDIO OSCILLATOR O-450/U



Audio Oscillator O-450/U

FUNCTIONAL DESCRIPTION

Audio Oscillator 0-450/U is designed for general purpose audio testing and measurement.

No field changes in effect at time of preparation (23 March 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 or 230 v, 50 to 1,000 cps, 65 W, 1 ph.
FREQUENCY RANGE: 20 cy to 40 kc.
CALIBRATION ACCURACY: ±2%.
FREQUENCY RESPONSE: ±1 db.
POWER OUTPUT: 1 W into 600 ohm (24.5 v rms).
DISTORTION: Less than 1%.
LOAD IMPEDANCE: 600 ohms, resistive.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co., Palo Alto, Calif.

Model 200ABR.
Contract NObsr-71175, dated 28 August 1956.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT
(1) 6SJ7
(3) 6K6
(1) 6SN7
Total Tubes: (6)
No Crystals Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92657: Technical Manual for Audio Oscillator 200AB.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.2.1

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Oscillator 0-450/U			35

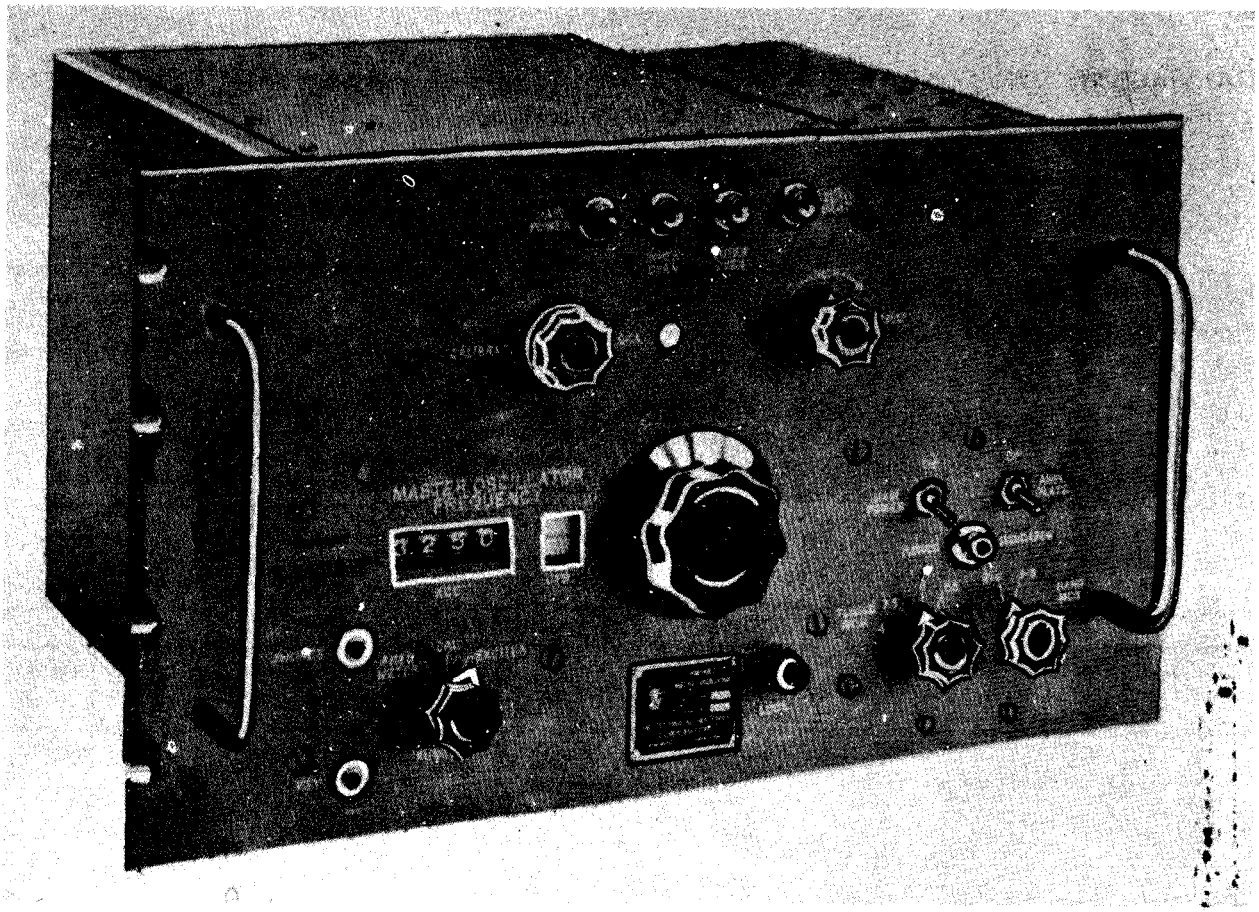
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator 0-450/U	7 X 12-1/4 X 19	20

June 1957

Test-Signal Generating

RADIO FREQUENCY OSCILLATOR O-459/URT



Radio Frequency Oscillator O-459/URT

FUNCTIONAL DESCRIPTION

The O-459/URT is a precision, direct-reading variable device, combining the best electrical characteristics of a highly stable master oscillator, with the compactness and convenient size of conventional portable units.

It may be used as a transmitter exciter, a frequency meter, and a source of 100 kilocycles for receiver calibration.

It is designed for standard 19 inch rack mounting.

No field changes in effect at time of preparation (23 November 1956).

RELATION TO OTHER EQUIPMENT

The O-459/URT is a Technical Material Corp.

Model PMO-2 Portable Master Oscillator.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 8 mc, continuously variable.

OUTPUT DATA

POWER: Continuously adjustable to at least 3 W.

IMPEDANCE: 70 ohms coaxial.

VOLTAGE: Sinusoidal.

CALIBRATION: Direct reading in cycles, 2 to 4 mc.

RESETABILITY: 30 cycles per mc to a previously calibrated frequency.

CALIBRATE ADJUST: Against 50 kc check points.

KEYING INPUT: Provision for on-off keying thru front panel jack or rear panel terminal board.

LINE VOLTAGE CHANGE: 10 cps max for ±10% over the basic range of the unit.

POWER REQUIREMENTS: 110 or 220 v, 50 to 60 cps, 80 W average, 220 W at momentary intervals as ovens cycle.

Test-Signal Generating

O-459/URT RADIO FREQUENCY OSCILLATOR

June 1957

MANUFACTURER'S OR CONTRACTOR'S DATA

The Technical Material Corp, Mamoroneck, N.Y.

Contract NObsr 71299, dated 7 May 1956.

Approximate Cost: $497.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT	(1) 6AH6	(1) 6BE6
(1) OA2	(1) 6AQ5	(2) 12AU7
		(1) 6C4

Total Tubes: (8)

(1) 100KC

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92763: Technical Manual for Portable Master Oscillator Model PMO, O-459/URT Oscillator, Radio Frequency.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	COMMERCIAL
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Oscillator O-459/URT	10-1/2 x 13 x 19	48
2	Technical Manual NAVSHIPS 92763	1/4 x 8-7/8 x 11-1/2	

SECT 3 OF 5 NAVSHIPS 94200.4

DIRECTORY OF ELECTRONICS TEST EQUIPMENT

(CONTINUED)

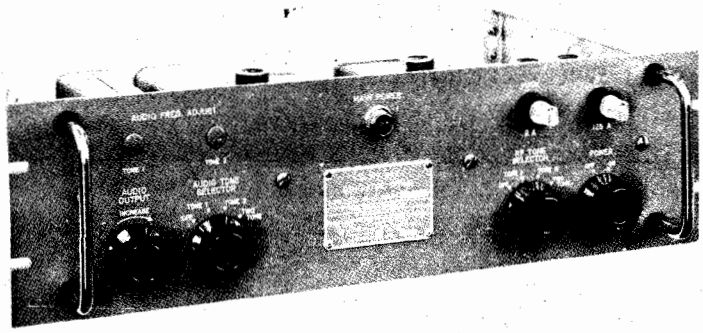
PREPARED BY
U.S. NAVY
ELECTRONICS SUPPLY OFFICE
GREAT LAKES, ILLINOIS

22 May 1962 GENERATOR, SIGNAL O-579/URT

Cog Service:	FSN:	Functional Class:
	USA USN USAF	

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Technical Materiel Corporation.



Generator, Signal O-579/URT

FUNCTIONAL DESCRIPTION:

The Generator, Signal O-579/URT is designed for general purpose use as master oscillator for FS or CW operation and frequency checking. The unit operates on four (4) fixed frequencies.

No field changes in effect at time of preparation (14 July 1961).

TECHNICAL CHARACTERISTICS:

TYPE OF MOUNTING: Adaptable for rack mounting.
AUDIO FREQUENCY OSCILLATOR
OUTPUT FREQUENCIES: 935 cps, 2805 cps.
HARMONIC DISTORTION: More than 65 db down.
INTERMODULATION DISTORTION: More than 55 db down.
OUTPUT IMPEDANCE: 600 ohms unbalanced or balanced.

O-579/URT GENERATOR, SIGNAL

OUTPUT LEVEL: 0 to 0.5 v continuously variable.
OUTPUT CONNECTION: Barrier Terminal Strip.

RADIO FREQUENCY OSCILLATOR
OUTPUT FREQUENCIES: 1999 kc, 2001 kc.
DISTORTION: More than 60 db down.
OUTPUT IMPEDANCE: 70 ohms unbalanced.
OUTPUT LEVEL: 1.0 volt.
OUTPUT CONNECTOR: BNC.

TYPE OF FREQUENCY CONTROL: Crystal.
FOUR FIXED FREQUENCIES: 1.999 mc, 2.001 mc, 425 cycles and 2805 cycles.
TYPE OF OPERATION: FS or CW operation.
OPERATING POWER RQMT: 115 v ac, 50 to 60 cps, single ph.

RELATION TO OTHER EQUIPMENT:

The O-579/URT is designed to be used with, but is not a part of, the AN/FRT-39.
The O-579/URT is the same as Technical Materiel Corporation's Model "TTG".

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Generator, Signal O-579/URT		5-7/32 x 10 x 19	50

REFERENCE DATA AND LITERATURE:

Technical Materiel Corporation's Catalog for Signal, Generator O-579/URT (Model TTG).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

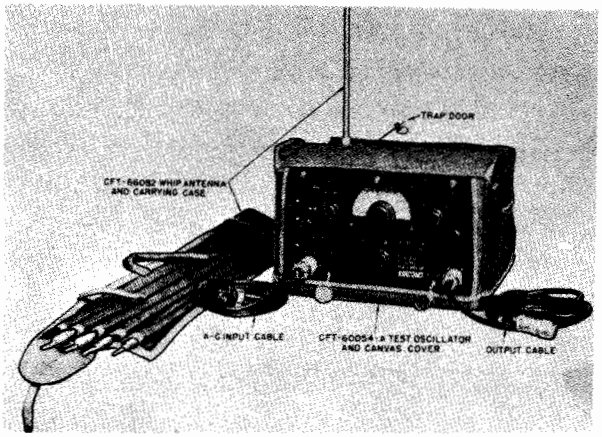
PROCUREMENT DATA

PROCURING SERVICE:
DESIGN COG: USN, BuShips
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Technical Materiel Corporation, Model TTG	Mamaroneck, N. Y.	NObsr-71790, 28 April 1957	

Test-Signal Generating

TEST OSCILLATOR OAN



Model OAN Test Oscillator Equipment

FUNCTIONAL DESCRIPTION

The Navy Model OAN is a portable equipment designed to function as a target transmitter for measuring collector system unbalance, over-all direction finder bearing accuracy, and for alignment of the input stage of Radio Direction Finder Equipment Navy Model DAK-2 and DAK-3.

It is designed to operate in the 200 to 2000 kilocycle frequency range and is of the master-oscillator, tuned-amplifier type with a fixed antenna output, and a variable 140-ohm balanced output, incorporating a constant impedance attenuator.

No field changes in effect at time of preparation (5 August 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 200 to 2000 kc.
FREQUENCY BANDS: 3.
OUTPUT: May be varied from max in steps of 0.04, 0.02, 0.01 and 0.005 of max to zero.
POWER REQUIREMENTS: 115 v, 60 cps, single ph, 21 W or (3) 1.5 v and (3) 45 v dry cell batteries.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SK7 (1) 6X5GT
Total Tubes: (3)

No Crystal Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900277: Technical Manual for Model DAK-2 Radio Direction Finder Equipment.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE

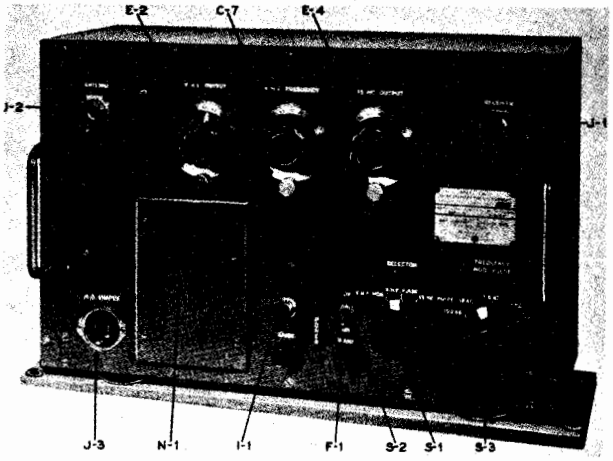
STOCK NO.

R.D.B. IDENT. NO. 4.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Oscillator Unit NT-60054-A	9-3/16 X 16-3/16 X 16-1/4	
1	Waterproof Carrying Case		
1	Whip Antenna Assembly NT-66082	180 lg	
1	Antenna Carrying Case		
1	Battery Pack		

RADAR OPERATOR TRAINING EQUIPMENT



Radar Operator Training Equipment OAV,OAV-1

FUNCTIONAL DESCRIPTION

The OAV, OAV-1 is a test signal generator for use in the training of personnel in the operation of anti-jam radar receivers of the CG-46ACQ type, and to provide a test signal of constant frequency for use in aligning the intermediate-frequency amplifier stages in the CG-46ACQ type receivers.

No field changes in effect at time of preparation (15 August 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 150 to 250 mc.
OPERATING POWER: 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Belmont Radio Corp., Chicago, Illinois.
Contract NXss 27821. (OAV)
Contract NXss 33085. (OAV-1)
Contract NXss 44599.

TUBE AND/OR CRYSTAL COMPLEMENT

OAV	OAV-1
(1) 5Y3GT	(1) 5Y3GT
(1) 6AG7	(1) 6AG7
(1) 6SL7GT	(1) 6SL7GT
(1) 955	(2) 9002
Total Tubes: (4)	Total Tubes: (5)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,155: Electronic Test Equipment Handbook.
NAVSHIPS 919.2: Technical Manual for Radar Operator Training Equipment OAV-1.

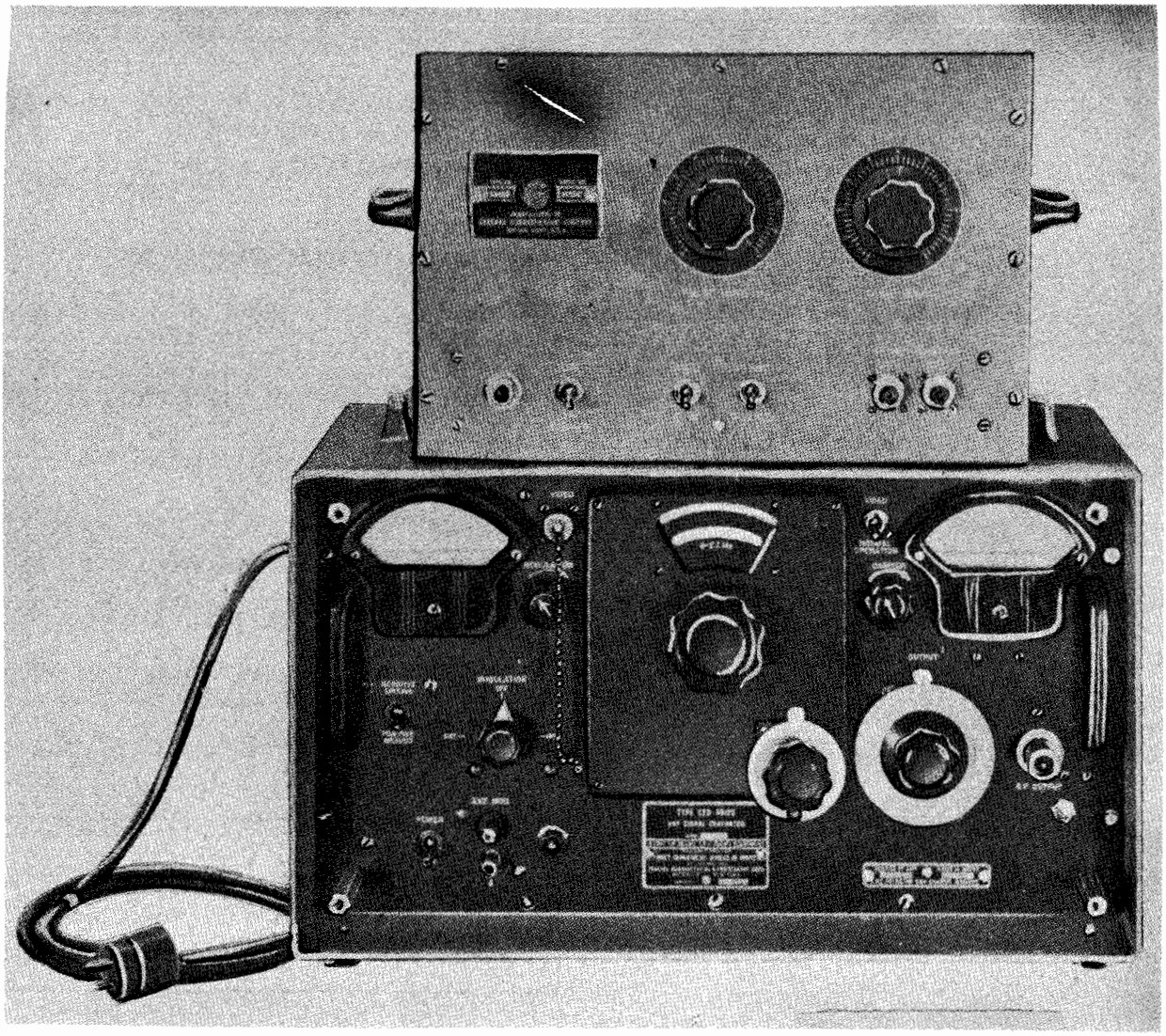
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
OAV	OAV-1			
1		Signal Generator OAV	9 X 10 X 16	65
	1	Signal Generator OAV-1	9-1/32 X 13-7/16 X 21-3/4	65
1	1	Technical Manual		
1	1	Power Cable		

April 1958

SIGNAL GENERATOR EQUIPMENT



Signal Generator Equipment OCD

FUNCTIONAL DESCRIPTION

The Model OCD is designed to provide output pulses of substantially rectangular form suitable for pulse modulation of radio frequency signal generators, such as Model LX-1 Signal Generator Equipment. The output pulse length is adjustable from about 2.5 to 50 microseconds with a recurrence rate of 3,000 to 6,000 pulses per second, dependent upon the pulse length. It provides a synchronizing pulse, adjustable in amplitude and either positive or negative sign.

No field changes in effect at time of preparation (28 October 1957).

RELATION TO OTHER EQUIPMENT

The Navy Model OCD has been superseded by Pulse Generator SG-18/U and Signal Generators AN/USM-27 Series.

Test-Signal Generating

OCD SIGNAL GENERATOR EQUIPMENT

April 1958

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT PULSE DATA
LENGTH: 2.5 to 50 usec.
REPETITION RATE: 3000 to 6000 pps.
AMPLITUDE: +240 v.
SYNC PULSE DATA
POLARITY: Positive or negative
AMPLITUDE: 0 to 40 v.
POWER REQUIREMENTS: 105 to 125 v, 60 cps, single ph, 1 amp.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Company, Boston, Mass.
Contract NXsr-51554, dated 16 March 1944.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5U4G (1) 5932 (2) 6AG7Y
Total Tubes: (4)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900646: Technical Manual for Signal Generator Equipment Navy Model OCD.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.3

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator Equipment Model OCD	8	21-1/2 x 21-1/2 x 30	100

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Video Signal Generator NT-60AAW	8-1/4 x 9-1/4 x 14-1/8	37
1	Power Cable	72 lg	
1	Output Signal Cable	36 lg	
1	Synchronizing Signal Cable	36 lg	

Test-Signal Generating

FREQUENCY METER SET SCR-211-A,B,C,D,E,F,J,K, L,M,N,O,P,Q,R,T,AA, AC,AE,AF,AG,AH,AJ,AK,AL,AN

FUNCTIONAL DESCRIPTION

The SCR-211-A, B, C, D, E, F, J, K, L, M, N, O, P, Q, R, T, AA, AC, AE, AF, AG, AH, AJ, AK, AL and AN are precision instruments designed to measure or radiate radio frequency impulses between 125 and 20,000 Kilocycles. They are portable completely self-contained instruments used mainly to calibrate field radio receivers and transmitters by direct comparison with the calibrated variable frequency oscillator of the frequency meter.

The principal component of the set Frequency Meter BC-221-(*), a heterodyne type frequency meter supplied in either a metal or wooden cabinet.

All of these models are similar as far as basic operation is concerned but there are many differences in the mechanical arrangement of the cabinets and controls as well as in electrical circuit and vacuum tube arrangements.

No field changes in effect at time of preparation (26 November 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 125 to 20,000 kc.
FREQUENCY METER TYPE: Heterodyne.
POWER SOURCE REQUIRED:

SCR-211-A: 5.4 to 6 v DC at 0.86 to 0.91 amps and 121.5 to 135 v at 9.1 ma. to 10.6 ma.

SCR-211-C,-D: 5.4 to 6 v DC at 0.86 to 0.91 amps and 121.5 to 135 v DC at 13 to 17 ma.

SCR-211-B,-Q: 5.4 to 6 v DC at 0.86 to 0.91 amp and 121.5 to 135 v DC at 14.5 to 17 ma.

SCR-211-E: 6 v DC at 0.71 amps and 135 v DC at 7.9 ma w/switch at CRYSTAL, 14.1 ma w/switch at OPERATE, 10.9 ma w/ switch at CHECK

SCR-211-F,-J,-K,-L: 5.4 to 6.0 v DC at 0.86 to 0.92 amps and 121.5 to 135 v DC at 12.6 to 14.6 ma w/CRYSTAL switch in OFF position.

SCR-211-M,-O,-R: 5.4 to 6.0 v DC at 0.8 to 0.9 amp and 121.5 to 135 v DC at 12 to 14 ma w/switch in XTALCHECK position.

SCR-211-AC: 5.4 to 6 v DC at 0.86 to 0.91 amp and 121.5 to 135 v DC at 15 to 17 ma.

SCR-211-N,-AA: 6 v DC at 0.85 amps and 135 v DC at 12 ma w/switch at crystal, 18 ma w/switch at OPERATE, 14 ma w/switch at CHECK.

SCR-211-P,-T,-AF,-AH: 5.4 to 6 v DC at 0.86 to 0.92 amps and 121.5 v to 135 v DC at 15 to 17 ma w/switch at XTAL-CHECK.

SCR-211-AE,-AG: 6 v DC at 0.85 amps and 135 v DC at 12 ma w/switch at CRYSTAL, 18 ma w/switch at OPERATE, 14 ma w/switch at CHECK.

SCR-211-AK: 6 v DC at 0.85 amps, 0.30 amp w/switch at WARM UP and 135 v DC at 12 ma w/switch at crystal, 18 ma w/switch at OPERATE, 17 ma w/switch at MODULATE, 14 ma w/switch at CHECK.

SCR-211-AJ,-AL: 5.4 to 6 v DC at 0.86 to 0.91 amps and 121.5 to 135 v DC at 16 to 180 ma.

SCR-211-AN: 6 v DC at 0.85 amps and 135 v DC at 12 to 18 ma.

MANUFACTURER'S OR CONTRACTOR'S DATA

SCR-211-A,-C,-D,-M Bendix Radio Corp.
SCR-211-B,-Q, Cardwell Mfg Corp.
SCR-211-E,-N,-AA,-AE,-AG,-AK, Philco Corp.
SCR-211,-F,-J,-K,-L,-P,-T,-AF,-AH, Zenith Radio Corp.
SCR-211-0,-R,-AC,-AJ, Rauland Corp.
SCR-211-AN, Not known.

TUBE AND/OR CRYSTAL COMPLEMENT

SCR-211-A,-C,-D
(1) 77 (1) 6A7 (1) 76
Total Tubes: (3)

SCR-211-B,-Q,-N,-AA,-AE,-AG,-AK
(2) 6SJ7 (1) 6K8
Total Tubes: (3)

SCR-211-E
(1) 7G7 (1) 7B8LM (1) 7A4
Total Tubes: (3)

SCR-211-F,-J,-K,-L
(1) 6SJ7Y (1) 6A7 (1) 76
Total Tubes: (3)

SCR-211-M,-O,-R,-AC,-P,-T,-AF,-AH,-AJ
(1) 6SJ7Y (1) 6K8 (1) 6SJ7
Total Tubes: (3)

REFERENCE DATA AND LITERATURE

TM-11-300, Technical Manual for Frequency Meter Sets SCR-211-A, B, C, D, E, F, J, K, L, M, N, O, P, Q, R, T, AA, AC, AE, AF, AG, AH, AJ, AK, AL and AN.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

Test-Signal Generating
SCR-211-A,B,C,D,E,F,J,K, L,M,N,O,P,Q,R,T,AA, AC,AE,AF,AG,AH,AJ,AK,AL,AN

FREQUENCY METER SET

August 1957

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Frequency Meter Set SCR-211-A or SCR-211-C or SCR-211-D c/o 1 Frequency Meter BC-221-A or BC-221-C or BC-221-D 1 Crystal Unit DC-9-C or DC-9-D (operating) 1 Crystal Unit DC-9-A or DC-9-C or DC-9-D (mounted spare) 1 Calibration Book MC-177-A or MC-177-C or MC-177-D 1 Calibration Book MC-177-A or MC-177-C or MC-177-D (Spare) 1 Bristo No. 6 set screw wrench 1 Bristo No. 8 set screw wrench 1 Technical Manual 1 Bag BG-81 or BG-81-C or BG-81-D 1 Set of spare vacuum tubes		
or 1	Frequency Meter Set SCR-211-B or SCR-211-Q c/o 1 Frequency Meter BC-221-B or BC-221-Q 1 Crystal Unit DC-9-B or DC-9-Q (Operating) 1 Crystal Unit (Spare) DC-9-B or DC-9-Q 1 Calibration Book MC-177-B or MC-177-Q 1 Calibration Book (spare) MC-177-B or MC-177-Q 1 Battery Tray 1 Bristo No. 6 set screw wrench 1 Strap ST-19-A 1 Bag BG-81-B or BG-81-Q 1 Technical Manual 1 Set of spare vacuum tubes		
or 1	Frequency Meter Set SCR-211-E c/o 1 Frequency Meter BC-221-E 1 Crystal Unit (Operating) DC-9-E 1 Crystal Unit (spare) DC-9-E 1 Calibration Book MC-177-E 1 Calibration Book (spare) MC-177-E 1 Bristo No. 6 set screw wrench 1 Bristo No. 8 setscrew wrench 1 Bag BG-81-E 1 Technical Manual 1 Set of spare vacuum tubes		
or 1	Frequency Meter Set SCR-211-F or SCR-211-J or SCR-211-K or SCR-211-L c/o 1 Frequency Meter BC-221-F or BC-211-J or BC-211-K or BC-211-L 1 Crystal Unit (operating) DC-9-F or DC-9-J or DC-9-K or DC-9-L 1 Crystal Unit (spare) DC-9-F or DC-9-J or DC-9-K or DC-9-L 1 Calibration Book MC-177-F or MC-177-J or MC-177-K or MC-177-L 1 Calibration Book (spare) MC-177-F or MC-177-J or MC-177-K or MC-177-L 1 Bristo No. 1 setscrew wrench 1 Bag BG-81-F or BG-81-J or BG-81-K or BG-81-L 1 Technical Manual		

FREQUENCY METER SET

Test-Signal Generating
SCR-211-A,B,C,D,E,F,J,K, L,M,N,O,P,Q,R,T,AA, AC,AE,AF,AG,AH,AJ,AK,AL,AN

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	1 Strap ST-19-A *		
	1 Set of Spare vacuum tubes		
or 1	Frequency Meter Set		
	SCR-211-M or SCR-211-0 or SCR-211-R or SCR-211-AC c/o		
	1 Frequency Meter BC-221-M or BC-221-0 or BC-211-R or BC-221-AC		
	1 Crystal Unit (operating) DC-9-M or DC-9-0 or DC-9-R or DC-9-AC		
	1 Crystal Unit (spare) DC-9-M or DC-9-0 or DC-9-R or DC-9-AC		
	1 Calibration Book MC-177-M or MC-177-0 or MC-177-R or MC-177-AC		
	1 Calibration Book (Spare) MC-177-M or MC-177-0 or MC-177-R or MC-177-AC		
	1 Bristo No. 6 setscrew wrench		
	1 Bristo No. 8 setscrew wrench		
	1 Bag BG-81-M or BG-81-0 or BG-81-R or BG-81-AC		
	1 Strap ST-19-A		
	1 Technical Manual		
	1 Set of spare vacuum tubes		
or 1	Frequency Meter Set SCR-211-N or SCR-211-AA c/o		
	1 Frequency Meter BC-221-N or BC-221-AA		
	1 Crystal Unit (operating) DC-9-P or DC-9-AD		
	1 Crystal Unit (spare) DC-9-P or DC-9-AD		
	1 Calibration Book MC-177-N or MC-177-AA		
	1 Calibration Book (spare) MC-177-N or MC-177-AA		
	1 Bag BG-81-N or BG-81-AA		
	1 Technical Manual		
	1 Strap ST-19-A		
or 1	Frequency Meter Set SCR-211-P or SCR-211-T or SCR-211-AF or SCR-211-AH c/o		
	1 Frequency Meter BC-221-P or BC-221-T or BC-221-AF or BC-221-AH		
	1 Crystal Unit (operating) DC-9-P or DC-9-T		
	1 Calibration Book MC-177-P or MC-177-T or MC-177-AF or MC-177-AH		
	1 Bristo No. 8 setscrew wrench		
	1 Strap ST-19-A		
	1 Technical Manual		
	1 Cord CD-874		
	1 Bag BG-81-P or BG-81-T or BG-81-AF or BG-81-AH		
or 1	Frequency Meter Set SCR-211-AE or SCR-211-AG c/o		
	1 Frequency Meter BC-221-AE or BC-221-AG		
	1 Crystal Unit DC-9-P or DC-9-AD		
	1 Calibration Book MC-177-AE or MC-177-AG		
	1 Bristo No. 8 setscrew wrench		
	1 Strap ST-19-A		
	2 Technical Manuals		
	1 Cord CD-874		
or 1	Frequency Meter Set SCR-211-AK c/o		
	1 Frequency Meter BC-221-AK		
	1 Crystal Unit DC-9-P or DC-9-AD		

* Not supplied w/SCR-211-F

Test-Signal Generating
SCR-211-A,B,C,D,E,F,J,K, L,M,N,O,P,Q,R,T,AA, AC,AE,AF,AG,AH,AJ,AK,AL,AN

FREQUENCY METER SET

August 1957

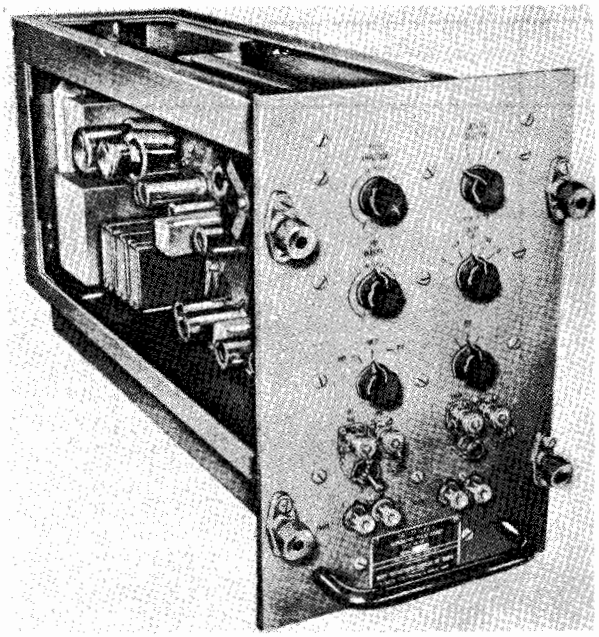
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	1 Bristo No. 8 setscrew wrench 1 Calibration Book MC-177-AK 1 Cord CD-874 1 Strap ST-19-A 2 Technical Manuals		
or 1	Frequency Meter Set SCR-211-AJ or SCR-211-AL c/o 1 Frequency Meter BC-221-AJ or BC-221-AL 1 Crystal Unit DC-9-M or DC-9-P or DC-9-AD 1 Calibration Book MC-177-AJ or MC-177-AL 1 Bristo No. 8 setscrew wrench 1 Cord CD-874 1 Strap ST-19-A 2 Technical Manuals		

February 1960

Test-Signal Generating

PULSE SWEEP GENERATOR SG-121/URN-3



Pulse Sweep Generator SG-121/URN-3

FUNCTIONAL DESCRIPTION

Pulse Sweep Generator SG-121/URN-3 is an accurately calibrated test instrument, which provides a quick means of checking the salient features of the AN/URN-3 beacon performance. Essentially, the pulse sweep generator serves as the pulse modulator for Pulse Analyzer-Signal Generator TS-890/URN-3, and provides the timing circuitry for measurement of zero-distance time delay of Radio Set AN/URN-3.

No field changes in effect at time of preparation (9 September 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 140 W, 117 v, 60 cy, 1 ph.
AMPLITUDE OF PULSE-PAIRED OUTPUT SIGNAL: 0 to 200 v, when working into a load of 650 ohms shunted by 800 uuf (max).
PULSE REPETITION FREQUENCY OF PULSED PAIRED OUTPUT SIGNAL: 40 to 4,000 pulse-pairs per sec.
SPACING BETWEEN EACH PULSE WITHIN PAIRS: 11, 11.5, 12.5, 12, or 13 usec ±0.2 usec.
AMPLITUDE OF SAWTOOTH SWEEP OUTPUT SIGNAL: 20 v peak to peak, load of 2,000 ohms.
REPETITION FREQUENCY OF SAWTOOTH SWEEP OUTPUT SIGNAL
  WITH 79.681 KC CRYSTAL: 39.840 kc.
  WITH 80.321 KC CRYSTAL: 40.160 kc.
  WITH 90.908 KC CRYSTAL: 45.454 kc.
  WITH 95.240 KC CRYSTAL: 47.620 kc.
DURATION OF SAWTOOTH SWEEP
  WITH 79.681 KC CRYSTAL: 25.1 usec.
  WITH 80.321 KC CRYSTAL: 24.9 usec.
  WITH 90.908 KC CRYSTAL: 22.0 usec.
  WITH 95.240 KC CRYSTAL: 21.0 usec.
LINEAR DEVIATION OF SAWTOOTH SWEEP OUTPUT WAVEFORM: ±10% of the peak value.
DURATION OF SAWTOOTH WAVEFORM FALLING EDGE: Less than 3 usec.
EXTERNAL TRIGGER
  POLARITY: Negative.
  PULSE REPETITION FREQUENCY: 0 to max of 4000 pps.
  MINIMUM AMPLITUDE: 10 v
  MAXIMUM DURATION: 4 usec at the 50% amplitude points.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Co., Clifton, New Jersey.
Contract NObsr-64247, dated 21 June 1954.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0B2
(1) 5R4GY
(1) 5725/6AS6W
(2) 5726/6AL5W
(3) 5814
(1) 6AS7G
(4) 12AT7WA
(2) 5670
(1) 6AU6
(1) 6J4
(1) 6X4W
Total Tubes (18)

(4) CR-16/U
Total Crystals (4)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92460: Technical Manual for PULSE-SWEEP GENERATOR SG-121/URN-3.

TYPE CLASSIFICATION	(Navy)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	4.3

Test-Signal Generating

February 1960

SG-121/URN-3 PULSE SWEEP GENERATOR

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Pulse Sweep Generator SG-121/URN-3	4.2		62

EQUIPMENT SUPPLIED DATA

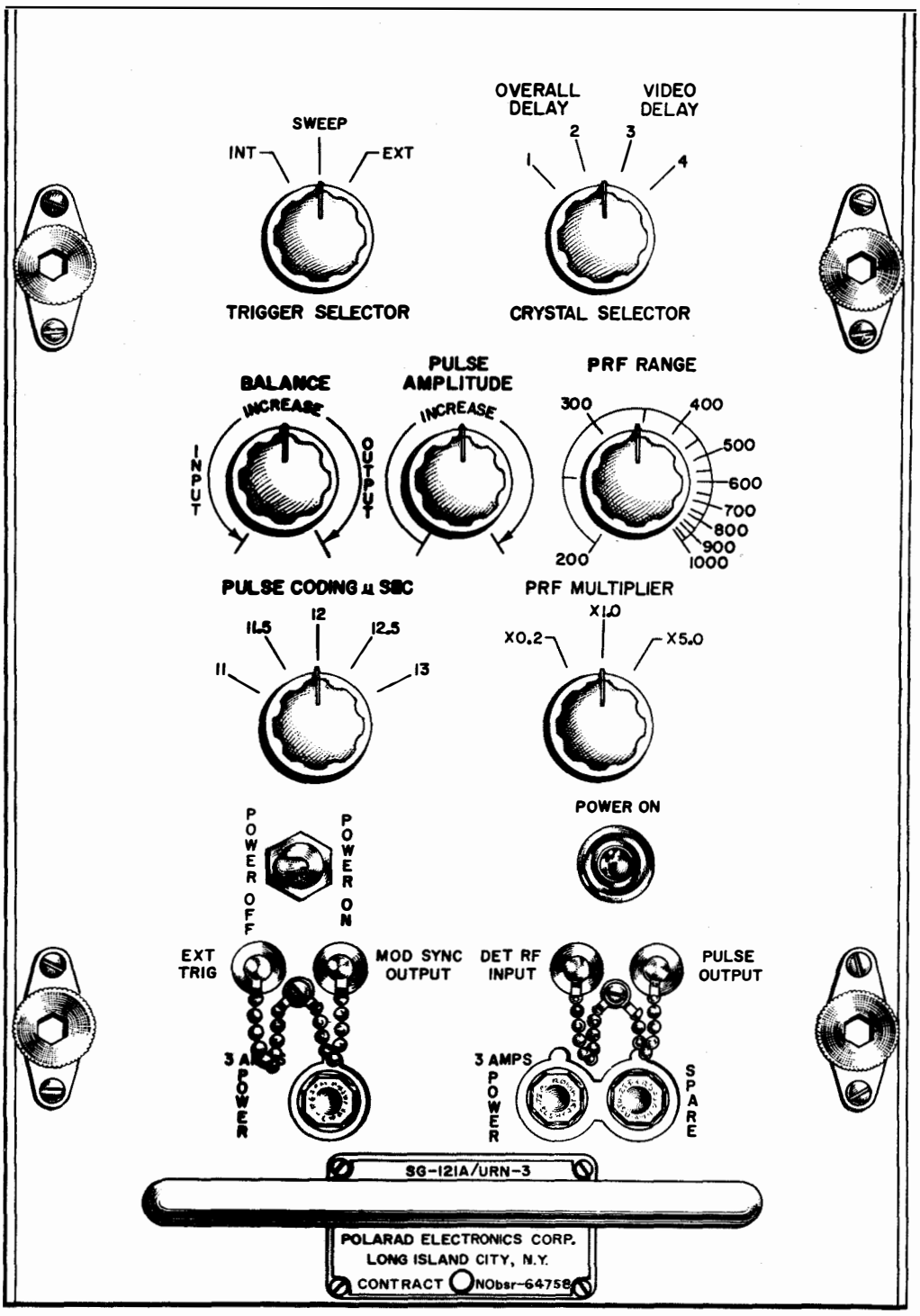
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Sweep Generator SG-121/URN-3 including:		
2	Technical Manual NAVSHIPS 92460	1/2 X 9 X 11-1/2	0.5

February 1960

Test-Signal Generating

PULSE SWEEP GENERATOR

SG-121A/URN-3



Pulse Sweep Generator SG-121A/URN-3

Test-Signal Generating

February 1960

SG-121A/URN-3 PULSE SWEEP GENERATOR

FUNCTIONAL DESCRIPTION

Pulse Sweep Generator SG-121A/URN-3 is an accurately calibrated test instrument, which provides a quick means of checking the salient features of the AN/URN-3 beacon performance. Essentially, the pulse sweep generator serves as the pulse modulator for Pulse Analyzer-Signal Generator TS-890/URN-3, and provides the timing circuitry for measurement of zero-distance time delay of Radio Set AN/URN-3.

Data on this sheet reflects the following Field Changes: FC 2.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 170 W, 115 v ±10%, 60 cy, 1 ph.

AMPLITUDE OF PULSE-PAIRED OUTPUT SIGNAL: 0 to 200 v, when working into aload of 650 ohms shunted by 800 uuf (max).

PULSE REPETITION FREQUENCY OF PULSED PAIRED OUTPUT SIGNAL: 40 to 4,000 pulse-pairs per sec.

SPACING BETWEEN EACH PULSE WITHIN PAIRS: 11, 11.5, 12, 12.5, or 13 usec ±0.2 usec.

AMPLITUDE OF SAWTOOTH SWEEP OUTPUT SIGNAL: 20 v peak to peak, load of 100,000 ohms shunted by 270 uuf (max).

REPETITION FREQUENCY OF SAWTOOTH SWEEP OUTPUT SIGNAL

WITH 79.681 KC CRYSTAL:	39.840 kc.
WITH 80.321 KC CRYSTAL:	40.160 kc.
WITH 90.908 KC CRYSTAL:	45.454 kc.
WITH 95.240 KC CRYSTAL:	47.620 kc.

DURATION OF SAWTOOTH SWEEP

WITH 79.681 KC CRYSTAL:	25.1 usec.
WITH 80.321 KC CRYSTAL:	24.9 usec.
WITH 90.908 KC CRYSTAL:	22.0 usec.
WITH 95.240 KC CRYSTAL:	21.0 usec.

LINEAR DEVIATION OF SAWTOOTH SWEEP OUTPUT WAVEFORM: ±10% of the peak value.

DURATION OF SAWTOOTH WAVEFORM FALLING EDGE: Less than 3 usec.

EXTERNAL TRIGGER

POLARITY: Negative.

PULSE REPETITION FREQUENCY: 0 to max of 4000 pps.

MINIMUM AMPLITUDE: 10 v.

MAXIMUM DURATION: 4 usec at the 50% amplitude points.

MANUFACTURER'S OR CONTRACTOR'S DATA

Polarad Electronics Corp., Long Island City, New York.

Contract NObsr-64758, dated 31 May 1955.

Contract NObsr-71873, dated 29 June 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA2WA	(6) 12AT7WA	(1) 5R4WGB
(3) 5670	(1) 5687WA	(1) 5725/6AS6W
(2) 5814A	(3) 6AU6WA	(2) 5726/6AL5W
(2) 6CD6GA	(1) 6080WA	(1) 6X4W

Total Tubes: (24)

(4) CR-16/U

Total Crystals: (4)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92745: Technical Manual for PULSE SWEEP GENERATOR SG-121A/URN-3.

TYPE CLASSIFICATION	(NAVY)
DESIGN COGNIZANCE	USN, BUSHIPS
PROCUREMENT COGNIZANCE	SPEC: MIL-T-18428 (SHIPS)
STOCK NO.	
R.D.B. IDENT. NO.	4.3

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
	DOMESTIC			
1	Pulse Sweep Generator SG-121A/URN-3	2.4	10 X 15 X 28	55
	EXPORT			
1	Pulse Sweep Generator SG-121A/URN-3	3.5	12 X 17 X 30	90

EQUIPMENT SUPPLIED DATA

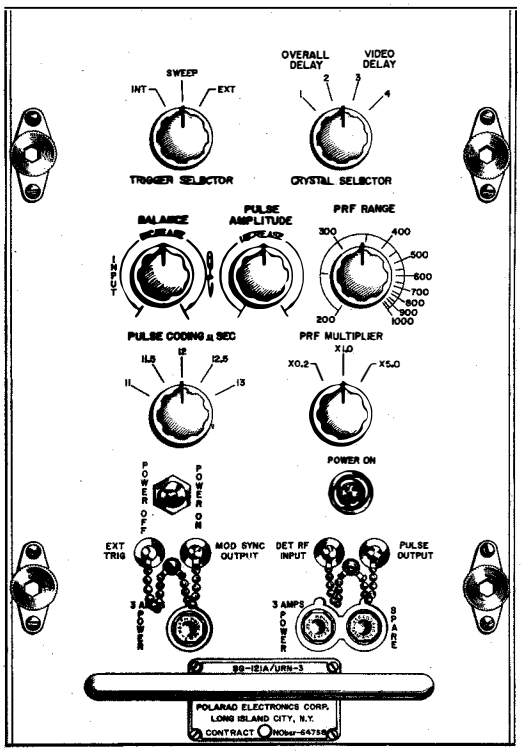
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Sweep Generator SG-121A/URN-3 Including:	9-1/2 X 14-19/32 X 26-25/32	45
2	Technical Manuals NAVSHIPS 92745	1/2 X 8-1/2 X 11	0.75

12 January 1962

Cog Service:	FSN: 5820-783-5441	PULSE SWEEP GENERATOR SG-121B/URN-3 Functional Class:
USA	USN	USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Electronics of Clearfield Inc.



Pulse Sweep Generator SG-121B/URN-3

FUNCTIONAL DESCRIPTION:

Pulse Sweep Generator SG-121B/URN-3 is an accurately calibrated test instrument, which provides a quick means of checking the salient features of the AN/URN-3 beacon performance. Essentially, the pulse sweep generator serves as the pulse modulator for Pulse Analyzer-Signal Generator TS-890/URN-3, and provides the timing circuitry for measurement of zero-distance time delay of Radio Set AN/URN-3.

No field changes in effect at time of preparation (10 April 1961).

TECHNICAL CHARACTERISTICS:

POWER SUPPLY REQUIREMENTS: 115 v porm 10%, 60 cyc, single ph.
POWER CONSUMPTION OF EQUIPMENT: 170 W, approx.
AMPLITUDE OF PULSE-PAIRED OUTPUT SIGNAL: 0 to 200 v, when working into a load of 650 ohms shunted by a max. of 800 uuf.

SG-121B/URN-3 PULSE SWEEP GENERATOR

PULSE REPETITION FREQUENCY OF PULSED-PAIRED OUTPUT SIGNAL: 40 to 4000 pulse-pairs per sec.
SPACING BETWEEN LEADING EDGES OF EACH PULSE WITHIN THE PAIR: 11, 11.5, 12, 12.5, or 13 usec porm 0.2 usec.
AMPLITUDE OF SAWTOOTH SWEEP OUTPUT SIGNAL: 20 v peak-to-peak when working into a load of 100,000 ohms shunted by a max. of 270 uuf.
REPETITION FREQUENCY OF SAWTOOTH SWEEP OUTPUT SIGNAL
- WITH 79.681 KC CRYSTAL: 39.840 kc.
- WITH 80.321 KC CRYSTAL: 40.160 kc.
- WITH 90.908 KC CRYSTAL: 45.454 kc.
- WITH 95.240 KC CRYSTAL: 47.620 kc.

DURATION OF SAWTOOTH SWEEP
- WITH 79.681 KC CRYSTAL: 25.1 usec.
- WITH 80.32_ KC CRYSTAL: 24.9 usec.
- WITH 90.908 KC CRYSTAL: 22.0 usec.
- WITH 95.240 KC CRYSTAL: 21.0 usec.

MAXIMUM LINEAR DEVIATION OF SAWTOOTH SWEEP OUTPUT WAVEFORM: Porm 10% of peak value.
DURATION OF SAWTOOTH WAVEFORM FALLING EDGE: Not greater than 3 usec.
EXTERNAL TRIGGER
- POLARITY: Negative.
- PULSE REPETITION FREQUENCY: Greater than 0 to max. of 4000 pps.
- MINIMUM AMPLITUDE: 10 v.
- MAXIMUM DURATION: 4 usec at the 50% amplitude points.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Pulse Sweep Generator SG-121B/URN-3		9-1/2 x 14-19/32 x 26-25/32	45
2	Technical Manual NAVSHIPS 92745		1/2 x 8-1/2 x 11	0.75

REFERENCE DATA AND LITERATURE:

NAVSHIPS 92745: Technical Manual for Pulse Sweep Generator SG-121A/URN-3 and SG-121B/URN-3.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6626/0A2WA (6) 12AT7WA (1) 5R4WGB (2) 5670 (1) 5687WA (1) 5725/6AS6W
(2) 5726/6AL5W (2) 5814A (3) 6AU6WA (2) 6CD6GA (1) 60B0WA (1) 6X4WA

CRYSTALS: (4) CR-16/U

SEMI-CONDUCTORS: (4) 1N126

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.4	55
1	3.5	90

PROCUREMENT DATA

PROCURING SERVICE: DESIGN COG: USN, BuShips

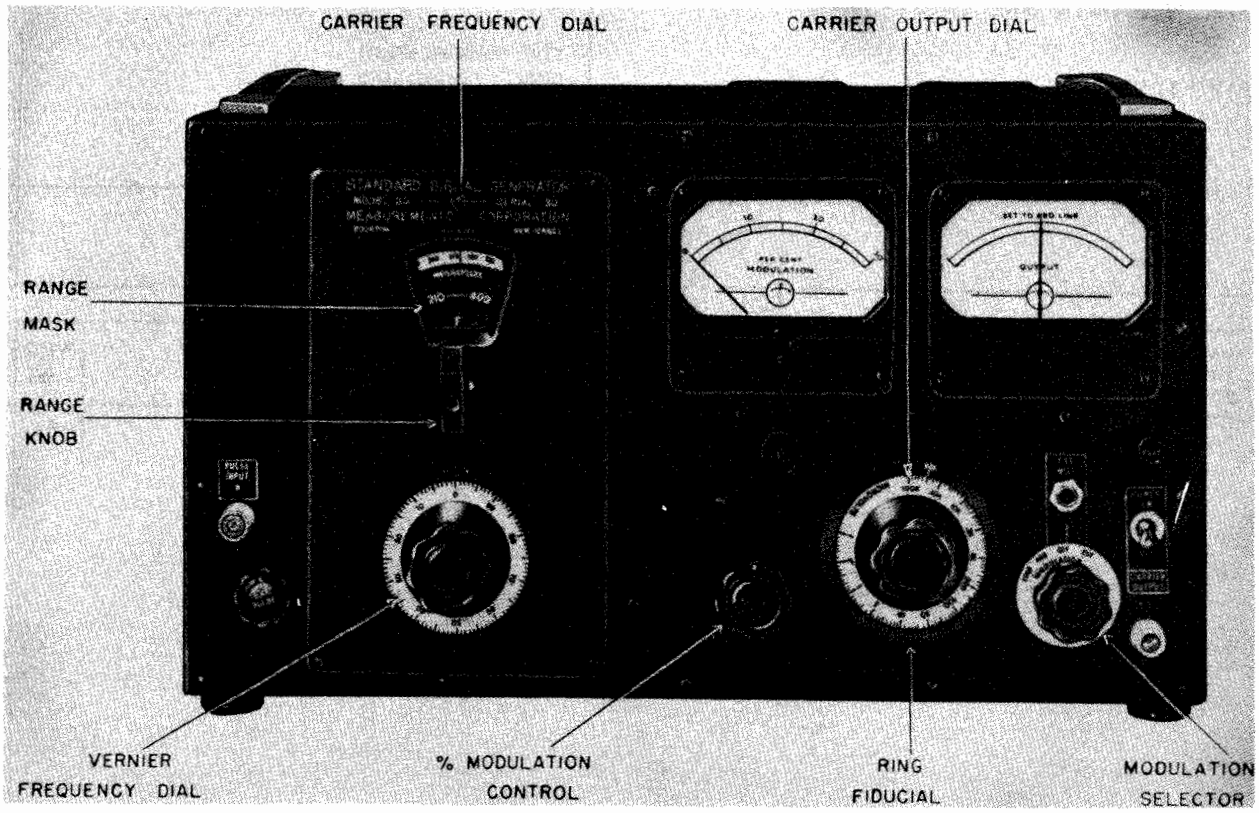
SPEC &/OR DWG: MIL-R-19851(SHIPS), Amend 2

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Electronics of Clearfield Inc.	Clearfield, Pa.	NObsr-75247	$540.24
		NObsr-75704	$476.29
		NObsr-81191	$502.17

Test-Signal Generating

RF SIGNAL GENERATOR

SG-17/U



Signal Generator SG-17/U

FUNCTIONAL DESCRIPTION

The SG-17/U is a portable instrument providing standard radio frequency test signals of accurately known frequency and amplitude. Though designed as a laboratory standard, it is sufficiently flexible for use in production testing or field maintenance of communications and video equipments.

No field changes in effect at time of preparation (24 April 1958).

RELATION TO OTHER EQUIPMENT

This equipment, is Measurements Corp Model 80 modified by the frequency range.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 5 to 400 mc in six bands.
MODULATION
EXTERNAL PULSE: 150 v (min output); 1,000 ohms (max, impedance).
FREQUENCY: 50 to 10,000 cyc (ext); 400 or 1,000 cyc (int).
PERCENT: 0 to 30 for sine waves.
OUTPUT IMPEDANCE: 50 ohms.
STRAY FIELD: Less than 0.1 uv.
ACCURACY: ±0.5% of indicated freq.
POWER REQUIREMENTS: 65 W, 117 v, 50 to 60 cps, 1 ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurements Corp, Boonton, N.J.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OC3/VR-105	(1) 6SJ7	(1) 955
(1) O43/VR-75	(1) 5Y3GT	(2) 6V6GT
(2) 6SN7GT	(1) 6SL7GT	

Total Tubes: (10)
No Crystals used.

Test-Signal Generating

SG-17/U RF SIGNAL GENERATOR

REFERENCE DATA AND LITERATURE

NAVSHIPS 91085: Handbook of Maintenance Instructions for (Measurements Corp) Modified Model 80, RF Signal Generator SG-17/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

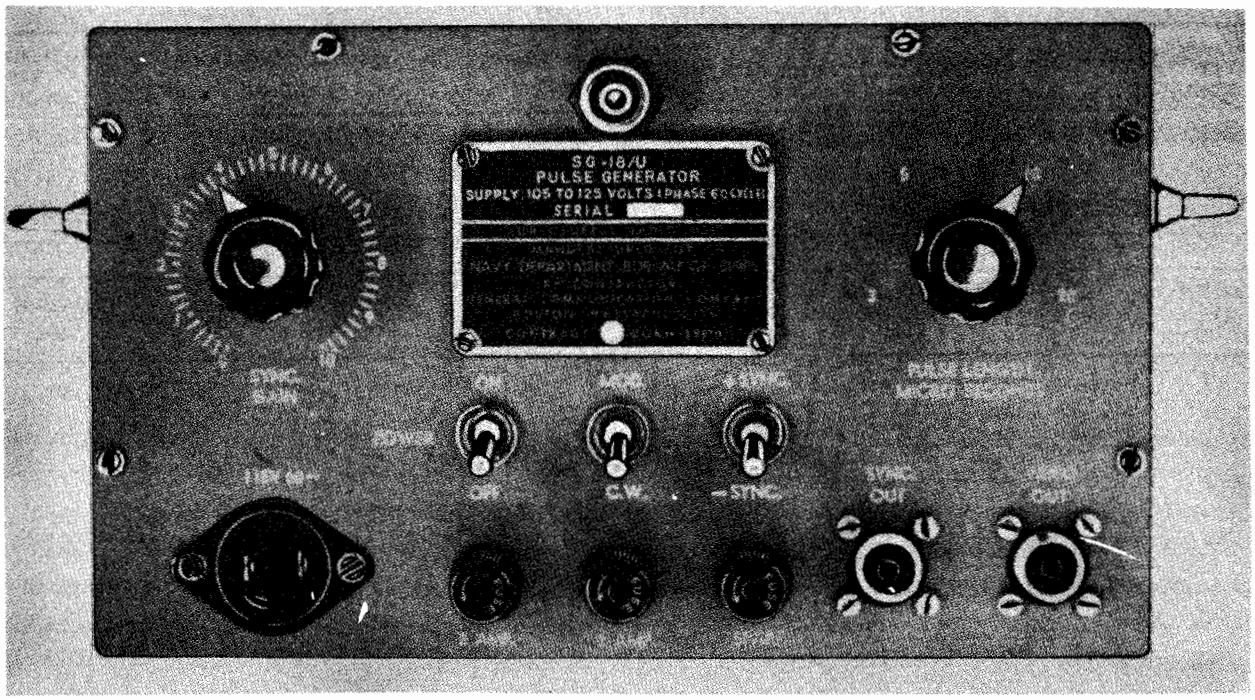
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator	9-1/2 X 10-3/4 X 19	53
1	Technical Manual		

April 1958

Test-Signal Generating

PULSE GENERATOR SG-18/U



Pulse Generator SG-18/U

FUNCTIONAL DESCRIPTION

The SG-18/U is a portable equipment used for pulse modulation of signal generators and synchronization of oscilloscope sweep circuits in testing radar equipments.

No field changes in effect at time of preparation (23 April 1958).

RELATION TO OTHER EQUIPMENT

This equipment, similar to General Communications Model P-220, supersedes Signal Generator Equipment OCD.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RECURRENCE RATE: 3000 to 6000 pps.
TYPE OF EMISSION: Pulse.
IMPEDANCE: 4000 ohms (output).
PULSE LENGTH: 3 to 40 usec.
PULSE VOLTAGE, SYNC OUTPUT: ±0 to 25 v (peak).
PULSE VOLTAGE, VIDEO OUTPUT: +150 v (peak).
POWER REQUIREMENTS: 120 W, 105 to 125 v, 60 cyc, 1 ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Co, Boston, Mass.
Contract NObsr-39379, dated 25 June 1947.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT (2) 6AG7 (1) 6L6GA
Total Tubes: (4)
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91112: Technical Manual for Pulse Generator SG-18/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE Spec MIL-G-15473
STOCK NO.
R.D.B. IDENT. NO.

SG-18/U PULSE GENERATOR

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Pulse Generator SG-18/U	0.9	8-1/2 X 9-1/2 X 16	31
1	Equipment Spare Box	1.4	8-1/2 X 12 X 23	44

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Generator SG-18/U including:	6-1/8 X 7 X 12-1/4	14
2	Cables		
1	Equipment Spare Box	6-1/2 X 10-1/4 X 19	27
2	Technical Manual NAVSHIPS 91112		

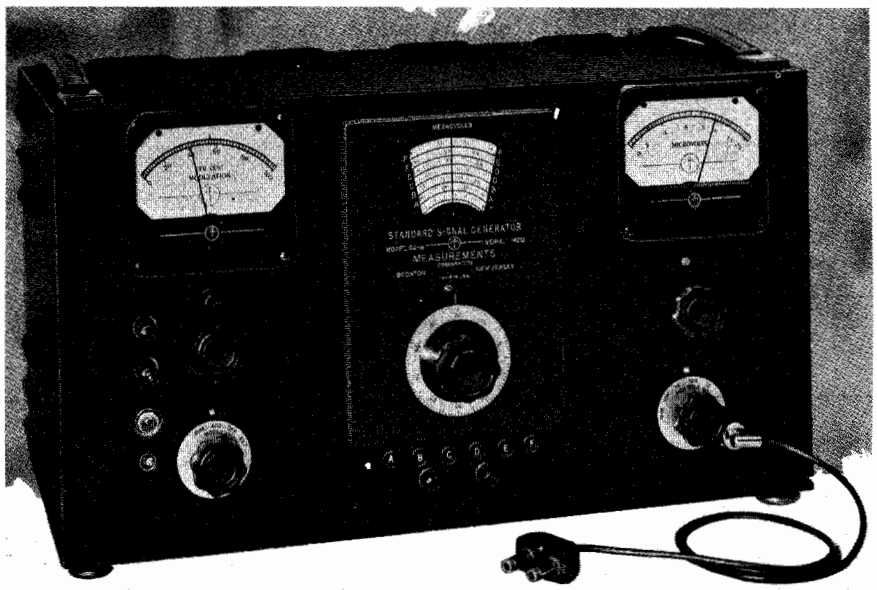
27 February 1963 GENERATOR, SIGNAL SG-20/U

Cog Service: USA FSN: Functional Class: 4.1.2

USA	USN	USAF

TYPE CLASS: Std

MANUFACTURER'S NAME/CODE NUMBER: Measurement Corp., (39519).



Generator, Signal SG-20/U

FUNCTIONAL DESCRIPTION:

Generator, Signal SG-20/U is a portable, general purpose, laboratory instrument. It is used to measure sensitivity, selectivity, fidelity overload, distortion, automatic gain control, image and intermediate frequency rejection ratios, and noise and stage-gain characteristics. Test results are indicated on a motor-driven direct-reading linear scale.

The SG-20/U consists basically of an af oscillator and modulator, an rf oscillator, an rf amplifier, two meters, a variable attenuator, and a step attenuator. The af oscillator modulates frequencies of 400 to 1000 cps. The output meter is a vacuum-tube voltmeter.

No field changes in effect at time of preparation (12 June 1962).

TECHNICAL CHARACTERISTICS:

TYPE OF CIRCUIT: Master-oscillator, tuned power-amplifier.
FREQUENCY RANGE: 75 kc to 30 mc in 6 push-button ranges.
FREQUENCY ACCURACY: Porm 0.5% with a backlash of less than 1 part in 2300.

SG-20/U GENERATOR, SIGNAL

OUTPUT VOLTAGE: 0.1 uv to 2.2 v.
ACCURACY OF OUTPUT VOLTAGE: Porm 4% between 1 and 25 mc at 1 v.
OUTPUT IMPEDANCE: 6 ohms plus internal lead and contact resistance without cable connected at jack panel; 5 ohms at 0.2, rising to 15 ohms at 2.2 v with a 50 ohm cable connected.
ACCURACY OF STEP ATTENUATOR: Porm 5% per step, except for the 1 to 0.1 step which is M9% to P2%. Cumulative step error is less than porm 20%.
MODULATION: External, 50 to 10000 cps depending on carrier frequency; internal, 400 or 1000 cps variable from 0 to 100%.
ENVELOPE DISTORTION: 4% at 100% modulation at 1 mc; 8% at 100% modulation at 15 mc; 1% at 30% modulation.
FREQUENCY MODULATION: Less than 0.02% for 30% amplitude modulation.
LEAKAGE: Less than 0.1 uv with attenuator set for 0 output.
POWER REQUIREMENTS: 115 W, 117 v, 50 to 60 cyc, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Generator, Signal SG-20/U		10-1/2 x 11-7/8 x 20-5/16	55

REFERENCE DATA AND LITERATURE:

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 6SJ7 (1) 6L6 (1) 6SK7 (1) 6V6 (1) 5T4 (2) 6H6 (1) 6AG7
(2) 0D3/VR-150

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

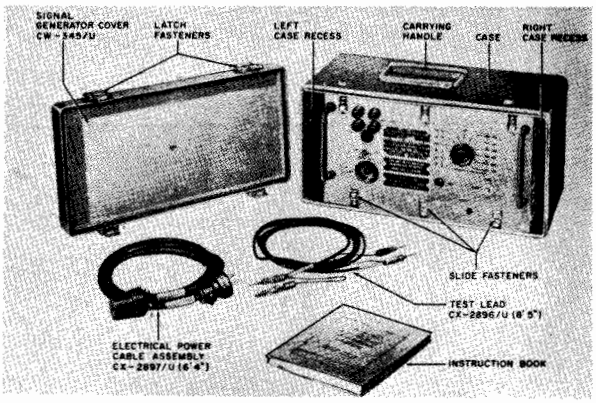
PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Measurement Corp. Model no. 65-B	Boonton, N. J.	8500-PHILA-48-77	$875.00

Test-Signal Generator

April 1958

AF SIGNAL GENERATOR SG-21/U, -21A/U, -21B/U



AF Signal Generator SG-21/U,-21A/U,-21B/U

FUNCTIONAL DESCRIPTION

The SG-21/U, SG-21A/U and SG-21B/U are portable test instruments which are used to align and calibrate the Frequency Meter and Radiosonde Recorder of Radiosonde Receptor AN/FMQ-2. These units are fundamentally precision audio oscillators, capable of furnishing any of twenty six audio frequency signals within the range of 10 to 500 cps.

No field changes in effect at time of preparation (17 February 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 10 to 500 cps.
NUMBER AND RANGE OF BANDS: Two bands, 10 to 250 cps in 20 cycle steps, and 20 to 500 cps in 40 cycle steps.
NUMBER OF PRESET FREQ: 26.
POWER SOURCE REQUIRED: 115 v, 55 to 65 cps, single ph.
TYPE OF FREQ CONTROL
SG-21/U: Vibrating reed.
SG-21A/U and SG-21B/U: Tuning fork.
FREQUENCY STABILITY
SG-21/U: ±0.1% within temperature range of -50 deg C to 0 deg C.
SG-21A/U AND SG-21B/U: ±0.05% within temp range of -54 deg C to + 65 deg C.
SIGNAL OUTPUT
SG-21/U: 25 v rms min.
SG-21A/U AND SG-21B/U: 70 v peak to peak (min).
ACCURATE FREQUENCY
SG-21/U: 60 cycles.
SG-21A/U: 400 cycles.
SG-21B/U: 320 cycles.
DISC AND MOTOR SPEED
SG-21/U: 300 (disc), 450 motor.
SG-21A/U: 600 (disc), 3000 motor.
SG-21B/U: 2400 (disc), 2400 motor.

MANUFACTURER'S OR CONTRACTOR'S DATA

Seaboard Electric Co, New York, N.Y.
Contract: NObsr-42076 (SG-21/U).
Contract: NObsr-52689 dated 21 June 1951 (SG-21A/U).
American Time Products, Inc, New York, N.Y.
Contract: NObsr-57267 dated 14 March 1952 (SG-21B/U).
Contract: NObsr-63129 dated 11 December 1952 (SG-21B/U).

TUBE AND/OR CRYSTAL COMPLEMENT

SG-21/U

(1) 6SJ7	(1) 927
(2) 6SL7WGT	(2) 6V6GTY
(1) 6X5WGT	

Total Tubes: (7)

SG-21A/U

(1) OA2WA	(2) 5814A
(2) 12AT7WA	(2) 6V6GTY
(1) 5Y3WGTB	(2) 5751

Total Tubes: (10)

SG-21B/U

(1) OB2WA	(6) 12AT7WA
(1) 5Y3WGTB	(2) 6005/6AQ5W

Total Tubes: (10)

No Crystals.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91303, Technical Manual for AF Signal Generator SG-21/U.
NAVSHIPS 91925, Technical Manual for AF Signal Generator SG-21A/U.
NAVSHIPS 92204, Technical Manual for AF Signal Generator SG-21B/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE MIL-G-16170(SHIPS)
STOCK NO.
R.D.B. IDENT. NO.

Test-Signal Generator

SG-21/U, -21A/U, -21B/U AF SIGNAL GENERATOR

April 1958

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	AF Signal Generator SG-21/U incl equipment spares or	2.6		90
1	AF Signal Generator SG-21A/U incl equipment spares or	3.65	15 x 20 x 21	83
1	AF Signal Generator SG-218/U incl equipment spares	2.1	12 x 13 x 24	60

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Signal Generator SG-21/U incl		31
	(1) Test Leads NT-491955	96 lg	
	(1) Test Leads NT-492012	96 lg	
	(1) Set of equipment spares		31
	(2) Technical Manuals NAVSHIPS 91303		
	or		
1	AF Signal Generator SG-21A/U incl	9-1/4 x 9-23/32 x 15	27
	(1) Cover, Signal Generator CW-315/U	1-3/8 x 9 x 15	1.75
	(1) Cable Assembly, Power, Electrical CX-2447/U	101 lg	0.21
	(1) Lead, Test CX-2446/U	76 lg	0.56
	(1) Set of Equipment Spares	5 x 6 x 12	18
	(2) Technical Manuals NAVSHIPS 91925		
	or		
1	AF Signal Generator SG-218/U c/o	8-7/8 x 9-1/2 x 15	27
	(1) Lead, Test CX-2896/U	101 lg	
	(1) Cable Assembly, Power, Electrical CX-2897/U	76	
	(1) Cover, Signal Generator CW-345/U	1-1/2 x 8 x 15	
	(1) Set of Equipment Spares		
	(2) Technical Manuals NAVSHIPS 92204		

4 April 1962 — PULSE GENERATOR SG-245/U

Cog Service:	FSN:	Functional Class:
USA	USN	USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Stoddart Aircraft Radio Co. Inc.

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Pulse Generator SG-245/U is a general purpose, portable equipment that provides pulse signals of very short duration (0.0005 usec, either positive or negative) and constant amplitude The pulse signals provide a broadband radio frequency output that is essentially constant per unit bandwidth from 10 kc to 1000 mc. The impulse generator can be used as a secondary standard of broadband radio interference. It can be used to calibrate or determine the performance of RI-FI equipment, radio, communication receivers and amplifiers to its frequency range. Frequency is externally synchronized. The generator is not calibrated.

No field changes in effect at time of preparation (13 July 1961).

TECHNICAL CHARACTERISTICS:

OPERATING FREQUENCY: 10 kc to 1,000 mc.
OUTPUT SIGNAL: Positive or negative, 10 db to 101 db above 1 uv per mc bandwidth in 0.25 db steps.
OUTPUT IMPEDANCE: 50 ohms.
POWER REQUIREMENTS: 115 v, 50 to 60 cyc, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Generator, Pulse SG-245/U includes:		7-3/8 x 9-1/4 x 10	
1	Impulse Generator			
1	Power Cable			
1	Adapter, AC			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93400: Preliminary Data Sheet for Generator, Pulse SG-245/U.

SG-245/U PULSE GENERATOR

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: DESIGN COG: USN, BuShips
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Stoddart Aircraft Radio Co. Inc. Model no. 91263-1	Hollywood, Calif.	NObsr-71111, 2 December 1955	$177.74

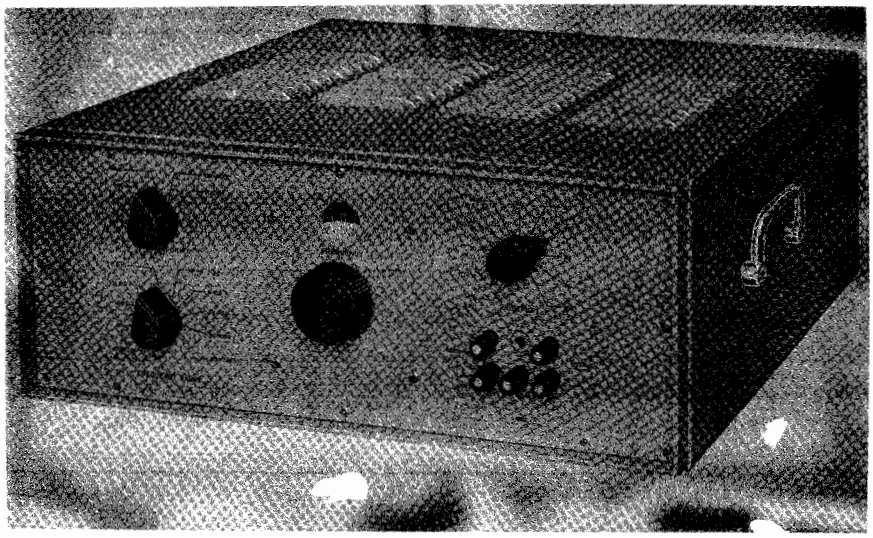
19 February 1963 GENERATOR, SIGNAL SG-298/U

Cog Service: USN FSN: Functional Class: 4.1.2

USA	USN	USAF

TYPE CLASS: Std

MANUFACTURER'S NAME/CODE NUMBER: Parabam Incorporated, (08775).



Generator, Signal SG-298/U

FUNCTIONAL DESCRIPTION:

Signal Generator SG-298/U is a precision, low-frequency signal generator used to provide sine, square, or triangular waves from 0.008 to 2000 cps and variable in amplitude from 0 to 30 v peak-to-peak. The direct current reference level of the output signals is adjusted to 0 v for normal operation, but it can be varied from P20 to M20 v if required. These precision signals are used to test and calibrate electronic equipment. A reference square wave, 10 v peak-to-peak is available for synchronizing purposes.

No field changes in effect at time of preparation (12 June 1962).

TECHNICAL CHARACTERISTICS:

SIGNAL OUTPUT DATA

TYPES OF OUTPUT: Sine wave, square wave, triangular wave.

FREQUENCY RANGE: 0.008 to 2000 cps, 10 bands.

SG-298/U GENERATOR, SIGNAL

OUTPUT IMPEDANCE: 4000 ohms.
AMPLITUDE: Variable from 0 to 30 v peak-to-peak across a 4000 ohm load.
SINE-WAVE DISTORTION: Less than 1% up to 1000 cps; less than 2% from 1000 to 2000 cps.
SQUARE-WAVE RISETIME AND FALLTIME: Approx 2 usec.
REFERENCE SQUARE-WAVE AMPLITUDE: Approx 10 v peak-to-peak.
SQUARE-WAVE FREQUENCY RESPONSE: Within 0.2 db.
DIAL CALIBRATION: Dual, linear with an accuracy less than 2%.
POWER REQUIREMENTS: 100 W, 115/230 v porm 10%, 50 to 1000 cyc, single ph.
MOUNTING: Bench.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Generator, Signal SG-298/U		7 x 14.25 x 17	21
	Includes:			
2	Technical Manual			

REFERENCE DATA AND LITERATURE:

TM11-6625-399-12: Operator and Organization Maintenance Manual for Generator, Signal SG-298/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 565/WA (2) 6BH6 (1) 6BQ7A (1) 6BX7GT (3) 6U8A (1) 12AT7WA (1) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		

PROCUREMENT DATA

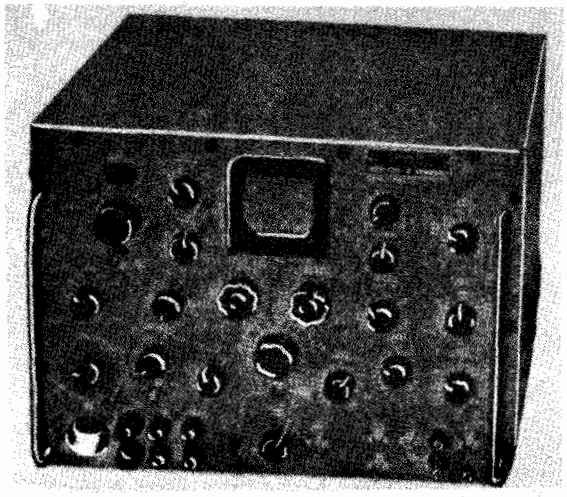
PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Parabam Incorporated	Hawthorne, California	4319-PP-61-A3	

April 1959

Test-Signal Generating

GENERATOR, PULSE SG-30/UP



Generator, Pulse SG-30/UP

FUNCTIONAL DESCRIPTION

Pulse Generator SG-30/UP is a portable equipment used in field and depot maintenance for testing radar and other electronic equipment.

No field changes in effect at time of preparation (26 March 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 290 W, 115 v ±10%, 50 to 1,000 cy, 1 ph.
TYPE OF EMISSION: Pulse.
OUTPUT IMPEDANCE: 1,000 ohms.
PULSE AMPLITUDE: 0.5 to 50 v.
PULSE WIDTH: 0.2 to 20 usec.
PULSE REPETITION RATE: 20 to 20,000 cy (internally and externally synchronized).
CALIBRATION: 0.22 to 22 usec W ±10%.
OUTPUT VOLTAGE: 0.5 to 50 v.
SWEEP RANGE: 1 to 625 usec.
PULSE DELAY: 2 to 200 usec.

MANUFACTURER'S OR CONTRACTOR'S DATA

Sylvania Electric Products Inc, Williamport, Pa.
Contract NOas 52-856-r.
Contract NOas 53-801f, dated 19 April 1955.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OA2WA	(2) 1Z2
(1) 12AT7	(8) 12AU7
(4) 12AV7	(1) 3ADP-1
(2) 5R4WGB	(1) 5Y3W6TB
(1) 5654/6AK5	(1) 5687
(1) 5725/6AS6	(6) 5726/6AL5W
(3) 5763	(1) 6AG7Y
(6) 6AH6	(2) 6AS7G
(2) 6AU6WA	(1) 6BN6
(2) 6C4WA	(1) 6L6WGB
(1) 6X4WA	

Total Tubes: (49)

(2) 1N38A (1) 1N55A (2) 1N70
Total Crystals: (5)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Pulse Generator SG-30/UP.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE Spec MIL-G-7789A(AER)
STOCK NO.
R.D.B. IDENT. NO. 4.3

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Generator SG-30/UP		

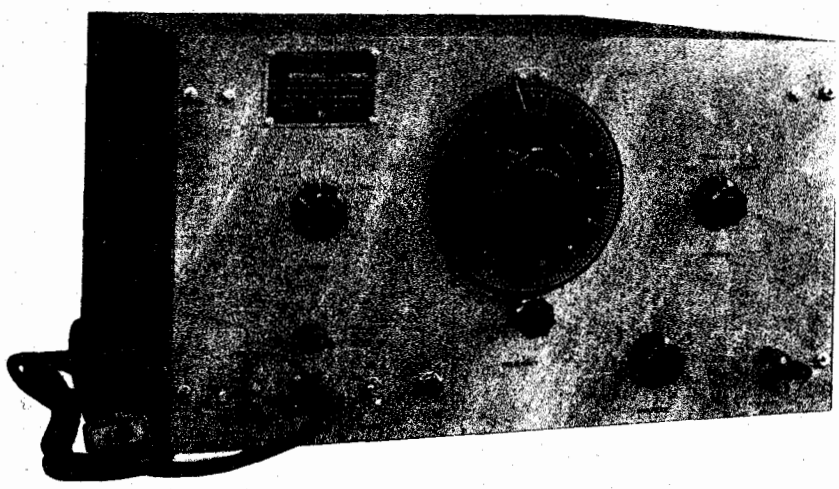
23 May 1962 SIGNAL GENERATOR SG-321/U

Cog Service: USN FSN: Functional Class: 4.1.2

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Tensor Electric Development Company, (83563).



Signal Generator SG-321/U

FUNCTIONAL DESCRIPTION:

Signal Generator SG-321/U permits general purpose low frequency testing; checking servo systems and geophysical equipment; testing vibration and stability characteristics of mechanical systems and electro-medical equipment.

No field changes in effect at time of preparation (8 September 1961).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 0.008 to 1200 cps, 5 bands.
TYPE OF OUTPUT WAVES: Sine, square, triangular.
POWER REQUIREMENTS: 115/230 v porm 10%, 50/1000 cyc, single ph, 150 W.

RELATION TO OTHER EQUIPMENT: None.

SG-321/U SIGNAL GENERATOR

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator SG-321/U		12-1/2 x 14-1/4 x 20-1/2	
1	Cable Ass'y, Power Electrical CX-3135/U			

REFERENCE DATA AND LITERATURE:

NAVAER 16-35SG321-1: Handbook of Operation and Service Instructions with Parts Breakdown for Low Frequency Function Generator SG-321/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 0A2 (1) 0A3 (1) 5U4GA/B (9) 6AL5 (2) 6AU5GT (3) 6AU6 (1) 6C4 (3) 12AU7 (3) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N116

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1		

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuWeps
SPEC &/OR DWG:

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Tensor Electric Development Co. Part no. 5533-39	Brooklyn, N. Y.	N383-(17)-64079A	

3 April 1962

SIGNAL GENERATOR SG-376(XN-1)/U

Cog Service: **FSN:** **Functional Class:**

USA **USN** **USAF**

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: Panoramic Radio Products Inc.

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Signal Generator SG-376(XN-1)/U consists of two independently adjustable audio oscillators whose outputs may be mixed to form a composite modulating signal for a single side band transmitter. The two oscillators are adjustable in steps, with two significant figures.

No field changes in effect at time of preparation (22 June 1961).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 20 cps to 20 kc.
ACCURACY OF CALIBRATION: Porm 2%.
MAXIMUM OUTPUT: 2 v per tone.
CONSTANCY OF OUTPUT: Porm 1 db max variation throughout frequency range.
OUTPUT IMPEDANCE: 600 ohms.
POWER REQUIREMENTS: 105 to 125 v, 47.5 to 450 cyc, single ph.

RELATION TO OTHER EQUIPMENT:

This equipment is used with, but not part of, Analyzer, Spectrum TS-1379(XN-1)/U.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator SG-376(XN-1)/U			
	(In case)		7-1/2 x 15 x 20-1/4	
	(Out of case)		3-1/2 x 11-1/2 x 19	

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93400: Preliminary Data Sheet for Generator, Signal SG-376(XN-1)/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SG-376(XN-1)/U SIGNAL GENERATOR

SEMI-CONDUCTORS: Data not available.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

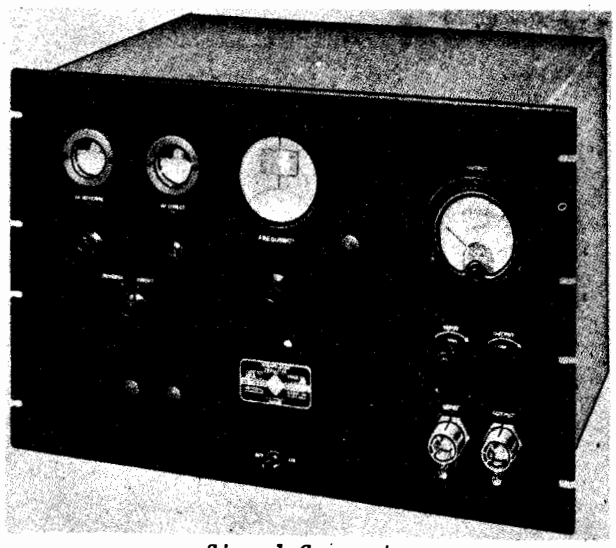
PROCURING SERVICE:
SPEC &/OR DWG: SHIPS-G-2905

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Panoramic Radio Products Inc.	Mount Vernon, N. Y.	NObsr-75318, 3 June 1958	

March 1957

SIGNAL GENERATOR SG-42/URM-18



Signal Generator

FUNCTIONAL DESCRIPTION

The SG-42/URM-18 is designed particularly for use in conjunction with standard frequency equipment to measure the audio frequency difference between the unknown frequency and a harmonic of 10 kc from the standard. This difference ranges from 0 to 5000 cps for all such measurements.

The instrument is of the beat frequency type, with a direct reading linear scale; each division of the scale corresponds to an increment of one cycle. A special feature is the use of "direct" and "reverse" scales permitting frequency measurements to be made by addition only.

Provision is made for readily introducing a standard frequency for checking the calibration of the instrument, utilizing the output voltmeter as a beat indicating meter. Separate volume controls are provided for adjustment of the levels of output signal of the instrument and input signals from either the frequency standard or the source under measurement.

No field changes in effect at time of preparation (7 September 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Piezo-Electric Oscillator (General Radio Type 1101A or equivalent), (1) Multivibrator and Power Supply (General Radio type 1102-A or equal), (1) Cathode Ray Oscilloscope, OS-811, (1) headset phones or (1) Loudspeaker and (1) or more patchcords.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 0 to 5000 cps.
OUTPUT IMPEDANCE: 600 ohms.
OUTPUT VOLTAGE: Adjustable, 15 v max.
DIAL CALIBRATION: 0 to 5000 cycles w/oscillator frequency increasing from 0 to 5000 divisions on the scale. The "REVERSE" dial from 5000 to 10,000 cycles w/oscillator decreasing from 5000 cps to 0 while scale reading goes from 5000 to 10,000 divisions.
ACCURACY: ±2 cycles.
POWER SOURCE: 105 to 125 v or 210 to 250 v, 50 to 60 cps, single ph, 50 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Company, Cambridge, Mass.
Contract NObsr 57083, dated 16 November 1951.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SN7-GT	(3) 6J5-GT
(2) 6SN7-_5	(1) 6X5-GT
(1) OD3/VR150	

Total Tubes: (9)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91759: Technical Manual for Signal Generator SG-42/URM-18.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SG-42/URM-18 SIGNAL GENERATOR

March 1957

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
*1	Signal Generator SG-42/URM-18 NOTE: *Contains two Units.	13.3	22 X 24 X 36	170

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator SG-42/URM-18	12 X 12-1/4 X 19	40.5
1	Power Cord, Type CAP-35	1-13/16 dia X 84 in. lg	

March 1957

Test-Signal Generating

SIGNAL GENERATOR SG-5A/U

FUNCTIONAL DESCRIPTION

The SG-5A/U is a portable equipment providing internal AM and FM radio frequency test signals. It contains provisions for external modulation and output is continuously adjustable.

The SG-5A/U is used with Power Supply PP-483/U.

No field changes in effect at time of preparation (15 October 1956).

RELATION TO OTHER EQUIPMENT

Same as Boonton Radio Corp Type 155B. The SG-5A/U is also the same as and interchangeable with the SG-5/U except the frequency range has been extended 3 mc.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
BAND 1: 1 to 13 mc.
BAND 2: 38 to 50 mc.
ACCURACY
BAND 1: ±0.1 mc or ±2% (whichever greater,)
BAND 2: ±1%.
SIGNAL OUTPUT DATA (CONTINUOUSLY ADJUSTABLE)
TERMINALS: 0.1 uv to 0.1 v in 6 ranges.
JACK: 0.1 v to 1v.
MODULATION DATA (INTERNAL)
AM: 30% at 100, 400, 1000, 4000 and 10000 cps.
FM: 0 to 75 and 0 to 225 kc deviation at 100, 400, 1000, 4000 and 10000 cps.
POWER REQUIREMENTS: 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Boonton Radio Corporation, Boonton, N.J.
Contract NObsr 42348, dated 18 May 1948.
Approximate Cost: $1056.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5V4G	(2) 6F6	(2) 6V6Y
(2) 6AC7WA	(1) 6H6	(2) 6J5

Total Tubes: (10)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Signal Generator SG-5A/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE COMMERCIAL
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator SG-5A/U	10-1/16 x 13-7/8 x 21-3/8	
2	Technical Manual		

April 1959

Test-Signal Generating

PULSE GENERATOR SG-69/PPM-1

Pulse Generator SG-69/PPM-1

FUNCTIONAL DESCRIPTION

Pulse Generator SG-69/PPM-1 is used in determining the response of circuits to rapidly changing signals. It may be used for the pulse modulation of UHF signal generators and is applicable to the testing of radar systems, nuclear counting circuits, television systems, video amplifiers, filters, and band pass circuits.

No field changes in effect at time of preparation (31 March 1959).

RELATION TO OTHER EQUIPMENT

This equipment is identical with Hewlett-Packard Model 212A, it is also part of Pulse Generator AN/PPM-1.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 325 W, 115 or 230 v, 50 to 60 cy.
PULSE LENGTH: 0.07 to 10 usec.
PULSE AMPLITUDE: 50 v into 50 ohm load (max, pos or neg).
SYNCHRONIZATION: 5 v at rates up to 5,000 pps (ext).

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co., Palo Alto, Calif.
Model 212A.

Test-Signal Generator

April 1959

SG-69/PPM-1 PULSE GENERATOR

Contract NObsr-71256, 30 April 1956.
Order NO. 2990-PHILA-52.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2	(1) OD3
(2) 3C45	(1) 5R4WGY
(2) 6AS7G	(1) 6AU6
(3) 6J6	(1) 6L6GA
(1) 6W4GT	(1) 6X4W
(9) 12AU7	(1) 12AX7

Total Tubes: (25)

No Crystals used.

REFERENCE DATA AND LITERATURE

TM11-2678: Technical Manual for Pulse Generator AN/PPM-1.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.3

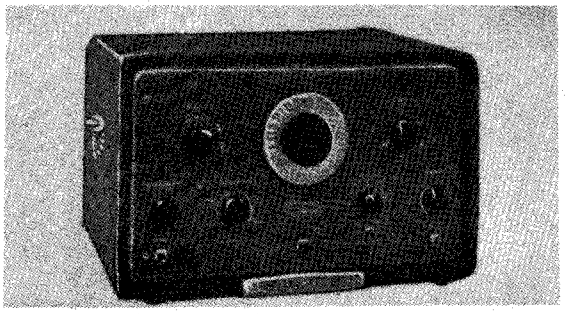
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Generator SG-69/PPM-1	10-1/2 X 14-1/2 X 19	45

April 1959

Test-Signal Generating

PULSE GENERATOR SG-69A/PPM-1



Pulse Generator SG-69A/PPM-1

FUNCTIONAL DESCRIPTION

The SC-69A/PPM-1 is designed to provide continuously variable, high power "fast pulses" of superior wave form. Combines broad general usefulness with 0.02 microseconds rise and decay time to meet requirements of radar, TV and nuclear work.

No field changes in effect at time of preparation (10 June 1959).

RELATION TO OTHER EQUIPMENT

The SG-69A/PPM-1 is interchangeable with the SG-69/PPM-1 except for maintenance parts.

The SG-69A/PPM-1 is the same as commercial model Hewlett Packard Model No. 212A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RISE AND DECAY TIME: 0.2 usec.
CREST VOLTAGE VARIATION: Less than 5% at 50 v output.
PULSE LENGTH: 0.07 to 10 usec.
TYPE OF CONTROL: Internally and externally synchronized.
FREQUENCY RANGE: 50 to 5000 pps.
OPERATING POWER RQMT: 115/230 v AC, 50 to 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co., Palo Alto, California.
Contract 19315PH58.
Approximate Cost: $565.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) HP45B	(2) OB2WA
(1) OD3	(9) 12AU7
(1) 12AX7	(5) 212-G11A
(1) 5R4WGB	(2) 6AS7G
(1) 6AU6WA	(3) 6J6
(1) 6L6WGB	(1) 6W4GT
(1) 6X4WA	

Total Tubes: (30)
(6) 1N69
Total Crystals: (6)

REFERENCE DATA AND LITERATURE

Hewlett-Packard Catalog No. 00255-F Page 5 for Pulse Generator Model 212A.
Nomenclature Card SG-69A/PPM-1 for Pulse Generator.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.3

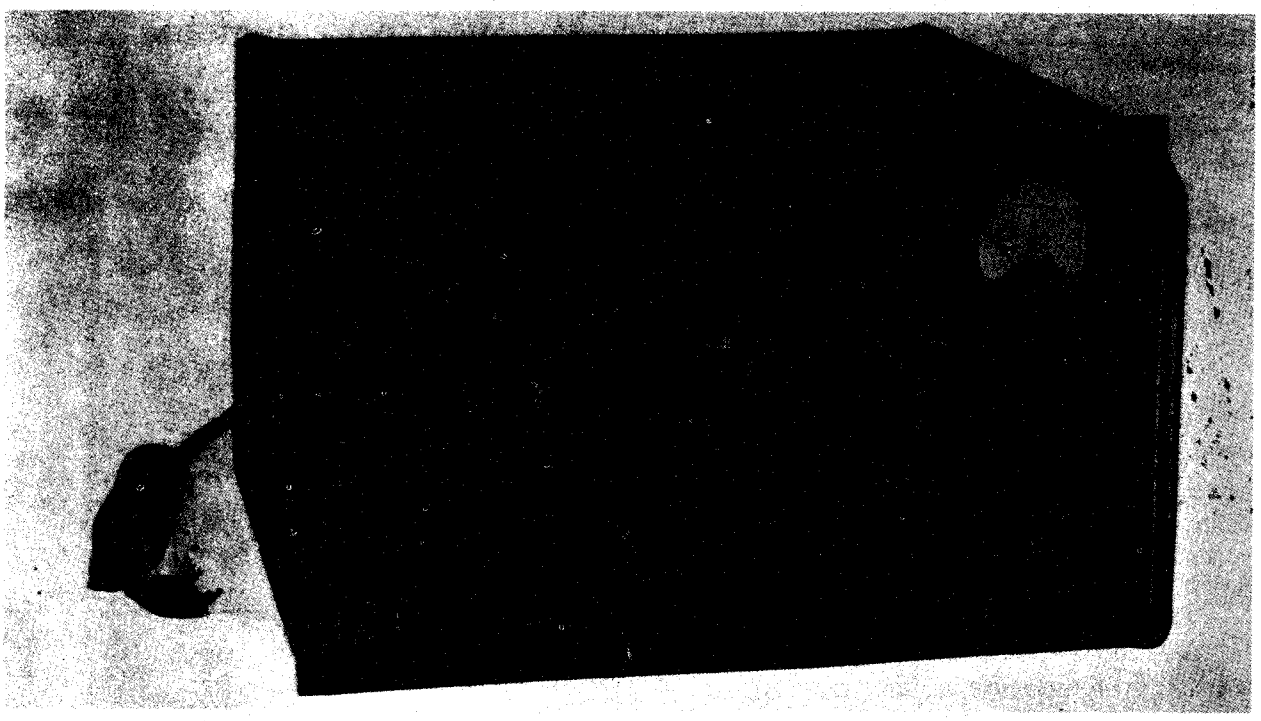
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Generator Pulse SG-69A/PPM-1	12-3/4 X 14-3/16 X 20-3/4	

October 1957

Test-Signal Generating

SIGNAL GENERATOR SG-71/FCC, 71A/FCC



Signal Generator SG-71/FCC,71A/FCC

FUNCTIONAL DESCRIPTION

The SG-71/FCC and SG-71A/FCC are portable test instruments designed to generate sine-wave signals of medium power over the frequency range of 50 cycles per second to 500 kilocycles per second.

They are used specifically as a generator of test signals in measuring the bandwidth, attenuation, or amplification of telephone carrier systems. They are also useful for service and development work, such as signal tracing, wave form analysis, distortion measurement, and acoustical tests, as well as for any other purpose served by oscillators operating in the audio, supersonic, and low radio-frequency ranges.

The SG-71A/FCC is interchangeable with SG-71/FCC and they differ only in maintenance parts used. They are used with but are not part of the Telephone Terminal AN/FCC-5 and AN/FCC-6.

No field changes in effect at time of preparation (13 June 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Set of Test Leads or Patch Cords as Required.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 50 cps to 500 kc in 4 decade bands.

FREQUENCY STABILITY: ±2% under normal room temperature variation. Negligible frequency change with 10% line voltage variation.

POWER OUTPUT

- BALANCED OUTPUT: 3 W max into 600 ohm load from 5 to 500 kc.
- UNBALANCED OUTPUT: 6 v max into 600 ohm load from 50 cps to 500 kc.

FREQUENCY RESPONSE

- BALANCED OUTPUT: ±1 db from 5 to 500 kc.
- UNBALANCED OUTPUT: ±1 db from 50 cps to 500 kc.

NOISE LEVEL: Less than 0.1% of full output level in each output channel.

Test-Signal Generating

October 1957

SG-71/FCC,71A/FCC SIGNAL GENERATOR

DISTORTION
BALANCED OUTPUT
10 to 100 kc: Less than 1% at 1 W, 3% at 3 W into 600 ohm load.
5 to 500 kc: Less than 4% at 3 W into 600 ohm load.
UNBALANCED OUTPUT: Less than 1% at 6 v into 600 ohm load from 50 cps to 100 kc.
INTERNAL IMPEDANCE
BALANCED OUTPUT: 135 ohms from 5 to 100 kc to approx 350 ohms at 500 kc.
UNBALANCED OUTPUT: Approx 6 ohms at middle frequencies with rated load.
VOICE MODULATION (BALANCED OUTPUT ONLY)
OUTPUT: 600 ohms by means of field type telephone test set (not supplied).
MODULATION FREQUENCY RANGE: 150 to 2500 cps.
CARRIER FREQUENCY RANGE: 10 to 500 kc.
POWER REQUIREMENTS: 115 or 230 v, 50 to 60 cps, single ph, 160 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Company, Palo Alto, Calif.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SJ7	(2) 6AG7
(1) 6SA7	(1) 6AC7
(1) 5R4GY	(1) OA2
(1) 6AV6	(1) 6Y6G
(1) 6J5	(2) 6L6/GA

Total Tubes: (13)

(4) 1N34

Total Crystals: (4)

REFERENCE DATA AND LITERATURE

TM11-5088: Technical Manual for Signal Generator SG-71/FCC and SG-71A/FCC.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator SG-71/FCC or SG-71A/FCC	7.2	21 X 21 X 31	100

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator SG-71/FCC or SG-71A/FCC	10-1/2 X 11 X 18	39

April 1959

Test-Signal Generating

TEST SET TS-1/ARR-1

FUNCTIONAL DESCRIPTION

The TS-1/ARR-1 is designed as a special purpose portable test oscillator used in tuning and aligning radio receiving equipment.

No field changes in effect at time of preparation (20 August 1958).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(2) BA-59 batteries, (2) BA-203/U batteries.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF EMISSION: AM.
ACCURACY: ±0.3 mc for carrier frequency; 1 kc for modulation frequency.
MODULATION FREQUENCY: 710 kc.
OPERATING FREQUENCY: 246 mc.
OPERATING POWER REQUIREMENTS: 6 v, 0.3 amp dc approx; 90 v dc.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., New York, N.Y.
Zenith Radio Corp., Chicago, Illinois.
Approximate Cost: $64.54 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 955
Total Tubes: (2)
No Crystals used.

REFERENCE DATA AND LITERATURE

H-172/TM11-487H-1, NAVSHIPS 93003 Vol #1 for TS-1/ARR-1 Test Set.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

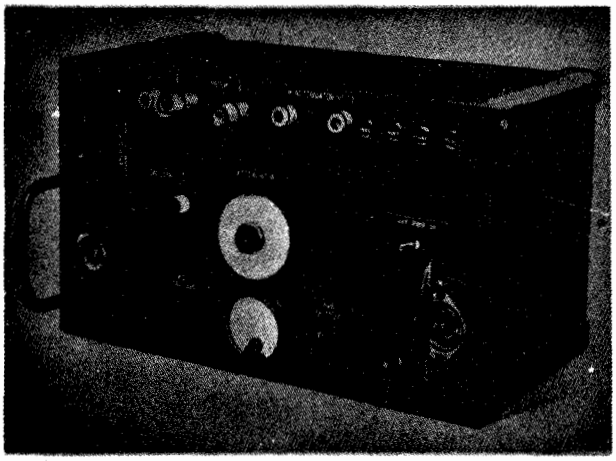
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Set TS-1/ARR-1 Including: (1) Cover CW-1/ARR-1 (1) Instruction BK (1) Wrench Double End	6-3/4 X 7-1/8 X 11-1/8 7 X 7 X 10	5.87

June 1957

Test-Signal Generating

SIGNAL GENERATOR

TS-103/TPM-1



Signal Generator

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., N.Y., N.Y.
Contract NOrd 3456.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) GL-446A
(1) 6E5
(1) 6X5GT
(1) VR105-30
(1) 6SL7-GT
(1) 6SN7-GT
(1) VR150-30

Total Tubes: (7)

FUNCTIONAL DESCRIPTION

The TS-103/TPM-1 is used to check r-f transmission lines, measure signal-to-noise ratios, and to provide a calibrated signal for alignment of receivers. A low-frequency square-wave generator in this unit may be used to calibrate oscilloscopes.

No field changes in effect at time of preparation (11 October 1956).

REFERENCE DATA AND LITERATURE

TM-11-1200: Technical Manual for Radar Test Equipment.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 980 to 1200 mc, 1 band.
OUTPUT SIGNAL: CW power, +13 dbm to +17 dbm.
OUTPUT IMPEDANCE: 50 ohms.

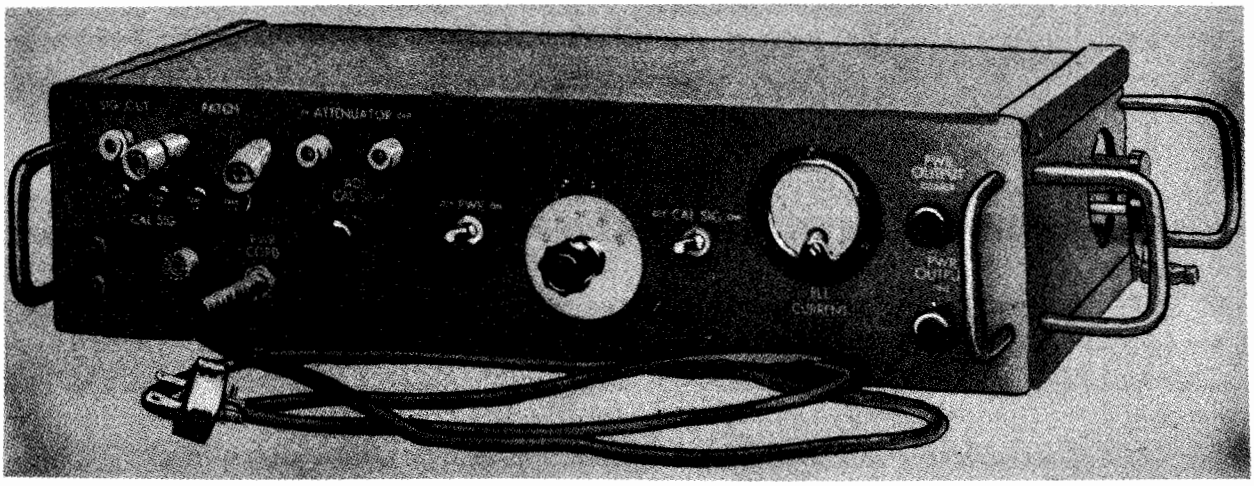
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-103/TPM-1	9 X 11 X 15	32

December 1956

SIGNAL GENERATOR TS-128/UP



Signal Generator TS-128/UP

FUNCTIONAL DESCRIPTION

The TS-128/UP is designed to generate CW test signals at any desired frequency between 1000 and 1400 mc, provide an adjustable approximate square wave voltage which can be measured with a high impedance DC voltmeter and used for calibrating an oscilloscope as a voltmeter, provide a calibrated attenuator for reducing radio frequency power in the 1000 to 1400 mc range by known amounts.

It is employed in the testing and maintenance of "L" band radar equipment operating within the 1000 to 1400 mc range. It was originally designed as a component of depot testing equipments, such as AN/UPM-3, but may be used separately from these equipments where applicable

No field changes in effect at time of preparation (9 July 1956).

RELATION TO OTHER EQUIPMENT

Requipment Required but not Supplied: (1) Test Set TS-107/TPM-1 or equivalent.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1000 to 1400 mc.
POWER OUTPUT (OSCILLATOR): 2 to 10 mw (±3.0 to 10.0 db) for mast tests.
OSCILLOSCOPE CALIBRATING CIRCUIT
OUTPUT: 0.5 to 50 v rms (1 to 100 v peak-to-peak).
ATTENUATOR CIRCUIT: 30 db min to 100 db max continuously adjustable loss.
PRESENTATION
ATTENUATOR DIAL: 30 to 100 db in 1 db steps
CURRENT METER: 0 to 25 mc DC.
POWER REQUIREMENTS: 105 to 125 v50 to 400 cps, 75 W (at 115 v, 60 cps).

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co, New York, N.Y.
Contract NOrd-3456.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) GL446A	(2) 6SN7GT
(1) 6X5GT	(2) VR105/30

Total Tubes: (6)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,455-18: Technical Manual for SIGNAL GENERATOR TS-128/UP.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUORD
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

TS-128/UP SIGNAL GENERATOR

December 1956

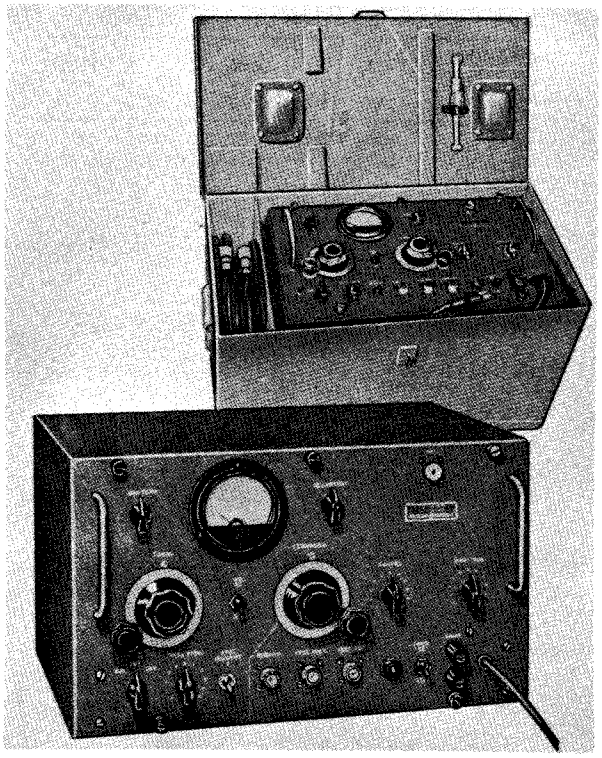
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Singal Generator TS-128/UP	5-5/8 X 11-9/16 X 23-15/16	32.5

April 1958

Test-Signal Generating

TEST SET TS-14/AP



Field Test Set Including Carrying Case and Accessories TS-14/AP

FUNCTIONAL DESCRIPTION

The TS-14/AP is a portable signal generator and is used for testing the operation of radar equipment.

No field changes in effect at time of preparation (24 March 1958).

RELATION TO OTHER EQUIPMENT

The TS-14/AP is similar to UHF Signal Generator Equipment LAD except for frequency range.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 3,200 to 3,370 mc ±2 mc.
TYPE OF EMISSION: CW, pulse.
POWER RANGE
  RF INPUT: 20 to 200 mw (avg).
  RF OUTPUT: −20 to −100 dbm (peak) ±1 db; 10 mw at −20 db.
PHASING: 10 to 200 usec after trigger at 1000 cps.
PULSE WIDTH: 1.0 to 2.8 usec at 1000 pps.
SYNCHRONIZATION
  AMPLITUDE: 20 to 180 v (ext); greater than +100 v (int).
  PULSE REPETITION RATE: 300 to 2,500 cps.
  PULSE WIDTH: 0.5 to 20 usec (ext); 2 usec (int).

MANUFACTURER'S OR CONTRACTOR'S DATA

Boonton Radio Corp, Boonton, N.J.
Contract NXss-30263.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 6SN7
(1) 5Y3GT/G
(1) OC3/VR105-30
(1) 6AC7
(1) 446B
Total Tubes: (8)
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,012-1B: Technical Manual for Signal Generator TS-14/AP and Signal Generator LAD.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE NAVY SPEC RE 9061
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Set TS-14/AP consists of:	9-3/4 X 11-1/4 X 16-3/4	
1	Antenna Assy AS-23/AP		
1	Cord CG-107/U**	180 lg	
1	Cord CG-107/U*	72 lg	
1	Case CY-177/U**	11-1/2 X 14-1/2 x 21-1/2	25

TS-14/AP TEST SET

EQUIPMENT SUPPLIED DATA

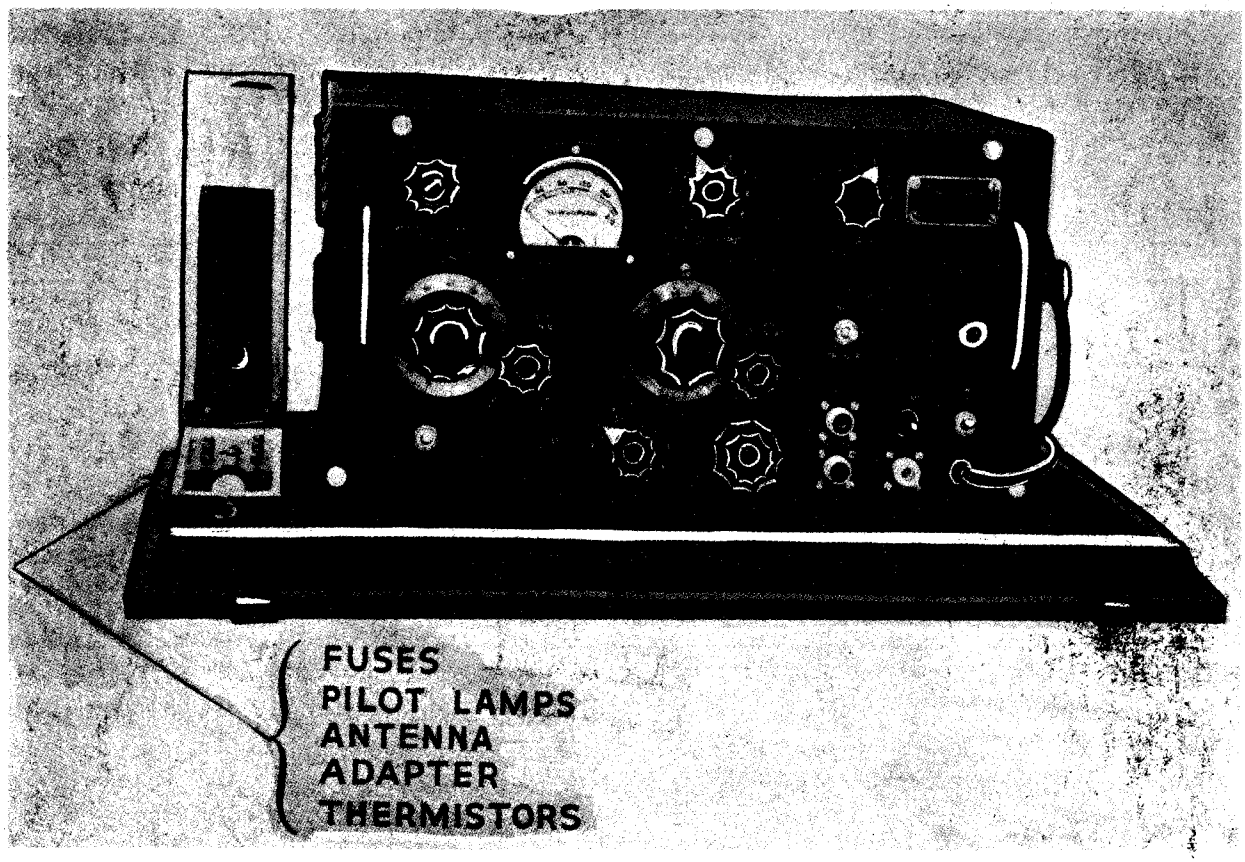
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Frequency Adapter UG-110/U**	5/8 dia X 2-1/2	0.06
1	Cord CG-92/U	72 lg	
1	Cord CG-92/U*	300 lg	
1	Allen Wrench No. 6		
1	Allen Wrench No. 8		
1	Allen Wrench No. 10		
1	Set Operating Spares		
1	Technical Manual		

*Part of TS-14/AP signal generator only.
**Part of TS-14/AP Field Test Set only.

March 1957

Test Signal Generating

SIGNAL GENERATOR TS-155/UP,A/UP,B/UP



Signal Generator

FUNCTIONAL DESCRIPTION

The TS-155/UP, TS-155A/UP or TS-155B/UP is a generator of pulse-modulated, calibrated, r-f signals. It is used for testing the operation of radar sets in the band of frequencies from 2700 to 2900 mc.

As a signal generator it measures or checks the power output of the radar transmitter.

Data on this sheet reflects the following field changes, 1 (25 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT
- R-F: 2700 to 2900 mc.
- STANDARD: 650 cps trigger frequency.

INTERNALLY SYNCHRONIZED
- TRIGGER FREQUENCY: 120 to 2000 cps.
- PULSE WIDTH: 0.75 to 6.0 usec.
- PULSE DELAY: 5 to 1800 usec.
- PULSE SHAPE
  - RECTANGULAR: TS-155/UP, TS-155A/UP.

EXTERNALLY SYNCHRONIZED
- TRIGGER FREQUENCY: 120 to 2000 cps.
- WIDTH: 0.5 to 18.0 usec.
- POLARITY: Either positive or negative.
- AMPLITUDE: 15 to 100 v.
- RISE TIME: Less than 0.2 usec to 20 v.
- PULSE SHAPE
  - RECTANGULAR: TS-155/UP, TS-155A/UP.
  - SQUAREWAVE: TS-155B/UP.

OPERATING POWER: 105 to 125 v, 50 to 800 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 2C40	(1) 5U4G
(1) OC3W/VR105	(1) 6AG7Y
(1) OD3W	(4) 6SN7WTA

Total Tubes: (9)

Test Signal Generating

March 1957

TS-155/UP,A/UP,B/UP SIGNAL GENERATOR

TM11-2657: Technical Manual for Signal Generator TS-155/UP and TS-155A/UP.
TM11-487A: Technical Manual for Test Equipment.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator	6.0		126

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT			NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
TS-155					
/UP	A/UP	B/UP			
1			Signal Generator TS-155/UP	9 x 12-3/4 x 17	36.5
	1		Signal Generator TS-155A/UP	9 x 12-3/4 x 17	36.5
		1	Signal Generator TS-155B/UP	9 x 12-3/4 x 17	36.5
1	1	1	Antenna Cable CG-70/MPM	180 lg	1.5
1	1	1	Trigger Cable CG-71/MPN	72 lg	11/16
1	1	1	Trigger Cable CX-145/MPN	360	1.5
1	1	1	Adapter	5/8 x 5/8 x 1-1/2	1/16
1	1	1	Antenna Assy AS-23/AP	1-1/4 x 2-1/4 x 3-3/4	3.5
1	1	1	Allen Setscrew Wrency No. 10		
1	1	1	Allen Setscrew Wrency No. 8		
1	1	1	Allen Setscrew Wrency No. 6		
1	1	1	Allen Setscrew Wrency No. 4		
1			Transit Case	12-5/8 x 15-1/4 x 25	26.0

28 May 1962 6625-643-1589 SIGNAL GENERATOR TS-155C/UP
Cog Service: USA FSN: 6625-668-6248 W/S Functional Class: 4.1.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	Std

MANUFACTURER'S NAME/CODE NUMBER: Lewyt Corporation, (36004).

Signal Generator TS-155C/UP

FUNCTIONAL DESCRIPTION:

Signal Generator TS-155C/UP is a portable equipment used in field testing and in checking over-all system performance, radar receiver sensitivity, and power output of radar transmitters. It also supplies external trigger pulses to radar systems.

No field changes in effect at time of preparation (7 February 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 100 W, 105 to 125 v or 210 to 250 v, 50 to 1,600 cyc.
RF OUTPUT: 2,700 to 3,400 mc.
INTERNALLY SYNCHRONIZED
WIDTH OF RF PULSE: 0.75 to 5.75 usec.
REPETITION-RATE TRIGGER: 80 to 2,600 cps.
RF PULSE SHAPE

RISE TIME: 0.35 usec from 10 to 90% max.
FALL TIME: 0.30 usec from 90 to 10% max.

OUTPUT TRIGGER
AMPLITUDE: P10 to P50 v.
DURATION: 0.5 to 20 usec between 10% max amplitude points.
RISE TIME: Less than 0.5 usec from 10 to 90% max amplitude.
FLATNESS: Constant within porm 10% of max amplitude.
DECAY OSCILLATIONS: Less than 10% of max amplitude.
PULSE AMPLITUDE VARIATION: Not more than porm 5% of max amplitude.
DIRECT-CURRENT (DC LEVEL): Not more than porm 10% v.

TRIGGER REQUIREMENTS FOR EXTERNAL SYNCHRONIZATION
DELAY-DIRECT SWITCH IN DIRECT POSITION
TRIGGER FREQUENCY: 80 to 2,600 cps.
DELAY: Paired trigger pulses, 2 usec apart.
WIDTH (TRIGGER PULSE): 0.3 to 1 usec at half-voltage points.
WIDTH (RF PULSE): 0.4 to 1.4 usec at half-voltage points.
AMPLITUDE: Porm 30 to porm 50 v.
RISE TIME: Less than 0.3 usec from 10 to 90% max amplitude.
DELAY-DIRECT SWITCH IN DELAY POSITION
TRIGGER FREQUENCY: 80 to 2,600 cps.
DELAY: 4 to 1,900 usec.
WIDTH: 0.7 to 12 usec.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator TS-155C/UP		9 x 12-13/16 x 16-11/16	41
	includes:			
1	Cylinder MX-678/UP		7/8 x 7/8 x 1-5/8	0.06
1	Cylinder MX-679/UP		7/8 x 7/8 x 1-5/8	0.06
1	Cylinder MX-680/UP		7/8 x 7/8 x 1-5/8	0.06
2	Cable Assy, RF CG-92/U		96 lg	
2	Cable Assy, RF CG-409/U		96 lg	
1	Cable Assy, Power, Electrical CX-337/U		72 lg	
1	RF Adapter UG-28/U or UG-28A/U		5/8 x 1-3/4 x 3-1/32	0.18
1	RF Adapter UG-57/U or UG-57B/U		3/4 x 3/4 x 2-3/64	0.12
1	RF Adapter UG-29/U or UG-29B/U		5/8 x 5/8 x 2-3/16	0.12
1	Crystal Adapter UG-119/UP		3/4 x 3/4 x 2	0.12
2	Adapter UG-255/U		1-3/64 x 1-5/32 x 1-5/32	0.06
2	Adapter UG-273/U		1-1/64 x 1-5/32 x 1-5/32	0.06
1	Adapter UG-131/U		5/8 x 5/8 x 1-35/64	0.06
1	Antenna, Horn AT-67/AP		2 x 3-3/4 x 4-1/4	0.43

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Set of Allen Wrenches no. 4, 6, 8, 10			
1	Case CY-530/U		10-3/8 x 15-1/4 x 21	30

REFERENCE DATA AND LITERATURE:

TM11-2657C: Technical Manual for Signal Generator TS-155C/UP and TS-155E/UP.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0C3W/VR105 (1) 0D3W/VR150 (1) 2C40A (1) 5Y3WGT (1) 6AG7Y (4) 6SN7WGT

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N21B

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USA
SPEC &/OR DWG: MIL-G-10728A

DESIGN COG: USA, Sig C

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Lewyt Corp.	Long Island City, N. Y.	38257-Phila-53	

	USA	USN	USAF
TYPE CLASS:	Std	Std	Std

MANUFACTURER'S NAME/CODE NUMBER: Webcor Inc., (64285).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Signal Generator TS-155E/UP is a portable equipment used in field testing and in checking over-all system performance, radar receiver sensitivity, and power output of radar transmitters. It also supplies external trigger pulses to radar systems.

No field changes in effect at time of preparation (7 February 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 100 W, 105 to 125 v, or 210 to 250 v, 50 to 1,600 cyc.
R.F. OUTPUT: 2,700 to 3,400 mc.
INTERNALLY SYNCHRONIZED
- WIDTH OF RF PULSE: 0.75 to 5.75 usec.
- REPETITION-RATE TRIGGER: 80 to 2,600 cps.

R.F. PULSE SHAPE
- RISE TIME: 0.35 usec from 10 to 90% max.
- FALL TIME: 0.30 usec from 10 to 90% max.

OUTPUT TRIGGER
- AMPLITUDE: P10 to P50 v.
- DURATION: 0.5 to 20 usec between 10% max amplitude points.
- RISE TIME: Less than 0.5 usec from 10 to 90% max amplitude.
- FLATNESS: Constant within porm 10% of max amplitude.
- DECAY OSCILLATIONS: Less than 10% of max amplitude.
- PULSE AMPLITUDE VARIATIONS: Not more than porm 5% of max amplitude.
- DIRECT-CURRENT (DC LEVEL): Not more than porm 10% v.

TRIGGER REQUIREMENTS FOR EXTERNAL SYNCHRONIZATION
- DELAY-DIRECT SWITCH IN DIRECT POSITION
  - TRIGGER FREQUENCY: 80 to 2,600 cps.
  - DELAY: Paired trigger pulses, 2 usec apart.
  - WIDTH (TRIGGER PULSE): 0.3 to 1 usec at half-voltage points.
  - WIDTH (R.F. PULSE): 0.4 to 1.4 usec at half-voltage points.
  - AMPLITUDE: Porm 30 to porm 50 v.
  - RISE TIME: Less than 0.3 usec from 10 to 90% max amplitude.
- DELAY-DIRECT SWITCH IN DELAY POSITION
  - TRIGGER FREQUENCY: 80 to 2,600 cps.
  - DELAY: 4 to 1,900 usec.
  - WIDTH: 0.7 to 12 usec.

RELATION TO OTHER EQUIPMENT: None.

TS-155E/UP SIGNAL GENERATOR

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator TS-155E/UP includes:		9 x 12-13/16 x 16-11/16	41
1	Cylinder MX-678/UP		7/8 x 7/8 x 1-5/8	0.06
1	Cylinder MX-679/UP		7/8 x 7/8 x 1-5/8	0.06
1	Cylinder MX-680/UP		7/8 x 7/8 x 1-5/8	0.06
2	Cable Ass'y, R.F. CG-92/U		96 lg	
2	Cable Ass'y, R.F. CG-409/U		96 lg	
1	Cable Ass'y, Power, Electrical CX-337/U		72 lg	
1	R.F. Adapter UG-28B/U		5/8 x 1-3/4 x 3-1/32	0.18
1	R.F. Adapter UG-57B/U		3/4 x 3/4 x 2-3/64	0.12
1	R.F. Adapter UG-29B/U		5/8 x 5/8 x 2-3/16	0.12
1	Crystal Adapter UG-119/UP		3/4 x 3/4 x 2	0.12
2	Adapter UG-255/U		1-3/64 x 1-5/32 x 1-5/32	0.06
2	Adapter UG-273/U		1-1/16 x 1-5/32 x 1-5/32	0.06
1	Adapter UG-131/U		5/8 x 5/8 x 1-35/64	0.06
1	Antenna, Horn AT-67/AP		2 x 3-3/4 x 4-1/4	0.43
1	Set of Allen Wrenches no. 4, 6, 8, 10			
1	Case CY-530/UP		10-3/8 x 15-1/4 x 21	30

REFERENCE DATA AND LITERATURE:

TM11-2657C: Technical Manual for Signal Generator TS-155C/UP and TS-155E/UP.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0C3W/VR105 (1) 0D3W/VR150 (1) 2C40A (1) 5Y3WGT (1) 6AG7Y (4) 6SN7WGT

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N21B

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USA
SPEC &/OR DWG: MIL-G-10728A

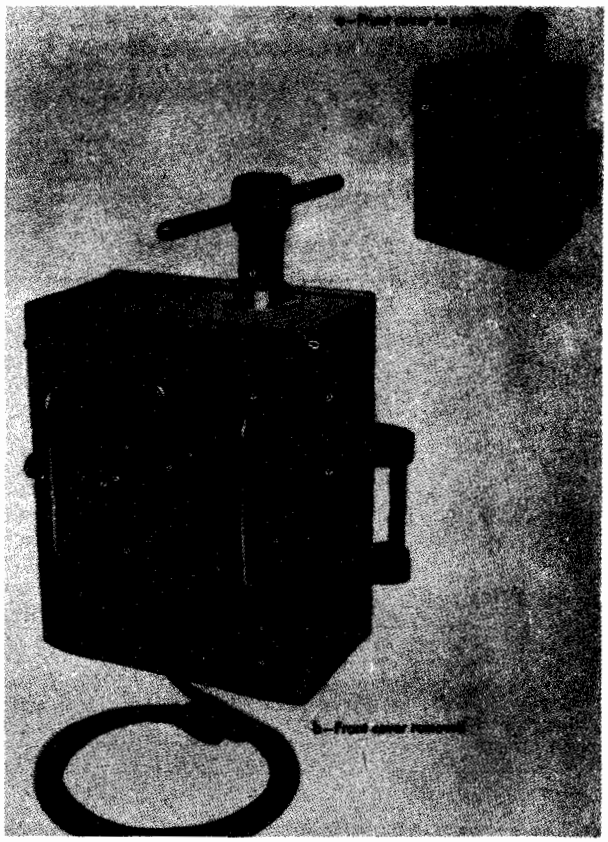
DESIGN COG: USA, Sig C

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Webcor Inc.	Chicago, Ill.	19943-Phila-55 28605-Phila-57	

October 1957

Test-Signal Generating

TEST OSCILLATOR TS-189/U



Test Oscillator TS-189/U

No field changes in effect at time of preparation (21 March 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FUNDAMENTAL FREQUENCY: 270 mc.
PULSE REPETITION FREQUENCY
- SWITCH POSITION 1: 450 cps ±20%.
- SWITCH POSITION 2: 1875 cps ±20%.
- SWITCH POSITION 3: 2750 cps ±20%.
- SWITCH POSITION 4: 3750 cps ±20%.

POWER SUPPLY
- INPUT VOLTAGE: 115 v AC.
- FREQUENCY: 400 to 2600 cps.
- POWER FACTOR: greater than 90%.
- CURRENT DRAIN: 10 w.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SN7GT (1) 955) (1) 6H6
Total Tubes: (3)

REFERENCE DATA AND LITERATURE

AN16-35TS189-2: Technical Manual for Test Oscillator TS-189/U.

FUNCTIONAL DESCRIPTION

The TS-189/U has been designed to furnish a test signal or "target" for the AN/APA-17 equipment to enable adjustments and directional checks to be made.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

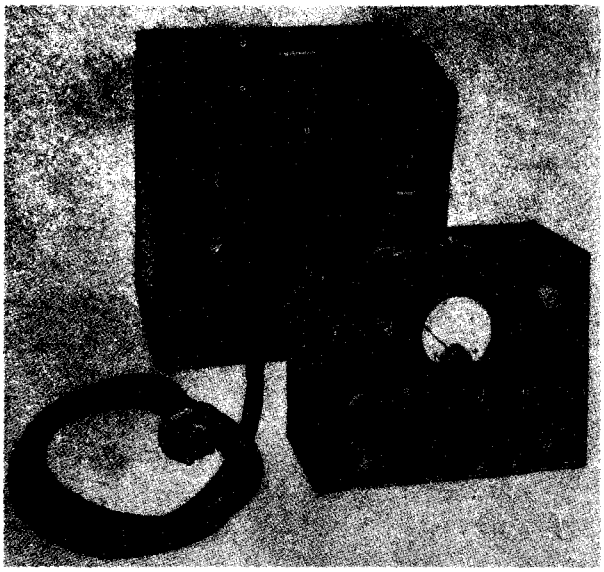
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Oscillator TS-189/U	6 x 8 x 10	13

October 1957

Test-Signal Generating

NOISE GENERATOR TS-195/GP



Noise Generator TS-195/GP

FUNCTIONAL DESCRIPTION

The TS-195/GP is designed to determine the amount of noise developed within a circuit, so excessive noise can be eliminated by adjustment of the circuit to improve the signal-to-noise ratio. It is designed specifically for use in 30 megacycle intermediate frequency channels and its impedance is such that it can be inserted in place of a standard crystal mixer.

No field changes in effect at time of preparation (6 February 1957).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Detector TS-200/CPM-4 and Milliammeter of Oscilloscope.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 120 v, 60 cps, single ph, 10 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Electric Co. Syracuse, N.Y.
Contract W-3435-SC-264.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6H6

Total Tubes: (2)

REFERENCE DATA AND LITERATURE

TM11-1205: Technical Manual for Noise Generator TS-195/GP.

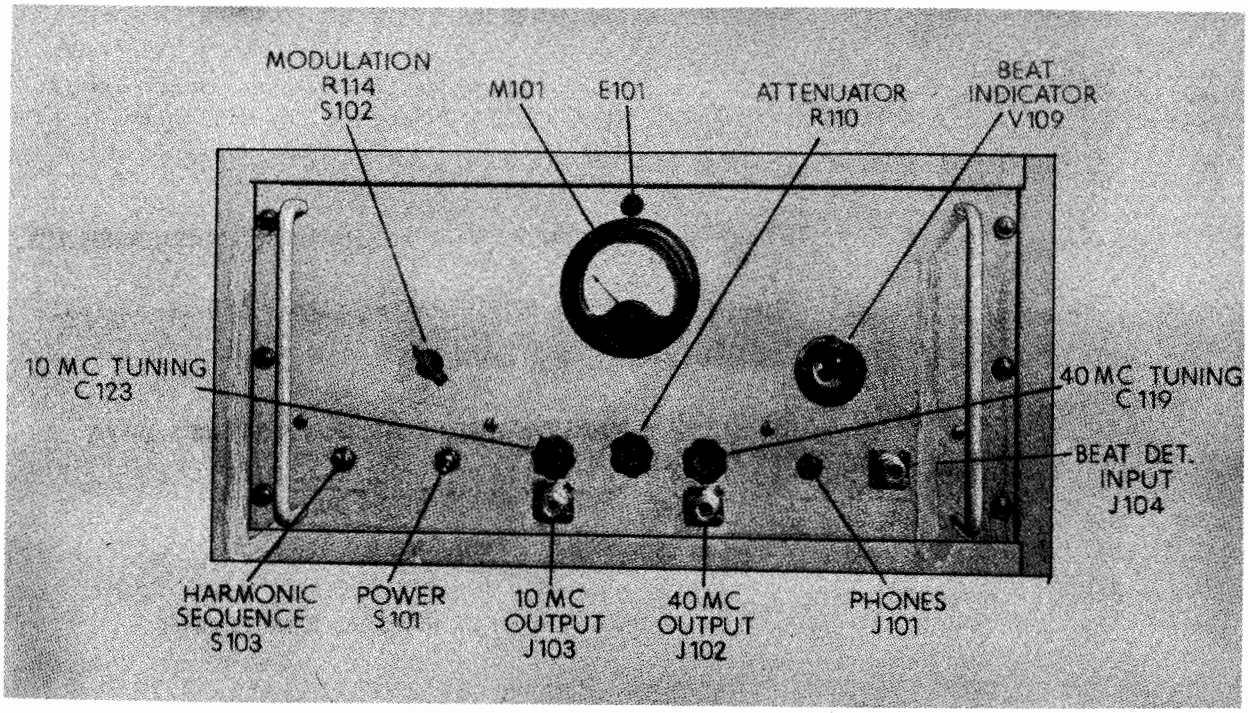
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	USAF
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Noise Generator TS-195/GP	3-13/16 X 5-7/16 X 7	15

April 1958

SIGNAL GENERATOR TS-202/U,TS-202A/U



Signal Generator TS-202A/U

FUNCTIONAL DESCRIPTION

The TS-202/U and TS-202A/U are harmonic signal generators for use at frequencies above 100 megacycles. Sufficient harmonic output is obtained at frequencies as high as 2000 mc for the calibration of receivers, transmitters, wavemeters, and signal generators. Crystal controlled harmonic multiples of 10 mc and 40 mc are available with an accuracy of 0.02%.

An electron couples crystal oscillator operating at 5 mc is used as the frequency determining element. The crystal oscillator is followed by frequency multipliers and amplifiers which produce frequencies of 10 mc and 40 mc multiples. Provision is made to obtain a 1000 cps sine wave modulation, the percentage of modulation being adjustable. To facilitate the calibration of oscillators and signal generators, a beat frequency detector is incorporated into the unit to provide means of zero beating the unknown frequency with the standard. In order to choose the correct harmonic frequency, band pass filters, known as "identifier units", are provided to be inserted between the signal generator and the unit under test. These offer a very high attenuation to all but a single frequency.

The TS-202A/U is similar to TS-202/U except that the unit has been strengthened mechanically in order to make it less susceptible to shock and to vibrations and a greater majority of the components now meet the JAN specifications.

No field changes in effect at time of preparation (30 December 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQ RANGE: 100 mc to 1500 mc in 10 mc and 40 mc steps.
FREQ CONTROL: 5000 kc xtal.
DEGREE OF MODULATION: Variable.
SIGNAL OUTPUT: Greater than 100 uv at all frequencies.
FREQ STABILITY: ±0.02%.
PRESENTATION AND CONTROLS: A "harmonic sequence" switch permits the selection of either 10 mc or 40 mc harmonics. Tuning controls for 10 mc and 40 mc harmonics provide adjustment for max harmonic amplifier current as indicated by tuning meter. The "Attenuator" controls the amplitude and to a certain extent, the degree of harmonic content. The "Modulation" control determines the percentage of 1000 cps modulation. The beat indicator is made

Test-Signal Generating

TS-202/U,TS-202A/U SIGNAL GENERATOR

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operative when the modulation control is fully counterclockwise. Zero beat may be determined by the use of a headset or by use of the "eye" tube on the panel.

FITTINGS AND ACCESSORIES: The beat detector input jack, 10 mc output jack, and 40 mc output jack are all UG-22/U type N female coaxial connectors mating the UG-21/U plugs on both ends of the coaxial RG-8/U 3 foot long test cable. Each wavemeter unit (Identifier) has a UG-58/U type N female coaxial connector which mates the Test Cable and a UG-21/U type N male coaxial connector which mates the panel output jacks.

The headset jack is a Navy Type 49025 Telephone jack.

CONSTRUCTION: Housed in a metal case.

MANUFACTURER'S OR CONTRACTOR'S DATA

Lavoie Laboratories, Morganville, N.J.
Contract N5Sr-7256, NXsa-51595 (TS-202/U).
Radioactive Products, Inc, Detroit, Mich.
Contract NObsr-52226 (TS-202A/U).

TUBE AND/OR CRYSTAL COMPLEMENT

TS-202/U

(1) 5U4G	(1) 6AC7WA	(1) 6SN7WGTA
(2) 6J6WA	(2) 6L6	(1) 6E5
(1) 9002	(2) 6AG7Y	(1) 6V6Y

Total Tubes: (12)

TS-202A/U

(1) 5U4G	(1) 6AC7WA	(2) 6L6
(1) 6E5	(2) 6J6WA	(1) 6C4WA
(1) 6V6GTY	(2) 6AG7Y	(1) 6SN7WGTA

Total Tubes: (12)

No Crystals.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,864(A): Technical Manual for Signal Generator TS-202/U.
NAVSHIPS 91832: Technical Manual for Signal Generator TS-202A/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

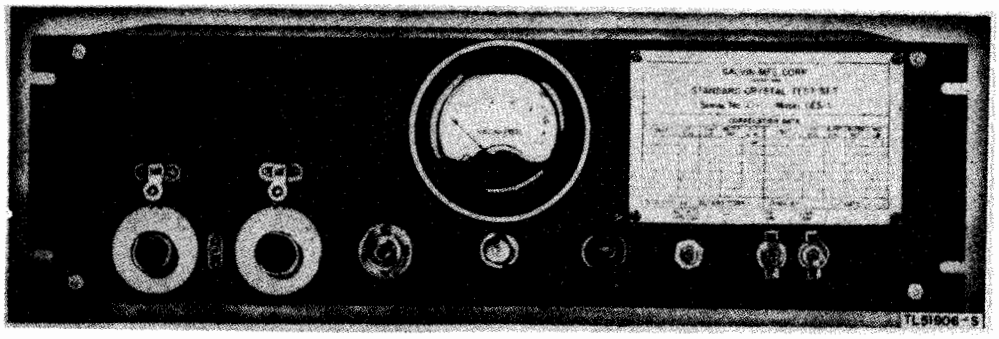
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	c/o (1) Signal Generator TS-202/U or TS-202A/U (3) Band Pass Filters F-149/U, F-150/U, F-151/U (1) Test Cable CG-92B/U (1) Spare Parts Box	14.2	22 x 26 x 42	100

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generators TS-202/U or TS-202A/U	10-1/2 x 14 x 21	60
1	Filter, Band Pass F-149/U	4 x 4-1/2 x 6	2.5
1	Filter, Band Pass F-150/U	4 x 4-1/2 x 6	2.5
1	Filter, Band Pass F-151/U	2 x 3-1/4 x 5-1/4	1.0
1	Test Cable RG-9A/U; CG-92B/U	30 lg	
1	Set of Repair Parts		

Test-Signal Generating

STANDARD OSCILLATOR TS-220/TSM



Standard Oscillator TS-220/TSM

FUNCTIONAL DESCRIPTION

The TS-220/TSM is used in testing the frequency and activity of crystals.

No field changes in effect at time of preparation (18 April 1958).

RELATION TO OTHER EQUIPMENT

The TS-220/TSM is a Galvin Model CES-1. This equipment is part of Crystal Fabricating Equipment AN/FSM-1.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1 to 10 mc ±30 cycle.
ACTIVITY RANGE: 0 to 1 ma DC ±0.02 ma.
POWER REQUIREMENTS: 110 v, 50 to 60 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Galvin Mfg Corp, Chicago, Ill.
Mfr type no. 1B61467 CES-1.
Approximate Cost: $250.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OB3 (1) 6X5GT (1) 7C5
Total Tubes: (3)

No Crystals used.

REFERENCE DATA AND LITERATURE

TM11-2675: Technical Manual for Standard Oscillator TS-220/TSM (Galvin Model CES-1).

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE Sig C Dwg SC-D-14833
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Standard Oscillator TS-220/TSM		14 x 16 x 29-1/2	52

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Standard Oscillator TS-220/TSM including:	5-1/4 x 7-1/4 x 17	12.5
2	Technical Manual TM11-2675	1/2 x 5-7/8 x 9	0.5

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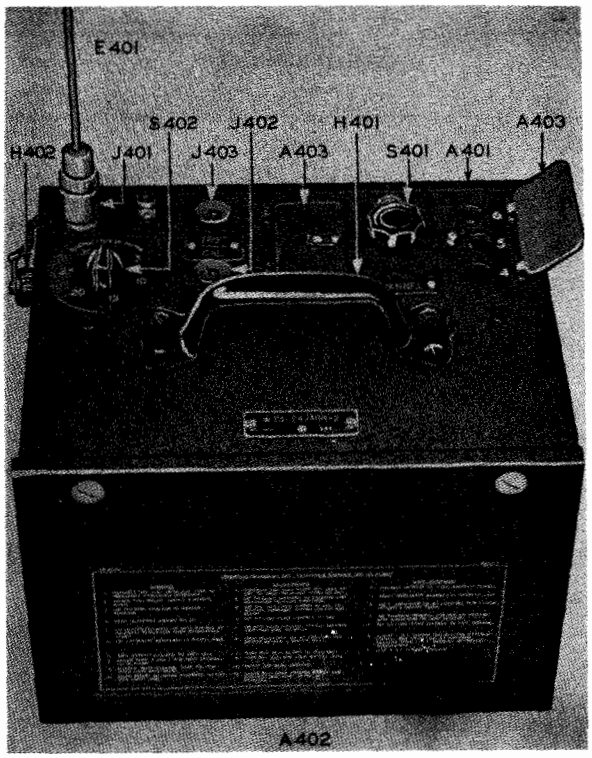
Test-Signal Generating

TEST OSCILLATOR TS-24/ARR-2, TS-24A/ARR-2



Test Oscillator TS-24/ARR-2

FUNCTIONAL DESCRIPTION

The TS-24/ARR-2, and TS-24A/ARR-2 are a portable unit that provides test signals for high and low frequency radio receiver circuits. The unit has a means of audio modulation used in checking operations of the equipment.

No field changes in effect at time of preparation (14 April 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied· (2) Batteries BA-59, (2) Batteries BA-203.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY: 246 mc ±1%.
MODULATION FREQUENCY: 540 to 830 kc ±800 cycles.
FREQUENCY CHANNELS: 6.
TYPE OF EMISSION: AM, CW.
POWER OUTPUT: 100 mw at 10 ft from ant.
POWER REQUIREMENTS: 6 v, 90 v DC.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., New York, N.Y.
Contract N5sa-2944.

TUBE AND/OR CRYSTAL COMPLEMENT

TS-24/ARR-2
(2) 955
Total Tubes: (2)

TS-24A/ARR-2
(3) 955
Total Tubes: (3)

No Crystals used.

REFERENCE DATA AND LITERATURE

AN-16-30-ARR-2-2: Handbook of Maintenance Instructions for Test Oscillators TS-24/ARR-2 and TS-24A/ARR-2.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE Navy Spec RE 13AS78
STOCK NO.
R.D.B. IDENT. NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Test Oscillator w/Accessories	0.99	11 X 12 X 13	35

TS-24/ARR-2, TS-24A/ARR-2 TEST OSCILLATOR

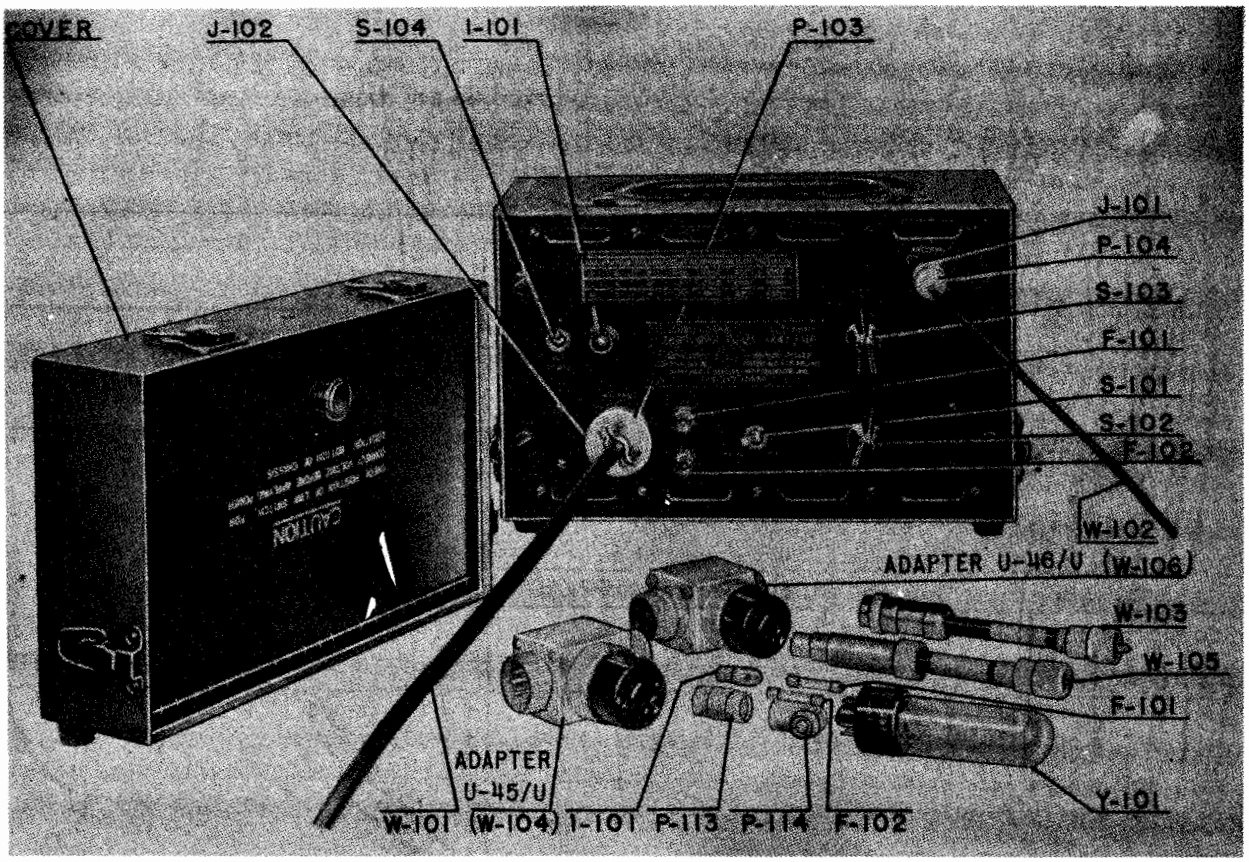
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
TS-24/ ARR-2	TS-24A/ ARR-2			
1		Test Oscillator TS-24/ARR-2	6-3/4 X 7-1/8 X 11-1/8	20
	1	Test Oscillator TS-24A/ARR-2	6-3/4 X 7-1/8 X 11-1/8	20
1	1	Technical Manual		
1		Slip Cover CW-8/ARR-2	7-3/8 X 8-1/4 X 10-1/8	
	1	Slip Cover CW-8A/ARR-2	7-3/8 X 8-1/4 X 10-1/8	
1	1	Alignment Tool		
1	1	Antenna Rod Assembly	27/67 dia X 7-1/4	

April 1958

Test-Signal Generating

TEST SET TS-251/UP



Test Set TS-251/UP

FUNCTIONAL DESCRIPTION

The TS-251/UP is a portable signal generator used in preflight and shipboard checking of long range Loran receivers.

No field changes in effect at time of preparation (22 April 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1700 to 2010; 4 channels.
TYPE EMISSION: Pulse.
VOLTAGE OUTPUT: 15 uv, 1 mv, 1 v.
IMPEDANCE: 50 ohms for 15 uv and 1 mv; 150 ohms for 1 v.
PULSE REPETITION RATE: 303.03 pps, 3300 usec between pulses.
ACCURACY: ±10 kc.
POWER REQUIREMENTS: 80 v, 115 v, or 230 v, 50 to 1600 cyc, 1 ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Airplane and Marine Instruments, Inc, Clearfield, Pa.
Order No. 454-DAY-45, dated 16 December 1944.
Order No. 2266-DAY-45, dated 31 May 1945.
Packard Bell Co, Los Angeles, Calif.
Order No. 962-DAY-45, dated 5 January 1945.
Order No. 2028-DAY-45, dated 16 February 1945.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6J5	(1) 6SJ7	(1) 6SK7
(1) 6SL7GT	(1) 6SN7GT	(1) 6X5GT

Total Tubes: (6)

Test-Signal Generating

April 1958

TS-251/UP TEST SET

(1) CR-11/U

Total Crystals: (1)

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE USAF Spec 371-5091
STOCK NO.
R.D.B. IDENT. NO.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900652: Handbook of Maintenance Instructions for Test Set TS-251/UP.

SHIPPING DATA

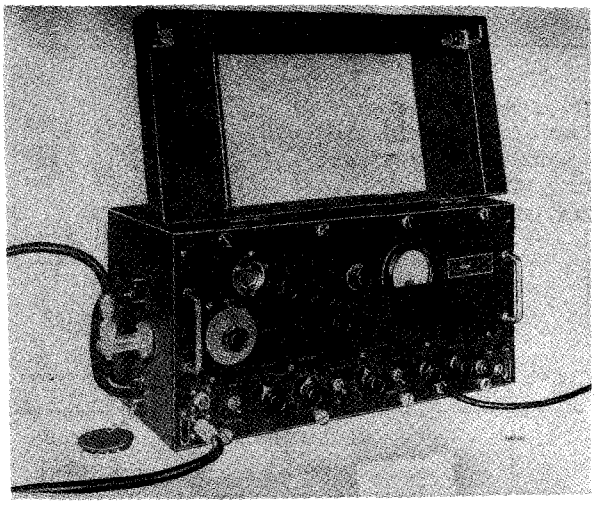
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Test Set TS-251/UP	1.44	12 X 14 X 16	22

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Set TS-251/UP including:	7-3/4 X 10-1/2 X 11-3/4	18.1
1	Cord CG-221/UP	120 lg	
1	Cord CG-222/UP	6 lg	
1	Cord CG-223/UP	6 lg	
1	Cord CX-404/UP	120 lg	
1	Adapter U-45/U	6 lg	
1	Adapter U-46/U	6 lg	
1	Adapter NT-49544		
1	Technical Manual		
1	Wrench, Hex		

September 1956

TEST SET TS-258/UP



Test Set TS-258/UP

FUNCTIONAL DESCRIPTION

The TS-258/UP is a portable signal generator with self contained wavemeter and power monitor. It will generate either pulsed or cw (continuous-wave) rf power. Basically the unit consists of a type 723 A/B oscillator and associated "plumbing," a pulser for the oscillator which permits triggered or self synchronous operation, a direct reading thermistor bridge for power measurements an rf attenuator in decibels below 1 milliwatt and a regulated power supply for the whole set. The test set can be used to measure radar system power output, radar system frequency, transmitter and local oscillator frequencies, receiver sensitivity, receiver if bandwidth, and adjustment of automatic frequency control (AFC) circuits, and also for testing beacons which will respond to a 1 to 2 microsecond pulse. These measurements and adjustments can be made with the radar set installed in an airplane or with the radar set removed to a work bench.

No field changes in effect at time of preparation (2 July 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Directional coupler, (1) Pick-up antenna.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- FOR GENERAL USE: 9080 ±90 mc.
- FREQ SENSITIVITY OF POWER MONITOR: ±1-1/2 db in range 9080 ±90 mc.
- FREQ SENSITIVITY OF CALIBRATED ATTENUATOR: ±2 db from -13 dbm to -65 dbm in above frequency range.

SAWTOOTH OPERATION: Frequency modulation of approx 0.1 mc per v.

THERMAL DRIFT: Set stabilizes approx 3 min warm-up.

FREQUENCY METER ACCURACY: 2 mc at 25 C (77F) and 60% relative humidity.

VARIATION OF ATTENUATOR: The attenuator is individually calibrated to be accurate to ±2 db at approx 75 deg F.

PULSE CHARACTERISTICS
- POSITIVE TRIGGER REQUIRED: Not less than 15 v, 1-20 usec.
- NEGATIVE TRIGGER REQUIRED: Not less than 50 v, 5-20 usec (repetition rate 350 to 4000 cps).
- PULSE WIDTH: Continuously variable from less than 1 to greater than 2 usec measured at half power points.
- PULSE PHASING: From 6 usec min to 200 usec max.

SELF SYNCHRONOUS OPERATION
- RECURRENCE RATE: 1000 cps ±20%.
- DUTY CYCLE: Between 20 and 60%.

PEAK POWER OUTPUT
- CONTINUOUS WAVE: 50 uw for 1/2 of full scale of meter deflection.
- PULSED MODULATED: Peak power within 10% of cw power.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radiation Counter Laboratory, Chicago, Illinois.
Order No. 173-MPD-43

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6SN7GT (2) 6AC7 (1) 6Y6G

TS-258/UP TEST SET

September 1956

(3) VR105/30
(1) 5Y3GT/G
(1) 5U4G
(1) 723A/B
Total Tubes: (12)

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

REFERENCE DATA AND LITERATURE

TM11-1215: Technical Manual for Test Set TS-258/UP.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Set TS-258/UP	10-1/2 X 11-1/2 X 21	73.0
1	Adapter UG-81/U		
1	Cord CG-92/U(6)	72 lg.	
1	Cord CG-91/U(6)	72 lg.	
1	Spare parts box	6 X 12 X 12	21.0

April 1959

Test-Signal Generating

TEST EQUIPMENT TS-30/FMQ-1

FUNCTIONAL DESCRIPTION

The TS-30/FMQ-1 is designed to test Radiosonde prior to its release for flight by turning cams which make contacts to place each of the radiosonde elements in the circuit in turn. Thus it performs the same function on the ground that the bero switch performs in the air, allowing a pre-flight check of signals emitted by Radiosonde against Radiosonde Recepter AN/FMQ-1.

No field changes in effect at time of preparation (21 August 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OPERATING POWER REQUIREMENT: 115 v AC, 60 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tube or Crystal data Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card TS-30/FMQ-1 for Test Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

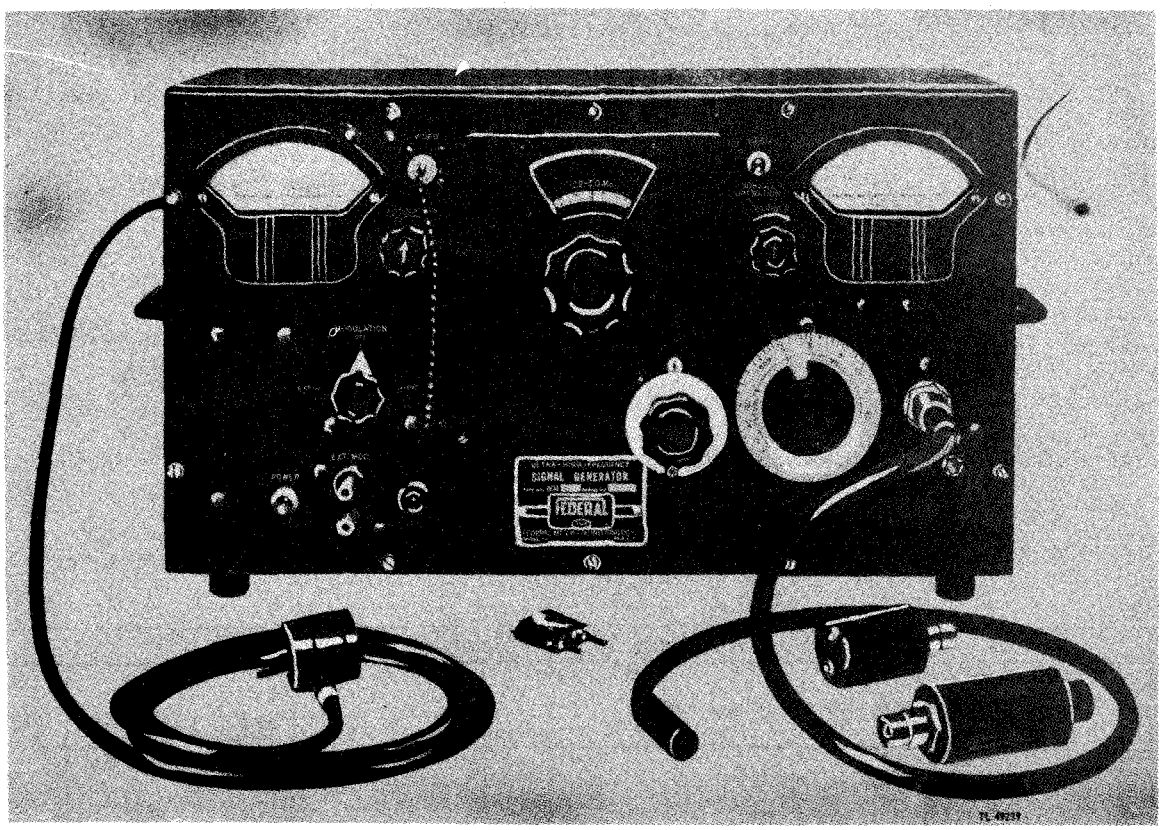
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Equipment TS-30/FMQ-1	5 X 8 X 8	5

December 1956

SIGNAL GENERATOR

TS-301/U



Signal Generator TS-301/U

FUNCTIONAL DESCRIPTION

The TS-301/U is designed for the production of radio frequency voltages over the frequency range of 7.6 to 330 megacycles. It is so constructed and shielded that an approximately accurate known voltage is obtainable at its output terminals in varying strength as selected from a dial calibrated in output voltage over a range of 1 to 20,000 microvolts. It is used for testing, alignment, and servicing of radio receiver equipments, and contains a stabilized power supply completely incorporated in itself. At the highest frequencies the absolute level of the output voltage is not accurately maintained, hence it is not to be considered as a standard, or source of accurately known voltages at all frequencies.

No field changes in effect at time of preparation (10 July 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: Generators (for use of pulse modulation or modulation of other frequencies than 1000 cps); Input Cable; Concentric Jack.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 7.6 to 330 mc (5 bands).
OUTPUT VOLTAGE: 1 to 20,000 uv (up to 100 mc), 1 to 10,000 uv (over 199 mc).
MODULATION DATA
FREQUENCY (INTERNAL): 1000 cps.
EXTERNAL: 1000 cps to 20 kc,
RANGE: 0 to 60% (internal), 0 to 75% (external).
MODULATION METER: 7.5 v full scale, Percentage of modulation continuously variable up to 60% may be read on meter.

TS-301/U SIGNAL GENERATOR

December 1956

POWER COMSUMPTION: 25 W at 115 v AC.
ACCURACIES
FREQUENCY: ±2% from the direct reading scales.
ATTENUATOR OUTPUT DIAL: ±10%, ±0.5 uv at lower frequencies (up to 25 mc). At highest frequencies the absolute level of output voltage not accurately known.
CABLE OUTPUT IMPEDANCE: Al proaches 75 ohms at high frequencies, and corresponds to 185 uufd at low frequencies.
POWER SUPPLY DATA: Self contained, 115 or 230 v, 40 to 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Mfg and Engineering Corp., Brooklyn, N. Y.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 955
(1) 6X5G
(1) 6G6G
(1) VR-150-30
Total Tubes: (4)

REFERENCE DATA AND LITERATURE

TM11-2639: Technical Manual for Signal Generator TS-301/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

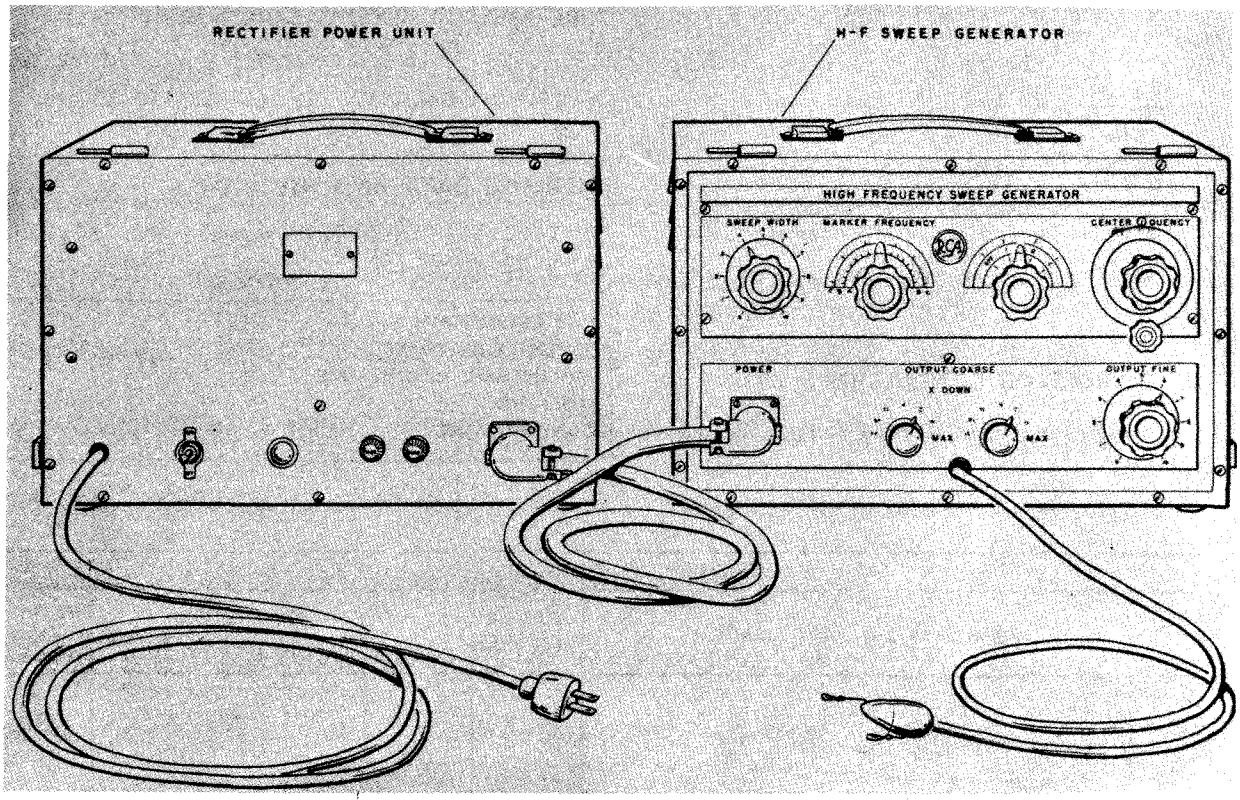
NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator TS-301/U consisting of: Output Cable A. C. Line Cord Assembly 10.1 Attenuator Terminal Unit Double Plug	8	20-1/2 X 20-3/4 X 31-1/2	118

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-301/U	10-1/2 X 11-3/4 X 21-3/4	42
1	Output Cable		
1	A.C. Line Cord Assembly		
1	10:1 Attenuator		
1	Terminal Unit		
1	Double Plug		

Test-Signal Generating

SWEEP GENERATOR TS-309/U



Sweep Generator TS-309/U

FUNCTIONAL DESCRIPTION

The TS-309/U is a small portable instrument. It may be used in the field or laboratory, in conjunction with an oscilloscope, or aligning wide band RF and IF stages (500 kcor wider at 70% response) which are in the range of 5 to 65 mc.

No field changes in effect at time of preparation (30 April 1958).

RELATION TO OTHER EQUIPMENT

This equipment is part of Test Equipment RC-271.

Equipment Required but not Supplied: (1) Test Oscilloscope, (1) Test Detector.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 5 to 65 mc.
FREQUENCY EXCURSION OSCILLATOR: 0.2 to 20 mc.
MARKER OSCILLATOR: 5 to 70 mc.
MODULATION FREQUENCY: 50 to 60 cycles.
OUTPUT VOLTAGE: From less than 0.001 v rms to 0.5 v rms.
POWER SOURCE REQUIRED: 105 to 125 v or 210 to 230 v, 50 to 60 cps, 150 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Corp of America, Camden, N.J.
Mfr Type MI-18709B.
Approximate Cost: $500.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5U4-G
(1) 6SJ-7
(2) 6L6-G
(4) 955
(3) 6AC-7
(1) 6J5
(1) OD3
Total Tubes: (13)

No Crystals used.

Test-Signal Generating

TS-309/U SWEEP GENERATOR

REFERENCE DATA AND LITERATURE

AN16-35TS309-3: Handbook of Maintenance Instructions for Sweep Generator TS-309/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

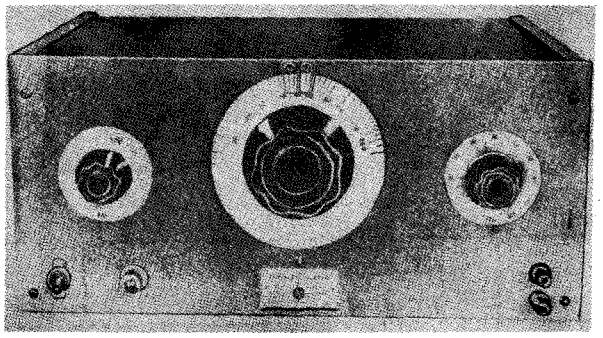
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	H-F Sweep Generator	10 X 12 X 17	36
1	Rectifier Power Unit	10 X 12 X 17	43
1	Interconnecting Cable	48 lg	
1	Adapter MC-532		

January 1958

Test-Signal Generator

AUDIO OSCILLATOR

TS-312/FSM-1



Audio Oscillator TS-312/FSM-1

FUNCTIONAL DESCRIPTION

The TS-312/FSM-1 is a rack mounted generator of audio signals in the frequency range of 20 to 200000 cps. It can be used as a source of stable audio frequency for test purposes.

No field changes in effect at time of preparation (10 July 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 200000 cps.
POWER OUTPUT: 100 mw into 1000 ohm load.
OUTPUT IMPEDANCE: 1000 ohms.
STABILITY: ±2%.
DISTORTION: Less than 1%.
HUM: 60 db below rated output.
POWER SOURCE REQUIRED: 110 to 120 v, 60 cps, single ph, 68 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6J7
(1) 6F6
(1) 6V6
(1) 5Y3GT
Total Tubes: (5)

REFERENCE DATA AND LITERATURE

TM11-2684; TO16-35TS312-5; Technical Manual for Audio Oscillator TS-312/FSM-1.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Oscillator TS-312/FSM-1			

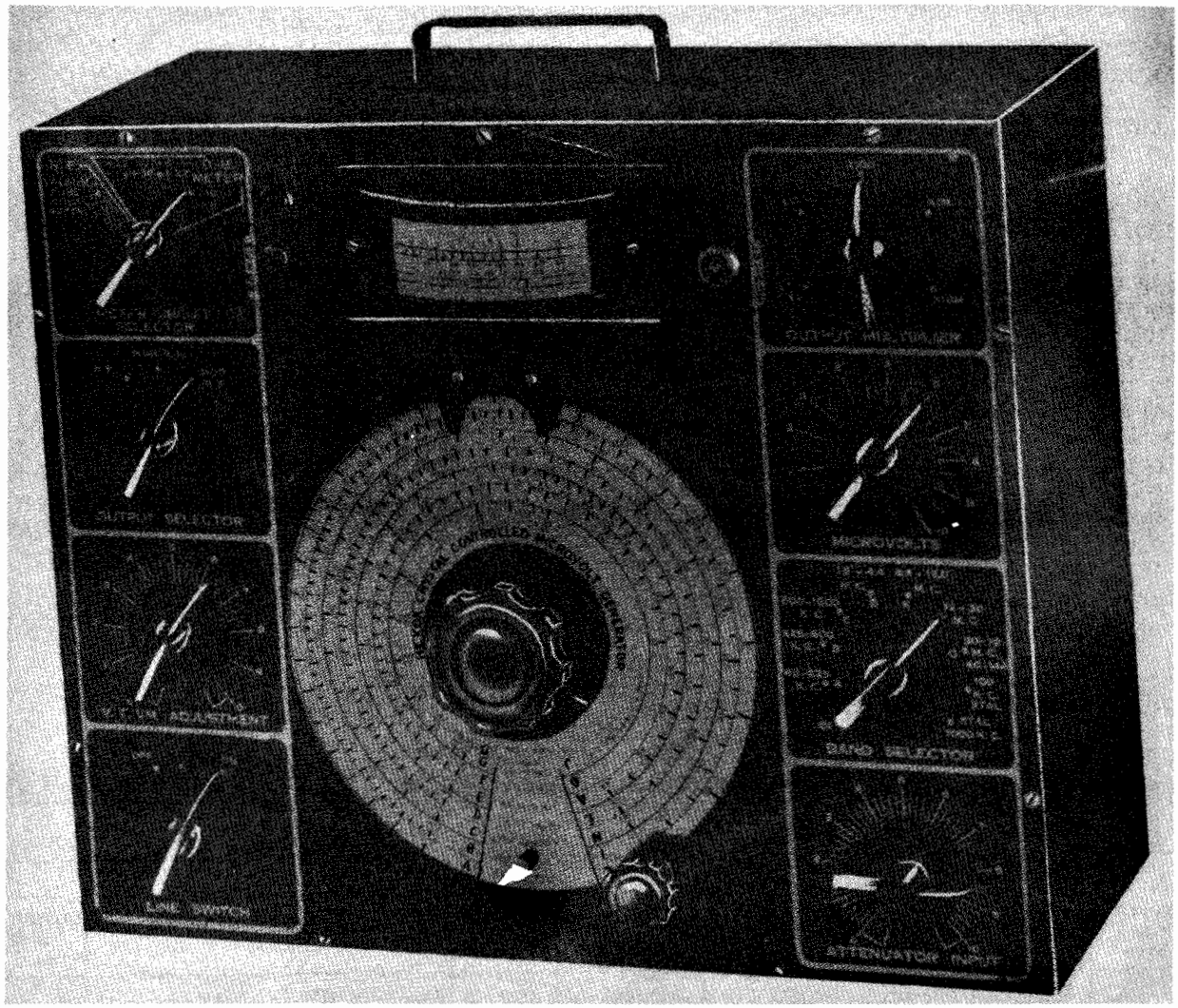
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator TS-312/FSM-1	6-7/8 x 10-5/8 x 15-3/4	

Test-Signal Generating

April 1958

SIGNAL GENERATOR TS-317/U,LAK,60095



Signal Generator TS-317/U,LAK,60095

FUNCTIONAL DESCRIPTION

The TS-317/U, Model LAK, Navy Type 60095 is a portable self-contained generator of radio-frequency test signals. Its circuits include a crystal-controlled RF oscillator, a variable frequency RF oscillator, a fixed frequency audio oscillator, a built-in vacuum-tube voltmeter, and a decibel meter. It provides four types of output: RF modulated at 400 cycles per second, RF unmodulated, AF fixed at 400 cycles per second calibrated voltage output, and 100 or 1000 kilocycle crystal-controlled output not calibrated in terms of voltage delivered.

No field changes in effect at time of preparation (29 October 1957).

RELATION TO OTHER EQUIPMENT

The TS-317/U, Navy Model LAK, Navy Type 60095 is the same as Hickok Model 19XD. It is superseded by RF Signal Generator Sets AN/URM-25 and AN/URM-26.

Test-Signal Generating

TS-317/U,LAK,60095 SIGNAL GENERATOR

April 1958

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- VARIABLE FREQUENCY OSCILLATOR: 90 kc to 144 mc.
- CRYSTAL-CONTROLLED OSCILLATOR
  - FUNDAMENTAL: 100 and 1000 kc.
  - HARMONICS: 200 kc to 70 mc.
- AF OSCILLATOR: 400 cps.

OUTPUT VOLTAGES
- RF OSCILLATORS: 0 to 100000 uv.
- AF OSCILLATOR: 1 v.

FREQUENCY CALIBRATION ACCURACY
- VARIABLE RF OSCILLATOR: ±1%.
- CRYSTAL OSCILLATOR: ±0.01% at crystal frequencies.
- AF OSCILLATOR: ±20%.

MODULATION (AMPLITUDE): Approx 30%.

RF OUTPUT IMPEDANCE
- 0 to 1000 UV RANGE: 5.6 ohms.
- 0 to 10000 UV RANGE: 20 ohms.
- 0 to 100000 UV RANGE: 0 to 100 ohms.

DECIBEL RANGE: -10 to +38 db.

POWER REQUIREMENTS: 115 v, 60 cps, single ph, 20 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Hickok Electrical Instrument Company, Cleveland, Ohio.

Contract NXsr-51534.
Contract NXsr-93141.
Contract NXsr-55669.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6J5 (1) 6SN7WGTA (1) 6X5WGT

Total Tubes: (4)
(1) 100KC
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

TM11-2521: Technical Manual for Signal Generator TS-317/U.

NAVSHIPS 91421: Technical Manual for Hickok Radio Test Equipment Model 19XD, Navy Model LAK.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator	4.2	14-1/2 x 20-1/2 x 24	87

EQUIPMENT SUPPLIED DATA

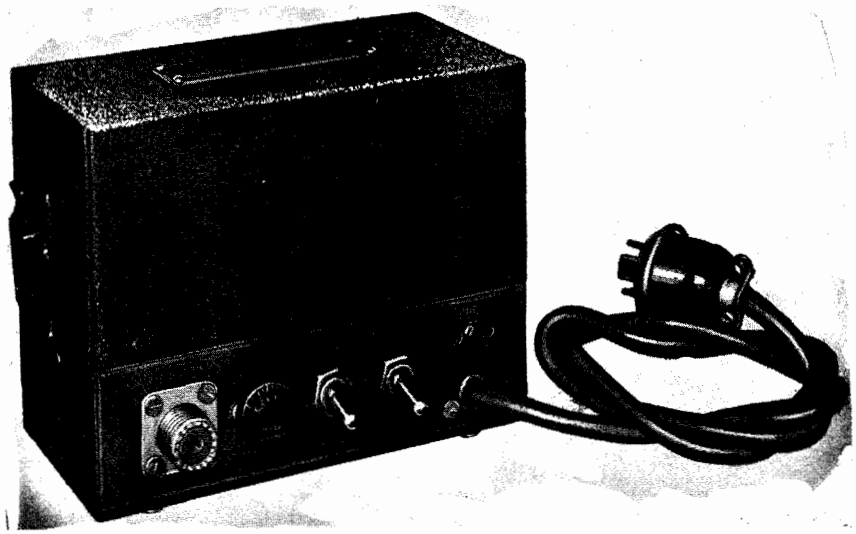
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator	8-1/2 x 14-1/2 x 16	30
1	Shielded Output Cable	42 lg	
1	Meter Lead	36 lg	
2	Technical Manual TM11-2521	1/4 x 5-1/2 x 8-1/2	

4 April 1962 — TEST OSCILLATOR TS-32/TRC-1

Cog Service: USA FSN: 6625-333-1539 — Functional Class: 4.2.1

	USA	USN	USAF
TYPE CLASS:	Std	Used by	Std

MANUFACTURER'S NAME/CODE NUMBER:



Test Oscillator TS-32/TRC-1

FUNCTIONAL DESCRIPTION:

Test Oscillator TS-32/TRC-1 is designed to serve as a signal generator to facilitate tuning and adjustment of Radio Receiver R-19( )/TRC-1.

No field changes in effect at time of preparation (3 January 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 6.3 v, 50 to 60 cyc, single ph; 210 v dc.
FREQUENCY RANGE: 70 to 100 mc.
MODULATION: 1,000 cyc.
OUTPUT: 50 uv max.
OUTPUT IMPEDANCE: 50 ohms.
ACCURACY: Porm 0.01% xtal-controlled.

TS-32/TRC-1 TEST OSCILLATOR

RELATION TO OTHER EQUIPMENT:

This equipment is part of Radio Set AN/TRC-1, Radio Terminal Set AN/TRC-3, and Radio Relay Set AN/TRC-4.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Test Oscillator TS-32/TRC-1		4 X 4-3/4 x 7	3
	includes:			
1	Cord CG-107/U		40 lg	0.7

REFERENCE DATA AND LITERATURE:

TM11-2601: Technical Manual for Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1G, -1H and Radio Terminal Sets AN/TRC-3, -3A, -3B, -3C, -3D, -3E, -3G, -3H and Radio Relay Sets AN/TRC-4, -4A, -4B, -4C, -4D, -4E, -4G, -4H and Amplifier Equipments AN/TRA-1, -1A, -1B, -1C, and -1D.

TO 16-30TRC-5: Technical Manual for Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1G, -1H and Radio Terminal Sets AN/TRC-3, -3A, -3B, -3C, -3D, -3E, -3G, -3H and Radio Relay Sets AN/TRC-4, -4A, -4B, -4C, -4D, -4E, -4G, -4H and Amplifier Equipments AN/TRA-1, -1A, -1B, -1C, and -1D.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6SH7 (1) 6SL7GT (1) 6SN7GT

CRYSTALS: (1) CR-4B/U

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USA DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-R-10174

TEST OSCILLATOR TS-32/TRC-1

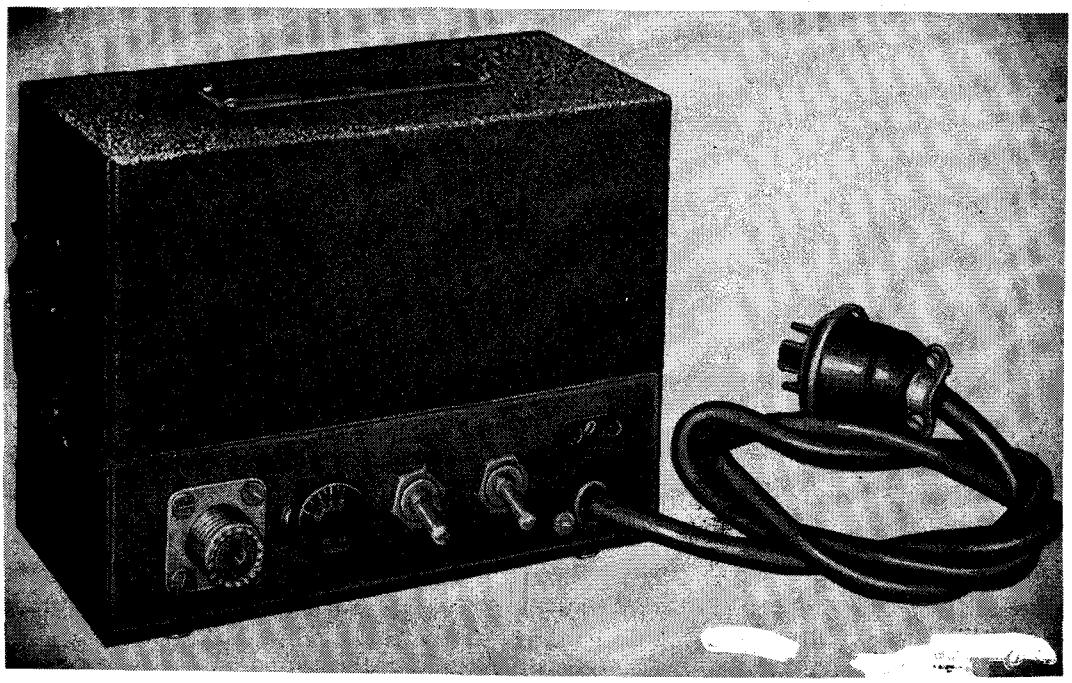
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST

9 April 1962 TEST OSCILLATOR TS-32A/TRC-1

Cog Service: USA FSN: Functional Class: 4.2.1

	USA	USN	USAF
TYPE CLASS:	Std		Std

MANUFACTURER'S NAME/CODE NUMBER:



Test Oscillator TS-32A/TRC-1

FUNCTIONAL DESCRIPTION:

Test Oscillator TS-32A/TRC-1 is designed to serve as a signal generator to facilitate tuning and adjustment of Radio Receiver R-19( )/TRC-1.

No field changes in effect at time of preparation (3 January 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 6.3 v, 50 to 60 cyc, single ph; 210 v dc.
FREQUENCY RANGE: 70 to 100 mc.
MODULATION: 1,000 cyc.
OUTPUT: 50 uv max.
OUTPUT IMPEDANCE: 50 ohms.
ACCURACY: Porm 0.01% xtal-controlled.

TS-32A/TRC-1 TEST OSCILLATOR

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Test Oscillator TS-32A/TRC-1		4 x 4-3/4 x 7	3
	includes:			
1	Cord CG-107/U		40 lg	0.7

REFERENCE DATA AND LITERATURE:

TM11-2601: Technical Manual for Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1G, -1H and Radio Terminal Sets AN/TRC-3, -3A, -3B, -3C, -3D, -3E, -3G, -3H and Radio Relay Sets AN/TRC-4, -4A, -4B, -4C, -4D, -4E, -4G, -4H and Amplifier Equipments AN/TRA-1, -1A, -1B, -1C, -1D.

TO 16-30TRC-5: Technical Manual for Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1G, -1H and Radio Terminal Sets AN/TRC-3, -3A, -3B, -3C, -3D, -3E, -3G, -3H and Radio Relay Sets AN/TRC-4, -4A, -4B, -4C, -4D, -4E, -4G, -4H and Amplifier Equipments AN/TRA-1, -1A, -1B, -1C, -1D.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6SH7 (1) 6SL7GT (1) 6SN7GT

CRYSTALS: (1) CR-4B/U

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USA DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-R-10174

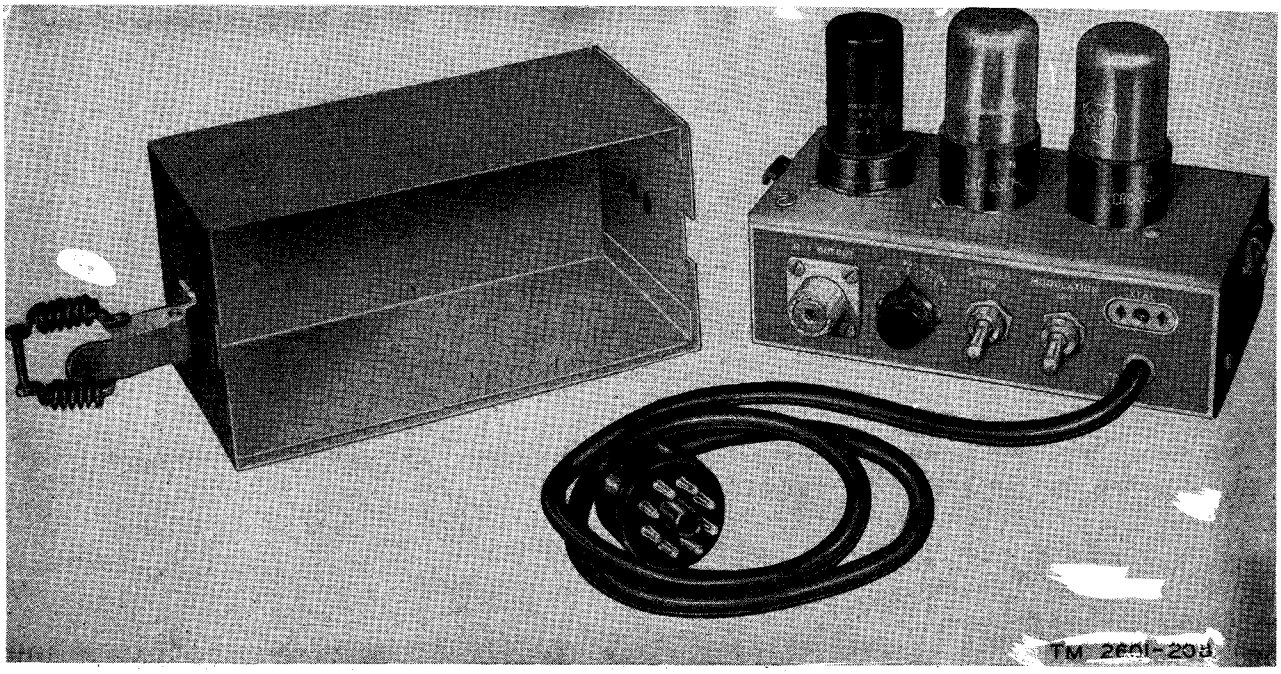
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST

5 April 1962 TEST OSCILLATOR TS-32B/TRC-1

Cog Service: USA FSN: Functional Class: 4.2.1

	USA	USN	USAF
TYPE CLASS:	Std		Std

MANUFACTURER'S NAME/CODE NUMBER:



Test Oscillator TS-32B/TRC-1

FUNCTIONAL DESCRIPTION:

Test Oscillator TS-32B/TRC-1 is designed to serve as a signal generator to facilitate tuning and adjustment of Radio Receiver R-19( )/TRC-1.

No field changes in effect at time of preparation (3 January 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 6.3 v, 50 to 60 cyc, single ph; 210 v dc.
FREQUENCY RANGE: 70 to 100 mc.
MODULATION: 1,000 cyc.
OUTPUT: 50 uv max.
OUTPUT IMPEDANCE: 50 ohms.
ACCURACY: Porm 0.01% xtal-controlled.

TS-32B/TRC-1 TEST OSCILLATOR

RELATION TO OTHER EQUIPMENT:

This equipment is part of Radio Set AN/TRC-1, Radio Terminal Set AN/TRC-3, and Radio Relay Set AN/TRC-4.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Test Oscillator TS-32B/TRC-1 includes:		4 x 4-3/4 x 7	3
1	Cord CG-107/U		40 lg	0.7

REFERENCE DATA AND LITERATURE:

TM11-2601: Technical Manual for Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1G, -1H, and Radio Terminal Sets AN/TRC-3, -3A, -3B, -3C, -3D, -3E, -3G, -3H and Radio Relay Sets AN/TRC-4, -4A, -4B, -4C, -4D, -4E, -4G, -4H and Amplifier Equipments AN/TRA-1, -1A, -1B, -1C, and -1D.

TO 16-30TRC-5: Technical Manual for Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1G, -1H, and Radio Terminal Sets AN/TRC-3, -3A, -3B, -3C, -3D, -3E, -3G, -3H and Radio Relay Sets AN/TRC-4, -4A, -4B, -4C, -4D, -4E, -4G, -4H and Amplifier equipments AN/TRA-1, -1A, -1B, -1C, and -1D.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6SH7 (1) 6SL7GT (1) 6SN7GT

CRYSTALS: (1) CR-4B/U

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

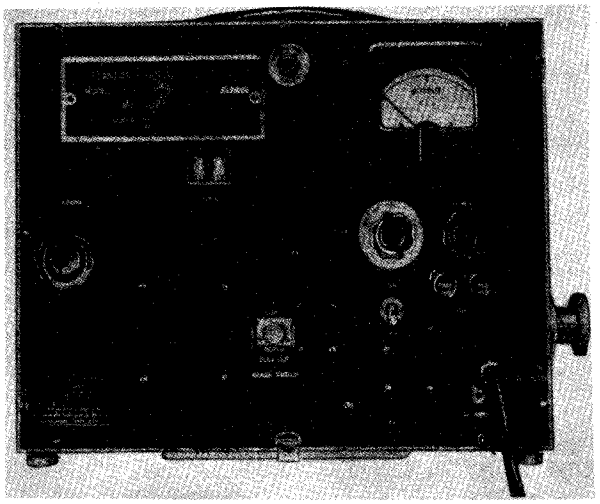
PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-R-10174

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST

April 1959

Test-Signal Generator

SIGNAL GENERATOR TS-343/U



Signal Generator TS-343/U

FUNCTIONAL DESCRIPTION

Signal Generator TS-343/U is used in aligning rf and if stages of radio receivers, as well as in testing operations requiring CW or amplitude-modulated rf voltages.

No field changes in effect at time of preparation (10 April 1959).

RELATION TO OTHER EQUIPMENT

This equipment, part of Radar Test Set AN/TPM-3, is similar to Signal Generator I-126.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 to 120 v, 25 to 60 cy.
FREQUENCY RANGE: 15 to 50 mc in two bands.
VOLT RANGE: 0 to 100,000 uv.
IMPEDANCE: 17 ohms.
MODULATION: 400 to 8,200 cy at 30%.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurements Corp., Boonton, New Jersey.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) VR-150/30	(1) 7C5	(1) 7L7
(1) 7Y4	(1) 9002	

Total Tubes: (5)

No Crystals used.

REFERENCE DATA AND LITERATURE

TM11-1233: Technical Manual for Signal Generator TS-343/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

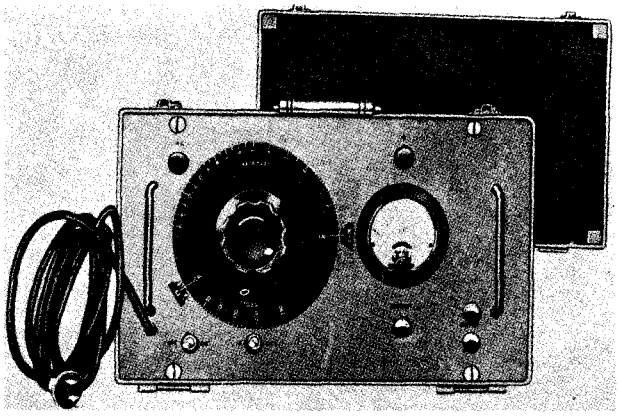
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-343/U Including:	7 X 10 X 13	25
2	Technical Manual TM11-1233		

Test-Signal Generating

AUDIO OSCILLATOR

TS-379/U



Audio Oscillator TS-379/U

FUNCTIONAL DESCRIPTION

The TS-379/U is a heterodyne-type vacuum-tube oscillator designed to provide a source of testing current for transmission measurements on wire communication systems. It is portable and is moisture and fungus treated.

No field changed in effect at time of preparation (31 August 1956).

RELATION TO OTHER EQUIPMENT

TS-379/U is Western Electric Company Model 19C.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 30 cps to 15 kc.
OUTPUT IMPEDANCE: 600 ohms.
OUTPUT: -4 dbm to +6 dbm.
POWER REQUIREMENTS: 105 to 125 v, 50 to 60 cps, 25 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Company, New York, N.Y.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6L5G (1) 12SA7Y
(1) 35Z5GT (1) 50L6GT
Total Tubes: (5)

REFERENCE DATA AND LITERATURE

TM11-487H: Technical Manual for Audio Oscillator TS-379/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Oscillator TS-379/U	2		70

EQUIPMENT SUPPLIED DATA

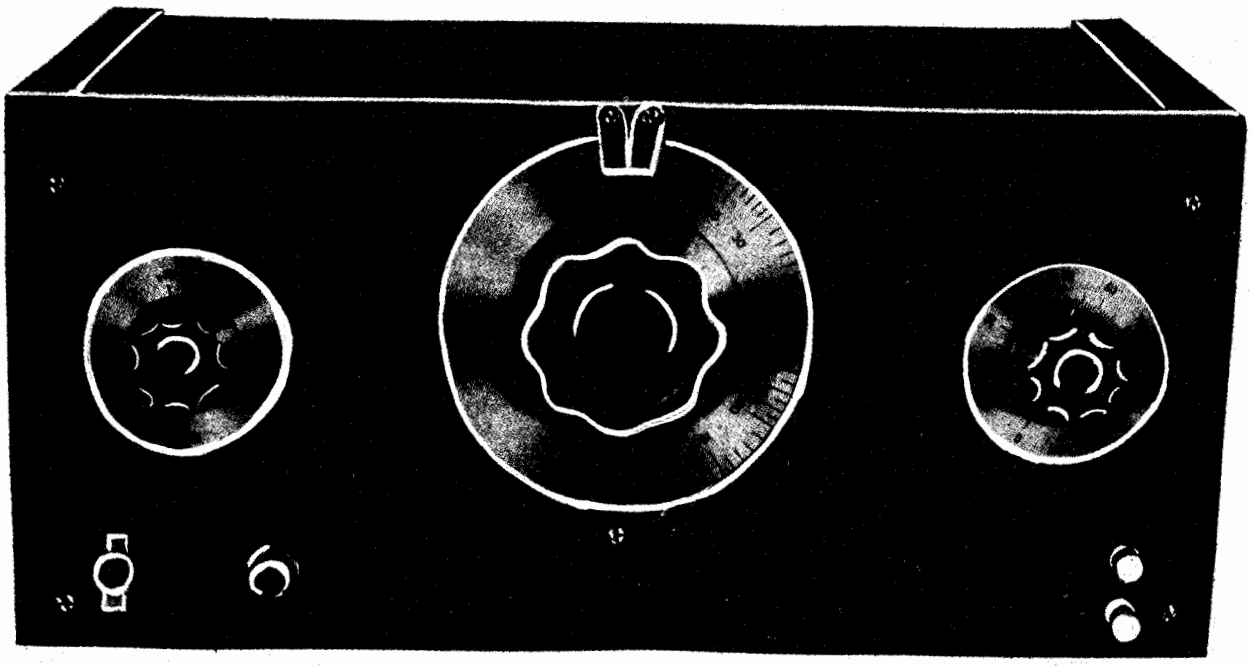
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator TS-379/U	9-1/2 X 15 X 19-1/4	27
1	Set Accessories including tubes and technical Manual		

March 1957

AUDIO OSCILLATORS

Test Signal Generating

TS-382/U



Audio Oscillator TS-382/U

FUNCTIONAL DESCRIPTION

The TS-382/U is an audio signal generator of AC voltages at frequencies between 20 and 200,000 cps. It is calibrated with respect to frequency and voltage and its harmonic distrotion is very low. It is used in testing voltage gain tests in wide band audio amplifiers, obtaining distortion and frequency response curves in wide band audio amplifiers, modulating rf oscillators, and checking equipment operating at supersonic frequencies, such as radar trainers.

No field changes in effect at time of preparation (30 August 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 200,000 cps.
CALIBRATION OF TUNING DIAL: 20 to 200.
BANDS
- X1: 20 to 200 cps.
- X10: 200 to 2,000 cps.
- X100: 2000 to 20,000 cps.
- X1000: 20000 to 200,000 cps.

OUTPUT IMPEDANCE: 1000 ohms.
FREQUENCY RESPONSE: Flat within ±1 db from 20 to 150,000 cps.
FREQUENCY STABILITY: Within ±2%.
DISTORTION: Less than 1% from 20 to 20,000 cps.
HUM: 60 db below rated output.
POWER INPUT: 110 to 120 v, 60 cps, 68 W.
POWER OUTPUT: 100 mw into 1000 ohm load.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Z4	(1) 6F6
(2) 6J7	(1) 6V6Y

Total Tubes: (5)

REFERENCE DATA AND LITERATURE

TM 11-2684: Technical Manual for Audio Oscillators TS-382/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TESSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

TS-382/U AUDIO OSCILLATORS

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Oscillator TS-382/U	2.48	12 X 15 X 21	63

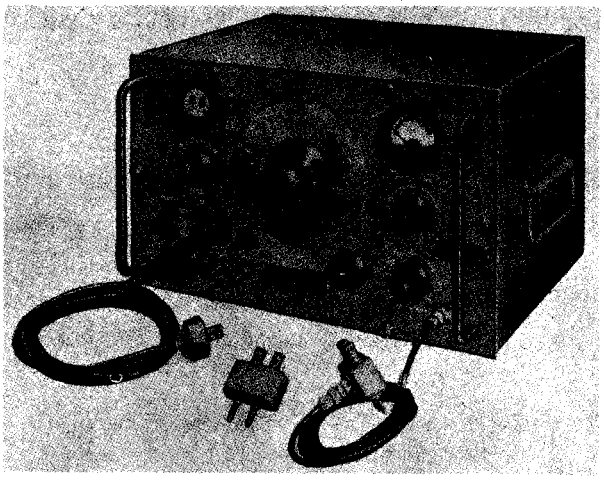
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator TS-382/U	7 X 10-5/8 X 15-3/4	

March 1957

AUDIO OSCILLATOR

TS-382A/U.382B/U



Audio Oscillator TS-382A/U

FUNCTIONAL DESCRIPTION

The TS-382A/U and TS-382B/U is an audio signal generator of AC voltages at frequencies between 20 and 200,000 cps and at amplitudes between 0 and 10 v. It is calibrated with respect to frequency and voltage and its harmonic distortion is very low. It is used in testing and repairing amplifiers, audio sections of receivers and filters, and in measuring the gain and distortion of such devices.

No field changes in effect at time of preparation (23 August 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 200,000 cps.
ACCURACY: ±2% of dial calibration.

POWER OUTPUT: 100 mw maximum
VOLTAGE OUTPUT: 0 to 10 v.
ACCURACY ±3% of attenuator calibration.
RATED LOAD: 1000 ohms.
HARMONIC DISTORTION: Less than 2%, below 120 cps; less than 1% above 120 cps.
BUILT-IN FREQUENCY METER: 60 cps and 400 cps.
ACCURACY: ±0.75%.

MANUFACTURER'S OR CONTRACTOR'S DATA

Trav-ler Radio Corp., Chicago, Illinois
Contract: MIPR-R-52-800-29514 (TS-382A/U)
Contract: MIPR-54-884-43023 (TS-382B/U)

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SJ7	(1) 6SQ7	(1) OA3
(1) 5Y3GT/G	(1) 6AG7	(1) 6V6
(1) 6J5	(1) 6Y6G	

Total Tubes: (9)

REFERENCE DATA AND LITERATURE

Technical Manual for Audio Oscillator TS-382A/U and TS-382B/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	USAF
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

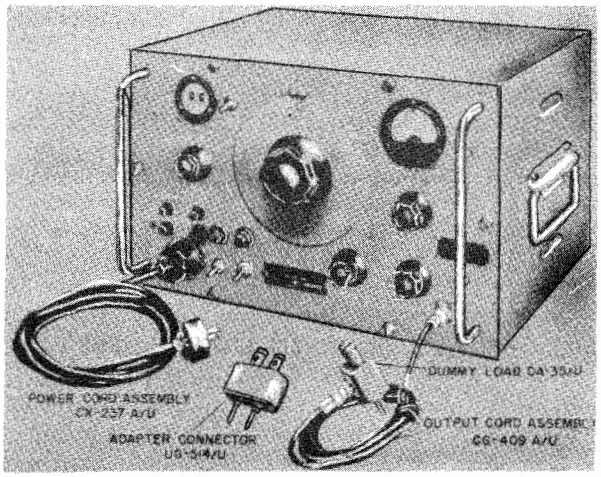
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
TS-382A/U	TS-382B/U			
1	1	Audio Oscillator TS-382A/U or TS-382B/U consisting of:	10 x 12-3/4 x 18-3/4	45
1	1	Cord CG-409A/U	60	
1	1	Cord CX-237A/U	60	
1	1	Adapter Connector UG-514/U		
1	1	Dummy Load DA-35/U		
1	1	Case CY-688/U	17 x 17-1/2 x 19	33
2	2	Technical Manuals	1 x 8-1/2 x 11	

August 1957

Test-Signal Generating

AUDIO OSCILLATOR TS-382C/U



Audio Oscillator TS-382C/U

FUNCTIONAL DESCRIPTION

The TS-382C/U generates audio super-sonic and low radio frequencies within a range of 20 to 200,000 cycles and at amplitudes between 0 and 10 volts. It is used as a general test oscillator in the field for free point servicing of various audio frequency radio equipments.

No field changes in effect at time of preparation (28 December 1956).

RELATION TO OTHER EQUIPMENT

Electrically and mechanically interchangeable with Audio Oscillator TS-382B/U, but internal components of the instrument proper are not interchangeable and the instrument proper is of a different design.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 200000 cps.
POWER OUTPUT: 0 to 10 v.
FREQUENCY METER: 60 and 400 cps.
ATTENUATOR: 10 uv to 10 v in 7 ranges.
POWER REQUIREMENTS: 110 v ±10%, 50 to 1600 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Specialty Assembly and Packing Co., Inc, Brooklyn, N.Y.
Contract AF33(038)26089.
Approximate Cost: $350.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 9A3	(1) 6J5	(1) 6V6Y
(1) 5Y3WGTB	(2) 6SJ7	(1) 6Y6G
(1) 6AG7	(1) 6SQ7	

Total Tubes: (9)

(2) 1N69
Total Crystals: (2)

REFERENCE DATA AND LITERATURE

T.O. N016-35TS382-4: Technical Manual for Audio Oscillator Models TS-382A/U and TS-382C/U Nomenclature Card for Audio Oscillator TS-382C/U.

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE MIL-A-4291
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator TS-382C/U	11 x 12-3/4 x 18-3/4	
1	Power Cord Assembly CX-237A/U		
1	Output Cord Assembly CG-409A/U		
1	Adapter Connector UG-514/U		
1	Dummy Load DA-35/U		
1	Case CY-688( )/U		
1	Technical Manual and Wiring Diagram		

April 1959

Test-Frequency Measuring

AUDIO OSCILLATOR

TS-382F/U

FUNCTIONAL DESCRIPTION

The TS-382F/U is designed to generate audio, supersonic and low radio frequencies within the range from 20 to 200,000 cycles per second. It is used as a general test oscillator in the field for free point servicing of various radio equipments. The generated signal is accurate with respect to frequency and voltage level and low in harmonic distortion. It may be used for making gain tests in wideband audio amplifiers, for checking frequency response of wideband audio amplifiers, for measuring distortion in wideband amplifiers, and for modulating radio frequency (rf) oscillators.

No field changes in effect at time of preparation (12 October 1958).

RELATION TO OTHER EQUIPMENT

Electrically, mechanically and functionally interchangeable with TS-382E/U Audio Oscillators; differing in that Model TS-382 F/U has an integral three conductor power cord with a 3 prong connector with one prong detachable. Also uses cord CG-409E/U instead of CG-409A/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 200,000 cps.
FREQUENCY RESPONSE: At 20 cps and 150,000 cps approx ±1 db.
FREQUENCY ACCURACY: ±6%.
FREQUENCY STABILITY: ±2%.
HUM: 60 db below rated output.
OUTPUT IMPEDANCE: 1000 ohms.
POWER OUTPUT: 100 mw.
OUTPUT SIGNAL AMPLITUDE: 1 uv to 10 v continuously variable.
OPERATING POWER REQUIREMENTS: 115 v, ±10%, 50 to 1600 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Teitelbaum and Sons, New York, N.Y.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA3	(1) 6AG7
(1) 6J5	(1) 5Y3GT/G
(2) 6SJ7	(1) 6SQ7
(1) 6Y6G	(1) 6V6

Total Tubes: (9)

No Crystals used.

REFERENCE DATA AND LITERATURE

Nomenclature Card for TS-382F/U, Audio Oscillator.
TM-11-2684A: Department of the Army Technical Manual for Audio Oscillator TS-382A/U, TS-382B/U, TS-382D/U and TS-382E/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator TS-382F/U	10 X 12-3/4 X 18-3/4	46
1	Case CY-688/U	17 X 17-1/2 X 19	33
1	Cord CG-409E/U	60	
1	Adapter Connector UG-514/U		
1	Dummy Load DA-35/U		

Test-Signal Generating

SIGNAL GENERATOR TS-403/U

Signal Generator TS-403/U

Test-Signal Generating

TS-403/U SIGNAL GENERATOR

FUNCTIONAL DESCRIPTION

The TS-403/U is a portable self-contained test equipment designed for use with radio and radar receivers and for other applications requiring small amounts of rf power, such as the measuring of standing wave ratios, antenna or transmission line characteristics, conversion gain etc. The instrument produces continuous wave, pulse modulated or frequency modulated output in the frequency range 1800 to 4000 mc, and can be pulse modulated from either an internal or external source. In addition to the rf output two separate video pulses are generated for external use. Both the output frequency and output power are indicated on direct-reading dials.

No field changes in effect at time of preparation (5 May 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1800 to 4000 mc.
POWER OUTPUT: 1 mw or 0.224 v across 50 ohms, max.
ATTENUATION: 0 to -127 dbm.
INTERNAL PULSE MODULATION
- REPETITION RATE: 40 to 4000 pps.
- WIDTH: 0.5 to 10 usec.
- RISE TIME: 0.5 usec.
- DELAY TIME: 0.5 usec.
- DELAY: Start of pulse delayable 3 to 300 usec.
- SYNCHRONIZATION: With external pulses or external sine waves.

RATED LOAD: 50 ohms resistive.
POWER REQUIREMENTS: 115 v, 50 to 1600 cps, single ph, 150 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co., Palo Alto, California.
Contract NOa(s)-9213, dated June 1947.
Federal Mfg and Engineering Co., Brooklyn, New York.
Contract NOa(s)-12297, dated June 1950.
Approximate Cost: $1693.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SL7WGT	(3) 6J6	(4) 6C4
(2) 6X5WGT	(2) 6Y6G	(1) 2K28
(3) OA2	(1) 5R4GY	

Total Tubes: (17)
No Crystals Used.

REFERENCE DATA AND LITERATURE

AN16-30URM61-3: Technical Manual for Signal Generator TS-403/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER and USAF
PROCUREMENT COGNIZANCE	16G4
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator with Accessories			

EQUIPMENT SUPPLIED DATA

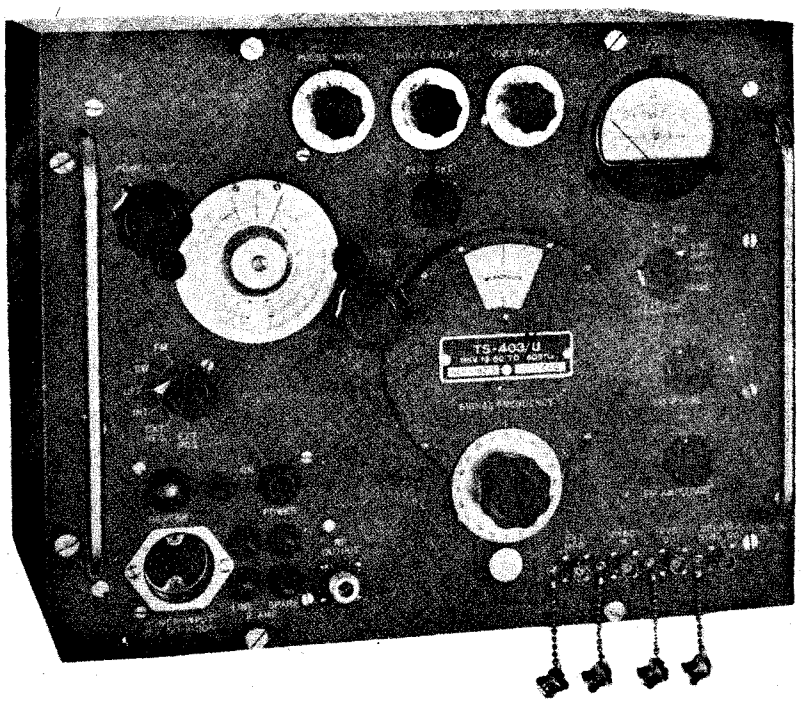
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-403/U	13-1/2 X 14 X 17-1/2	64
1	Transit Case CY-669/U	17 X 17-3/8 X 19-1/2	26
1	Power Cord CX-337/U	72 in. lg	0.62
1	RF Cable CG-92B/U	72 in. lg	1
2	Video Cord CG-409/U	98 in. lg	0.25
3	Adapter UG-273/U		
1	Set of Equipment Spares		

7 May 1962 **SIGNAL GENERATOR TS-403A/U**

Cog Service: USN FSN: 6625-539-9495 **Functional Class: 4.1**

	USA	USN	USAF
TYPE CLASS:	Std	Used by	

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Company, (28480).



Signal Generator TS-403A/U

FUNCTIONAL DESCRIPTION:

The Signal Generator TS-403A/U is a portable, self-contained test set designed for use with radio and radar receivers and for other applications requiring small amounts of R.F. power, such as the measuring of standing wave ratios, antenna characteristics, transmission line characteristics, conversion gain, etc. It generates frequencies from 1800 to 4000 megacycles at amplitudes from 0.1 micro-volt to 0.224 volt when loaded with its rated load of 50 ohms.

Data on this sheet reflects the following field changes: F.C. #1.

TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Portable.
FREQUENCY RANGE: 1800 to 4000 mc.
NUMBER OF BANDS: 1 band.

TS-403A/U SIGNAL GENERATOR

CALIBRATION ACCURACY: Porm 1% of calibration.
POWER LEVEL ERROR: Error of direct indication of power level of R.F. test signals is less than 2 db.
POWER LEVEL CALIBRATED: From M10 to M120 db below one milliwatt.
OUTPUT IMPEDANCE: 50 ohms.
MODULATION DATA
TYPES: Pulse modulation, Frequency modulation.
PULSE MODULATION RATE: 40 to 4000 pulses per second.
PULSE WIDTH: 0.5 to 10.0 microseconds.
FREQUENCY MODULATION RATE: 40 to 4000 sawtooths per second, 100% modulation on pulse modulation.
OPERATING POWER RQMT: 115 v ac, 50 to 1600 cps, single ph.

RELATION TO OTHER EQUIPMENT:

The TS-403A/U is electrically and mechanically interchangeable with the TS-403/U except that it has minor mechanical, design modification and circuit changes.
The TS-403A/U is designed as part of the AN/URM-61.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Multimeter TS-297/U or Weston Model or Simpson Model 443 (1,000 ohms per volt reading); (1) Multimeter TS-352/U Navy type "OE" or Simpson Model 260 or Weston Model 790 (20,000 ohms per volt reading); (1) Vacuum Tube Voltmeter TS-375/U or RCA-165(DC) or Radio City Model 662; (1) Tube Tester Sig Corp Type I-177A or Hickok Model 540 or 545; (1) Frequency Meter TS-186/AP; (1) Oscilloscope TS-239/UP or TS-34/AP; (1) Audio Oscilloscope TS-382A/U or Model LAJ or Model LAJ-1 or Hewlett-Packard 200C or 205AG; (1) Pulsed Signal Generator Measurements Corporation Model 79B; (1) Wattmeter Bridge Hewlett-Packard Model 760A; (1) Light Beam Galvanometer Leeds & Northrup Model 2420D; (1) Coaxial Line Stretcher Hewlett-Packard 430A; (1) Receiver (Frequency Range 1800 to 4000 mc) (Max Sensitivity 1 to 10 micro-volts); (1) Crystal Detector Hewlett-Packard Model 420A or equivalent.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator TS-403A/U		13-1/2 x 13-5/8 x 17-1/2	64

REFERENCE DATA AND LITERATURE:

1M11-5091: Technical Manual for Signal Generator TS-403/U, TS-403A/U and TS-403B/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6SL7WGT (3) 6J6 (4) 6C4 (2) 6X5WGT (2) 6Y6G (1) 2K28 (3) 0A2 (1) 5R4GY

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: 16G4(AER)

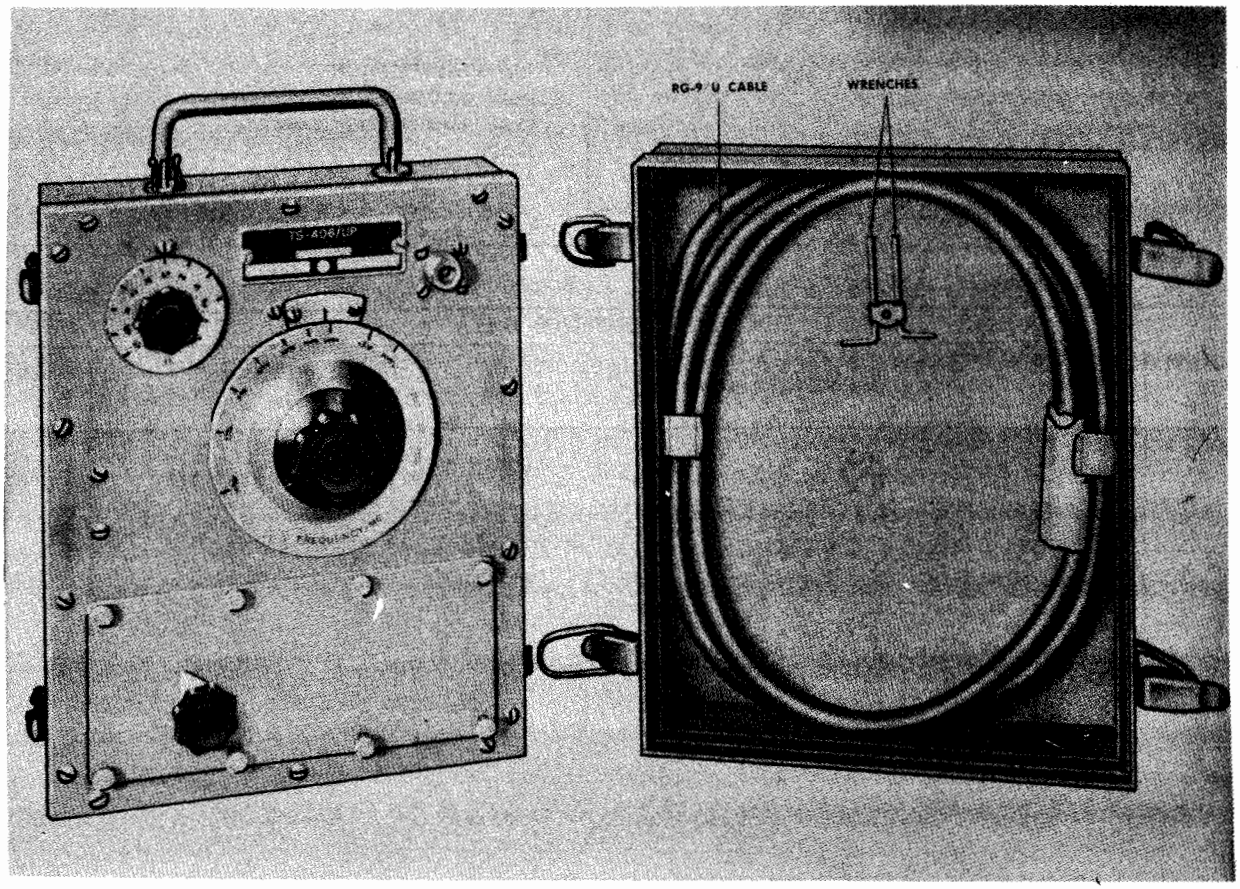
DESIGN COG: BuWeps

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Company	Palo Alto, California	N383S-74507 N383S-74917	

April 1958

Test-Signal Generating

TEST OSCILLATOR TS-406/UP



Test Oscillator TS-406/UP

FUNCTIONAL DESCRIPTION

The TS-406/UP is a portable equipment used as a source providing a low power test signal for receivers within its frequency range. The unit consists of an attenuator, buzzer, and cavity. Application is in field testing.

No field changes in effect at time of preparation (1 May 1958).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Battery BA-205/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 3 v DC.
FREQUENCY RANGE: 1,000 to 3,500 mc.
TYPE OF EMISSION: Damped pulse at 1,500 to 2,000 cps.
OUTPUT IMPEDANCE: 50 ohms.
POWER INPUT: Over 10 uv on 50 ohm load.
TEMPERATURE RANGE: -40° C to $+55^\circ$ C.
ACCURACY: ±2%.

MANUFACTURER'S OR CONTRACTOR'S DATA

Presto Recording Corp, New York, N. Y.
Contract NOas-6676.

Test-Signal Generating

April 1958

TS-406/UP TEST OSCILLATOR

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals Used.

REFERENCE DATA AND LITERATURE

AN 16-35TS406-3: Handbook of Maintenance Instructions for Test Oscillator TS-406/UP.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

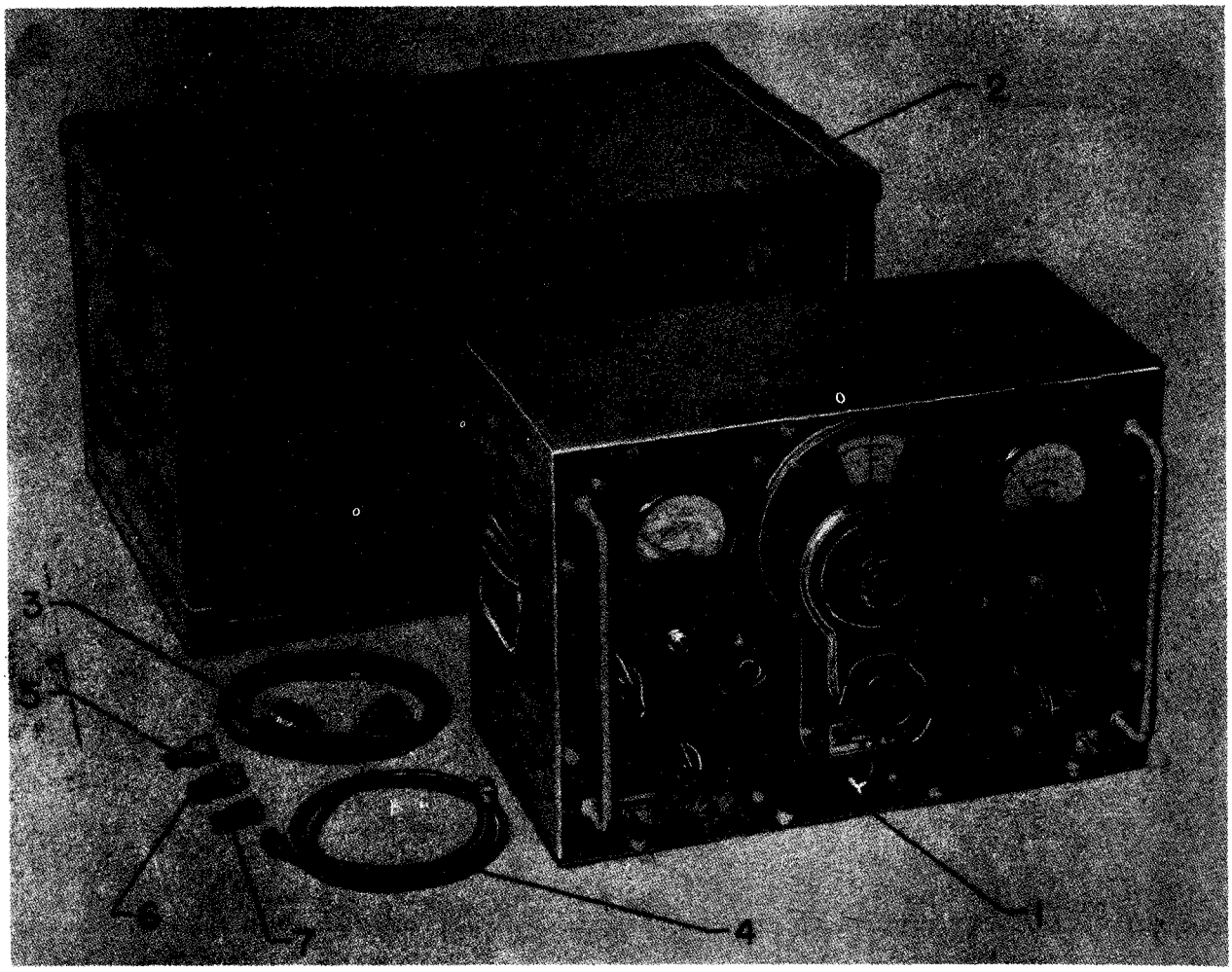
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Test Oscillator TS-406/UP including:	4-9/16 X 8-5/8 X 10-1/2	14
1	Technical Manual AN 16-35TS406-3		
1	Output Cable	72 lg	
2	Setscrew Wrenches		
1	Spare Buzzer		

October 1957

Test-Signal Generating

SIGNAL GENERATOR TS-413/U



1 ..... Signal Generator TS-413/U
2 ..... Case CY-598/U
3 ..... Power Input Cord
4 ..... Radio-Frequency Cord CG-409/U
5 ..... Adapter UG-201/U
6 ..... Adapter UG-83/U
7 ..... Adapter UG-255/U

FUNCTIONAL DESCRIPTION

The TS-413/U is a generator of radio-frefrequency voltages which can be varied in amplitude continuously from fraction of a microvolt to one volt and varied in frequency continuously in six overlapping bands from 75 kilocycles to 40 megacycles. The test set's radio-frequency output can be internally amplitude modulated by a self-contained oscillator up to 50 percent at either 400 or 1000 cps, or at any other frequency from 50 to 15,000 cps, with an external oscillator. The carrier is amplitude modulated in a separate untuned amplifier-modulator stage to effectively eliminate frequency modulation of the carrier. There are two vacuum-tube voltmeter circuits in the test set to measure the amplitude of the carrier voltage and the percent modulation.

The carrier frequency is controlled by a turret-type coil assembly with a band selector switch and tuning capacitor connected to a direct reading dial with a vernier control divided in 100 equal parts to provide a total of 500 divisions per band. Precise calibrations at a number of frequencies over most of the test set's range can be obtained from the self-contained one megacycle crystal oscillator.

The signal generator is designed as a standard of output voltages and frequencies. It is used in the test and alignment of radio receivers, transmitters and other apparatus.

No field changes in effect at time of preparation (8 January 1956).

Test-Signal Generating

TS-413/U

SIGNAL GENERATOR

October 1957

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 75 kc to 40 mc in 6 bands.
CRYSTAL CALIBRATOR
TYPE: DC-9-AJ per U.S. Army Spec 71-1355D.
FUNDAMENTAL FREQUENCY: 1 mc.
ACCURACY: Better than ±0.1%.
RADIO FREQUENCY OUTPUT VOLTAGE
LOW: Fractions of 1 uv to 0.1 v.
HIGH: 0.1 to 1 v.
CALIBRATION ACCURACY: ±5%.
OUTPUT ACCURACY: ±10% from 100 uv to 1 v; ±3% from 0 to 10 uv.
OUTPUT IMPEDANCES: 5 ohms up to .01 v output; 50 ohms from .01 to 0.1 v; 150 ohms from 0.1 to 0.3 v; 500 ohms from 0.3 to 1 v.
HARMONIC DISTORTION: Less than 5% of total signal strength.
MODULATION FREQUENCIES: 400 or 1000 cps internal; 50 to 15,000 cps external.
AUDIO FREQUENCY OUTPUT: 0 to 1 v at 400 or 1000 cps.
POWER SOURCE REQUIRED: 105 to 125 v at 50 to 1600 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0A3	(1) 0D3W	(1) 5Y3WGTB
(1) 6AG7	(1) 6C4WA	(1) 6J6WA
(1) 6SA7	(1) 6SN7WGTA	(1) 9002
(1) 5726/6AL5W		

Total Tubes: (10)

(1) DC-9-AJ
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

TO NO 16-35TS413-3: Technical Manual for Signal Generator TS-413/U.

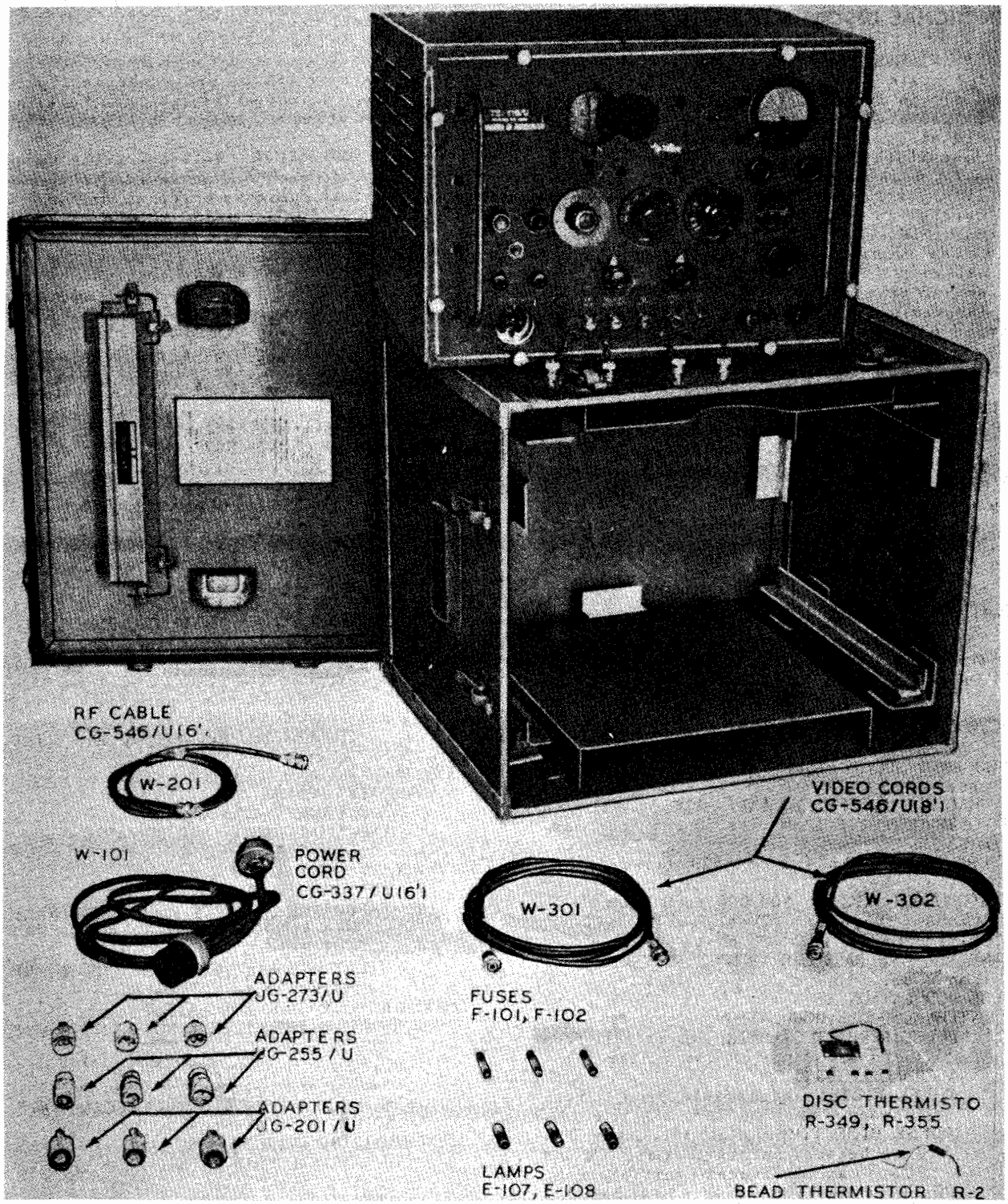
TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-413/U		
1	Cord CG-409/U		
1	Cord CX-237/U		
1	Adapter UG-83/U		
1	Adapter UG-201/U		
1	Adapter UG-255/U		
1	Case CY-598/U		
1	Calibration Chart		

Test-Signal Generating

SIGNAL GENERATOR TS-418/U



Signal Generator TS-418/U

TS-418/U SIGNAL GENERATOR

FUNCTIONAL DESCRIPTION

Signal Generator TS-418/U is a portable, self-contained Signal Generator covering the band 400 to 1000 mc.

It provides either cw or pulse modulated RF signals derived from an internal modulator-oscillator system. Alternatively, positive or negative pulses, or sine waves of external origin can be used to modulate the RF carrier in place of the internal modulator. The internal modulator can either operate free running or be triggered by an external source of positive or negative polarity pulses or sine wave voltages.

The timing of the pulsed RF signal can be varied over a convenient range of time delay. Simultaneously, two separate output synchronizing video pulses are provided for external use, one of them coinciding with the outgoing RF pulse and likewise delayable.

The instrument is accurate and is designed for use with radio and radar receivers and for other applications requiring small amounts of RF power, such as the measurement of standing wave ratios, antenna or transmission line characteristics, conversion gain, etc.

No field changes in effect at time of preparation (1 May 1958).

RELATION TO OTHER EQUIPMENT

Similar to TS-418A/U, TS-418B/U (AN/URM-49). Part of Test Set AN/MPM-15.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 400 to 1000 mc, in one band.
ACCURACY OF FREQUENCY DIAL: ±1%.
RF POWER OUTPUT: 1 mw into 50 ohm load max.
ATTENUATOR
- DBM SCALE: Load 0 to −120 decibels below 1 mw.
- MICROVOLT SCALE: 200,000 to 0.2 uv.
- ACCURACY OF DIAL: ±2 db.

OUTPUT IMPEDANCE: 50 ±2% ohms.
STANDING WAVE RATIO OF OUTPUT SYSTEM: Less than 3 db.
PULSE MODULATION
- INTERNAL PULSE MODULATION
  - PULSE REPETITION RATE: Adjustable from 40 to 4,000 pps in two ranges.
  - ACCURACY: 25%.
  - PULSE WIDTH: Adjustable from 0.5 to 10 usec.
  - PULSE RISE TIME: Not more than 0.5 usec between points that are 10% and 90% of max amplitude of initial rise.
  - PULSE DECAY TIME: Not more than 0.5 usec between points that are 10% and 90% of max amplitude on the final decay.
  - PULSE DELAY: Start of RF pulse delayable over a range from 3 to 300 usec or 75% of period between pulses, whichever is smaller. Delay is relative to output synchronizing pulses.
  - SYNCHRONIZATION: Internal pulse modulation can be synchronized with external pulses or external sine waves.
  - EXTERNAL SYNCHRONIZING PULSES
    - PEAK AMPLITUDE: Between 10 and 50 v.
    - POLARITY: Positive or negative.
    - DURATION: From 0.5 to 20 usec between points that are 50% of max amplitude of initial rise.
    - FLATNESS: Between 90% point of initial rise and 90% point on final decay amplitude must remain between 90% and 100% of max amplitude of initial rise.
    - IMPEDANCE AT "SYNC IN" TERMINAL
      - POSITIVE PULSES: 10,000 ohms shunted by 115 uuf.
      - NEGATIVE PULSES: 8,200 ohms shunted by 110 uuf.
      - DC LEVEL: Between +10 v and −10 v.
      - REPETITION RATE: Between 40 and 4,000 cps.
    - EXTERNAL SINE WAVES SYNCHRONIZATION
      - AMPLITUDE: Between 10 and 50 v rms.
      - IMPEDANCE AT SYNC INPUT TERMINAL: 10,000 ohms shunted by 115 uuf.
      - FREQUENCY: Between 40 and 4,000 cps.
- EXTERNAL PULSE MODULATION
  - POSITIVE PULSES
    - AMPLITUDE: 40 v min.
    - INPUT IMPEDANCE: 10,000 ohms shunted by 115 uuf.
  - NEGATIVE PULSES
    - AMPLITUDE: 40 v min.
    - IMPEDANCE AT "EXT MOD" TERMINAL: Min 8,300 ohms shunted by 300 uuf.
    - DELAY FROM EXTERNAL PULSE TO RF PULSE: 1 to 1.5 usec.
- EXTERNAL AMPLITUDE MODULATION
  - MODULATION FREQUENCY RANGE: 100 cps to 100 kc.
  - AMPLITUDE: 3 v max for 30% modulation. Varies with carrier frequency.
  - IMPEDANCE AT "EXT MOD" TERMINAL: 10,000 ohms shunted by 315 uuf.
- SYNCHRONIZING OUTPUT PULSE
  - WITH EXTERNAL LOAD OF 500 OHMS SHUNTED BY 1500 UUF
    - DURATION: 0.3 to 5 usec (same for no load).
    - RISE TIME: 0.18 usec (same for no

Test-Signal Generating

SIGNAL GENERATOR TS-418/U

load).
DECAY TIME: 0.45 usec (same for no load).
AMPLITUDE: 42 v peak (65 v peak for no load).

DELAYED SYNCHRONIZING OUTPUT PULSE WITH EXTERNAL LOAD OF 500 OHMS SHUNTED BY 1500 UUF
DURATION: 0.3 to 5 usec (same for no load).
RISE TIME: 0.2 usec (same for no load).
DECAY TIME: 0.45 usec (same for no load).
AMPLITUDE: 45 v peak (65 v peak for no load).

AMBIENT TEMPERATURE RANGE: −40 deg C (−40 deg F) to +55 deg C (+131 deg F).

MAXIMUM RELATIVE HUMIDITY: Over 95%.

POWER REQUIREMENTS: 115 v ±10%, 50 to 1600 cps, single ph, 130 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Lavoie Laboratories, Inc., Morganville, N.J.
Contract NOa(s)-9766.
Boonton Radio Corporation, Boonton, N.J.
Contract N5sa-8669.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6AG7	(1) 5R4GY	(1) 5Y3GT
(1) 2C36	(1) 12AT7	(1) 12AX7
(2) OB2	(1) 6AK5	(5) 6J6

Total Tubes: (15)
No Crystals used.

REFERENCE DATA AND LITERATURE

AN 16-30URM49-3: Handbook of Maintenance Instructions Signal Generators TS-418/U, TS-418A/U, TS-418B/U (AN/URM-49 is the over-all nomenclature for the above generators)..

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

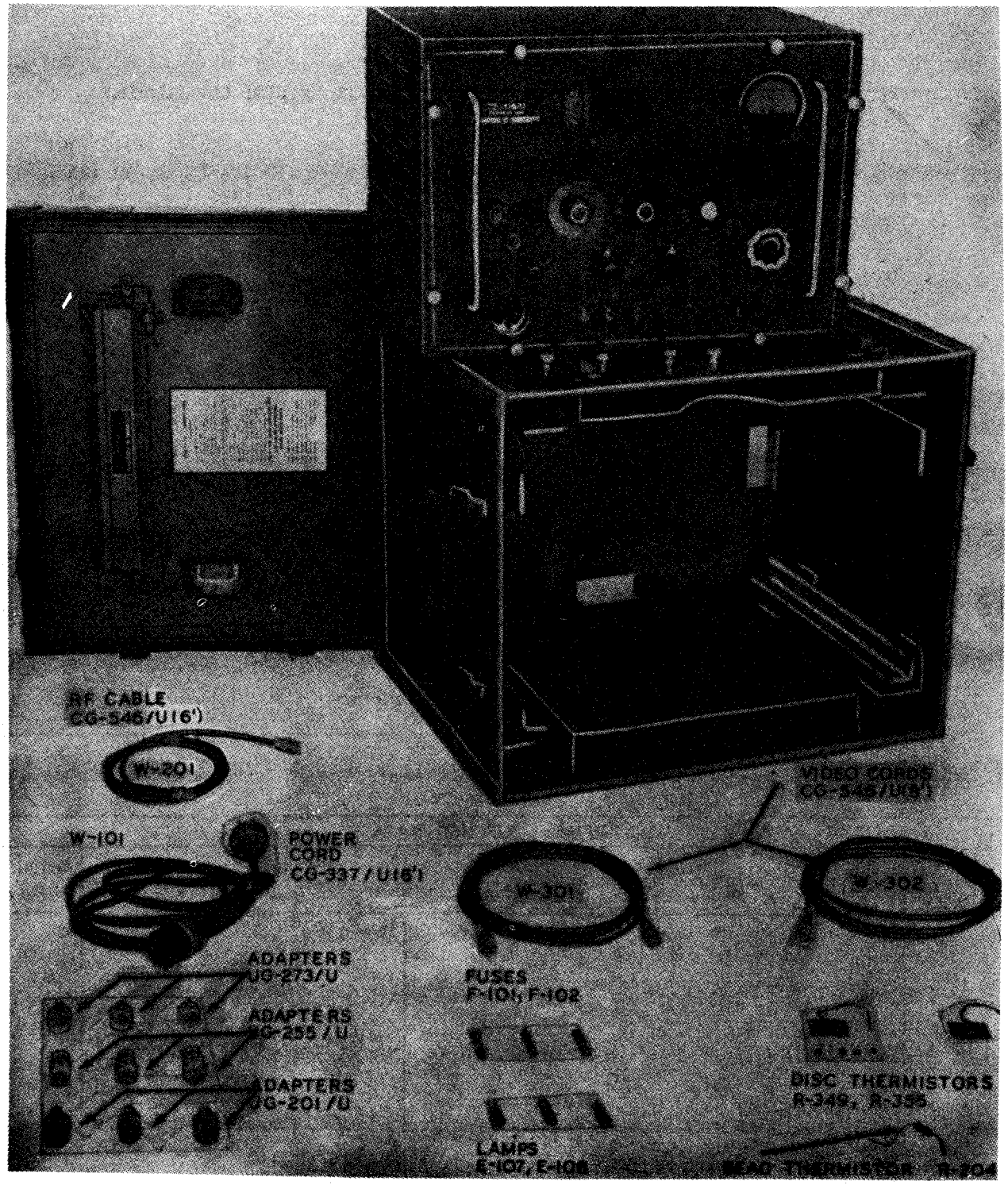
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-418/U	12-3/8 X 13-1/2 X 17-5/8	54.5
1	Transit Case CY-741/U	16 X 18-5/8 X 21-7/8	24.0
1	Power Cord CX-337/U (6')	72 lg	0.6
1	RF Cable CG-546/U (6'0")	72 lg	0.3
2	Video Cable CG-546/U (8'0")	96 lg	0.4
3	Adapter UG-201/U	3/4 dia X 1-9/16	0.1
3	Adapter UG-255/U	5/8 dia X 1-3/8	0.1
3	Adapter UG-273/U		0.1
2	Fuse	1/4 dia X 1-1/4	
3	Pilot Lamp	3/8 dia X 1-1/8	
1	Bead Thermistor	1/8 dia X 1/2	
2	Disc Thermistor	5/16 X 7/8 X 1-1/4	

August 1957

Test-Signal Generating

SIGNAL GENERATOR TS-418A/U



Signal Generator TS-418A/U

Test-Signal Generating

August 1957

TS-418A/U SIGNAL GENERATOR

FUNCTIONAL DESCRIPTION

The TS-418A/U is a portable, self-contained test equipment designed for use with radio and radar receivers and for other applications requiring small amounts of RF power, such as the measuring of standing wave ratios, antenna characteristics, transmission line characteristics, conversion gain etc. The instrument provides RF signals at any desired frequency within the range of 400 to 1000 megacycles per second, and at any desired level within the range of 0.2 microvolt to 200,000 microvolts when loaded with its rated load of 50 ohms resistance. Both the desired frequency and level of the RF signal are selected and directly indicated by means of calibrated front panel controls.

The Signal Generator provides RF signals which can be continuous wave, amplitude modulated by external signals, or modulated by internally generated pulses or directly by externally supplied positive or negative pulses. The internally generated pulses used for modulation may also be synchronized with external positive or negative pulses or sine waves. For synchronized or unsynchronized pulse modulation, the pulsed RF output can be delayed over a range from 3 to 300 microseconds relative to the undelayed output synchronizing pulse. The equipment also provides two output pulses for synchronizing external equipment, one of which is delayable so that it is substantially coincident with RF pulse.

No field changes in effect at time of preparation (8 January 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 400 to 1000 mc in one band.
ACCURACY OF FREQUENCY DIAL: ±1%.
MAX RF POWER OUTPUT: 1 milli W into a 50 ohm load.
OUTPUT IMPEDANCE: 50 ohms.
PULSE REPETITION RATE: 40 to 4000 pps.
STANDING WAVE RATIO: Less than 3 db.
ACCURACY: 25%.
AMBIENT TEMPERATURE RANGE: −40°C to +55°C.
MAX RELATIVE HUMIDITY: Over 95%.
POWER SOURCE REQUIRED: 115 v, 50 to 1600 cps, 130 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Contract N383s-83807.
Approximate Cost: $1600.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6627/OB2WA	(1) 2C36	(1) 5R4WGB
(1) 5Y3WGTB	(2) 6AG7Y	(4) 6J6WA
(2) 12AT7WA	(1) 12AX7	(1) 5654/6AK5W

Total Tubes: (15)

REFERENCE DATA AND LITERATURE

AN16-30URM49-3: Technical Manual for Signal Generator TS-418U, TS-418A/U, TS-418B/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-418A/U	12-3/8 X 13-1/2 X 17-5/8	63.2
1	Transit Case CY-741/U	16 X 18-5/8 X 21-7/8	24
1	Power Cord CX-337/U (6')		0.6

August 1957

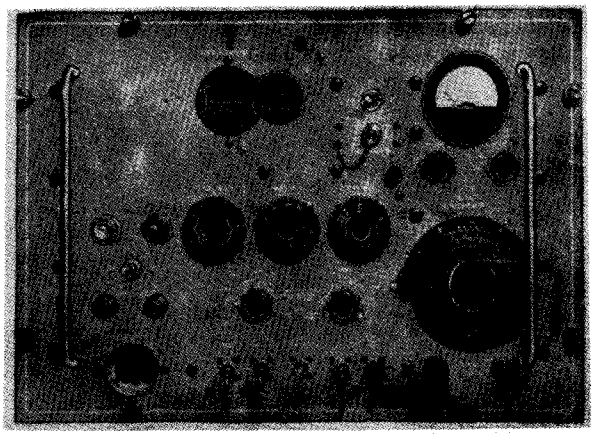
Test-Signal Generating

SIGNAL GENERATOR TS-418A/U

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	RF Cable CG-546/U (6' 0'')		0.3
2	Video Cord CG-546/U (8' 0'')		0.4
3	Adapter UG-201/U	1-9/16 X 3/4 o.d.	0.1
3	Adapter UG-255/U	1-3/8 X 5/8	0.1
3	Adapter UG-273/U		0.1

SIGNAL GENERATOR TS-418B/U



Signal Generator TS-418B/U

FUNCTIONAL DESCRIPTION

Signal Generator TS-418B/U is a portable test equipment used with radio and radar receivers in measuring standing wave ratios, antenna characteristics, transmission line characteristics, conversion gain, and receiver sensitivity. It consists essentially of an rf oscillator, a power supply, an rf power monitor, a modulator section, including a pulse generator, and an output section.

No field changes in effect at time of preparation (15 April 1959).

RELATION TO OTHER EQUIPMENT

This equipment part of Signal Generator AN/URM-49.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 130 W, 115 v +10%, 50 to 1,600 cy, 1 ph, 0.9 pf.
FREQUENCY RANGE: 400 to 1,000 mc ±1%.
TYPE OF EMISSION: AM, CW, PM.
POWER OUTPUT: 1 mw.
OUTPUT IMPEDANCE: 50 ohms ±2%.
ATTENUATION: 0.2 uv (-120)db) to 200,000 uv (0 db).
INTERNAL MODULATION
RATE: 40 to 4,000 pps.
WIDTH: 0.5 to 10 usec.
DELAY: 3 to 300 usec.
EXTERNAL MODULATION
PULSE: 40 to 6,000 pps, 0.5 to 20 usec, ±40 to ±70 v.
SINE WAVE: 100 cy to 100 kc at 3 v for 30% modulation.
SYNC OUT PULSE: 65 v peak, no load; 42 v peak into 500 ohm load shunted by 1,500 uuf; 5 usec (max) width.

MANUFACTURER'S OR CONTRACTOR'S DATA

Lavoie Labs Inc., Morganville, New Jersey.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 0B2	(1) 2C36	(1) 5Y3GT
(2) 6AG7	(1) 6AK5	(4) 6J6
(2) 12AT7	(1) 12AX7	(1) 5R4GY

Total Tubes: (15)

No Crystals used.

REFERENCE DATA AND LITERATURE

AN 16-30URM-49-3: Technical Manual for Signal Generators TS-418/U, TS-418A/U, TS-418B/U.

TYPE CLASSIFICATION STD
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE MIL-G-17995(AER)
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-418B/U	12-3/8 X 13-1/2 X 17-5/8	54.5

January 1958

Test-Signal Generating

SIGNAL GENERATOR TS-422/U

FUNCTIONAL DESCRIPTION

The TS-422/U is a portable signal generator covering the frequency range of 25 to 230 megacycles in four bands.

No field changes in effect at time of preparation (16 July 1957).

RELATION TO OTHER EQUIPMENT

The TS-422/U is similar to Ferris Model 18F, and is part of Test Equipment RC-125-A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGES: 25 to 42, 40 to 75, 150 to 195, 180 to 230 mc.
OUTPUT: 0.7 v max.
MODULATION FREQUENCY: 400 to 1000 cps at 30% modulation.
OUTPUT IMPEDANCE: 30 ohms.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Signal Generator TS-422/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-422/U	7-1/2 X 12 X 15-1/2	

Test-Signal Generating

March 1957

RF SIGNAL GENERATOR TS-437/U

FUNCTIONAL DESCRIPTION

The TS-437/U is a general purpose signal generator, designed to operate in the 35 to 440 mc band.

No field changes in effect at time of preparation (26 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 35 to 440 mc, 4 bands.
TYPE EMISSION: ±AM, FM.
ACCURACY: ±0.01% from −10 to +30 deg C.
INTERNAL MODULATION: 400 and 1000 cps.
EXTERNAL MODULATION
FREQUENCY: 50 to 10,000 cps.
VARIATION: 0 to 100%.
OPERATING POWER: 115 v, 50 to 1600 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Allen D. Cardwell Mfg Co, Plainville, Conn.

Approximate Cost: $1200.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,155 VOL II: Technical Manual For Electronic Test Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

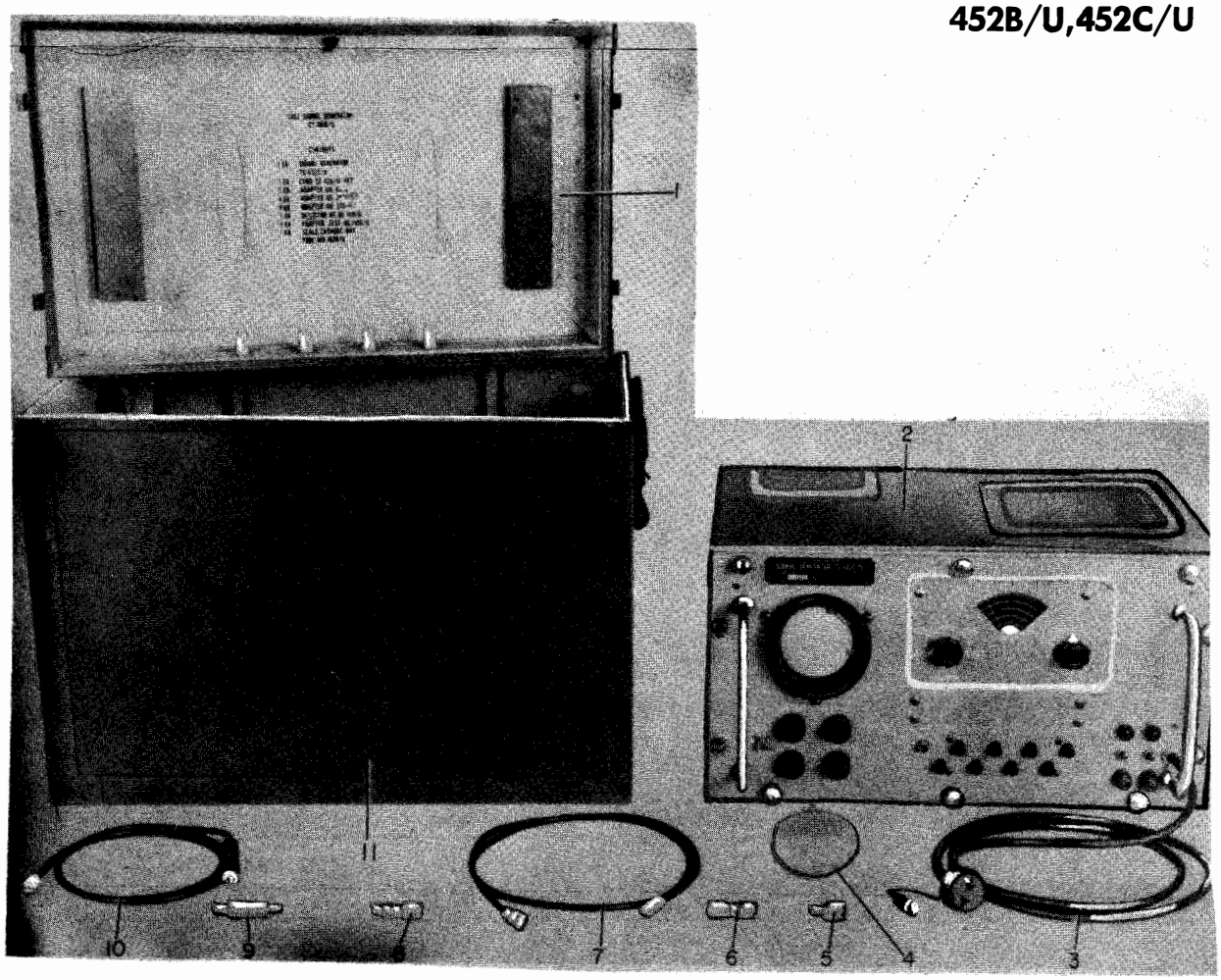
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-437/U	12 X 14 X 18	
1	Case CY-616/U		
1	Cord CY-237/U		
3	Cord CG-409A/U		
2	Adapter UG-201/U		
3	Adapter UG-255/U		

December 1956

SIGNAL GENERATOR

Test-Signal Generating

TS-452/U,452A/U, 452B/U,452C/U



Signal Generator TS-452/U, 452A/U, 452B/U, 452C/U

FUNCTIONAL DESCRIPTION

The TS-452/U, TS-452A/U, TS-452B/U and TS-452C/U Signal Generators are used to test the alignment of intermediate frequency and radio frequency circuits in the 5 to 100 mc range. It is fitted with a motor-driven capacitor for frequency sweep of the oscillator. A wavemeter provides a sweep blanking pulse to locate frequencies on the oscilloscope pattern. A traveling detector is provided to pick up the signal from any point in the circuit under test. This signal is rectified in the probe, amplified and displayed as vertical deflection on the cathode ray-tube screen. The time interval of the horizontal sweep of the oscilloscope is synchronized with the variation of frequency of the oscillator. The spot on the screen travels from left to right once during the time the frequency of the oscillator changes from minimum to maximum.

No field changes in effect at time of preparation (22 June 1956).

RELATION TO OTHER EQUIPMENT

Functionally, the TS-452/U, TS-452A/U, TS-452B/U and TS-452C/U are similar. Location and labeling of controls and indicators differ; however, the same number and means of control are employed. Range of frequency modulation differs by a small amount for each version. This equipment supersedes Signal Generator TS-309/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- WAVE METER: 5 to 100 mc in 4 bands.
- OSCILLATOR: 5 to 100 mc in 6 bands.

OUTPUT
- ATTENUATION: 101 db in 1 db steps.
- IMPEDANCE: 75 ohms.
- VOLTAGE: 0.25 v minimum.

TS-452/U,452A/U, 452B/U,452C/U SIGNAL GENERATOR

December 1956

WAVE METER ACCURACY: ±0.33%.
AMPLIFIED FREQUENCY RESPONSE: 20 to 30000 cps.
INPUT IMPEDANCE
RF PROBE: 470 ohms shunted by 2.5 uuf.
VERTICAL INPUT: 20000 ohms.
PRESENTATION: 3 in. CRT.
POWER REQUIREMENTS: 115 v, 50 to 1600 cps, 120 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Contract MIPR-800-29208, MIPR-800-19636, MIPR-53-800-39463.
Approximate Cost: $1000.00 each with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6SN7/GT (2) 6x5/GT (2) OD3/VR150
(1) 3BP1A (2) 6SL7/GT (1) 6J6
(1) 6AQ6 (1) 1B3/GT
(TS-452B/U & TS-452C/U only)
Total Tubes: (12 or 13)

REFERENCE DATA AND LITERATURE

AN16-35TS452-3: Technical Manual for Signal Generator TS-452/U.
T.O.16-35TS452-12: Technical Manual for Signal Generator TS-452A/U.
T.O.16-35TS452-7: Technical Manual for Signal Generator TS-452B/U, TS-452C/U.

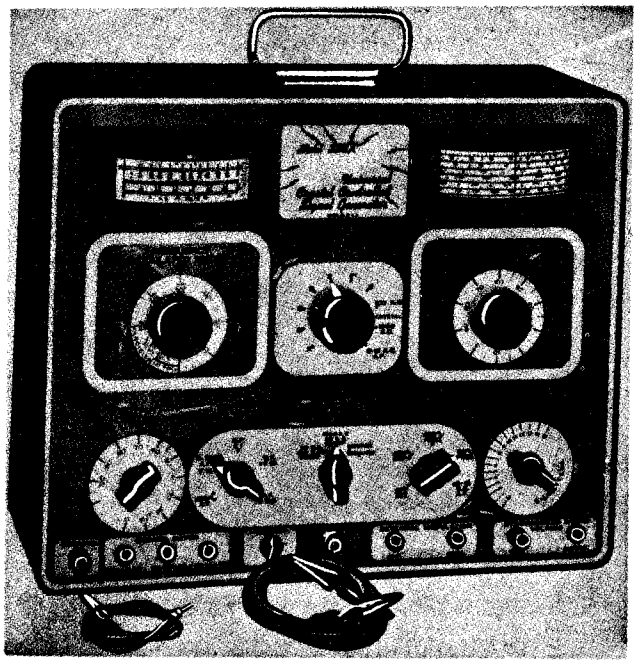
TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

Qty per Equipt				EQUIPMENT SUPPLIED DATA		
452/U	452A/U	452B/U	452C/U	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	1	1	1	Signal Generator	9-3/4 X 16 X 19	55
1	1	1	1	Traveling Detector	1-1/4 X 60	0.45
1	1	1	1	Output Cable	9/16 dia X 60	0.25
1	1	1	1	Adapter UG-83/U	3/4 dia X 1-5/8	0.1
1	1	1	1	Adapter UG-255/U	5/8 dia X 1-3/8	0.1
1	1	1	1	Adapter UG-273/U	3/4 dia X 1-3/8	0.1
1	1	1	1	Terminating Resistor	1 dia X 2-1/2	0.2
1	1	1	1	Transit Case	13-7/8 X 19 X 23	18

March 1957

SIGNAL GENERATOR

TS-465/U



Signal Generator TS-465/U

FUNCTIONAL DESCRIPTION

The TS-465/U is an AM or FM signal generator used for supplying continuously adjustable, known RF voltages to receivers for testing and adjusting.

No field changes in effect at time of preparation (31 August 1956).

RELATION TO OTHER EQUIPMENT

TS-465/U is similar to Hickok Model 288X and replaces Signal Generator TS-448/U.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
AM: 100 kc to 110 mc.
FM: 100 kc to 160 mc.
ACCURACY (CRYSTAL): ±1%.
CRYSTAL CONTROLLED OUTPUT: 100 and 1000 kc, modulated or unmodulated.
MODULATION
INTERNAL: 60 and 400 cps.
EXTERNAL: 0 to 15,000 cps, continuously variable AM or FM.
OUTPUT: −10 db to +34 db.
POWER REQUIREMENTS: 105 to 125 v, 50 to 70 cps, single phase, 20 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hickok Electrical Instrument Company.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6J5 (1) 6K8 (1) 6X5WGT
(1) 7N7 (1) 7V7
Total Tubes: (5)

REFERENCE DATA AND LITERATURE

TM-11-487H: Technical Manual for Directory of Signal Corps Equipments Test Equipment.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator TS-465/U including Accessories	5		75

EQUIPMENT SUPPLIED DATA

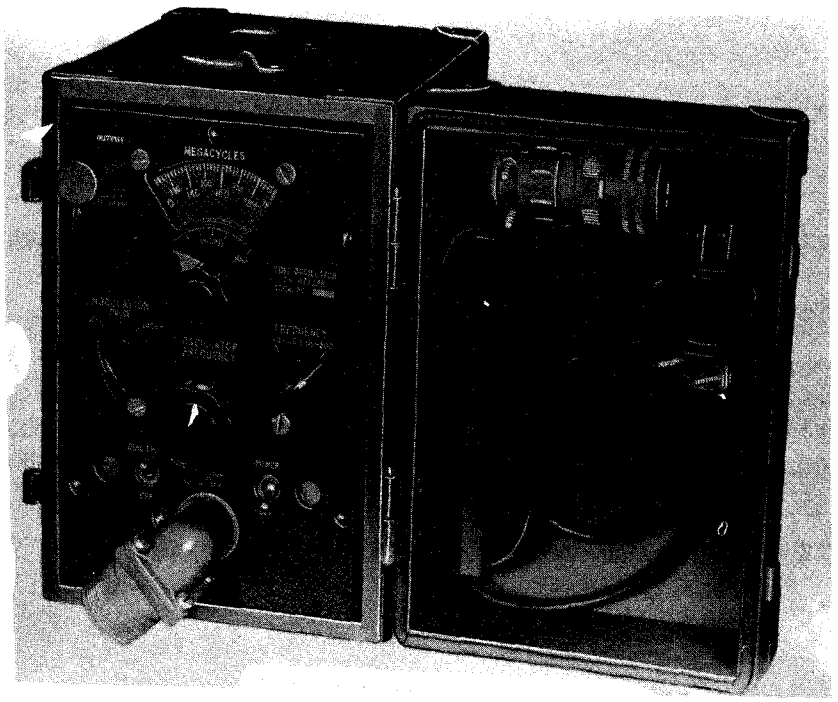
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-465/U	8 X 14 X 16-1/2	26
1	Test Lead		
1	Technical Manual		

16 May 1962 | TEST OSCILLATOR TS-47/APR

Cog Service: USA | FSN: 6625-567-8838 | Functional Class: 4.2.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	Std

MANUFACTURER'S NAME/CODE NUMBER: General Radio Co., (24655).



Test Oscillator TS-47/APR

FUNCTIONAL DESCRIPTION:

Test Oscillator TS-47/APR is a small, light-weight, portable oscillator designed to provide a calibrated high-frequency source for the alignment and pre-flight check of radio receivers.

No field changes in effect at time of preparation (26 February 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 13.5 W, 80 v, 115 v or 230 v, 50 to 2,600 cyc, or 8.5 W, 220 v, 0.02 amp dc; 6.3 v, 0.55 amp dc.
FREQUENCY RANGE: 40 to 115 mc, 115 to 500 mc porm 1% (useful harmonics to 3,000 mc).
TYPE OF EMISSION: AM, CW, pulse.
POWER RANGE: 3 mw (40 to 400 mc), 1 mw (400 to 500 mc).
IMPEDANCE: 50 ohms.

TS-47/APR TEST OSCILLATOR

MODULATION
AMPLITUDE: 50% modulation at 1,000 cyc.
PULSE: 70 usec duration at repetition rate of approx 500 pps.
TEMPERATURE RANGE: M14 deg to P131 deg F.

RELATION TO OTHER EQUIPMENT: None

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(4) Battery BA-35; (5) Battery BA-36; (1) 1-W, 2,000 ohm resistor.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Test Oscillator TS-47/APR includes:		6-3/4 x 9-5/8 x 11-3/8	15
1	Cord CX-153/U		72 lg	1
2	Technical Manual			

REFERENCE DATA AND LITERATURE:

AN 16-35TS47-2: Handbook of Maintenance Instructions for Test Oscillator TS-47/APR.
TM 11-1034: Handbook of Maintenance Instructions for Test Oscillator TS-47/APR, TS-47A/APR and TS-47B/APR.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6X5GT (2) 9002

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.86	24

PROCUREMENT DATA

PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG: 271-5077(Army)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
General Radio Co.	Cambridge, Mass.	SandA 05818, August 1945	$300.00

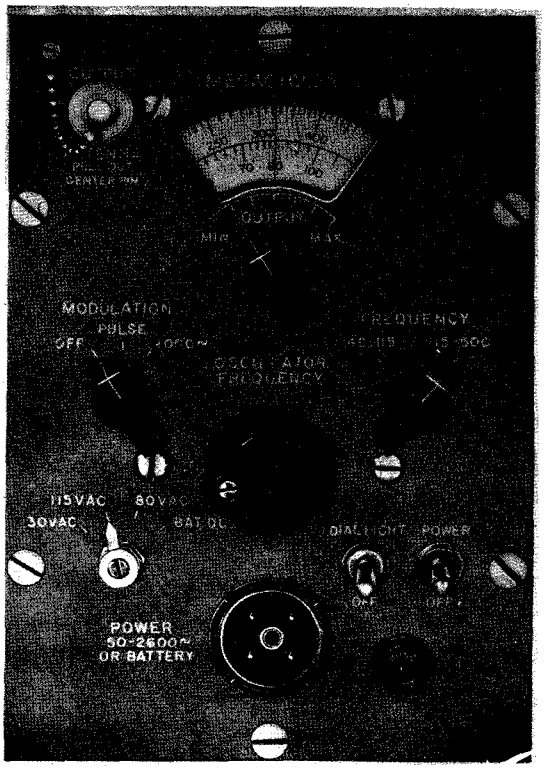
Fairchild Camera and Instrument Corp.	Jamaica, N. Y.	545-DAY-441, 31 December 1943	$450.00
		600-DAY-45-SL, 19 December 1944	$429.00
Maguire Industries Inc.	Bridgeport, Conn.	117-DAY-44, 24 June 1944	$1,250.00
Medco Mfg Co.	New York, N. Y.	118-44, 26 June 1944	$1,320.00

25 May 1962 TEST OSCILLATOR TS-47A/APR

Cog Service: USA FSN: 6625-572-1011 Functional Class: 4.2.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	Std

MANUFACTURER'S NAME/CODE NUMBER: Munston Mfg and Service Inc., (74096).



Test Oscillator TS-47A/APR

FUNCTIONAL DESCRIPTION:

Test Oscillator TS-47A/APR is a small, light-weight, portable unit designed to provide a calibrated high-frequency source for the alignment and pre-flight check of radio receivers.

No field changes in effect at time of preparation (23 February 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 13.5 W, 80 v, 115 v or 230 v, 50 to 2,600 cyc, or 8.5 W, 220 v, 0.02 amp dc; 6.3 v, 0.55 amp dc.
FREQUENCY RANGE: 40 to 115 mc, 115 to 500 mc porm 1% (useful harmonics to 3,000 mc).
TYPE OF EMISSION: AM, CW, pulse.
POWER RANGE: 3 mw (40 to 400 mc), 1 mw (400 to 500 mc).
IMPEDANCE: 50 ohms.
MODULATION

TS-47A/APR TEST OSCILLATOR

AMPLITUDE: 50% modulation at 1,000 cyc.
PULSE: 70 usec duration at repetition rate of approx 500 pps.
TEMPERATURE RANGE: M14 deg to P131 deg F.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(4) Battery BA-35; (5) Battery BA-36; (1) 1 W; 2,000 ohm resistor.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Test Oscillator TS-47A/APR		7-1/2 x 9-5/8 x 10-5/8	15
	includes:			
1	Cable Assy, Power, Electrical CX-3800/U		72 lg	1
2	Technical Manual			

REFERENCE DATA AND LITERATURE:

TM11-1034: Handbook of Maintenance Instructions for Test Oscillator TS-47/APR, TS-47A/APR and TS-47B/APR.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6X5WGT (2) 9002

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.86	24

PROCUREMENT DATA

PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-T-11342

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Munston Mfg and Service Inc.	Islip, N.Y.	28780-PHILA-55 39141-PP-58	

28 May 1962 TEST OSCILLATOR TS-47B/APR

Cog Service: USA FSN: 6625-970-3684 Functional Class: 4.2.2

	USA	USN	USAF
TYPE CLASS:	Std	Std	

MANUFACTURER'S NAME/CODE NUMBER: Northeastern Engineering Inc., (80667).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Test Oscillator TS-47B/APR is a small, light-weight, portable unit designed to provide a calibrated high-frequency source for the alignment and pre-flight check of radio receivers.

No field changes in effect at time of preparation (26 February 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 13.5 W, 80 v, 115 v or 230 v, 50 to 2,600 cyc, or 8.5 W, 220 v, 0.02 amp dc; 6.3 v, 0.55 amp dc.
FREQUENCY RANGE: 40 to 115 mc, 115 mc to 500 mc porm 1% (useful harmonics to 3,000 mc).
TYPE OF EMISSION: AM, CW, pulse.
POWER RANGE: 3 mw (40 to 400 mc), 1 mw (400 to 500 mc).
IMPEDANCE: 50 ohms.
MODULATION
AMPLITUDE: 50% modulation at 1,000 cyc.
PULSE: 70 usec duration at repetition rate of approx 500 pps.
TEMPERATURE RANGE: M14 deg to P131 deg F.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Test Oscillator TS-47B/APR includes:		7-1/2 x 9-5/8 x 10-5/8	15
1	Cable Ass'y, Power, Electrical CX-3800/U		72 lg	1
2	Technical Manual			

REFERENCE DATA AND LITERATURE:

TM11-1034: Handbook of Maintenance Instructions for Test Oscillator TS-47/APR, TS-47A/APR and TS-47B/APR.

TS-47B/APR TEST OSCILLATOR

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6X5WGT (2) 9002

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	0.86	24

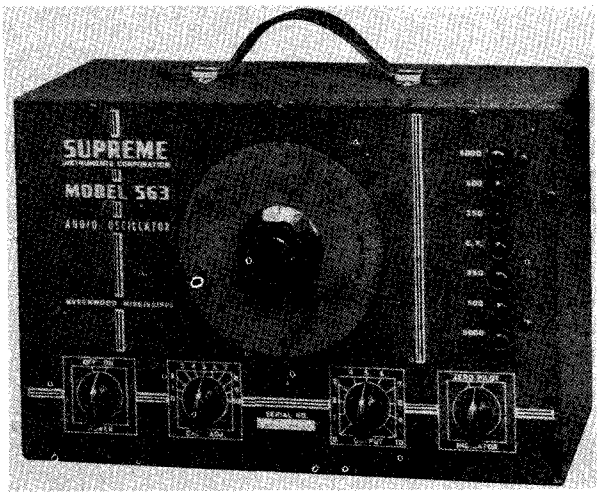
PROCUREMENT DATA

PROCURING SERVICE: USA DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-T-11342B

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Northeastern Engineering Inc.	Manchester, N. H.	4325-PP-60	

Test-Signal Generating

AF OSCILLATOR TS-483/U



AF Oscillator TS-483/U

FUNCTIONAL DESCRIPTION

The TS-483/U is a portable instrument designed to provide continuously variable audio-frequency signal voltages for signal tracing.

No field changes in effect at time of preparation (18 July 1957).

RELATION TO OTHER EQUIPMENT

The TS-483/U is the same as Supreme Instruments Model 563.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 15 to 15000 cps.
OUTPUT IMPEDANCE: 250, 500, 5000 ohms.
OUTPUT VOLTAGE
  OPEN CIRCUIT
    5000 OHM SECTION: Produces 65 v rms.
  PROPERLY LOADED
    5000 OHM SECTION: 50 v total, 25 v each side of center tap.
    500 OHM SECTION: 14 v.
    250 OHM SECTION: 9 v.
WAVE FORM DATA
  TYPE: Sinusoidal.
  HARMONIC DISTORTION: At least 30 db below fundamental at 5000 cps, 25 db at 50 cps.
  TOTAL DISTORTION: Approx 5%.
FREQUENCY RESPONSE: ±1 db from 30 to 10000 cps, 2 db down to 30 to 15000 cps.
POWER REQUIREMENTS: 110 to 125 v, 50 to 60 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Supreme Instruments Corp, Greenwood, Miss.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Oscillator TS-483/U.
Supreme Instruments Corporation Catalog No. 447.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	4.1.1

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Oscillator TS-483/U	6-7/16 X 9 X 13-1/4	21

December 1956

SIGNAL GENERATOR

Test Signal Generating

TS-497/URR

FUNCTIONAL DESCRIPTION

The TS-497/URR is used for alignment of radar receivers and for other test operations requiring a CW or modulated rod-frequency voltage.

No field changes in effect at time of preparation (13 August 1956).

RELATION TO OTHER EQUIPMENT

Interchangeable w/TS-497A/URR except for maintenance parts.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 400 mc, 6 ranges.
ACCURACY: ±0.5% on all ranges.
INTERNAL MODULATION: 400 to 100 cps.
EXTERNAL MODULATION: 50 to 10,000 cps.
CARRIER OUTPUT: Continuously variable 0.1 to 100,000 uv.
OPERATING POWER: 117 v, 50 to 60 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurement Corp.

Contract None.
Approximate Cost: $1600.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA3	(1) OC3W	(1) 5Y3WGT
(1) 6SJ7	(2) 6SN7WGTA	(2) 6V6GT
(1) 955	(1) 6SL7WGT	

Total Tubes: (10)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Signal Generator TS-497/URR.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

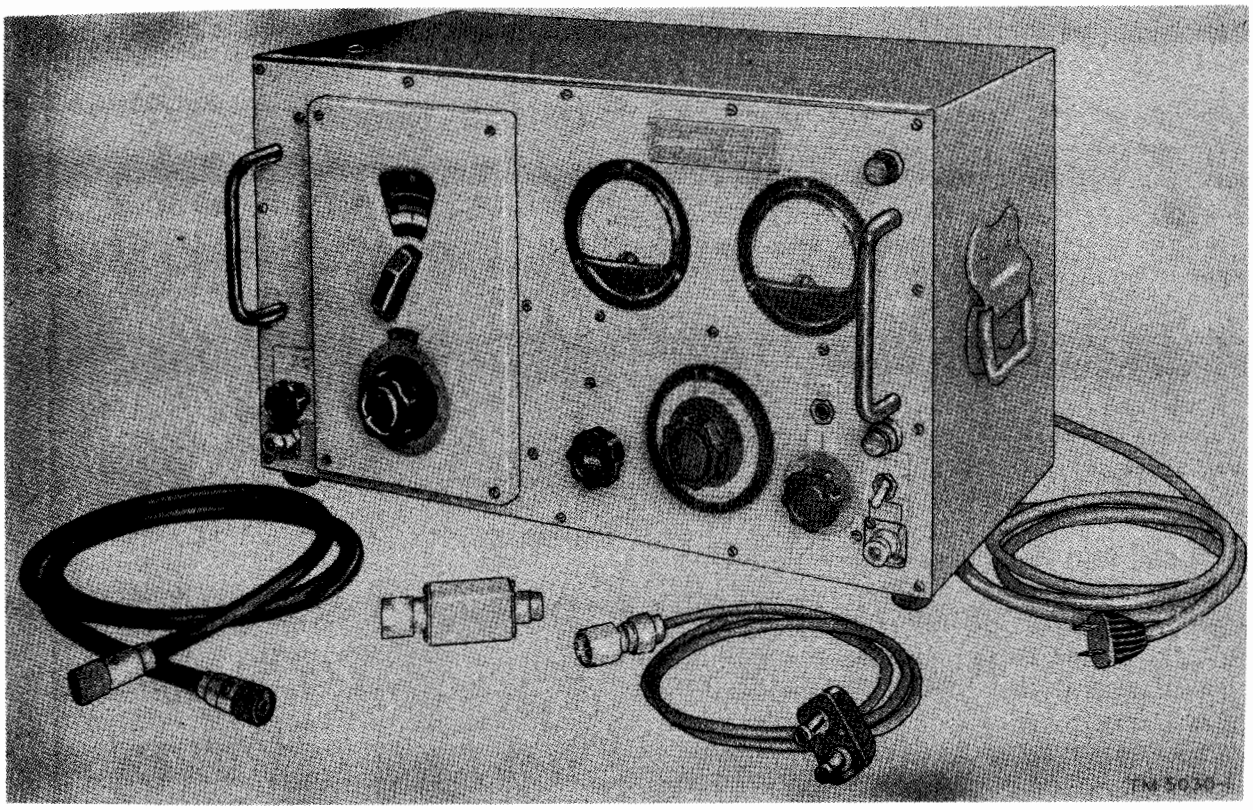
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-497/URR	9-1/2 X 10-3/4 X 19	35
1	Set Cables		
2	Technical Manuals		
1	Set Running Spares		

December 1956

SIGNAL GENERATOR

TS-497A/URR



Signal Generator TS-497A/URR

FUNCTIONAL DESCRIPTION

The TS-497A/URR is a portable unit which provides radio frequency test signals over a range of 2 to 400 mc in six bands. The signal generator provides sine-wave amplitude-modulation of 400 or 1000 cycles without the use of additional equipment. Provision is made for the use of an external sine-wave generator having an output of 10 volts or more and a frequency range from 50 to 1000 cycles. An input jack is provided for pulse modulation from an external source. The pulse generator should provide a min of 150 peak volts and should have an output impedance of 1000 ohms or less.

No field changes in effect at time of preparation (2 July 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- BAND A: 2 to 5 mc
- BAND B: 5 to 13 mc.
- BAND C: 13 to 30 mc.
- BAND D: 30 to 78 mc.
- BAND E: 78 to 180 mc.
- BAND F: 180 to 400 mc.

ACCURACY OF FREQUENCY CALIBRATIONS: ±5% on all ranges.
OUTPUT IMPEDANCE: Approx 50 ohms.
SINE-WAVE AMPLITUDE MODULATION: 0 to 30%.
INTERNAL MODULATION: 400 to 1000 cps.
EXTERNAL MODULATION: 50 to 10000 cps.
PULSE MODULATION: Provided from an external source.
INPUT VOLTAGE: 117 v, 50 to 60 cps.
POWER INPUT: 65 W.
CARRIER OUTPUT: Continuously variable 0.1 to 100000 uv.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurements Corp., Boonton, New Jersey.
Order No. 2429-MPD-45.
Approximate Cost: $1600.00 with equip-spares.

TS-497A/URR SIGNAL GENERATOR

December 1956

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OC3/VR105	(2) 12AU7
(1) 5Y3GT	(1) 12AX7
(1) OA3/VR75	(1) 6AU6
(2) 6AQ5	(1) 955

Total Tubes: (10)

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

REFERENCE DATA AND LITERATURE

TM11-5030: Technical Manual for Signal Generator TS-497A/URR.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Signal Generator TS-497A/URR including: Cord CG-558/U Radio Frequency Cable Assembly CG-683/U Impedance-matching pad Set of running spares	3.5	15 x 17 x 23-3/4	75

EQUIPMENT SUPPLIED DATA

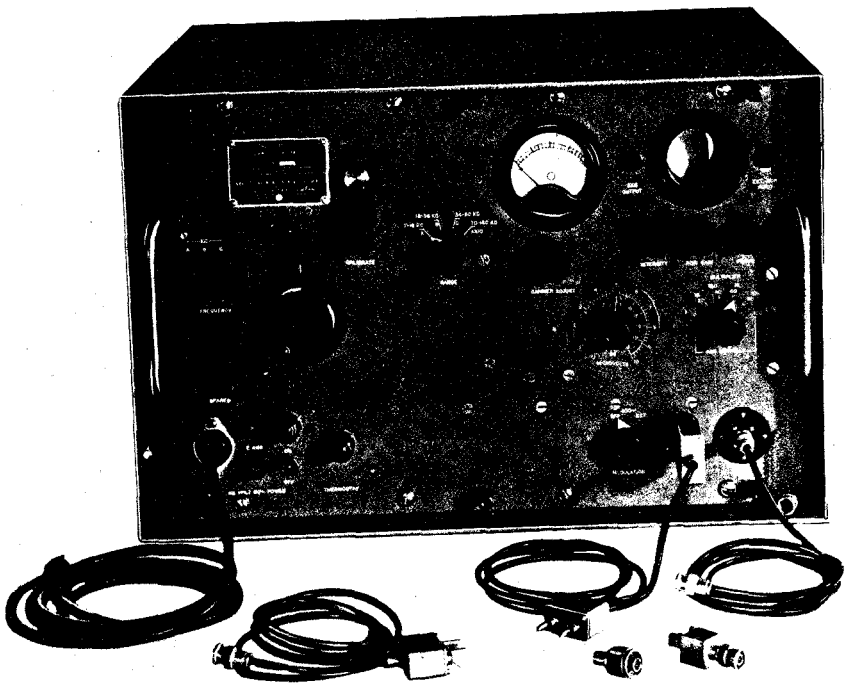
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-497A/URR	9-1/2 x 10-5/8 x 19	48.0
1	Cord CG-558/U	50 lg.	0.75
1	Radio Frequency Cable Assembly CG-683/U	50 lg.	0.25
1	Impedance-matching pad	3-1/2 lg.	0.3
1	Set running spares		1.0
1	Technical Manual		

30 April 1962 6625-643-2851 SIGNAL GENERATOR TS-535/U
Cog Service: USN FSN: 6625-669-5143 W/S Functional Class: 4.1.2

USA USN USAF

TYPE CLASS: Std

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Signal Generator TS-535/U

FUNCTIONAL DESCRIPTION:

Signal Generator TS-535/U is a general purpose test equipment designed to generate sine wave voltages of known frequency at known amplitudes in the upper audio and supersonic spectrum.

No field changes in effect at time of preparation (27 February 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 7 to 160 kc.
ACCURACY OF OUTPUT FREQUENCY: Within 0.1% below 70 kc and 0.5% above 70 kc when standardized.
FREQUENCY BANDS: 4.
RANGE OF EACH BAND
RANGE "A": 7 to 16 kc.

RANGE "B": 15 to 36 kc.
RANGE "C": 34 to 80 kc.
RANGE "AX10": 70 to 160 kc.

MODULATION
INTERNAL: 30% amplitude modulation at fixed frequency of 400 cyc.
EXTERNAL: 30% amplitude modulation obtainable at frequencies between 20 cyc and 2,000 cyc; approx. 1 v external voltage required.

POWER FACTOR: 0.9.

OUTPUT IMPEDANCE: 5 ohms.

OUTPUT VOLTAGE: 1 v max, 0.5 uv min.

ACCURACY OF OUTPUT VOLTAGE: Within 10% down to 1 uv below 70 kc; within 10% or 0.5 uv above 70 kc.

POWER REQUIREMENTS: 185 W, 105 to 125 v, 50 to 63 cyc, single ph, 1.65 amp.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator TS-535/U includes:		14 x 17-7/8 x 21-11/16	86
1	Attenuator CN-77/U		3/4 x 3/4 x 2-1/4	0.12
1	Cord CG-409/U		50 lg	0.25
1	R.F. Cable Ass'y CG-465/U		51 lg	0.50
1	R.F. Cable Ass'y CG-466/U		53 lg	0.50
1	Adapter UG-201/U		3/4 x 3/4 x 1-13/32	0.06
1	Cable Ass'y, Power 62391		87 lg	0.37
2	Technical Manual NAVSHIPS 900, 839		1/4 x 9 x 11-1/2	0.75
1	Calibration Book		1/4 x 9 x 11-1/2	0.25

REFERENCE DATA AND LITERATURE:

NAVSHIPS 900, 839: Technical Manual for Signal Generator TS-535/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0C3/VR105 (1) 2AP1A (1) 5U4G (1) 6AG7 (1) 6H6 (1) 6J5 (2) 6L6GA (1) 6SA7 (2) 6SJ7 (3) 6SN7W (1) 6SQ7 (2) 6V6GT/G

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	9.1	180
1	2	61

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: RE-13A-935A(SHIPS)

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co.	Palo Alto, Calif.	NXsr-84980, 8 December 1944 NObsr-39384, 28 June 1947	

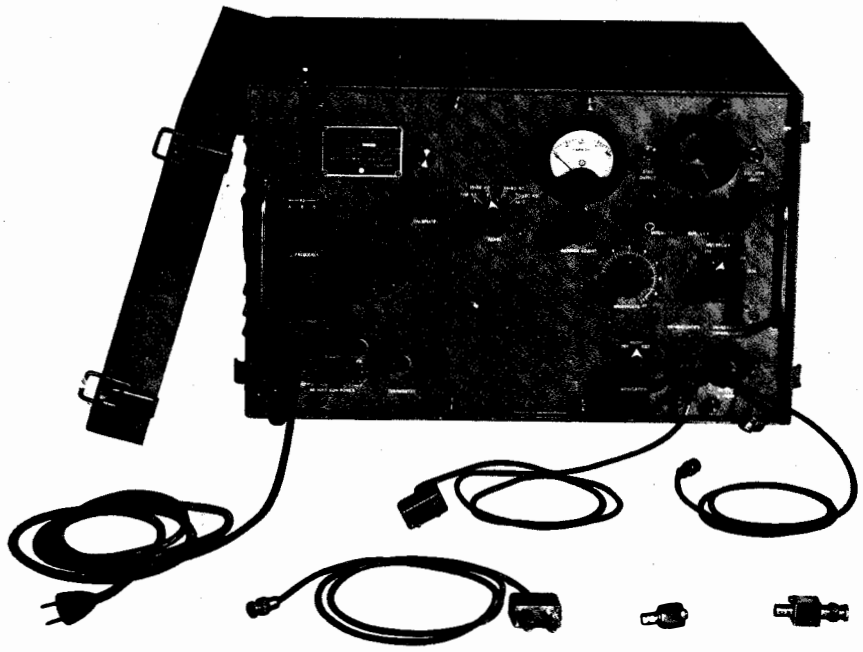
29 May 1962
Cog Service: USN FSN: 6625-643-0745

SIGNAL GENERATOR TS-535A/U
Functional Class: 4.1.2

USA	USN	USAF

TYPE CLASS: Std

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Signal Generator TS-535A/U

FUNCTIONAL DESCRIPTION:

Signal Generator TS-535A/U is a general purpose test equipment designed to generate sine-wave voltages of known frequency at known amplitudes in the upper audio and supersonic spectrum.

No field changes in effect at time of preparation (27 February 1962).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 7 to 160 kc.
ACCURACY OF OUTPUT FREQUENCY: Within 0.1% below 70 kc and 0.5% above 70 kc when standardized.
FREQUENCY BANDS: 4.
RANGE OF EACH BAND
RANGE "A": 7 to 16 kc.
RANGE "B": 15 to 36 kc.

RANGE "C": 34 to 80 kc.
RANGE "A x 10": 70 to 160 kc.
MODULATION
INTERNAL: 30% amplitude modulation at fixed frequency of 400 cyc.
EXTERNAL: 30% amplitude modulation obtainable at frequencies between 20 cyc and 2,000 cyc; approx. 1 v external voltage required.
POWER FACTOR: 0.9.
OUTPUT IMPEDANCE: 5 ohms.
OUTPUT VOLTAGE: 1 v max, 0.5 uv min.
ACCURACY OF OUTPUT VOLTAGE: Within 10% down to 1 uv below 70 kc; within 10% or 0.5 uv above 70 kc.
POWER REQUIREMENTS: 185 W, 105 to 125 v, 50 to 63 cyc, single ph, 1.65 amp.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Signal Generator TS-535A/U		14 x 18-3/8 x 22-3/4	89
	includes:			
1	Attenuator CN-77/U		3/4 x 3/4 x 2-1/4	0.12
1	Cord CG-409/U		50 lg	0.25
1	RF Cable Assy CG-465/U		51 lg	0.50
1	RF Cable Assy CG-466/U		53 lg	0.50
1	Adapter UG-201/U		3/4 x 3/4 x 1-13/32	0.06
1	Cable Assy, Power 62391		87 lg	0.37
2	Technical Manual NAVSHIPS 91572(A)		1/4 x 9 x 11-1/2	0.75
1	Calibration Book		1/4 x 9 x 11-1/2	0.25

REFERENCE DATA AND LITERATURE:

AN16-35TS535-3: Technical Manual for Signal Generator TS-535A/U.
NAVSHIPS 91572(A): Technical Manual for Signal Generator TS-535A/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 6AG7 (1) 6H6 (1) 6J5 (2) 6L6GA (1) 6SA7 (2) 6SJ7 (3) 6SN7W (1) 6SQ7 (2) 6V6GT/G (1) 2AP1A (1) 5U4G (1) 0C3/VR105

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT(LBS)
1	8.3	162

PROCUREMENT DATA

PROCURING SERVICE: USN
DESIGN COG: USN, BuShips
SPEC &/OR DWG: MIL-S-15961(SHIPS), Amend 3

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co.	Palo Alto, Calif.	NObsr-52305, 30 March 1951 NObsr-63078, 30 September 1952	$1,501.73

January 1958

Test-Signal Generating

AUDIO OSCILLATOR TS-560/FT

FUNCTIONAL DESCRIPTION

The TS-560/FT is an audio frequency, heterodyne type, vacuum-tube signal generator. It is used to provide audio frequencies for testing telephone equipment.

No field changes in effect at time of preparation (9 July 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 50 cps to 150 kc.
OUTPUT: 1 to +30 db.
OUTPUT IMPEDANCE: 135 to 600 ohms.
POWER SOURCE REQUIRED: 105 to 125 v, 50 to 60 cps, single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Technical Data Card for Audio Oscillator TS-560/FT.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Audio Oscillator TS-560/FT (Export Pack)	8		224

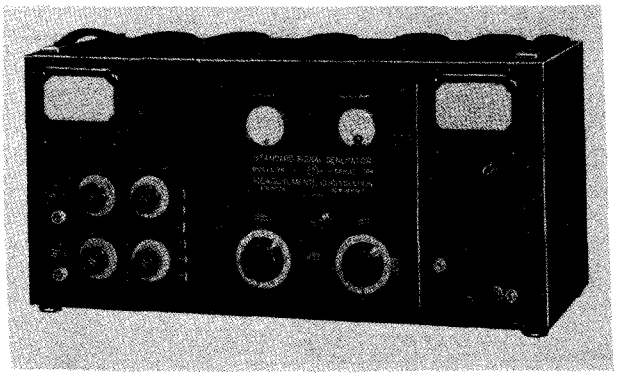
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator TS-560/FT	9-5/32 X 19 X 28	80

Test-Signal Generating

April 1958

SIGNAL GENERATOR TS-574/U



Signal Generator TS-574/U

FUNCTIONAL DESCRIPTION

The TS-574/U is a general purpose UHF signal generator designed to cover the frequency range of 300 to 1000 megacycles in one band. It provides continuous-wave of UHF carrier with metered output and a wide range of attenuation, sine-wave modulated carrier using either internal or external source of modulation with direct metering of present modulation, pulse modulated carrier using built-in pulse generator of variable repetition rate and pulse width, and synchronizing pulse output for triggering an external time axis in synchronism with the pulse carrier.

Its oscillator components are sturdily constructed and designed with only one moving part for maximum stability.

No field changes in effect at time of preparation (19 November 1957).

RELATION TO OTHER EQUIPMENT

The TS-574/U is the Measurements Corporation Model 84, and has been superseded for military use by Signal Generator AN/URM-49 (formerly TS-418/U).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY DATA
- RANGE: 300 to 1000 mc.
- ACCURACY: ±0.5%.
- DRIFT: Less than 0.05% after warm-up.

OUTPUT VOLTAGE: 0.1 to 100000 uv, continuously variable.

OUTPUT IMPEDANCE: 50 ohms.

MODULATION DATA (AMPLITUDE)
- INTERNAL: 0 to 30%; 400, 1000, or 2500 cps sine-wave oscillator.
- EXTERNAL: Up to 30 kc, approx 5 v rms required for 30% modulation depth.

PULSE MODULATION DATA
- FREQUENCY: 60 cps to 100 kc.
- WIDTH: 1 to 50 usec, continuously variable.
- DELAY: 0 to 50 usec.

SYNCHRONIZING OUTPUT: 50 v max, either polarity.

POWER REQUIREMENTS: 117 v, 60 cps, single ph, 230 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurements Corporation, Boonton, N.J.
Approximate Cost: $1950.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OC3W	(1) 6H6WGT
(1) OD3W	(2) 6J5WGT
(1) 368AS/703A	(1) 6L6
(1) 5R4WGB	(1) 6SJ7Y
(2) 5Y3WGTB	(4) 6SN7WGTA
(2) 6AG7Y	(2) 6V6Y

Total Tubes: (19)

No Crystals.

REFERENCE DATA AND LITERATURE

Measurements Corporation Catalog C Laboratory Standards.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

Test-Signal Generating

TS-574/U SIGNAL GENERATOR

April 1958

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-574/U	10 x 12 x 26	135
2	Coaxial Cable RG-8/U, Part 84-Z2-1	48 lg	
1	Coaxial Cable RG-8/U, Part 84-Z2-2	48 lg	
1	Coaxial Cable RG-8/U, Part 84-Z2-3	48 lg	
1	External Voltage Regulator		

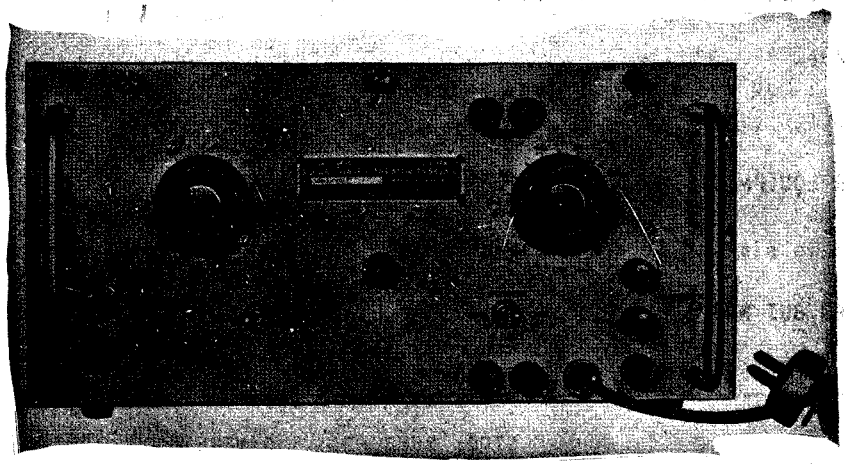
30 April 1962 **SQUARE WAVE GENERATOR TS-583/U**

Cog Service: USA FSN: 6625-669-9559 **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Hewlett-Packard Co., (28480).



Square Wave Generator TS-583/U

FUNCTIONAL DESCRIPTION:

Square Wave Generator TS-583/U is a portable, general purpose, test instrument that provides an internally generated square-wave voltage output at the frequency of the line voltage. When synchronized with an external sine wave generator, it will supply a square-wave output voltage at the same frequency as that of the input sine wave. In this capacity it can be used for testing the frequency and transient response of audio amplifiers or other networks, for timing measurements and numerous other applications. The output of the network or equipment under test is usually observed on a test oscilloscope.

No field changes in effect at time of preparation (6 March 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 100 W, 115 v porm 10%, 50 to 60 cyc, single ph.

TS-583/U SQUARE WAVE GENERATOR

FREQUENCY RANGE: 20 cyc to 10 kc.
MAXIMUM SIGNAL OUTPUT: 60 v peak to peak.
ATTENUATION CALIBRATIONS: 0 to 70 db below max.
  INPUT VOLT SCALE: 3 to 125 v.
  OUTPUT DB SCALE: 0 to 70 db.
INPUT IMPEDANCE: 25,000 ohms.
OUTPUT IMPEDANCE: 1,000 ohms balanced or 500 ohms unbalanced.
SQUARE-WAVE CHARACTERISTICS
  RISE TIME: 0.5 usec from base to top, no overshoot.
  DECAY TIME: 0.5 usec from top to base, no overshoot.
SYNCHRONIZATION
  TYPE: Sine wave.
  FREQUENCY RANGE: 20 cyc to 10 kc (may be used to 100 kc).
  VOLTAGE: 3 to 125 v.

RELATION TO OTHER EQUIPMENT:

This equipment is similar to Hewlett-Packard Square Wave Generator type 210A.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Square Wave Generator TS-53B/U		7-1/2 x 11 x 15	35
	includes:			
1	Transit Case CY-872/U		11-3/4 x 14-1/8 x 19-3/4	15
1	Test Lead CX-1331/U			
2	Technical Manual			

REFERENCE DATA AND LITERATURE: None.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A3/VR-75 (2) 5Y3GT (4) 6AQ5 (1) 6J6 (1) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.8	60

PROCUREMENT DATA

PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-G-13214(Sig C)

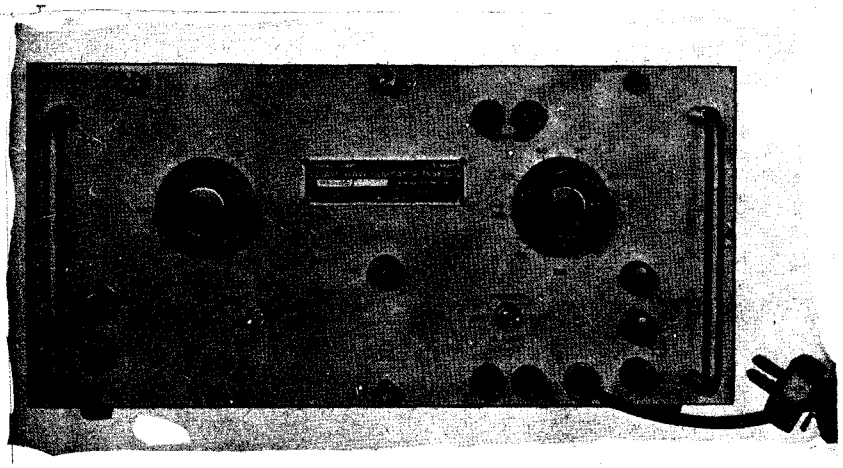
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Hewlett-Packard Co.	Palo Alto, California	NObsr-40847	

30 April 1962 SQUARE WAVE GENERATOR TS-583A/U

Cog Service: USA FSN: 6625-553-6794 Functional Class: 4.3

	USA	USN	USAF
TYPE CLASS:	Std	Used by	Std

MANUFACTURER'S NAME/CODE NUMBER: Lavoie Laboratories Inc., (35225).



Square Wave Generator TS-583A/U

FUNCTIONAL DESCRIPTION:

Square Wave Generator TS-583A/U is a portable, general purpose, test instrument that provides an internally generated square-wave voltage output at the frequency of the line voltage. When synchronized with an external sine wave generator, it will supply a square-wave output voltage at the same frequency as that of the input sine wave. In this capacity it can be used for testing the frequency and transient response of audio amplifiers or other networks, for timing measurements and numerous other applications. The output of the network or equipment under test is usually observed on a test oscilloscope.

No field changes in effect at time of preparation (6 March 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 100 W, 115 v porm 10%, 50 to 60 cyc, single ph.
FREQUENCY RANGE: 20 cyc to 10 kc.

TS-583A/U SQUARE WAVE GENERATOR

MAXIMUM SIGNAL OUTPUT: 60 v peak to peak.
ATTENUATION CALIBRATIONS: 0 to 70 db below max.
INPUT VOLT SCALE: 3 to 125 v.
OUTPUT DB SCALE: 0 to 70 db.
INPUT IMPEDANCE: 25,000 ohms.
OUTPUT IMPEDANCE: 1,000 ohms balanced or 500 ohms unbalanced.
SQUARE-WAVE CHARACTERISTICS
RISE TIME: 0.5 usec from base to top, no overshoot.
DECAY TIME: 0.5 usec from top to base, no overshoot.
SYNCHRONIZATION
TYPE: Sine wave.
FREQUENCY RANGE: 20 cyc to 10 kc (may be used to 100 kc).
VOLTAGE: 3 to 125 v.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Square Wave Generator TS-583A/U		7-1/2 x 11 x 15	35
	includes:			
1	Transit Case CY-872/U		11-3/4 x 14-1/8 x 19-3/4	15
1	Test Lead CX-1331/U			
2	Technical Manual			

REFERENCE DATA AND LITERATURE:

TM11-5024: Technical Manual for Square Wave Generator TS-583A/U.
TO 33A1-8-112-11: Technical Manual for Square Wave Generator TS-583A/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A3/VR-75 (2) 5Y3GT (4) 6AQ5 (1) 6J6 (1) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.8	60

PROCUREMENT DATA

PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-G-13214A(Sig C)

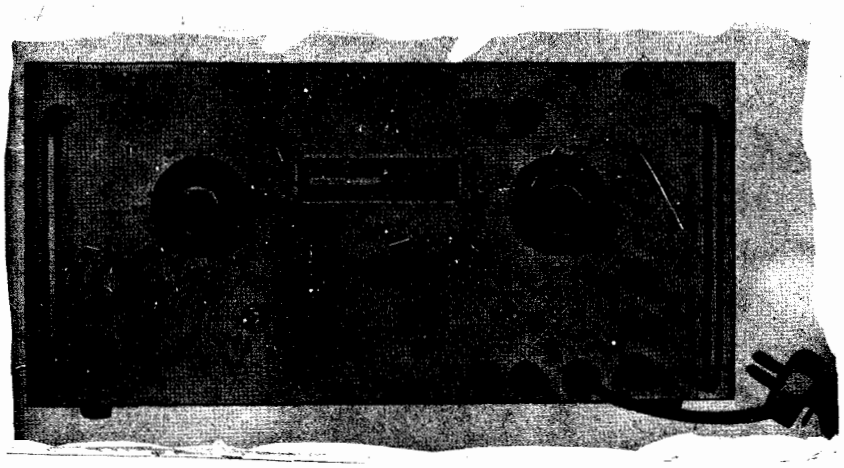
CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Lavoie Laboratories Inc. Dwg no. E-136204	Morganville, N. J.	11021-Phila-48	

30 April 1962 — SQUARE WAVE GENERATOR TS-583B/U

Cog Service: USA FSN: 6625-567-8374 — Functional Class: 4.3

	USA	USN	USAF
TYPE CLASS:	Std	Used by	Std

MANUFACTURER'S NAME/CODE NUMBER: Artisan Electronics Corp., (95692).



Square Wave Generator TS-583B/U

FUNCTIONAL DESCRIPTION:

Square Wave Generator TS-583B/U is a portable, general purpose, test instrument that provides an internally generated square-wave voltage output at the frequency of the line voltage. When synchronized with an external sine wave generator, it will supply a square-wave output voltage at the same frequency as that of the input sine wave. In this capacity it can be used for testing the frequency and transient response of audio amplifiers or other networks, for timing measurements and numerous other applications. The output of the network or equipment under test is usually observed on a test oscilloscope.

No field changes in effect at time of preparation (6 March 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 100 W, 115 v porm 10%, 50 to 60 cyc, single ph.
FREQUENCY RANGE: 20 cyc to 10 kc.

TS-583B/U SQUARE WAVE GENERATOR

MAXIMUM SIGNAL OUTPUT: 60 v, peak to peak.
ATTENUATION CALIBRATIONS: 0 to 70 db below max.
INPUT VOLT SCALE: 3 to 125 v.
OUTPUT DB SCALE: 0 to 70 db.
INPUT IMPEDANCE: 25,000 ohms.
OUTPUT IMPEDANCE: 1,000 ohms balanced or 500 ohms unbalanced.
SQUARE-WAVE CHARACTERISTICS
RISE TIME: 0.5 usec from base to top, no overshoot.
DECAY TIME: 0.5 usec from top to bottom, no overshoot.
SYNCHRONIZATION
TYPE: Sine wave.
FREQUENCY RANGE: 20 cyc to 10 kc (may be used to 100 kc).
VOLTAGE: 3 to 125 v.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Square Wave Generator TS-583B/U		7-1/2 x 11 x 15	35
	includes:			
1	Transit Case CY-872/U		11-3/4 x 14-1/8 x 19-3/4	15
1	Test Lead CX-1331/U			
2	Technical Manual			

REFERENCE DATA AND LITERATURE: None.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0A3 (2) 5Y3WGTB (4) 6005/6AQ5W (1) 6J6WA (1) 12AX7

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	2.8	60

PROCUREMENT DATA

PROCURING SERVICE: USA
DESIGN COG: USA, Sig C
SPEC &/OR DWG: MIL-G-13214A(Sig C)

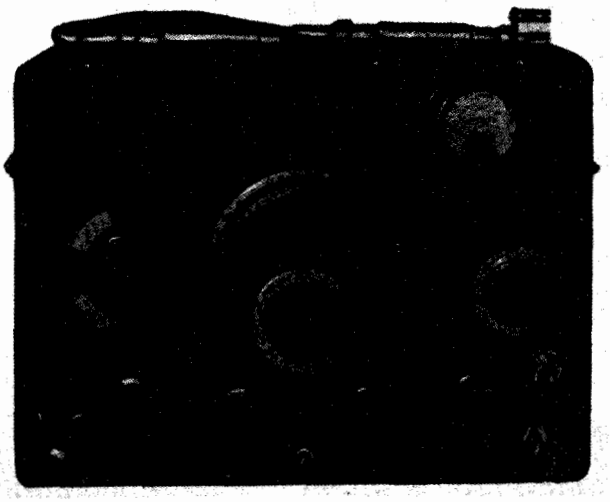
SQUARE WAVE GENERATOR TS-583B/U

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Artisan Electronics Corp.	Morristown, N. J.	3599-PHILA-52	

October 1957

Test-Signal Generating

SIGNAL GENERATOR TS-588/U



Signal Generator TS-588/U

FUNCTIONAL DESCRIPTION

The TS-588/U is a portable instrument consisting of three separate groups of circuits; a power supply, a completely shielded rf circuit, and a modulation and control circuit. It is used to determine the performance of radio receivers and other equipment at radio and supersonic frequencies. It is also used as a power source for bridges and other measuring circuits where complete shielding and a wide frequency range are required. All necessary accessories are included with the equipment.

No field changes in effect at time of preparation (4 February 1957).

RELATION TO OTHER EQUIPMENT

Similar to General Radio Model 605-B.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 5 KC to 50 mc.
OUTPUT VOLTAGE: 0.1 uv to 200 mv, continuously adjustable; 2 v at open circuit.
OUTPUT IMPEDANCE: 10, 50, and 500 ohms.
AMPLITUDE MODULATION: Metered and adjustable from 0 to 80%.
INTERNAL MODULATION: 400 cps.
EXTERNAL MODULATION: 20 cps to 15 kc, flat within 1 db.
OPERATING POWER: 105 to 125 v, 40 to 60 cps or 210 to 250 v, 40 to 60 cps.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 76
(1) 89Y
(1) 84/6Z4
(1) 955
Total Tubes: (4)

REFERENCE DATA AND LITERATURE

TM11-487H: Technical Manual for Test Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE TASSA
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-588/U	14-3/8 x 10-9/16 x 20-1/4	52

February 1960

Test-Signal Generating

SIGNAL GENERATOR TS-590/U

FUNCTIONAL DESCRIPTION

Signal Generator TS-590/U is a portable unit, with provisions for external AM and FM, used in supplying rf voltage for radio receiver tests.

No field changes in effect at time of preparation (17 July 1959).

RELATION TO OTHER EQUIPMENT

This equipment is similar to RCA 167-A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 30 W, 110 to 130 v, 50 to 60 cy ac.
FREQUENCY RANGE: 100 kc to 30 mc in six band.
VOLTAGE RANGE: 0.01 to 1 v.
MODULATION: 400 cy at 30%.
ACCURACY: ±2%.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Corporation of America, New York, New York.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5W4 (1) 6C5
(1) 6JF
Total Tubes: (3)

No Crystals used.

TYPE CLASSIFICATION
DESIGN COGNIZANCE USA, SIG C
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-590/U	6-1/2 X 9-1/4 X 13-3/4	12.5

January 1958

Test-Signal Generating

SIGNAL GENERATOR TS-608/U

FUNCTIONAL DESCRIPTION

The TS-608/U is a general purpose, laboratory type power signal generator capable of producing a calibrated output of either voltage or current over a radio frequency range of 40 to 400 megacycles. The circuit is composed of a master oscillator and tuned power amplifier. It is amplitude modulated and contains provisions for external pulse modulation.

No field changes in effect at time of preparation (18 July 1957).

RELATION TO OTHER EQUIPMENT

The TS-608/U is the Rollins Company Model No. 30 and is similar to the TS-606()/U except it covers a different frequency range.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY DATA
- RANGE: 40 to 400 mc.
- ACCURACY: ±1%.

SIGNAL OUTPUT DATA
- RANGE: 0.1 uv to 10 v.
- IMPEDANCE: 50 ohms.

MODULATION DATA
- INTERNAL
  - TYPE: AM up to 80% at 100, 400, 1000, 3000 cps.
- EXTERNAL
  - TYPE: Pulse.
  - REPETITION RATE: 40 to 16000 cps.
  - PULSE LENGTH: 2 to 100 usec.

POWER REQUIREMENTS: 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Rollins Company, Pasadena, Calif.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) OD3W	(1) 6H6
(1) 2-01C	(3) 6L6
(2) 2C39A	(1) 6SF5
(3) 5U4G	(1) 6SK7WA
(2) 6AS7G	(1) 6SN7WGTA

Total Tubes: (18)

REFERENCE DATA AND LITERATURE

Nomenclature Card for Signal Generator TS-608/U.

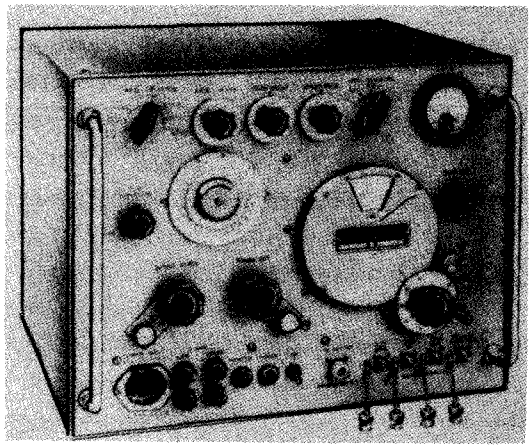
TYPE CLASSIFICATION
DESIGN COGNIZANCE USAF
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-608/U	15-1/2 x 22 x 29	

Test-Signal Generating

SIGNAL GENERATOR TS-621/U,TS-621A/U



Signal Generator TS-621/U

FUNCTIONAL DESCRIPTION

The TS-621/U and TS-621A/U Signal Generators are designed to provide CW, FM or pulse signals accurately calibrated in frequency and power output level. Modulation is obtained either by an internal modulator or by an external source of pulses or square waves. Synchronization of the leading pulse can be accomplished with an external source of sine waves or pulses of either polarity

Two video output pulses are available, one of which is delayed by a variable amount in the same manner as the RF pulse. Frequency modulation of the RF carrier, internal or external, is also available.

No field changes in effect at time of preparation (5 May 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v ±10%, 2 amps, 50 to 1000 cyc, 1 ph AC.
FREQUENCY RANGE: 3800 to 7500 mc.
TYPE OF EMISSION: CW, FM, Pulse.
OUTPUT VOLTAGE: 0.1 to 100000 uv.
POWER OUTPUT: 0.1 mw (max), −10 to −127 dbm.
OUTPUT IMPEDANCE: 52 ohms.
INTERNAL PULSE MODULATION
- REPETITION RATE: 40 to 4000 pps.
- WIDTH: 0.5 to 10 usec between the points that are 50% of the max amplitude of the initial rise.
- FINAL DECAY AND INITIAL RISE TIME: Less than 0.5 usec between 10% and 90% of the max amplitude of the initial rise.
- TIMING: 0.3 to 300 usec, but not greater than 75% of the pulse period.

EXTERNAL PULSE MODULATION
- POLARITY: Pos or neg.
- RATE: 40 to 4000 pps.
- AMPLITUDE: 15 to 70 v.
- WIDTH: 0.5 to 2500 usec.
- PULSE SEPARATION: 1 to 2500 usec.
- DECAY AND RISE: 0.1 to 1 usec.

INTERNAL FREQUENCY MODULATION
- RATE: 40 to 4000 sawtooths/sec.
- DEVIATION: 0 to ±3 mc.
- PEAK AMPLITUDE: Equal to the CW amplitude ±1 db; variation of no more than 3 db during the deviation.

OUTPUT SYNCHRONIZATION SIGNAL
- POLARITY: Pos.
- RATE: 40 to 4000 pps.
- AMPLITUDE: 25 to 100 v.
- WIDTH: 0.5 to 5 usec.
- DECAY AND RISE: Less than 1 usec.
- TIMING: 1 usec before to 1 usec after the pulse modulated RF test signal.
- RATED LOAD: 500 to 100000 ohms, 500 uuf.

EXTERNAL SYNCHRONIZATION
- SINE WAVES
  - FREQUENCY RANGE: 40 to 4000 cyc.
  - AMPLITUDE: 5 to 50 v rms.
- PULSE SIGNALS
  - REPETITION RATE: 40 to 4000 cycs.
  - PEAK AMPLITUDE: 5 to 50 v.
  - WIDTH: 5 to 5 usec.
  - RISE TIME: 0.1 to 1 usec.

ACCURACY: ±1% of dial indication in freq, ±2 db from −10 to −127.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co, Palo Alto, Calif.
Contract NOas-51-1179 (TS-621/U).
Contract N383-32823A (TS-621A/U).

TUBE AND/OR CRYSTAL COMPLEMENT

(5) OA2	(1) OA3
(1) 2D21	(3) 5R4GWY
(2) 6AS7	(3) 6AU6
(2) 12AT7	(3) 5726/6AL5
(1) 5763	(7) 5814/12AU7
(1) 6236	

Total Tubes: (29)
No Crystals used.

REFERENCE DATA AND LITERATURE

AN16-30URM-52-1: Handbook Operation Instructions for Signal Generator AN/URM-52.
Nomenclature Card for Signal Generator TS-621A/U.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUAER
PROCUREMENT COGNIZANCE	Spec MIL-G-7141
STOCK NO.	
R.D.B. IDENT. NO.	

Test-Signal Generating

TS-621/U,TS-621A/U SIGNAL GENERATOR

EQUIPMENT SUPPLIED DATA

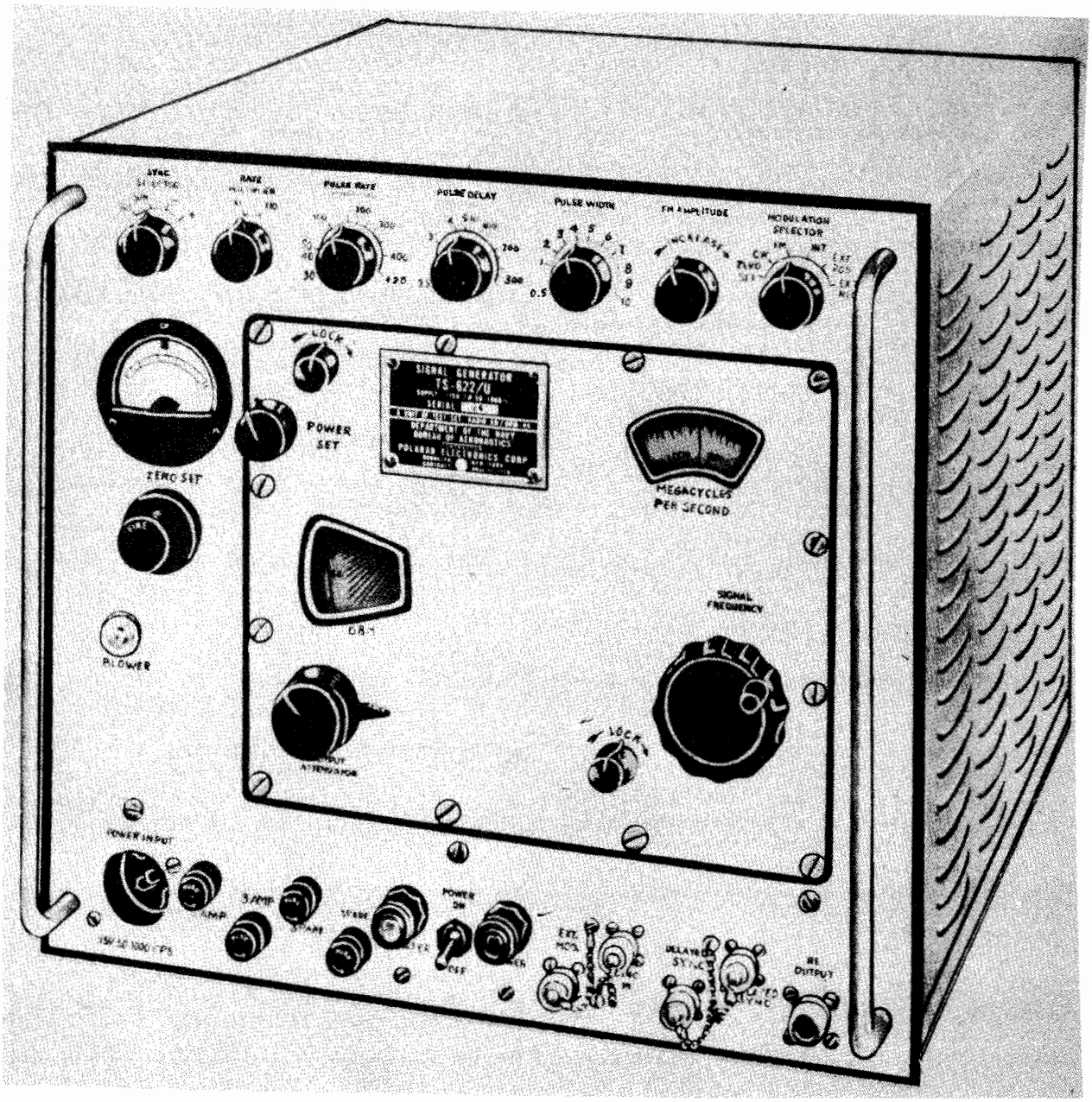
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-621/U	14 X 17 X 17-5/8	
1	Signal Generator TS-621A/U	13-3/4 X 17-1/4 X 17-5/8	

April 1958

Test-Signal Generating

SIGNAL GENERATOR

TS-622/U



Signal Generator TS-622/U

FUNCTIONAL DESCRIPTION

The TS-622/U is a portable signal generator used in testing and maintaining aircraft radio and radar receivers, as well as other electronic equipment.

No field changes in effect at time of preparation (2 May 1958).

RELATION TO OTHER EQUIPMENT

This equipment is part of Radio Test Set AN/URM-44, this equipment similar to Microwave Generator, Polarad Model MSG-4.

Test-Signal Generating

TS-622/U SIGNAL GENERATOR

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 103.5 to 126.5 v, 50 to 1000 cps, 1 ph.
FREQUENCY RANGE: 7000 to 10750 mc.
TYPE OF EMISSION: CW, AM (Pulse Modulated), FM.
OUTPUT VOLTAGE: 0.1 to 100000 uv.
POWER OUTPUT: 0.1 mw (Max), −10 to −127 dbm ±1 db.
OUTPUT IMPEDANCE: 52 ohms.
INTERNAL PULSE MODULATION
- REPETITION RATE: 40 to 4000 pps.
- WIDTH: 0.5 to 10 usec between the points that are 50% of the max amplitude of the initial rise.
- FINAL DECAY AND INITIAL RISE TIME: Less than 0.5 usec between 10% and 90% of full amplitude.
- TIMING: 3 to 300 usec, but not greater than 75% of the pulse period.

EXTERNAL PULSE MODULATION
- POLARITY: Pos or Neg.
- RATE: 40 to 4000 pps.
- AMPLITUDE: 15 to 70 v.
- WIDTH: 0.5 to 2500 usec.
- PULSE SEPARATION: 1 to 2500 usec.
- DECAY AND RISE: 0.1 and 1 usec as measured between 10% and 90% of full amplitude.

INTERNAL FREQUENCY MODULATION
- RATE: 40 to 4000 sawtooths/sec.
- DEVIATION: 0 to ±3 mc.
- PEAK AMPLITUDE: Equal to the CW amplitude ±1 db; (variation of no more than 3 db during the deviation).

OUTPUT SYNCHRONIZING SIGNAL
- POLARITY: Pos.
- RATE: 40 to 4000 pps.
- AMPLITUDE: 25 to 100 v.
- WIDTH: 0.5 to 5 usec.
- DECAY AND RISE: Less than 1 usec.
- TIMING: 1 usec before to 1 usec after the PM test signal.
- RATED LOAD: 50 to 100,000 ohms, 500 uuf.

EXTERNAL SYNCHRONIZATION
- SINE WAVES
  - FREQUENCY RANGE: 40 to 4000 cps.
  - AMPLITUDE: 5 to 50 v rms.
- PULSE SIGNALS
  - REPETITION RATE: 40 to 4000 cps.
  - PEAK AMPLITUDE: 5 to 50 v.
  - WIDTH: 0.5 to 5 usec.
  - RISE: 0.1 to 1 usec.

ACCURACY: ±1% of dial indication in freq.

MANUFACTURER'S OR CONTRACTOR'S DATA

Polaroid Electronics Corp, Brooklyn, N.Y.
Contract NOas51-1179.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OB2	(4) 5R4WGY
(3) 6AK6	(1) 6AS7G
(5) 6AU6	(2) 6X4W
(13) 12AT7	(3) 807
(5) 5651	(1) 5721/6390

Total Tubes: (39)

(9) 1N69
Total Crystals: (9)

REFERENCE DATA AND LITERATURE

AN 16-30URM44-1 Handbook Operation Instructions for Radio Test Set AN/URM-44.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUAER
PROCUREMENT COGNIZANCE MIL-G-7142A(Aer)
STOCK NO.
R.D.B. IDENT. NO.

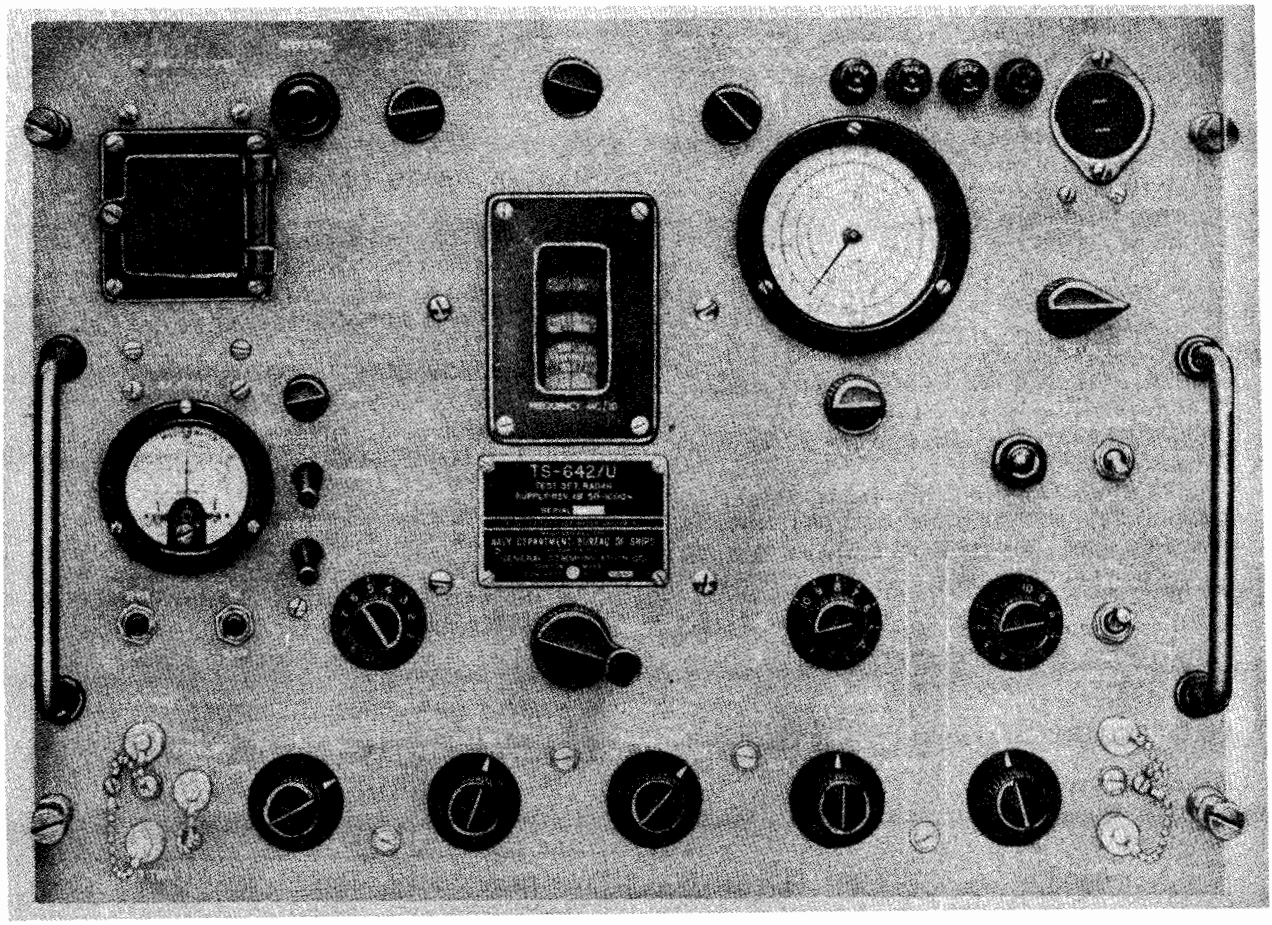
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-622/U	15 X 17-1/4 X 19-1/2	100

April 1958

Test-Signal Generating

TEST SET TS-642/U



Test Set, Radar TS-642/U

FUNCTIONAL DESCRIPTION

The TS-642/U is a portable unit providing unmodulated, pulse modulated, and frequency modulated signals for use in testing radar sets.

No field changes in effect at time of preparation (2 May 1958).

RELATION TO OTHER EQUIPMENT

The equipment is part of Radar Test Set AN/UPM-56.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER METER

FREQUENCY RANGE: 8500 to 9600 mc.
POWER RANGE: +1 to +30 dbm.
ACCURACY: ±1-1/2 db.

FREQUENCY METER

FREQUENCY RANGE: 8500 to 9600 mc.
ACCURACY: ±1 mc.
CALIBRATION POINT: 9310 mc ±1/2 mc.

SIGNAL GENERATOR

FREQUENCY RANGE: 8500 to 96 mc.
POWER: 0 to -36, -36 to -71, -71 to -105 dbm.
STABILITY: Less than 1 mc frequency drift in a 60 min. interval.
OUTPUT SIGNAL: CW, FM, or Pulse modulated.
CW: Can be set to any condition within the above specified limits of frequency range and power.
PULSE MODULATION
FIXED DURATION: 1.0 and 2.35 +0.1 usec.

TS-642/U TEST SET

VARIABLE DURATION: 0.2 to 1.0 usec, 1.0 to 10 usec with indicated accuracy of 10%
REPETITION RATE: 100 to 1000, 1000 to 10000, 10,000 to 100,000 and High of 100000 to 300000 pps at an indicated accuracy of 10%.
SQUARE WAVE OUTPUT: 1000 pps ±20%.
RISE TIME: 0.1 usec.
DECAY TIME: 0.1 usec.
DELAY: 1 to 10 usec, 10 to 100 usec, 100 to 1000 usec, each with an indicated accuracy of 10%.

FREQUENCY MODULATION
SWEEP RATE: 0.02 to cover 25 mc/usec, continuously variable.
DELAY: Less than 1 usec from RF or video trigger.
FREQUENCY EXCURSION: At least 25 mc.
SWEEPS PER SECOND: 100 to 1000, 1000 to 100,000, 100,000 and about 300,000 sweeps per second.

INPUT TRIGGER DATA
TYPE: Video or RF trigge.
DURATION: 1 usec (min).
RISE TIME: 2 usec (max).
PEAK POWER: 10 v or 5 W (min).
PULSE RECURRENCE FREQUENCY: 100 to 50,000 pps.
INPUT IMPEDANCE
RF: 52 ohms.
VIDEO: 75 ohms.

TRIGGER GENERATOR
POLARITY: Pos or neg.
DURATION: 0.5 to 5 usec.
RISE TIME: 0.1 usec (max).
DECAY TIME: 0.1 usec (max).
PEAK VOLTS: 25 to 50 v at 75 ohms.
PULSE REPETITION RAGE: 100 to 50000 pps.

POWER SOURCE REQUIRED: 115 v ±10%, 50 to 1000 cps, 1 ph, 350 W (50 W standby).

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Co., Boston, Mass.
Contract NObsr 43172 dated 28 January 1949.
Contract NObsr 52261 dated 19 February 1951.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) OA2	(8) 12AT7
(1) 2K25	(1) 5687
(1) 5814	(2) 6AN5
(2) 6AH6	(9) 6AQ5
(3) 6AU6	(2) 6AX4GT
(4) 6X4W	

Total Tubes: (36)

(12) CK705	(1) 1N23B

Total Crystals: (13)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92064: Technical Manual for Radar Test Set AN/UPM-56.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	Spec MIL-T-15477
STOCK NO.	(SHIPS)
R.D.B. IDENT. NO.	

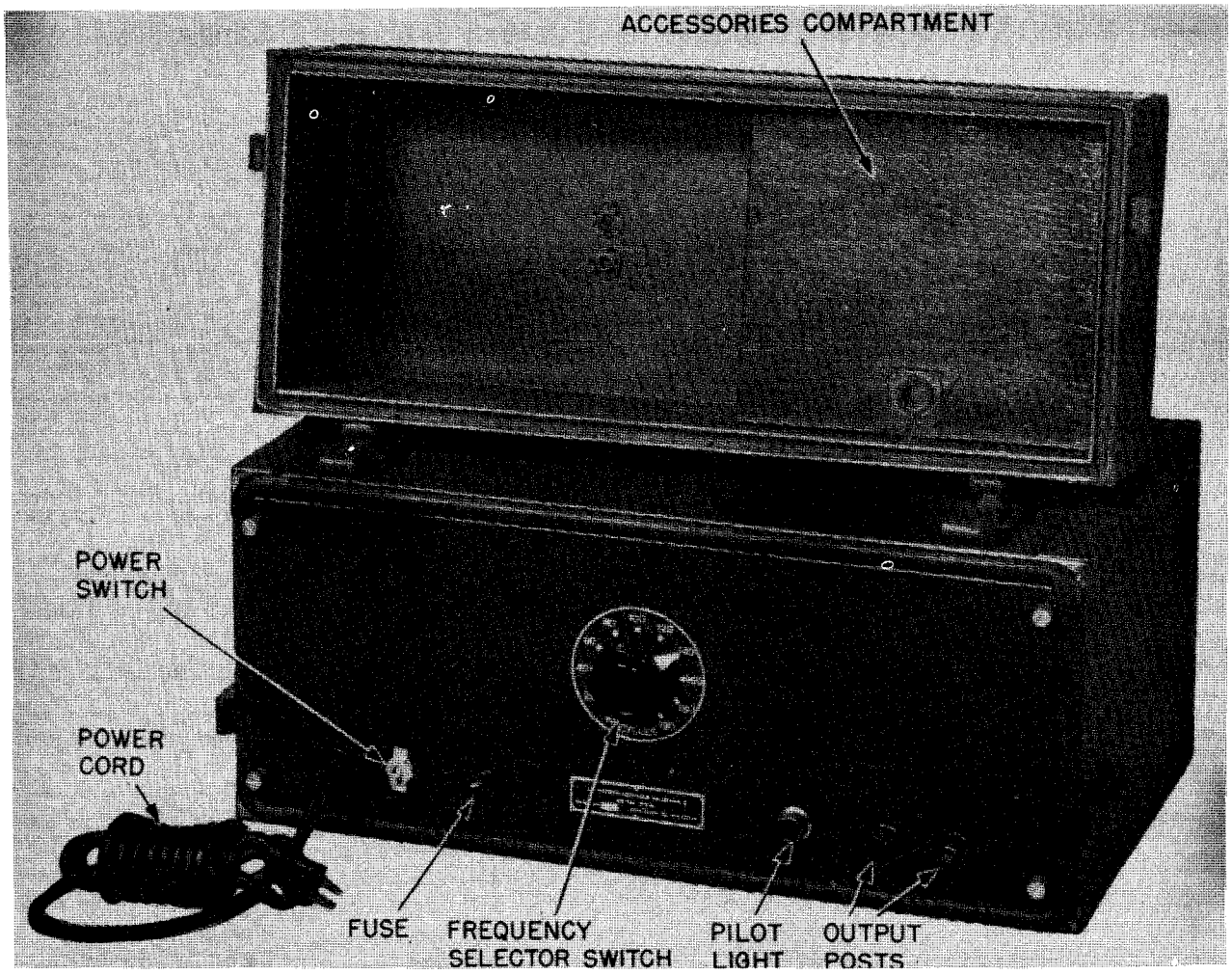
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator TS-642/U	14-11/16 X 20-13/16 X 21-29/32	78

August 1957

Test-Signal Generating

FREQUENCY STANDARD TS-65A/FMQ-1



Frequency Standard TS-65A/FMQ-1

FUNCTIONAL DESCRIPTION

The TS-65A/FMQ-1 is used to align and calibrate Frequency Meter TS-29/FMQ-1 and Radiosonde Recorder RD-3/FMQ-1. It is designed to generate standard audio frequencies over the 10 to 190 cycles per second range by means of three electrically driven tuning forks, which are temperature compensated and pressure sealed. It is a portable, completely self-contained unit that is operated while in its traveling case.

No field changes in effect at time of preparation (6 February 1957).

RELATION TO OTHER EQUIPMENT

Interchangeable with TS-65/FMQ-1 but has additional tuning fork.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT FREQUENCIES: 10, 20, 40, 60, 80, 100, 120, 140, 160, 180, 190 cps.
OUTPUT: 30 v min at any frequency.
ACCURACY: 1 part in 20000 between 0 to ±40 deg C.
POWER REQUIREMENTS: 115 v, 50 to 60 cps, single ph, 40 w.

Test-Signal Generating

August 1957

TS-65A/FMQ-1 FREQUENCY STANDARD

MANUFACTURER'S OR CONTRACTOR'S DATA

American Times Products, Inc., New York, N.Y.

REFERENCE DATA AND LITERATURE

TM11-2602A: Technical Manual for Frequency Standard TS-65A/FMQ-1.

TUBE AND/OR CRYSTAL COMPLEMENT

(5) 6SN7
(3) 6SL7
(1) OD3/VR-150
(1) 6X5

Total Tubes: (10)

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Frequency Standard TS-65A/FMQ-1	5.3	14-3/8 x 22-7/8 x 27-7/8	110

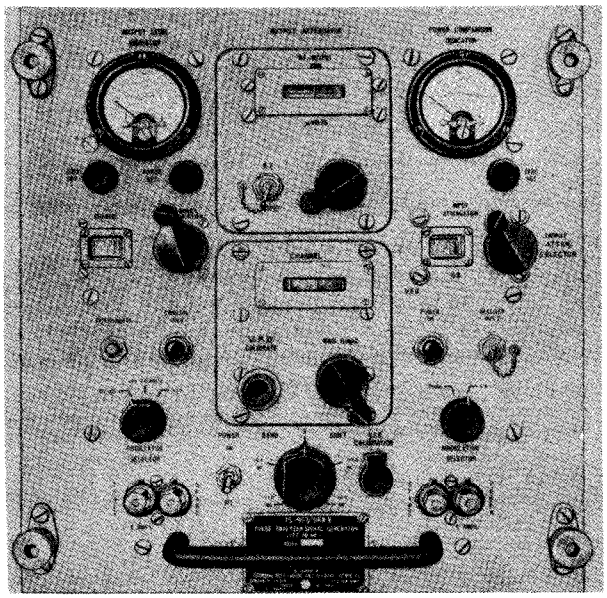
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Frequency Standard TS-65A/FMQ-1 Including: (1) Cord CS-268/FMQ-1 (1) Set of Equipment Spares	8 x 15 x 19	40

April 1959

PULSE ANALYZER SIGNAL GENERATOR

Test-Signal Generating
TS-890/URN-3 and TS-890A/URN-3



Pulse Analyzer-Signal Generator TS-890/URN-3

FUNCTIONAL DESCRIPTION

The TS-890/URN-3 and TS-890A/URN-3 are units of test equipment to be used with Radio Set AN/URN-3. Together with three (3) other companion units, it is to be mounted in Electrical Equipment Cabinet CY-1373/URN-3, the basic inclosure for Power Supply Test Group OA-500/URN-3. An additional Companion unit (SA-420/URN-3) mounts outside of this cabinet. The TS-890/URN-3 and TS-890A/URN-3 permits rapid Radio Frequency (R.F.) pulse spectrum checks of the AN/URN-3 and measures the sensitivity and selectivity of the AN/URN-3.

The TS-890/URN-3 and TS-890' RN-3 are electrically and mechanically interchangeable, but differ in frequency range coverage. The TS-890/URN-3 has a frequency range of 1023 megacycles to 1152 megacycles (mc). The TS-890A/URN-3 has a frequency range of 1025 megacycles to 1150 megacycles (mc).

No field changes in effect at time of preparation (9 February 1959).

RELATION TO OTHER EQUIPMENT

The TS-890/URN-3 and TS-890A/URN-3 are designed to be used with but not part of the AN/GRN-9,9A and AN/SRN-6.

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Radio Set AN/URN-3 Including: (1) Pulse-Sweep Generator SG-121A/URN-3, (1) Power Meter Pulse Counter TS-891/URN-3, (1) Oscilloscope OS-54/URN-3, (1) Switch Test Adapter SA-420/URN-3, (1) Interconnecting Harness FTR Dwg J-RX339418, (1) Alignment Tool FTL Dwg A2053110.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

HEAT DISSIPATION: 320 watts.
TYPE OF EMISSION: CW(A1) or pulse (PO).
TYPE OF FREQUENCY CONTROL: Crystal and stabilized variable frequency oscillators.
SIGNAL GENERATOR MODULATION PULSE CHARACTERISTICS
  PULSE REPETITION FREQUENCY
  VOLTAGE: 250 v.
  IMPEDANCE: 650 ohms.
SIGNAL GENERATOR POWER OUTPUT
  CONTINUOUS WAVE: 0.5 v.
  PEAK PULSE: 0.5 v.
PULSE ANALYZER INPUT POWER RANGE: 1 mw at 3600 pulse pairs per second.
PULSE ANALYZER SPECTRAL ACCEPTANCE CHARACTERISTICS
  ±0.8 MC OFF CHANNEL: 35 db down.
  ±1.0 MC OFF CHANNEL: 40 db down.
FREQUENCY RANGE OF COMPLETE RADIO SET AN/ARN-21
  SIGNAL GENERATOR OUTPUT: 1025 to 1150 mc, 1023 to 1152 mc.
  PULSE ANALYZER INPUT: 962 to 1024 mc and 1151 to 1213 mc.
  63 MEGACYCLES INTERMEDIATE FREQUENCY UNIT: 63 mc.
  5 MEGACYCLE INTERMEDIATE FREQUENCY UNIT: 8.5 mc.

Test-Signal Generating

TS-890/URN-3 and TS-890A/URN-3

PULSE ANALYZER SIGNAL GENERATOR

REFERENCE OSCILLATOR: 39.518518 mc to 41.037037.

OPERATING POWER REQUIREMENT: 120 v ±10%, 60 cps ±2%, single ph, 320 W; 90% power factor.

MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone and Radio Co., Clifton, N.J.
Contract NObsr-64767 (TS-890/URN-3), dated 25 July 1956.
Contract NObsr-75066 (TS-890A/URN-3), dated 13 December 1957.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OB2WA	(3) 2C39A
(2) 5R4WGB	(1) 6AN5
(10) 5654	(3) 5656
(6) 5670	(1) 5725
(1) 5751	(1) 6080WA
(1) 6336	

Total Tubes: (30)

No Crystals Used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92819: Technical Manual for Pulse Analyzer Signal Generator TS-890/URN-3.
Nomenclature Card for Pulse Analyzer Signal Generator TS-890A/URN-3.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	MIL-T-18428 for
STOCK NO.	TS-890/URN-3 and MIL-R-19851 (SHIPS) FOR
R.D.B. IDENT. NO. 4.3	TS-890A/URN-3

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Pulse Analyzer Signal Generator TS-890/URN-3 or TS-890A/URN-3	10.3	22-1/2 X 24 X 33	140
1	Set of Equipment Spares	3.3	16 X 18 X 20	65

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Pulse Analyzer Signal Generator TS-890/URN-3 or TS-890A/URN-3 Incl:	13-1/2 X 14-5/8 X 24	95
1	Reference Oscillator		
1	42 MC Oscillator		
1	63 MC I.F. Unit		
1	8.5 MC I.F. Unit		
1	Frequency Multiplier		
1	Variable Frequency Oscillator		
1	Receiver Input Attenuator		
1	Output Attenuator		
2	Technical Manual NAVSHIPS 92819	1/2 X 9 X 11-1/2	(Each) 2
1	Set of Equipment Spares		

14 February 1963 — PULSE ANALYZER-SIGNAL GENERATOR TS-890B/URN-3
Cog Service: USN FSN: F5820-448-0302 — Functional Class: 4

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Federal Telephone and Radio Co., (21964).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Pulse Analyzer-Signal Generator TS-890B/U is a unit of test equipment to be used with Radio Sets AN/SRN-6, AN/GRN-9, -9A, -9B and -9C. Together with three other companion units, it is to be mounted in Power Supply Assembly OA-1535/SRN-6, OA-1536/GRN-9, OA-1537/GRN-9A, OA-1804A/GRN-9B or OA-1916/GRN-9C.

No field changes in effect at time of preparation (10 January 1963).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE
- SIGNAL GENERATOR OUTPUT: 1025 to 1150 mc to cover the 126 beacon channels.
- PULSE ANALYZER INPUT: 962 to 1024 mc and 1151 to 1213 mc.

PULSE ANALYZER SPECTRAL ACCEPTANCE CHARACTERISTICS
- PORM 0.8 MC OFF CHANNEL: 60 db down.
- PORM 2.0 MC OFF CHANNEL: 65 db down.

TYPE OF FREQUENCY CONTROL: Crystal and stabilized variable frequency oscillators.
TYPE OF EMISSION: CW (A1) or pulse (PO).
SIGNAL GENERATOR MODULATION PULSE CHARACTERISTICS
- PRF: 40 to 5000 pulse pairs per sec.
- VOLTAGE AND SOURCE IMPEDANCE: 250 v, 650 ohms.

SIGNAL GENERATOR POWER OUTPUT
- CW: 0.5 v.
- PEAK PULSE: 0.5 v.

PULSE ANALYZER INPUT POWER RANGE: 1 mw at 3600 pulse pairs per sec.
POWER REQUIREMENTS: 120 v porm 10%, 60 cps porm 2%, single ph.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Pulse Analyzer-Signal Generator TS-890/URN-3		13-1/2 x 14-5/8 x 24	95
2	Technical Manual		1/2 x 9 x 11-1/2	2
1	Set Maintenance Parts			

TS-890B/URN-3 PULSE ANALYZER-SIGNAL GENERATOR

REFERENCE DATA AND LITERATURE:

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 0B2WA (3) 2C39A (2) 5R4WGB (1) 6AN5WA (10) 5654 (3) 5656 (6) 5670 (1) 5751 (1) 6080WA (1) 6336

CRYSTALS: (6) CR-23/U (1) CR-32/U

SEMI-CONDUCTORS: (1) 1N23B (1) 1N25 (1) 1N198

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	10.3	140
1	3.3	65

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-R-19851(SHIPS) and Amend 2

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Federal Telephone and Radio Co.	Clifton, N. J.	NObsr-81169	$3,200.25

March 1957

SIGNAL GENERATOR 1420

FUNCTIONAL DESCRIPTION

The Model 1420 (Communication Measurements Lab) is designed as a source of test power having a wide frequency range, excellent voltage regulation, good wave-form, and a power output capability of 300 watts.

While the calibration accuracy is quite good, it is not intended for use as a precision instrument for determining frequency. If desired, this generator may be operated as an ordinary audio power amplifier without automatic voltage regulation.

No field changes in effect at time of preparation (2 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 50 to 6000 cps in a 4 bands.
CALIBRATION ACCURACY: ±5%.
FREQUENCY STABILITY: 2% max over 24 hr period.
OUTPUT DATA
MAX OUTPUT: 300 W.
MAX CONTINUOUS DUTY OUTPUT: 250 W.
NOMINAL VOLTAGES: 80, 120, 135, 215, 255 270 v rms.
HARMONIC DISTORTION (TOTAL): 5% max at 250 W.
POWER REQUIREMENTS: 117 v, 50 to 60 cps, single ph, 1200 W at full load power.

MANUFACTURER'S OR CONTRACTOR'S DATA

Communication Measurements Laboratory, Inc., New York, N.Y.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 811	(1) 6F6
(3) 6SJ7	(4) 6L6-G
(2) 6H6	(1) 6J5
(1) VR-150-30	(1) VR-105-30
(2) 866-A	(1) 5U4-G

Total Tubes: (20)

REFERENCE DATA AND LITERATURE

Technical Manual for Model 1420 Variable Frequency Electronic Generator.

TYPE CLASSIFICATION
DESIGN COGNIZANCE COMMERCIAL
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator, Communication Measurements Laboratory Inc. Model 1420	15 X 21 X 36-3/4	

Test-Signal Generating

SIGNAL GENERATOR 1632

FUNCTIONAL DESCRIPTION

The Model 1632 (Triplett) signal generator contains an R.F. Oscillator calibrated in 10 fundamental bands, covering a frequency of 100 KC to 120 mc. It also has a buffer amplifier and modulator stage, a metering system, a crystal oscillator stage and a self contained Heterodyne detector. The wide frequency range of this unit, makes possible its use not only for broadcast and standard short wave, but also the newly allotted frequency modulated and television channels. The heterodyne detector allows direct calibration of any external signal within the frequency range of the R.F. Oscillator, or direct calibration of the RF Oscillator against the harmonics of the crystal oscillator stage. The voltage output alternator and metering system are calibrated in output units which are closely related, but not absolute microvolts. The high output range provides a maximum output of 0.3 volts direct reading, on the first seven bands with somewhat lower output on the last three bands. Output voltage is available at the end of a coaxial cable with a terminating switch providing three selections of output.

No field changes in effect at time of preparation (15 November 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 kc to 120 mc in 10 ranges.

BAND DATA

BAND A: 100 to 200 kc.
BAND B: 200 to 400 kc.
BAND C: 400 to 820 kc.
BAND D: 820 to 1700 kc.
BAND E: 1.7 to 3.5 mc.
BAND F: 3.5 to 7 mc.
BAND G: 7 to 14.5 mc.
BAND H: 14.5 to 27.5 mc.
BAND I: 27.5 to 55 mc.
BAND J: 55 to 120 mc.

MODULATION DATA

FREQUENCY: 400 cps internal, any frequency up to 5 mc external.
DEGREE: 30% internal, any desired percentage external depending upon value of applied voltage, 1.4 peak volts will give approx 30% modulation.

OUTPUT IMPEDANCE: 500 ohms for high RF Output.

CRYSTAL FREQUENCY: 1000 kc.

MANUFACTURER'S OR CONTRACTOR'S DATA

Triplett Electrical Instrument Co. Bluffton, Ohio.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6J5
(1) 6F8G
(1) VR-150
(1) 6SA7
(1) 6F7
(1) 80

Total Tubes: (6)

(1) 1000Kc

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

TM-11-328, Technical Manual for Signal Generator Triplett Model 1632.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	TASSA
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator Model 1632 (Triplett)		
1	Power Cable Assembly		
1	Coaxial Cable	5 ft.	

June 1957 Test-Signal Generating

CRYSTAL-CONTROLLED MICROVOLT SIGNAL GENERATOR 191X

FUNCTIONAL DESCRIPTION

The 191X (Hickok) is an accurate signal generator for use in alignment of radio and television receivers, selectivity and sensitivity measurements in receivers and AF amplifiers, bridge measurements, and general testing of equipment requiring an AF or RF Signal.

No field changes in effect at time of preparation (17 October 1956).

RELATION TO OTHER EQUIPMENT

The 191X is similar to RF Signal Generator LAK.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- VARIABLE RF OSCILLATOR: 125 kc to 120 mc, with harmonics up to 240 mc.
- CRYSTAL OSCILLATOR: 100 kc and 1000 kc with harmonics of 15 mc and 10 mc.
- AF OSCILLATOR: 400 cps.

MODULATION: Fixed 30% at 400 cps; variable, 0 to 70% at 400 cps; external.

OUTPUT
- AF: 0 to 12 v max.
- RF: 0 to 100,000 uv.

ACCURACY
- VARIABLE RF OSCILLATOR: 1%.
- CRYSTAL OSCILLATOR: 0.01%.
- AF OSCILLATOR: 10%.

OUTPUT IMPEDANCES: 5.6, 20, and 100 ohms.

METER RANGES: −10 to +6, +6 to +22, +22 to +38 db.

OPERATING POWER: 115 v, 50 to 70 cps, single ph, 20 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hickok Electrical Instrument Co.; Cleveland, Ohio.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SN7	(1) 6C4
(1) 6X5	(1) OC3

Total Tubes: (5)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,155 VOL I: Technical Manual for Electronic Teat Equipment.

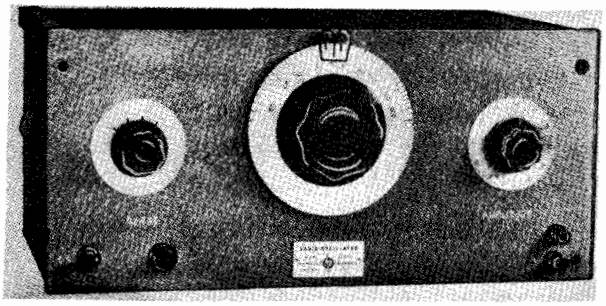
TYPE CLASSIFICATION	
DESIGN COGNIZANCE	COMMERCIAL
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Crystal Controlled Microvolt Signal Generator 191X	7 X 13 X 16	33.0
1	Output Cable	42 lg	
1	Meter Lead	42 lg	

Test-Signal Generating

AUDIO OSCILLATOR 200A (HEWLETT PACKARD) 200AR (HEWLETT PACKARD)



Audio Oscillator 200A

FUNCTIONAL DESCRIPTION

The Hewlett-Packard Model 200A or 200AR is designed for general purpose use.

The 200A is a cabinet mounted oscillator while the 200AR is a rack mounted oscillator.

No field changes in effect at time of preparation (18 June 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 35 to 35,000 cycles, 3 bands.
CALIBRATION ACCURACY: ±2%.
FREQUENCY RESPONSE: ±1 db from 20 to 15,000 cycles.
FREQUENCY STABILITY: ±2%.
POWER OUTPUT: 1 W.
DISTORTION: Less than 1% of rated output from 35 to 15,000 cps.
HUM: Less than 0.1% of max output voltage.
LOAD IMPEDANCE: 500 ohms (resistive).
OPERATING POWER: 115 v, 50 to 60 cps, 1 ph, 75 W.

MOUNTING
200A: Cabinet.
200AR: Rack.

MANUFACTURER'S OR CONTRACTOR'S DATA

Hewlett-Packard Co, Palo Alto, Calif.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6J7 (1) 6F6 or 6K6
(1) 6F5 (1) 6V6 (1) 5V4
Total Tubes: (5)
No Crystals used.

REFERENCE DATA AND LITERATURE

Instructions and Operating Manual for Audio Oscillator Model 200A.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Oscillator Model 200A or	7-1/4 X 10-5/8 X 15-1/4	26-1/2
1	Audio Oscillator Model 200AR	7 X 10-3/4 X 19	26-1/2

June 1957

Teat-Signal Generating

SIGNAL GENERATOR 60ACG

FUNCTIONAL DESCRIPTION

The 60ACG is an RF signal generator in the range from 22 to 38 megacycles. It is used for aligning the intermediate stages of Radar Receiver 46ADE used in Radar Equipment Model SP-1M. The instrument is portable and contained in a wooden case.

No field changes in effect at time of preparation (26 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 22 to 38 mc in one band.
POWER OUTPUT: 0.5 v max.
OUTPUT IMPEDANCE: 0 to 25000 ohms AF, 0 to 900 ohms RF.
MODULATION
TYPE: Internal, AM.
FREQUENCY: 1000 cps.
DEGREE: 70 to 80%.
POWER SOURCE: 110 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Browning Labs Inc, Contract NXss-29462 and NOrd-5232, Model No. A-30.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900500: Technical Manual for Navy Model SP-1M Radar Equipment.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

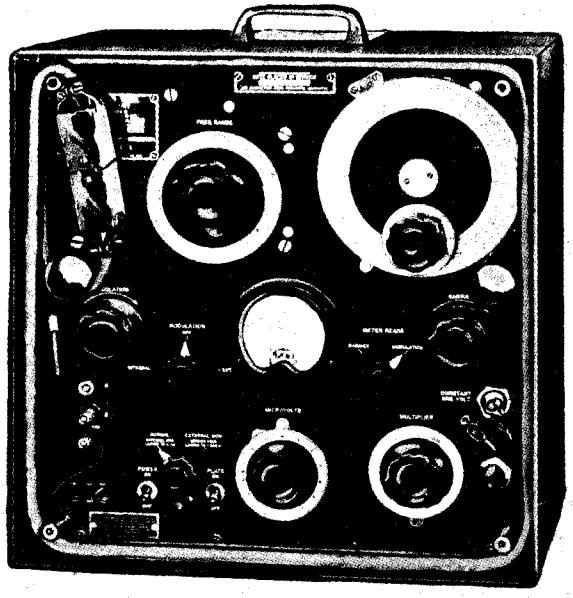
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator 60ACG	9 X 9-1/2 X 17	

March 1957

Test-Signal Generating

RADIO-FREQUENCY STANDARD SIGNAL-OSCILLATOR UNIT

60006



Radio-Frequency Standard Signal Oscillator

FUNCTIONAL DESCRIPTION

The 60006 is a device for producing radio frequency oscillations either modulated or unmodulated, covering a wide frequency band and is so arranged and shielded that a continuously variable calibrated output voltage is obtainable across it's output leads only. It is designed and intended primarily for use in the testing, servicing and alignment of all types of radio receiving equipments by dynamic methods (as contradistinct from meter measurements of DC voltage and currents).

The instrument is portable and designed for desk or table mounting.

No field changes in effect at time of preparation (26 September 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Rectifier Power Unit NT-20080 or batteries (1) Dummy Antenna Unit NT-66017 (1) 10:1. ATTENUATOR UNIT NT-63710 and interconnecting cables.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 9.5 kc to 50 mc, in 8 bands.

BAND DATA

- BAND A: 9.5 to 30 kc.
- BAND B: 30 to 95 kc.
- BAND C: 95 to 300 kc.
- BAND D: 300 to 950 kc.
- BAND E: .95 to 3 mc.
- BAND F: 3 to 9.5.
- BAND G: 9.5 to 30 mc.
- BAND H: 30 to 50 mc.

ACCURACY: ±1%.

SIGNAL OUTPUT: 0.5 uv to 1 v.

OUTPUT IMPEDANCE: 90 ohms.

MODULATION DATA

- TYPE: Internal, A.M.
- FREQUENCY: 1000 cps.
- DEGREE: 0 to 50%

POWER SOURCE: 115 v, 60 cps, single ph, 42 W, or 200 v at 40 ma and 6 v at 1.7 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Co. Cambridge Mass.
Contract Nos 72178.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) NT-38076	(1) NT-38089
(1) NT-38076	(1) NT-38184

Total Tubes: (5)

REFERENCE DATA AND LITERATURE

Technical Manual for Radio Frequency Standard Signal Generator Equipment Model LP.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

Test-Signal Generating

March 1957

60006 RADIO-FREQUENCY STANDARD SIGNAL-OSCILLATOR UNIT

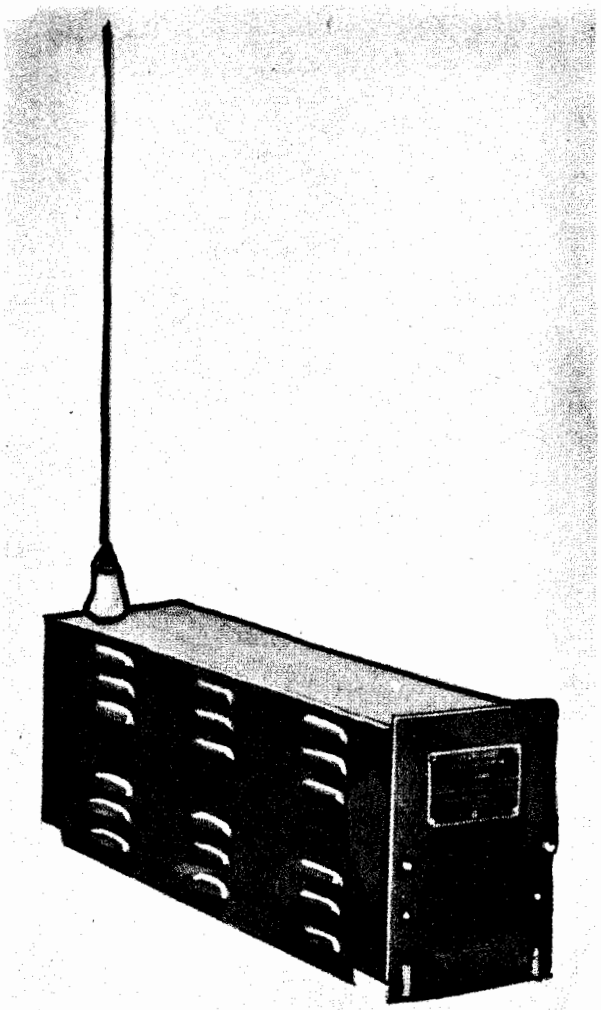
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	R.F. Standard Signal Oscillator Unit	11-1/2 X 15 X 17	55

March 1957

SIGNAL GENERATORS

60069,60069-A



Signal Generators 60069, 60069-A

FUNCTIONAL DESCRIPTION

The 60069 and 60069-A are designed to produce RF pulses which simulate conditions of transmission utilized in the Loran System. The simulated signals are intended primarily for the training of Loran operators, and maintenance personnel, but are also useful for test purposes. These signal generators are used in conjunction with Loran Receiver Indicators LRN-1A, DAS-1, DAS-3, and DAS-4 as timing sources, but may be used with other receiver-indicators by slight modification in external wiring.

Data on this sheet reflects the following field changes; F.C. No. 1 for 60069 (27 Aug 1956).

RELATION TO OTHER EQUIPMENT

Operationally the 60069 and 60069-A are identical, and they are electrically and mechanically interchangeable.

Equipment Required but not Supplied: A Loran Receiver-Indicator, (1) Interconnecting Cable for 60069 only, when used with other than LRN-1A, DAS-1, DAS-3, or DAS-4.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE
- NT-60069: 1750 to 2050 kc.
- NT-60069-A: 1700 to 2000 kc.

FREQUENCY CONTROL: Self excited oscillator, screwdriver adjusted.

TYPE OF EMISSION: Pulse.

PULSE DURATION: 40 usec.(which simulate the signals from a pair of Loran transmitting stations.

FREQUENCY STABILITY
- NT-60069: Less than ±5 kc variation in frequency for ±10 v variation in 115 v line or for temperature variations from -15 to +50°C.
- NT-60069A: Less than ±5 kc variation in frequency for ±10 v variation in 115 v line; ±20 v variation in frequency for ±10 v in 230 v line or for temperature variations from -15 to +50°C.

POWER REQUIREMENTS
- NT-60069: 115 v, 50 to 60 cps, single ph, 0.6 amp 60 W.
- NT-60069-A: 115 v, 0.6 amp or 230 v, 0.3 amp, 50 to 60 cps, single ph, 60 W.

ANTENNA TYPE: 3 section whip.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Mfg. Engineers, Inc., Peoria, Ill.
Contract NXss-32199 (NT-60069).
Contract NXsr-67982, dated 30 June 1944 (NT-60069-A).
Approximate Cost: $500.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6SJ7	(1) 6SL7GT	(1) 6SN7GT
(3) 6SK7	(1) 6V6GT	(1) 5Y3GT

Total Tubes: (8)

60069,60069-A SIGNAL GENERATORS

March 1957

REFERENCE DATA AND LITERATURE

SHIPS 369: Technical Manual for Signal Generator Navy Type 60069 and 60069-A.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

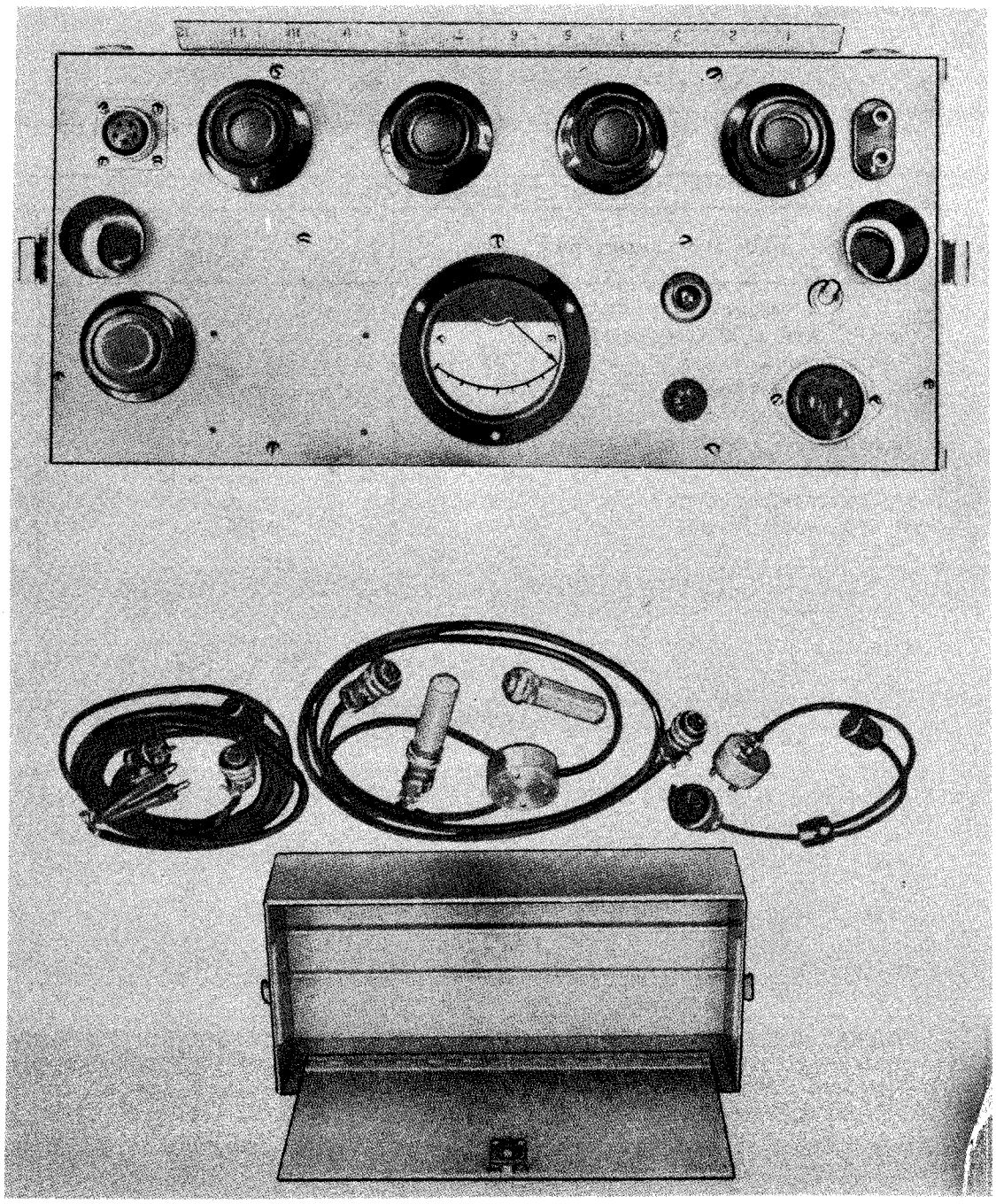
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
	NT-60069		
1	Signal Generator NT-60069 consisting of:	5-1/8 X 7-1/2 X 21	16
1	Whip Antenna	48 in. lg	
1	Set of Equipment Spares	6 X 12 X 12	
	NT-60069-A		
1	Signal Generator NT-60069-A consisting of:	5-1/8 X 7-1/2 X 20	28.25
	Whip Antenna	48 in. lg (extended).	
1	Interconnecting Cable		
1	Set of Equipment Spares	6-1/4 X 13-1/2 X 13-1/2	30

April 1958

Test-Signal Generating

NOISE GENERATOR

60140



Noise Generator 60140

FUNCTIONAL DESCRIPTION

The Navy Type 60140 is a portable equipment designed to supply adjustable and accurately known noise signals primarily for use in testing the right-left indicator section of the Navy Model JT Sonar Equipment.

It can be used for making tests of over-

60140 NOISE GENERATOR

all gain of the right-left indicator channels, overall phase-actuated sensitivity,, overall audio-amplifier sensitivity of the sum and difference channels, and automatic volume control system. It can also be used for testing the Navy Models JP-1, JP-2, and JP-3 amplifier and supersonic converter which form a part of the Model JT system.

It can be used for making frequency response measurements by using a separate audio oscillator interconnected to the input level calibration meter and attenuation system of the test set.

No field changes in effect at time of preparation (7 May 1958).

RELATION TO OTHER EQUIPMENT

The NT-60140 is similar to and will be superseded by Sonar Test Set AN/PQM-2.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT: 0.316 to 10000 uv.
OUTPUT IMPEDANCE: 1 ohm.
ATTENUATION: −40 to −130 db in 1 db steps referred to 1 v across 1 ohm.

POWER REQUIREMENTS: 115 v, 60 cps, single ph, 0.5 amps.

MANUFACTURER'S OR CONTRACTOR'S DATA

U. S. Navy Underwater Sound Laboratory, New London, Conn.
Project Order 377/45.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 2050W
(1) 6AG7Y
(1) 5Y3WGTB
(1) 6SJ7
Total Tubes: (4)
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900786: Technical Manual for Noise Generator Navy Type RQ-60140.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	BUSHIPS
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	4.4.2

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Noise Generator NT-60140 including: Set of Accessories	2.5		35

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Noise Generator NT-60140	7-7/8 X 13 X 17-5/8	26
1	Dummy Hydrophone		
1	Equal Gain Termination		
1	Crocodile Clip Output Cord	72 lg	
1	Junction Box Output Cord	84 lg	
1	AC Line Cord	120 lg	
1	External Oscillator Connection Cord	72 lg	
1	Adapter, Polarized Plug Line Cord		
1	Adapter, Special Navy Plug Line Cord		
2	Technical Manual NAVSHIPS 900786		

March 1957

AUDIO FREQUENCY OSCILLATOR

652

FUNCTIONAL DESCRIPTION

The Model 652(Jackson Electrical Instrument Co) is a portable instrument that provides audio frequency voltages throughout the frequency range of 20 to 20,000 cycles. The audio signal is generated at its fundamental frequency by a capacity-resistance tuned bridge circuit which provides improved operating characteristics.

No calibration or zero adjustments are required in the operation of this instrument, and the full frequency range is covered in three logarithmic ranges providing a long effective scale length of maximum readability and accuracy

It can be used for measurement of audio signals, testing speakers, headphones etc, checking frequency response of audio amplifiers, testing AF transformers and filters, and for determining the overall fidelity of receivers.

No field changes in effect at time of preparation (10 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 20,000 cps.
OUTPUT DATA
POWER: 500 mw.
CONTROL: Continuously variable.
IMPEDANCE: 10, 250, 500, 5000 ohms and high impedance.
ACCURACY: 3% or 1 cps.
DISTORTION: 5% max at all frequencies.
FREQUENCY CHARACTERISTIC: ±1 db from 30 to 15,000 cps.
HUM LEVEL: Down more than 60 db of max output.
SCALE LENGTH: 25 in.
POWER REQUIREMENTS: 105 to 120 v, 50 to 60 cps, 50 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

The Jackson Electrical Instrument Co; Dayton, Ohio.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 80 (1) 65J7 (2) 6F6
Total Tubes: (4)

REFERENCE DATA AND LITERATURE

The Jackson Electrical Instrument Co. Technical Manual for Audio Frequency Oscillator Model 652

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Audio Frequency Oscillator Model 652	9-1/2 X 9-1/2 X 13	26

March 1957

SIGNAL GENERATOR

FUNCTIONAL DESCRIPTION

The Model 71 (Measurements Corp) is a completely self-contained source of square waves covering the fundamental range 5 cps. This makes it suitable for testing the characteristics of many types of amplifiers and networks over the range from one cycle to several megacycles per second, covering the usual audio and video ranges.

No field changes in effect at time of preparation (2 October 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Oscilloscope.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 5 to 100, 50 to 1000, 500, to 10,000, and 5000 to 100,000 cpa.
CALIBRATED OUTPUT: 0 to 75 v peak.
OUTPUT IMPEDANCE: 20 ohms per v.
EXTERNAL MODULATION: Pulsed.
OPERATING POWER: 117 v, 50 to 60 cpa, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurements Corp., Boonton, New Jersey.
Approximate Cost: $185.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6J5
(1) 5Y3G
(1) 6SA7
(1) VR150
(2) 6AG7
Total Tubes: (8)

REFERENCE DATA AND LITERATURE

Measurements Corp. Technical Manual for Square Wave Generator Model 71.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	COMMERCIAL
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

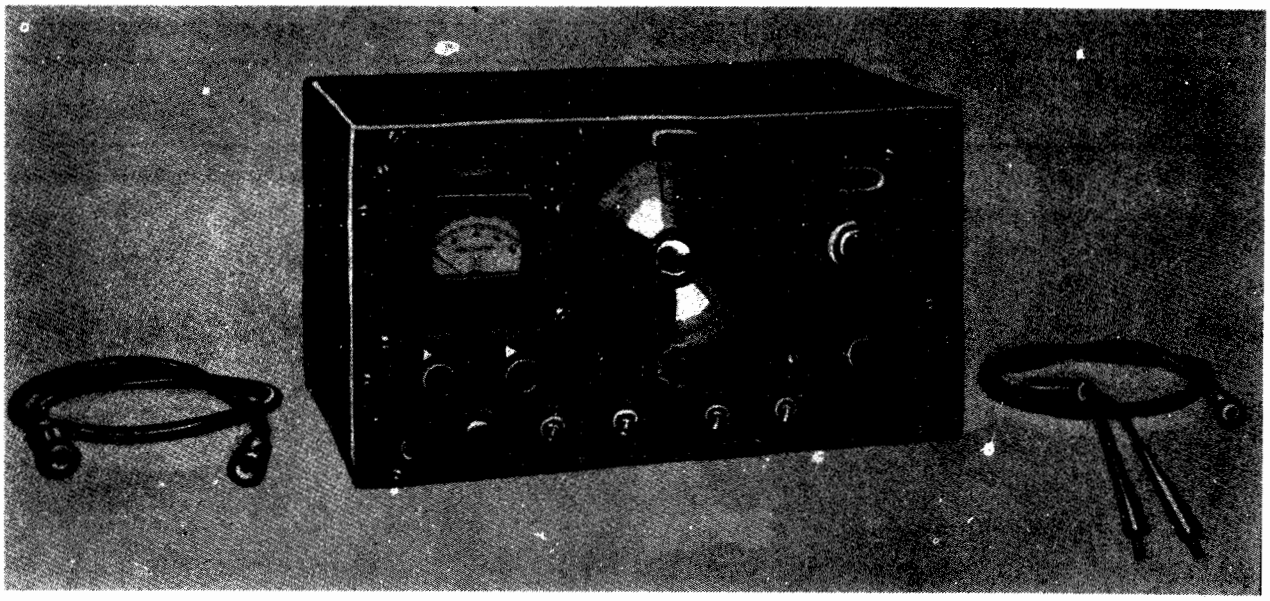
QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Signal Generator, Measurements Corp. Model 71	7 X 7-1/2 X 15	15

June 1957

Test-Signal Generating

UHF SIGNAL GENERATOR

710A



UHF Signal Generator 710A

FUNCTIONAL DESCRIPTION

The 710A is a precision instrument designed to provide a reliable source of high frequency signals. Provision is made for modulating the output signal by means of an internal 400 cycle audio oscillator. External modulation up to 1 megacycles may be applied by means of the input cable supplied with the instrument. Individual calibration curves as well as deviation curves, are supplied with each instrument.

No field changes in effect at time of preparation (10 September 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT FREQUENCY: 370 to 560 mc.
OUTPUT VOLTAGE: 1 uv to 0.09 v.
DIAL CALIBRATION: Directly in megacycles (Accuracy 1/2 of 1%).
INTERNAL MODULATION: 400 cps.
EXTERNAL MODULATION: Up to 1 mc.
INPUT CABLES: Coaxial, 72 ohms.
OUTPUT CABLES: R.F. Low loss solid dielectric, semi-flexible, 50 ohms.
POWER SOURCE: 105 to 125 v, 60 cps, single ph.
POWER CONSUMPTION: 50 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Div of Radio Corp of America, Camden, New Jersey.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6X5G
(1) VR-105-30
(1) 95S
(1) VR-150-30
(1) 6SN7-GT

Total Tubes: (5)

REFERENCE DATA AND LITERATURE

Radio Corp. of America Technical Manual for UHF Signal Generator 710A.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

Test-Signal Generating

June 1957

710A UHF SIGNAL GENERATOR

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	UHF Signal Generator PP-504/U	9-1/4 X 11 X 16	42
1	Input Cable, Coaxial, 72 ohm (36 in. lg).		
1	Output Cable, R.F. Low Loss Solid Dielectric Semi-Flexible, 50 ohm (30 in. lg)		
1	Envelope (Calibration and Deviation Charts)		
1	Technical Manual, IB-32063-2		

June 1957

Test-Voltage and Current Measuring

INDUSTRIAL CIRCUIT TESTER 785

FUNCTIONAL DESCRIPTION

The Model 785 incorporates in one complete instrument exceptionally broad coverage for measurement of AC of DC voltage, current and resistance. A 100 millivolt full scale range is provided to be used with external shunts, for measurements of DC current in excess of 10 amps. AC current above 10 amps may be measured with external current transformers. The selection of ranges is sufficiently broad to handle measurements on all types of control equipment and electronic apparatus in addition to power circuits.

The rectifier network is pre-adjusted and is mounted on the back of the meter studs, The network is replaceable with a new interchangeable unit if damaged by overload.

No field changes in effect at time of preparation (3 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RANGES

DC VOLTS: 0 to 0.1, 1, 10, 50, 200, 500, 1000 v.

AC VOLTS: 0 to 5, 15, 30, 150, 300, 750 v.

CURRENT: 0 to 50 ua, 0 to 1ma, 10, 100 ma.
0 to 1, 10 amp DC, 0 to 0.5, 1, 5, 10 amp AC.

RESISTANCE: 0 to 3000, 30,000, 300000 ohms, 0 to 3, 30 meg.

SENSITIVITY: 20000 ohms per v, 50 ua full scale deflection.

ACCURACY: 3% on 1000 v DC scale, 2% on balance of DC ranges, 3% accuracy on all AC ranges.

POWER SOURCE: 15 v and 1-1/2 v DC, internal batteries.

MANUFACTURER'S OR CONTRACTOR'S DATA

Weston Electrical Instrument Corporation, Newark, N.J.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

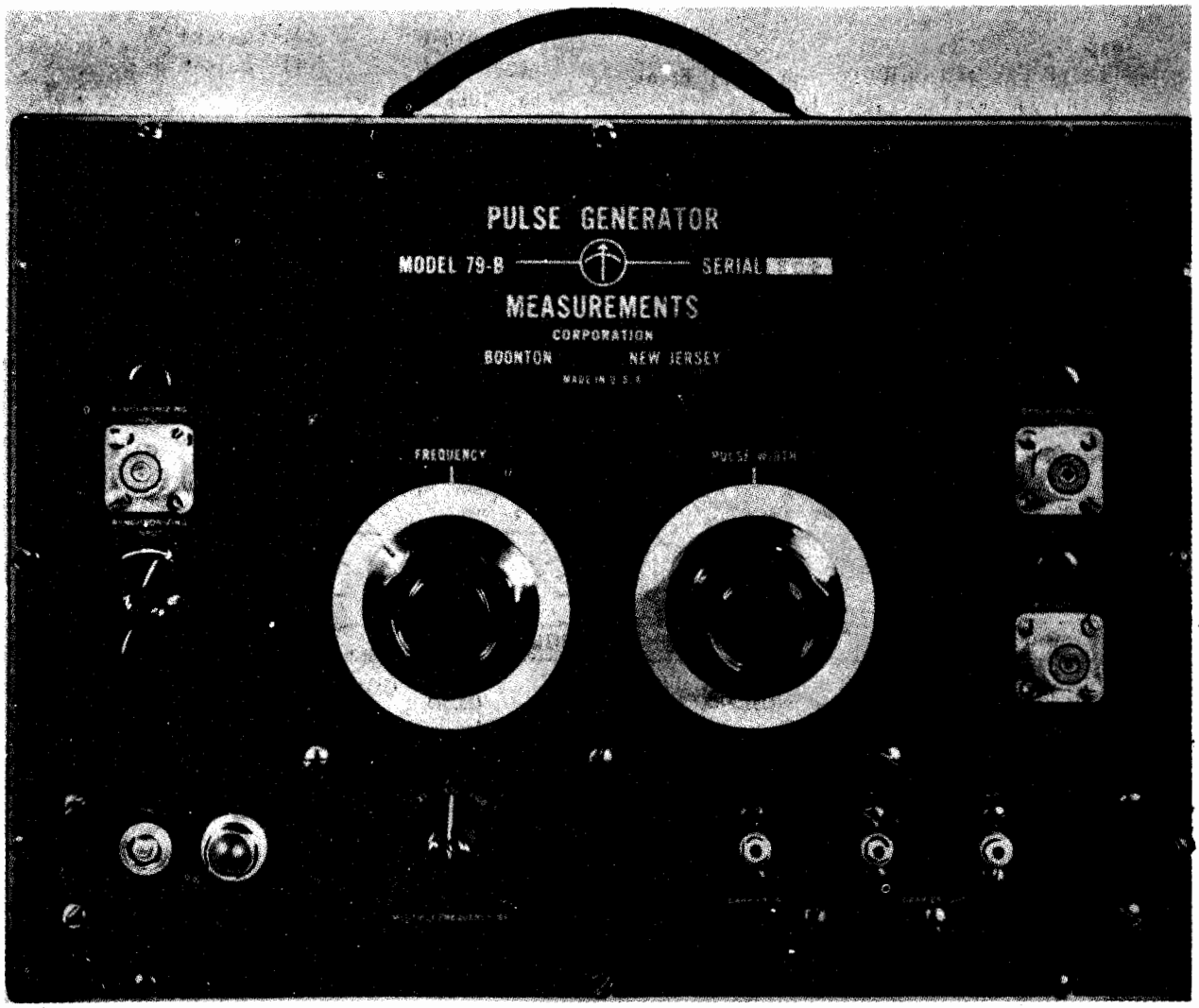
Technical Manual for Model 785 Type 6 Industrial Circuit Tester.

TYPE CLASSIFICATION
DESIGN COGNIZANCE COMMERCIAL
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Industrial Circuit Tester Model 785		
2	Test Leads		
2	Cables		

PULSE GENERATOR 79-B



Pulse Generator 79-B

FUNCTIONAL DESCRIPTION

The Model 79-B (Measurements Corp) is designed to generate voltage pulses of variable width and frequency for use with the proper associated equipment. A self-contained modulator state may be connected to an external source of radio frequency carrier in order to obtain a pulse-modulated carrier output. Positive synchronization of an external time axis oscillator is provided from a separate synchronizing pulse output, and the pulse generator may also be synchronized to an external frequency standard by means of a pulse synchronizing amplifier and control.

No field changes in effect at time of preparation (3 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

PULSE OUTPUT DATA
- FREQUENCY: 60 to 100000 pps in 3 bands.
- WIDTH: 0.5 to 40 usec continuously variable.
- AMPLITUDE: 150 v min peak-to-peak.
- POLARITY: Positive.
- OUTPUT IMPEDANCE: 1000 ohms max.

SYNCHRONIZING PULSE OUTPUT DATA
- FREQUENCY: 60 to 100000 pps in 3 bands, delayed 1/2 period.
- WIDTH: 3 usec max.
- AMPLITUDE: 40 v min peak-to-peak.
- POLARITY: Positive.
- OUTPUT IMPEDANCE: Approx 2500 ohms.

MODULATION DATA
- CARRIER INPUT TO MODULATOR: 2 v rms

79-B PULSE GENERATOR

max.

MODULATED CARRIER OUTPUT: Approx 1/10 or 1/100 of carrier input level.

CARRIER OUTPUT IMPEDANCE: Approx 66 and 7 ohms.

POWER REQUIREMENTS: 117 v, 50 to 60 cps, single ph, 125 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Measurements Corp; Boonton, N.J.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6AG7 (3) 6C5

(1) 6Y6-G (1) 6SA7-GT

(2) 5V4-G (1) VR-150-30

Total Tubes: (10).

REFERENCE DATA AND LITERATURE

NAVAER 08-5S-126: Technical Manual for Measurements Pulse Generator Model 79-B.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	Commercial
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs)
1	Pulse Generator, Measurements Corp. Model 79-B	10 X 10-1/2 X 13-3/4	32

January 1958

Test-Signal Generating

UHF SIGNAL GENERATOR 804-C

FUNCTIONAL DESCRIPTION

The Type 804-C (General Radio Company) is designed for producing radio-frequency oscillations over the frequency range of 7.5 to 330 megacycles and is so arranged and shielded that a continuously-variable calibrated output voltage is obtainable. It is primarily used for testing radio receivers.

No field changes in effect at time of preparation (23 September 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 7.5 to 330 mc.
FREQUENCY BANDS: 5.
SIGNAL OUTPUT DATA
- RANGE: 1 uv to 20 mv continuously variable.
- IMPEDANCE: 75 ohms.

MODULATION DATA
- INTERNAL
  - TYPE MODULATION: AM.
  - FREQUENCY: 1000 cps.
  - VOLTAGE: Adjustable up to 60% modulation.
- EXTERNAL
  - INPUT IMPEDANCE: 0.25 meg.
  - CHARACTERISTIC: Flat within ±2 db from 100 to 20000 cps, within ±1 db from 200 to 10000 cps.

FREQUENCY CALIBRATION ACCURACY: ±2%.
POWER REQUIREMENTS: 115 or 230 v, 42 to 60 cps, single ph, 25 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Company, Cambridge, Mass.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6G6G
(1) 6X5GT
(1) VR150-30
(1) 955
Total Tubes: (4)

REFERENCE DATA AND LITERATURE

Technical Manual for General Radio Company Type 804-C U-H-F Signal Generator.

TYPE CLASSIFICATION
DESIGN COGNIZANCE COMMERCIAL
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 4.1.2

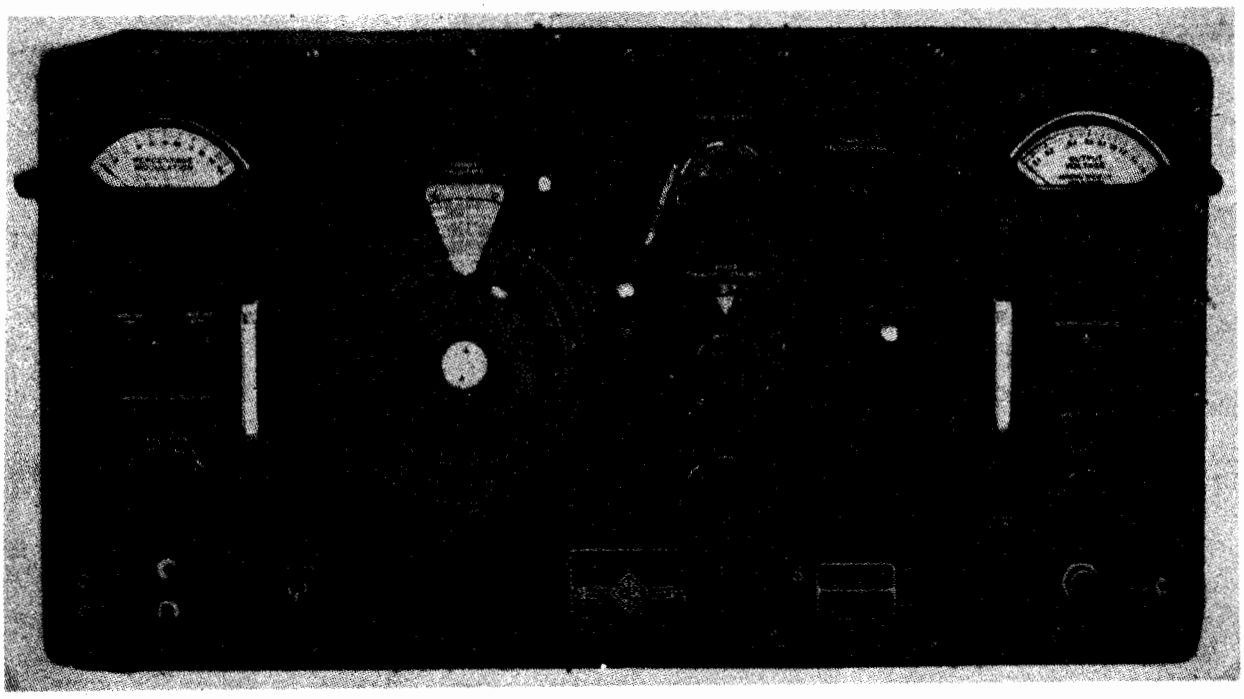
EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	UHF Signal Generator Type 804-C	9 x 11-5/8 x 19-1/2	34
2	Coaxial Cable		
1	Blank Coil Form		
1	Power Cable		
1	Terminal Unit Type 774-YA-1		
1	External Attenuator Type 774-X-1		
1	Technical Manual		

June 1957

Test-Signal Generating

STANDARD-SIGNAL GENERATOR 805-C



Standard-Signal Generator 805-C

FUNCTIONAL DESCRIPTION

The 805-C (General Radio Co) is designed primarily as a precision laboratory instrument for rapid and accurate testing of radio receivers.

No field changes in effect at time of preparation (30 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 16 kc to 50 mc, 7 bands.
ACCURACY: ±1%.
FREQUENCY DRIFT: Not greater than ±0.1%.
OUTPUT VOLTAGE RANGE: 0.1 uv to 2v.
OUTPUT IMPEDANCE
INTERNAL MODULATION: 400 and 1000 cycles.
MODULATION: 0 to 100%.
CARRIER NOISE LEVEL: 40 db below 80% modulation.
OPERATING POWER: 115 v, 40 to 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Co, Cambridge, Mass.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6C8-G
(1) 5U4-G
(1) 6SF5
(1) 6AL5
(1) Amperite 3-4
(3) 6L6
(2) 2A3
(1) OD3
(1) 6H6
Total Tubes: (12)

REFERENCE DATA AND LITERATURE

General Radio Catalog N.

TYPE CLASSIFICATION	
DESIGN COGNIZANCE	COMMERCIAL
PROCUREMENT COGNIZANCE	
STOCK NO.	
R.D.B. IDENT. NO.	

805-C STANDARD-SIGNAL GENERATOR

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Standard Signal Generator 805-C	12 X 16 X 33	117.5
1	Cord, Line Connector		
1	Output Cable		
1	Termination Unit		
1	Set Spare Fuses		