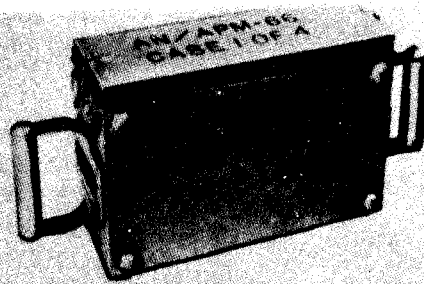
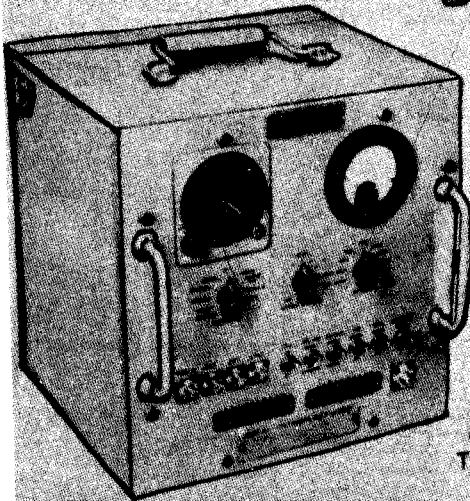


NAVSHIPS 94200.4 Directory of Electronics Test
Equipment
Section 4.13 Calibrating Equipment

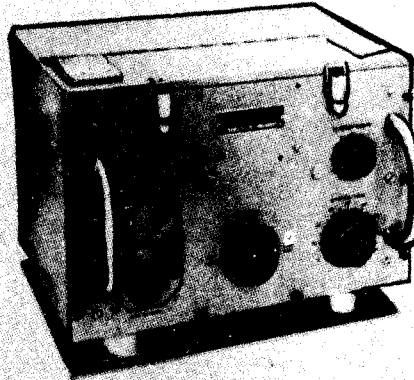
RADAR TEST SET



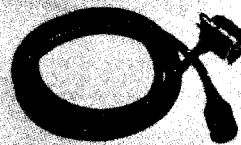
DELAY LINE
MX-1381/APM-66



CALIBRATOR,
RADAR ALTIMETER
TS-746/APM-66



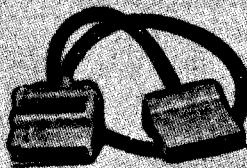
TEST SET,
ALTIMETER
TS-745/APM-66



TEST KIT MK-91/APM-66



CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
CX-2089/APM-66



CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
CX-2088/APM-66



CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
CX-2088/APM-66

STAND, TEST,
INDICATOR
MT-1139/APM-66



STAND, TEST,
AMPLIFIER
MT-1138/APM-66



Radar Test Set AN/APM-66

June 1957

Test-Calibrating

AN/APM-66**RADAR TEST SET****FUNCTIONAL DESCRIPTION**

The AN/APM-66 is designed to provide a means of calibrating, checking the operation, and facilitating the maintenance of Radar Set AN/APN-22. This is accomplished by providing accurate artificial altitude signals, a means of controlling various circuit functions; a convenient means of measuring and indicating significant circuit voltages, currents, and waveforms; and by providing a suitable set of test cables.

No field changes in effect at time of preparation (31 October 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) DC vacuum Tube Voltmeter TS-375/U, (1) AC Vacuum Tube Voltmeter ME-6A/U, (1) Oscilloscope TS-239/UP, (1) Volt ohmmeter TS-352/U.

TUBE AND/OR CRYSTAL COMPLEMENT

| | |
|---------------------|----------|
| (1) 6X4W | (2) 6AN5 |
| (1) 5R4WGY | (1) 6X4W |
| (2) 6005 | (1) 5654 |
| Total Tubes: (11) | |
| (8) 1N67 | |
| Total Crystals: (8) | |

REFERENCE DATA AND LITERATURE

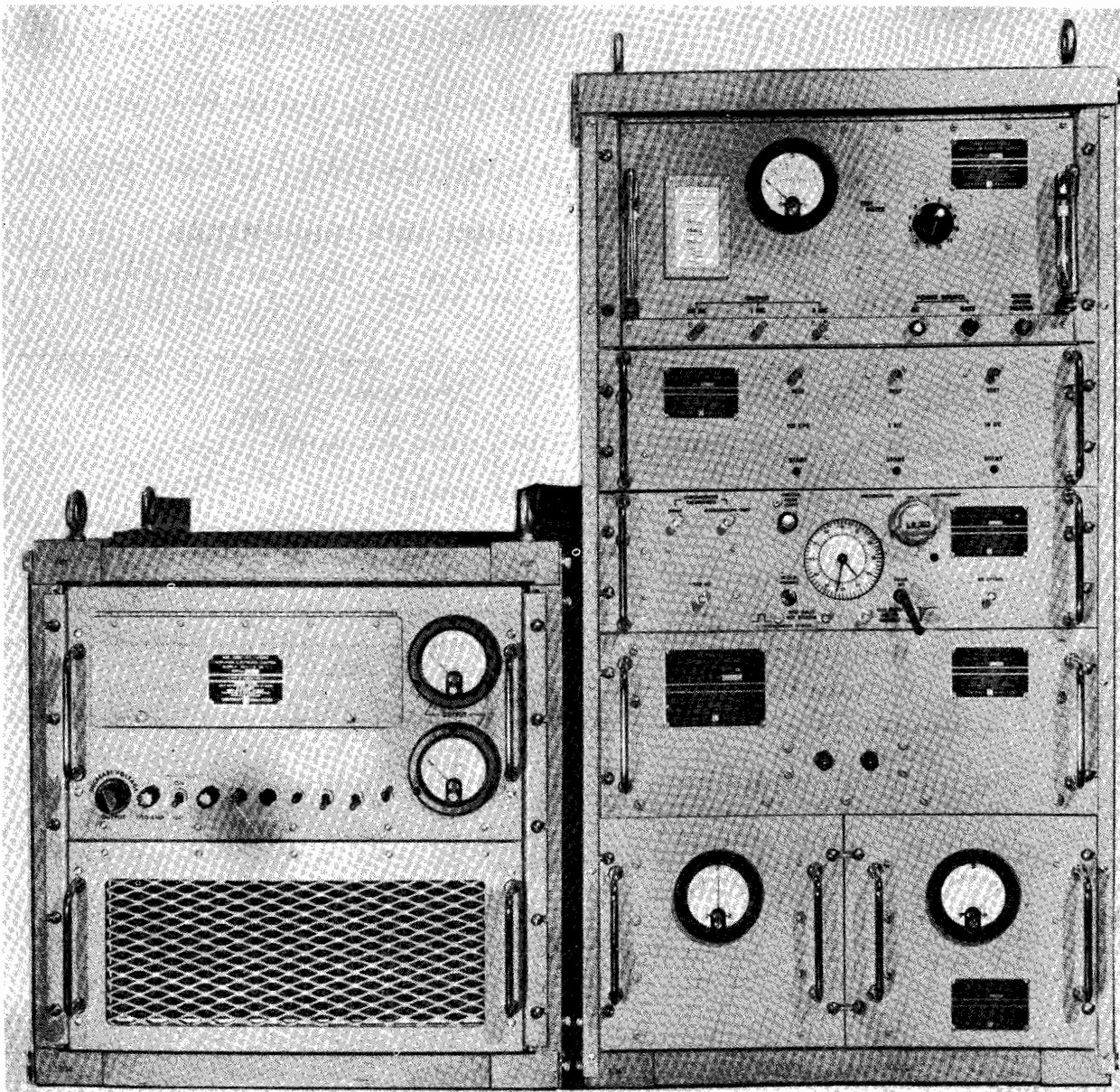
AN 16-30APM66-1: Technical Manual for Radar Test Set AN/APM-66.

| | |
|------------------------|-------|
| 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 | Delay Line MX-1381/APM-66 | | |
| 1 | Test Set Altimeter TS-745/APM-66 | | |
| 1 | Case, Altimeter Test Set CY-1205/APM-66 | | |
| 1 | Calibrator, Radar Altimeter TS-746/APM-66 | | |
| 1 | Case, Radar Altimeter Calibrator CY-1206/APM-66 | | |
| 1 | Test Kit MK-91/APM-66 consists of: | | |
| 1 | Case, Test Kit CY-1207/APM-66 | | |
| 2 | Cable Assy, Special Purpose CX-2088/APM-66 | | |
| 1 | Cable Assy, Special Purpose CX-2089/APM-66 | | |
| 1 | Stand, Test Amplifier MT-1138/APM-66 | | |
| 1 | Stand, Test Indicator MT-1139/APM-66 | | |

FREQUENCY-TIME STANDARD



Frequency Time Standard AN/BSQ-1(XN-1)

FUNCTIONAL DESCRIPTION

Frequency-Time Standard AN/BSQ-1(XN-1) is a crystal controlled frequency and time standard designed for submarine, surface ship, and laboratory use.

No field changes in effect at time of preparation (30 September 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v, 60 cy, 1 ph.

FREQUENCY CONTROL: Quartz crystals.

POWER AMPLIFIER RACK

POWER INPUT: 115 v, 60 cy, 1 ph, 7 amp,
650 W.

POWER OUTPUT: 200 va.

FREQUENCY-TIME STANDARD

AN/BSQ-1(XN-1)

MANUFACTURER'S OR CONTRACTOR'S DATA

(1) 2N491 (11) 2N539
(2) SV-808 (2) TD8C-1A4

Borg Equipment Div., The Amphenol Borg Corp., Janesville, Wisconsin.
Contract NObsr-75093, dated 14 January 1958.

Total Crystals: (63)

TUBE AND/OR CRYSTAL COMPLEMENT

(17) 5654/6AK5W (1) 5696
(6) 5725/6AS6W (2) 5814A
(4) 5840A (2) 6626/0A2WA
(2) 7030/4X150A
Total Tubes: (34)
(4) 1N250 (2) 1N252
(2) 1N540 (9) 1N429
(23) 1N646 (2) 1N77A
(10) 2N118 (4) 2N339

REFERENCE DATA AND LITERATURE

NAVSHIPS 93421: Technical Manual for FREQUENCY-TIME STANDARD AN/BSQ-1(XN-1).

| |
|--|
| TYPE CLASSIFICATION (NAVY) |
| DESIGN COGNIZANCE USN, BUSHIPS |
| PROCUREMENT COGNIZANCE SPEC: SHIPS-T-2819A |
| STOCK NO. |
| R.D.B. IDENT. NO. |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---|-----------------------------|---------------|
| 1 | Frequency-Time Standard AN/BSQ-1(XN-1) Including: | | |
| 1 | Amplifier, Electronic Control AM-2030(XN-1)/BSQ | 13-1/2 X 21-1/8 X 23 | 144 |
| 1 | Oscillator Rack Consisting of: | 13-1/2 X 21-1/8 X 40-1/2 | 270 |
| | Oscillator, RF O-564(XN-1)/BSQ | | |
| | Converter, Frequency, Electronic CV-725(XN-1)/BSQ | | |
| | Converter, Frequency, Electronic CN-726(XN-1)/BSQ | | |
| | Power Supply PP-2128(XN-1)/U | | |
| | Battery Power Supply BB-263(XN-1)/U | | |

12 February 1963

Cog Service: USN FSN:

FREQUENCY-TIME STANDARD AN/BSQ-2

Functional Class: 13.2

USA

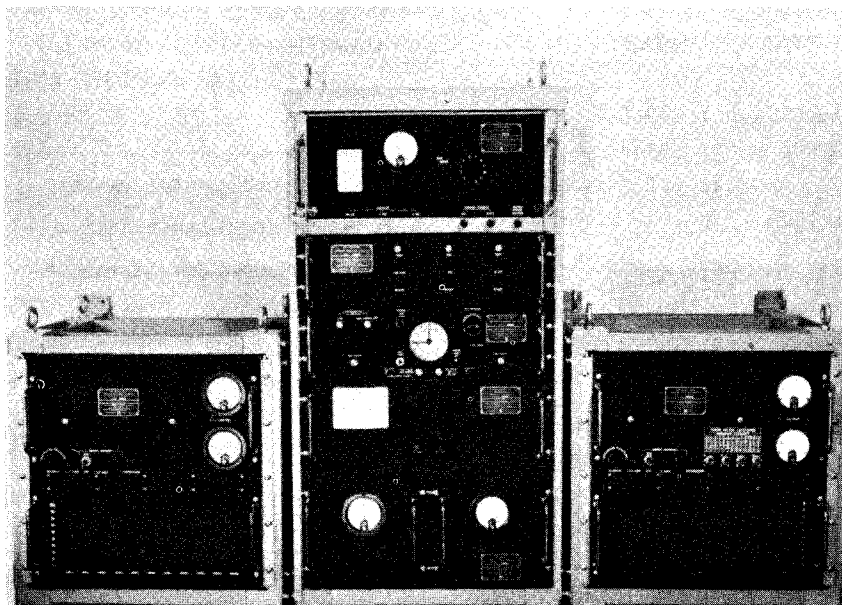
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Amphenol-Borg Electronics Corp., (96791).



Frequency-Time Standard AN/BSQ-2

FUNCTIONAL DESCRIPTION:

Frequency-Time Standard AN/BSQ-2 is a cabinet-mounted, crystal-controlled frequency and time standard for submarine, surface ship and laboratory use. It produces frequencies of 1.0 mc, 100 kc, 10 kc, 1.0 kc, 400 cps, 100 cps, and 60 cps. It also produces one pulse each second and one pulse each five minutes. The stability of the frequencies and pulses is such that at no time, after warm-up, will these frequencies and pulses depart from reference frequencies by more than 30 parts in 10^9 during any 60 day period. Frequencies and pulses can be adjusted to within one part in 10^{10} . In the event of power failure or temporary disconnection from the power source, Battery Power Supply BB-263/U will supply sufficient power to maintain oscillator rack operation for a period of at least two hours. Provisions are included in the circuitry for comparing the rate of the frequency-time standard with the rate of a primary standard, and for comparing the rate of break-contact chronometers with the rate of the frequency-time standard.

No field changes in effect at time of preparation (3 February 1963).

AN/BSQ-2 FREQUENCY-TIME STANDARD

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENT: 115 v, 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 | Frequency-Time Standard AN/BSQ-2 includes: | | | |
| 1 | Amplifier, Electronic Control AM-2030/BSQ | | 14-15/16 x 21-1/8 x 23 | 144 |
| 1 | Amplifier, Electronic Control AM-2161/BSQ | | 18 x 21-1/8 x 23 | 139 |
| 1 | Battery Power Supply BB-263/U | | 8-3/4 x 12-11/16 x 19 | |
| 1 | Converter, Frequency, Electronic CV-725/BSQ | | 5-1/4 x 14 x 19 | |
| 1 | Converter, Frequency, Electronic CV-775/BSQ | | 5-1/4 x 14 x 19 | |
| 1 | Oscillator, Radio Frequency O-564/BSQ | | 8-3/4 x 10-5/8 x 19 | |
| 1 | Power Supply PP-2128/U | | 7 x 14 x 19 | |
| 2 | Technical Manual NAVSHIPS 93391 | | 1 x 8-1/2 x 11 | |

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93391: Technical Manual for Frequency-Time Standard AN/BSQ-2.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:TUBES: (16) 5654/6AK5W (6) 5725/6AS6W (2) 5727/2D21W (4) 5814A (4) 5840A
(4) 6626/0A2WA (4) 7034/4X150A

CRYSTALS: (1) 4,999.995 kc

SEMI-CONDUCTORS: (4) 1N250 (2) 1N252 (9) 1N429 (4) 1N540 (30) 1N646 (2) SV-11
(2) 1N2175 (9) 2N118 (4) 2N339 (11) 2N539 (4) 508C610H28
(2) SVB08

SHIPPING DATA

PKGS VOLUME (CU FT) WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
 SPEC &/OR DWG: SHIPS-F-3077

DESIGN COG: USN, BuShips

| CONTRACTOR | LOCATION | CONTRACT OR ORDER NO. | APPROX. UNIT COST |
|---------------------------------|-----------------------|-----------------------|-------------------|
| Amphenol-Borg Electronics Corp. | Janesville, Wisconsin | N0bsr-75564 | \$17,941.39 |

12 February 1963
Cog Service: USN

FSN:

FREQUENCY-TIME STANDARD AN/BSQ-2A
Functional Class: 13.2

USA

USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Marine Div. of Sperry Gyroscope Co., (01299).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Frequency-Time Standard AN/BSQ-2A is a cabinet-mounted, crystal-controlled frequency and time standard for submarine, surface ships and laboratory use. It produces frequencies of 1.0 mc, 100 kc, 10 kc, 1.0 kc, 400 cps, 100 cps, and 60 cps. It also produces one pulse each second and one pulse each five minutes. The stability of the frequencies and pulses is such that at no time, after warm-up, will these frequencies and pulses depart from reference frequencies by more than 30 parts in 10^9 during any 60 day period. Frequencies and pulses can be adjusted to within one part in 10^{10} . In the event of power failure or temporary disconnection from the power source, Battery Power Supply BB-263/U will supply sufficient power to maintain oscillator rack operation for a period of at least two hours. Provisions are included in the circuitry for comparing the rate of the frequency-time with the rate of a primary standard, and for comparing the rate of break-contact chronometers with the rate of the frequency-time standard.

No field changes in effect at time of preparation (30 November 1962).

TECHNICAL CHARACTERISTICS:

POWER REQUIREMENTS: 115 v, 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 | Frequency-Time Standard AN/BSQ-2A includes: | | | |
| 1 | Amplifier, Electronic Control AM-2030A/BSQ | | | |
| 1 | Amplifier, Electronic Control AM-2161A/BSQ | | | |
| 1 | Battery Power Supply BB-263/U | | 8-3/4 x 12-11/16 x 19 | |
| 1 | Converter, Frequency, Electronic CV-725A/BSQ | | | |

AN/BSQ-2A FREQUENCY-TIME STANDARD

| QTY | ITEM | STOCK NUMBERS | DIMENSIONS (INCHES) | WEIGHT (LBS) |
|-----|---|---------------|------------------------|-----------------|
| 1 | Converter, Frequency, Electronic CV-775A/BSQ | | | |
| 1 | Oscillator, Radio Frequency O-564A/BSQ | | | |
| 1 | Power Supply PP-212BA/U | | | |
| 2 | Technical Manual | | 8-1/2 x 11 | |

REFERENCE DATA AND LITERATURE:

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) |
|------|----------------|--------------|
|------|----------------|--------------|

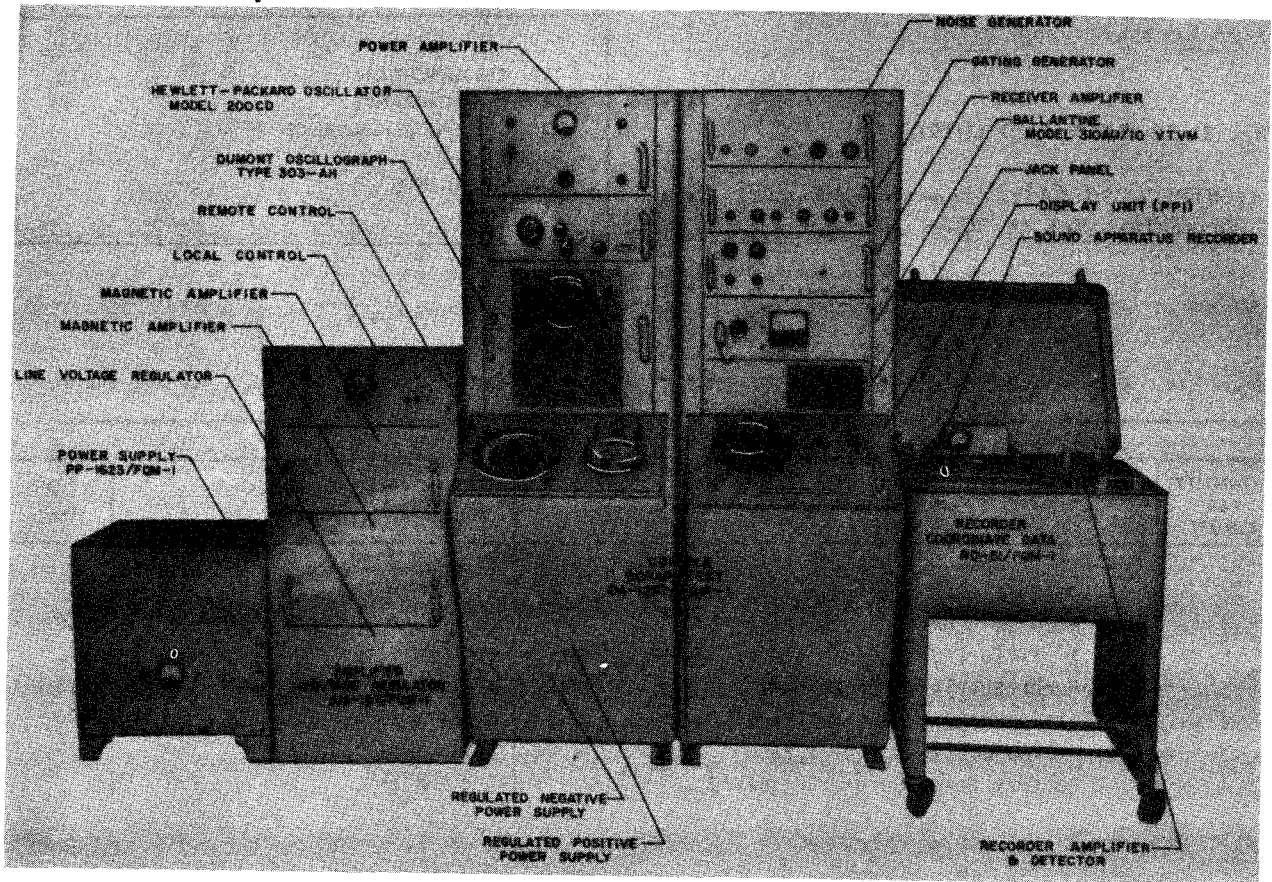
PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

| CONTRACTOR | LOCATION | CONTRACT OR ORDER NO. | APPROX. UNIT COST |
|--|----------------|--------------------------|----------------------|
| Marine Div. of Sperry Gyroscope Co. | Syosset, N. Y. | N0bsr-77077 | |

SONAR TEST SET



Sonar Transducer Test Set AN/FQM-1

FUNCTIONAL DESCRIPTION

Sonar Test Set AN/FQM-1 is designed for use in the repair and calibration of sonar transducers in a test tank, by using pulse techniques to minimize the interference of sound reflections from the walls of the tank and the surface of the water.

No field changes in effect at time of preparation (1 April 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v, 60 cy, 40 amp;
 220 v, 60 cy, 3 ph, 15 amp.
 POWER AMPLIFIER OUTPUT: 30 W or more from
 200 cy to 60 kc.
 MEASUREMENT FREQUENCY RANGE: 100 cps to 150
 kc within ± 3 db.
 RANGE OF AMPLITUDE: 40 db from extreme of

scope center

MANUFACTURER'S OR CONTRACTOR'S DATA

Dyna-Empire Inc., Garden City, New York.
 Contract NObsr-64197, dated 20 May
 1954.

TUBE AND/OR CRYSTAL COMPLEMENT

- | | | |
|------------|--------------|-------------|
| (3) EL-6CF | (1) K1233P14 | (2) 0A2WA |
| (2) 0B2WA | (4) 5R2WGB | (3) 5Y3WGTA |
| (1) 6AH6 | (3) 6AU6WA | (1) 6BH6 |
| (1) 6D4 | (21) 12AT7WA | (4) 6S4 |
| (3) 5726 | (2) 5727 | (3) 5751 |
| (12) 5814A | (6) 5881 | (5) 6005 |
| (2) 6072 | (3) 6080WA | |

Total Tubes: (82)

April 1959

Test-Calibrating

AN/FQM-1**SONAR TEST SET**

No Crystals used.

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

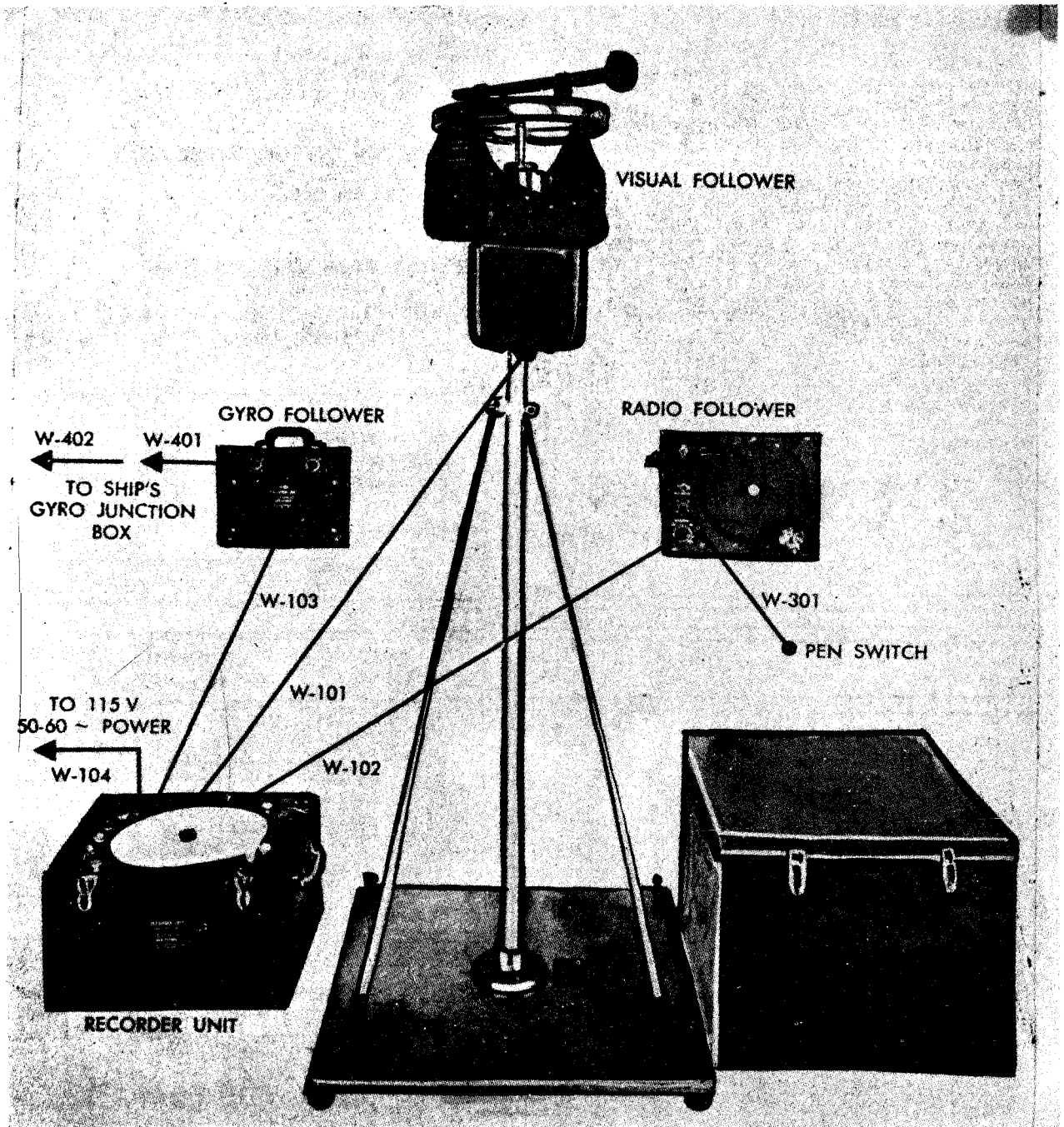
REFERENCE DATA AND LITERATURE

NAVSHIPS 92938(A): Technical Manual for
Sonar Test Set AN/FQM-1.

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|---|--------------------------------|------------------|
| 1 | Sonar Transducer Test Set AN/FQM-1 Including: | | |
| 1 | Console, Sonar Test OA-1297/FQM-1 | 39 X 50 X 76 | 750 |
| 1 | Recorder Coordinate Data, Polar R0-51/FQM-1 | 22 X 26 X 41 | 150 |
| 1 | Amplifier, Voltage Regulator AM-1571/FQM-1 | 18 X 23 X 51 | 575 |
| 1 | Power Supply PP-1623/FQM-1 | 15 X 22 X 25 | 315 |
| 1 | Train Mechanism TG-51/FQM-1 | 60 X 72 X 105 | 5600 |
| 2 | Hydrophone, Sonar DT-177/UQ | 3 X 3 X 18 | 10 |
| 1 | Battery Power Supply PP-1624/U, | 7 X 9 X 13 | 5 |

DIRECTION FINDER CALIBRATOR



Direction Finder Calibrator AN/SRM-1(XG-1)

June 1957

Test-Calibrating

AN/SRM-1 (XG-1) DIRECTION FINDER CALIBRATOR**FUNCTIONAL DESCRIPTION**

The AN/SRM-1 (XG-1) is a portable semi-automatic equipment designed to increase the speed and accuracy with which radio direction finders, both null-type and pip-type, can be calibrated. This reduction in calibration time makes possible more frequent RDF calibrations.

The AN/SRM-1 (XG-1) speeds up calibration and increases its accuracy through automatic transmission of the bearing information and automatic continuous plotting of the results. Bearing information is transmitted by synchros and recorded in the form of a polar plot on a special chart. This chart indicates directly the number of degrees to be added to, or subtracted from, the RDE relative bearing reading to give the correct relative bearing of the transmitter.

No field changes in effect at time of preparation (5 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 115 v, 50 to 60 cps, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

U.S. Navy Electronics Laboratory, San Diego, California.
Bureau of Ships Problem 402.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91370: Technical Manual for Direction Finder Calibrator Set AN/SRM-1 (XG-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 | Recorder Unit 1 | 2.16 | 12-1/4 X 15-1/4 X 20 | 60 |
| 1 | Visual Follower Unit 2 | 10.2 | 14-1/2 X 18 X 67-1/2 | 117 |
| 1 | Radio Follower Unit 3 | 1.43 | 11-5/8 X 13 X 16-3/8 | 37 |
| 1 | Gyro Follower Unit 4 | 1.0 | 11 X 11-1/2 X 13-5/8 | 29 |
| 1 | Base Plate Unit 5 | 1.8 | 4-3/4 X 25-3/4 X 25-3/4 | 21 |
| 1 | Cable Box Unit 6 | 4.62 | 16-1/2 X 22 X 22 | 94 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIP | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|--------------------|----------------------------|-----------------------------|---------------|
| 1 | Recorder | 11 X 12-1/2 X 18-1/2 | 40 |
| 1 | Visual Follower | 13 X 15-1/2 X 65 | 41 |
| 1 | Radio Follower | 10-1/2 X 11 X 14-1/2 | 24 |
| 1 | Gyro Follower | 9 X 10 X 10-1/2 | 17.5 |
| 1 | Visual Follower Base Plate | 2 X 24 X 24 | 20 |
| 1 | Cable Box | 15 X 18-1/4 X 19 | 61 |

UNCLASSIFIED

June 1957

Test-Calibrating

CALIBRAOR SET, DIRECTION FINDER

AN/SRM-1

FUNCTIONAL DESCRIPTION

The AN/SRM-1 is designed for recording deviation error for calibration of shipboard direction finding equipment.

No field changes in effect at time of preparation (12 October 1956).

RELATION TO OTHER EQUIPMENT

Similar to AN/SRM-1 (XG-1).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 110 v, 60 cps single ph.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Nomenclature Card for AN/SRM-1.

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

EQUIPMENT SUPPLIED DATA

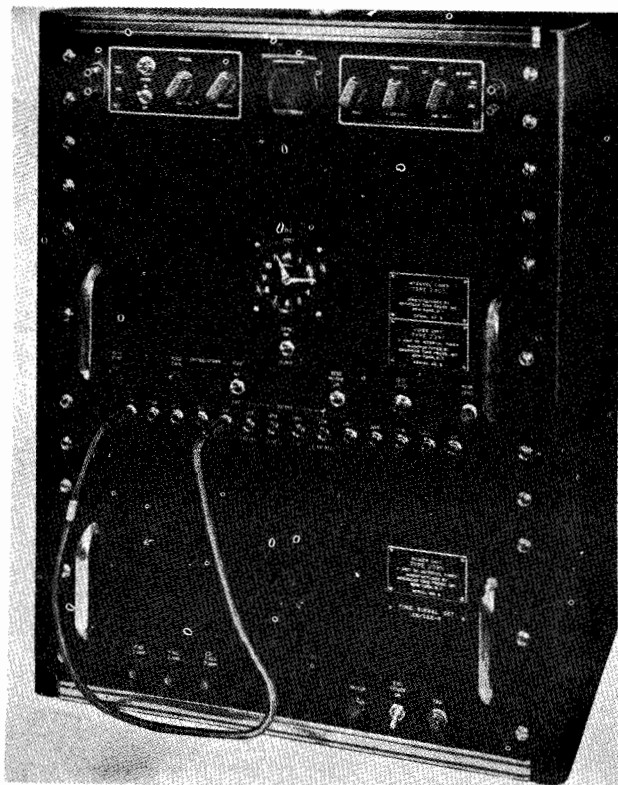
| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|----------------------------|-----------------------------|---------------|
| 1 | Recorder Unit | | |
| 1 | RDF Follower Unit | | |
| 1 | Visual Follower Unit | | |
| 1 | Gyro Converter Unit | | |
| 1 | Cable Box | | |
| 1 | Visual Follower Base Plate | | |

UNCLASSIFIED

4.13 AN/SRM-1: 1

INTERVAL TIMER

AN/SSQ-6



Interval Timer AN/SSQ-6

0.1 SECOND INTERVAL
 MARK: 6 v peak, 5 millisecc pulse.
 CODE MARK: Omit 5 pulses (0.5 sec).
 1.0 SECOND INTERVAL
 MARK: 6 v rms, 5 millisecc 1 kc tone.
 CODE MARK: 1000 cps tone (0.2 sec).
 60 SECOND INTERVAL
 MARK: 6 v rms, 500 millisecc 1 kc tone.
 CODE MARK: 1000 cps tone (2 sec).
 FREQUENCY CONTROL: 400 and 1000 cps tuning
 forks.
 OUTPUT IMPEDANCE: 600 ohm balanced line.
 POWER REQUIREMENTS: 105 to 125 v, 55 to 65
 cps, 1 ph, 225 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

American Time Products Inc, New York, N.Y.
 Contract NObsr-43017, dated 20 September 1948.
 Approximate Cost: \$1500.00 with equipment
 spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5V4G (5) 2050W
 (12) 6SN7WGTA (2) OD3W
 Total Tubes: (20)
 (4) 1N34A
 Total Crystals: (4)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91234: Technical Manual for Interval
 Timer, Experimental, AN/SSQ-6.

FUNCTIONAL DESCRIPTION

The AN/SSQ-6 is used to generate time signals for calibrating telemetering recorders. The equipment may be readily synchronized with a master time signal source.

No field changes in effect at time of preparation (28 March 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TIME SIGNAL GENERATED

0.01 SECOND INTERVAL
 MARK: 6 v peak, 1 millisecc pulse.
 CODE MARK: Omit 10 pulses (0.1 sec).

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 | Interval Timer AN/SSQ-6 consisting of: | 16 x 21 x 28 | 130 |
| 1 | Timer type 2397 | | |
| 1 | Power Unit type 2395 | | |
| 1 | Oscilloscope type 909020 | | |
| 1 | Set of Equipment Spares | 8-1/2 x 12-1/2 x 17 | 25 |

STANDARD CRYSTAL TEST**AN/TSM-1****FUNCTIONAL DESCRIPTION**

The AN/TSM-1 is used as a reference standard for crystal units. The equipment is a single item in a plywood carrying case. It operates in the frequency range 0.5 to 30 mc.

No field changes in effect at time of preparation (8 April 1957).

RELATION TO OTHER EQUIPMENT

Part of Test Set AN/FSM-3.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 0.5 to 30 mc.

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

TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

REFERENCE DATA AND LITERATURE

Nomenclature Card for Standard Crystal Test Set AN/TSM-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 | Standard Crystal Test Set AN/TSM-1 c/o (1) Standard Oscillator TS-39/TSM-1 (1) Case CY-23/TSM-1 | 10-3/4 x 19-1/4 x 22-1/8 | |

August 1957

Test-Calibrating

RADAR RANGE CALIBRATOR**AN/UPM-11A**

Radar Range Calibrator AN/UPM-11A

The delay of the first return echo and the spacing between subsequent echoes is controlled by the interchangeable ultrasonic delay lines that are furnished with nominal delays of 300, 500 and 1500 yards.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 8600 to 9500 mc.

SIGNAL RANGE: 200 to over 30000 yds simulated radar echoes depending on relay line used.

ACCURACY: ± 5 yds in range to first pulse, ± 2 yds between subsequent pulses.

POWER INPUT: 115 v, 50 to 800 cps, single ph, 250 W.

TEMPERATURE RANGE

OPERATING: -55 to $+75$ deg C.

NONOPERATING: -65 to $+85$ deg C.

OPERATING HUMIDITY: 95% max.

RADAR REQUIREMENTS

FREQUENCY RANGE: 8600 to 9500 mc.

PEAK POWER: 5 to 250 kw.

PULSE WIDTH: 0.3 to 3.0 usec.

PULSE REPETITION RATE: 3000 to 300 pps.

AN/UPM-11A INPUT RF POWER: 35 uw average min required.

FUNCTIONAL DESCRIPTION

The AN/UPM-11A is a portable, precision radar range calibrator incorporating both Radar and Beacon functions. It operates as a radar transponder in that pulsed RF energy fed into it results in a series of return echo pulses being fed back to the radar under calibration to simulate radar targets at accurately determined radar ranges.

In radar operation, the return echo pulses are at the same frequency as the input RF pulses, while in beacon operation, the return echo pulses are at 9310 megacycles, the frequency of X-band beacons.

The spacing of the return echo pulses is controlled by an ultrasonic delay line housed in a thermostatically controlled oven. A total of 10 to 15 useful echoes are produced.

It can also be used as a target in collimating the radar antenna, and an additional feature allows its use as a one-way radar target simulator when triggered by an external 40 megacycle pulse.

MANUFACTURER'S OR CONTRACTOR'S DATA

Capehart-Farnsworth Company, Division of International Telephone and Telegraph Corp.

Contract AF33(604)5819, MIPR-R-53-800-39394, dated 6 January 1953.

Approximate Cost: \$1560.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

| | |
|---------------------|----------------|
| (1) 1B63A | (3) 0A2WA |
| (2) 2K25 | (1) 5R4WGB |
| (1) 5Y3WGTB | (1) 6AU6WA |
| (1) 6J4WA | (8) 12AT7WA |
| (1) 6452 | (5) 5654/6AK5W |
| (2) 5725/6AS6W | (1) 5726/6AL5W |
| Total Tubes: (28) | (1) 6080WA |
| (4) 1N23C | (1) 1N23CR |
| Total Crystals: (5) | |

August 1957

Test-Calibrating

AN/UPM-11A

RADAR RANGE CALIBRATOR

REFERENCE DATA AND LITERATURE

Technical Manual for Radar Range Calibrator
AN/UPM-11A.

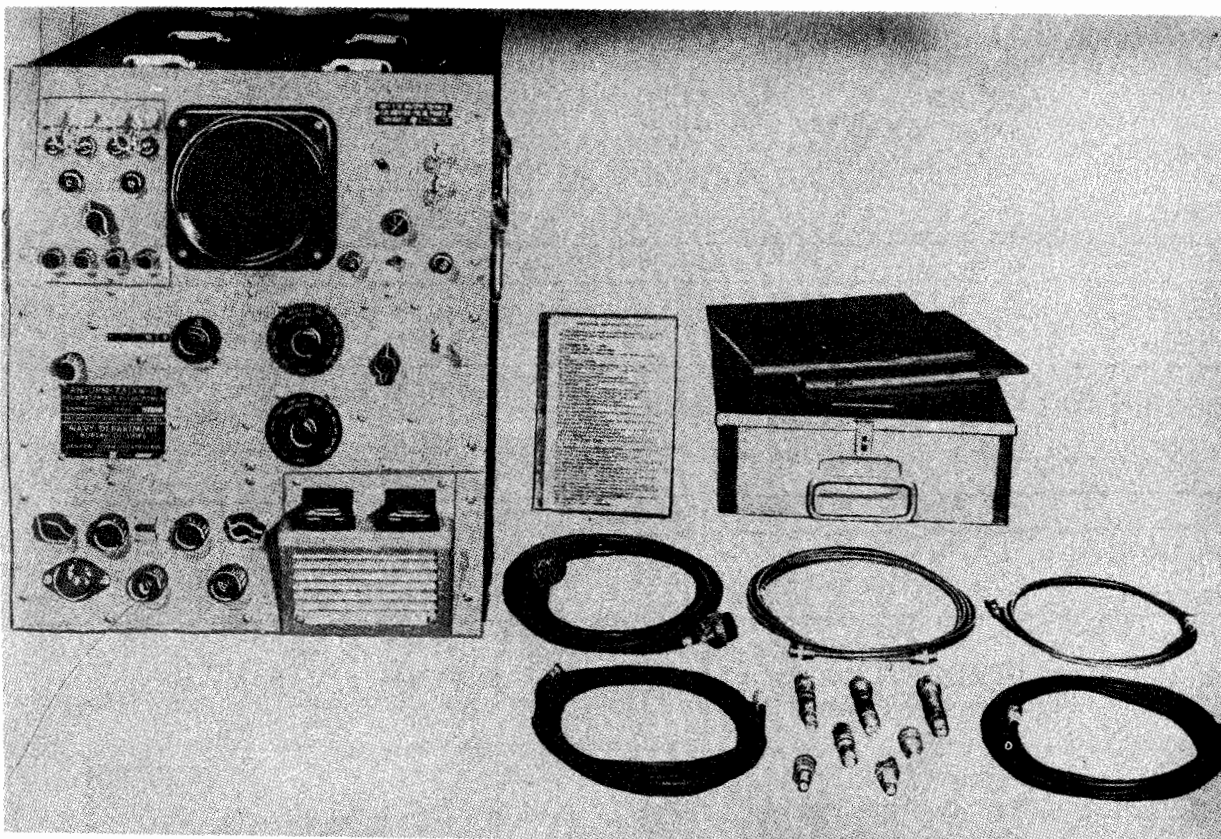
| |
|--|
| TYPE CLASSIFICATION DESIGN COGNIZANCE USAF PROCUREMENT COGNIZANCE MIL-T-945A STOCK NO. R.D.B. IDENT. NO. |
|--|

SHIPPING DATA

| NUMBER OF BOXES | CONTENTS AND IDENTIFICATION | VOLUME (Cu.Ft.) | OVERALL DIMENSIONS (inches) | WEIGHT PACKED (lbs.) |
|-----------------|-----------------------------------|-----------------|-----------------------------|----------------------|
| 1 | Radar Range Calibrator AN/UPM-11A | 3.65 | 15 X 19 X 22 | 110 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|--|-----------------------------|---------------|
| 1 | Radar Range Calibrator AN/UPM-11A including: | | 60 |
| | (1) Transit Case | 12-1/4 X 13 X 19 | |
| | (1) Input Power Cord | 15 X 19 X 22 | |
| | (1) RF Cable | 192 lg | |
| | (1) Antenna Horn | 96 lg. | |
| | (1) Adapter UG-591/U | | |
| | (1) Adapter UG-592/U | | |
| | (1) Waveguide Twist Section, 90 deg | 3-3/4 lg | |
| | (2) Connector UG-590/U | | |
| | (1) Measuring Tape, Steel, Yards and Meters | 1080 lg | |
| | (2) Technical Manual | | |
| | (1) Delay Line MX-1300/UPM-11A, 300 yds. | | |
| | (1) Delay Line MX-1301/UPM-11A, 1500 yds. | | |
| | (1) Delay Line MX-1340/UPM-11A, 500 yds. | | |

PULSE POWER CALIBRATOR**AN/UPM-73(XN-1)**

Pulse Power Calibrator AN/UPM-73(XN-1)

FUNCTIONAL DESCRIPTION

The AN/UPM-73(XN-1) is a precision instrument used for the calibration of pulse power measuring devices and the measurement of pulse power in the 925 to 1225 mc frequency range. The basic calibration procedure consists of measuring a radar or signal generator output and then applying this output as a calibrating signal.

The Calibrator Set also measures power between -10 dbm and +63 dbm to an accuracy of better than ± 0.5 db independent of pulse recurrence frequency. This accuracy is obtained independent of external conditions or precalibration by establishing a comparison signal at the time of the test against precision resistors and a standard cell.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Pulse Power Source.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 925 to 1225 mc.
 POWER INPUT RANGE: -10 to +73 dbm.
 RF IMPEDANCE (INPUT): 53.5 ohms.

SYNCHRONIZATION

SELF TRIGGERED ONLY: Supplies two independent but coincident output triggers.

POLARITY: Positive.

AMPLITUDE: 10 v into 50 ohms and 50 v into 500 ohms.

IMPEDANCE: 75 ohms.

DURATION: 1 to 3 usec.

RISE TIME: Less than 0.2 usec.

DECAY TIME: Less than 2 usec.

PULSE REPETITION FREQUENCY: Fixed 400 pps (can be adjusted internally from 100 to 1000 pps).

DELAY: 3 to 10 usec from master internal sync. (internal adjustment).

SWEEP DURATION: 200 usec (long) and 20 usec (short).

SWEEP DELAY: 0 to 175 usec from trigger output.

PRESENTATION: 5 in CRT.

AN/UPM-73(XN-1)

PULSE POWER CALIBRATOR

December 1956

NOTCH CHARACTERISTICS

WIDTH: 15 usec (nominal), 1 to 25 usec (internal adjustment).

DELAY: 1 to 30 usec from start of sweep (internal adjustment).

COMPARISON PULSE

DURATION: 1 usec.

DELAY: 1 to 30 usec from start of notch

RF SYSTEM

ATTENUATION RANGE: 100 db.

RF AMPLIFIER BAND WIDTH: 6 mc at 3 db points (approx).

RF AMPLIFIER GAIN: 10 db (approx).

VIDEO BANDWIDTH: 2 mc (approx).

POWER REQUIREMENTS: 115 v $\pm 10\%$, 50 to 60 cps, $\pm 10\%$, single ph, 400 W (operate), 150 W (standby).

TUBE AND/OR CRYSTAL COMPLEMENT

- | | | |
|-------------|-------------|----------------|
| (1) 0A2WA | (3) 0B2WA | (2) 1Z2 |
| (1) 2C36 | (1) 5651WA | (3) 5654/6AK5W |
| (2) 5670 | (2) 5687 | (2) 5726/6AL5W |
| (1) 5751 | (1) 5AMP1 | (2) 5R4WGB |
| (1) 5Y3WGTA | (1) 6080WA | (2) 6005/6AQ5W |
| (1) 6AH6 | (2) 6AU6WA | (2) 6C4WA |
| (3) 6L6WGB | (2) 6X4W | (1) 5768 |
| (6) 5814A | (8) 12AT7WA | |

Total Tubes: (50)

(15) 1N69 (2) 1N23B (4) 1N93
Total Crystals: (21)

REFERENCE DATA AND LITERATURE

Manuscript of Technical Manual for Pulse Power Calibrator AN/UPM-73(XN-1).

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Co., Boston, Mass.
Contract NObsr-63214, dated 19 February 1953.

| | |
|------------------------|-------------|
| TYPE CLASSIFICATION | |
| DESIGN COGNIZANCE | BUSHIPS |
| PROCUREMENT COGNIZANCE | SHIPS-C-923 |
| STOCK NO. | |
| R.D.B. IDENT. NO. | |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---|-----------------------------|---------------|
| 1 | Pulse Power Calibrator Unit 1 | 17-3/4 X 24-1/4 X 26-1/4 | |
| 1 | Case, Accessories Unit 2 | 5-1/2 X 12-3/4 X 14 | |
| 2 | Technical Manual | | |
| 1 | Set of Accessories consisting of: | | |
| 1 | Connector, Adapter UG-1108/U | | |
| 1 | Connector, Adapter UG-414/U | | |
| 1 | Connector, Adapter UG-606/U | | |
| 1 | Connector, Adapter UG-309/U | | |
| 1 | Connector, Adapter UG-201A/U | | |
| 2 | Cable Assembly, RF RG-62B/U or UG-260/U | 120 | |
| 1 | Cable Assembly, RF RG-55/U or UG-88C/U | 120 | |
| 1 | Cable Assembly, RF RG-55/U or UG-88C/U | 60 | |
| 1 | Cable Assembly, Power | 120 | |
| 1 | Book of Charts | | |
| 3 | Attenuator, Fixed (3 db, 6 db, 10 db) | | |

FREQUENCY STANDARD**AN/URQ-10(XN-1)**

Frequency Standard AN/URQ-10(XN-1)

FUNCTIONAL DESCRIPTION

Frequency Standard AN/URQ-10(XN-1) is a highly accurate and stable frequency standard. It is intended for use as a primary frequency and time standard on board ships of the fleet, but could perform similar functions at shore stations.

No field changes in effect at time of preparation (11 August 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 20 W, 105 to 125 v, 50

to 60 cy, 1 phase.

FREQUENCY RANGE: 5 mc, 1 mc, 100 kc.

FREQUENCY CONTROL: Crystal-controlled osc.

TYPE OF EMISSION: Unmodulated sine wave.

OUTPUT LEVEL: 1 v into a 50 ohm load.

MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co., Cedar Rapids, Iowa.
Contract NObsr-72655.

TUBE AND/OR CRYSTAL COMPLEMENT

Electron Tube Data not Available.

(18) 2N274 (4) 2N333 (3) 2N375
(2) 2N525 (1) 2N384

Total Crystals: (28)

REFERENCE DATA AND LITERATURE

NAVSHIPS 93395: Technical Manual for FREQUENCY STANDARD AN/URQ-10(XN-1).

| |
|---|
| TYPE CLASSIFICATION (NAVY) |
| DESIGN COGNIZANCE USN, BUSHIPS |
| PROCUREMENT COGNIZANCE SPEC: SHIPS-0-2492 |
| STOCK NO. |
| R.D.B. IDENT. NO. 13.2 |

SHIPPING DATA

| NUMBER OF BOXES | CONTENTS AND IDENTIFICATION | VOLUME (Cu.Ft.) | OVERALL DIMENSIONS (inches) | WEIGHT PACKED (lbs.) |
|-----------------|------------------------------------|-----------------|-----------------------------|----------------------|
| 1 | Frequency Standard AN/URQ-10(XN-1) | | | |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIP | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|--------------------|--|-----------------------------|---------------|
| 1 | Frequency Standard AN/URQ-10(XN-1) Includes: | | |
| 1 | R.F. Oscillator O-470(XN-1)/U | 6-7/16 X 9-9/32 X 15-1/4 | 25.5 |
| 2 | Technical Manual | | |
| 1 | Set Maintenance Spares | | |

18 February 1963
Cog Service: USA FSN:

GENERATOR, ELECTRONIC MARKER AN/USM-108
Functional Class: 13

USA

USN

USAF

TYPE CLASS:

Std

MANUFACTURER'S NAME/CODE NUMBER: Tektronix Incorporated, (80009).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Generator, Electronic Marker AN/USM-108 is an accurate source of time-marker signals, sine waves, and trigger pulses, providing a calibration source for oscilloscopes, oscillators, and frequency counters. It can also be used as a time measuring instrument or as a trigger-rate generator. Markers can be presented separately or mixed with sine waves by means of front panel push-button function controls.

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

TECHNICAL CHARACTERISTICS:

TIME MARKERS: Occur at intervals of 1, 5, 10, 50, 100, 500 usec; 1, 5, 10, 50, 100, 500 millisecc, 1 and 5 sec.

SINE WAVES: Push-button switches connect the sine wave frequencies of 5, 10 or 50 mc to the output connector; output is 3 v min. across 52 ohms.

TRIGGER-RATE FREQUENCIES: 1, 10, 100 cyc; 1, 10, 100 kc are derived from the individual multivibrators.

POWER REQUIREMENTS: 115/230 v porm 10%, 50 to 60 cyc, single ph, 240 W.

RELATION TO OTHER EQUIPMENT:

This equipment is similar to Tektronix model 180A.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

| QTY | ITEM | STOCK NUMBERS | DIMENSIONS (INCHES) | WEIGHT (LBS) |
|-----|--|---------------|------------------------|-----------------|
| 1 | Generator, Electronic Marker AN/USM-108 includes: | | | |
| 1 | Generator, Electronic Marker SG-352/U | | 9-3/4 x 13-1/2 x 17 | 31 |
| 2 | Cable Assy, RF CG-686/U | | | |
| 1 | Lead Assy, Electrical CX-4809/U | | | |

REFERENCE DATA AND LITERATURE:

AN/USM-108 GENERATOR, ELECTRONIC MARKER

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (13) 6AL5 (3) 6AN8 (2) 6AU6 (3) 6DK6 (13) 12AU7 (2) 12B4 (1) 5651
(14) 5965 (1) 6080

CRYSTALS: None used.

SEMI-CONDUCTORS: (12) 1N2070

SHIPPING DATA

| PKGS | VOLUME (CU FT) | WEIGHT (LBS) |
|------|----------------|--------------|
| 1 | | 43 |

PROCUREMENT DATA

PROCURING SERVICE: USA
SPEC &/OR DWG:

DESIGN COG: USA, Sig C

| CONTRACTOR | LOCATION | CONTRACT OR ORDER NO. | APPROX. UNIT COST |
|------------------------|-------------------|--------------------------|----------------------|
| Tektronix Incorporated | Beaverton, Oregon | | \$575.00 |

19 February 1963
Cog Service: USN FSN:

CALIBRATOR SET, RANGE AN/USM-115(XN-1)
Functional Class: 13

USA

USN

USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Control Electronics Co., Inc., (95924).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Calibrator Set, Range AN/USM-115(XN-1) provides an accurate range marker pulse output when triggered. The trigger may be from an external source, or from a built-in pulse repetition frequency generator. The range marker pulse output is used to calibrate radar range indicators to an accuracy of 0.01% P15 yards. A continuous pulse train output with spacing of 1,000, 10,000, or 100,000 yards is available. A self check circuit with an accuracy of 0.002% is provided to indicate proper operation.

No field changes in effect at time of preparation (22 January 1963).

TECHNICAL CHARACTERISTICS:

TRIGGER PULSE DATA: P15 to 25 v; internal or external.

OUTPUT PULSE DATA: 93 ohms impedance; P25 v; 50 to 5,000 pps.

CONTINUOUS PULSE TRAIN OUTPUT: 1,000, 10,000, or 100,000 yard spacing; 93 ohms impedance; 0 to 5 v, positive or negative.

SCOPE TRIGGER OUTPUT: 75 ohms impedance, M4.7 v.

900 YARD CONTINUOUS TEST TRAIN: 93 ohms impedance, P25 v.

POWER REQUIREMENTS: 115 v porm 10%, 47.5 to 66 snd 360 to 450 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 | Calibrator Set, Range AN/USM-115(XN-1) | | 14 x 16-1/4 x 20-1/2 | |

REFERENCE DATA AND LITERATURE: None.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Data not available.

CRYSTALS: Data not available.

SEMI-CONDUCTORS: Data not available.

4.13 AN/USM-115(XN-1): 1

AN/USM-115(XN-1) CALIBRATOR SET, RANGE

SHIPPING DATA

| | | |
|------|----------------|--------------|
| PKGS | VOLUME (CU FT) | WEIGHT (LBS) |
|------|----------------|--------------|

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG: SHIPS-R-2564

DESIGN COG: USN, BuShips

| CONTRACTOR | LOCATION | CONTRACT OR ORDER NO. | APPROX. UNIT COST |
|----------------------------------|------------------------|-----------------------------|-------------------|
| Control Electronics Co., Inc. | Hunting Station, N. Y. | N0bsf-72709, 27 May 1957 | |

19 February 1963
Cog Service: USN FSN:

CALBRATOR SET, RANGE AN/USM-115
Functional Class: 13

USA

USN

USAF

TYPE CLASS: Std

MANUFACTURER'S NAME/CODE NUMBER: American Avionics Inc., (13016).

(No Illustration Available)

FUNCTIONAL DESCRIPTION:

Calibrator Set, Range AN/USM-115 provides an accurate range marker pulse output when triggered. The trigger may be from an external source, or from a built-in pulse repetition frequency generator. The range marker pulse output is used to calibrate radar range indicators to an accuracy of 0.01% P15 yards. A continuous pulse train output with spacing of 1,000, 10,000, or 100,000 yards is available. A self check circuit with an accuracy of 0.002% is provided to indicate proper operation.

No field changes in effect at time of preparation (22 January 1963).

TECHNICAL CHARACTERISTICS:

TRIGGER PULSE DATA: P15 to 25 v; internal or external.

OUTPUT PULSE DATA: 93 ohms impedance; P25 v; 50 to 5,000 pps.

CONTINUOUS PULSE TRAIN OUTPUT: 1,000, 10,000, or 100,000 yard spacing; 93 ohms impedance; 0 to 5 v, positive or negative.

SCOPE TRIGGER OUTPUT: 75 ohms impedance, M4.7 v.

900 YARD CONTINUOUS TEST TRAIN: 93 ohms impedance, P25 v.

POWER REQUIREMENTS: 115 v porm 10%, 47.5 to 66 and 360 to 450 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 | Calibrator Set, Range AN/USM-115 includes: | | 14 x 15 x 19-1/2 | 40 |
| 1 | Calibrator, Range TS-1787/USM-115 | | | |
| 3 | Printed Circuit Board Maintenance Extenders | | | |
| 2 | RF Cable | | 72 lg | |
| 1 | Power Cable | | 72 lg | |
| 1 | Technical Manual | | | |

REFERENCE DATA AND LITERATURE:

AN/USM-115 CALIBRATOR SET, RANGE

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: USN

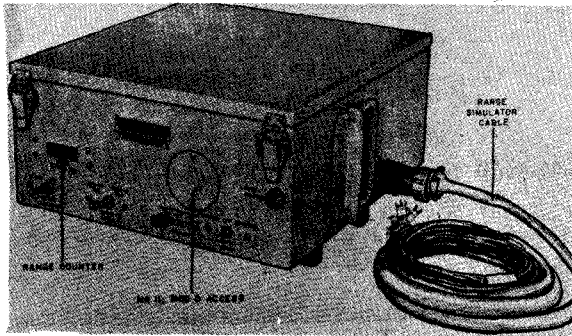
DESIGN COG: USN, BuShips

SPEC &/OR DWG: MIL-C-22364(SHIPS)

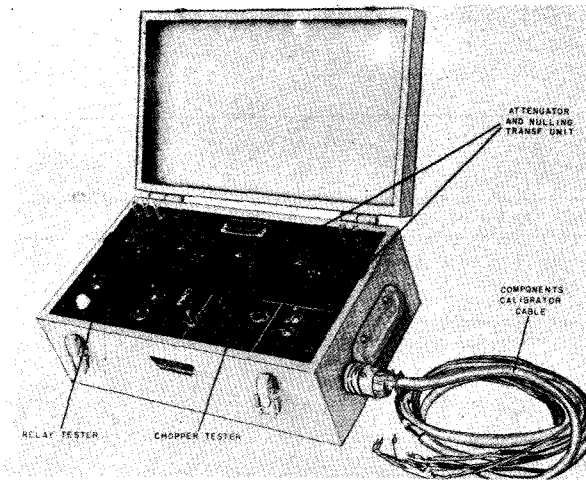
| CONTRACTOR | LOCATION | CONTRACT OR ORDER NO. | APPROX. UNIT COST |
|------------------------|------------------------------|----------------------------|-------------------|
| American Avionics Inc. | West Los Angeles, California | N0bsr-85574 N0bsr-87632 | \$1,789.34 |

COMPUTER TEST SET

Test-Calibrating
AN/USM-55(XN-1)



Unit 1, Range Simulator



Unit 2, Components Calibrator

test the dump computer in the Navigational Computer while the Components Calibrator is used to calibrate all potentiometers and resolver amplifiers, and to test the choppers and relays used in the Navigational Computer.

No field changes in effect at time of preparation (28 July 1958):

MANUFACTURER'S OR CONTRACTOR'S DATA

Ultrasonic Corp., Cambridge, Mass.
 Contract NObsr-64668, dated 25 February 1955.
 Approximate Cost: \$7925.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 92498: Technical Manual for Computer Test Set AN/USM-55(XN-1).

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

FUNCTIONAL DESCRIPTION

The AN/USM-55(XN-1) is a special test equipment designed for the maintenance and calibration of Navigational Computer CP-98 (XN-1)/UPW. The Range Simulator is used to

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIP | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|--------------------|------------------------------|-----------------------------|---------------|
| 1 | Range Simulator Unit 1 | 6-1/4 X 13-3/8 X 14-3/8 | 25 |
| 1 | Components Calibrator Unit 2 | 6-3/16 X 9-5/8 X 17-5/16 | 17 |
| 1 | Range Simulator Cable | 144 lg | |
| 1 | Tachometer Cable | 144 lg | |
| 1 | Components Calibrator Cable | 144 lg | |
| 2 | Technical Manual | 1/2 X 8-3/4 X 11-1/4 | |
| 1 | Set of Equipment Spares | | |

June 1957

COMPUTER TEST SET

AN/USM-55(XN-2)

FUNCTIONAL DESCRIPTION

The AN/USM-55 (XN-2) is an experimental, portable test instrument for use in calibrating potentiometers and resolver amplifiers. It simulates radar ranges to 600,000 yards. The instrument is contained in an aluminum carrying case.

No field changes in effect at time of preparation (11 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER SOURCE: 115 v, 60 or 400 cps or 105 v, 60 cps, single ph and 250 v DC.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

Federal Supply Catalog Item Identification
60 cps, single ph and 250 v DC.

| | |
|------------------------|---------|
| 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 | Computer, Test Set AN/USM-55 (XN-2) C/O | 10-3/8 x 14 x 18-1/2 | |
| 1 | Computer Test Set TS-959(XN-1) | | |

23 May 1962

Cog Service: USN FSN: 6625-513-9702

LOOP CALIBRATION KIT CADV-91123-1
Functional Class: 13.5

USA

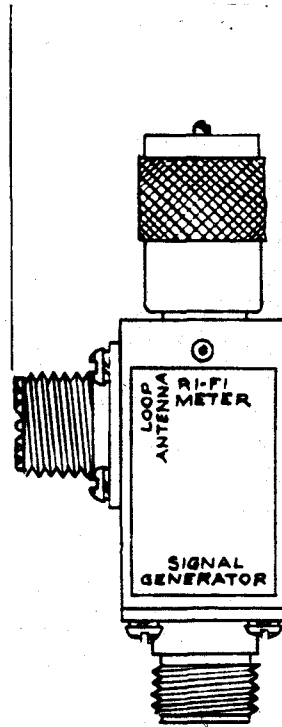
USN

USAF

TYPE CLASS:

Used by

MANUFACTURER'S NAME/CODE NUMBER: Stoddart Aircraft Radio Co., Inc., (78591).



Loop Calibration Kit CADV-91123-1

FUNCTIONAL DESCRIPTION:

Loop Calibration Kit CADV-91123-1 provides a method of accurately calibrating radio interference-field interference equipments in the field, wherever or whenever necessary, requiring only the addition of an LP-5 or General Radio 605-B signal generator.

This equipment is designed for use with Stoddart NN-10A, NM-20A and NM-20B Radio Interference-Field Intensity Measuring equipments, and their military equivalents, AN/URM-6, -68, AN/PRM-1 and AN/PRM-1A.

No field changes in effect at time of preparation (8 June 1961).

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 14 kc to 8 mc.

OUTPUT IMPEDANCE: Series resistance add to the loop antenna circuit is 0.1 ohms.

INPUT IMPEDANCE: Impedance at signal generator terminals of the loop calibration network is 50 ohms.

CADV-91123-1 LOOP CALIBRATION KIT

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

| QTY | ITEM | STOCK NUMBERS | DIMENSIONS (INCHES) | WEIGHT (LBS) |
|-----|--|---------------|------------------------|-----------------|
| 1 | Loop Calibration Kit CADV-91123-1 Includes: | | | |
| 1 | Loop Calibration Network | | 1 x 1-5/8 x 3-9/16 | |
| | CADV-91160-1 | | | |
| 1 | Adapter (Type "N" to GR #774) | | 7/8 dia x 2-15/16 | |
| | CADV-91124-1 | | | |
| 1 | Adapter (40 ohms; Type "N" to GR #774) CADV-91125-1 | | 7/8 dia x 2-7/8 | |
| 1 | Chart Set Assembly CADV-91272-1 | | 1/4 x 5-1/2 x 8-1/2 | |
| 1 | Transmission Line Assy CG-92D/U | | 72 lg | |

REFERENCE DATA AND LITERATURE:

NAVSHIPS 92800: Technical Manual for Stoddart 91123-1 Loop Calibration Kit.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

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 |
|--|-------------------|---------------------------------|----------------------|
| Stoddart Aircraft Radio Co., Inc. Pt/Dwg no. 91123-1 | Hollywood, Calif. | N0bsr-71179, 7 February 1956 | \$96.50 |

1 June 1962

Cog Service:

FSN: 6625-732-8426

FREQUENCY DIVIDER CAQI-113AR

Functional Class:

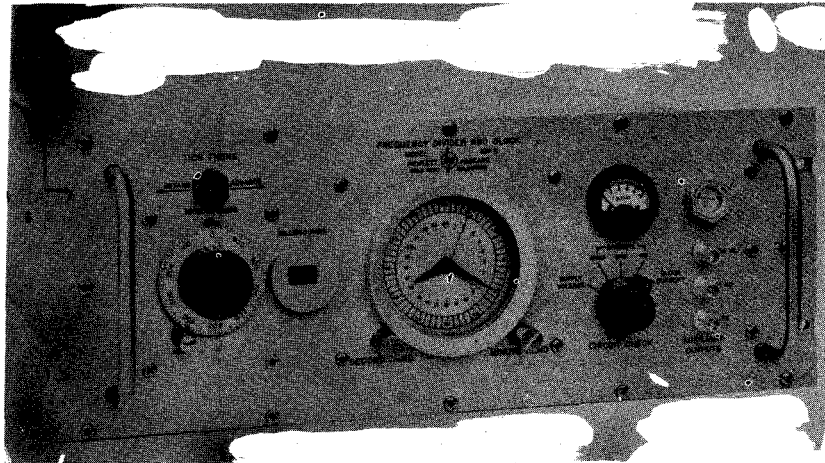
USA

USN

USAF

TYPE CLASS:

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



Frequency Divider CAQI-113AR

FUNCTIONAL DESCRIPTION:

Frequency Divider CAQI-113AR provides a simple, accurate method for making the time comparisons necessary for adjusting a frequency standard.

No field changes in effect at time of preparation (11 April 1961).

TECHNICAL CHARACTERISTICS:

INPUT FREQUENCY: 100 kc perm 500 cps.

INPUT VOLTAGE: 1 to 8 v rms.

INPUT IMPEDANCE: 300 ohms.

TICK OUTPUT

PULSE RATE: 1 pps.

AMPLITUDE: P15 v.

RISE TIME: 2 usec.

CAQI-113AR FREQUENCY DIVIDER

DURATION: 10 usec.

SOURCE IMPEDANCE: 5,000 ohms.

100 MS PULSE

PULSE RATE: 1 pps.

AMPLITUDE: P5 v.

RISE TIME: 2 usec.

DURATION: 100 porm 3 milliseconds.

SOURCE IMPEDANCE: 50 ohms.

FREQUENCY DIVIDER: Regenerative type, fail-safe.

PHASE SHIFTER: Continuously adjustable, calibrated in 10 usec increments.

CLOCK: Manual start; 24 hr dial.

POWER REQUIREMENTS: 24 porm 2 v dc, 10 to 25 W.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

| QTY | ITEM | STOCK NUMBERS | DIMENSIONS (INCHES) | WEIGHT (LBS) |
|-----|------------------------------|---------------|------------------------|-----------------|
| 1 | Frequency Divider CAQI-113AR | | 7 x 19 x 19-1/2 | 35 |

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93837: Technical Manual for Frequency Divider and Clock Model 113AR.

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) |
|------|----------------|--------------|
| 1 | | 51 |

PROCUREMENT DATA

PROCURING SERVICE:

DESIGN COG: Commercial

SPEC &/OR DWG:

4.13 CAQI-113AR: 2

FREQUENCY DIVIDER CAQI-113AR

| CONTRACTOR | LOCATION | CONTRACT OR ORDER NO. | APPROX. UNIT COST |
|--|-----------------------|----------------------------------|------------------------------|
| Hewlett-Packard Company Model no. 113AR | Palo Alto, California | N0bsr-81421, 17 June 1960 | \$2,500.00 |
| | | N0bsr-81456, 27 June 1960 | \$2,500.00 |
| | | N0bsr-81557 | \$2,250.00 |

19 February 1963
Cog Service: USN FSN:

TIME-MARK GENERATOR CBTV-180A
Functional Class: 13

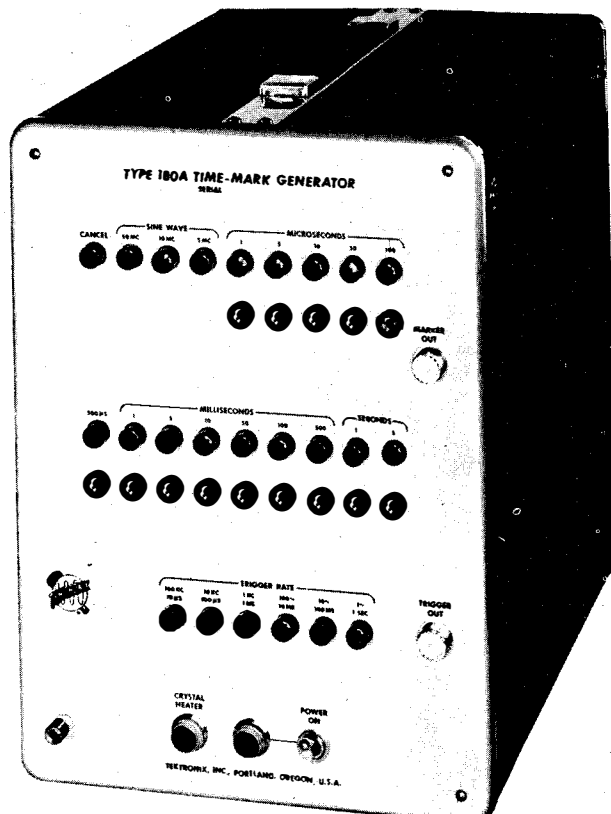
USA

USN

USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Tektronix Inc., (80009).



Time-Mark Generator CBTV-180A

FUNCTIONAL DESCRIPTION:

Time-Mark Generator CBTV-180A is a high-quality source of time markers, sine waves and trigger impulse. Fourteen time markers, 3 sine-wave frequencies and 6 trigger-rate frequencies provide instrument versatility for a large number of applications in the laboratory. With its frequency accuracy of 0.001% and stability of 3 ppm, the Time-Mark Generator is an ideal calibrating source for oscilloscope sweeps, oscillators, and counters. It can also be used as a time-measuring instrument and as a trigger-rate generator. Markers can be presented separately or mixed into a timing-comb combination.

No field changes in effect at time of preparation (13 June 1962).

TECHNICAL CHARACTERISTICS:

TIME MARKERS: Occur at intervals of 1, 5, 10, 50, 100, 500 usec; 1, 5, 10, 50, 100, 500 millisecc, 1 sec and 5 sec.

CBTV-180A TIME-MARK GENERATOR

SINE WAVES: Push-button switches connect the sine wave frequencies of 5 mc, 10 mc or 50 mc to the output connector; output is 3 v min. across 52 ohms.

TRIGGER-RATE GENERATOR: Trigger-rate frequencies of 1, 10, 100 cyc; 1, 10 and 100 kc are derived from the individual multivibrators.

POWER REQUIREMENTS: 105 to 125 v, or 210 to 250 v, 50 to 60 cyc, single ph, 240 W.

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

| QTY | ITEM | STOCK NUMBERS | DIMENSIONS (INCHES) | WEIGHT (LBS) |
|-----|--|---------------|------------------------|-----------------|
| 1 | Time-Mark Generator CBTV-180A includes: | | 9-3/4 x 13-1/2 x 17 | 31 |
| 2 | Output Cable (P93) | | | |
| 1 | Adapter, Clip Lead CBTV-013-003 | | | |
| 1 | Power Cord, 3-conductor CBTV-161-010 | | | |
| 1 | Technical Manual | | | |

REFERENCE DATA AND LITERATURE:

Technical Manual for Time-Mark Generator Type 180A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (13) 6AL5 (3) 6AN8 (2) 6AU6 (3) 6DK6 (13) 12AU7 (2) 12B4 (1) 5651
(14) 5965 (1) 6080

CRYSTALS: None used.

SEMI-CONDUCTORS: (12) 1N2070

SHIPPING DATA

| PKGS | VOLUME (CU FT) | WEIGHT (LBS) |
|------|----------------|--------------|
| 1 | | 43 |

PROCUREMENT DATA

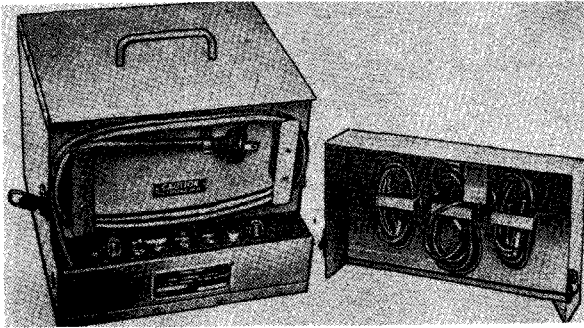
PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: Commercial

4.13 CBTV-180A: 2

TIME-MARK GENERATOR CBTV-180A

| CONTRACTOR | LOCATION | CONTRACT OR ORDER NO. | APPROX. UNIT COST |
|---------------------------------|------------------|----------------------------|----------------------|
| Tektronix Inc. Type no. 180A | Portland, Oregon | NObsr-87122 NObsr-87136 | \$575.00 575.00 |

RANGE CALIBRATOR**I-233***Range Calibrator I-233***FUNCTIONAL DESCRIPTION**

Range Calibrator I-233 is designed as a portable test equipment used in calibrating, checking, and adjusting the range measuring circuits of pulse-operated radar systems.

No field changes in effect at time of preparation (13 October 1958).

RELATION TO OTHER EQUIPMENT

Similar to Range Calibrator I-233 except for output marker pulses.

ELECTRICAL AND MECHANICAL CHARACTERISTICS**OUTPUT SIGNAL FREQUENCY**

SINE WAVE: 186.3 kc.

POSITIVE PULSE: 186,300 pps.

SYNCHRONIZING PULSE: 240 pps.

PRIMARY POWER REQUIREMENTS: 117 v, 50 to 60

cps, single ph, 40 W.

MANUFACTURER'S OR CONTRACTOR'S DATA

Belmont Radio Corporation, Chicago, Ill.
Contract W2279-SC-829.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 5Y3GT (1) 6L6G
(1) 6SJ7 (1) 6SN7GT
(1) 6V6GT

Total Tubes: (5)

No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93003, Vol. 1: Electronic Test Equipment.

TYPE CLASSIFICATION

DESIGN COGNIZANCE TASSA

PROCUREMENT COGNIZANCE

STOCK NO.

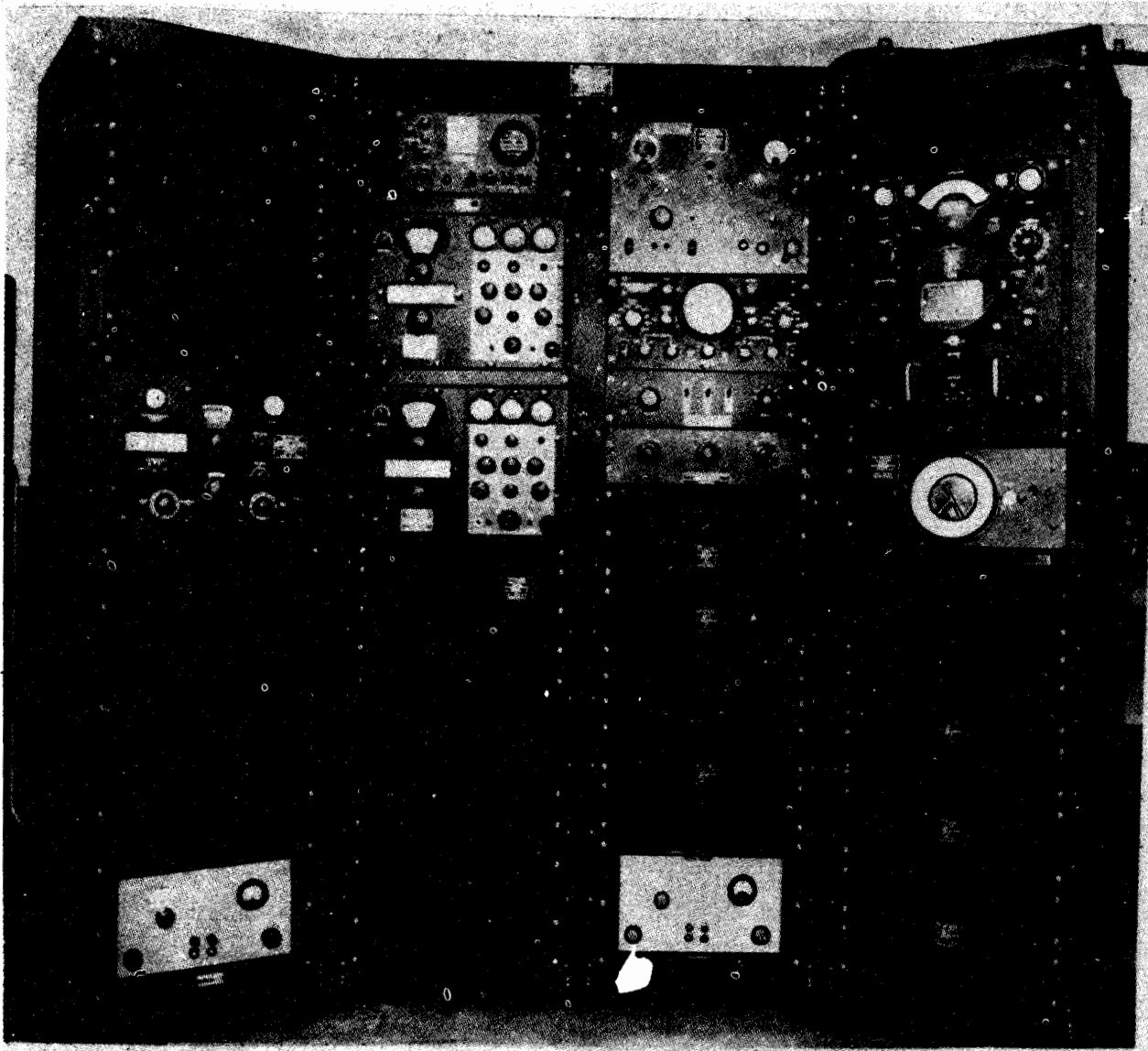
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|------------------------|-----------------------------|---------------|
| 1 | Range Calibrator I-233 | 9-3/4 X 11-3/4 X 12-1/4 | 31 |
| 1 | Cord CD-1099 | 72 lg | |
| 1 | Cord CD-1101 | 72 lg | |
| 1 | Cable Assembly | | |

FREQUENCY CALIBRATING EQUIPMENT

LAM



Frequency Calibrating Equipment LAM

FUNCTIONAL DESCRIPTION

The LAM is a precision frequency measuring instrument designed primarily to measure radio frequencies in the range 16 KC to 27,000 KC. An unknown frequency is measured by a direct comparison between it and a harmonic of either 9, 10 or 11 KC derived from a 100 KC standard. Provision is made in the equipment for simultaneously feeding

both signals, the unknown and the standard harmonic, into the input of a receiver, and then accurately measuring the audio frequency beat between them. The known frequency is then obtained by either adding or subtracting this audio beat from the known frequency of the harmonic used.

No field changes in effect at time of preparation (1 October 1956).

UNCLASSIFIED

June 1957

Test-Calibrating

LAM**FREQUENCY CALIBRATING EQUIPMENT****ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY: 16 to 27,000 KC.
 OPERATING POWER: 115 v, 60 cps, single ph.

(1) NT-40023B (1 MC)
 Total Crystals: (1).

MANUFACTURER'S OR CONTRACTOR'S DATA

Approximate Cost: \$15000.00 with equipment spares.

REFERENCE DATA AND LITERATURE

Technical Manual for Model-LAM-Precision Frequency Calibrating Equipment.

TUBE AND/OR CRYSTAL COMPLEMENT

(11) 6AC7 (8) 6AG7 (1) 6AB7 or 6SK7
 (4) 6SA7 (5) 6SN7 (1) 272

Total Tubes: (30).

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.) |
|-----------------|---------------------------------|-----------------|-----------------------------|----------------------|
| | Frequency Calibrating Equip-LAM | | | 2000 |

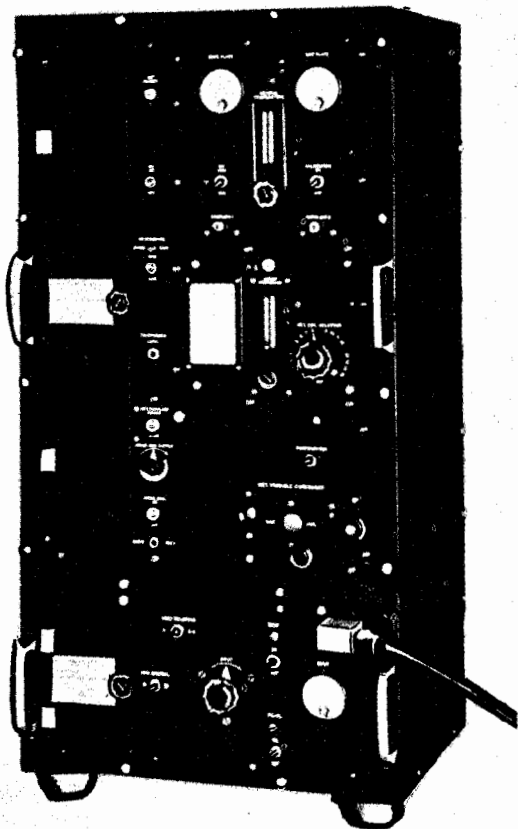
EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---|-----------------------------|---------------|
| 1 | Frequency Calibrating Equip. LAM consisting of: | 36 X 85 X 108 | 1250 |
| 2 | Crystal Oscillator 350461 | | |
| 1 | Regulated Power Supply 20540 | | |
| 1 | Voltage Regulator | | |
| 1 | Interpolation Oscillator 35131 | | |
| 1 | Synchrometer 60159 | | |
| 1 | Frequency Meter LR-2 | | |
| 1 | RBA-Receiver and Power Supply | | |
| 1 | RBB-Receiver and Power Supply | | |
| 1 | RBC-Receiver and Power Supply | | |
| 1 | RBV-Panoramic Adapter | | |
| 1 | 1 MC. Amplifier 50304 | | |
| 1 | 9-10-11 KC-Frequency Generator 35136 | | |
| 1 | Harmonic Generator 35134 | | |
| 1 | Frequency Divider 35132 | | |
| 1 | Power Distribution Unit 23536 | | |
| 1 | RF Distribution Unit | | |
| 1 | Antenna Mixing Unit 35133 | | |
| 1 | Speaker-Amplifier Unit 50301 | | |
| 1 | Comparison Oscilloscope 60160 | | |
| 4 | Racks to house Equipment | 7 ft | |
| 10 | Technical Manuals | | |

March 1957

CALIBRATING EQUIPMENT

LD-2



Calibrating Equipment LD-2

FUNCTIONAL DESCRIPTION

The LD-2 is a frequency measuring equipment composed of a heterodyne frequency meter, substandard crystal oscillator, multivibrator, audio oscillator detector and two stage audio frequency amplifier and a power supply unit.

No field changes in effect at time of preparation (9 August 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

HETERODYNE FREQUENCY METER

TYPE OF CIRCUIT: A voltage-stabilized oscillator in which a screen grid tube is employed.

FREQUENCY RANGE: 100 to 5000 kc.

CRYSTAL OSCILLATOR

CRYSTAL FREQUENCY: 100 kc.

OPERATION

WITHOUT MULTIVIBRATOR: The harmonics

of the crystal frequency provide calibration points at every 100 kc, throughout the range of the heterodyne.

WITH MULTIVIBRATOR: This divides the crystal frequency by 5 so that the harmonics provide checking points at every 20 kc throughout the range of the heterodyne.

MULTIVIBRATOR

FUNDAMENTAL FREQUENCY: 1/5 of the crystal oscillator (20 kc).

AUDIO OSCILLATOR

TYPE OF CIRCUIT: Employs the same circuit as the heterodyne frequency meter, the values of L/C being adjusted to give operation at approximately 40 cps.

DETECTOR AND AUDIO AMPLIFIER

OUTPUT CIRCUITS: Local and remote for use with 600 ohm or 20000 ohm telephones.

POWER SUPPLY: Provides AC for the tube heaters and rectified-filtered supply for the tube plate circuits.

COIL RANGES: 98 to 5100 kc actual: 100 to 5000 kc rated (16 coils).

POWER REQUIREMENTS: 110 v, 60 cps, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Company, Cambridge, Mass.
Contract: NOs 34365 dated, 22 January 1934.

TUBE AND/OR CRYSTAL COMPLEMENT

(6) 56 (3) 57 (1) 82
Total Tubes: (10)

(1) 100 kc
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

Technical Manual for Calibrating Equipment for Model LD-2.

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

LD-2

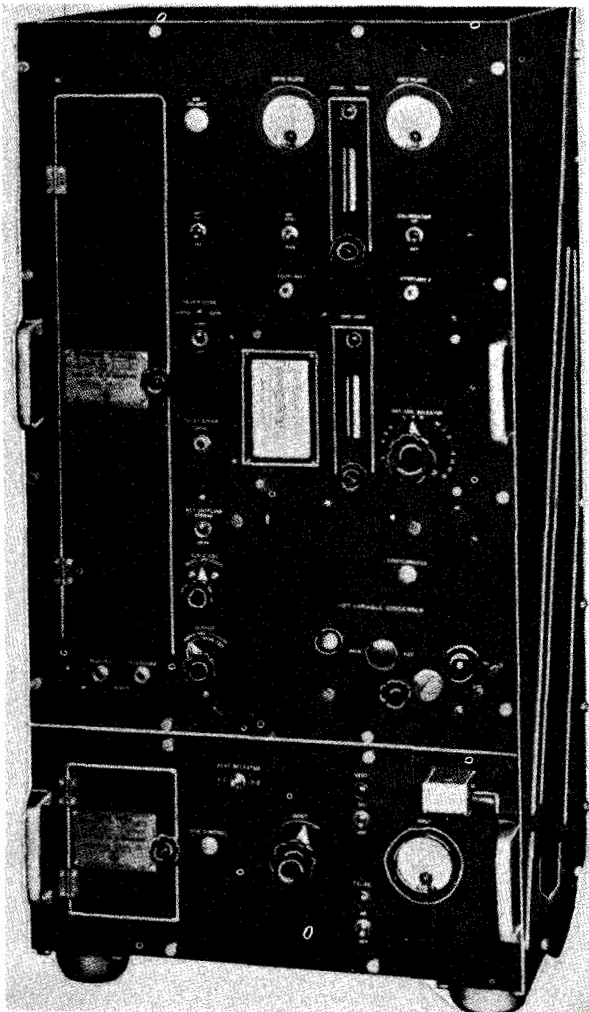
CALIBRATING EQUIPMENT

March 1957

| EQUIPMENT SUPPLIED DATA | | | |
|---------------------------|---|--------------------------------|------------------|
| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
| 1 | Calibrating-Equipment LD-2 consisting of: | | |
| 1 | Heterodyne Calibrator NT-74016 | 15-3/4 X 17-1/4 X 34-3/4 | 171 |
| 1 | Power Supply NT-20017 | | |
| 1 | Set of Mounting Racks and Shockproofing Material | | |

April 1958

Test-Calibrating

CALIBRATING EQUIPMENT**LD-3***Calibrating Equipment Model LD-3***FUNCTIONAL DESCRIPTION**

The Navy Model LD-3 is designed to provide a reliable frequency indicating source in the 100 to 5000 kilocycle frequency range for frequency setting and measurement of receivers, transmitters, or any other electronic equipment where the frequency must be known. It provides calibrating points at every 20 kilocycles throughout the range of the heterodyne and harmonics of heterodyne frequency are also available for use in measuring high frequencies. Two output circuits are available for local and remote telephone

positions.

No field changes in effect at time of preparation (6 August 1958).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 to 500 kc.

FREQUENCY CONTROL: Crystal oscillator.

COUPLING FREQUENCY: 25000 kc harmonics may be picked up by a receiver coupled to heterodyne frequency meter.

CALIBRATING POINTS: 100 kc without multivibrator, 20 kc with multivibrator.

OUTPUT IMPEDANCE: 600 ohms for telephones.

POWER REQUIREMENTS: 110 to 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Radio Co, Cambridge, Mass.

Contract NOs-45269, dated 29 November 1935.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6C6 (6) 76 (1) 83

Total Tubes: (10)

(1) 100KC

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

Technical Manual for Combined Heterodyne Frequency Meter and Crystal Controlled Calibrator Equipment Model LD-3.

TYPE CLASSIFICATION

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE

STOCK NO.

R.D.B. IDENT. NO.

UNCLASSIFIED

4.13 LD-3: 1

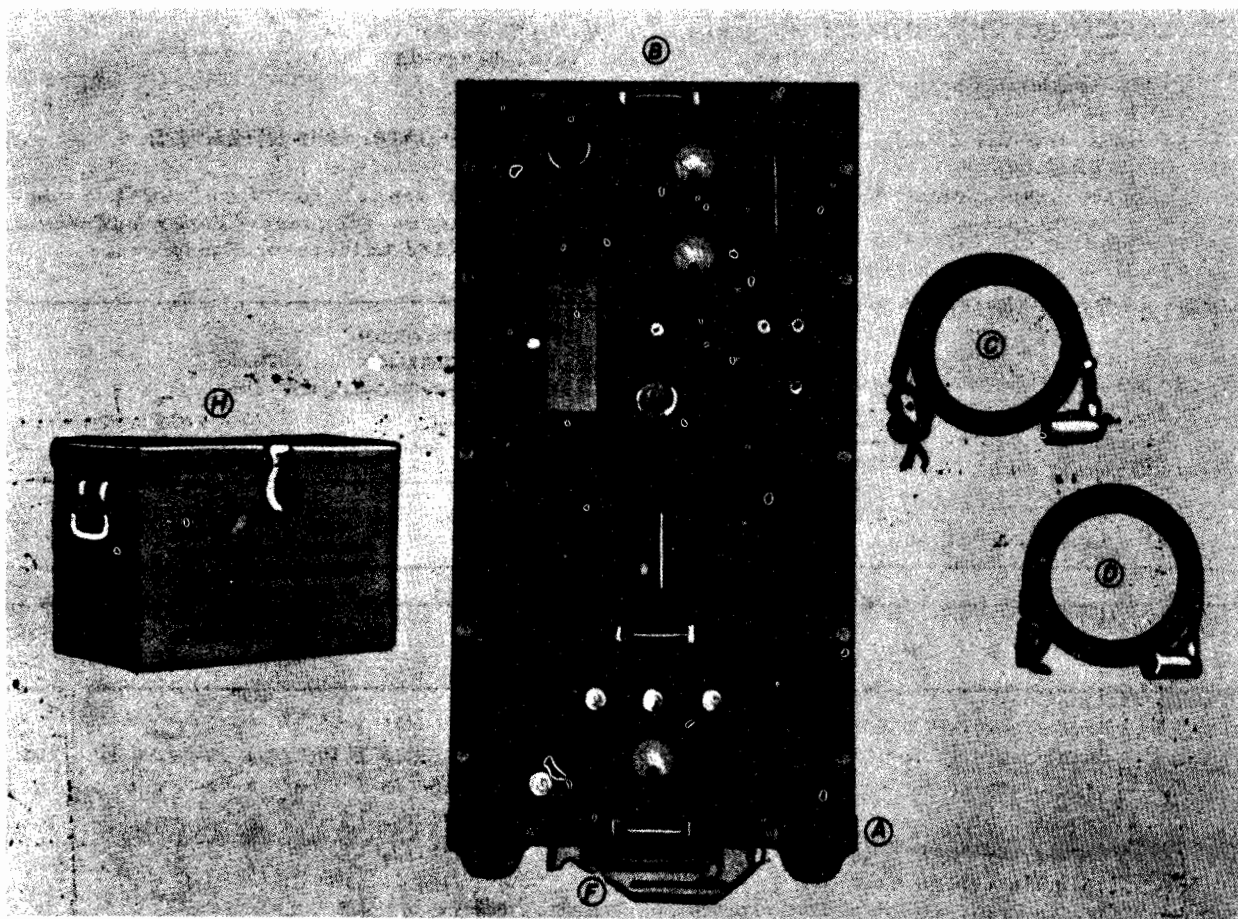
LD-3

CALIBRATING EQUIPMENT

| EQUIPMENT SUPPLIED DATA | | | |
|---------------------------|---|--------------------------------|------------------|
| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
| 1 | Calibrating Equipment Model LD-3 Consisting of: Frequency Measuring Unit NT-74020 Power Unit NT-20046 Mounting Rack | 15-3/4 x 17-1/4 x 34-3/4 | 175 |
| 1 | Set of Equipment Spares | 9 x 11-1/2 x 24-1/4 | 49 |

CALIBRATING EQUIPMENT

LD-4



Calibrating Equipment LD-4

FUNCTIONAL DESCRIPTION

The Model LD-4 combined Heterodyne Frequency Meter and Crystal Controlled Calibrator Equipment is designed to provide a rugged, accurate and reliable frequency measuring device for use in the Naval radio service. It may be used to adjust adjacent transmitters and receivers to any desired frequency in the range 100 to 30,000 kc. The fundamental range of the equipment is 100 to 5000 kc, however, by utilizing harmonics of the heterodyne oscillator, it is possible to cover the range 100 to 30,000 kc. The equipment provides an accuracy of .005% in the fundamental range at any ambient temperature between the limits -1 and +48 degrees centigrade.

No field changes in effect at time of preparation (14 November 1956).

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) 6 volt battery, (1) 340 v battery, (1) 600 ohm telephone headset.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 100 to 30,000 kc on harmonic operation, 100 to 5000 kc fundamental.

AMBIENT TEMPERATURE: -1 to +48° C.

FREQUENCY MEASURING UNIT TEMPERATURE: 45° C ±5°.

CRYSTAL OVEN TEMPERATURE: 50° ±.5° C.

OUTPUT POWER: 6 milliwatts.

POWER SOURCE REQUIRED: 110 to 115 v, 60 cps single phase and 110 to 115 v DC or 110 v to 115 v, 60 cps, single phase, or 6 v and 340 v DC for emergency power.

June 1957

Test-Calibrating

LD-4

CALIBRATING EQUIPMENT

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Research Company, Inc., Washington,
D. C.

Contract NOs 53017, dated 15 February
1947.

Approximate Cost: \$250.00 with equip-
ment spares.

(1) X-Cut 100 kc
Total Crystals: (1)

REFERENCE DATA AND LITERATURE

Technical Manual for Model LD-4 combined
Heterodyne Frequency Meter and Crystal
Controlled Calibrator Equipment.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 83 (1) 84
(2) 41 (3) 76
(2) 7Z (1) 6D6
(1) 6C6

Total Tubes: (11)

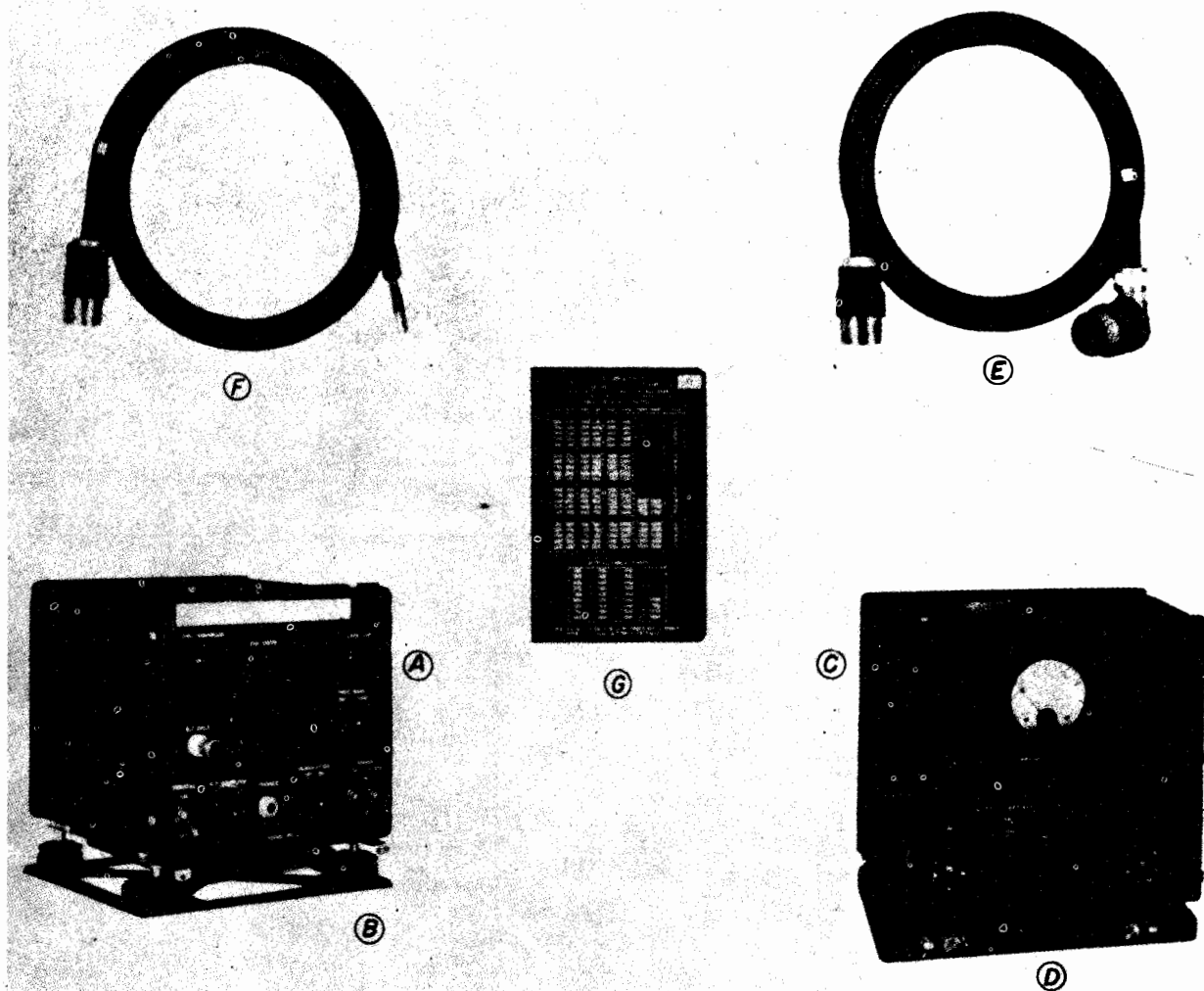
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|------------------------|---------|
| TYPE CLASSIFICATION | |
| DESIGN COGNIZANCE | BUSHIPS |
| PROCUREMENT COGNIZANCE | |
| STOCK NO. | |
| R.D.B. IDENT. NO. | |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|--|---|------------------|
| 1 | Power Unit NT-20065 Dual Cabinets for Units | 8-3/16 X 15-1/8 X 17-3/4 15-1/8 X 18-3/4 X 37-7/16 | 106.5 |
| 1 | Frequency Measuring Unit NT-74021 | 15-1/8 X 17-3/4 X 24-5/32 | 57.5 |
| 1 | Power Cable | 96 in. lg | 1.5 |
| 1 | Emergency Power Cable | 96 in. lg | 1.5 |
| 1 | Auxiliary Inter-Unit Cable | 144 in. lg | 1.25 |
| 1 | Calibration Book | | |
| 2 | Technical Manuals | | |
| 1 | Spare Parts Box | 9-1/16 X 10 X 13-3/8 | 20.5 |
| 1 | Set of Spares | | 14.5 |

HETERODYNE R.F. METER AND CRYSTAL CALIBRATOR EQUIPMENT

LM-8



LM-8 Equipment

FUNCTIONAL DESCRIPTION

The LM-8 has been specially designed to provide a simple, accurate and reliable frequency indicating equipment of the crystal calibrated type for use in the Naval radio service. It is adaptable for adjusting adjacent radio transmitters and receivers to any desired frequency in the range from 195 to 20,000 kcs. The equipment provides accuracies of 0.02 percent in the 195 to 2000 kcs band and 0.01 percent in the 2000 to 20,000 kcs band at any ambient temperature in the range from -32 to $+65^{\circ}\text{C}$.

No field changes in effect at time of preparation (8 April 1957).

RELATION TO OTHER EQUIPMENT

The model LM-8 is identical with the LM-4, 4a LM-5, LM-6, LM-7 except for minor improvements. Corresponding parts are completely interchangeable.

Equipment Required but not Supplied: (1) 600 ohm, Telephone Headset.

Test-Calibrating

LM-8

**HETERODYNE R.F. METER AND
CRYSTAL CALIBRATOR EQUIPMENT**

ELECTRICAL AND MECHANICAL CHARACTERISTICS TUBE AND/OR CRYSTAL COMPLEMENT

FREQUENCY RANGE: 195 to 20,000 kc.
 NUMBER OF BANDS: two.
 ACCURACY: 0.02% in the 195 to 2000 kc band
 and 0.01% in the 2000 to 20,000 kcs band.
 AMBIENT TEMPERATURE RANGE: -32 to +65° C.
 POWER SOURCE REQUIRED: 100 to 130 v, 50 to
 60 cps, single ph.

(1) 77 (1) 76
 (1) 6A7 (1) 84
 Total Tubes: (4)

REFERENCE DATA AND LITERATURE

Technical Manual for Model LM-8, Heterodyne
 RF Meter and Crystal Calibrator Equipment.

MANUFACTURER'S OR CONTRACTOR'S DATA

Bendix Radio Corp, Baltimore, Maryland
 Contract NOs-87546 dated 21 June 1941.

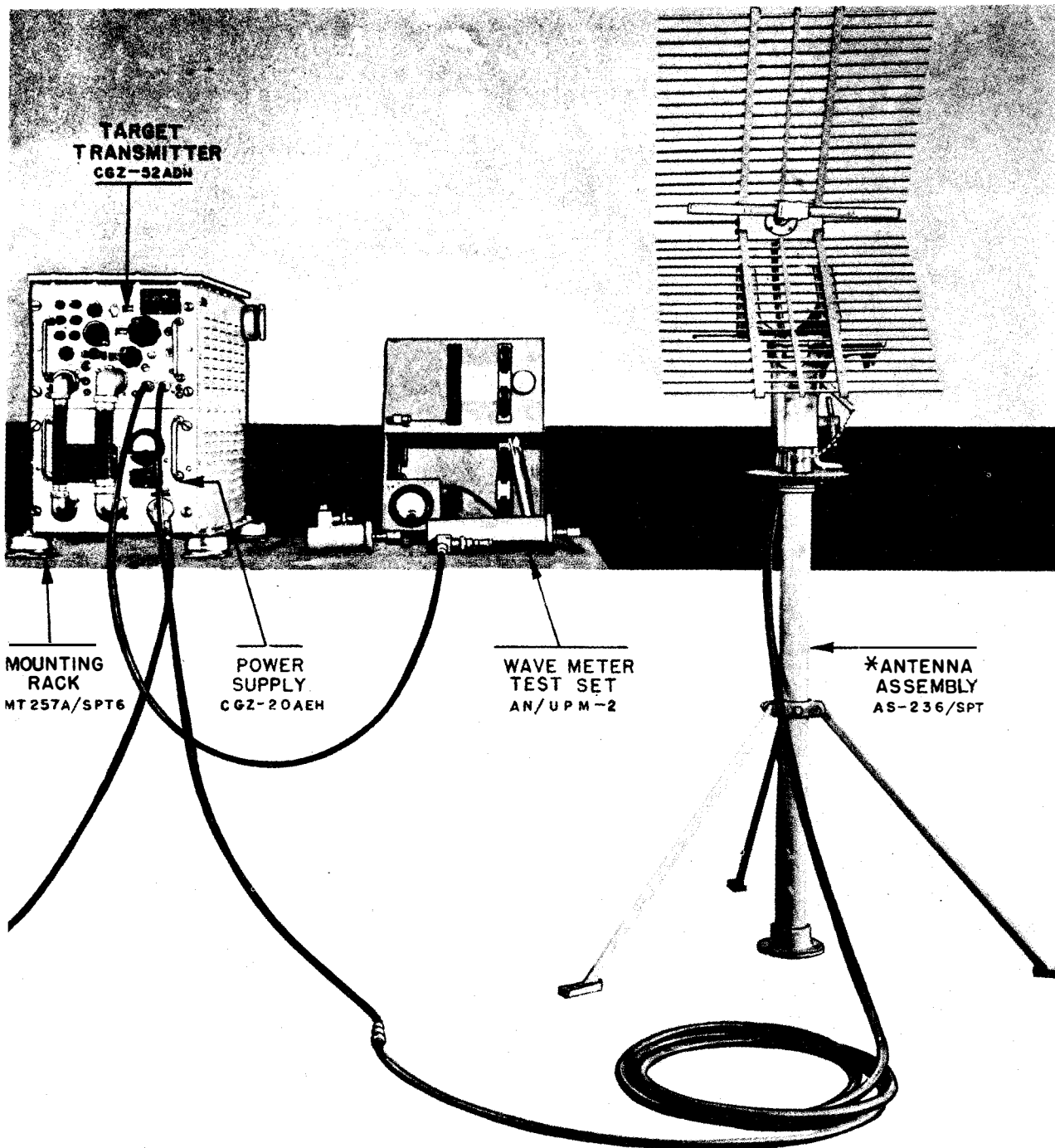
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|---------------------------|
| TYPE CLASSIFICATION |
| DESIGN COGNIZANCE BUSHIPS |
| PROCUREMENT COGNIZANCE |
| STOCK NO. |
| R.D.B. IDENT. NO. |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|--|--------------------------------|------------------|
| 1 | RF Meter and Crystal Calibrator NT-74024 | 8-1/2 x 8-1/2 x 8-7/16 | 11.5 |
| 1 | Mounting Base | 1/2 x 7 x 7-7/8 | 0.5 |
| 1 | Rectifier Power Unit NT-20104 | 8-3/16 x 8-3/16 x 8-5/8 | 13.6 |
| 1 | Mounting Base | 11/16 x 7-7/8 x 8-7/16 | 0.5 |
| 1 | Power Cable | 10 ft. lg | 1.31 |
| 1 | AC Input | 9 ft. lg | 1.5 |
| 1 | Calibration Book | | |
| 2 | Instruction Books | | |
| 1 | Set of Spare Parts. | | 29.0 |

RADAR DF TARGET TRANSMITTER EQUIPMENT

Test Calibrating
OCY-1 w/52ADN



* GOV'T FURNISHED TO CONTRACTOR
Radar DF Target Transmitter Equipment OCY-1 w/52ADN

OCY-1 w/52ADN RADAR DF TARGET TRANSMITTER EQUIPMENT

March 1957

FUNCTIONAL DESCRIPTION

The OCY-1 w/52ADN is intended for use in calibrating Radar Direction Finder Equipment DBM-1 and similar equipments.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Wavemeter Test Set AN/UPM-2; (1) Technical Manual for AS-263/UPT, NAVSHIPS 900,871; (1) Technical Manual for AS-263/SPT, NAVSHIPS, 900,837; Technical Manual for AN/SPT-6A, SHIPS 383; (1) Technical Manual for AN/UPM-2, NAVSHIPS 900,4521B.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 165 to 1360 mc.
 OSCILLATOR: Self excited.
 TYPE MODULATION: Pulse.
 OUTPUT POWER: 100 W.
 PULSE RATE: 2500 cps.
 PULSE DURATION: 2 to 7 usec.
 OUTPUT IMPEDANCE: 50 ohms.
 OPERATING POWER: 115 v, 60 cps, single ph, 1.6 amp.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Co., Boston, Mass.
 Contract NObsr-30021, dated 1 June 1946.

TUBE AND/OR CRYSTAL COMPLEMENT

| | |
|-----------|----------------|
| (1) 5R4GY | (1) 6L6GT |
| (1) 1616 | (2) OD3/VR-150 |
| (1) 829B | (2) 3C22 |

Total Tubes: (8)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91,011-VOL-1: Technical Manual for Radar DF Target Transmitter Equipment OCY-1W/52ADN.

| | |
|------------------------|---------|
| TYPE CLASSIFICATION | BUSHIPS |
| 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 | DF Target Transmitter OCY-1 | 11.7 | 24-1/4 X 24-1/4 X 34-1/4 | 300 |
| 1 | Equipment Spares (partial) | 4.0 | 13 X 19 X 25-1/2 | 90 |
| 1 | Equipment Spares (partial) | 4.0 | 13 X 19 X 25-1/2 | 170 |
| 1 | Antenna AN-71/SPT-2 | 2.5 | 10-1/2 X 17 X 22-1/2 | 42 |
| 1 | Antenna AN-145/SPT-6 | 2.6 | 10-1/2 X 17-1/2 X 22-1/2 | 42 |
| 1 | Antenna AN-236/SPT(Partial) | 9.2 | 21-1/2 X 26-1/2 X 28 | 139 |
| 1 | Antenna AN-236/SPT(Partial) | 5.2 | 13 X 13 X 53-1/2 | 128 |
| 1 | Antenna AN-263/UPT(Partial) | 5.5 | 17-1/2 X 18 X 29-1/2 | 95 |
| 1 | Antenna AN-263/UPT(Partial) | 13.3 | 10-1/2 X 42-1/2 X 52 | 230 |

RADAR DF TARGET TRANSMITTER EQUIPMENT

OCY-1 w/52ADN

EQUIPMENT SUPPLIED DATA

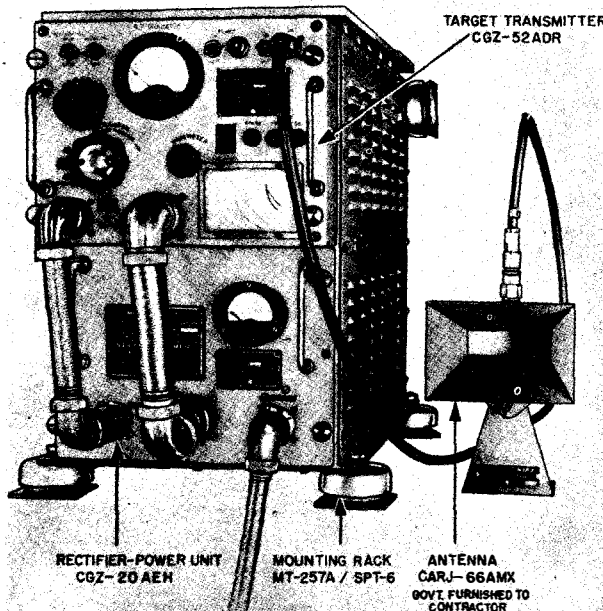
| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|--|--------------------------------|------------------|
| 1 | Target Transmitter NT-52ADN | 7-5/8 X 10-1/8 X 19-1/2 | 50 |
| 1 | Rectifier Unit NT-20AEH | 7-5/8 X 10-1/8 X 19-1/2 | 57 |
| 1 | Mounting Rack MT-257A/SPT-6 | 12-3/8 X 20 X 21-1/8 | 55 |
| 1 | Set Frequency Adapter | | |
| *1 | Antenna Assembly AS-71/SPT-2 | | |
| *1 | Antenna Assembly AS-145/SPT-6 | | |
| *1 | Antenna Assembly AS-236/SPT | | |
| *1 | Antenna Assembly AS-263/UPT | | |
| 2 | Technical Manuals NAVSHIPS 91011 VOL-1 | | |
| 1 | Equipment Spare Box | 9-1/4 X 16 X 20-5/8 | 56 |
| 1 | Equipment Spare Box | 9-1/4 X 16 X 20-5/8 | 136 |

*This equipment is furnished by the Gov't to the Contractor and then shipped as part of OCY-1.

March 1957

RADAR DF TARGET TRANSMITTER EQUIPMENT

OCY-1 w/52ADR



Radar DF Target Transmitter Equipment
OCY-1W/52ADR

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2100 to 3800 mc.
 MODULATION: Pulse, 2 to 7 usec.
 OUTPUT POWER: 100 W.
 FREQUENCY STABILITY: 0.5%
 OPERATING POWER: 115 v, 60 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Co., Boston, Mass.
 Contract NObsr-30021, dated 1 June 1946.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 5R4GY (2) 1616
 (1) 829B (1) 6L6GT
 (1) 2C43
 Total Tubes: (7)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91,01L VOL.2: Technical Manual for
 Radar DF Target Transmitter Equipment
 OCY-1-W/52ADR.

FUNCTIONAL DESCRIPTION

The OCY-1 w/52ADR is intended for use in calibrating Radar Direction Finder equipment DBM-1 and similar equipment.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Mounting Rack MT-257A/SPT-6, (1) Power Supply NT-20AEH.

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 | Target Transmitter NT-52ADR | 5.3 | 16-1/4 X 17-1/2 X 30-3/4 | 112 |
| 1 | Box Equipment Spares | 1.6 | 9 X 13 X 23 | 46 |
| 1 | Antenna NT-66AMX | 1.6 | 13 X 13 X 16. | 15 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---|-----------------------------|---------------|
| 1 | Target Transmitter NT-52ADR | 10-1/2 X 13-3/4 X 26-1/2 | 65 |
| 1 | Box Equipment Spares | 6-1/4 X 9-1/2 X 18-1/4 | 14 |
| 2 | Technical Manuals NAVSHIPS 91,011-VOL 2 | | |
| *1 | Antenna NT-66AMX | | 2 |

*Gov't Supplied to Contractor

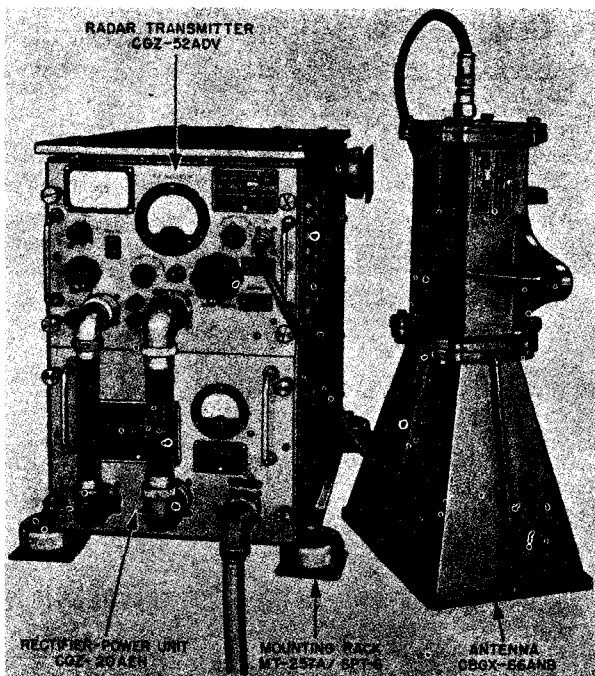
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4.13 OCY-1W/52ADR: 1

March 1957

RADAR DF TARGET TRANSMITTER EQUIPMENT

OCY-1 w/52ADV



*Radar DF Target Transmitter Equipment
OCY-1, W/52ADV (1200 mc-2400 mc)*

(1) *Mounting Rack MT-257A/SPT-6, (1) *Power Supply NT-20AEH.
*These units furnished with NT-52ADN under Contract NObsr-30021.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1200 to 2400 mc.
TYPE MODULATION: Pulse.
OUTPUT POWER: 100 W.
PULSE RATE: 2500 pps.
PULSE DURATION: 1.5 to 7 usec.
OUTPUT IMPEDANCE: 52 ohms.
FREQUENCY STABILITY: 0.5%.
OPERATING POWER: 115 v, 60 cps, single ph, 1.7 amp.

MANUFACTURER'S OR CONTRACTOR'S DATA

General Communication Co., Boston, Mass.
Contract NObsr-39146, dated 29 May 1947.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 5R4GY (1) 2C38 (1) 6L6GT
(2) 1616 (1) 829B
Total Tubes: (7)

REFERENCE DATA AND LITERATURE

NAVSHIPS 91011-VOL.3: Technical Manual for Radar DF Target Transmitter Equipment OCY-1W/52ADV.

| |
|---------------------------|
| TYPE CLASSIFICATION |
| DESIGN COGNIZANCE BUSHIPS |
| PROCUREMENT COGNIZANCE |
| STOCK NO. |

FUNCTIONAL DESCRIPTION

The OCY-1 w/52ADV is intended for use in calibrating Radar Direction Finder Equipment DBM-1 and similar equipment.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied:

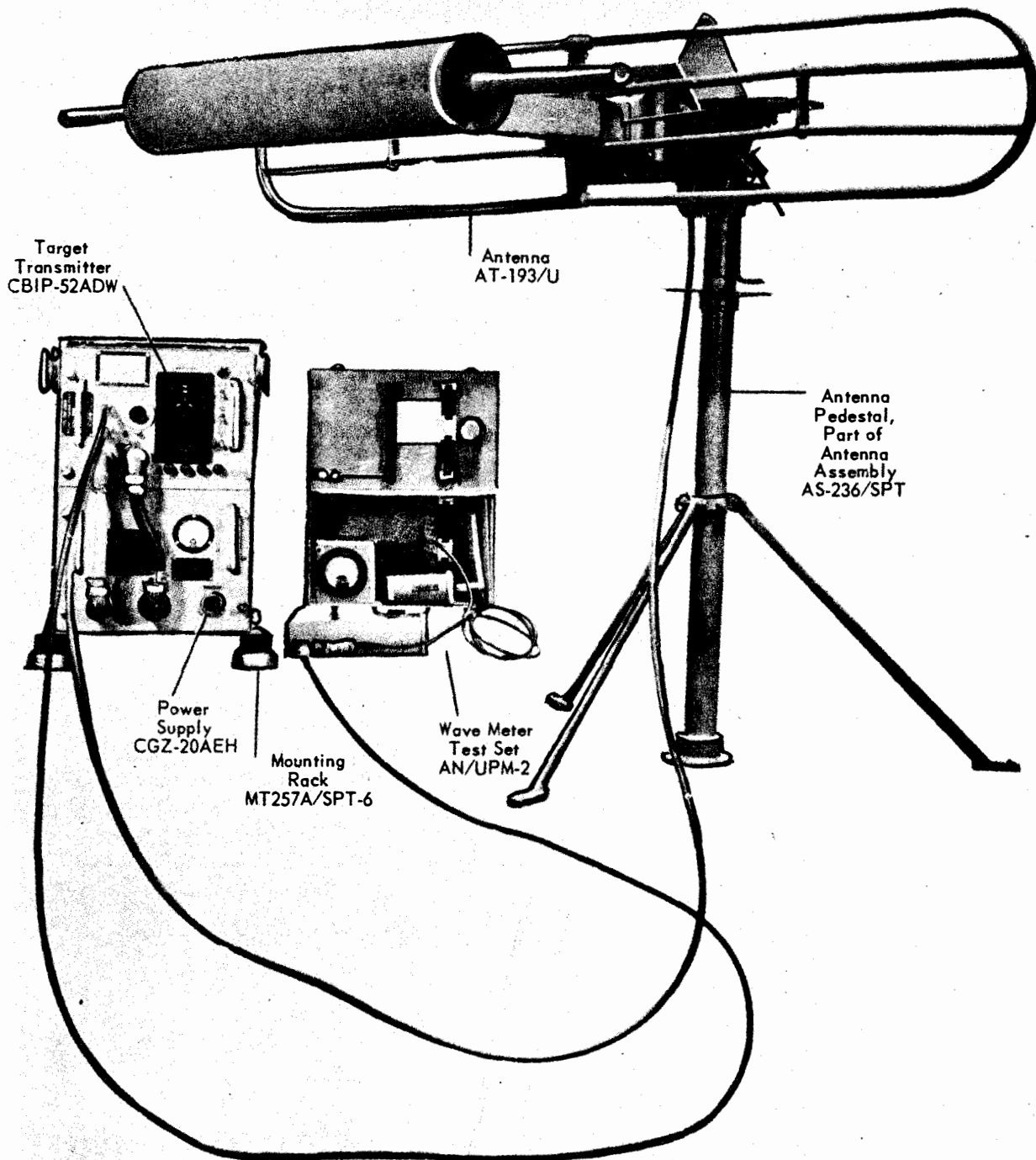
SHIPPING DATA

| NUMBER OF BOXES | CONTENTS AND IDENTIFICATION | VOLUME (Cu.Ft.) | OVERALL DIMENSIONS (inches) | WEIGHT PACKED (lbs.) |
|-----------------|-----------------------------|-----------------|-----------------------------|----------------------|
| 1 | Target Transmitter NT-52ADV | 5.3 | 16-1/4 x 17-1/2 x 30-3/4 | 112 |
| 1 | Box Equipment Spares | 2.4 | 11 x 15 x 23 | 49 |
| 1 | Antenna NT-66ANB | 3.6 | | 52 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---|-----------------------------|---------------|
| 1 | Target Transmitter NT-52ADV | 10-1/2 x 13-3/4 x 26-1/2 | 65 |
| 1 | Equipment Spare Box | 6-1/4 x 9-1/2 x 18-1/4 | 30 |
| 2 | Technical Manuals NAVSHIPS 91011 Vol. 3 | | |
| *1 | Antenna NT-66ANB | | 25 |
| *2 | Technical Manuals NAVSHIPS 91009 | | 2 |

RADAR DF TARGET TRANSMITTER EQUIPMENT



Radar DF Target Transmitter Equipment OCY-1 w/52ADW

OCY-1 w/52ADW RADAR DF TARGET TRANSMITTER EQUIPMENT

March 1957

FUNCTIONAL DESCRIPTION

OUTPUT IMPEDANCE: 50 ohms.
OPERATING POWER: 115 v, 60 cps, single ph, 1.6 amp.

The OCY-1W/52ADW is intended for use in calibrating Radar Direction Finder Equipment DBM-1 and similar equipment.

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

MANUFACTURER'S OR CONTRACTOR'S DATA

International Industrial Development Co.,
Washington, D. C.
Contract NObsr-42503, dated 1 July 1948.

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) *Rectifier Unit and Interconnecting Cables NT-20AEH, (1) *Mounting Rack MT-257A/SPT-6, (1) Wavemeter Test Set AN/UPM-2, (1) *Antenna Mounting Table AS-236/SPT.
*Furnished with NT-52ADN portion of the OCY-1 equipment.

TUBE AND/OR CRYSTAL COMPLEMENT

| | |
|-----------|-----------|
| (2) 5R4GY | (1) 6L6G |
| (2) 1616 | (1) 2C26A |
| (1) 829B | (1) 6N090 |

Total Tubes: (8)

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 80 to 170 mc.

TUNING BAND RANGE

BAND A: 80 to 100 mc.

BAND B: 100 to 130 mc.

BAND C: 130 to 170 mc.

OSCILLATOR: Self excited.

TYPE MODULATION: Pulse.

OUTPUT POWER: 50 W min peak power.

PULSE RATE: 2500 pps.

PULSE DURATION: 1.75 to 3.5 usec.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91011-VOL.4: Technical Manual for Radar DF Target Transmitter Equipment OCY-1W/52ADW.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

| NUMBER OF BOXES | CONTENTS AND IDENTIFICATION | VOLUME (Cu.Ft.) | OVERALL DIMENSIONS (inches) | WEIGHT PACKED (lbs.) |
|-----------------|---|-----------------|-----------------------------|----------------------|
| 1 | Radar Transmitter NT-52ADW Storage Case CY-687/U | 7.4 | 19-1/2 X 19-1/2 X 33 | 110 |
| 1 | Antenna AT-193/U | 11.8 | 10 X 36-1/2 X 57 | 160 |
| 1 | Antenna Mounting Bracket | 1.7 | 10-1/2 X 13-1/2 X 19 | 28 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|-----------------------------|-----------------------------|---------------|
| 1 | Target Transmitter NT-52ADW | 9 X 11-5/8 X 19-7/8 | 26.5 |
| 1 | Storage Case CY-687/U | 11 X 12 X 21-1/2 | 21.5 |
| 1 | Antenna AT-193/U | 11 3/4 X 32 X 72 | 79.75 |

31 May 1962

CALIBRATOR, AUDIO LEVEL TS-1473/U

Cog Service:

FSN:

Functional Class:

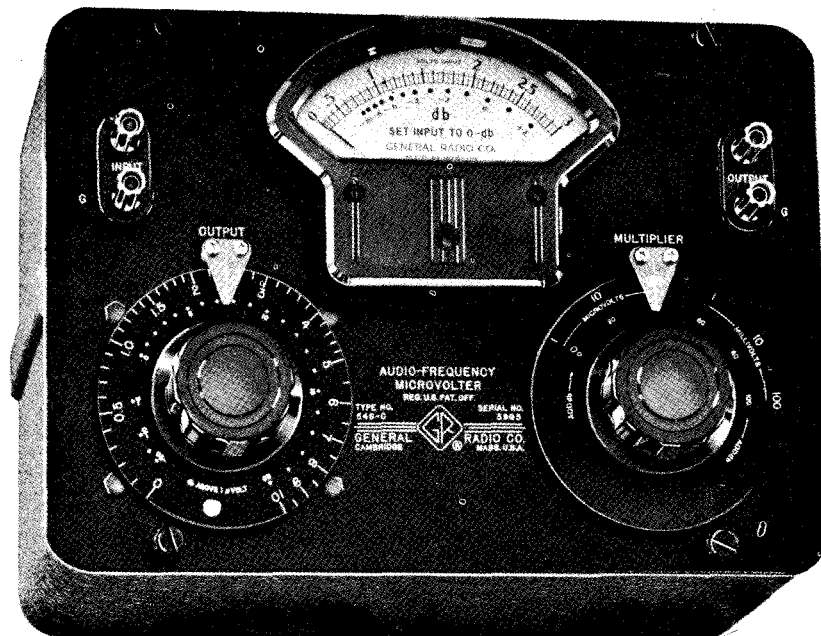
USA

USN

USAF

TYPE CLASS:

MANUFACTURER'S NAME/CODE NUMBER: General Radio Company.



Calibrator, Audio Level TS-1473/U

FUNCTIONAL DESCRIPTION:

Calibrator, Audio Level TS-1473/U is a calibrated attenuator or voltage divider which, when used with a suitable oscillator, supplies small, accurately known audio-frequency voltages. Use of the calibrator converts an oscillator into a standard-signal generator, valuable in such measurements as gain or loss, frequency-response characteristics, overload level, and hum level on amplifiers, networks, and other audio-frequency equipment. The combination of oscillator and calibrator is also useful in the measurement of the generated voltage of microphones, vibration and phonograph pickups, and other transducers by the insert-voltage method. The calibrator provides the standardizing voltmeter and the calibrated attenuator necessary to supply accurately known voltages from 0.5 mv to 1 v (open circuit).

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

TS-1473/U CALIBRATOR, AUDIO LEVEL

TECHNICAL CHARACTERISTICS:

OUTPUT VOLTAGE RANGE: 0.5 mv to 1.0 v open circuit.

ACCURACY: Within porm (3% P0.5 mv) for output above 1 mv and all frequencies between 20 and 20,000 cyc.

OUTPUT IMPEDANCE: Approx. 600 ohms porm 5%.

INPUT IMPEDANCE: Approx. 600 ohms.

- POWER REQUIREMENTS: The driving oscillator must be capable of furnishing about 2.2 v across 600 ohms.

RELATION TO OTHER EQUIPMENT:

This equipment formerly known as NT-60176.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

MAJOR COMPONENTS

| QTY | ITEM | STOCK NUMBERS | DIMENSIONS (INCHES) | WEIGHT (LBS) |
|-----|--------------------------------------|---------------|------------------------|-----------------|
| 1 | Calibrator, Audio Level TS-1473/U | | 6-1/8 x 7-1/8 x 10 | 6.50 |

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93513: Technical Manual for Calibrator, Audio Level TS-1473/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: None used.

CRYSTALS: None used.

SEMI-CONDUCTORS: None used.

SHIPPING DATA

| PKGS | VOLUME (CU FT) | WEIGHT (LBS) |
|------|----------------|--------------|
|------|----------------|--------------|

PROCUREMENT DATA

PROCURING SERVICE:

DESIGN COG: USN, BuShips

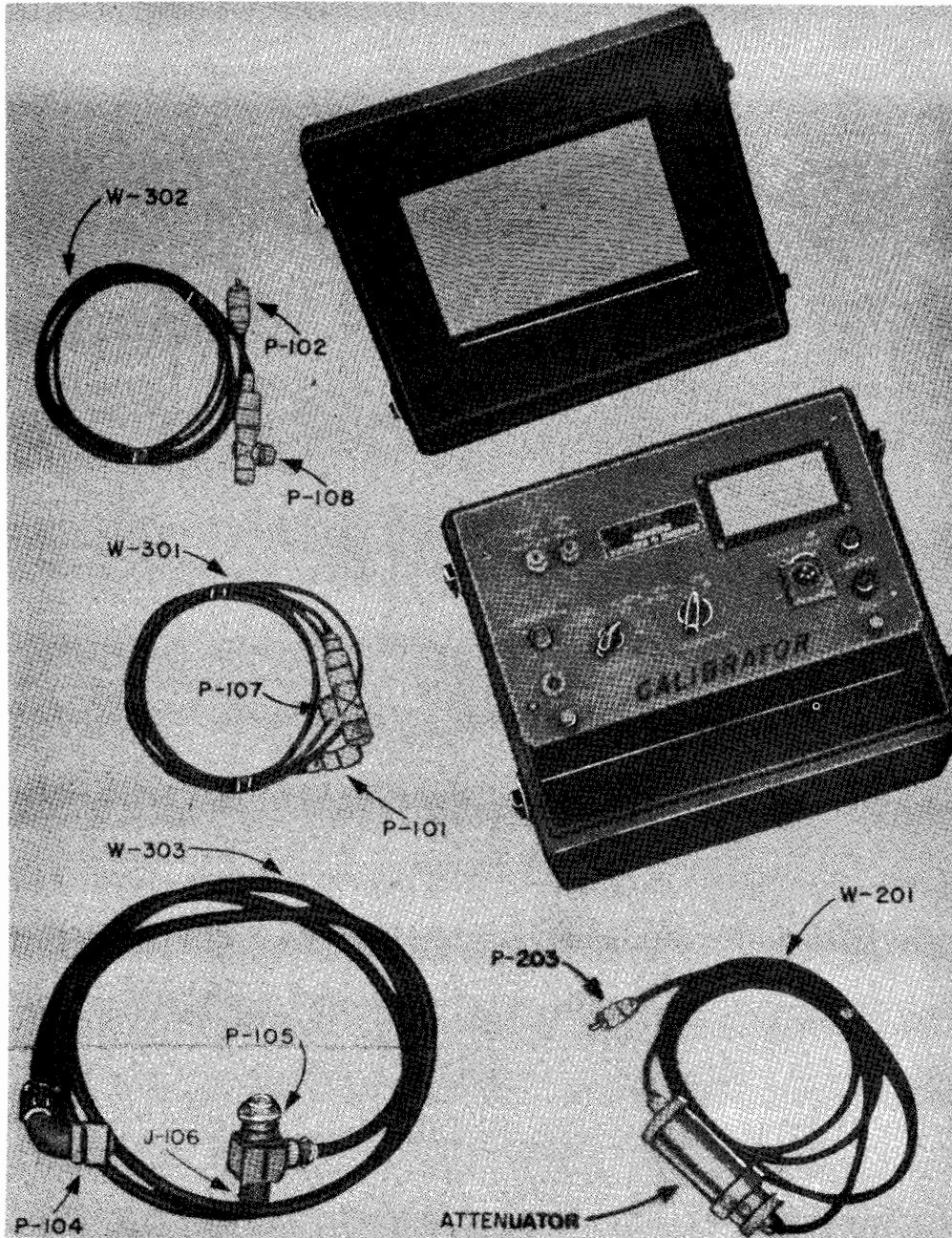
SPEC &/OR DWG:

CALIBRATOR, AUDIO LEVEL TS-1473/U

| CONTRACTOR | LOCATION | CONTRACTOR OR ORDER NO. | APPROX. UNIT COST |
|---|-----------------------------|------------------------------------|------------------------------|
| General Radio Company Type no. 546-C | West Concord, Massachusetts | N0bsr-81152, 29 January 1960 | \$146.95 |

RANGE CALIBRATOR

Test-Calibrating
TS-250/APN and
TS-250A/APN



Test Set TS-250/APN

FUNCTIONAL DESCRIPTION

The TS-250/APN and TS-250A/APN are designed as portable radio altimeter calibrators that provides an accurate signal source for calibrating all ranges of Aircraft Radio

Altimeter Equipments AYB, AYD, Radio Sets AN/ARN-1 and AN/APN-1, and for measuring over-all loop sensitivity.

As compared with standard delay line calibrators, the TS-250/APN and TS-250A/APN offers, greater accuracy, accurate cali-

April 1959

Test-Calibrating

**TS-250/APN and
TS-250A/APN**

RANGE CALIBRATOR

bration of high and low altitude ranges, and provisions for aligning the counter circuits.

No field changes in effect at time of preparation (1 April 1959).

7, Pennsylvania.

Part No. B-1051.

Contract N383s-70994.

Raytheon Mfg Co., Waltham, Mass.

Contract NXsa-69236.

RELATION TO OTHER EQUIPMENT

The TS-250/APN and TS-250A/APN are electrically and mechanically interchangeable; except that the TS-250A/APN has an extra set of contacts to the front of the calibrate switch and different in type of case use.

TUBE AND/OR CRYSTAL COMPLEMENT

- (2) 6AG7 (2) 955
- (2) 559 (2) 12SJ7

Total Tubes: (8)

- (2) 1N21B (1) 130-1300KC

Total Crystals: (3)

ELECTRICAL AND MECHANICAL CHARACTERISTICS

- CALIBRATION ACCURACY: Within 1%.
- ATTENUATOR ACCURACY: Within 3 db.
- AUDIO OSCILLATOR OUTPUT FREQUENCY: 1200 or 6700 cps.
- AVERAGING OSCILLATOR FREQUENCY: 18 cps.
- OUTPUT IMPEDANCE: 50 ohms.
- POWER CONSUMPTION: 2.6 amp with 27 v dc input.
- OPERATING POWER RQMT: 24 to 29 v dc; primary power source is usually taken from the same 27 v dc source used by the Altimeter under test by means of an adapter plug and cable.

REFERENCE DATA AND LITERATURE

AN 16-35TS250-2: Technical Manual for Aircraft Radio Equipment Model TS-250/APN.

MANUFACTURER'S OR CONTRACTOR'S DATA

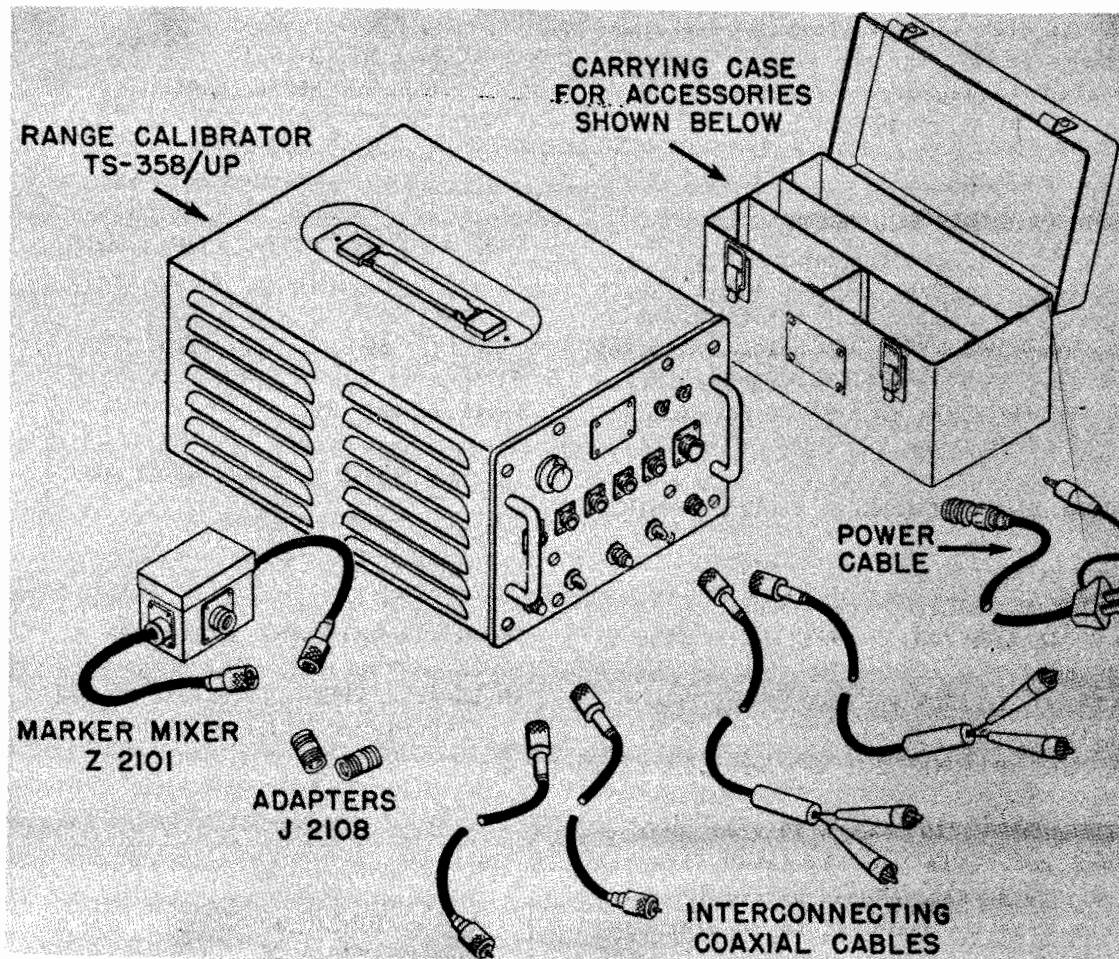
Jetronic Industries, Inc., Philadelphia

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUAER
 PROCUREMENT COGNIZANCE MIL-T-945A
 STOCK NO.
 R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|--|-----------------------------|---------------|
| 1 | Altimeter Calibrator TS-250/APN or TS-250A/ARN | 12 X 12 X 15 | 20 |
| 1 | Attenuator Ass'y | | 1 lb. 1 oz |
| 1 | Power Cable Ass'y | | 1 lb. 13 oz |
| 1 | Signal Cable Ass'y | | 1/2 |
| 1 | Synchronizing Cable Ass'y | | 1/2 |

RANGE CALIBRATOR



Range Calibrator TS-358/UP

FUNCTIONAL DESCRIPTION

The TS-358/UP is a portable, self-contained test unit designed to provide crystal controlled calibration markers for checking and adjusting the calibration circuits of radar sets or to calibrate the ranges of sets having no calibration circuits. When a synchronizing pulse input to an external calibration circuit is provided, the timing of this triggering input may be varied in order to synchronize the occurrence of markers on the indicator of the unit under test with the markers of this test equipment thereby making possible the alignment of the external circuit. In equipments having no calibration circuits, the triggering input may be made to synchronize the marker at the beginning of the sweep.

No field changes in effect at time of preparation (6 May 1958).

RELATION TO OTHER EQUIPMENT

The TS-358/UP has been superseded by Range Calibrator TS-573/UP Series.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

CRYSTAL FREQUENCY: 81.964 kc.
ACCURACY: $\pm 0.01\%$ (0 deg C to +60 deg C).
MARKERS: 1, 5, 10 and 50 miles.
ACCURACY: $\pm 0.05\%$ or ± 15 yd whichever is greater.
OUTPUT IMPEDANCE: 18 ohms.
TRIGGER DATA

April 1958

Test-Calibrating

TS-358/UP**RANGE CALIBRATOR**

RATE: 180 or 540 pps.
 AMPLITUDE: 26 to 50 v peak.
 OUTPUT IMPEDANCE: 330 ohms.
 DELAY WITH RESPECT TO MARKERS: 95 to 105
 usec approx (540 pps range).
 POWER REQUIREMENTS: 115 v, 60 cps, single
 ph, 100 W.
 TEMPERATURE LIMITS: 0 to 50 deg C ambient.

(1) NT-40059
 Total Crystals: (1)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900817: Technical Manual for Range
 Calibrator TS-358/UP.

MANUFACTURER'S OR CONTRACTOR'S DATA

RCA Victor Div. of Radio Corp. of America,
 Camden, N.J.
 Contract N5sr-5921, dated 6 June 1945.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OD3W
 (1) 6X5WGT
 (8) 6SN7WGTA
 Total Tubes: (12)

(1) 6SA7
 (1) 6AG7Y

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUSHIPS
 PROCUREMENT COGNIZANCE RE16C20
 STOCK NO.
 R.D.B. IDENT. NO.

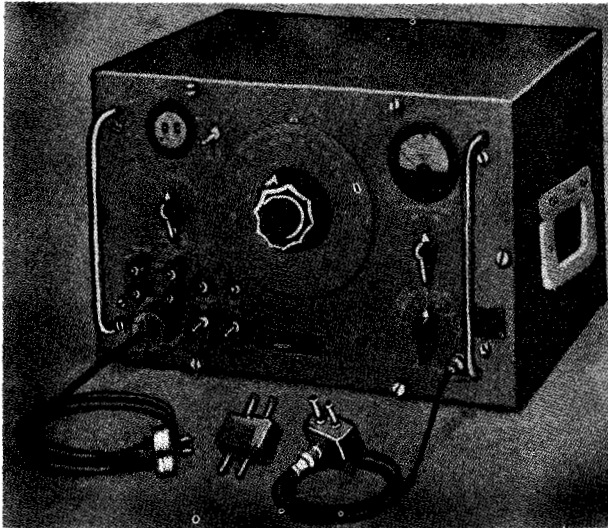
SHIPPING DATA

| NUMBER OF BOXES | CONTENTS AND IDENTIFICATION | VOLUME (Cu.Ft.) | OVERALL DIMENSIONS (inches) | WEIGHT PACKED (lbs.) |
|-----------------|--|-----------------|-----------------------------|----------------------|
| 1 | Range Calibrator with accessories in carrying case | 9.0 | 18 x 22 x 40 | 143 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---|-----------------------------|---------------|
| 1 | Range Calibrator TS-358/UP | 8-13/16 x 12-3/4 x 19-23/32 | 56 |
| 1 | Carrying Case containing: | 5-1/4 x 6-3/16 x 12-9/64 | 14 |
| | (2) Cable NT-62277 | 72 in. lg | |
| | (2) Cable NT-62280 | 72 in. lg | |
| | (1) Power Cable NT-62346 | 96 in. lg | |
| | (1) Junction Box NT-62345 | 1-1/4 x 1-29/32 x 2-1/64 | |
| | (2) Extension Adapter NT-49191 | | |
| | (2) Technical Manual NAVSHIPS 900817 | | |

December 1956

AUDIO OSCILLATOR**TS-382D/U***Audio Oscillator TS-382D/U***ELECTRICAL AND MECHANICAL CHARACTERISTICS**

VOLTAGE OUTPUT: 0 to 10 v AC (20 to 200,000 cps).

ACCURACIES

OUTPUT FREQUENCY: Within 2% of that indicated on dial.

OUTPUT VOLTAGE: Within 3% of true output.

FREQUENCY METER

TYPE: Vibrating reed.

PRESENTATION: 60 and 400 cps.

ACCURACY: 0.3%.

OUTPUT AMPLIFIER: Constant within 2 db over frequency range.

POWER REQUIREMENTS: 105 to 117 v, 50 to 1600 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Traveler Radio Corp., Chicago, Illinois
Contract AF33(038)29558, dated 21 August 1951.

Approximate Cost: \$360.00 with equipment spares.

FUNCTIONAL DESCRIPTION

The TS-382D/U is a laboratory device which generates AC voltages ranging from 20 to 200,000 cps at amplitudes which may be varied continuously from 0 to 10 volts. These are accurate with respect to frequency and voltage level and have low harmonic distortion. It is used in testing and repairing amplifiers, audio sections of radio receivers, and filters. Its accurately calibrated output and extremely low distortion facilitate the measurement of the gain and distortion of other electronic devices.

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

RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Volt-ohmmeter TS-297, (1) Oscilloscope BC 1060, (1) Electronic Multimeter TS-505/U.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) 6SJ7 (1) 6AG7 (1) 6V6GT
(1) 5Y3GT (1) 6Y6G (1) 6SL7GT
(1) 6J5 (1) 0A3

Total Tubes: (9)

(4) Germanium Rectifier

Total Crystals: (4)

REFERENCE DATA AND LITERATURE

NAVSHIPS 92035: Technical Manual for Audio Oscillator TS-382D/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 | Audio Oscillator TS-382D/U | | |
| 1 | Transit Case CY-688/U | | |
| 1 | Power Cable CX-237A/U | | |
| 1 | Output Cable CG-409A/U | | |
| 1 | Adapter Connector UG-514/U | | |
| 1 | Dummy Load DA-35/U | | |
| 1 | Spare Parts Kits | | |

UNCLASSIFIED

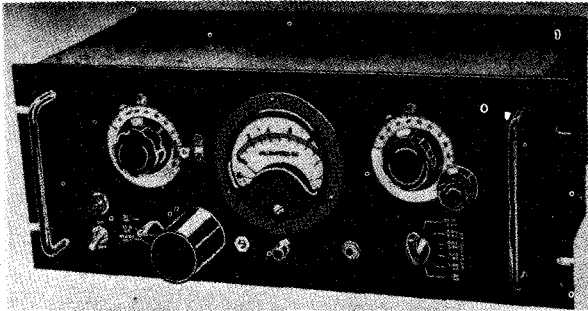
4.13 TS-382D/U: 1

UNCLASSIFIED

April 1958

STANDARD OSCILLATOR

Test-Calibrating
TS-39/TSM-1



Standard Oscillator TS-39/TSM-1

FUNCTIONAL DESCRIPTION

The TS-39/TSM-1 is used in specifying activity and frequency requirements of crystal units and in correlating production and testing equipment.

No field changes in effect at time of preparation (19 August 1958).

RELATION TO OTHER EQUIPMENT

The TS-39/TSM is part of Test Set AN/FSM-3 and Standard Crystal Test Set AN/TSM-1.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER OUTPUT: 3.25 W.

FREQUENCY RANGE: 5 to 30 mc.
OPERATING POWER REQUIREMENT: 110 to 120 v AC, 50 to 1000 cps, single ph.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., New York, N.Y.
Approximate Cost: \$198.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(2) OC3 (1) 5T4 (1) 6C5
Total Tubes: (4)

No Crystals used.

REFERENCE DATA AND LITERATURE

TM11-487H-1 NAVSHIPS 93003 Volume I for the TS-39/TSM-1 Standard Oscillator.

| | |
|------------------------|-------------|
| TYPE CLASSIFICATION | |
| DESIGN COGNIZANCE | TASSA |
| PROCUREMENT COGNIZANCE | MIL-T-12607 |
| 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-39/TSM-1 | 1.32 | 9 X 19-1/5 X 13 | 35 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---|--|---------------|
| 1 | Standard Oscillator TS-39/TSM-1 Including: (2) Technical Manual TM11-2697 (1) Inductor TN-5/TSM-1 (1) Inductor TN-59/TSM-1 | 7 X 9 X 10 1-3/4 dia X 3-1/2 lg 1-3/4 dia X 1-7/8 lg | 24.56 |

UNCLASSIFIED

4.13 TS-39/TSM-1: 1

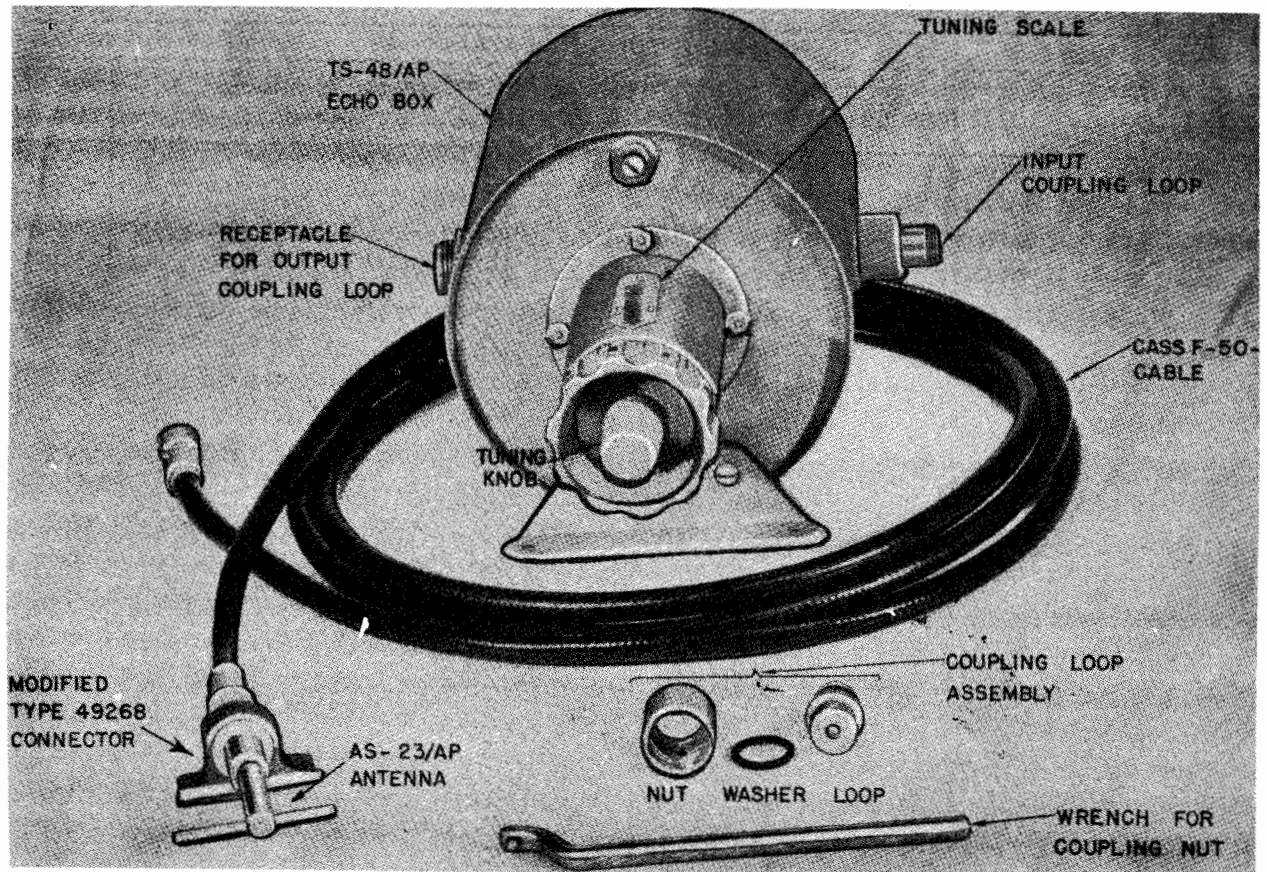
TS-39/TSM-1

STANDARD OSCILLATOR

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|--------------------------|--------------------------------|------------------|
| | (1) Inductor TN-60/TSM-1 | 1-3/4 dia x 1-7/8 lg | |
| | (1) Adapter UG-1/TSM-1 | 1-13/16 x 2 x 2-1/8 | |
| | (1) Adapter UG-3/TSM-1 | 1-5/16 x 1-7/8 x 2 | |
| | (1) Adapter UG-76/TSM-1 | | |
| | (1) Adapter UG-77/TSM-1 | | |

ECHO BOX

Test-Calibrating
TS-48/AP

Echo Box TS-48/AP

FUNCTIONAL DESCRIPTION

The TS-48/AP is designed for use in testing "Sa" band microwave radar sets. It may be installed permanently in aircraft or used on the bench.

The echo signal can be used to tune up the system and to measure changes in overall radar performance.

No field changes in effect at time of preparation (8 January 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

SENSITIVITY: 4 usec/db.
RINGING TIME: 40 usec.
FREQUENCY RANGE: 2915 to 3335 mc.
TUNING: Screw-driven plunger.
ANTENNA: Dipole radiating element and dipole reflector.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVAER 08-5S-48: Technical Manual for TS-48/AP Echo Box, AS-23/AP Antenna and other Accessories.

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

UNCLASSIFIED

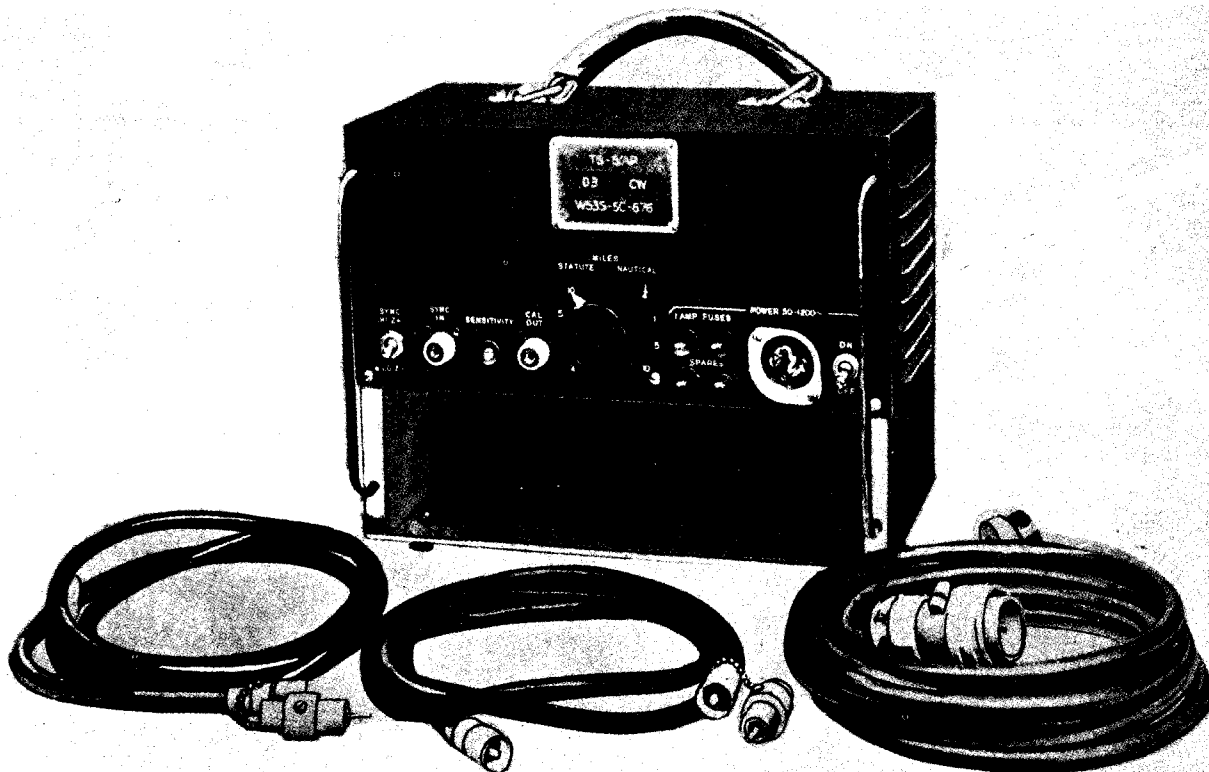
TS-48/AP

ECHO BOX

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|-----------------------|--------------------------------|------------------|
| 1 | Echo Box TS-48/AP | 5-1/2 x 6 x 8-1/2 | 3-1/2 |
| 1 | Antenna AS-23/AP | 1-1/2 x 2 x 4 | 1 oz. |
| | Cable Coupling | 15 in. lg | 3 lbs. |
| | Loop Assembly | 1 x 1 x 1-1/4 | 1 oz. |

March 1957

CALIBRATOR**TS-5/AP***Calibrator TS-5/AP***FUNCTIONAL DESCRIPTION**

The TS-5/AP is a portable device designed to check and facilitate the adjustment of the range calibration of Class B and PPI indicators in radar systems.

No field changes in effect at time of preparation (21 August 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

NAUTICAL OR STATUTE MILES: 0.25, 1, 5 or 10.

OUTPUT VOLTAGE: +5 v across 72 ohm load,
+35 v across 100 ohm load, +50 v across
1000 ohm load.

SYNCHRONIZING PULSE RATE: 400 to 1200
cycles.

MARKER SPACING ACCURATE: $\pm 3\%$.

OPERATING POWER: 105 to 125 v, 50 to 1200
cps, 0.4 amp.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., New York, N.Y.
Contract NOrd-3456.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6SN7GT (1) 6AG7 (1) 6X5-GT
Total Tubes: (5)

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,456-1B: Technical Manual for
Calibrator TS-5/AP.

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

UNCLASSIFIED

4.13 TS-5/AP: 1

March 1957

TS-5/AP

CALIBRATOR

EQUIPMENT SUPPLIED DATA

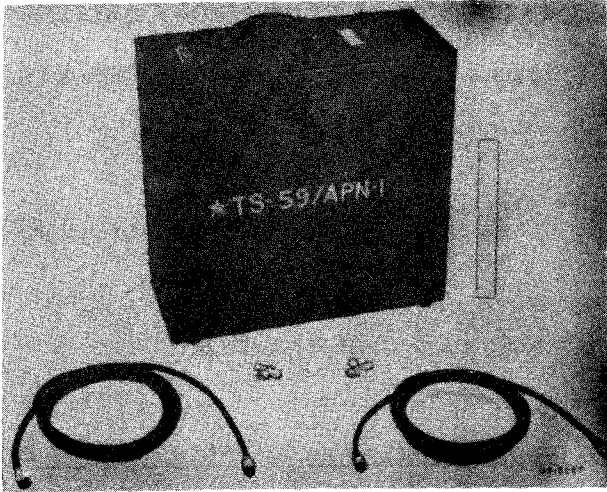
| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|----------------------------|--------------------------------|------------------|
| 1 | Calibrator TS-5/AP | 9-1/4 X 12 X 13 | 28 |
| 1 | Power Cable Assembly | 240 lg | |
| 2 | Video Patch Cable Assembly | 72 lg | |

December 1956

TEST SET

Test-Calibratin

TS-59/APN-



Test Set TS-59/APN-1

FUNCTIONAL DESCRIPTION

The TS-59/APN-1 is designed for squadron or line testing of altimeter equipments. The test serves as a high range calibration for series AN/APN-1 Dual Range Altimeter Equipments. The exact altitude calibration for each test set is marked on the inside cover of the instrument and will be found to be between 1800 and 1850 feet.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 440 to 450 mc.
 DELAY: 4 usec (approx 2000 ft of altitude).
 ACCURACY: $\pm 2\%$.
 ATTENUATION: Less than 75 db.
 AMBIENT TEMPERATURE RANGE: -10 deg to +52 deg C.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Corporation of America, Camden,
 New Jersey.
 Contract NXsa 33-72, NXsa 45467, NXsa
 66818.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVAER 08-5S-128: Technical Manual for Test Set TS-59/APN-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 | Test Set TS-59/APN-1 | 9 X 20-1/2 X 20-3/4 | 60 |
| 2 | Cord Assemblies | 96 lg | |
| 2 | T Adapter Plugs (one spare) | | |
| 1 | Technical Manual NAVAER 08-5S-128 | | |

UNCLASSIFIED

August 1957

Test-Calibrating

TS-59B/APN-1

TEST SET

FUNCTIONAL DESCRIPTION

The TS-59B/APN-1 is used for checking the high altitude range of the RT-7/APN-1 Altimeter. The transmitter signal of the RT-7/APN-1 is fed into the calibrator where it is delayed for an interval, which is equivalent to the interval between the instant the transmitted signal leaves the antenna and the instant it is received back at the antenna after reflecting from a surface a known distance from the altimeters antenna. The output of the calibrator is fed to the altimeter receiver input.

No field changes in effect at time of preparation (14 Dec 1956).

RELATION TO OTHER EQUIPMENT

Electrically and mechanically interchangeable with TS-59/APN-1 and TS-59A/APN-1

ELECTRICAL AND MECHANICAL CHARACTERISTICS

OUTPUT IMPEDANCE: 50 ohms

ACCURACY: $\pm 2\%$.

MANUFACTURER'S OR CONTRACTOR'S DATA

Costum Electronics Corp, Morris Plains,
N.J.

Contract N383a-11542A

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

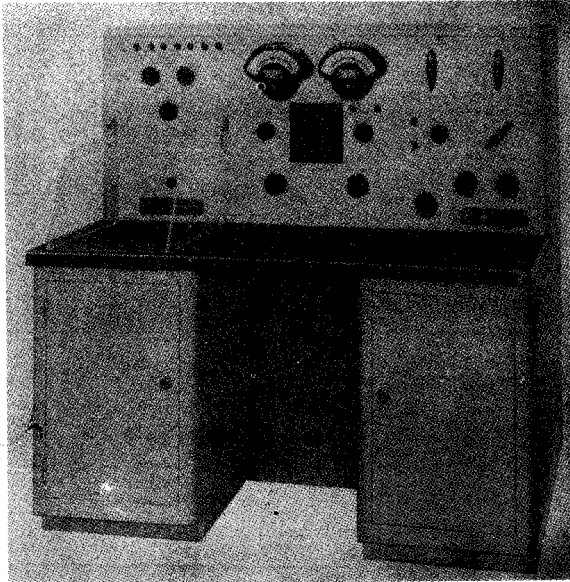
Nomenclature Card For Test Set TS-59B/APN-1

| |
|---------------------------|
| 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 | Test Set TS-59B/APN-1 | 8-7/8 x 19 x 20 | |
| 2 | Interconnecting Cable | | |
| 2 | T - Adapter | | |
| 1 | Technical Manual | | |

UNCLASSIFIED



Meter Test Set TS-689/U

FUNCTIONAL DESCRIPTION

The TS-689/U is designed to provide an accurate means of calibrating DC voltmeters and ammeters, having various full scale ranges and burdens. Since the voltage and current sections are separate and complete, this equipment may also be used to calibrate electrodynamic wattmeters.

No field changes in effect at time of preparation (21 June 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

ACCURACY OF CALIBRATION: 1/2 of 1% on all ranges.

DC CURRENT CALIBRATION RANGES.

| RANGE | MAXIMUM RESISTANCE (ohms) | BURDEN (watts) |
|--------------|---------------------------|----------------|
| MICROAMPERES | | |
| 75 | 11.110 | |
| 150 | 11.110 | |
| 300 | 11.110 | |
| 750 | 11.110 | |
| 1500 | 11.110 | |
| 3000 | 11.110 | |

DC CURRENT CALIBRATION RANGES. (CONT)

| RANGE | MAXIMUM RESISTANCE (ohms) | BURDEN (watts) |
|--------------|---------------------------|----------------|
| MILLIAMPERES | | |
| 7.5 | 700 | 0.04 |
| 15 | 300 | 0.075 |
| 30 | 160 | 0.15 |
| 75 | 70 | 0.4 |
| 150 | 22 | 0.5 |
| 300 | 16 | 1.5 |
| 750 | 3.5 | 2.0 |
| AMPERES | | |
| 1.5 | 1.78 | 4 |
| 3 | 0.90 | 8 |
| 7.5 | 0.27 | 15 |
| 15 | 0.065 | 15 |
| 30 | 0.016 | 15 |
| 75 | 0.006 | 20 |
| 150 | 0.001 | 25 |

DC VOLTAGE CALIBRATION RANGE.

| RANGE | MINIMUM RESISTANCE (ohms) | CURRENT (amperes) | BURDEN (watts) |
|------------|---------------------------|-------------------|----------------|
| MILLIVOLTS | | | |
| 75 | 0.75 | 0.1 | 0.0075 |
| 150 | 1.50 | 0.1 | 0.015 |
| 300 | 3.0 | 0.1 | 0.030 |
| 750 | 7.5 | 0.1 | 0.075 |
| VOLTS | | | |
| 1.5 | 15 | 0.1 | 0.15 |
| 3 | 30 | 0.1 | 0.3 |
| 7.5 | 75 | 0.1 | 0.75 |
| 15 | 150 | 0.1 | 1.5 |
| 30 | 300 | 0.1 | 3 |
| 75 | 750 | 0.1 | 7.5 |
| 150 | 1500 | 0.1 | 15 |
| 300 | 3600 | 0.083 | 25 |
| 750 | 9400 | 0.080 | 60 |
| 1500 | 30000 | 0.050 | 75 |

TS-689/U

METER TEST SET

December 1956

EXTERNAL AC POWER: 105 to 125 v, 50 to 1600 cps, 350 W, (stable to $\pm 2\%$).

BATTERY: Consists of lead storage battery with 3 separate 2 v, 168 ampere-hour cells.

BATTERY CHARGER: Consists of a transformer and selenium rectifier with an output of 2 v DC at 20 amp. The battery can be recharged on a 16 hour recharging cycle.

REFERENCE DATA AND LITERATURE

AN 16-35TS689-3: Technical Manual for Meter Test Set TS-689/U.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Frequency Laboratories, Inc. Boonton, New Jersey.

Contract NObsr-63326, dated 16 March 1953.

Approximate Cost: \$6950 including equipment spares.

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

TUBE AND/OR CRYSTAL COMPLEMENT

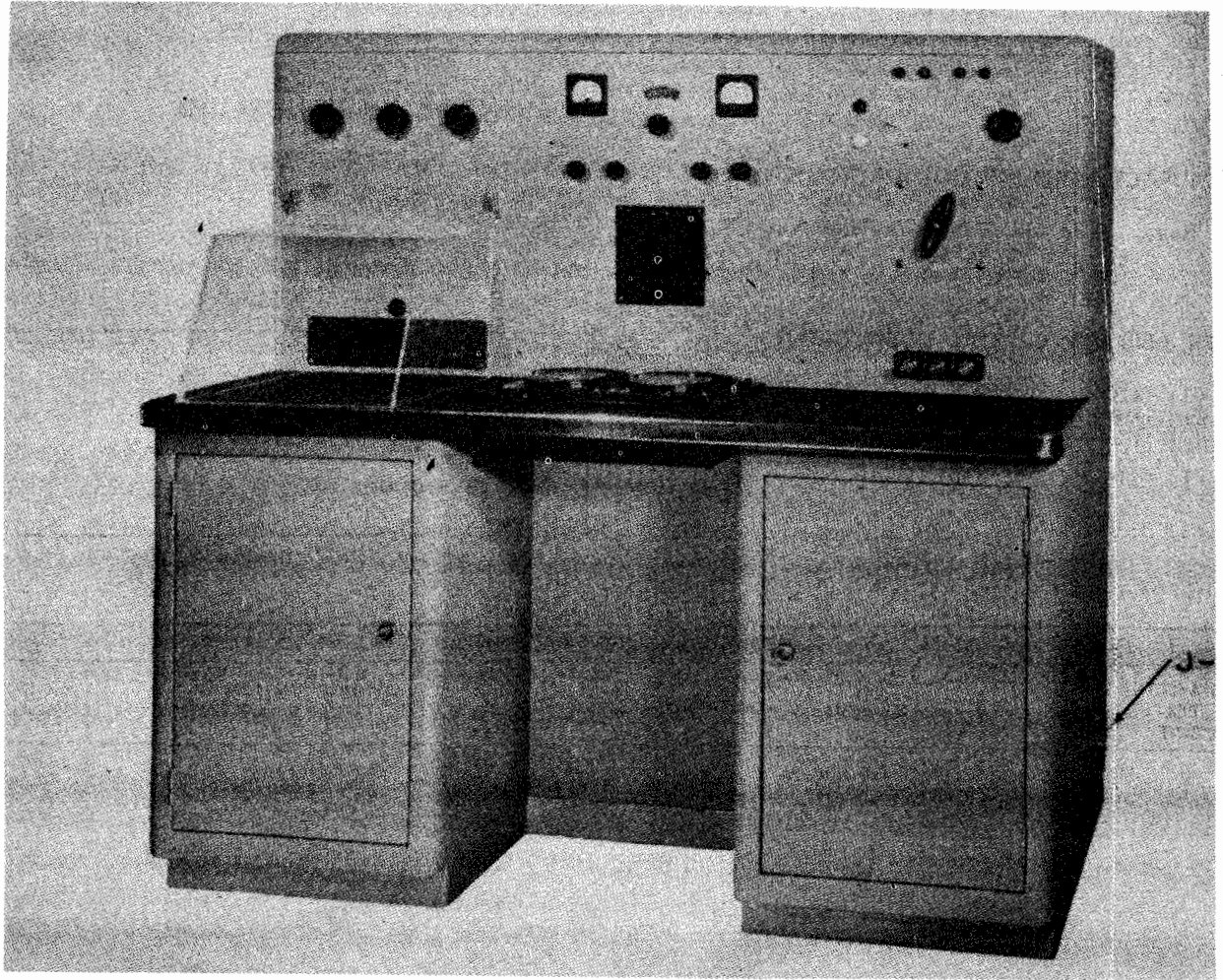
(4) 836

Total Tubes: (4)

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|-------------------------|-----------------------------|---------------|
| 1 | Meter Test Set TS-689/U | 32 X 56 X 60 | 975 |

April 1958

METER TEST SET**TS-690/U***Meter Test Set TS-690/U***FUNCTIONAL DESCRIPTION**

The TS-690/U is used to calibrate AC voltmeters, ammeters and milliammeters. It consists of a variable frequency electronic power oscillator, a standard AC voltmeter and multitapped transformer, a standard AC ammeter and current transformer and various controls and terminals to set up the desired test circuits. The equipment is housed in a steel console with test bench.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS**VARIABLE FREQ OSC**

FREQ RANGE: 50 to 1600 cps.

OUTPUT: 117 v or 70 v, 300 W.

VOLTAGE STANDARD

AC VOLTAGE RANGE: 0.005 to 1500 v, at 50 to 1600 cps.

CURRENT STANDARD

CURRENT RANGE: 1.5 ma to 200 amp, at 50 to 1600 cps.

ACCURACIES

AC CALIBRATIONS: $\pm 0.05\%$.

UNCLASSIFIED

4.13 TS-690/U: 1

Test Calibrating

TS-690/U**METER TEST SET**

April 1958

OSC OUTPUT: Less than 5% total harmonic
content at rated output of 60 cps.
POWER SOURCE REQUIRED: 115 v, 50 to 1600
cps, 750 W.

No Crystals.

REFERENCE DATA AND LITERATURE**MANUFACTURER'S OR CONTRACTOR'S DATA**

Radio Freq Laboratories, Boonton, N. J.
Contract N383s-7997.

NAVSHIPS 91448: Technical Manual for Meter
Test Set TS-690/U.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OC3W (1) OD3W (2) 3B28
(1) 5U4G (4) 6L6WGB (1) 6SN7WGTA
(2) 6B4G (1) 6SJ7 (4) 811
(1) 6F6 (1) 6SL7WGT

Total Tubes: (19)

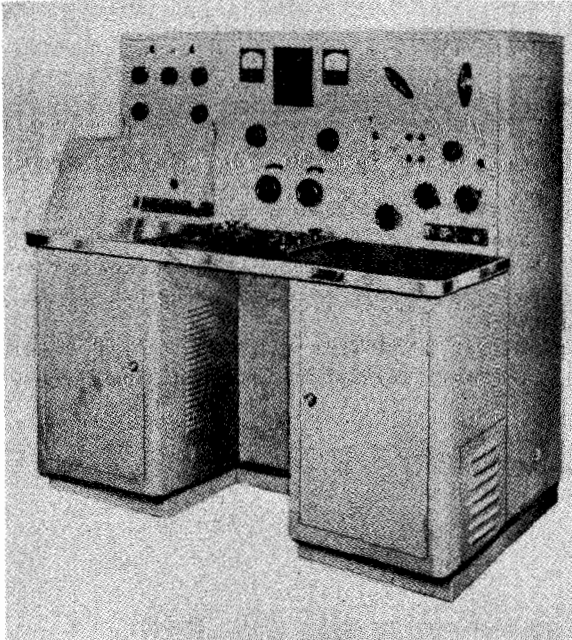
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------------|-------------------------|--------------------------------|------------------|
| 1 | Meter Test Set TS-690/U | 32 X 59 X 60-1/2 | 900 |

August 1957

Test-Calibrating

METER TEST SET**TS-691/U***Meter Test Set TS-691/U***FUNCTIONAL DESCRIPTION**

The TS-691 is designed to provide an accurate means of calibrating DC voltmeters and ammeters, having various full scale ranges and burdens. Since the voltage and current sections are separate and complete this equipment may also be used to calibrate electrodynamic wattmeters.

The Meter Test Set is a dual potentiometer instrument calibration equipment which consists of wide range DC voltage and current sources, control elements and two Brooks potentiometers for accurately measuring the magnitude of the DC voltage or current that is being applied to an instrument under calibration, all housed in a suitable steel console.

No field changes in effect at time of preparation (22 August 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS**CURRENT CALIBRATION RANGES**

MICROAMPERES: 75, 150, 300 and 750 uamp.

MILLIAMPERES: 1.5, 3, 7.5, and 15 ma.

AMPERES: 0.03, 0.075, 0.150, 0.3, 0.75, 1.5, 3, 7.5, 15, 30, 75 and 150 amp.

VOLTAGE CALIBRATION RANGES

MILLIVOLTS: 75, 150, 300 and 750 mv.

VOLTS: 1.5, 3, 7.5, 15, 30, 75, 150, 300, 750 and 1500 v.

WATTMETER CALIBRATION RANGES: Dependent upon the above current and voltage calibration ranges.

ACCURACY: 0.1% on all ranges of current and voltage calibration; $\pm 3\%$ for wattmeter calibration.

OPERATING POWER REQUIREMENTS: Three 2 v 168 ampere-hour separate battery cells; 105 to 125 v, 50 to 1000 cps, 350 W.

BATTERY CHARGER

OUTPUT: 2 v DC at 20 amps.

RECHARGING CYCLE: 16 hr.

CHARGING RATE: The charging rate of each cell is individually controlled.

MANUFACTURER'S OR CONTRACTOR'S DATA

Radio Frequency Laboratories

Contract No. N383S-7997 and N383S-16661.

Model No. 262A.

TUBE AND/OR CRYSTAL COMPLEMENT

(4) 836

Total Tubes: (4)

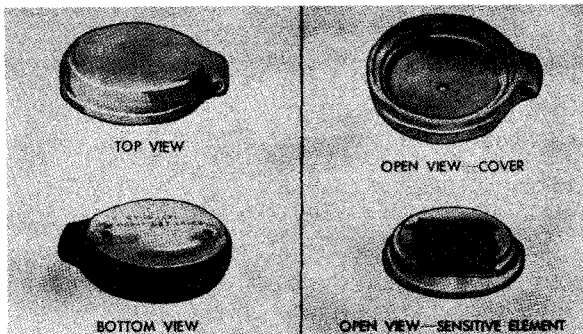
REFERENCE DATA AND LITERATURE

AN16-35TS691-3, Handbook of Maintenance Instructions for Meter Test Set TS-691/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 | Meter Test Set TS-691/U | 32 X 59 X 60-1/2 | 1050 |

RADIACMETER CALIBRATOR**TS-781/PD***Radiacmeter Calibrator TS-781/PD***RELATION TO OTHER EQUIPMENT**

Requires an associated Radiac Computer-Indicator CP-95/PD series.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

SENSITIVITY: 0.08 mc v to 1.5 mc v (X and Gamma radiation of energies).

CAPACITY: 0 to 600 roentgens (detects and integrates the accumulated dose of radiation).

ACCURACY: $\pm 20\%$ from 0.08 mc v to 1.5 mc v (minimum detectable dose of 10 roentgens).

FUNCTIONAL DESCRIPTION

The TS-781/PD is calibrated to be used as a standard for checking the accuracy of the Radiac Computer-Indicator CP-95()/PD. The sensitive element is a radio-photo-luminescent glass which emits luminescent light under near ultra-violet irradiation after prior exposure to X or Gamma radiation. The intensity of this luminescent light is detected and indicated as a roentgen dose by Radiac Computer-Indicator CP-95()/PD.

The TS-781/PD is an interrogating device, therefore the readings shown by the CP-95()/PD indicate the total amount of radiation to which the detector has been exposed up to the time of the reading.

A special tool is provided for use by authorized personnel to open the case for testing and reading.

No field changes in effect at time of preparation (19 August 1958).

MANUFACTURER'S OR CONTRACTOR'S DATA

Corning Glass Works, Corning, N.Y.

Contract NObsr-57054.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals used.

REFERENCE DATA AND LITERATURE

Nomenclature Card TS-781/PD for the Radiacmeter Calibrator.

| | |
|-------------------------------|-------------|
| TYPE CLASSIFICATION | |
| DESIGN COGNIZANCE | BUSHIPS |
| PROCUREMENT COGNIZANCE | SHIPS C-987 |
| STOCK NO. | |
| R.D.B. IDENT. NO. | |

EQUIPMENT SUPPLIED DATA

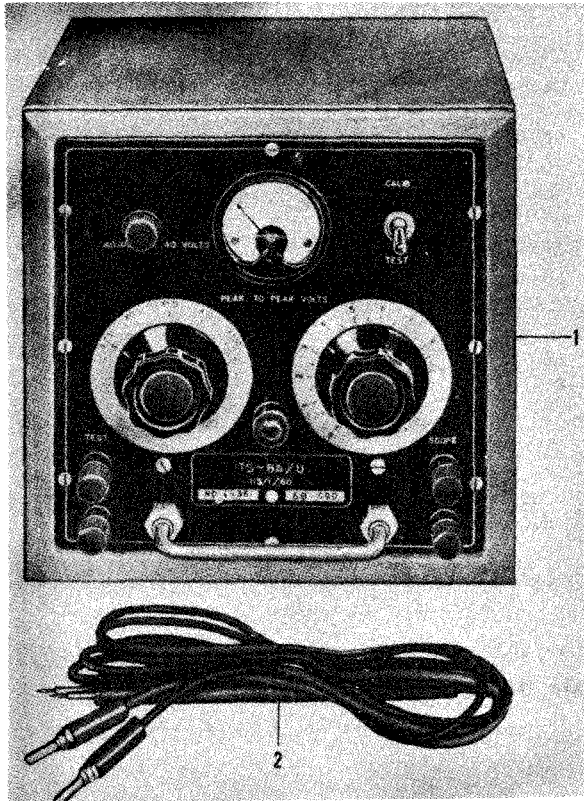
| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|----------------------------------|-----------------------------|---------------|
| 1 | Radiacmeter Calibrator TS-781/PD | 1/2 x 1-1/2 dia | |

UNCLASSIFIED

January 1958

Test-Calibrating
TS-8/U

OSCILLOSCOPE CALIBRATOR



Oscilloscope Calibrator-TS-8/U

FUNCTIONAL DESCRIPTION

The TS-8/U primary purpose is to calibrate an oscilloscope for use in testing MAD equipment, whose voltage measurements require the use of an accurately calibrated oscilloscope. It is used to compare a known voltage with the deflecting voltage applied to the oscilloscope. An indicating meter is used to balance the two-voltages, and the value of the deflecting peak-to-peak voltage is read

from two dials, one course and one vernier. No field changes in effect at time of preparation (12 July 1957).

RELATION TO OTHER EQUIPMENT

The TS-8/U is similar to TS-8A/U except that the TS-8A/U has been extended on the lower end of its range.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

PEAK-TO-PEAK RANGE: 1, 10, or 100 v.
 IMPEDANCE: To operate into not less than 0.5 megohms.
 POWER REQUIREMENTS: 115 v, 60 cps, 35 W.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

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

TYPE CLASSIFICATION
 DESIGN COGNIZANCE BUAER
 PROCUREMENT COGNIZANCE
 STOCK NO.
 R.D.B. IDENT. NO. 13.3.1

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|--------------------------------|-----------------------------|---------------|
| 1 | Oscilloscope Calibrator TS-8/U | 6-13/16 x 9-3/8 x 9-7/16 | 9.25 |
| 2 | Test Leads | | |
| 1 | Technical Manual AN08-35TS8-2 | | |

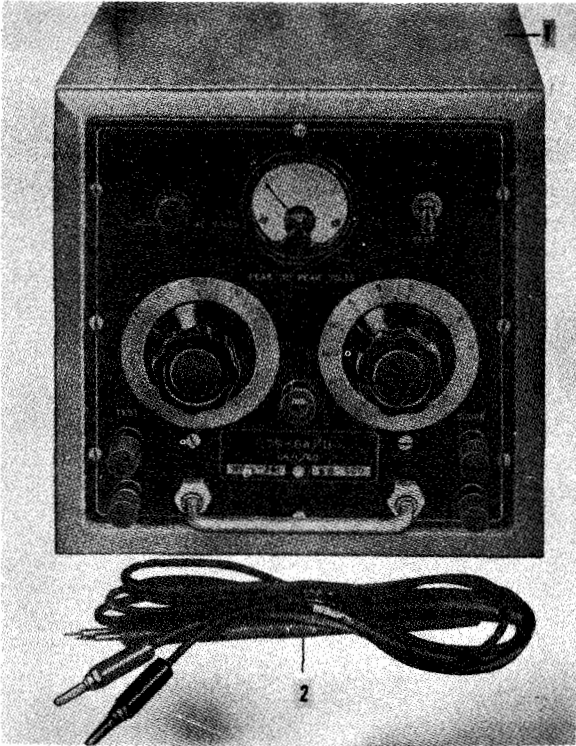
UNCLASSIFIED

4.13 TS-8/U: 1

OSCILLOSCOPE CALIBRATOR

Test-Calibrating

TS-8A/U



Oscilloscope Calibrator TS-8A/U

FUNCTIONAL DESCRIPTION

The TS-8A/U is designed for use as an adjunct to an oscilloscope. It produces a signal, the peak-to-peak voltage of which is accurately known, and can be varied over a convenient range. When observing waveshapes on the oscilloscope, it is possible to substitute a calibrated signal to the one being observed. By comparing and adjusting the deflected peaks, the unknown signal voltage can be measured.

No field changes in effect at time of preparation (18 June 1956).

RELATION TO OTHER EQUIPMENT

The TS-8/U replaces the Oscilloscope Calibrator TS-8/U which had a shorter voltage range.

Equipment Required but not Supplied:
Shielded Cable as Required.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

VOLTAGE RANGE: 0 to 1132 v.

PEAK TO PEAK RANGE: 0.01, 0.1, 1.0, 10 or 100 v.

POWER REQUIREMENTS: 115 v, 60 cps, 35 W.

IMPEDANCE: 500000 ohms min, at input of scope.

MANUFACTURER'S OR CONTRACTOR'S DATA

Geophysical Service Inc. Dallas, Texas.
Contract NOas-361.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

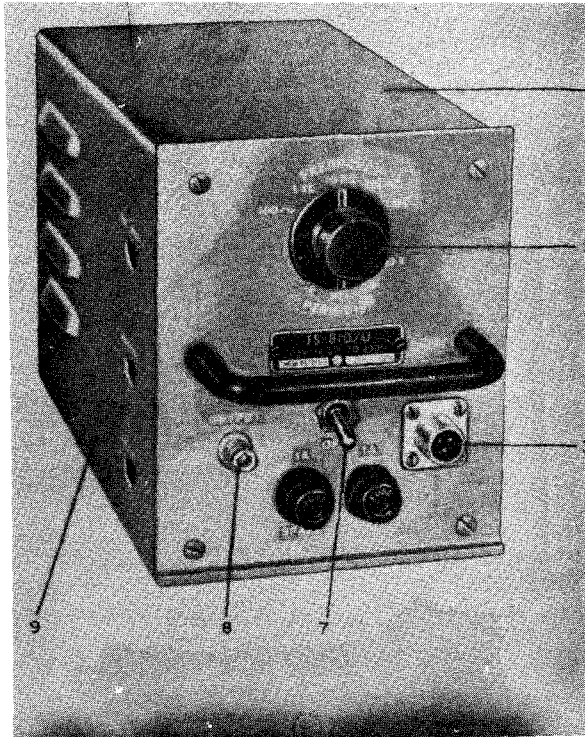
NAVAER 08-5S-78: Technical Manual of Test Equipment for Airborne Electrical and Electronic Equipment.

| |
|---------------------------|
| 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 | Oscilloscope Calibrator TS-8A/U | 6-13/16 x 9-13/32 x 9-7/16 | 9.25 |
| 2 | Test Leads | | |
| 1 | Technical Manual AN 08-35TS8-2 | | |

April 1959

CRYSTAL CALIBRATOR**TS-810/U***Crystal Calibrator, TS-810/U*

- 1 Crystal Calibrator TS-810/U
- 2 FREQUENCY-PERIOD switch
- 3 Power receptacle
- 7 PWR-OFF switch
- 8 OUTPUT connector
- 9 Dust cover

FUNCTIONAL DESCRIPTION

Crystal Calibrator TS-810/U makes possible the testing of Pulse Analyzer Groups to assure proper operation before installation in the aircraft.

It can also be used for checking cathode ray oscilloscope sweep linearity, for accurate calibration of sweeps, and for superposition of timing markers on a sweep trace

when making permanent photographic recordings.

No field changes in effect at time of preparation (20 March 1959).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

POWER REQUIREMENTS: 50 W (max), 115 v $\pm 10\%$,
50-420 cps, single ph.
REPETITION FREQUENCY: 1 mc, 100 kc, 10 kc,
1 kc, 100 cps.
ACCURACY: 0.01%.
AMPLITUDE: 3 v peak-to-peak.
IMPEDANCE: 93 ohms.
POLARITY: Positive.
WIDTH (DURATION)
NORMAL: 0.1 usec, $\pm 20\%$.
STRETCHED: 1 usec.

MANUFACTURER'S OR CONTRACTOR'S DATA

Allen B. DuMont Laboratories, Inc., Clifton, N.J.
Part no. 89013191.
Contract NOas 52-715C.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) OA2WA (1) 6AH6
(1) 6X4W (4) 5670
Total Tubes: (7)
Crystal Data not Available.

REFERENCE DATA AND LITERATURE

TM11-1261: Technical Manual for Crystal Calibrator TS-810/U.

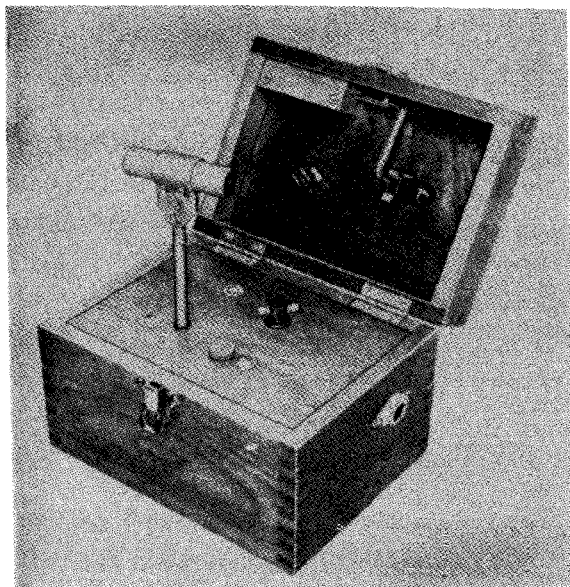
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO.

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|-----------------------------|-----------------------------|---------------|
| 1 | Crystal calibrator TS-810/U | 5-3/4 X 6-5/16 X 12-1/8 | 6.5 |

CALIBRATOR

TS-85/ASQ



Calibrator TS-85/ASQ

FUNCTIONAL DESCRIPTION

The TS-85/ASQ is a calibrator for AN/ASQ-3 equipment comprising a revolving permanent magnet which produces indications in equipment being tested. It is a complete unit with no accessories.

No field changes in effect at time of preparation (11 January 1957).

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

REFERENCE DATA AND LITERATURE

NAVAER 08-5S-78, Technical Manual for Airborne Electrical and Electronic equipment.

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

EQUIPMENT SUPPLIED DATA

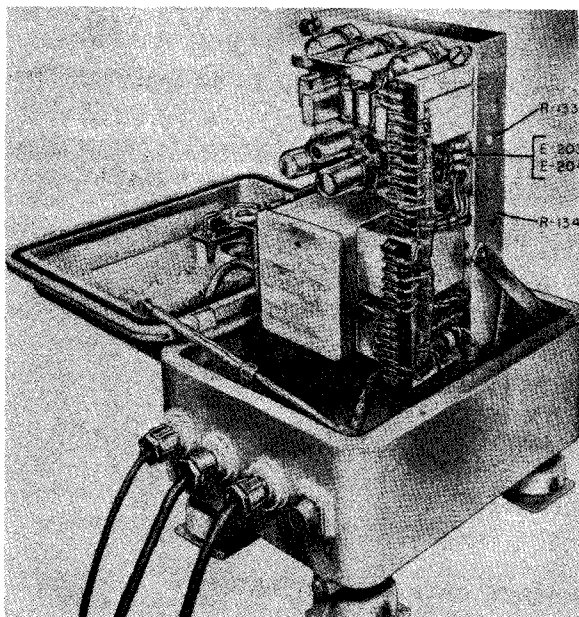
| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|-----------------------|-----------------------------|---------------|
| 1 | Calibrator TS-85/ASQ | | |

April 1958

BATHYTHERMOGRAPH CALIBRATOR

Test-Calibrating

ZM-15/BSH



Amplifier Computer ZM-15/BSH

FUNCTIONAL DESCRIPTION

The ZM-15/BSH is a calibration instrument used for both checking the accuracy of and calibrating the Buoyancy Recorder Set AN/BSH-1 and Bathythermograph AN/BSH-2. The calibrator simulates the resistances of the salinity cell and temperature element of the AN/BSH-1 or AN/BSH-2 for nine different conditions of water salinity and temperature.

No field changes in effect at time of preparation (6 January 1958).

RELATION TO OTHER EQUIPMENT

This test equipment is furnished with each Bathythermograph AN/BSH-2.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RANGE OF SIMULATED TEMP: 30 deg F to 90 deg F.

RANGE OF SIMULATED RELATIVE CONDUCTIVITY: 0.03 to 0.06.

POWER CONSUMPTION: 120 mw.

MANUFACTURER'S OR CONTRACTOR'S DATA

Wallace and Tiernan Products Inc, Belleville, N.J.
Contract NObsr-43170.

TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes or Crystals.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91807: Technical Manual for Buoyancy Recorder Set AN/BSH-1, Bathythermograph AN/BSH-2, -2A, -2B and Bathythermograph Calibrator ZM-15/BSH.

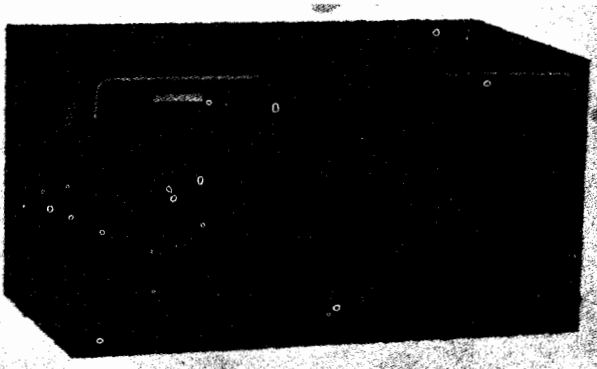
TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---------------------------------------|-----------------------------|---------------|
| 1 | Bathythermograph Calibrator ZM-15/BSH | 4-5/8 x 5-5/8 x 6-1/2 | |
| 1 | Cable NT-MSS-6 | 102 lg | |

October 1957

Test-Calibrating

VOLTAGE CALIBRATOR**264-A***Voltage Calibrator 264-A*

ACCURACY: $\pm 5\%$ of full scale on each range.
 INPUT IMPEDANCE: 20 uuf.
 OPERATING POWER: 115 v, 50 to 60 cps.

MANUFACTURER'S OR CONTRACTOR'S DATA

Allen B. DuMont Laboratories Inc., Passaic,
 New Jersey.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6X4 (1) 0A2 (1) 6AL5

Total Tubes: (3)

FUNCTIONAL DESCRIPTION

The DuMont type 264-A has been designed to provide a small, convenient, low-priced, voltage calibrator for use with any commercial cathode-ray oscillograph. It provides a convenient method for measuring the peak-to-peak voltage of any signal being viewed on the cathode-ray oscillograph.

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

REFERENCE DATA AND LITERATURE

Technical Manual for VOLTAGE CALIBRATOR 264-A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS

RANGES: 0 to 0.1 v.
 0 to 1.0 v.
 0 to 10.0 v.
 0 to 100.0 v.

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 | Voltage Calibrator 264-A | 4-1/2 x 5-3/4 x 8 | 5 |

September 1956

RADAR RANGE CALIBRATOR**60ABZ****FUNCTIONAL DESCRIPTION**

The NT-60ABZ was designed for use in testing and re-adjusting radar system ranging circuits. It will deliver a usable output pulse, accurately controlled in time delay with respect to an input pulse which is synchronized with the pulse which triggers the range unit under test. Calibration is accomplished by comparison of time delays, indicated in yards by counters or scales.

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

ELECTRICAL AND MECHANICAL CHARACTERISTICS

ACCURACY: \pm (15 yds \pm 0.1% of measured range).

MAX RANGE: 40000 yds.

DELAY-INPUT TO OUTPUT PULSE: Max 245 usec.

Min stamped on unit.

INPUT PULSE: Min 20 v positive.

OUTPUT PULSE: 24 v positive or negative.

OUTPUT IMPEDANCE: 120 ohms in series with 0.01 mf.

POWER SUPPLY LOAD

TUBE HEATERS: 6 amp at 6.3 v AC.

TANK HEATER (HIGH): 3.6 amp at 115 v AC.

TANK HEATER (LOW): 0.5 amp at 115 v AC.

PLATE SUPPLY: 0.095 amp at 300 or 450 v AC.

MANUFACTURER'S OR CONTRACTOR'S DATA

Western Electric Co., New York 5, N. Y.
Contract NXSS 23472, dated 9 July 1951.
Approximate Cost: \$620.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6AB7 (1) 6AC7 (1) 6AG7
(3) SN7-GT

Total Tubes: (11)

REFERENCE DATA AND LITERATURE

Technical Manual for Type CW-60ABZ: Radar Range Calibrator.

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|---------------------------|
| 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 | Radar Range Calibrator NT-60ABZ (with accessories) | 2.25 | 12 x 12-1/4 x 26-3/4 | 99 |

EQUIPMENT SUPPLIED DATA

| QUANTITY PER EQUIPT | NAME AND NOMENCLATURE | OVERALL DIMENSIONS (inches) | WEIGHT (lbs.) |
|---------------------|---------------------------------|-----------------------------|---------------|
| 1 | Radar Range Calibrator NT-60ABZ | 6-9/16 x 9-1/2 x 21-1/2 | 69 |
| 1 | Set of Cables D-151580 | | |

March 1957

SIGNAL CALIBRATOR**9-1006****FUNCTIONAL DESCRIPTION**

The Model 9-1006 (Meissner Mfg Co) is a general purpose equipment. It is used for checking transmitter frequency, checking frequency of received signals, checking band edges and checking the electron-coupled oscillators.

No field changes in effect at time of preparation (18 October 1956).

TUBE AND/OR CRYSTAL COMPLEMENT

| | |
|----------|----------|
| (1) 6K8 | (1) 6SK7 |
| (2) 6N7G | (2) 1852 |
| (1) 6X5 | |

Total Tubes: (7)

(1) 1000 kc

Total Crystals: (1)

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 10 to 1000 kc.

HARMONICS: 100 kc to 60 mc.

OPERATING POWER: 115 v, 60, cps, single ph.

REFERENCE DATA AND LITERATURE

NAVSHIPS 900,155 VOL I: Technical Manual for Electronic Equipment.

Technical Manual for Meissner 9-1006.

MANUFACTURER'S OR CONTRACTOR'S DATA

Meissner Mfg. Co., Mt. Carmel, Ill.

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|------------------------------|
| 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 Calibrator 9-1006 | 8 X 8 X 12 | |

March 1957

FREQUENCY CALIBRATOR SET

90501

FUNCTIONAL DESCRIPTION

The 90501 (James Millen Co.) is a portable precision frequency standard with an adjustable output provided at intervals of 10, 25, 100 and 1000 kilocycles, with magnitude useful to 50 megacycles. The electron tubes are not furnished with the set.

No field changes in effect at time of preparation (18 October 1956).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1 to 50 mc.

HARMONIC AMPLIFIER DATA

RANGES: 0 to 2, 2 to 5, 5 to 11, 10 to 22, 18 to 40 to 50 mc.

INTERVAL RANGES

1000 KC: 50 mc.

100 KC: 50 mc.

25 KC: 42 mc.

10 KC: 39 mc.

OUTPUT (APPROX 13 MC)

1000 KC INTERVALS: 700 uv.

100 KC INTERVALS: 200 uv.

25 KC INTERVALS: 35 uv.

10 KC INTERVALS: 20 uv.

POWER REQUIREMENTS: 115 v, 60 cps, single phase.

MANUFACTURER'S OR CONTRACTOR'S DATA

James Millen Mfg. Company, Inc., Malden, Massachusetts.

Approximate Cost: \$155.00 with equipment spares.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 6K8

(2) 6SN7GT

(1) 6V6

(1) 6SJ7

(1) 6J5

(1) 5W4/5Y3GT

(1) VR150-30

Total Tubes: (8)

(1) 1000 KC

Total Crystals: (1)

REFERENCE DATA AND LITERATURE

James Millen Mfg Company, Inc. Catalog for Secondary Frequency Standard Models 90501, 90505 and 90507.

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 | Secondary Frequency Standard Model 90501 | | |
| 1 | Crystal, Quartz, GE Type G18 or G51 | | |
| 1 | Power Cord | | |
| 1 | Technical Manual | | |
| 2 | Plug | | |

