RESTRICTED

SERIAL NO. 364 - 977

INSTRUCTION BOOK

For

NAVY MODEL DAB-3

RADIO DIRECTION FINDER EQUIPMENT

Frequency Range

2000 kc to 18,100 kc

Manufactured For

U. S. NAVY DEPARTMENT, BUREAU OF SHIPS

By

COLLINS RADIO COMPANY
Cedar Rapids, Iowa

Contract NXss-LL-17111

Contract Dated: 10 December 1942

personnel engaged in the installation, operation and maintenance of this equipment or similar equipment is urged to become familiar with the following rules both in theory and in the practical application thereof. it is the duty of every radioman to be prepared to give adequate first aid and thereby prevent avoidable loss of life. your own life may depend on this.

electric shock first-aid treatment

Regard electrical apparatus generally, and especially all current-carrying parts, as dangerous, irrespective of voltage. Exercise great care in handling, and avoid broad contacts such as are made by standing on a metal deck or in water. Dangerous contact may result through lessened resistance when the skin and clothing are wet with perspiration. Contact with damp metal surfaces—decks, bulkheads, guns, machinery—may allow the current to ground through the moist skin and body. Electric shock is due to current passing through the body—current actually passing—irrespective of the voltage. A pressure as low as 110 volts has caused death. Current passing through the body in the region of the heart is especially dangerous. In using electric breast drills avoid the possibility of a ground. Usually electric shock does not kill instantly. Life can often be saved even though breathing has stopped.

1. *Free the victim from the circuit immediately* —Use a dry nonconductor (rubber gloves, clothing, rope, board) to move either the victim or the wire. Beware of using metal or moist material. Shut off the current. If necessary to cut a live wire, use an ax or hatchet with a dry wooden handle; turn your face away from the electrical flash.

2. *Attend instantly to the victim's breathing*— Begin resuscitation at once on the spot. Do not stop to loosen clothing; every moment counts.

resuscitation by the prone pressure method of artificial respiration for gas asphyxiation, electric shock and drowning

Waste no time. When the patient is removed from the water, gas, smoke, or electric contact, get to work at once with your own hands. Send for the medical officer or nearest physician. No reliance should be placed upon any special mechanical apparatus, as it is frequently out of order and often is not available when most needed. The patient's mouth should be cleared of any obstruction such as chewing gum or tobacco, false teeth, or mucus, so that there is no interference with the entrance and escape of air.

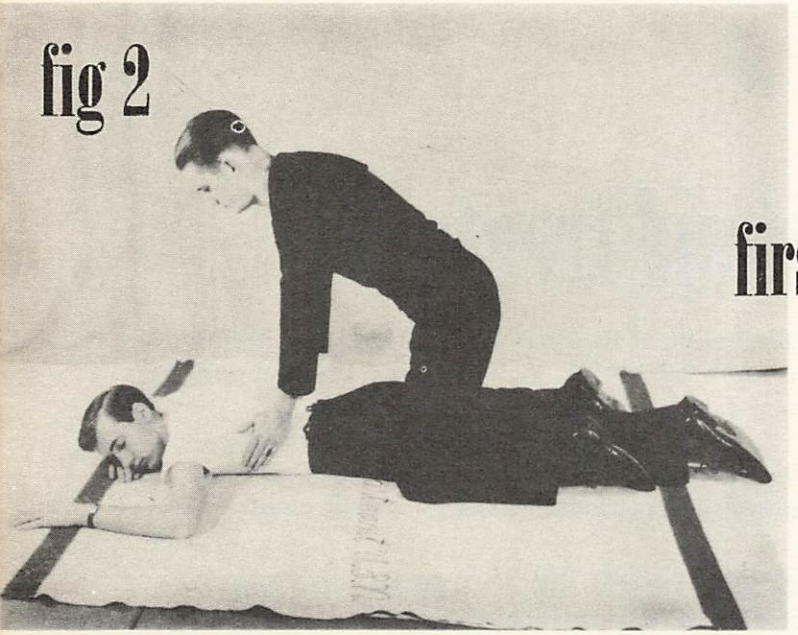
fig 1

position

1 Lay the patient on his belly, one arm extended directly overhead, the other arm bent at elbow and with the face turned outward and resting on hand and forearm, so that the nose and mouth are free for breathing. (See Inset fig. 1.)

2 Kneel straddling over the patient's thighs with your knees placed at such a distance from the hip bones as will allow you to assume the position shown in Figure 1. Place the palms of the hands on the small of the back with fingers resting on the ribs, the little finger just touching the lowest rib, with the thumb and fingers in a natural position, and the tips of the fingers just out of sight. (See fig. 1.)

fig 2

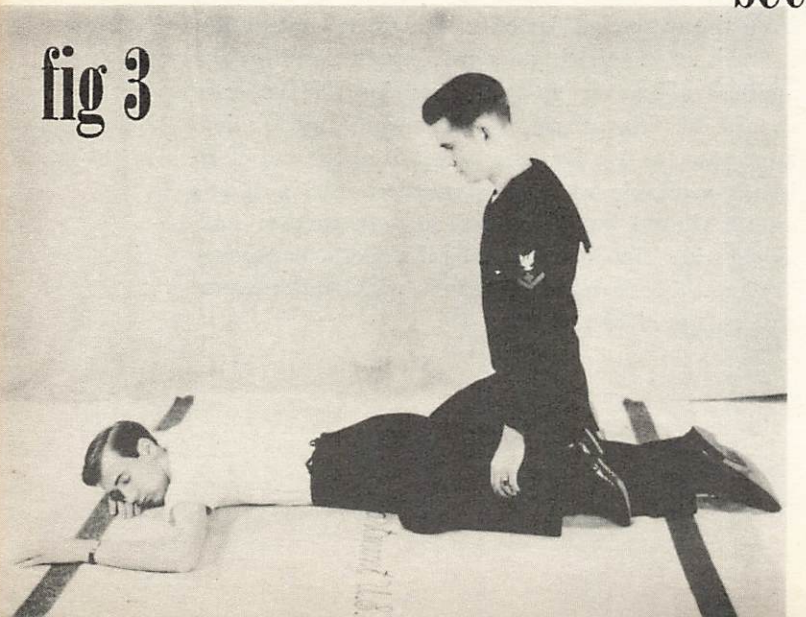


first movement

3 With arms held straight, swing forward slowly, so that the weight of your body is gradually brought to bear upon the patient. The shoulder should be directly over the heel of the hand at the end of the forward swing. (See fig. 2.) Do not bend your elbows. This operation should take about two seconds.

second movement

fig 3



4 Now immediately swing backward, so as to remove the pressure completely. (See fig. 3.)

5 After two seconds, swing forward again. Thus repeat deliberately twelve to fifteen times a minute the double movement of compression and release, a complete respiration in four or five seconds.

6 Continue artificial respiration without interruption until natural breathing is restored. Do not get discouraged at the slow results that sometimes happen when resuscitating the apparently drowned. Efforts often have to be continued a long time before signs of life are apparent. Do not discontinue the efforts until certain that all chance is lost. Sometimes, even after several hours work, recovery takes place.

7 As soon as this artificial respiration has been started and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest, or waist. *To keep the patient warm during artificial respiration is most important and it may be necessary to cover him with blankets and work through them, as well as to apply hot-water bottles, hot bricks, etc.* Do not give any liquids whatever by mouth until the patient is fully conscious.

8 To avoid strain on the heart when the patient revives, he should be kept lying down and not allowed to stand or sit up. If the doctor has not arrived by the time the patient has revived, he should be given some stimulant, such as one teaspoonful of aromatic spirits of ammonia in a small glass of water or a hot drink of coffee or tea, etc. Continue to keep the patient warm and at rest.

9 Resuscitation should be carried on at the nearest possible point to where the patient received his injuries. As a general rule he should not be moved from this point until he is breathing normally of his own volition and then moved only in a lying position. Should it be necessary, due to extreme weather condition, etc., to move the patient before he is breathing normally, resuscitation should be carried on during the time that he is being moved.

10 A brief return of natural respiration is not a certain indication for stopping the resuscitation. Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched, and if natural breathing stops, artificial respiration should be resumed at once.

11 In carrying out resuscitation it may be necessary to change the operator. This change must be made without losing the rhythm of respiration. The relief operator should kneel behind the one giving the artificial respiration and at the end of the movement, the operator crawls forward while the relief takes his place. By this procedure no confusion results at the time of change of operator and a regular rhythm is kept up.

practice in the performance of artificial respiration on a voluntary subject should be obtained by everyone

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RADIO DIRECTION FINDER EQUIPMENT

Frequency Range

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This document contains information affecting the National Defense of the United States within the meaning of the Espionage ACT (U.S.C. 50: 31, 32). The transmission of this document or the revelation of its contents in any manner to any unauthorized person is prohibited.

This Instruction Book is furnished for the information of commissioned, warranted, enlisted and civilian personnel of the Navy and persons authorized by the Bureau of Ships whose duties involve design, manufacture, instruction, operation, and installation of radio, radar, or underwater sound equipment. The word "RESTRICTED" as *applied* to *this* instruction book signifies that it is to be read only by the above personnel, and that its contents should not be made known to unauthorized persons not connected with the Navy.

Manufactured For

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COLLINS RADIO COMPANY

Cedar Rapids, Iowa

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WARNING

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS. DO NOT CHANGE TUBES OR MAKE ADJUSTMENTS INSIDE THE EQUIPMENT WITH THE PLATE POWER SWITCH CLOSED. ALWAYS DISCHARGE AND GROUND CIRCUITS PRIOR TO TOUCHING THEM.

* * * * *

Since the use of voltages which are dangerous to human life are necessary for successful operation of the radio equipment covered by these instructions, certain reasonable precautionary measures must be carefully observed by the operating personnel during the adjustment and operation of the equipment.

KEEP AWAY FROM LIVE CIRCUITS

Under no circumstances should any person be permitted to reach within or in any manner gain access to the main cabinet enclosure when the plate power switch is closed; or to approach or handle any part of the equipment which is supplied with power, or to connect any apparatus external to the enclosure to circuits within the equipment; or to apply voltages to the equipment for testing purposes while the shielding or enclosures are removed or open. Whenever feasible in testing circuits, check for continuity and resistance rather than directly checking voltage at various points.

DON'T SERVICE OR ADJUST ALONE

Under no circumstances should any person reach within the enclosure for the purpose of servicing or adjusting the equipment without the immediate presence of another person capable of rendering aid.

THE ATTENTION OF ENGINEER OFFICERS, RADIO OFFICERS AND OPERATING PERSONNEL IS DIRECTED TO BUREAU OF ENGINEERING CIRCULAR LETTER NO. 5a OF 3 OCTOBER, 1934, OR SUBSEQUENT REVISIONS THEREOF ON THE SUBJECT OF "RADIO —SAFETY AND PRECAUTIONS TO BE OBSERVED."

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GUARANTEE

The equipment, including all parts and spare parts, except vacuum tubes, shall be guaranteed for a service period of one year with the understanding that, as a condition of this contract, all items found to be defective as to design, material, workmanship or manufacture shall be replaced without delay and at no expense to the Government, provided that such guarantee and agreement shall not obligate the contractor to make replacement of defective material unless the failure, exclusive of normal shelf life deterioration, occurs within a period of two years from the date of delivery of the equipment to and acceptance by the Government, and provided further, that if any part or parts (except vacuum tubes) fail in service or are found defective in ten percent (10%) or more, but not less than two, of the total number of equipments furnished under the contract, such part or parts, whether supplied in the equipment or as spares, shall be conclusively presumed to be of defective design, and as a condition of contract subject to one hundred (100) percent replacement of all similar units supplied on subject contract by suitable redesigned replacements. Failure due to poor workmanship while not necessarily indicating poor design, will be considered in the same category as failure due to poor design. Redesigned replacements which will assure proper operation of the equipment shall be supplied promptly, transportation paid, to the Naval activities using such equipment, upon receipt of proper notice and without cost to the Government. All defective parts originally furnished under contract shall be held subject to rejection and return to the contractor.

This period of two years and the service period of one year shall not include any portion of the time that the equipment fails to give satisfactory performance due to defective items and the necessity for replacement thereof, and provided further, that any replacement part shall be guaranteed to give one year of satisfactory service.

REPORT OF FAILURE

Report of failure of any part of this equipment, during its service life, shall be made to the Bureau of Engineering in accordance with current instructions. The report shall cover all details of the failure and give the date of installation of the equipment. Refer to latest revision of Bureau of Engineering Circular Letter No. 40 for instructions concerning Reports of Failures, etc.

Contract NOs - 91550 Date of Contract 10 September 1941
Contract NOs - 98643 Date of Contract 16 February 1942
(Indicate applicable contract)

Serial No. of Equipment_____

Date of Acceptance by the Navy_____

Date of Delivery to Contract Designation_____

Date of Completion of Installation_____

Date Placed in Service_____

ADDENDA

DAB-3 Instruction Books

Beginning with DAB-3 Equipment, Serial Number 17, a slight mechanical change has been made in Unit G, the commutator unit. No circuit change is involved. All references to the Type 347E-2 Commutator Unit should now read 347E-3 Commutator Unit.

5-18-43

I GENERAL CHARACTERISTICS

EQUIPMENT SUPPLIED

This instruction book covers the installation and operation of the Navy Model DAB Radio Direction Finding Equipment. The equipment supplied consists of the following:

1—Model DAB Radio Direction Finding Equipment
1—Set of Spare Parts
2—Instruction Books
1—Pair 273N3 Headphones
1—361N104 Phone Plug
2—GA-1190A Unit Hook
1—GA-1192A Tuning Tool
1—15N705 Hydraulic Zerk Fitting
1—372N1 Convenience Outlet Plug
1—24N4557 #1 Phillips Screw Driver
1—24N4558A #2 Phillips Screw Driver
1—24N971 #10 Bristo Wrench
1—24N972 #8 Bristo Wrench
1—24N973 #6 Bristo Wrench
1—24N26 #6 Bristo Screw Driver
1—24N27 #8 Bristo Screw Driver
1—24N28 #10 Bristo Screw Driver
1—348D-2 Arm Rest

The Model DAB Radio Direction Finding Equipment, when assembled, is 16 feet 7 inches wide, 5 feet 10¾ inches deep, and 7 feet 2⅜ inches high. The weight of the entire equipment is 852 lbs.

TUBE COMPLEMENT

The tubes required for the Model DAB Radio DirectionFinding Equipment are as follows:

Tube Symbol	Tube Type	Circuit Function	Unit Type
V101	6SK7	1st R-F Amplifier	55A-2
V102	6SK7	2nd R-F Amplifier	55A-2
V103	6SJ7	1st Detector	55A-2
V1	6SK7	1st R-F Amplifier	55B-2
V2	6SK7	2nd R-F Amplifier	55B-2
V3	6SJ7	1st Detector	55B-2
V3	6J5	H-F Oscillator	55C-2
V302	6SK7	1st Buffer Amplifier	55C-2
V303	6SK7	2nd Buffer Amplifier	55C-2
V304	6SK7	3rd Buffer Amplifier	55C-2
V401	6SK7	Output Amplifier	55D-2
V402	6SA7	Mixer	55D-2
V403	6SK7	Input Buffer Amplifier	55D-2
V501	6SK7	1st I-F Amplifier	347A-2
V502	6SK7	1st I-F Amplifier	347A-2
V503	6SK7	2nd I-F Amplifier	347A-2
V504	6SK7	2nd I-F Amplifier	347A-2
V505	6J5	AVC Amplifier	347A-2
V506	6J5	AVC Amplifier	347A-2
V507	6H6	2nd Detector	347A-2
V508	6H6	2nd Detector	347A-2
V509	6J5	1st Audio Amplifier	347A-2
V510	6J5	1st Audio Amplifier	347A-2
V601	5U4G	Plate Supply Power Rectifier	409R-2
V602	5U4G	Plate Supply Power Rectifier	409R-2
V603	VR-150-30	Plate Voltage Regulator	409R-2
V701	6SJ7	2nd Audio Amplifier	26R-2

GENERAL CHARACTERISTICS

Tube Symbol	Tube Type	Circuit Function	Unit Type
V702	6SJ7	2nd Audio Amplifier	26R-2
V703	6J5	Audio Output Amplifier	26R-2
V704	6J5	Audio Output Amplifier	26R-2
V705	6H6	Differential Rectifier	26R-2
V706	6H6	Differential Rectifier	26R-2
V707	6J5	Keyer Amplifier	26R-2
V708	5U4G	Bias Supply Power Rectifier	26R-2
V709	VR-150-30	Bias Voltage Regulator	26R-2
V801	6J5	Intermediate Frequency Oscillator	54G-2
V802	6J5	Intermediate Frequency Test Oscillator	54G-2
V803	6J5	Carrier Strength Meter Amplifier	54G-2
V804	6H6	Carrier Strength Meter Limiter	54G-2
V805	6J5	Carrier Strength Meter Amplifier	54G-2
V806	6J5	Monitoring Amplifier	54G-2
V1101	6SJ7	Oscilloscope Amplifier	347B-2
V1301	902	Oscilloscope	

DESCRIPTION OF EQUIPMENT

This equipment is suitable for use at fixed land stations and is designed to indicate the direction of arrival of the normally polarized component of radio waves of any frequency within the range of the equipment. The equipment is of the manually rotatable, visual indicating type. It consists of a main cabinet structure housing the indicator, electrical circuits and controls and a collector system mounted on and rotating with the main cabinet. The entire assembly is mounted on a vertical spindle permitting complete rotation.

The cabinet frame is constructed of stainless steel. Spot welding is used throughout the structure. Wood and aluminum alloys are used in the construction of the collector loops and their supporting structures. The equipment is designed to resist the corrosive effects of salt-laden air encountered in seaboard installations.

The cabinet and all exposed metal parts are finished with a zinc chromate primer prior to the application of the final finishing coat, which is baked black crystalline enamel. Metal parts on the interior of the cabinet have a finishing coat of flat gray lacquer.

The collector system consists of the following apparatus:

1. Collector loop assemblies (2).
2. Loop tuning and band switching equipment.
3. Shafts and gear boxes for driving the tuning equipment.
4. Loop supporting beams (2).

The main cabinet structure contains the following equipment:

1. Receiver channels (2).
2. Injection System.
3. Visual Indicating Circuits.
4. Power Supplies.
5. Control Equipment.

Bearings are indicated by two horizontal traces on the screen of a cathode-ray oscilloscope tube. The direction finder is "on bearing" when the two horizontal traces are adjacent to each other, forming a single horizontal line.

FREQUENCY RANGE AND SENSITIVITY

The equipment has a continuous frequency range of from 2 to 18.1 megacycles. The frequency range of each of the four bands is as follows:

Band I	1,950 - 3,550 kc.
Band II	3,370 - 6,150 kc.
Band III	5,850 - 10,650 kc.
Band IV	10,150 - 18,300 kc.

In order for the equipment to respond to a rotation of plus or minus one degree from the "on bearing" position, the signal strength required is as follows:

Frequency in megacycles	Field Intensity μv/meter
2	15
4	8
6	5
8	3
12	2
16	1
18	1

SELECTIVITY

The equipment has a rejection ratio of 100 to 1 at a frequency 10 kc off resonance. The image rejection ratio of the equipment is not less than the values listed as follows:

Resonant Frequency	Image Rejection Ratio
2.0 Mc.	100 db.
4.0 Mc.	80 db.
6.0 Mc.	70 db.
10.0 Mc.	55 db.
18.0 Mc.	40 db.

POWER REQUIREMENTS

The equipment is designed to operate from a power source of 105/110/115/120 volts, 60 cycles, single phase a.c. Regulation of the power source should not exceed 10%. Taps are provided on the primaries of the power transformers for operating on the different line voltages listed above. The total power consumption of the equipment is approximately 270 watts.

PROVISIONS FOR COMMUNICATION CIRCUITS

Provisions are made for 3 additional wires to be connected to the direction finder through the slip ring assembly in the base of the equipment. These wires may be used for communication or control circuits as required.

II CIRCUIT FUNCTION

GENERAL

The Model DAB Radio Direction Finding Equipment consists essentially of two spaced loops and apparatus with which to suitably indicate equality of phase angle of the voltage induced into the respective loops.

The two main circuit functions of the equipment are wave detection and visual phase indication. There are two loops which intercept the signal from the station on which the bearing is to be taken. The two loops are connected to identical superheterodyne receivers whose output circuits are fed through phase shifting networks into a directional or phase sensitive rectifier. The cathode ray oscilloscope, which serves as the visual phase indicator, is connected to the directional rectifier through an amplifier and responds to any phase difference between the output voltages from the two loops.

Circuits are used throughout the equipment to minimize the effect of any shift in phase of the two signal voltages which may occur while these voltages are passing through the various tuned circuits. Small auxiliary loops are used inside the main loops for injecting a heterodyne voltage into the receiving systems.

LOOP CIRCUITS

The two main loops in this equipment are spaced 16 feet between centers and are mounted parallel to each other. Each of these loops has a diamond shape and has one turn of copper tubing enclosing an area of approximately 16 square feet. When the axis of the two loops is perpendicular to the direction of arrival of the radio wave, the wave front will strike the two loops at the same time, thus inducing a voltage in each of the two loops which will be in phase with the other. However, as soon as the equipment is rotated slightly, one loop will be slightly in front of the other, such that there will be a slight time lag in the voltage induced into the loop to the rear. Thus when the loops are equidistant from the apparent origin of the radio wave, there will be no phase difference in the loop voltages and the phase indicating circuit (oscilloscope) will give an "on bearing" indication.

In all but the highest frequency band, the loops each have loading coils in their circuits to facilitate the tracking of the loops. The loop tuning capacitors each have three sections which are used singly or in parallel, depending upon the frequency range. A number of padding capacitors are used for proper tracking of the loop tuning circuits. The loops are transformer coupled to the receivers.

The injection loops are small-diameter single turn copper rings mounted near the centers of the two main loops. A heterodyne voltage, generated within the equipment, is induced into the main loops through these small injection loops. This heterodyne voltage beats against the incoming signal to produce an audible beat frequency in each of the two receiving channels. It is the phase difference between these two audible beat frequencies that actuates the oscilloscope.

RECEIVING CHANNELS

a. **Tuner Units**

Each of the two tuner units consists of a two stage tuned r-f amplifier followed by a 1st detector. The high frequency oscillator is coupled to the 1st detector through its cathode circuit. The r-f coils for the four bands are constructed in individual shield cans which are arranged together in a turret such that the coil assemblies rotate when changing bands.

b. **I-F Amplifier Unit**

The intermediate frequency amplifier unit has two separate i-f amplifier and 2nd detector channels. The inputs to these channels are transformer coupled through transmission lines from the 1st detectors in the tuner units. Each channel consists of a two stage i-f amplifier coupled to a 2nd detector stage which is in turn coupled to an audio amplifier stage. The output from the 2nd i-f amplifier in each channel is also coupled to an automatic volume control amplifier stage. In normal operation these a.v.c. stages control the gain in the receiver channels.

PHASE INDICATOR CIRCUITS

a. **Audio Amplifier**

The output voltages from the two receiver channels are coupled to the audio amplifier unit

through two audio transformers, T701 and T702. The secondaries of these two transformers are connected so that the two output voltages from these transformers are the vector sum and difference between the output voltages from the two receiver channels, respectively. The sum and difference voltages then pass through phase shifting networks which shift the phase of one of the two voltages by ninety degrees with respect to the other. The sum voltage is coupled to the two stage audio amplifier consisting of tubes V701 and V703; and the difference voltage is coupled to the two stage audio amplifier consisting of tubes V702 and V704.

b. **Directional Rectifier**

The output voltages from the audio sum and difference channels are transformer coupled to the directional rectifier tubes, V705 and V706. These tubes furnish an indicating voltage for the oscilloscope which is proportional to the phase difference between the audio voltages from the two receiver channels. The polarity of the indicating voltage depends upon the phase order of the two audio voltages and therefore also, upon the phase order of the voltages of the two loops. This characteristic enables the operator to select the direct-reading or reverse azimuth scale for determining the sense of bearing.

c. **Oscilloscope Circuits**

The oscilloscope amplifier tube, V1101, follows the directional rectifier, and actuates the vertical plates of the cathode ray tube, V1301. The gain of this stage is controlled by the gain control, R1004.

Synchronized with the loop commutator are cam-driven switch contacts, S1201, for producing a saw tooth wave for the cathode ray sweep circuit. The synchronization is such that the cathode ray beam is on the left-hand side of the screen during one half of the cycle and on the right hand side during the other half of the cycle.

Switch S901 is provided for varying the filter capacity across the output voltage of the directional rectifier. A larger filter capacity tends to reduce the speed with which the equipment will respond to rotation, but may be very helpful when the noise level is high or the signal is weak.

An audio amplifier stage (tube V707) is provided for amplifying the audio beat note of CW signals and is transformer coupled to the two neon lamps, I1005 and I1006. The gain of this amplifier is controlled by the KEYER GAIN control, R1003. The neon lamps disconnect the oscilloscope filter capacitors when there is no CW beat note being received. This enables the indicator to continue to function between signal pulses, and the effect is much the same as for signals with a steady carrier. Switch S1002, the KEYER SWITCH, connects this circuit to the oscilloscope when in the CW position.

d. **Monitor Circuits**

A monitoring amplifier stage (tube V806) is provided for operation of the loudspeaker, LS1001, or headphones. The MONITOR GAIN control R901 controls the output to the loudspeaker and the phone jacks J903 and J904.

Two meter circuits are provided for visually monitoring the average and differential carrier voltages. The output from the two 2nd detector tubes, V507 and V508, is coupled to the carrier strength amplifier tubes V803 and V805. Tubes V803 and V805 actuate the zero-center DIFFERENTIAL CARRIER STRENGTH meter, M1002, through the meter limiting rectifier tube, V804, for indicating equality between the two receiver channel output voltages. The output of tubes V803 and V805 also actuate the AVERAGE CARRIER STRENGTH meter, M1003, for indicating the average value of the two receiver channel output voltages.

RECEIVER GAIN CONTROL CIRCUITS

The gain in the receivers is normally controlled by a delayed and amplified automatic volume control circuit in each receiver channel. The INJECTION VOLTAGE control, R903, thus affects the gain of the receiver channels indirectly through the automatic volume control circuits. Thus, for receiving strong signals the amplitude of the injection voltage is increased manually, and the automatic volume control circuits automatically reduce the gain of the receiver channels.

The DIFFERENTIAL GAIN control, R902, and the MANUAL GAIN control, R904, are used to adjust and equalize the gain of the two receivers for receiver testing and alignment. The MANUAL-AVC SWITCH S905, should be in the M or MT position when R902 or R904 is to be adjusted.

HIGH FREQUENCY OSCILLATOR

The high frequency oscillator system in the equipment consists of one oscillator tube, V301, which drives three buffer amplifier tubes V302, V303 and V304. These tubes serve as isolation stages which prevent interaction between the three circuits to which the oscillator voltage is supplied. The h-f oscillator voltage for the first detector tubes of the receiver channels are supplied from two of these isolation amplifiers. Tube V302 is coupled to tube V203 of channel B and tube V303 is coupled to tube V103 of channel A. The third isolation amplifier tube, V304 is coupled to the mixer unit which is a part of the injection system.

INJECTION SYSTEM

The purpose of the injection system in this equipment is to supply to the main loops a heterodyne voltage differing only slightly in frequency from the signal being received. This heterodyne voltage produces the beat notes in the output circuits of the two receiver channels which actuate the indicating system. The voltage is generated in the mixer tube, V402, by combining the output from the high frequency oscillator with that of a special beat frequency oscillator. The frequency of the signal which is fed into the injection loops is manually adjusted so that it differs by approximately 1000 cps from that of the incoming signal. The frequency of the h-f oscillator is equal to the frequency of the incoming signal plus that of the intermediate frequency, which is 455 kc. In order to get a beat note of approximately 1000 cps, the beat oscillator must have a frequency of approximately 454 kc.

In addition to the b.f.o. tube, V801, there is a test oscillator tube, V802, whose output also feeds into the mixer tube, V402. The frequency of this test oscillator differs from that of the b.f.o. by 500-1500 cycles. The purpose of this oscillator is to produce an artificial signal as a substitute for an incoming radio signal. Using this test oscillator, the "on bearing" effect may be had regardless of how the loops are rotated.

The beat-frequency and test oscillators both have a trimmer capacitor (C909 and C910 respectively) on the front panel for small frequency adjustments which may be required. The injection voltage output is controlled by varying the grid bias on the mixer tube, V402, and the mixer amplifier tube, V401, by means of the variable resistor, R903A; and by simultaneously varying the plate voltage on the b.f.o. tube, V801, by means of the variable resistor, R903B, which is ganged with R903A.

COMMUTATOR

This equipment is of the type in which the two main loops are continually connected and cross-connected to the two receiver channels. The commutator switch, S1202, is used for this purpose and switches the loops at a low frequency rate of about ten cycles per second. A small degree of overlap is provided in the switching operations so that the antenna circuits of the two receivers are never open, thus avoiding noise and other undesirable effects.

The purpose of the commutator is to minimize the effects of phase shift which may be due to variations in the two receiver channels. Since each receiver is alternately used with one loop and then the other, the phase shift in each receiver will affect the signal from each of the two loops alike.

BAND SWITCHING

Band switching in this equipment is accomplished by means of an electric motor. This motor, B1301, is controlled by the "open circuit" seeking switch, S1301, and the motor relay K1101. When the position of the band switch, S903, is changed, the relay K1101 closes, starting the motor, B1301. The motor rotates the coil turrets in the r-f units, the cam switches on the loops, and the switch S1301, until the open segment of the switch arrives

at the contact on which S903 is positioned. The relay, K1101, then opens, stopping the motor, thereby completing the band changing operation.

POWER SUPPLIES

The power supplies in this equipment consist of two low-voltage plate power supplies, a bias power supply and two filament power transformers. The two plate supplies have identical rectifier and filter components. Each of these supplies has a full-wave high-vacuum rectifier followed by a two-section choke input filter. One of these supplies is provided with a voltage regulator tube (V603), which supplies a regulated voltage (150 volts) to the high frequency oscillator tube, V301. The voltage output of each of these supplies is approximately 285 volts under normal load.

The voltmeter, M1001, and voltmeter switch, S1001, are used to check the output voltages of these plate power supplies and also the output of the bias power supply.

The bias supply consists of a full wave rectifier circuit followed by a single condenser as the filter. The full output voltage is approximately 575 volts. A voltage regulator tube, V709, provides a stable biasing voltage of 150 volts for the a.v.c. circuits of the receiver channels and injector system. The remainder of the voltage taps on the bias supply connect to the oscilloscope circuits.

III INSTALLATION

UNCRATING

There are twelve crates in which the Model DAB Radio Direction Finding Equipment is shipped. These crates are numbered consecutively in the order in which they should be unpacked. It is suggested that the equipment be assembled as it is unpacked so that no crowding or confusion occur.

All units should be carefully inspected for damage in transit. All claims for damage should be filed promptly with the transportation company. It will be necessary to save the original packing box and the packing material in case a claim is to be filed with the transportation company concerned.

The contents of each crate is as follows:

Crate No.	Contents
1	Screwdrivers, wrenches, instruction books, and accessories.
2	Main cabinet and base assembly.
3	Beams, compression members, arm rest and handles.
4	Injector Loops & Main Loop Assemblies, Units P & Q.
5	R-F Tuner—Unit A.
6	R-F Tuner—Unit B.
7	Oscillator—Unit C.
8	Mixer—Unit D.
9	I-F Amplifier—Unit E and Monitor Unit—Unit J.
10	Power Supply—Unit F.
11	Audio Amplifier—Unit H.
12	Spare Parts.

DIRECTION FINDER HOUSE REQUIREMENTS

The usual considerations apply in regard to the general location of the direction finder. The terrain should be as uniform as possible and overhead conductors such as power lines and telephone cables should be as remote as possible from the direction finder. The installation will be greatly simplified where it is possible to locate the direction finder on high conductivity soil.

Two general types of buildings are recommended to meet the various installation problems which may be encountered. The two types of buildings suggested are one story and two story types. Where it will not be necessary to have heating and lighting facilities except those which may be placed on the direction finder cabinet, the ground floor installation shown on drawing K1142B may be used. The two story type of installation shown on drawing K840C should be used where the building is to be heated or other electrical installations will be required.

Particular attention should be paid to shielding problems connected with the installation of the direction finder. Wherever possible, power and telephone cables leading to the house should be buried in the ground. These cables should be buried from 4 to 6 feet where the equipment is located on high conductivity soil. When the ground is very sandy the cable should be buried 10 feet below the ground if possible. Where the ground is rocky or of solid rock, it will of course be necessary to run the power and telephone cables on the surface of the ground. If the ground is sandy or rocky a ground screen will be required. This screen should consist of hardware cloth and cover an area whose radius is approximately 25 feet or more. In addition to the ground screen, it will be necessary to install a system of radial wires fanning out from the ground screen. These radials should be spaced approximately 10° apart and should be 150 to 300 feet long. Where the direction finding equipment is to be located on the second floor, a system of not less than 32 radial wires should be installed on the ceiling of the first floor as indicated on drawing K840C.

In general, the construction of the house will not be critical. It may be as large as desired and need not have more than four sides. Suggested construction details for a second floor installation are found on drawing K398D. Small metal objects in the house, if ungrounded, will have no effect on the equipment. However, metal objects larger than about 2 feet square should be avoided. The house should be varnished or finished with linseed or parafin oil rather than painted. If electric heaters are to be used they should be placed close to the floor on the first story of the house and should be as near the center of the room as possible. Lights for the first floor may be placed on the ceiling

if they are located close to the pipe which supports the direction finder. In all installations, a ground pipe should be driven into the ground as far as possible. It is to be connected to the ground wire from the direction finder with heavy wire or copper strap. The ground screen if used should also be connected to this pipe as should also the ground wires of the power and telephone circuits. Where soil conditions permit, it is desirable to install the equipment on a concrete footing. If this cannot be done, the equipment may be bolted to wooden pilings driven well into the ground. The equipment may also be bolted to the floor of the building, in which case substantial reinforcements will be required for the floor structure.

The power and telephone cables may be brought to the equipment in either of two ways. The cables may be lashed to the side of the ground pipe or if the ground pipe is sufficiently large a hole may be drilled on the side of the pipe and the cable brought up through the center of the pipe.

GENERAL

The various units which constitute the Model DAB Radio Direction Finding Equipment are as follows:

Unit Letter Designation	Unit Type	Name	Symbol Designation No. Series
A	55A-2	Tuner Unit	100– 199
B	55B-2	Tuner Unit	201– 299
C	55C-2	Oscillator Unit	301– 399
D	55D-2	Mixer Unit	401– 499
E	347A-2	I-F Amplifier	501– 599
F	409R-2	Power Supply	601– 699
G	347E-2	Commutator	1201–1299
H	26R-2	Audio Amplifier	701– 799
J	54G-2	Monitor Unit	801– 899
K	82S-2	Meter Panel	1001–1099
L	101T-2	Control Panel	901– 999
M		Misc. Items	1301–1399
N	347B-2	'Scope Amp. & Motor Relay	1101–1199
P	348E-3	Right Loop Assembly	1401-1499
Q	348E-4	Left Loop Assembly	1501–1599

Each unit has been assigned an arbitrary letter for the purpose of identification. The unit cable connectors have been designated by the unit letter followed by a number. These designations for units and cable connectors are used on the unit cabling diagrams for identifying the inter-unit wiring. All inter-unit cabling is identified by showing, at every terminal, the type of wire used,* the combined unit and cable connector designation and the terminal number to which the wire is connected. For example: The wire from terminal 8 of cable connector #2 (designated E2) of Unit E is designated L2.11, which indicates that it goes to terminal 11 of connector L2 on Unit L. The designation A905 indicates a type "A" wire with white body and black and green tracers. (The wire designation "Q" which is found on some units, refers to a special, shielded wire.)

EXTERNAL CONNECTIONS

The external connections to the equipment are to be made at the base. The power, ground and signal wires should be brought up through the previously constructed mounting base or pedestal. (Refer to drawings K1142B, K840C and K841C.) After the main cabinet and base assembly has been unpacked, it should be set on the mounting and then tipped on its side enough to allow the wires to be brought up through the center of the slip ring insulating tube. Holes for the wires are provided on the sides of the tube between the slip rings. Connect the top slip ring to ground and the second and third rings to the 115 volt a-c line. The lower rings are to be used for whatever communication circuits are required.

Connections to the lower slip rings are brought out on binding posts on the bottom side of the cabinet directly in front of the supporting column. They are labeled SIGNAL LINES A, B, and C. Wires are also connected from these binding posts to terminals L2.3, L2.4 and L2.5 (on socket J902) of the 101T control panel, Unit L. Wires from these terminals are dead-ended on Unit L near the phone jacks. (Refer to the practical wiring diagram of the 101T unit, drawing K394D). If the signalling

*See DATA Section for the cable wire code.

equipment is to be located on the right side of the main cabinet, wires may be spliced to the dead-ended wires near the phone jacks and fed through the injection loop transmission line hole on the right side of the cabinet.

The size of the power line cable will depend on the length of the cable and on the electrical apparatus which is to be used in the direction finder house. If electric heaters, etc., are to be used, the cable will obviously need to be heavy in order to carry the load without appreciable voltage loss. The Model DAB Radio Direction Finding Equipment consumes approximately 270 watts of power and is designed to operate from a 105/110/115/120 volt 60 cycle single phase power line whose regulation does not exceed ±10%.

INSTALLATION OF UNITS

After the external connections have been made, the main cabinet and base assembly should be mounted securely by bolting the base to the floor or pedestal. The loop supporting beams and compression members should now be bolted to the cabinet structure. The machine screws and nuts required for bolting each of the beams to the cabinet are in a small bag tied to the beam. The handles used to rotate the equipment are packed with the beams and are to be bolted to the plates on the sides of the cabinet with the screws which are also used to bolt the beams to the cabinet. The compression members should be installed at the same time as the beams in order that the beams will be properly supported while being bolted to the plates on the sides of the main cabinet.

After the beams have been bolted in place, the concentric lines should be connected to the cabinet coupling by means of the knurled fittings attached. Be sure the connector pins on the concentric lines slide into the coupling sleeves provided. The mounting blocks near the ends of the concentric lines should be screwed to the side plates to hold the lines rigidly.

The right and left loop assemblies should now be bolted to the supporting beams by means of the machine screws found in a small bag tied to the loop assemblies. It will be necessary to guide the shaft couplers and the transmission line connectors as the loops are put into position on the beams. After the loops have been installed, the supporting beams should be properly leveled. Place a carpenter's level on one of the beams and adjust the leveling screw on the upper connection to the compression member until the beam is level. Rotate and check the level of the beam. If the leveling instrument indicates a tilt of the beam, it will be necessary to place shims under the base mounting plate to make the cabinet supporting column vertical. The other beam should also be leveled, and should check when rotated.

The main cabinet units may now be installed. It will be necessary to remove the top, rear and bottom cabinet covers. Also remove the azimuth scale by taking off the three screws which hold it to the clamp sleeve. Units A, B, C and D should be lowered into the top section of the cabinet. These units are each provided with four spade bolts. Two special hooks, furnished with the equipment, should be inserted in these spade bolts and used to lift the units in and out of the equipment. Units E, F, H and J are held in from the bottom by the machine screws found in the small bags tied to the units. Refer to the cabinet photographs and the unit placement diagram for location details. In mounting the lower units, match the cable connectors with those of the units in order to avoid reversing the units during installation. There are a number of concentric lines to be screwed into their respective sockets. If necessary, refer to the unit schematic diagrams to check the positions of these lines. The locations of most of the concentric lines will be obvious from the way in which the tubing has been bent. **Keep transmission line connectors tight.**

When installing Unit D, the Mixer Unit, care must be used to have the slot of the shaft coupler (forward from the unit) in a vertical position so it will slip over the bakelite coupling bar.

After installing the monitor unit, Unit J, connect the two transmission lines from the monitor unit to the two trimmer capacitors on the control panel. The transmission lines are tagged for easy identification. Also connect the flexible shaft from the MONITOR SELECTOR SWITCH on the front panel to the switch, S802, on the monitor unit.

INSTALLATION AND ALIGNMENT OF SHAFT COUPLERS

There are seven shaft coupler assemblies shipped with the tools and accessories. The three which have the longest bakelite sleeves are for coupling the gear boxes in the rear of the r-f units. The other three couplers which have bakelite sleeves are for coupling the gear boxes in the front of the units. The solid steel coupler shaft is used to couple the tuning dial to the tuning shafts in the top rear of the units. The units must be properly phased before these couplers are inserted.

a. **Band Switch Shafts**

Turn the band switch coupler located on the front and top of each of the r-f units clockwise (when viewed from the right end of the cabinet) until the turret in each unit is in band #1. At this point the detents will drop into place and the number "1" will appear through the small circular glass windows on the turret gear housings of the units. Approximately four additional revolutions of the shafts are needed before the detents will be forced out and the turrets begin to rotate.Turn all the shafts approximately half way to this point and then insert the shaft couplers between the four units.

b. **Tuning Shafts**

The gear boxes on the top rear of the four r-f units are provided with main dials and vernier drums. The main dials have divisions marked from 0 to 15 and the vernier drums are numbered 0 to 10. Before inserting the coupling shafts between these units, the couplers on each of these units should be turned until the main dials and vernier drums all read zero. After inserting couplers, turn the RECEIVER TUNING knob until the RECEIVER FREQUENCY dial is against the low frequency stop. The solid steel shaft coupler should now be set in place between the tuning dial and Unit C. As the RECEIVER TUNING dial is rotated through the band, the dial readings on each of the units should be exactly the same.

c. **Loop Control Shafts**

There are two shafts which connect each of the loop assemblies to the main cabinet. These shafts run through the central part of the beams and are supported by ball bearing assemblies. These two shafts are coupled to the main cabinet on the end of the side plates of the cabinet. One of the couplers is exposed and the one for the rear shaft is inside of the side plate and must be approached from the rear. Tighten the set screws on the couplers against the flat side of the shaft.

The rear shafts, which drive the loop band switches, should also be fastened to the couplers extending from the central loop gear housings by tightening the set screws on the couplers. Refer to Dwg. K991A and rotate the band switch shaft of each loop until the cams are in the proper position for band 1. Now connect the flexible coupling cables through the sides of the cabinet to Units C and D. The positions of the loop band switches and the coil turrets on the four Units A, B, C, and D should now be synchronized and in position for band 1.

The front shafts on the beams are the loop tuning shafts. These are normally geared to the RECEIVER TUNING DIAL by means of the clutch gear box. Disengage the loop tuning from the receiver tuning by pushing the LOOP TUNING dial toward the panel and rotate this dial until the dials on the gear boxes driving the loop tuning capacitors read zero. If the capacitors on the two loops do not read zero at the same time it will be necessary to loosen one of the couplers on the linkage and make suitable adjustments. The loop tuning capacitors will now be synchronized over the whole tuning range. To re-engage the loop and receiver tuning simply press the small button located above the LOOP TUNING knob. This should be done only when the loop and receiver tuning dials all read zero.

INSTALLING THE AZIMUTH SCALE AND LIGHT

The azimuth scale should be installed only after all the units have been installed and properly coupled together and phased. The accuracy of the entire equipment will depend upon the accuracy with which this scale is aligned. Replace the azimuth scale on the clamp sleeve such that the screw holes are aligned properly.

Replace and tighten the three machine screws. Loosen the clamp sleeve by rotating the 5/8 inch hexagonal head screw **clockwise** a few turns. Adjust the azimuth scale so that the zero reading on the black scale is aligned with true north. It is suggested that a stake be laid out some distance from the tuning house and due north from the base of the equipment. Sight along perpendiculars erected from the scale which are on the 0° and 180° divisions. Small carpenter squares or drawing triangles may be used for this purpose. An alternate method which may be used is that of sighting from one loop through the other to an object known to be due north of the equipment. The bakelite loop couplers are well suited for sighting to the object. When using this method of alignment, set the scale so that it reads 90° on the black scale when the rear of the cabinet faces east. After setting the scale, carefully tighten the center screw by **counterclockwise** rotation.

If the scale is to be removed after being aligned, remove the three small screws near the center, leaving the center clamping screw tight. The scale may then be worked off the two dowel pins and will not require realignment when it is replaced on these pins.

After the azimuth scale has been properly aligned, the lighting assemblies may be installed. Bolt the light trough to the upper side of the top cover with the six machine screws provided. Bolt the light box to the rear panel from the inside with the two screws provided, and insert the plug in the convenience outlet. The top cover may now be bolted to the cabinet frame. Adjustments are provided for tilting and extending the mirror to properly illuminate the azimuth scale.

FUSES

There are two fuses in the equipment, one for the power circuits and one for the convenience outlets on the bottom and rear of the main cabinet. These fuses are both type 3AG 5 ampere fuses and are located on the front panel below the desk. These fuses should be inspected when the equipment is installed.

IV PRELIMINARY ADJUSTMENTS AND OPERATION

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF VOLTAGES WHICH ARE DANGEROUS TO LIFE. OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY PRECAUTIONS. DO NOT CHANGE TUBES OR MAKE ADJUSTMENTS INSIDE EQUIPMENT WITH PLATE POWER SUPPLY ON.

INSPECTION

Before any adjustments are made, a thorough inspection of all connections and terminals should be made to assure freedom from faulty operation. All mechanical couplers should be inspected to make sure there is no binding or slipping. The loop band switches and the commutator also should be inspected for binding or slipping. Make sure all tubes are firmly seated in their sockets. **Keep transmission line connectors tight.**

CIRCUIT TESTS

After all electrical and mechanical connections have been made and inspected, the POWER SWITCH may be placed in the ON position. After a few seconds turn on the PLATE PWR. SWITCH.

Measure the voltage of each of the four positions of the VOLTMETER SWITCH on the TEST VOLTMETER. The voltage in the BIAS and OSC. positions should be 150 volts, and that in the PL.-A and PL.-B positions approximately 280 volts.

ADJUSTMENTS

a. **Oscilloscope Controls**

The oscilloscope tube has four controls:

1. Horizontal Centering.
2. Focus.
3. Intensity.
4. Oscilloscope Gain.

In normal operation, the first three controls will not require any adjustment.

Turn the COMMUTATOR MOTOR SWITCH on and, if the horizontal centering of the traces on the screen of the oscilloscope is not satisfactory, adjust the control R734 on the front of Unit H. If the traces are not horizontal, the tube should be rotated as required.

Adjustment of the FOCUS and INTENSITY controls should be done in the usual manner. Adjustment of either control will affect the other one, so that the adjustments of these two controls must be coordinated to give sharp, bright traces on the screen of the tube. Once these controls are set, they should not require further attention.

The adjustment of the OSCILLOSCOPE GAIN control will be described in the section on **Operating Technique.**

b. **Carrier Meter Controls**

Several adjustments will be necessary in order that the AVERAGE and DIFFERENTIAL CARRIER STRENGTH meters function properly. Place switch S801, located on the left side of the monitor unit (Unit J) in the CALIBRATE position. Adjust control R818, located adjacent to S801, until the DIFFERENTIAL CARRIER STRENGTH meter reads zero when there is no signal voltage coming into the monitor circuits. Under these same conditions, adjust control R823, located adjacent to R818, so that the AVERAGE CARRIER METER reads zero. With the INJECTION VOLTAGE control turned up sufficiently to give a reasonable meter indication, adjust control R810, located on the left side of the monitor unit adjacent to S801, until the DIFFERENTIAL CARRIER STRENGTH meter again reads zero. Place the switch S801 in the NORMAL position when these adjustments have been completed.

Engage the LOOP TUNING clutch and place the MANUAL-AVC switch in the "A" position. Increase the INJECTION VOLTAGE control to maximum and adjust controls R523 and R524, located on the front of the I-F Amplifier (Unit E), until the AVERAGE CARRIER STRENGTH meter reads 0.6 milliamperes and the DIFFERENTIAL CARRIER STRENGTH meter reads zero.

c. **Synchronizing of Tuning Controls**

In order for the equipment to function properly, the tuning controls for the r-f units and the two loops must be synchronized. Press the LOOP TUNING knob in until it disengages; then turn it against its low-frequency stop.

(The loop tuning capacitors should now be fully meshed.) Next turn the RECEIVER TUNING knob until it is against the low-frequency stop. Now press the small button above the LOOP TUNING knob so that the knob moves out. The LOOP TUNING knob is now connected through the clutch gear box to the RECEIVER TUNING knob. **Do not turn the LOOP TUNING knob once this synchronizing has been done—always tune the equipment with the RECEIVER TUNING knob.** If the LOOP TUNING knob is turned after synchronizing, it will be necessary to check the synchronization by repeating the above procedure.

d. **Tracking of Loop Tuning Circuits**

Before placing the equipment in operation, it will be necessary to check the tracking of the loops as follows:

1. Place the MANUAL-AVC switch in the M position.

2. Advance the MANUAL GAIN control to its maximum position.

3. Place the BAND SWITCH in position 4.

4. Set the RECEIVER FREQUENCY dial at 13.00 on the linear scale.

5. Remove one of the vacuum tubes from Tuner Unit A.

6. Manually rotate the commutator shaft coupler until the commutator switch segments S1202A and S1202C are closed and S1202B and S1202D are open. This disconnects the left loop. Also disconnect the left injection loop at the base of the loop.

7. Advance the INJECTION VOLTAGE control until the AVERAGE CARRIER STRENGTH meter reads 0.6 ma. During subsequent adjustments, change the setting of this control as required to keep the meter current below 1 ma. and near 0.6 ma.

8. Push the LOOP TUNING dial in and tune the loop to maximum output as indicated on the AVERAGE CARRIER STRENGTH meter.

9. If the dial reading of the loops does not correspond with that for the receivers, adjust the BAND 4 capacity trimmer on the upper right loop assembly until the dials read the same.

10. Push the button above the LOOP TUNING dial and then set the RECEIVER FREQUENCY dial at 1.0.

11. Push the LOOP TUNING dial in and tune for maximum output as before.

12. If the dials do not read the same adjust the capacity of the smallest sections of the two loop tuning capacitors by bending the slotted outer plates in the portion which is meshed only when the dial is set near the low end of the band.

The above procedure will track the right loop at the high and low ends of band 4. To make the loop track across the entire band, it may be necessary to bend the slotted outside plate in various places along its edge. Do this as follows:

1. Set the RECEIVER FREQUENCY dial at 12.00 on the linear scale.

2. Tune the loop for maximum output.

3. If the reading of the LOOP TUNING dial is more than two divisions different from the RECEIVER TUNING VERNIER, it will be necessary to bend the meshed portions of the outside plates of the two loop tuning capacitors slightly to correct this condition.

4. Repeat this procedure for dial settings of 11, 10, and 9, etc., down to 1, always bending only the meshed portions of the plates which were not meshed at the previous point.

The right tuning loop will now be completely aligned for band 4. To align the left loop, rotate the commutator so as to reverse the positions of the upper four switch segments, and then repeat the entire foregoing procedure. (Always disconnect the injection loop which is not in use when tracking the main loops.)

In order to align the other bands, the same general procedure is to be used. If adjustment is required on the high end (dial set at 13.00) of band 1, 2, or 3, adjust the appropriate trimmer capacitor; if at the low end (dial set at 1.00), adjust equally the tuning slugs of the two loading coils. For all dial settings between 13.00 and 1.00 bend the tuning capacitor plates, if necessary, to obtain the proper tracking. Bend plates of the middle sections for band 3, and the large end sections for band 2. It is not permissible to bend plates when aligning band 1.

Do not make adjustments at any point where the tracking is within two divisions on the LOOP TUNING dial.

After the tracking of the two loops has been checked, and necessary adjustments made, replace the vacuum tube in Tuner Unit A.

e. Operation of MANUAL - AVC SWITCH

The operation of the MANUAL-AVC SWITCH is as follows:

1. The MANUAL GAIN control is operative in the M and MT positions.

2. The automatic volume control circuit is operative in the A and AT positions, but only if the LOOP TUNING dial is engaged.

3. The beat frequency oscillator is operative in the A and M positions.

4. The test and beat-frequency oscillators are operative in the AT and MT positions.

To adjust the injection system for proper operation, use the following procedure:

1. With the INJECTION VOLTAGE control set at zero, tune in a signal and adjust the RECEIVER TUNING knob for maximum signal strength.

2. Advance the INJECTION VOLTAGE control sufficiently to give an audible beat note.

3. Turn the BFO TUNING dial **clockwise from zero beat** to give a beat note of medium frequency (e.g., 500-1500 cps). Ordinarily the BFO TUNING will not require frequent adjustments during operation of the equipment.

The setting of the INJECTION VOLTAGE control will vary for signals of different intensity, hence this control will need to be varied for each signal during operation. If there is too much injection voltage, the signal will be weakened, whereas if there is too little injection voltage, the beat note may be very weak. In either extreme, the direction indicating circuit will appear rather insensitive or inoperative.

GETTING A BEARING

After the preliminary adjustments have been made and the equipment is operating properly, place the MANUAL-AVC switch in the "A" position and the KEYER SWITCH in the PHONE position. Set the DIFFERENTIAL GAIN CONTROL at or near 5.0. The loops should be properly synchronized at this time and the LOOP TUNING dial should be engaged to the RECEIVER TUNING dial. Press the button above the LOOP TUNING dial to be sure this condition prevails. **The equipment should always meet the above described conditions when it is to be ready for immediate use.**

The following procedure is recommended for getting the bearing of a radio telephone signal:

1. Set the BAND SWITCH for the frequency range in which the signal is located.

2. Advance INJECTION VOLTAGE control until the "hiss" in the receivers increases somewhat. (Use this control in the same way as a beat frequency oscillator in an ordinary receiver is used when searching for a signal.) **Caution: Too much injection voltage will cover up the weak signals, whereas too little injection voltage will cause the beat notes to appear very weak.**

3. Tune the equipment to the frequency of the desired signal.

4. Now tune to the high radio frequency side of zero beat until the audio beat note is roughly 700-1000 cps. (A slight turn of the knob to the right should raise the beat note.) *Failure to do this will result in the wrong sense indication.*

5. Readjust the INJECTION VOLTAGE control for the loudest beat note.

6. Turn the COMMUTATOR MOTOR SWITCH on and rotate equipment until oscilloscope traces are opposite each other.

7. Rotate equipment slightly by pushing on the right handle. If the right hand trace on the oscilloscope screen rises, read the black numbers on the AZIMUTH scale. Conversely if the right trace drops, read the red numbers.

USE OF KEYER CIRCUIT

On CW signals it is sometimes helpful to use the keyer circuit provided. To do this, place the keyer switch in CW position and adjust the keyer gain so that the neon bulbs light on the signal, but not on the noise. In the case of weak signals this adjustment is critical and if the signals are too weak, it cannot be made and the bearing will have to be taken in the PHONE position with a large time constant.

(Warning—The indicator circuit is inoperative if the keyer circuit is in the CW position and the neon bulbs are not lighted.)

OPERATING TECHNIQUE

Since this equipment is necessarily complicated, and has many controls, etc., a certain amount of practice will be needed for an operator to become proficient in its operation. After the operator has become familiar with the general performance of the equipment on the various frequencies, he will be able to use the controls in such a manner as to get the most accurate results in the least possible time.

Some general information on the operating procedure is listed below:

1. The equipment has less bearing sensitivity on the low frequencies than on the high frequencies. Hence the OSCILLOSCOPE GAIN control will need to be advanced more on the lower frequency bands.

2. The setting of the TIME CONSTANT switch will in general be governed by the prevailing noise level and the strength and steadiness of the signal. If the traces are very erratic and jagged, rotate the switch clockwise. The equipment will be noticeably slower in responding to rotation when the switch is in position D.

3. The MONITOR SELECTOR SWITCH is intended to be used for checking. Set this switch in position CH.-A or CH.-B for normal operation.

4. The MONITOR GAIN control should be advanced to give the desired audio output level in the headphones or speaker.

5. The accuracy of each bearing depends upon the alignment of the loop tuning circuits and upon the proper synchronization of all of the tuning circuits. Refer to the Maintenance Section for alignment information. Poor alignment will, in general, be indicated by vibration of the pointer of the DIFFERENTIAL CARRIER STRENGTH meter when the LOOP TUNING dial is not engaged (since the AVC is disconnected), or the MANUAL-AVC switch is in the M position.

6. When the equipment is 90 degrees off bearing, there may be practically no signal voltage induced in the two loops. This quite often causes the traces on the oscilloscope to move together or, in some cases, to actually cross. However, under these conditions, as the equipment is rotated through the 90 degree point, each trace will recede from the center of the screen in the same direction from which it came toward the center. It is suggested that the operator, after obtaining a bearing, rotate the equipment 90 degrees and observe its behavior under these conditions in order to become familiar with this condition.

7. If the loops are not properly aligned, back-bearing error (lack of agreement between direct bearing and that bearing obtained by rotating the equipment 180°) will result. Bearings can still be taken, however, if the LOOP TUNING dial is pressed in and adjusted for minimum vibration of the DIFFERENTIAL CARRIER STRENGTH meter coincident with a maximum indication of the AVERAGE CARRIER STRENGTH meter. The loops must be engaged by pressing the button above the LOOP TUNING dial before the bearing is taken. The loops should be aligned at the earliest opportunity. The use of a lower pitch beat note reduces the back-bearing error and can be used as long as it is not so low as to reduce sensitivity.

8. The monitoring amplifier tube V806 (type 6J5) may be directly replaced with a type 6V6 tube if increased loudspeaker output is desired. No wiring changes are necessary.

V MAINTENANCE

ROUTINE CHECKS

Routine inspection schedules should be set up for periodic examination of the entire equipment. This inspection should include examination of the mechanical system for excessive wear and of the electrical system for excessive heating of parts. The emission of all of the vacuum tubes should be checked after every thousand hours of service. Examine the prongs of each tube to make sure no corrosion is present. When the tubes are replaced in their sockets, a thorough check should be made to determine that good electrical contact is made between the tube prong and socket. Make certain that the contacts of all receptacles and plugs on individual units are clean and that these make firm mechanical connection between one another. Set screws on shaft couplers may need to be tightened occasionally.

CLEANING

The greatest enemy to uninterrupted service in equipment of this type is corrosion and dirt. Corrosion is accelerated by the presence of dust and moisture on the component parts. It is impossible to keep moisture out of the equipment in some localities, but foreign particles and dust can be periodically removed by means of a soft brush and a dry oil-free jet of air. Dust between the plates of variable capacitors often causes noisy operation; remove this dust with a jet of air.

LUBRICATION

a. **Motors**

No motor will operate properly unless the bearings are kept well lubricated. The ball bearings on the two identical motors in this equipment are packed with grease sufficient for a period of from one to two years, depending upon the service given the motor and the temperature of the room in which it operates. To refill, remove the end caps covering the bearings and clean out the old grease before putting in the new. If the ball bearings are removed for washing in gasoline, the built-in grease seal should be facing toward the motor interior when replaced. Use only a well known make of sodium base ball bearing grease.

The speed reducers are filled three-quarters full with a semi-fluid grease, sufficient for a period of from one to two years. To renew the lubricant, take off the gear housing cover which supports the drive shaft. Use LUBRICO M-2 or similar grease.

b. **Main Bearings**

There are two bearings in the equipment which support the main cabinet and loop assemblies. It will not be necessary to lubricate these bearings unless there is evidence that the bearings are becoming dry.

To lubricate the base thrust bearing, remove one of the four screws on the outer casing which is near the bottom of the supporting column. Insert the Zerk fitting furnished (see EQUIPMENT SUPPLIED) and fill the bearing with a good grade of pressure gun grease. #107 Lubriplate pressure gun grease, manufactured by Fisk Bros. Refining Company of Newark, N. J., is recommended for this service.

To lubricate the upper bearing it will be necessary to remove the Azimuth scale by taking off the three mounting screws. Next remove the plates which fit over the bearing and daub some pressure gun grease on the bearing.

c. **Tuning Belt**

The leather tuning belt will occasionally require attention. Apply a small amount of a good grade of leather belt dressing to the surfaces of the belt.

d. **Commutator**

Whenever the commutator cams appear dry, a small amount of petroleum jelly should be painted on the bakelite cams. Be careful not to get any of the lubricant on the switch contacts.

The commutator bearings have been permanently lubricated, and should therefore not require attention.

e. **Gear Boxes**

The gear boxes throughout the equipment have been permanently lubricated and protected from the effects of moisture, and therefore will not need lubrication.

f. **Shaft Couplers and Bearings**

The universal shaft couplers should occasionally be painted with a small amount of petrole-

um jelly. The shaft ball bearings have been permanently lubricated. The oilite bearings on the tops of the turrets, the end of the dial drum and on the loop band switches are to be lubricated occasionally. Put a drop or two of medium weight machine oil on each bearing and wipe off the excess oil.

ALIGNMENT OF TUNED CIRCUITS

Since the procedure for aligning the tuned circuits in this equipment is necessarily complicated, it is recommended that only experienced maintenance personnel attempt the following procedure.

Do not under any circumstances attempt to adjust any of the tuned circuits until it has been definitely established that the equipment is not in alignment. If the equipment suddenly becomes defective, it is not apt to be caused by circuits which are out of tune, since this is generally a slow process, caused by aging components, change of tubes, etc. If the equipment is completely out of alignment, due to a change in coils or to tampering with adjustments, it will be necessary to follow the procedure for the complete realignment of all the tuned circuits in the equipment. If the equipment is only slightly mistuned, due to routine aging or change of tubes, use the procedure given for minor adjustments.

When adjustments are to be made which require readings of the AVERAGE CARRIER STRENGTH meter, M1003, it is recommended that the spare meter furnished be connected in series with this meter with wires long enough to enable the meter to face the rear of the cabinet. This will permit the meter to be viewed as the trimmer adjustments are being made.

PROCEDURE FOR COMPLETE REALIGNMENT OF TUNED CIRCUITS

A separate receiver with an accurately calibrated dial will be required. Set the MANUAL-AVC switch in the M position, turn the INJECTION VOLTAGE on, synchronize the loops with the receiver and turn the RECEIVER TUNING dial to the low frequency stop.

a. I-F Oscillator

The i-f or beat frequency oscillator is located on the front end of the monitor unit and is adjusted by means of the hex tuning wand. Insert the wand in the left hand hole of the shield can of T801. Set the BFO TUNING DIAL on zero and adjust the trimmer by means of the tuning stick until the oscillator frequency is 455 kc. This may conveniently be done by listening to the second harmonic of the oscillator on 910 kc in the external receiver. This completes the alignment of the i-f oscillator.

b. I-F Amplifier

Turn the MANUAL GAIN to its maximum position. If a signal generator is available, connect it to the control grid of the mixer tube, V103, of Tuner Unit A. Set the signal generator on 455 kc, adjust the trimmers of the i-f transformers T104, T501, T503 and T505 for maximum deflection of the AVERAGE CARRIER STRENGTH meter.

Next, connect the signal generator to the control grid of the mixer tube, V203, of Tuner Unit B. Adjust the trimmers of T204, T502, T504 and T506 for maximum output as before. This completes the alignment of the i-f amplifier.

c. Oscillator and Receiver Units

The following table gives the frequency of the h-f oscillator and receivers for the high and low edge of each of the four bands. Notice that the second harmonic of the h-f oscillator is used on band 4.

	Receiver Frequency		H-F Osc. Frequency	
Band	Low	High	Low	High
1	2000 kc	3500 kc	2455 kc	3955 kc
2	3500	6000	3955	6455
3	6000	10500	6455	10955
4	10500	18000	5477	9227

In each band it will be necessary to make adjustments on two trimmers. The capacity trimmer is adjusted when on the high frequency end of the band, and on the low end the tuning slug is to be adjusted. A special bakelite tuning tool will be required to fit the hex-head trimmer screws. These trimmers are located inside the coil turret assemblies and are accessible from the rear of each unit. The access

holes are located above each tube in Units A, B, C, and D. The hole to the left above each tube is for the capacity or high-frequency adjustment and the one on the right for the low-frequency or inductance adjustment.

The following procedure should be used for aligning the oscillator unit:

1. Set the BAND SWITCH in position 1. **(CAUTION: Always remove tuning tool from trimmers in turrets before changing bands).**

2. Turn the RECEIVER FREQUENCY dial to the h-f end of the band (3500 kc for band 1, —see table).

3. Using an accurately calibrated external receiver, adjust the capacity trimmer of T301, above and to the left of tube V301, until the oscillator frequency is the same as that given in the foregoing table (3955 kc for the high end of band 1).

4. Turn the RECEIVER FREQUENCY dial to the low frequency end of the band (2000 kc for band 1).

5. Adjust the inductance trimmer of T301A, above and to the right of tube V301, until the oscillator frequency is the same as that specified in the foregoing table (2455 kc for the low end of band 1).

6. Repeat step (4) and then repeat step (5). Repeat this procedure until the frequencies of the ends of the band are correct without further adjustments.

7. Turn the RECEIVER FREQUENCY dial to the high frequency end (3500 kc) and tune the external receiver to the same frequency.

8. Adjust the capacity or h-f trimmers of coils T304A, T403A, T402A and T401A for maximum output as indicated on the signal strength meter of the external receiver. These trimmers are located above and to the left of tubes V304, V403, V402, and V401 respectively. It will be necessary to remove the shield plate from the rear of Unit D in order to get at some of these trimmers.

9. Turn the RECEIVER FREQUENCY dial to the low frequency end and tune the external receiver to the receiver frequency for that dial setting. Repeat for the low frequency trimmers the procedure outlined in (8). The low frequency trimmers are to the right of the tubes listed.

10. Repeat step (8) and then repeat step (9). Repeat this procedure until the trimmers require no further adjustments.

11. Disable Tuner Unit A by removing one of its tubes.

12. Set the RECEIVER FREQUENCY dial at 13.00.

13. Press the LOOP TUNING dial in and tune the loop for maximum deflection of the AVERAGE CARRIER STRENGTH meter. Reduce the setting of the INJECTION VOLTAGE dial as required to keep the reading of the meter below 1.0 ma., preferably about 0.6 ma.

14. Adjust the three high frequency trimmers of Tuner Unit B and the h-f trimmer above tube V302 (the h-f trimmer above tube V303 when tuning Tuner Unit A) for maximum output as indicated on the AVERAGE CARRIER STRENGTH meter. Keep the reading of the meter below 1 ma as previously specified by reducing the INJECTION VOLTAGE control.

15. Set the RECEIVER FREQUENCY dial at 1.00.

16. Readjust LOOP TUNING dial for maximum output. (The reading of the main and vernier dials on the upper loop assemblies should read approximately 1.00).

17. Adjust the three low frequency trimmers of Tuner B and the low frequency trimmer above tube V302 (V303 when tuning Tuner A) using the same procedure as in step (14).

18. Repeat steps (12) through (17) and continue to do so until no further adjustments are required for the low and high frequency trimmers.

19. Replace the tube in Tuner Unit A and remove one from Tuner Unit B.

20. Repeat steps (12) through (18) except that adjustments are to be made on Tuner Unit A. If the trimmers of T302, T303 or T304 require adjustment, repeat steps (3) and (5).

21. Set the BAND SWITCH on band 2.

22. Replace the tube in Tuner B and repeat steps (2) through (20). Oscillator and receiver frequencies will change for steps (3), (5) and (7). (See table.)

23. Set the BAND SWITCH on band 3.

24. Repeat steps (2) through (20). Oscillator and receiver frequencies will again change for steps (3) and (5).

25. Set the BAND SWITCH on band 4.

26. Repeat steps (2) through (20). Oscillator and receiver frequencies will again change for steps (3) and (5).

d. Test Oscillator

To adjust the test oscillator, use the following procedure:

1. Place the MANUAL-AVC switch in the MT position.

2. Place the TEST OSC. TUNING control at zero.

3. Adjust the trimmer of T802, located on the left rear of the monitor unit, until the test oscillator frequency is 455 kc.

This completes the alignment of the equipment with the exception of the loops. Loop alignment is discussed under the section "Tracking of Loop Tuning Circuits," refer to page 30.

PROCEDURE FOR MINOR REALIGNMENT OF TUNED CIRCUITS

If there have been no major disturbances in the circuit, but only slight misalignment due to aging of the equipment or change of tubes, the realigning procedure will be greatly simplified. Check the accuracy of the RECEIVER FREQUENCY dial; if the calibration agrees quite closely with the foregoing table which shows the coverage of each band, there will be no need to adjust the oscillator frequency trimmers.

If the i-f amplifier or the i-f oscillator require alignment, follow the procedure previously outlined for these circuits. **Do not adjust the i-f unit unless it has been definitely established that it is out of alignment.**

To adjust the receivers, use the following procedure:

1. Place the MANUAL-AVC switch in the M position.

2. Increase the MANUAL GAIN control to maximum.

3. Adjust the INJECTION VOLTAGE control until the AVERAGE CARRIER STRENGTH meter reads 0.6 ma. Continue to adjust the INJECTION VOLTAGE dial whenever necessary so as to keep the carrier meter reading below 1.0 ma,—preferably near 0.6 ma.

4. Set the BAND SWITCH on position 1.

5. Disable Tuner Unit A by removing one of its tubes.

6. Set the RECEIVER FREQUENCY dial at 13.00.

7. Press the LOOP TUNING dial in and tune the loop for maximum deflection of the AVERAGE CARRIER STRENGTH meter.

8. Adjust for maximum output the three high frequency trimmers on Unit B and the three on Unit D; also the high frequency trimmer above tube V302 (the high frequency trimmer above tube V303 when adjusting Tuner Unit A).

9. Set the RECEIVER FREQUENCY dial at 1.00.

10. Readjust the LOOP TUNING dial for maximum output.

11. Repeat, for the low frequency trimmers, the procedure outlined in step (8).

12. Repeat steps (6) through (11) until no further adjustments of the trimmers are required.

13. Replace the tube in Tuner Unit A and remove one from Unit B.

14. Repeat steps (6) through (12) except that the adjustments are to be made on Tuner Unit A, omitting those for Unit D.

15. Replace the tube in Tuner Unit B.

16. Set the BAND SWITCH on position 2.

17. Repeat steps (5) through (15).

18. Set BAND SWITCH on position 3.

19. Repeat steps (5) through (15).

20. Set BAND SWITCH on position 4.

21. Repeat steps (5) through (15).

This completes the alignment of the tuned circuits with the exception of the loops. The procedure for aligning the loops will be found in the section on PRELIMINARY ADJUSTMENTS AND OPERATION.

ALIGNMENT OF COIL TURRET DETENTS

Units A, B, C, and D are provided with coil turrets which are rotated when the band is changed. If, for any reason, the contacts on the coils of a unit do not properly meet the stationary contacts, it may be necessary to adjust the setting of the detent wheel located on the top of the unit in a gear housing. The recommended adjustment procedure is as follows:

1. Remove the defective unit from the equipment.

2. Remove the top plate from the detent gear box and the cover from the coil turret. The plate may be identified by its small circular window through which the band numbers are visible. Before removing plate, note which number is visible. Replace two of the long 10-24 screws to hold the gear box firmly in place.

3. Loosen set screws on detent wheel in gear box.

4. Shine a light through the holes on one side of the unit and view the contacts looking toward the light through the holes on the other side of the unit. (These holes are approximately one-half inch in diameter and are arranged in pairs.)

5. Rotate the turret until the contacts of the coils (for the band whose number was visible in the window) meet the stationary contacts of the contact blocks squarely.

6. Carefully tighten the set screws on the detent wheel.

7. Check the mating of the contacts on each band of coils by manually rotating the turret, making minor readjustments if required.

8. Replace the detent gear box plate, inserting the locating screws before the others. This completes the alignment of the coil turret detent.

ALIGNMENT OF COMMUTATOR

Due to the mechanical construction of the commutator, it is not apt to get out of order because of slippage of the cams. Therefore, before attempting to rephase the cams, carefully check the other portions of the circuit and make sure that the commutator contacts are properly cleaned. (Refer to paragraphs on CLEANING.)

If there is a series of sharp clicks in the monitor speaker, raise the antenna contacts, S1202A, B, C, and D, by means of the four small screws on the small fixed contacts. If the image on the oscilloscope is blurred even when the TIME CONSTANT switch is in position "D" raise the fixed contacts on the filter capacitor switches, S1201C and S1201D. If there is no horizontal sweep on the oscilloscope, raise the contacts S1201A and S1201B. In any of these adjustments, turning a screw out two turns should be sufficient.

If it has been definitely established that the cams have slipped with respect to one another the following procedure should be used for properly phasing them.

1. Remove the commutator from the equipment as follows:

   (a) Remove the rear cover.

   (b) Unscrew the four concentric line coupling collars, and remove the four flexible leads inside the commutator from the concentric line pins.

   (c) Remove the cable plug from the bottom of the unit.

   (d) Loosen the four set screws on the flexible coupler and slide the coupler upon the shaft as far as possible.

   (e) Remove the four mounting screws from the corners of the commutator frame.

   (f) Lift the commutator up to free it from the motor shaft; then move it out and down so as to free it from the four concentric line connectors.

   (Note: Refer to drawing K989A when reconnecting the flexible leads to the concentric lines so as to avoid reversing the leads.)

2. Fasten to the commutator shaft a dial calibrated from 0 to 100 or from 0 to 360 over the range of 360 degrees.

3. Fasten a small pointer to the commutator frame and bend it so that it is possible to read the dial to the nearest division.

4. Connect an ohmmeter in series with the top switch segment of the commutator.

5. Adjust the dial so that the switch closes when the dial reads 0.

6. Tighten the dial in this position.

7. Refer to drawing K1008A and adjust each switch segment so that it closes and opens as indicated on the drawing.

8. The relative positions of the closed portions of each switch segment may be changed by rotating the cams after loosening the locking nuts on the ends of the cam shaft.

9. The length of time each switch remains closed may be adjusted by means of the small screws on the stationary switch contacts. Turning the screws in shortens the length of time the switch remains closed.

10. After all the switch segments have been adjusted tighten the cam locking nuts, being careful not to disturb the cams.

11. Place the commutator back in the equipment.

12. Turn the equipment on and place the MANUAL-AVC switch in the AT position.

13. Adjust the INJECTION VOLTAGE control until the beat note (700 to 1000 cps) produced by the test oscillator is heard clearly in the speaker.

14. Turn the MONITOR SELECTOR SWITCH to channel A.

15. Turn the set screws of contacts S1202A and S1202B in until the beat note is no longer steady, then back the screws off one turn.

16. Turn the MONITOR SELECTOR SWITCH to CH.-B and repeat the above procedure on switch contacts S1202C and S1202B. This completes the adjustment of the commutator.

TROUBLE SHOOTING

a. Self-Contained Test Equipment

There are several test circuits in the equipment which may be used to good advantage in circuit checking. The test voltmeter will indicate the terminal voltages of the various power supplies. By placing the MANUAL-AVC switch in the MT or AT position, a signal is generated locally which may be used as a means for checking receiver and loop performance. The MONITOR SELECTOR SWITCH may be used to select any of the audio circuits for checking operation.

The two tuner units (Units A and B) are identical and may be interchanged for testing purposes. Thus if one channel is inoperative, the other tuner may be substituted in its place. Note: Replace the tuner units in their proper positions before trying to replace the shaft couplers.

b. Effect of Poor Loop Alignment

Poor loop alignment generally indicated by vibration of the DIFFERENTIAL CARRIER STRENGTH meter, causes back bearing errors. If this condition is encountered, check the alignment of the loops. If realignment of the loops fails to affect the meter, make sure that all transmission line connectors are tight and that the switches on the top and bottom of each loop assembly are clean.

c. Erratic or Noisy Circuits

Excessive noise in the receiver channels may be traced to dirty contacts on the commutator, coil turrets or loop band switches. Poor seating of any of the tubes may also cause noisy operation. If the AVC circuits do not function properly, check the switch on the clutch gear box which connects to the LOOP TUNING dial.

VI DATA

DATA

Table I

TYPICAL VOLTAGES

(Measurements made with v.t. voltmeter)

Tube Item No.	Tube Type	Circuit Function	Filament	Cathode	Control Grid	Screen Grid	Suppressor	Plate
V101, V201	6SK7	1st R-F Amplifier	6.3	2.9	—7.6	140	2.9	270
V102, V202	6SK7	2nd R-F Amplifier	6.3	2.1	—7.6	150	2.1	270
V103, V203	6SJ7	1st Detector	6.3	0.9	—1.3	24.5	0.9	275
V301	6J5	H-F Oscillator	6.3	0	—7.2	....	....	90
V302	6SK7	1st Buffer Amplifier	6.3	1.65	—63	150	1.65	260
V303	6SK7	2nd Buffer Amplifier	6.3	1.85	—61	150	1.85	260
V304	6SK7	3rd Buffer Amplifier	6.3	2.1	—62	150	2.1	260
V401	6SK7	Output Amplifier	6.3	0.35	—39	170	0.35	280
V402	6SA7	Mixer	6.3	0.15	—39	275	0.15	280
V403	6SK7	Input Buffer Amplifier	6.3	3.8	0	135	3.8	270
V501, V502	6SK7	1st I-F Amplifier	6.3	6.2	—7.8	175	6.2	295
V503, V504	6SK7	2nd I-F Amplifier	6.3	6.4	—7.8	175	6.4	295
V505, V506	6J5	AVC Amplifier	6.3	—155	—172	....	....	—90
V507, V508	6H6	2nd Detector	6.3	0	....	....	....	—8.8
V509, V510	6J5	1st Audio Amplifier	6.3	6.5	0	....	....	205
V601	5U4G	Plate Supply Power Rect.	5.0	320 v d-c output				370a-c
V602	5U4G	Plate Supply Power Rect.	5.0	320 v d-c output				370a-c
V603	VR150-30	Plate Voltage Rectifier	....	0	....	....	....	150
V701	6SJ7	2nd Audio Amplifier	6.3	1.35	0	32	0	82
V702	6SJ7	2nd Audio Amplifier	6.3	1.3	0	34	0	93
V703	6J5	Audio Output Amplifier	6.3	8.3	0	....	....	180
V704	6J5	Audio Output Amplifier	6.3	8.3	0	....	....	180
V705	6H6	Differential Rectifier	6.3	1.8	32	—27	....	....
V706	6H6	Differential Rectifier	6.3	2.5	30	—26	....	....
V707	6J5	Keyer Amplifier	6.3	5.9	0	....	....	190
V708	5U4G	Bias Supply Power Rect.	5	—570 v d-c output				
V709	VR150-30	Bias Voltage Rectifier	....	—150	....	....	....	0
V801	6J5	Int. Freq. Oscillator	6.3	0	—24.5	....	....	50
V802	6J5	Int. Freq. Test Osc.	6.3	0	—15.5	....	....	34
V803	6J5	Carrier Strength Meter Amplifier	6.3	1.9	—0.5	....	....	89
V804	6H6	Carrier Strength Meter Limiter	6.3	88	....	....	....	89
V805	6J5	Carrier Strength Meter Amplifier	6.3	1.9	—0.1	....	....	89

Table I (Cont.)

TYPICAL VOLTAGES

(Measurements made with v.t. voltmeter)

Tube Item No.	Tube Type	Circuit Function	Filament	Cathode	Control Grid	Screen Grid	Suppressor	Plate
V806	6J5	Monitoring Amplifier	6.3	10	0	....	....	295
V1101	6SJ7	Oscilloscope Amplifier	6.3	—1.5	—0.3	40	—1.5	100
V1301	902	Oscilloscope	6.3	—520	—500 to —560	....	....	—320* to —460

Note: Some of these measurements are subject to variations due to signal levels, control settings, etc

*Focusing anode.

Table II

RECEIVER SENSITIVITY MEASUREMENTS*

(The following table shows the minimum performance which may be expected from the receiver channels.)

Band	Frequency	Maximum Input Signal Required for Normal Output
4	17.9 mc.	200 microvolts
	15.0	300
	13.0	250
	11.5	200
	10.5	200
3	10.5	60
	9.5	50
	8.5	50
	7.5	40
	6.0	60
2	6.0	30
	5.0	30
	4.0	30
	3.5	30
1	3.5	10
	3.0	10
	2.5	10
	2.0	15

* Measured under the following conditions:

1. MANUAL-AVC switch in M position.
2. MANUAL GAIN control set at maximum.
3. DIFFERENTIAL GAIN control set at 5.0.
4. Normal output level 0.6 ma. on AV. CARRIER STRENGTH meter.
5. 500 ohms in series with signal generator, feeding receivers at input from commutator.

Table III

APPLICABLE COLOR CODES

A. Color Code for Resistors

Resistance in Ohms.

Color	A 1st Digit	B 2nd Digit	C Ciphers
Black	–	0	.0
Brown	1	1	0
Red	2	2	00
Orange	3	3	000
Yellow	4	4	0000
Green	5	5	00000
Blue	6	6	000000
Purple	7	7	0000000
Gray	8	8	00000000
White	9	9	–

D. Tolerance Code:

Gold = 5% Silver = 10% Omit = 20%

APPLICABLE COLOR CODES (Cont.)

B. Color Code for Capacitors

Capacity in MMfd.

Color	A 1st Digit	B 2nd Digit	C Ciphers	D Tolerance
Black	–	0	.0	
Brown	1	1	0	1%
Red	2	2	00	2%
Orange	3	3	000	
Yellow	4	4	0000	
Green	5	5	00000	5%
Blue	6	6	000000	
Purple	7	7	0000000	
Gray	8	8	00000000	
White	9	9	–	

Tolerance also indicated: Gold = 5% Silver = 10% Omit = 20%

Note: Unless otherwise marked, all capacitors having a red body color have a capacity tolerance of ±2%.

DATA

C. STANDARD CABLE WIRE CODE

Fireproof Radio Hookup Wire
Numerals refer to RMA Color Code
Letters refer to wire size and type

Color Code	Color	Construction and Rating
A90	White–Black Tracer	7 Strands ⁄30 Tinned (⁄22 A.W.G.)
A92	White–Red Tracer	0.005″ Cellulose Acetate Butyrate Tape Wall
A93	White–Orange Tracer	0.010″ Felted Asbestos Wall
A95	White–Green Tracer	0.075″ Lacquered Glass Braid
A96	White–Blue Tracer	1000 volts
A902	White–Black and Red Tracers	
A903	White–Black & Orange Tracers	
A905	White–Black & Green Tracers	
A906	White–Black & Blue Tracers	
A923	White–Red & Orange Tracers	
A925	White–Red & Green Tracers	
A926	White–Red & Blue Tracers	
A935	White–Orange & Green Tracers	
A936	White–Orange & Blue Tracers	
A956	White–Green & Blue Tracers	
B90	White–Black Tracer	26 Strands ⁄30 Tinned (⁄16 A.W.G.)
B92	White–Red Tracer	0.005″ Cellulose Acetate Butyrate Tape Wall
B93	White–Orange Tracer	0.010″ Felted Asbestos Wall
B95	White–Green Tracer	0.010″ Lacquered Glass Braid
B96	White–Blue Tracer	1000 volts
B902	White–Black & Red Tracers	
C9	White–no Tracer	7 Strands ⁄26 Tinned (⁄18 A.W.G.)
C90	White–Black Tracer	0.005″ Cellulose Acetate Butyrate Tape Wall
C92	White–Red Tracer	0.010″ Felted Asbestos Wall
C93	White–Orange Tracer	0.0075″ Lacquered Glass Braid
C95	White–Green Tracer	1000 volts
C96	White–Blue Tracer	
C902	White–Black & Red Tracers	
C903	White–Black & Orange Tracers	
D90	White–Black Tracer	39 Strands ⁄30 Tinned (⁄14 A.W.G.)
D92	White–Red Tracer	0.0075″ Cellulose Acetate Butyrate Tape Wall
D93	White–Orange Tracer	0.010″ Felted Asbestos Wall
D95	White–Green Tracer	0.010″ Lacquered Glass Braid
D96	White–Blue Tracer	1000 volts
D902	White–Black & Red Tracers	
D903	White–Black & Orange Tracers	
E90	White–Black Tracer	105 Strands ⁄30 Tinned (⁄10 A.W.G.)
E92	White–Red Tracer	0.0075″ Cellulose Acetate Butyrate Tape Wall
		0.0125″ Felted Asbestos Wall
		0.010″ Lacquered Glass Braid
		1000 volts

STANDARD CABLE WIRE CODE (Cont.)

Color Code	Color	Construction and Rating
F96	White–Blue Tracer	16 Strands ⁄30 Tinned (⁄18 A.W.G.) Cellulose Acetate Butyrate Tape Wall Felted Asbestos Wall Lacquered Glass Braid 3000 volts
G93	White–Orange Tracer	7 Strands ⁄26 Tinned (⁄18 A.W.G.) 0.005″ Cellulose Acetate Butyrate Tape Wall 0.010″ Felted Asbestos Wall 0.0075″ Lacquered Glass Braid ⁄36 Tinned Copper Braid Shield 1000 volts
J9 J90 J91 J95	White–no Tracer White–Black Tracer White–Brown Tracer White–Green Tracer	26 Strands ⁄30 Tinned (⁄16 A.W.G.) 0.005″ Cellulose Acetate Butyrate Tape Wall 0.010″ Felted Asbestos Wall 0.010″ Lacquered Glass Braid 1000 volts
K9 K90 K91 K92 K93 K94 K95 K96 K920 K923 K924 K925 K926	White–no Tracer White–Black Tracer White–Brown Tracer White–Red Tracer White–Orange Tracer White–Yellow Tracer White–Green Tracer White–Blue Tracer White–Red & Black Tracers White–Red & Orange Tracers White–Red & Yellow Tracers White–Red & Green Tracers White–Red & Blue Tracers	7 Strands ⁄28 Tinned (⁄20 A.W.G.) 0.005″ Cellulose Acetate Butyrate Tape Wall 0.010″ Felted Asbestos Wall 0.0075″ Lacquered Glass Braid 1000 volts
L92 L96	White–Red Tracer White–Blue Tracer	10 Strands ⁄30 Tinned (⁄20 A.W.G.) Cellulose Acetate Butyrate Tape Wall Felted Asbestos Wall Lacquered Glass Braid 3000 volts
P9 P91	White–no Tracer White–Brown Tracer	61 Strands ⁄30 Tinned (⁄12 A.W.G.) 0.0075″ Cellulose Acetate Butyrate Tape Wall 0.0125″ Felted Asbestos Wall 0.010″ Lacquered Glass Braid 1000 volts

Table IV

VACUUM TUBE DATA

VACUUM TUBE DATA

6SA7

Pentagrid Converter

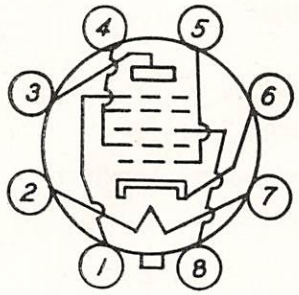
Heater Voltage (a-c or d-c)	6.3 volts
Heater Current	0.3 amp.

Direct Interelectrode Capacitances:

Grid No. 3 to All Other Electrodes—R-F Input	9.5 mmfd
Plate to All Other Electrodes—Mixer Output	12.0 mmfd
Grid No. 1 to All Other Electrodes	7.0 mmfd
Grid No. 3 to Plate	0.13 mmfd
Grid No. 1 to Grid No. 3	0.15 mmfd
Grid No. 1 to Plate	0.06 mmfd
Grid No. 1 to All Other Electrodes Except Cathode	4.4 mmfd
Grid No. 1 to Cathode	2.6 mmfd
Cathode to All Other Electrodes Except Grid No. 1	5.0 mmfd

Pin 1—Suppressor	
Pin 2—Heater	
Pin 3—Plate	
Pin 4—Screen	
Maximum Overall Length	2⅝"
Maximum Diameter	1 5/16"
Bulb	Small Metal
Base	8-Pin Octal

6SA7



Pin 5—Control Grid	
Pin 6—Cathode	
Pin 7—Heater	
Pin 8—Injection Grid	

KEY

BOTTOM VIEW

Typical Operation with Self-Excitation

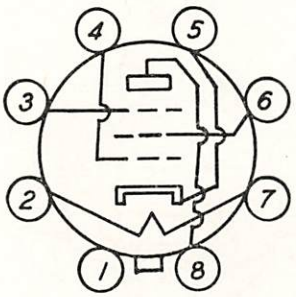
Plate Voltage	100	250 volts
Screen Grid Voltage	100	100 volts
Injection Grid Voltage	0	0
Plate Current	3.2	3.4 ma
Screen Current	0.5	0.5 ma
Total Cathode Current	11.7	11.9 ma
Plate Resistance (approx)	0.5	0.8 megohm

6SJ7

TRIPLE GRID DETECTOR AMPLIFIER

Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amp.
Direct Interelectrode Capacitances		
Grid to Plate	0.005	max. mmfd
Input	6	mmfd
Output	7	mmfd
Overall Length		2⅝"
Maximum Diameter		1 5/16"
Bulb		MT—8
Base		Small Wafer Octal

6SJ7



KEY

BOTTOM VIEW

Pin #1—Shield	Pin #5—Cathode
Pin #2—Heater	Pin #6—Screen
Pin #3—Suppressor	Pin #7—Heater
Pin #4—Grid	Pin #8—Plate
Mounting Position	Any

CLASS A AMPLIFIER—Pentode Connection

Operating Conditions and Characteristics

Plate Voltage	100	250	volts
Screen Voltage	100	100	volts
Grid Bias	—3	—3	volts
Suppressor Voltage	0	0	volts
Amplification Factor	1100	2500	
Plate Resistance	0.7	1.5	megohms
Transconductance	1575	1650	μ mhos
Plate Current	2.9	3.0	ma.
Screen Current	0.9	0.8	ma.

VACUUM TUBE DATA

6SK7

TRIPLE GRID SUPER-CONTROL AMPLIFIER

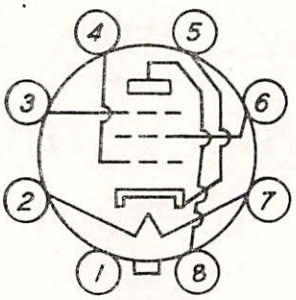
Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amp.

Direct Interelectrode Capacitances

Grid to Plate	0.005	max. mmfd
Input	6	mmfd
Output	7	mmfd

Overall Length		2⅝"
Maximum Diameter		1 5/16"
Bulb	6SK7	MT—8
Base		Small Wafer Octal

Pin #1—Shield		Pin #5—Cathode
Pin #2—Heater		Pin #6—Screen
Pin #3—Suppressor		Pin #7—Heater
Pin #4—Grid		Pin #8—Plate
Mounting Position		Any



KEY

BOTTOM VIEW

CLASS A AMPLIFIER—Pentode Connection

Operating Conditions and Characteristics

Plate Voltage	100	250	volts
Screen Voltage	100	100	volts
Grid Bias	—3	—3	volts
Suppressor Voltage	0	0	volts
Plate Resistance	0.25	0.8	megohms
Transconductance	1900	2000	μ mhos
Plate Current	8.9	9.2	ma.
Screen Current	2.6	2.4	ma.

VACUUM TUBE DATA

6J5G

TRIODE AMPLIFIER

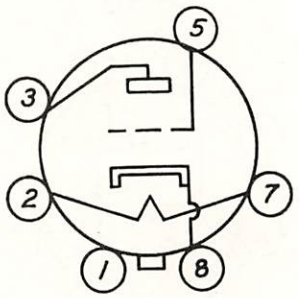
Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amps.

Direct Interelectrode Capacitances

Grid to Plate	3.4 mmfd
Input	3.8 mmfd
Output	3.3 mmfd

Overall Length	4⅛" max.
Maximum Diameter	1 9/16"
Bulb	ST-12-D
Base	6 Prong Small Octal

6J5G



KEY

BOTTOM VIEW

Pin #1—No Connection	Pin #5—Grid
Pin #2—Heater	Pin #6—No Connection
Pin #3—Plate	Pin #7—Heater
Pin #4—No Connection	Pin #8—Cathode

CHARACTERISTICS

(Amplifier—Class A)

Plate Voltage	250	volts
Grid Bias	—8	volts
Amplification Factor	20	
Plate Resistance	7700	ohms
Transconductance	2600	μ mhos
Plate Current	9	ma.

VACUUM TUBE DATA

6H6

TWIN DIODE

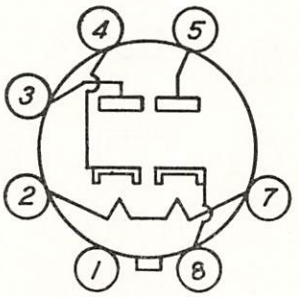
Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amp.

Direct Interelectrode Capacitances

Plate #1 to Cathode #1	3.0 mmfd
Plate #2 to Cathode #2	3.4 mmfd
Plate #1 to Plate #2	0.05 mmfd max.

Overall Length	1¾" max.
Max. Diameter	1 5/16" max.
Bulb	MT-8
Base	Small Wafer Octal

6H6



Pin #1 Shield	Pin #5 Plate #1
Pin #2 Heater	Pin #6 no connection
Pin #3 Plate #2	Pin #7 Heater
Pin #4 Cathode #2	Pin 8 Cathode #1

KEY

BOTTOM VIEW

Rectifier

Operating Conditions	
A-C Voltage Per Plate	117 v, r.m.s. max.
D-C Output Current	4 ma. max.

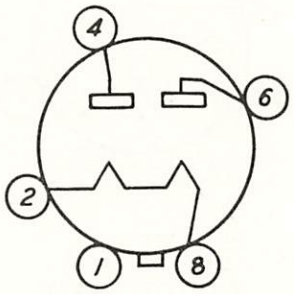
VACUUM TUBE DATA

5U4G

FULL WAVE HIGH-VACUUM RECTIFIER

Filament Voltage	5.0	Volts
Filament Current	3.0	Amps.
Overall Length		5 5/16"
Maximum Diameter		2 1/16"
Bulb		ST-16
Base		5 Pin Medium Octal
Mounting Position		Vertical

5U4G



Pin #1—No Connection
Pin #2—Filament
Pin #4—Plate
Pin #6—Plate
Pin #8—Filament

KEY

BOTTOM VIEW

FULL WAVE RECTIFIER

Peak Inverse Voltage	1550	max. volts
Peak Current per Plate	675	max. ma.

Typical Operation with Choke Input Filter

A-C Voltage per Plate	550	max. volts
Input—Choke Inductance	3	min. henries
D-C Output Current	225	max. ma.

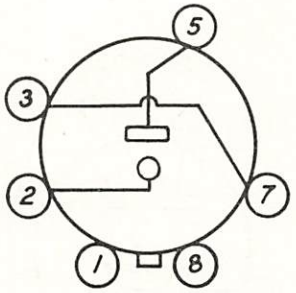
VACUUM TUBE DATA

VR-150-30

VOLTAGE REGULATOR

Type	Glow Discharge
Maximum Overall Length	4⅛"
Maximum Diameter	1 9/16"
Bulb	ST-12
Base	Small Shell Octal 6-Pin

VR-150-30



KEY

BOTTOM VIEW

Pin #1—No Connection
Pin #2—Cathode
Pin #3—Jumper
Pin #5—Anode
Pin #7—Jumper
Pin #8—No Connection

Operating Conditions:

Starting Supply-Voltage	180 min. d-c volts
Operating Voltage (approx.)	150 d-c volts
Operating Current*	5 min. d-c ma. to 30 max. d-c ma.

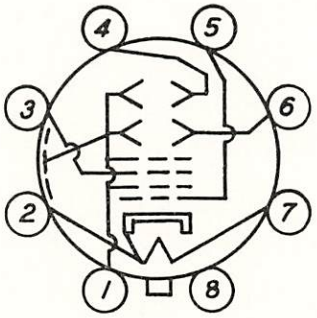
*Sufficient resistance must always be used in series with the tube to limit the current through it to 30 ma.

902

2″ CATHODE RAY TUBE

Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.6	amps
Overall Length		$7\frac{7}{16}'' \pm \frac{3}{16}''$
Maximum Diameter		$2\frac{1}{16}''$
Base		medium shell octal

902



KEY

BOTTOM VIEW

Pin #1 Anode #2 and Defl. pl. #2 & 4
Pin #2 Heater & Cathode
Pin #3 Anode #1
Pin #4 Defl. pl. #1
Pin #5 Grid
Pin #6 Defl. pl. #3
Pin #7 Heater
Pin #8 No Connection

CHARACTERISTICS

Plate Voltage	400	600	volts
Anode #1 Voltage	100	150	volts
Cut-Off Grid Voltage	—80	—80	volts
Input Deflection Voltage	350	350	volts max.
Screen Input Power	5	5	mw./cm² max.
Deflection Sensitivity (Plates #1 & 2)	0.28	0.19	mm./volt
Deflection Sensitivity (Plates #3 & 4)	0.33	0.22	mm./volt
Pattern Color			Green
Screen Persistance			Medium

VII APPENDIX

APPENDIX

Table V

LIST OF MAJOR UNITS

Symbol Group	Mfgr. Type Designation	Name of Major Unit	Unit Designation
101– 199	55A-2	Tuner Unit A	A
201– 299	55B-2	Tuner Unit B	B
301– 399	55C-2	Oscillator Unit	C
401– 499	55D-2	Mixer Unit	D
501– 599	347A-2	I-F Amplifier	E
601– 699	409R-2	Power Supply	F
1201–1299	347E-2	Commutator	G
701– 799	26R-2	Audio Amplifier	H
801– 899	54G-2	Monitor Unit	J
1001–1099	82S-2	Meter Panel	K
901– 999	101T-2	Control Panel	L
1301–1399		Miscellaneous Equipment	M
1101–1199	347B-2	Oscilloscope Amp. & Motor Relay	N
1401–1499	348E-3	Right Loop Assembly	P
1501–1599	348E-4	Left Loop Assembly	Q

Table VI

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

ELECTRIC MOTORS

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*B1301	Band Switching Motor	Single phase 1/50 h.p. 110 v 60 cps 1725 r.p.m. 6.1 speed reduction			40B	NCI-12R		232N910
*B1302	Commutator Motor	Same as B1301						

CAPACITORS

C101	See C101A, C101B, C101C	160.7/160.7/160.7 mmf ±5% Variable Air Dielectric Cap.			38R	80038		924N10A
C101A	1st R-F Amp. Tuning Cap.	Part of C101						
C101B	2nd R-F Amp. Tuning Cap.	Part of C101						
C101C	1st Detector Tuning Capacitor	Part of C101						
*C102	1st R-F Amp. Grid Bypass	0.01 mf ±5% 1000 T.V.			75C 02S	4LS HS-10		910N110C
*C103	See C103A, C103B, C103C	0.1/0.1/0.1 mf 400 W.V.			75C			954NT01Y
C103A	1st R-F Amp. Cathode Bypass	Part of C103						
C103B	1st R-F Amp. Screen Bypass	Part of C103						
C103C	1st R-F Amp. Plate Supply Bypass	Part of C103						
*C104	2nd R-F Amp. Grid Bypass	Same as C102						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*C105	See C105A, C105B, C105C	Same as C103						
C105A	2nd R-F Amp. Cathode Bypass	Part of C105						
C105B	2nd R-F Amp. Screen Bypass	Part of C105						
C105C	2nd R-F Amp. Pl. Supply Bypass	Part of C105						
*C106	1st Detector Grid Bypass	Same as C102						
*C107	1st Detector Cathode Coupling Cap.	Same as C102						
*C108	See C108A, C108B	Same as C103						
C108A	1st Detector Screen Bypass	Part of C108						
C108B	1st Detector Plate Supply Bypass	Part of C108						
*C109	See C109A, C109B, C109C	0.1/0.1/0.1 mf +10% —3% 400 W. V.			75C	DYRT		954NT01W
C109A	R-F Amp. Grid Supply Bypass	Part of C109						
C109B	R-F Tuner Plate Supply Bypass	Part of C109						
C109C	R-F Tuner Plate Supply Bypass	Part of C109						
*C110	See C110A, C110B, C110C	Same as C109						
C110A	R-F Tuner Filament Bypass	Part of C110						
C110B	R-F Tuner Filament Bypass	Part of C110						
C110C	R-F Tuner Filament Bypass	Part of C110						
C201	See C201A, C201B, C201C	Same as C101						
C201A	1st R-F Amp. Tuning Cap.	Part of C201						
C201B	2nd R-F Amp. Tuning Cap.	Part of C201						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
C201C	1st Detector Tuning Cap.	Part of C201						
*C202	1st R-F Amp. Grid Bypass	Same as C102						
*C203	See C203A, C203B, C203C	Same as C103						
C203A	1st R-F Amp. Cathode Bypass	Part of C203						
C203B	1st R-F Amp. Screen Bypass	Part of C203						
C203C	1st R-F Amp. Plate Supply Bypass	Part of C203						
*C204	2nd R-F Amp. Grid Bypass	Same as C102						
*C205	See C205A, C205B, C205C	Same as C103						
C205A	2nd R-F Amp. Cathode Bypass	Part of C205						
C205B	2nd R-F Amp. Screen Bypass	Part of C205						
C205C	2nd R-F Amp. Pl. Supply Bypass	Part of C205						
*C206	1st Detector Grid Bypass	Same as C102						
*C207	1st Detector Cathode Coupling Cap.	Same as C102						
*C208	See C208A, C208B	Same as C103						
C208A	1st Detector Screen Bypass	Part of C208						
C208B	1st Detector Pl. Supply Bypass	Part of C208						
*C209	See C209A, C209B, C209C	Same as C109						
C209A	R-F Amp. Grid Supply Bypass	Part of C209						
C209B	R-F Tuner Plate Supply Bypass	Part of C209						
C209C	R-F Tuner Plate Supply Bypass	Part of C209						
*C210	See C210A, C210B, C210C	Same as C109						
C210A	R-F Tuner Filament Bypass	Part of C210						
C210B	R-F Tuner Filament Bypass	Part of C210						
C210C	R-F Tuner Filament Bypass	Part of C210						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr's. Mfgr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
C301	See C301A, C301B, C301C	160.7/160.7/160.7 mmf ±5% variable air Dielectric Cap.			38R	80039		924N10B
C301A	H.F. Osc. Tuning Capacitor	Part of C301						
C301B	H.F. Osc. Tuning Capacitor	Part of C301						
C301C	1st Buffer Amp. Tuning Cap.	Part of C301						
C302	See C302A, C302B	160.7/160.7 mmf ±5% variable air Dielectric Cap.			38R	80037		924N9A
C302A	2nd Buffer Amp. Tuning Cap.	Part of C302						
C302B	3rd Buffer Amp. Tuning Cap.	Part of C302						
*C303	H. F. Osc. Grid Resistor Bypass	0.0005 mf ±5% 1000 T. V.			75C	5R		912N350C
*C304	See C304A, C304B, C304C	Same as C103						
C304A	H.F. Osc. Plate Supply Bypass	Part of C304						
C304B	H.F. Osc. Plate Supply Bypass	Part of C304						
C304C	H.F. Osc. Plate Supply Bypass	Part of C304						
*C305	H.F. Osc. Plate Coupling Cap.	0.0001 mf ±5% 1000 T. V.			75C	5R		912N310C
*C306	See C306A, C306B, C306C	Same as C103						
C306A	1st Buffer Amp. Cathode Bypass	Part of C306						
C306B	1st Buffer Amp. Screen Bypass	Part of C306						
C306C	1st Buffer Amp. Decoupling Cap.	Part of C306						
*C307	See C307A, C307B, C307C	Same as C103						
C307A	2nd Buffer Amp. Cathode Bypass	Part of C307						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
C307B	2nd Buffer Amp. Screen Bypass	Part of C307						
C307C	2nd Buffer Amp. Decoupling Cap.	Part of C307						
*C308	See C308A, C308B, C308C	Same as C103						
C308A	3rd Buffer Amp. Cathode Bypass	Part of C308						
C308B	3rd Buffer Amp. Screen Bypass	Part of C308						
C308C	3rd Buffer Amp. Decoupling Cap.	Part of C308						
*C309	See C309A, C309B, C309C	Same as C109						
C309A	Osc. Unit Filament Bypass	Part of C309						
C309B	Osc. Unit Filament Bypass	Part of C309						
C309C	Osc. Unit Filament Bypass	Part of C309						
C401	See C401A, C401B, C401C	Same as C101						
C401A	Output Amp. Output Tuning Cap.	Part of C401						
C401B	Output Amp. Input Tuning Cap.	Part of C401						
C401C	Mixer Stage Input Tuning Cap.	Part of C401						
*C402	Output Amp. Plate Bypass	Same as C102						
*C403	See C403A, C403B, C403C	Same as C103						
C403A	Output Amp. Cathode Bypass	Part of C403						
C403B	Output Amp. Screen Bypass	Part of C403						
C403C	Output Amp. Pl. Decoupling Cap.	Part of C403						
*C404	Output Amp. Grid Bypass	Same as C102						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*C405	See C405A, C405B, C405C	Same as C103						
C405A	Mixer Stage Cathode Bypass	Part of C405						
C405B	Mixer Stage Screen Bypass	Part of C405						
C405C	Mixer Stage Plate Bypass	Part of C405						
*C406	See C406A, C406B, C406C	Same as C103						
C406A	Input Buf.-Amp. Cathode Bypass	Part of C406						
C406B	Input Buf.-Amp. Screen Bypass	Part of C406						
C406C	Input Buf.-Amp. Plate Bypass	Part of C406						
*C407	See C407A, C407B, C407C	Same as C109						
C407A	Mixer Unit Pl. Supply Bypass	Part of C407						
C407B	Mixer Unit Pl. Supply Bypass	Part of C407						
C407C	Mixer Unit Pl. Supply Bypass	Part of C407						
*C408	See C408A, C408B, C408C	Same as C109						
C408A	Mixer Unit Filament Bypass	Part of C408						
C408B	Mixer Unit Filament Bypass	Part of C408						
C408C	Mixer Unit Filament Bypass	Part of C408						
*C501	See C501A, C502A	0.1/0.1 mf 400 W.V.			75C			954ND01W
C501A	1st I. F. Amp. Grid Decoupling Cap.	Part of C501						
C501B	1st I. F. Amp. Screen Bypass	Part of C501						
*C502	See C502A, C502B	Same as C501						
C502A	1st I. F. Amp. Grid Decoupling Cap.	Part of C502						
C502B	1st I. F. Amp. Screen Bypass	Part of C502						
*C503	See C503A, C503B	Same as C501						
C503A	1st I. F. Amp. Cathode Bypass	Part of C503						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
C503B	1st I. F. Amp. Plate Decoupling Cap.	Part of C503						
*C504	See C504A, C504B	Same as C501						
C504A	1st I. F. Amp. Cathode Bypass	Part of C504						
C504B	1st I. F. Amp. Plate Decoupling Cap.	Part of C504						
*C505	See C505A, C505B	Same as C501						
C505A	2nd I.F. Amp. Grid Decoupling Cap.	Part of C505						
C505B	2nd I. F. Amp. Screen Bypass	Part of C505						
*C506	See C506A, C506B	Same as C501						
C506A	2nd I. F. Amp. Grid Decoupling Cap.	Part of C506						
C506B	2nd I. F. Amp. Screen Bypass	Part of C506						
*C507	See C507A, C507B	Same as C501						
C507A	2nd I. F. Amp. Cathode Bypass	Part of C507						
C507B	2nd I. F. Amp. Plate Decoupling Cap.	Part of C507						
*C508	See C508A, C508B	Same as C501						
C508A	2nd I. F. Amp. Cathode Bypass	Part of C508						
C508B	2nd I. F. Amp. Plate Decoupling Cap.	Part of C508						
*C509	See C509A, C509B	Same as C501						
C509A	AVC Amp. Cathode Bypass	Part of C509						
C509B	2nd Det. Output Network Bypass	Part of C509						
*C510	See C510A, C510B	Same as C501						

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
C510A	AVC Amp. Grid Supply Bypass	Part of C510						
C510B	2nd Det. Output Network Bypass	Part of C510						
*C511	AVC Amp. Grid Coupling Cap.	0.0025 mf ±10% 900 T. V.			75C 02S	1WLS CLS		909N225CN
*C512	AVC Amp. Grid Coupling Cap.	Same as C511						
*C513	2nd Det. Output Network Bypass	0.0001 mf ±10% 900 T. V.			75C 02S	1WLS CLS		909N310CN
*C514	2nd Det. Output Network Bypass	Same as C513						
*C515	1st Audio Amp. Grid Coupling Cap.	0.004 mf ±10% 600 T. V.			75C 02S	1WLS CLS		909N240CN
*C516	1st Audio Amp. Grid Coupling Cap.	Same as C515						
*C517	1st Audio Amp. Plate Bypass	Same as C511						
*C518	1st Audio Amp. Plate Bypass	Same as C511						
*C519	See C519A, C519B	Same as C501						
C519A	1st Audio Amp. Plate Coupling Cap.	Part of C519						
C519B	1st Audio Amp. Plate Coupling Cap.	Part of C519						
*C520	See C520A, C520B	Same as C501						
C520A	1st Audio Amp. Plate Coupling Cap.	Part of C520						
C520B	1st Audio Amp. Plate Coupling Cap.	Part of C520						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*C521	AVC Amp. Plate Bypass	Same as C511						
*C522	AVC Amp. Plate Bypass	Same as C511						
*C601	See C601A, C601B, C601C	4/4/4 mf +10% −3% 600 W. V.			75C	KC-6		956NT7J
C601A	Plate Supply Filter Cap.	Part of C601						
C601B	Plate Supply Filter Cap.	Part of C601						
C601C	Plate Supply Filter Cap.	Part of C601						
*C602	See C602A, C602B, C602C	Same as C601						
C602A	Plate Supply Filter Cap.	Part of C602						
C602B	Plate Supply Filter Cap.	Part of C602						
C602C	Plate Supply Filter Cap.	Part of C602						
*C603	See C603A, C603B, C603C	Same as C601						
C603A	Plate Supply Filter Cap.	Part of C603						
C603B	Plate Supply Filter Cap.	Part of C603						
C603C	Plate Supply Filter Cap.	Part of C603						
*C604	See C604A, C604B, C604C	Same as C601						
C604A	Plate Supply Filter Cap.	Part of C604						
C604B	Plate Supply Filter Cap.	Part of C604						
C604C	Plate Supply Filter Cap.	Part of C604						
*C701	2nd Audio Amp. Grid Phase Shifting Cap.	0.001 mf ±10% 900 T. V.			75C	1WLS		909N210CN
*C702	2nd Audio Amp. Grid Phase Shifting Cap.	Same as C701						
*C703	See C703A, C703B	Same as C501						
C703A	2nd Audio Amp. Cathode Bypass	Part of C703						
C703B	2nd Audio Amp. Screen Bypass	Part of C703						
*C704	See C704A, C704B	Same as C501						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
C704A	2nd Audio Amp. Cathode Bypass	Part of C704						
C704B	2nd Audio Amp. Screen Bypass	Part of C704						
*C705	See C705A, C705B	Same as C501						
C705A	Audio Output Amp. Grid Coupling Cap.	Part of C705						
C705B	Audio Output Amp. Grid Coupling Cap.	Part of C705						
*C706	See C706A, C706B	Same as C501						
C706A	Audio Output Amp. Grid Coupling Cap.	Part of C706						
C706B	Audio Output Amp. Grid Coupling Cap.	Part of C706						
*C707	2nd Audio Amp. Plate Decoupling Cap.	4 mf ±10% 600 W. V.			75C	Type TL		930N3
*C708	2nd Audio Amp. Plate Decoupling Cap.	Same as C707						
*C709	See C709A, C709B	Same as C501						
C709A	Audio Output Amp. Plate Blocking Cap.	Part of C709						
C709B	Audio Output Amp. Plate Coupling Cap.	Part of C709						
*C710	See C710A, C710B	Same as C501						
C710A	Audio Output Amp. Plate Blocking Cap.	Part of C710						
C710B	Audio Output Amp. Plate Coupling Cap.	Part of C710						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*C711	Directional Rect. Output Coupling Cap.	0.5 mf 600 W. V.			75C	DYRT		956NS08W
*C712	'Scope Centering Control Cap.	Same as C711						
*C713	'Scope Centering Control Cap.	2 mf ±10% 600 W. V.			75C	Type TL		930N1
*C714	CW Audio Amp. Plate Bypass	Same as C102						
*C715	CW Audio Amp. Plate Decoupling Cap.	Same as C707						
*C716	Bias Supply Filter Cap.	Same as C707						
*C801	I. F. Osc. Grid Coupling Cap.	0.00005 mf ±5% 1000 T. V.			75C	5R		912N450C
*C802	I. F. Test Osc. Grid Coupling Cap.	Same as C801						
*C803	See C803A, C803B	Same as C501						
C803A	I. F. Osc. Plate Supply Bypass	Part of C803						
C803B	I. F. Osc. Plate Supply Bypass	Part of C803						
*C804	See C804A, C804B	Same as C501						
C804A	I. F. Test Osc. Plate Bypass	Part of C804						
C804B	I. F. Test Osc. Plate Supply Bypass	Part of C804						
*C805	See C805A, C805B	Same as C501						
C805A	Monitor Unit Filament Bypass	Part of C805						
C805B	Monitor Unit Filament Bypass	Part of C805						
*C806	Mon. Amp. Plate Supply Bypass	Same as C707						
*C901	Oscilloscope Timing Cap.	0.002 mf ±5% 1000 T. V.			75C 02S	4LS HS-10		910N220C
*C902	Oscilloscope Timing Cap.	Same as C901						
*C903	Oscilloscope Timing Cap.	Same as C102						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*C904	Oscilloscope Timing Cap.	Same as C102						
*C905	See C905A, C905B	Same as C501						
C905A	Oscilloscope Timing Cap.	Part of C905						
C905B	Oscilloscope Timing Cap.	Part of C905						
*C906	See C906A, C906B	Same as C501						
C906A	Oscilloscope Timing Cap.	Part of C906						
C906B	Oscilloscope Timing Cap.	Part of C906						
*C907	See C907A, C907B, C907C	Same as C109						
C907A	Oscilloscope Timing Cap.	Part of C907						
C907B	Oscilloscope Timing Cap.	Part of C907						
C907C	Oscilloscope Timing Cap.	Part of C907						
*C908	See C908A, C908B, C908C	Same as C109						
C908A	Oscilloscope Timing Cap.	Part of C908						
C908B	Oscilloscope Timing Cap.	Part of C908						
C908C	Oscilloscope Timing Cap.	Part of C908						
C909	I. F. Osc. Tuning Capacitor	50 mmf midget variable			05H	MC-50-M		922N8A
C910	Test Osc. Tuning Capacitor	Same as C909						
*C1101	'Scope Amp. Screen Bypass	Same as C713						
*C1102	'Scope Amp. Pl. Coup. Cap.	Same as C711						
*C1201	'Scope Deflecting Pl. Bypass	Same as C102						
*C1301	Band Switching Motor Capacitor	6.0 mf ±10% 600 W. V.			75C	Type KG		930N9
*C1302	Commutator Motor Capacitor	Same as C1301						
C1401	See C1401A, C1401B,	267.8, 107.1, 80.3 mmf ±5% variable air Dielectric capacitor			38R	80035		924N8B
C1401A	Loop Tuning Cap.	Part of C1401						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
C1401B	Loop Tuning Cap.	Part of C1401						
C1401C	Loop Tuning Cap.	Part of C1401						
C1402	See C1402A, C1402B, C1402C	267.8, 107.1, 80.3 mmf ±5% variable air Dielectric capacitor			38R	80036		924N8C
C1402A	Loop Tuning Cap.	Part of C1402						
C1402B	Loop Tuning Cap.	Part of C1402						
C1402C	Loop Tuning Cap.	Part of C1402						
*C1403	Band 1 Loop Trimming Cap.	50 mmf midget variable air dielectric			38R 05H 63G	34 APC-50 MV		922N43
*C1404	Band 2 Loop Trimming Cap.	Same as C1403						
*C1405	Band 3 Loop Trimming Cap.	25 mmf midget air dielectric			38R	34		922N45
C1406	Band 4 Loop Trimming Cap.	2.25 mmf midget air dielectric			38R			922N44
*C1407	Band 1 Loop Padding Cap.	0.00015 mf ±5% 1000 T. V.			75C	5R		912N315C
*C1408	Band 2 Loop Padding Cap.	Same as C801						
C1501	See C1501A, C1501B, C1501C	Same as C1401						
C1501A	Loop Tuning Cap.	Part of C1501						
C1501B	Loop Tuning Cap.	Part of C1501						
C1501C	Loop Tuning Cap.	Part of C1501						
C1502	See C1502A, C1502B, C1502C	Same as C1402						
C1502A	Loop Tuning Cap.	Part of C1502						
C1502B	Loop Tuning Cap.	Part of C1502						
C1502C	Loop Tuning Cap.	Part of C1502						
*C1503	Band 1 Loop Trimming Cap.	Same as C1403						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*C1504	Band 2 Loop Trimming Cap.	Same as C1403						
*C1505	Band 3 Loop Trimming Cap.	Same as C1405						
C1506	Band 4 Loop Trimming Cap.	Same as C1406						
*C1507	Band 1 Loop Padding Cap.	Same as C1407						
*C1508	Band 2 Loop Padding Cap.	Same as C801						

MISCELLANEOUS ELECTRICAL PARTS

E1301	Spring for ⅛ 1 Slip Ring	Special Spring Assembly			64C	GA-1348A		GA-1348A
*E1302	Brush for ⅛ 2 Slip Ring	3/16" x 1/2" Metal Graphite Rotor Brush			15P	P-loc-5		234N113
*E1303	Brush for ⅛ 3 Slip Ring	Same as E1302						
*E1304	Brush for ⅛ 4 Slip Ring	1/4" x 1/4" Copper Carbon Rotor Brush			40G	K-58980-11AB		234N112
*E1305	Brush for ⅛ 5 Slip Ring	Same as E1304						
*E1306	Brush for ⅛ 6 Slip Ring	Same as E1304						

FUSES

*F1301	Power Circuit Fuse	5 amp 250 v 1-1/4" x 1/4" cartridge fuse			78L	3AG		264N409
*F1302	Light Circuit Fuse	Same as F1301						

PILOT LAMPS

*I1001	Test Voltmeter Pilot Lamp	6.3 v, 0.15 amp bulb, miniature bayonet base			40G 66R	47 R40A		262N324

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

PILOT LAMPS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*I1002	Vernier Tuning Pilot Lamp	Same as I1001						
*I1003	Frequency Scale Pilot Lamp	12-16 v, .10 amp Min. Bayonet Base			40G 66R	T-3 1/4		262N326
*I1004	Frequency Scale Pilot Lamp	Same as I1003						
*I1005	Keyer Circuit Neon Indicator	1/4 w 65 v a. c., 90 v d. c., Single contact Bayonet Candelabra			40G			262N351
*I1006	Keyer Cir. Neon Ind.	Same as I1005						
*I1007	Diff. Carrier Meter Pilot Lamp	Same as I1001						
*I1008	Av. Carrier Meter Pilot Lamp	Same as I1001						
*I1301	Azimuth Scale Lamp	110 v, 6 w bulb Candelabra base			40G	T-4 1/2		262N333
		CONNECTORS						
J101	R-F Tuner Antenna Coupling Socket	Special Connector Socket			64C	GB-1237A		GB-1237A
J102	R-F Tuner Oscillator Coupling Socket	Same as J101						
J103	1st Detector Output Coupling Socket	Same as J101						
J104	R-F Tuner Connector Socket	8 Term. Chassis Mtg. Socket			91J	S-308-AB-W.I.		366N208
J201	R-F Tuner Antenna Coupling Socket	Same as J101						
J202	R-F Tuner Oscillator Coupling Socket	Same as J101						

CONNECTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
J203	1st Detector Output Coupling Socket	Same as J101						
J204	R-F Tuner Connector Socket	Same as J104						
J301	1st Buffer Amp. Connector Socket	Special Connector Socket			64C	GA-1237A		GA-1237A
J302	2nd Buffer Amp. Connector Socket	Same as J301						
J303	3rd Buffer Amp. Connector Socket	Same as J301						
J304	Osc. Unit Connector Socket	Same as J104						
J401	Output Amp. Output Socket	Same as J101						
J402	Input Buf.-Amp. Input Socket	Same as J101						
J403	Mixer BFO Input Socket	Same as J101						
J404	Mixer Unit Connector Socket	Same as J104						
J501	I. F. Amp. Connector Socket	10 Prong cable Conn. Socket			91J	S-310-CCT-W. I.		366N810
J502	I. F. Amp. Connector Socket	Same as J501						
J503	I. F. Amp. Line Connector Socket	Special Connector Socket			64C	GA-1249A		GA-1249A
J504	I. F. Amp. Line Connector Socket	Same as J503						
J601	Power Supply Connector Socket	6 Term. Cable Connector Socket			91J	SS-6-FHT		364N406C
J602	Power Supply Connector Socket	6 Term. Chassis Mtg. Socket			91J	SS-6-AB-1/16		364N206
J701	Audio Amp. Connector Socket	Same as J601						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CONNECTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
J702	Audio Amp. Connector Socket	8 Term. Chassis Mtg. Socket			91J	SS-8-AB-1/16		364N208
J703	Audio Amp. Connector Socket	8 Term. Cable Conn. Socket			91J	S-408-FHT		364N408C
J704	Audio Amp. Conn. Socket	10 Term. Chassis Mtg. Socket			91J	SS-10-AB-1/16		364N210
J801	Monitor Unit Conn. Socket	Same as J501						
J802	Monitor Unit Conn. Socket	8 Term. Cable Conn. Socket			91J	S-308 CCT-W. I.		366N808
J803	I. F. Osc. Trimmer Connector	Same as J503						
J804	I. F. Osc. Output Connector	Same as J503						
J805	I. F. Test Osc. Trimmer Connector	Same as J503						
J901	Control Panel Conn. Socket	18 Term. Cable Conn. Socket			91J	S-318-CCT-W. I.		366N818
J902	Control Panel Conn. Socket	12 Term. Cable Conn. Socket			91J	S-312-CCT.-W. I.		366N812
*J903	Loudspeaker Jack	2 Circuit Phone Jack for Plug with 1/4" barrel			05M			360N119
*J904	Headphone Jack	Same as J903						
J905	I. F. Osc. Tuning Cap. Socket	Same as J503						
J906	Test Osc. Tuning Cap. Socket	Same as J503						
J1001	Meter Panel Conn. Socket	Same as J104						
J1002	Meter Panel Conn. Socket	12 Term. Chassis Mtg. Conn.			91J	P-312-AB-W. I.		365N212
J1003	Meter Panel Conn. Socket	Same as J1002						
J1004	Meter Panel Conn. Socket	Same as J104						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CONNECTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
J1005	Pilot Lamp Socket for I1001	Bracket for Min. Bayonet Base Lamp			41M	593		262N122
J1006	Pilot Lamp Socket for I1002	Same as J1005						
J1007	Pilot Lamp Socket for I1003	Same as J1005						
J1008	Pilot Lamp Socket for I1004	Same as J1005						
J1009	Pilot Lamp Socket for I1007	Same as J1005						
J1010	Pilot Lamp Socket for I1008	Same as J1005						
J1011	Pilot Lamp Socket for I1005	Bracket for Candelabra Size Bayonet Base Lamp			60D	606-CE		262N151
J1012	Pilot Lamp Socket for I1006	Same as J1011						
J1101	'Scope Amp. Conn. Socket	6 Term. Cable Conn. Socket			91J	S-306-CCT-W. I.		366N806
J1102	'Scope Amp. Conn. Socket	Same as J802						
J1201	Commutator Coupl. Socket	Single Terminal Socket Contact			91J	101-1/4		367N31
J1202	Commutator Coupl. Socket	Same as J1201						
J1203	Commutator Coupl. Socket	Same as J1201						
J1204	Commutator Coupl. Socket	Same as J1201						
J1205	Commutator Unit Connector Socket	Same as J501						
J1301	Band Switch Conn. Socket	Same as J1101						
J1302	Band Switching Motor Socket	4 Term. Chassis Mtg. Socket			91J	S-304-AB-W. I.		366N204
J1303	Commutator Motor Socket	Same as J1302						
J1304	Oscilloscope Tube Connector Socket	Same as J104						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CONNECTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
J1305	Power Outlet Socket	Two Conductor Convenience Outlet			40G			368N45
J1306	Power Outlet Socket	Same as J1305						
J1307	Duplex Power Outlet Socket	Duplex Convenience Outlet with "T" slots			84A 90B	1913 4832		368N3
J1308	Duplex Power Outlet Socket	Same as J1307						
J1309	Azimuth Scale Pilot Lamp Socket	Socket for Candelabra base bulbs			84A	27900		262N134
J1401	Injection Loop Conn. Socket	Same as J1201						
J1402	Injection Loop Conn. Socket	Same as J1201						
J1501	Injection Loop Conn. Socket	Same as J1201						
J1502	Injection Loop Conn. Socket	Same as J1201						

RELAYS

*K1101	Band Switching Motor Relay	110 v, 60 cps, a-c Coil DPDT 5 amp contacts			42L	1307		407N6

INDUCTORS

*L601	Plate Supply Filter Reactor	6 hy. 0.15 amp, 100 ohm			55C			678N132
*L602	Plate Supply Filter Reactor	Same as L601						
*L603	Plate Supply Filter Reactor	Same as L601						
*L604	Plate Supply Filter Reactor	Same as L601						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

INDUCTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
L1401	Band 1 Loop Loading Coil	Special Slug-Tuned Coil Assembly			64C	GA-1352B		GA-1352B
L1402	Band 2 Loop Loading Coil	Special Slug-Tuned Coil Assembly			64C	GB-1352B		GB-1352B
L1403	Band 3 Loop Loading Coil	Special Slug-Tuned Coil Assembly			64C	GC-1352B		GC-1352B
L1404	Band 3 Loop Loading Coil	Same as L1403						
L1405	Band 2 Loop Loading Coil	Same as L1402						
L1406	Band 1 Loop Loading Coil	Same as L1401						
L1501	Band 1 Loop Loading Coil	Same as L1401						
L1502	Band 2 Loop Loading Coil	Same as L1402						
L1503	Band 3 Loop Loading Coil	Same as L1403						
L1504	Band 3 Loop Loading Coil	Same as L1403						
L1505	Band 2 Loop Loading Coil	Same as L1402						
L1506	Band 1 Loop Loading Coil	Same as L1401						
LS1001	Monitor Loudspeaker	4.2 ohm voice coil 3″ Permanent Magnet Speaker with Water Repellant Cone			70J	PM3F Spec.		271N227

METERS

*M1001	Test Voltmeter	0-500 v d. c. 50 Scale Div.			45W	301		458N036TIN
*M1002	Differential Carrier Strength Meter	200-0-200 microamps d-c			45W			458N112CIN
*M1003	Average Carrier Strength Meter	0-5 milliamperes d-c			45W			458N0713CIN

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

PLUGS

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
P101	R-F Tuner Antenna Coupling Plug	Special Connector Plug			64C	GA-1248A		GA-1248A
P102	R-F Tuner Oscillator Coupling Plug	Same as P101						
P103	1st Detector Output Coupling Plug	Same as P101						
P104	R-F Tuner Connector Socket	8 Term. Chassis Mtg. Plug			91J	300-W. I.		365N208
P201	R-F Tuner Antenna Coupling Plug	Same as P101						
P202	R-F Tuner Osc. Coupl. Plug	Same as P101						
P203	1st Detector Output Coupl. Plug	Same as P101						
P204	R-F Tuner Connector Socket	Same as P104						
P301	1st Buffer Amp. Connector Plug	Same as P101						
P302	2nd Buffer Amp. Connector Plug	Same as P101						
P303	3rd Buffer Amp. Connector Plug	Same as P101						
P304	Oscillator Unit Connector Plug	Same as P104						
P401	Output Amp. Output Plug	Same as P101						
P402	Input Buf.-Amp. Input Plug	Same as P101						
P403	Mixer BFO Input Plug	Same as P101						
P404	Mixer Unit Conn. Plug	Same as P104						
P501	I. F. Amp. Conn. Plug	10 Term. Chassis Mtg. Plug			91J	P-310-AB 1/2-W. I.		365N210
P502	I. F. Amp. Conn. Plug	Same as P501						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

PLUGS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
P503	I. F. Amp. Concentric Line Plug	Special Connector Plug			64C	GA-1242A		GA-1242A
P504	I. F. Amp. Concentric Line Plug	Same as P503						
P601	Power Supply Conn. Plug	6 Term. Chassis Mtg. Plug			91J	P-6-AB 1/16		363N206
P602	Power Supply Conn. Plug	6 Term. Cable Conn. Plug			91J	P-6-FHT		363N406C
P701	Audio Amp. Conn. Plug	Same as P601						
P702	Audio Amp. Conn. Plug	8 Term. Cable Conn. Plug			91J	400 Series		363N408C
P703	Audio Amp. Conn. Plug	8 Term. Chassis Mtg. Plug			91J	P-8-AB 1/16		363N208
P704	Audio Amp. Conn. Plug	10 Term. Cable Conn. Plug			91J	P-410-FHT		363N410C
P801	Monitor Unit Connector Plug	Same as P501						
P802	Monitor Unit Connector Plug	Same as P104						
P803	I. F. Osc. Trimmer Connector Plug	Same as P503						
P804	I. F. Osc. Output Connector Plug	Same as P503						
P805	I. F. Test Osc. Trimmer Conn. Plug	Same as P503						
P901	Control Panel Connector Plug	18 Term. Chassis Mtg. Plug			91J	P-318-AB-W. I.		365N218
P902	Control Panel Connector Plug	12 Term. Chassis Mtg. Plug			91J	P-312-AB-W. I.		365N212
P905	I. F. Osc. Tuning Cap. Plug	Same as P503						
P906	Test Osc. Tuning Cap. Plug	Same as P503						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

PLUGS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
P1001	Meter Panel Conn. Plug	8 Term. Cable Conn. Socket			91J	S-308-CCT-W. I.		366N808
P1002	Meter Panel Conn. Plug	12 Term. Cable Conn. Socket			91J	S-312-CCT-W.I.		366N812
P1003	Meter Panel Conn. Plug	Same as P1002						
P1004	Meter Panel Conn. Plug	Same as P1001						
P1101	'Scope Amp. Conn. Plug	6 Term. Chassis Mtg. Plug			91J	P-306AB-W. I.		365N206
P1102	'Scope Amp. Conn. Plug	Same as P104						
P1201	Commutator Coupling Plug	Same as P503						
P1202	Commutator Coupling Plug	Same as P503						
P1203	Commutator Coupling Plug	Same as P503						
P1204	Commutator Coupling Plug	Same as P503						
P1205	Commutator Unit Connector Plug	Same as P501						
P1301	Band Switch Conn. Plug	Same as P1101						
*P1302	Band Switching Motor Plug	4 Term Conn. Plug			91J	P-304-CCT-W. I.		365N804
*P1303	Commutator Motor Plug	Same as P1302						
P1304	Oscilloscope Tube Connector Plug	8 Term. Cable Conn. Plug			91J	P-308-CCT-W. I.		365N808
P1305	Azimuth Scale Lamp Plug	2 Term. Cable Conn. Plug			83M	210		372N1
P1401	Loop Connector Plug	Same as P503						
P1501	Loop Connector Plug	Same as P503						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R101	1st R-F Amp. Grid Resistor	240,000 ohm ±5% 1 w			28J	BT1-Navy		729NG240M
*R102	1st R-F Amp. Cathode Resistor	330 ohm ±5% 1 w			28J	BW1-Navy		708N330N
*R103	1st R-F Amp. Screen Bleeder Resistor	51,000 ohm ±5% 1 w			28J	BT1-Navy		729NG51M
*R104	1st R-F Amp. Screen Resistor	30,000 ohm ±5% 1 w			28J	BT1-Navy		729NG30M
*R105	1st R-F Amp. Plate Resistor	1000 ohm ±5% 1 w			28J	BT1-Navy		729NG1000
*R106	2nd R-F Amp. Grid Resistor	Same as R101						
*R107	2nd R-F Amp. Cathode Resistor	Same as R102						
*R108	2nd R-F Amp. Screen Bleeder Resistor	Same as R103						
*R109	2nd R-F Amp. Screen Resistor	Same as R104						
*R110	2nd R-F Amp. Plate Resistor	Same as R105						
*R111	1st Detector Grid Resistor	2.2 Meg ±5% 1 w			28J	BT1-Navy		729NG2.2Meg
*R112	1st Detector Cathode Resistor	2200 ohm ±5% 1 w			28J	BT1-Navy		729NG2200
*R113	1st Detector Screen Bleeder Resistor	22,000 ohm ±5% 1 w			28J	BT1-Navy		729NG22M
*R114	1st Detector Screen Resistor	220,000 ohm ±5% 1 w			28J	BT1-Navy		729NG220M
*R115	1st Detector Plate Resistor	Same as R105						
*R116	R-F Amp. Grid Supply Resistor	Same as R101						
*R117	R-F Tuner Plate Supply Resistor	1000 ohm ±5% 2 w			28J	BT2-Navy		729NH1M
*R201	1st R-F Amp. Grid Resistor	Same as R101						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Desig. nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R202	1st R-F Amp. Cathode Resistor	Same as R102						
*R203	1st R-F Amp. Screen Bleeder Resistor	Same as R103						
*R204	1st R-F Amp. Screen Resistor	Same as R104						
*R205	1st R-F Amp. Pl. Resistor	Same as R105						
*R206	2nd R-F Amp. Grid Resistor	Same as R101						
*R207	2nd R-F Amp. Cathode Resistor	Same as R102						
*R208	2nd R-F Amp. Screen Bleeder Resistor	Same as R103						
*R209	2nd R-F Amp. Screen Resistor	Same as R104						
*R210	2nd R-F Amp. Plate Resistor	Same as R105						
*R211	1st Detector Grid Resistor	Same as R111						
*R212	1st Detector Cathode Resistor	Same as R112						
*R213	1st Detector Screen Bleeder Resistor	Same as R113						
*R214	1st Detector Screen Resistor	Same as R114						
*R215	1st Detector Plate Resistor	Same as R105						
*R216	R-F Amp. Grid Supply Resistor	Same as R101						
*R217	R-F Tuner Plate Supply Resistor	Same as R117						
*R301	H. F. Osc. Grid Resistor	100,000 ohm ±5% 1 w			28J	BT1-Navy		729NG100M
*R302	H. F. Osc. Plate Resistor	5100 ohm ±5% 1 w			28J	BT1-Navy		729NG5100
*R303	H. F. Osc. Plate Supply Resistor	Same as R105						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R304	Buffer Amp. Pl. Supply Resistor	Same as R117						
*R305	Buffer Amp. Grid Resistor	510,000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE510M
*R306	1st Buffer Amp. Cathode Resistor	Same as R102						
*R307	1st Buffer Amp. Screen Bleeder Resistor	Same as R103						
*R308	1st Buffer Amp. Screen Resistor	Same as R104						
*R309	1st Buffer Amp. Plate Resistor	Same as R302						
*R310	2nd Buffer Amp. Cathode Resistor	Same as R102						
*R311	2nd Buffer Amp. Screen Bleeder Resistor	Same as R103						
*R312	2nd Buffer Amp. Screen Resistor	Same as R104						
*R313	2nd Buffer Amp. Plate Resistor	Same as R302						
*R314	3rd Buffer Amp. Cathode Resistor	Same as R102						
*R315	3rd Buffer Amp. Screen Bleeder Resistor	Same as R103						
*R316	3rd Buffer Amp. Screen Resistor	Same as R104						
*R317	3rd Buffer Amp. Plate Resistor	Same as R302						
*R401	Output Amp. Plate Resistor	Same as R105						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R402	Output Amp. Cathode Resistor	Same as R102						
*R403	Output Amp. Screen Bleeder Resistor	Same as R103						
*R404	Output Amp. Screen Resistor	Same as R104						
*R405	Output Amp. Grid Resistor	Same as R301						
*R406	Mixer Stage Plate Resistor	Same as R105						
*R407	Mixer Stage Screen Resistor	Same as R104						
*R408	Mixer Stage Screen Resistor	Same as R104						
*R409	Mixer Stage Cathode Resistor	Same as R102						
*R410	Mixer Stage Grid Resistor	Same as R301						
*R411	Input Buf.-Amp. Plate Resistor	Same as R105						
*R412	Input Buf.-Amp. Cathode Resistor	Same as R102						
*R413	Input Buf.-Amp. Screen Bleeder Resistor	Same as R103						
*R414	Input Buf.-Amp. Screen Resistor	Same as R104						
*R415	Input Buf.-Amp. Grid Resistor	5100 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE5100
*R416	Mixer Unit Pl. Supply Resistor	Same as R117						
*R501	1st I. F. Amp. Grid Supply Resistor	240,000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE240M
*R502	1st I. F. Amp. Grid Supply Resistor	Same as R501						
*R503	1st I. F. Amp. Cathode Supply Res.	100 ohm ±10% 1/2 w			28J	BW-1/2 Navy		707N100N
*R504	1st I. F. Amp. Cathode Supply Res.	Same as R503						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R505	1st I. F. Amp. Screen Bleeder Resistor	Same as R103						
*R506	1st I. F. Amp. Screen Bleeder Resistor	Same as R103						
*R507	1st I. F. Amp. Screen Supply Resistor	Same as R104						
*R508	1st I. F. Amp. Screen Supply Resistor	Same as R104						
*R509	1st I. F. Amp. Plate Supply Resistor	1000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE1000
*R510	1st I. F. Amp. Plate Supply Resistor	Same as R509						
*R511	2nd I. F. Amp. Grid Supply Resistor	Same as R501						
*R512	2nd I. F. Amp. Grid Supply Resistor	Same as R501						
*R513	2nd I. F. Amp. Cathode Supply Res.	Same as R503						
*R514	2nd I. F. Amp. Cathode Supply Res.	Same as R503						
*R515	2nd I. F. Amp. Screen Bleeder Resistor	Same as R103						
*R516	2nd I. F. Amp. Screen Bleeder Resistor	Same as R103						
*R517	2nd I. F. Amp. Screen Supply Resistor	Same as R104						
*R518	2nd I. F. Amp. Screen Supply Resistor	Same as R104						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R519	2nd I. F. Amp. Plate Supply Resistor	Same as R509						
*R520	2nd I. F. Amp. Plate Supply Resistor	Same as R509						
*R521	AVC Amp. Grid Res.	1 Megohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE1MEG
*R522	AVC Amp. Grid Res.	Same as R521						
*R523	AVC Amp. Delay Control	50,000 ohm Potentiometer			28J	CS		380NA50M
*R524	AVC Amp. Delay Control	Same as R523						
*R525	AVC Amp. Plate Loading Resistor	100,000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE100M
*R526	AVC Amp. Plate Loading Resistor	Same as R525						
*R527	2nd Det. Output Network Resistor	20,000 ohm ±5% 1/2 w			28J	BT-1 Navy		729NE20M
*R528	2nd Det. Output Network Resistor	Same as R527						
*R529	2nd Det. Output Network Resistor	Same as R501						
*R530	2nd Det. Output Network Resistor	Same as R501						
*R531	2nd Det. Output Network Resistor	Same as R525						
*R532	2nd Det. Output Network Resistor	Same as R525						
*R533	1st Audio Amp. Grid Resistor	Same as R521						
*R534	1st Audio Amp. Grid Resistor	Same as R521						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R535	1st Audio Amp. Cathode Resistor	Same as R509						
*R536	1st Audio Amp. Cathode Resistor	Same as R509						
*R537	1st Audio Amp. Plate Resistor	7500 ohm ±5% 1 w			28J	BT1-Navy		729NG7500
*R538	1st Audio Amp. Plate Resistor	Same as R537						
*R539	1st Audio Amp. Plate Resistor	Same as R537						
*R540	1st Audio Amp. Plate Resistor	Same as R537						
*R601	Osc. Plate Voltage Reg. Resistor	7500 ohm ±5% 24 w			25P	Navy		733ND7500
*R701	2nd Audio Amp. Grid Network Resistor	18,000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE18M
*R702	2nd Audio Amp. Grid Network Resistor	1500 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE1500
*R703	2nd Audio Amp. Grid Network Resistor	Same as R702						
*R704	2nd Audio Amp. Grid Network Resistor	Same as R701						
*R705	2nd Audio Amp. Grid Resistor	10,000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE10M
*R706	2nd Audio Amp. Grid Resistor	Same as R705						
*R707	2nd Audio Amp. Grid Network Resistor	200,000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE200M
*R708	2nd Audio Amp. Grid Network Resistor	Same as R707						
*R709	2nd Audio Amp. Cathode Resistor	2400 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE2400
*R710	2nd Audio Amp. Cathode Resistor	Same as R709						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R711	2nd Audio Amp. Screen Resistor	2.2 Megohms ±5% 1/2 w			28J	BT-1/2 Navy		729NE2.2Meg
*R712	2nd Audio Amp. Screen Resistor	Same as R711						
*R713	2nd Audio Amp. Plate Resistor	510,000 ohm ±5% 1 w			28J	BT-1 Navy		729NG510M
*R714	2nd Audio Amp. Plate Resistor	Same as R713						
*R715	Audio Output Amp. Grid Resistor	Same as R305						
*R716	Audio Output Amp. Grid Resistor	Same as R305						
*R717	2nd Audio Amp. Plate Decoupling Resistor	Same as R527						
*R718	2nd Audio Amp. Plate Decoupling Res.	Same as R527						
*R719	Audio Output Amp. Cathode Resistor	3000 ohm ±5% 1/2 w			28J	BT-1/2 Navy		729NE3000
*R720	Audio Output Amp. Cathode Resistor	Same as R719						
*R721	Audio Output Amp. Plate Resistor	51,000 ohm ±5% 2 w			28J	BT2-Navy		729NH51M
*R722	Audio Output Amp. Plate Resistor	Same as R721						
*R723	Audio Output Amp. Monitor Coupling Res.	Same as R713						
*R724	Audio Output Amp. Monitor Coupling Res.	Same as R713						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R725	Directional Rect. Network Resistor	Same as R521						
*R726	Directional Rect. Network Resistor	Same as R521						
*R727	Directional Rect. Network Resistor	Same as R521						
*R728	Directional Rect. Network Resistor	Same as R521						
*R729	Directional Rect. Network Resistor	Same as R525						
*R730	Directional Rect. Network Resistor	Same as R525						
*R731	Directional Rect. Network Resistor	Same as R525						
*R732	Directional Rect. Network Resistor	Same as R525						
*R733	Oscilloscope Centering Res.	150,000 ohm ±5% 1 w			28J	BT1-Navy		729NG150M
*R734	Oscilloscope Centering Control	100,000 ohm Potentiometer			28J	Navy		380NA100M
*R735	Bias Voltage Divider Resistor	2400 ohm ±5% 2 w			28J	BT2-Navy		729NH2400
*R736	Bias Voltage Divider Resistor	5100 ohm ±5% 2 w			28J	BT2-Navy		729NH5100
*R737	Bias Voltage Divider Resistor	Same as R736						
*R738	Bias Voltage Divider Resistor	Same as R736						
*R739	Bias Voltage Divider Resistor	Same as R736						
*R740	Bias Voltage Divider Resistor	Same as R736						
*R741	CW Audio Amp. Cathode Resistor	Same as R105						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R742	CW Audio Amp. Plate Decoupling Resistor	20,000 ohm ±5% 1 w			28J	BT-1 Navy		729NG20M
*R801	I. F. Osc. Line Coupling Resistor	220 ohm ±10% 1/2 w			28J	BW-1/2		707N220N
*R802	I. F. Osc. Load Balancing Resistor	Same as R503						
*R803	I. F. Test Osc. Coupling Resistor	39 ohm ±10% 1/2 w			28J	BW-1/2		707N39N
*R804	I. F. Osc. Load Balancing Resistor	75 ohm ±10% 1/2 w			28J	BW-1/2		707N75N
*R805	I. F. Osc. Plate Supply Resistor	Same as R302						
*R806	I. F. Test Osc. Plate Supply Resistor	Same as R302						
*R807	I. F. Test Osc. Plate Supply Resistor	Same as R105						
*R808	Car. Strength Amp. Grid Coupl. Res.	Same as R521						
*R809	Car. Strength Amp. Grid Resistor	Same as R521						
*R810	Car. Strength Amp. Grid Balancing Control	1 Megohm Potentiometer			28J	Taper A		380NA1MEG
*R811	Car. Strength Amp. Grid Resistor	Same as R521						
*R812	Car. Strength Amp. Grid Coupl. Res.	Same as R521						
*R813	Carrier Strength Amp. Cathode Resistor	270 ohm ±10% 1 w			28J	BW1-Navy		708N270N

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*R814	Car. Strength Lim. Diode Loading Res.	Same as R105						
*R815	Car. Strength Lim. Diode Loading Res.	Same as R105						
*R816	Car. Strength Lim. Diode Balancing Res.	Same as R101						
*R817	Car. Strength Amp. Plate Resistor	Same as R105						
*R818	Car. Strength Amp. Plate Balancing Control	1000 ohm Potentiometer			28J	W		381NA1M
*R819	Car. Strength Amp. Plate Resistor	Same as R105						
*R820	Car. Strength Amp. Pl. Supply Res.	25,000 ohm ±10% 10 w			25P	Brown Devil		710NA25M
*R821	Car. Strength Meter Bal. Res.	15,000 ohm ±10% 10 w			25P	Brown Devil		710NA15M
*R822	Car. Strength Meter Bal. Res.	4000 ohm ±10% 10 w			25P	Brown Devil		710NA4M
*R823	Car. Strength Meter Bal. Control	5000 ohm Potentiometer			28J	W		381NA5M
*R824	Mon. Amp. Cathode Resistor	Same as R105						
*R825	Mon. Amp. Grid Res.	1 Megohm ±5% 1 w			28J	BT1-Navy		729NG1MEG
*R826	Mon. Amp. Plate Supply Resistor	Same as R105						
*R901	Monitor Gain Control	500 ohm Metalized Bridged T-Pad			28J	CSMPD		380N201
*R902	Differential Gain Control	Same as R818						
*R903	See R903A, R903B	Dual 100,000 ohm Potentiometer			28J			380N203

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
R903A	Injection Voltage Control	Part of R903						
R903B	Injection Voltage Control	Part of R903						
*R904	Manual Gain Control	100,000 ohm Potentiometer			28J	CS		380ND100M
R905	Bias Voltage Dividing Res.	Same as R101						
*R906	Injection Voltage Supply Resistor	Same as R103						
*R1001	Oscilloscope Intensity Control	Same as R523						
*R1002	Oscilloscope Focus Control	Same as R734						
*R1003	Keyer Gain Control	500,000 ohm Potentiometer			28J			380NC500M
*R1004	Oscilloscope Gain Control	2 Megohm Potentiometer			28J	CS		380NC2MEG
*R1101	'Scope Amp. Cathode Resistor	Same as R709						
*R1102	'Scope Amp. Screen Resistor	Same as R711						
*R1103	'Scope Amp. Plate Resistor	Same as R305						
*R1104	'Scope Amp. Loading Resistor	Same as R711						
*R1105	'Scope Amp. Grid Timing Resistor	Same as R521						
*R1201	'Scope Sweep Voltage Supply Resistor	Same as R825						
*R1202	'Scope Sweep Circuit Commutating Res.	750 ohm ±5% 1 w			28J	BT1-Navy		729NG750

SWITCHES

*S801	Car. Str. Amp. Gr. Shtg. Sw.	SPST 35 amp. Lever Toggle			96C	8801K3		266N104

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

SWITCHES (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*S802	Monitor Selector Sw.	2 Pole 4 Pos. 1 Sect. Non-Shtg.			64C	GA-1196A		GA-1196A
*S901	Time Constant Sw.	4 Pos. 2 Circuit 1 Sect. Shorting			25C			259N134
*S902	Commutator Motor Sw.	Same as S801						
*S903	Band Changing Sw.	Special 1 Pole, 4 Position			64C	GA-1195A		GA-1195A
*S904	Plate Power Sw.	Same as S801						
*S905	See S905A, S905B	4 Circuit 4 Pos. 2 Section Non-Shorting			25C			259N132
S905A	Int. Freq. Osc. Sw.	Part of S905						
S905B	Bias Voltage Switch	Part of S905						
*S1001	Test Voltmeter Selector Sw.	2 Pole, 4 Pos. 1 Sect. Non-Shorting			25C			259N25
*S1002	Keyer Phone-CW Sw.	2 Pole, 2 Pos. 1 Sect. Non-Shorting			25C			259N103A
S1201	See S1201A, S1201B, S1201C, S1201D	Special Multiple Contact Switch			64C	GA-1353B		GA-1353B
S1201A	Commutator Switch Segment	Part of S1201						
S1201B	Commutator, Switch Segment	Part of S1201						
S1201C	Commutator, Switch Segment	Part of S1201						
S1201D	Commutator, Switch Segment	Part of S1201						
S1202	See S1202A, S1202B, S1202C, S1202D	Special Multiple Contact Switch			64C	GA-1354B		GA-1354B
S1202A	Commutator, Switch Segment	Part of S1202						
S1202B	Commutator, Switch Segment	Part of S1202						
S1202C	Commutator, Switch Segment	Part of S1202						
S1202D	Commutator, Switch Segment	Part of S1202						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

SWITCHES (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*S1301	Circuit Seeking Band Switch	Single Circuit 4 Pos. 4 Pole			05P			269N21
*S1302	AVC Disabling Sw.	2 N. C. Contacts Leaf Spring Assy.			85G			269N31
*S1303	AVC Disabling Sw.	Same as S1302						
*S1304	Power Switch	DPST, 5 amp 115 v Toggle			96C	8822		266N106
*S1305	Light Switch	Same as S801						
*S1401	See S1401A, S1401B, S1401C, S1401D, S1401E, S1401F	6 Section Cam & Leaf Spring Assembly			64C	GA-1319A		GA-1319A
S1401A	Loop Tuning Cap. Band Sw.	Part of S1401						
S1401B	Loop Tuning Cap. Band Sw.	Part of S1401						
S1401C	Loop Tuning Cap. Band Sw.	Part of S1401						
S1401D	Loop Tuning Cap. Band Sw.	Part of S1401						
S1401E	Loop Tuning Cap. Band Sw.	Part of S1401						
S1401F	Loop Tuning Cap. Band Sw.	Part of S1401						
*S1402	See S1402A, S1402B, S1402C, S1402D, S1402E, S1402F	6 Section Cam & Leaf Spring Assembly			64C	GA-1321A		GA-1321A
S1402A	Loop Tuning Cap. Band Sw.	Part of S1402						
S1402B	Loop Tuning Cap. Band Sw.	Part of S1402						
S1402C	Loop Tuning Cap. Band Sw.	Part of S1402						
S1402D	Loop Tuning Cap. Band Sw.	Part of S1402						
S1402E	Loop Tuning Cap. Band Sw.	Part of S1402						
S1402F	Loop Tuning Cap. Band Sw.	Part of S1402						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

SWITCHES (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*S1403	See S1403A, S1403B, S1403C, S1403D	Special, 4 Section Leaf-Spring			64C	GA-1322A		GA-1322A
S1403A	Loop Loading Coil Band Sw.	Part of S1403						
S1403B	Loop Loading Coil Band Sw.	Part of S1403						
S1403C	Loop Loading Coil Band Sw.	Part of S1403						
S1403D	Loop Loading Coil Band Sw.	Part of S1403						
S1404	See S1404A, S1404B, S1404C, S1404D	Same as S1403						
S1404A	Loop Loading Coil Band Sw.	Same as S1404						
S1404B	Loop Loading Coil Band Sw.	Same as S1404						
S1404C	Loop Loading Coil Band Sw.	Same as S1404						
S1404D	Loop Loading Coil Band Sw.	Part of S1404						
*S1501	See S1501A, S1501B, S1501C, S1501D, S1501E, S1501F	Same as S1401						
S1501A	Loop Tuning Cap. Band Sw.	Part of S1501						
S1501B	Loop Tuning Cap. Band Sw.	Part of S1501						
S1501C	Loop Tuning Cap. Band Sw.	Part of S1501						
S1501D	Loop Tuning Cap. Band Sw.	Part of S1501						
S1501E	Loop Tuning Cap. Band Sw.	Part of S1501						
S1501F	Loop Tuning Cap. Band Sw.	Part of S1501						
*S1502	See S1502A, S1502B, S1502C, S1502D, S1502E, S1502F	Same as S1402						
S1502A	Loop Tuning Cap. Band Sw.	Part of S1502						
S1502B	Loop Tuning Cap. Band Sw.	Part of S1502						
S1502C	Loop Tuning Cap. Band Sw.	Part of S1502						
S1502D	Loop Tuning Cap. Band Sw.	Part of S1502						
S1502E	Loop Tuning Cap. Band Sw.	Part of S1502						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

SWITCHES (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
S1502F	Loop Tuning Cap. Band Sw.	Part of S1502						
*S1503	See S1503A, S1503B, S1503C, S1503D	Same as S1403						
S1503A	Loop Loading Coil Band Sw.	Part of S1503						
S1503B	Loop Loading Coil Band Sw.	Part of S1503						
S1503C	Loop Loading Coil Band Sw.	Part of S1503						
S1503D	Loop Loading Coil Band Sw.	Part of S1503						
S1504	See S1504A, S1504B, S1504C, S1504D	Same as S1403						
S1504A	Loop Loading Coil Band Sw.	Part of S1504						
S1504B	Loop Loading Coil Band Sw.	Part of S1504						
S1504C	Loop Loading Coil Band Sw.	Part of S1504						
S1504D	Loop Loading Coil Band Sw.	Part of S1504						

TRANSFORMERS

T101	See T101A, T101B, T101C, T101D	Coil Turret Assembly	See Drawing 449D					
*T101A	1st R-F Amp. Input Trans.	Special For Band 1			64C	GAA-449D		GAA-449D
*T101B	1st R-F Amp. Input Trans.	Special For Band 2			64C	GAB-449D		GAB-449D
*T101C	1st R-F Amp. Input Trans.	Special For Band 3			64C	GAC-449D		GAC-449D
T101D	1st R-F Amp. Input Trans.	Special For Band 4			64C	GAD-449D		GAD-449D
T102	See T102A, T102B, T102C, T102D	Turret Assembly	See Drawing 449D					
*T102A	R-F Amp. Interstage Trans.	Special For Band 1			64C	GBA-449D		GBA-449D
*T102B	R-F Amp. Interstage Trans.	Special For Band 2			64C	GBB-449D		GBB-449D
*T102C	R-F Amp. Interstage Trans.	Special For Band 3			64C	GBC-449D		GBC-449D
*T102D	R-F Amp. Interstage Trans.	Special For Band 4			64C	GBD-449D		GBD-449D

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TRANSFORMERS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	tNavy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
T103	See T103A, T103B, T103C, T103D	Coil Turret Assembly	See Drawing 449D					
*T103A	2nd R-F Amp. Output Trans.	Special For Band 1			64C	GCA-449D		GCA-449D
*T103B	2nd R-F Amp. Output Trans.	Special For Band 2			64C	GCB-449D		GCB-449D
*T103C	2nd R-F Amp. Output Trans.	Special For Band 3			64C	GCC-449D		GCC-449D
*T103D	2nd R-F Amp. Output Trans.	Special For Band 4			64C	GCD-449D		GCD-449D
T104	1st Detector Output Trans.	1st Det. to 75 ohm line, twin tuned, 455 KC.			05H			278N29
T201	See T201A, T201B, T201C, T201D	Same as T101						
*T201A	1st R-F Amp. Input Trans.	Same as T101A						
*T201B	1st R-F Amp. Input Trans.	Same as T101B						
*T201C	1st R-F Amp. Input Trans.	Same as T101C						
*T201D	1st R-F Amp. Input Trans.	Same as T101D						
T202	See T202A, T202B, T202C, T202D	Same as T102						
*T202A	R-F Amp. Interstage Trans.	Same as T102A						
*T202B	R-F Amp. Interstage Trans.	Same as T102B						
*T202C	R-F Amp. Interstage Trans.	Same as T102C						
*T202D	R-F Amp. Interstage Trans.	Same as T102D						
T203	See T203A, T203B, T203C, T203D	Same as T103						
*T203A	2nd R-F Amp. Output Trans.	Same as T103A						
*T203B	2nd R-F Amp. Output Trans.	Same as T103B						
*T203C	2nd R-F Amp. Output Trans.	Same as T103C						
*T203D	2nd R-F Amp. Output Trans.	Same as T103D						
T204	1st Detector Output Trans.	Same as T104						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TRANSFORMERS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
T301	See T301A, T301B, T301C, T301D	Coil Turret Assembly	See Drawing 449D					
*T301A	H. F. Oscillator Tank Coil	Special For Band 1			64C	GDA-449D		GDA-449D
*T301B	H. F. Oscillator Tank Coil	Special For Band 2			64C	GDB-449D		GDB-449D
*T301C	H. F. Oscillator Tank Coil	Special For Band 3			64C	GDC-449D		GDC-449D
*T301D	H. F. Oscillator Tank Coil	Special For Band 4			64C	GDD-449D		GDD-449D
T302	See T302A, T302B, T302C, T302D	Coil Turret Assembly	See Drawing 449D					
*T302A	1st Buffer Amp. Output Trans.	Special For Band 1			64C	GEA-449D		GEA-449D
*T302B	1st Buffer Amp. Output Trans.	Special For Band 2			64C	GEB-449D		GEB-449D
*T302C	1st Buffer Amp. Output Trans.	Special For Band 3			64C	GEC-449D		GEC-449D
*T302D	1st Buffer Amp. Output Trans.	Special For Band 4			64C	GED-449D		GED-449D
T303	See T303A, T303B, T303C, T303D	Coil Turret Assembly	See Drawing 449D					
*T303A	2nd Buffer Amp. Output Trans.	Special for Band 1			64C	GFA-449D		GFA-449D
*T303B	2nd Buffer Amp. Output Trans.	Special For Band 2			64C	GFB-449D		GFB-449D
*T303C	2nd Buffer Amp. Output Trans.	Special For Band 3			64C	GFC-449D		GFC-449D
*T303D	2nd Buffer Amp. Output Trans.	Special For Band 4			64C	GFD-449D		GFD-449D
T304	See T304A, T304B, T304C, T304D	Coil Turret Assembly	See Drawing 449D					
*T304A	3rd Buffer Amp. Output Trans.	Special For Band 1			64C	GGA-449D		GGA-449D
*T304B	3rd Buffer Amp. Output Trans.	Special For Band 2			64C	GGB-449D		GGB-449D

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TRANSFORMERS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*T304C	3rd Buffer Amp. Output Trans.	Special For Band 3			64C	GGD-449D		GGC-449D
*T304D	3rd Buffer Amp. Output Trans.	Special For Band 4			64C	GGD-449D		GGD-449D
T401	See T401A, T401B, T401C, T401D	Coil Turret Assembly	See Drawing 449D					
*T401A	Output Amp. Output Trans.	Special For Band 1			64C	GHA-449D		GHA-449D
*T401B	Output Amp. Output Trans.	Special For Band 2			64C	GHB-449D		GHB-449D
*T401C	Output Amp. Output Trans.	Special For Band 3			64C	GHC-449D		GHC-449D
*T401D	Output Amp. Output Trans.	Special For Band 4			64C	GHD-449D		GHD-449D
T402	See T402A, T402B, T402C, T402D	Coil Turret Assembly	See Drawing 449D					
*T402A	Output Amp. Input Trans.	Special For Band 1			64C	GJA-449D		GJA-449D
*T402B	Output Amp. Input Trans.	Special For Band 2			64C	GJB-449D		GJB-449D
*T402C	Output Amp. Input Trans.	Special For Band 3			64C	GJC-449D		GJC-449D
*T402D	Output Amp. Input Trans.	Special For Band 4			64C	GJD-449D		GJD-449D
T403	See T403A, T403B, T403C, T403D	Coil Turret Assembly	See Drawing 449D					
*T403A	Mixer Stage Input Trans.	Special For Band 1			64C	GKA-449D		GKA-449D
*T403B	Mixer Stage Input Trans.	Special For Band 2			64C	GKB-449D		GKB-449D
*T403C	Mixer Stage Input Trans.	Special For Band 3			64C	GKC-449D		GKC-449D
*T403D	Mixer Stage Input Trans.	Special For Band 4			64C	GKD-449D		GKD-449D
T404	Mixer Stage BFO Input Trans.	75 ohm Line to Grid, twin tuned, 455 KC			05H			278N30
T501	I. F. Amp. Input Trans.	Same as T402						
T502	I. F. Amp. Input Trans.	Same as T402						
T503	I. F. Amp. Interstage Trans.	6SK7 to 6SK7 twin tuned, 455 KC			05H			278N31

TRANSFORMERS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
T504	I. F. Amp. Interstage Trans.	Same as T503						
T505	I. F. Output Trans.	Diode Output Single Tuned, 455 KC			05H			278N32
T506	I. F. Output Trans.	Same as T505						
*T601	Plate Supply Power Trans.	Pri: 105, 110, 115, 120, 125 v, 50/60 cps 69 VA. Sec #1: 770 v, 0.1 amp CT Sec #2: 5 v, 3.0 amp C.T., 92 VA.			55C			672N170
*T602	Plate Supply Power Trans.	Same as T601						
*T603	Filament Power Trans.	Pri: 105, 110, 115, 120, 125 v, 50/60 cps 82 VA. Sec #1 & 2: 6.3 v, 6.5 amp C. T.			55C			672N171
*T701	Audio Amp. Input Trans.	Special, 30 to 10,000 c.p.s. Turns Ratio 1.15:1			20T			677N141A
*T702	Audio Amp. Input Trans.	Same as T701						
*T703	Audio Amp. Output Trans.	Same as T701						
*T704	Audio Amp. Output Trans.	Same as T701						
*T705	Bias Supply Power Trans.	Pri: 105, 110, 115, 120, 125 v, 50/60 c.p.s. Sec #1: 900 v, 0.023 amp C.T. Sec #2: 5. v 3 amp C.T., 36 VA			55C			672N172

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TRANSFORMERS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
*T706	Oscilloscope Filament Trans.	Pri: 105, 110, 115, 120, 125 v, 50/60 cps 12.6 VA. Sec #1: 6.3 v, 1.0 amp C.T. Sec #2: 6.3 v, 1.0 amp C. T.			55C			672N173
*T707	CW Audio Amp Output Trans.	Pri: 10,000 ohm Sec: 40,000 ohm 0.2 w 100-5000 cps			20T			677N102A
T801	Int. Freq. Osc. Coil Assembly	6J5 Beat Freq. Osc. to 150 ohm Load 455 KC			05H			278N33
T802	Int. Freq. Test. Osc. Coil Assy.	Same as T801						
*T803	Mon. Amp. Plate Coupling Trans.	Pri: 15,000 ohm Sec: 500 ohm C.T. 1 w 100-5000 cps			20T			677N143
*T1001	Loudspeaker Matching Trans.	Line to Voice Coil Pri: 500 ohm Sec: 6 ohm 2 w, 200-5000 cps			70J	7L		667S705A
T1401	Loop Coupling Trans.	Special Dual—Secondary			64C	GA-K474D		GA-K474D
T1501	Loop Coupling Trans.	Special Dual—Secondary			64C	GB-K474D		GB-K474D

TUBES

V101	1st R-F Amp. Tube	Variable μ Pentode						6SK7
V102	2nd R-F Amp. Tube	Same as V101						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TUBES (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
V103	1st Detector Tube	Pentode Amplifier						6SJ7
V201	1st R-F Amp. Tube	Same as V101						
V202	2nd R-F Amp. Tube	Same as V101						
V203	1st Detector Tube	Same as V103						
V301	H-F Oscillator Tube	Det.-Amp. Triode						6J5
V302	1st Buffer Amp. Tube	Same as V101						
V303	2nd Buffer Amp. Tube	Same as V101						
V304	3rd Buffer Amp. Tube	Same as V101						
V401	Output Amp. Tube	Same as V101						
V402	Mixer Tube	Pentagrid Converter						6SA7
V403	Input Buf.-Amp. Tube	Same as V101						
V501	1st I. F. Amp. Tube	Same as V101						
V502	1st I. F. Amp. Tube	Same as V101						
V503	2nd I. F. Amp. Tube	Same as V101						
V504	2nd I. F. Amp. Tube	Same as V101						
V505	AVC Amp. Tube	Same as V301						
V506	AVC Amp. Tube	Same as V301						
V507	2nd Detector Tube	Twin Diode						6H6
V508	2nd Detector Tube	Same as V507						
V509	1st Audio Amp. Tube	Same as V301						
V510	1st Audio Amp. Tube	Same as V301						
V601	Plate Supply Power Rect. Tube	Full-Wave High-Vac. Rect.						5U4G
V602	Plate Supply Power Rect. Tube	Same as V601						
V603	Plate Voltage Regulator Tube	150 v, 5-30 ma. regulator						VR-150-30
V701	2nd Audio Amp. Tube	Same as V103						
V702	2nd Audio Amp. Tube	Same as V103						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TUBES (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
V703	Audio Output Amp. Tube	Same as V301						
V704	Audio Output Amp. Tube	Same as V301						
V705	Differential Rect. Tube	Same as V507						
V706	Differential Rect. Tube	Same as V507						
V707	CW Audio Amp. Tube	Same as V301						
V708	Bias Supply Power Rect. Tube	Same as V601						
V709	Bias Voltage Regulator Tube	Same as V603						
V801	Int. Freq. Osc. Tube	Same as V301						
V802	Int. Freq. Test Osc. Tube	Same as V301						
V803	Carrier Strength Meter Amp. Tube	Same as V301						
V804	Carrier Strength Meter Limiter Tube	Same as V507						
V805	Carrier Strength Meter Amp. Tube	Same as V301						
V806	Monitoring Amp. Tube	Same as V301						
V1101	Osc. Amp. Tube	Same as V101						
V1301	Osc. Tube	2" Electrostatic Cathode Ray						902

TUBE SOCKETS

X101	Sock. for Tube V101	Octal Ceramic Wafer Sock.			05N	CIR-8		220N681
X102	Sock. for Tube V102	Same as X101						
X103	Sock. for Tube V103	Same as X101						
X201	Sock. for Tube V201	Same as X101						
X202	Sock. for Tube V202	Same as X101						
X203	Sock. for Tube V203	Same as X101						

PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TUBE SOCKETS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
X301	Sock. for Tube V301	Same as X101						
X302	Sock. for Tube V302	Same as X101						
X303	Sock. for Tube V303	Same as X101						
X304	Sock. for Tube V304	Same as X101						
X401	Sock. for Tube V401	Same as X101						
X402	Sock. for Tube V402	Same as X101						
X403	Sock. for Tube V403	Same as X101						
X501	Sock. for Tube V501	Same as X101						
X502	Sock. for Tube V502	Same as X101						
X503	Sock. for Tube V503	Same as X101						
X504	Sock. for Tube V504	Same as X101						
X505	Sock. for Tube V505	Same as X101						
X506	Sock. for Tube V506	Same as X101						
X507	Sock. for Tube V507	Same as X101						
X508	Sock. for Tube V508	Same as X101						
X509	Sock. for Tube V509	Same as X101						
X510	Sock. for Tube V510	Same as X101						
X601	Sock. for Tube V601	Same as X101						
X602	Sock. for Tube V602	Same as X101						
X603	Sock. for Tube V603	Same as X101						
X701	Sock. for Tube V701	Same as X101						
X702	Sock. for Tube V702	Same as X101						
X703	Sock. for Tube V703	Same as X101						
X704	Sock. for Tube V704	Same as X101						
X705	Sock. for Tube V705	Same as X101						
X706	Sock. for Tube V706	Same as X101						
X707	Sock. for Tube V707	Same as X101						
X708	Sock. for Tube V708	Same as X101						
X709	Sock. for Tube V709	Same as X101						

TUBE SOCKETS (Cont.)

Symbol Designation	Function	Description	Navy Type Designation	Navy Spec. or Dr. Number	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
X801	Sock. for Tube V801	Same as X101						
X802	Sock. for Tube V802	Same as X101						
X803	Sock. for Tube V803	Same as X101						
X804	Sock. for Tube V804	Same as X101						
X805	Sock. for Tube V805	Same as X101						
X806	Sock. for Tube V806	Same as X101						
X1101	Sock. for Tube V1101	Same as X101						
X1301	Sock. for Tube V1301	Same as X101						

* For quantity of spares furnished, see Spare Parts List.

Table VII

SPARE PARTS LIST BY SYMBOL DESIGNATION
FOR NAVY MODEL DAB EQUIPMENT

ELECTRIC MOTORS

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
1		B1301, B1302	Single phase 1/50 h.p. 110 v 60 cps 1725 r.p.m. 6.1 speed reduction		40B	NCI-12R		232N910

CAPACITORS

7		C102, C104, C106, C107, C202, C204, C206, C207, C402, C404, C714, C903, C904, C1201	0.01 mf ±5% 1000 T. V.		75C 02S	4LS HS-10		910N110C
7		C103, C105, C108, C203, C205, C208, C304, C306, C307, C308, C403, C405, C406	Triple Section 0.1 mf 400 W.V.		75C			954NT01Y
5		C109, C110, C209, C210, C309, C407, C408, C907, C908	Triple Section 0.1 mf + 10% —3%		75C	DYRT		954NT01W
1		C303	0.0005 mf ±5% 1000 T. V.		75C	5R		912N350C
1		C305	0.0001 mf ±5% 1000 T. V.		75C	5R		912N310C

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
12		C501, C502, C503, C504, C505, C506, C507, C508, C509, C510, C519, C520, C703, C704, C705, C706, C709, C710, C803, C804, C805, C905, C906	Dual Section 0.1 mf 400 W. V.		75C			954ND01W
3		C511, C512, C517, C518, C521, C522	0.0025 mf ±10% 900 T. V.		75C 02S	1WLS CLS		909N225CN
1		C513, C514	0.0001 mf ±10% 900 T. V.		75C 02S	1WLS CLS		909N310CN
1		C515, C516	0.004 mf ±10% 600 T. V.		75C 02S	1WLS CLS		909N240CN
2		C601, C602, C603, C604	Triple Section 4 mf +10% —3% 600 W. V.		75C	KC-6		956NT7J
1		C701, C702	0.001 mf ±10% 900 T. V.		75C	1WLS		909N210CN
3		C707, C708, C715, C716, C806	4 mf ±10% 600 W. V.		75C	Type TL		930N3
2		C711, C712, C1102,	0.5 mf 600 W. V.		75C	DYRT		956NS08W
1		C713, C1101	2 mf ±10% 600 W. V.		75C	Type TL		930N1
4		C801, C802, C1408, C1508, T301A, T301B, T301C, T301D	0.00005 mf ±5% 1000 T. V.		75C	5R		912N450C
1		C901, C902	0.002 mf ±5% 1000 T. V.		75C 02S	4LS HS-10		910N220C
1		C1301, C1302	6.0 mf ±10% 600 W. V.		75C	Type KG		930N9

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
2		C1403, C1404, C1405, C1503, C1504, C1505, T101A, T101B, T101C, T101D, T102A, T102B, T102C, T102D, T103A, T103B, T103C, T103D, T201A, T201B, T201C, T201D, T202A, T202B, T202C, T202D, T203A, T203B, T203C, T203D, T301A, T301B, T301C, T301D, T302A, T302B, T302C, T302D, T303A, T303B, T303C, T303D, T304A, T304B, T304C, T304D, T401A, T401B, T401C, T401D, T402A, T402B, T402C, T402D, T403A, T403B, T403C, T403D	50 mmf midget variable air dielectric		38R 05H 63G	34 APC-50 MV		922N43
1		C1407, C1507	0.00015 mf ±5% 1000 T. V.		75C	5R		912N315C

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

CAPACITORS (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
1		T101D, T201D	0.00007 mf ±1% 1000 T. V.		75C	1R		912N470D
1		T301A	0.00166 mf ±1% 1000 T. V.		75C	1R		914N2166D
1		T301B	0.0027 mf ±1% 600 T. V.		75C	1R		914N227D
1		T301C	0.0042 ±1% 600 T. V.		75C	1R		914N242D
1		T301D	0.00325 mf ±1% 600 T. V.		75C	1R		914N2325D
3		T301D, T302D, T303D, T304D, T403D	0.003 mf ±2% 600 T. V.		75C	1R		912N230D
2		T302A, T303A, T304A, T403A	0.000825 mf ±1% 1000 T. V.		75C	1R		914N3825D
2		T302B, T303B, T304B, T403B	0.00133 mf ±1% 1000 T. V.		75C	1R		914N2133D
2		T302C, T303C, T304C, T403C	0.0021 mf ±1% 1000 T. V.		75C	1R		914N221D

MISCELLANEOUS ELECTRICAL PARTS

6		E1302, E1303	3/16'' x 1/2'' Metal Graphite Rotor Brush		15P	P-loc-5		234N113
9		E1304, E1305, E1306	1/4'' x 1/4'' Copper Carbon Rotor Brush		40G	K-58980-11AB		234N112
9		E1304, E1305, E1306	Brush Spring					234N404

FUSES

4		F1301, F1302	5 amp 250 v 1-1/4'' x 1/4'' cartridge fuse		78L	3AG		264N409

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

PILOT LAMPS

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
8		I1001, I1002, I1007, I1008	6.3 v 0.15 amp bulb, miniature bayonet base		40G 66R	47 R40A		262N324
4		I1003, I1004	12-16 v .10 amp miniature bayonet base		40G 66R	T-3 1/4		262N326
2		I1005, I1006	1/4 w 65 v a.c., 90 v d.c., single contact bayonet candelabra		40G			262N351
2		I1301	110 v 6 w bulb candelabra base		40G	T-4 1/2		262N333
			CONNECTORS					
1		J903, J904	2 circuit phone jack for plug with 1/4'' barrel		05M			360N119
			RELAYS					
1		K1101	110 v 60 cps a-c Coil DPDT 5 amp contacts		42L	1307		407N6
			INDUCTORS					
2		L601, L602, L603, L604	6 hy 0.15 amp 100 ohm		55C			678N132
			METERS					
1		M1001	0-500 v d.c. 50 Scale Div.		45W	301		458N036TIN
1		M1002	200-0-200 microamps. d.c.		45W			458N112CIN
1		M1003	0-5 milliamperes d-c		45W			458N0713CIN
			PLUGS					
1		P1302, P1303	4 term. conn. plug		91J	P-304-CCT-W. I.		365N804

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
4		R101, R106, R116, R201, R206, R216, R816, R905	240,000 ohm ±5% 1 w		28J	BT1-Navy		729NG240M
5		R102, R107, R202, R207, R306, R310, R314, R402, R409, R412	330 ohm ±5% 1 w		28J	BW1-Navy		708N330N
7		R103, R108, R203, R208, R307, R311, R315, R403, R413, R505, R506, R515, R516, R906	51,000 ohm ±5% 1 w		28J	BT1-Navy		729NG51M
8		R104, R109, R204, R209, R308, R312, R316, R404, R407, R408, R414, R507, R508, R517, R518	30,000 ohm ±5% 1 w		28J	BT1-Navy		729NG30M
9		R105, R110, R115, R205, R210, R215, R303, R401, R406, R411, R741, R807, R814, R815, R817, R819, R824, R826	1000 ohm ±5% 1 w		28J	BT1-Navy		729NG1000
1		R111, R211	2.2 meg ±5% 1 w		28J	BT1-Navy		729NG2.2Meg
1		R112, R212	2200 ohm ±5% 1 w		28J	BT1-Navy		729NG2200
1		R113, R213	22,000 ohm ±5% 1 w		28J	BT1-Navy		729NG22M
1		R114, R214	220,000 ohm ±5% 1 w		28J	BT1-Navy		729NG220M
2		R117, R217, R304, R416	1000 ohm ±5% 2 w		28J	BT2-Navy		729NH1M

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
2		R301, R405, R410	100,000 ohm ±5% 1 w		28J	BT1-Navy		729NG100M
3		R302, R309, R313, R317, R805, R806	5100 ohm ±5% 1 w		28J	BT1-Navy		729NG5100
2		R305, R715, R716, R1103	510,000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE510M
1		R415	5100 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE5100
3		R501, R502, R511, R512, R529, R530	240,000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE240M
3		R503, R504, R513, R514, R802	100 ohm ±10% 1/2 w		28J	BW-1/2 Navy		707N100N
3		R509, R510, R519, R520, R535, R536	1000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE1000
7		R521, R522, R533, R534, R725, R726, R727, R728, R808, R809, R811, R812, R1105	1 Megohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE1Meg
2		R523, R524, R1001	50,000 ohm Potentiometer		28J	CS		380NA50M
4		R525, R526, R531, R532, R729, R730, R731, R732	100,000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE100M
2		R527, R528, R717, R718	20,000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE20M
2		R537, R538, R539, R540	7500 ohm ±5% 1 w		28J	BT1-Navy		729NG7500
1		R601	7500 ohm ±5% 24 w		25P	Navy		733ND7500
1		R701, R704	18,000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE18M
1		R702, R703	1500 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE1500
1		R705, R706	10,000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE10M
1		R707, R708	200,000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE200M

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
2		R709, R710, R1101	2400 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE2400
2		R711, R712, R1102, R1104	2.2 Megohms ±5% 1/2 w		28J	BT-1/2 Navy		729NE2.2Meg
2		R713, R714, R723, R724	510,000 ohm ±5% 1 w		28J	BT1-Navy		729NG510M
1		R719, R720	3000 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE3000
1		R721, R722	51,000 ohm ±5% 2 w		28J	BT2-Navy		729NG51M
1		R733	150,000 ohm ±5% 1 w		28J	BT1-Navy		729NG150M
1		R734, R1002	100,000 ohm Potentiometer		28J	Navy		380NA100M
1		R735	2400 ohm ±5% 2 w		28J	BT2-Navy		729NH2400
3		R736, R737, R738, R739, R740	5100 ohm ±5% 2 w		28J	BT2-Navy		729NH5100
1		R742	20,000 ohm ±5% 1 w		28J	BT1-Navy		729NG20M
1		R801	220 ohm ±10% 1/2 w		28J	BW-1/2		707N220N
1		R803	39 ohm ±10% 1/2 w		28J	BW-1/2		707N39N
1		R804	75 ohm ±10% 1/2 w		28J	BW-1/2		707N75N
1		R810	1 Megohm Potentiometer		28J	Taper A		380NA1Meg
1		R813	270 ohm ±10% 1 w		28J	BW1-Navy		708N270N
1		R818, R902	1000 ohm Potentiometer		28J	W		381NA1M
1		R820	25,000 ohm ±10% 10 w		25P	Brown Devil		710NA25M
1		R821	15,000 ohm ±10% 10 w		25P	Brown Devil		710NA15M
1		R822	4000 ohm ±10% 10 w		25P	Brown Devil		710NA4M
1		R823	5000 ohm Potentiometer		25J	W		381NA5M
2		R825, R1201	1 Megohm ±5% 1 w		28J	BT1-Navy		729NG1Meg
1		R901	500 ohm Metallized Bridged T-Pad		28J	CSMPD		380N201
1		R903	Dual 100,000 ohm Potentiometer		28J			380N203
1		R904	100,000 ohm Potentiometer		28J	CS		380ND100M

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

RESISTORS (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
1		R1003	500,000 ohm Potentiometer		28J			380NC500M
1		R1004	2 Megohm Potentiometer		28J	CS		380NC2Meg
1		R1202	750 ohm ±5% 1 w		28J	BT1-Navy		729NG750
3		T302D, T303D, T304A, T304B, T304C, T304D	330 ohm ±5% 1/2 w		28J	BT-1/2 Navy		729NE330

SWITCHES

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
2		S801, S902, S904, S1305	SPST 35 amp Lever Toggle		96C	8801K3		266N104
1		S802	2 pole, 4 pos., 1 sect non-shorting		64C	GA-1196A		GA-1196A
1		S901	4 pos. 2 cir. 1 sect. shorting		25C			259N134
1		S903	Special 1 pole, 4 position		64C	GA-1195A		GA-1195A
1		S905	4 circuit 4 pos 2 sect. non-shorting		25C			259N132
1		S1001	2 pole 4 pos 1 sect non-shtg.		25C			259N25
1		S1002	2 pole 2 pos 1 sect non-shtg.		25C			259N103A
1		S1301	Single circuit 4 pos. 4 pole		05P			269N21
1		S1302, S1303	2 N. C. contacts leaf spring assembly		85G			269N31
1		S1304	DPST 5 amp 115 v toggle		96C	8822		266N106
10		S1401, S1402, S1501, S1502	Contact Spring		64C	GA-1198A		GA-1198A
2		S1401, S1402, S1501, S1502	Contact spring		64C	GA-1200A		GA-1200A
8		S1403, S1503	Contact spring		64C	GA-1207A		GA-1207A
12		S1401, S1402, S1501, S1502	Contact spring		64C	GA-1209A		GA-1209A
10		S1403, S1503	Contact spring		64C	GA-1204A		GA-1204A

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

TRANSFORMERS

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
1		T601, T602	Pri: 105, 110, 115, 120, 125 v, 50/60 cps 69 VA. Sec #1: 770 v, 0.1 amp CT Sec #2: 5 v, 3.0 amp C. T., 92 VA.		55C	CD		672N170
1		T603	Pri: 105, 110, 115, 120, 125 v, 50/60 cps 82 VA. Sec #1 & 2: 6.3 v, 6.5 amp C. T.		55C			672N171
2		T701, T702, T703, T704	Special, 30 to 10,000 cps Turns Ratio 1.15:1		20T			677N141A
1		T705	Pri: 105, 110, 115, 120, 125 v, 50/60 cps Sec #1: 900 v, 0.023 amp C. T. Sec #2: 5 v, 3 amp C.T., 36 VA.		55C			672N172
1		T706	Pri: 105, 110, 115, 120, 125 v, 50/60 cps 12.6 VA. Sec #1: 6.3 v, 1.0 amp C. T. Sec #2: 6.3 v, 1.0 amp C. T.		55C			672N173
1		T707	Pri: 10,000 ohm Sec: 40,000 ohm 0.2 w 100-5000 cps		20T			677N102A
1		T803	Pri: 15,000 ohm Sec: 500 ohm C. T. 1 w 100-5000 cps		20T			677N143
1		T1001	Line to Voice Coil Pri: 500 ohm Sec: 6 ohm 2 w, 200-5000 cps		70J	7L		677S705A

MISCELLANEOUS HARDWARE

15			6-32 Ph. B. H. Screw 3/8 L.					343N6EUTP
15			6-32 Ph. B. H. Screw 5/16 L.					343N5EUTP
15			6-32 Ph. B. H. Screw 1/2 L.					343N8EUTP

SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY MODEL DAB EQUIPMENT

MISCELLANEOUS HARDWARE (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Designation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
15			4-40 Ph. B. H. Screw 5/16 L.					343N5CXTP
15			8-32 Ph. B. H. Screw 3/8 L.					343N6FUTP
5			10-24 Ph. B. H. Screw 3/8 L.					343N6GRTP
5			10-24 Ph. B. H. Screw 1/2 L.					343N8GRTP
5			10-24 Ph. B. H. Screw 1-3/4 L.					343N28GRTP
15			4-36 Fil. H. Screw 3/8 L.					321N6CVBC
15			4-36 B. H. Screw 3/8 L.					323N6CVBC
15			6-32 Bristo Set Screw 1/8 L.					335N2EUSC
5			8-32 Bristo Set Screw 3/16 L.					335N3FUSC
5			8-32 Bristo Set Screw 1/4 L.					335N4FUSC
5			10-32 Bristo Set Screw 1/4 L.					335N4GUSC
15			6-32 Stainless Steel Nut					313N10EUTP3.5
5			8-32 Stainless Steel Nut					313N11FUTP4
5			10-24 Stainless Steel Nut					313N12GRTP4
30			#6 S S Ext. Shakeproof					373N802
15			#8 S S Ext. Shakeproof					373N803
15			#10 S S Ext. Shakeproof					373N804
15			#4 Ph. B. Ext. Shakeproof					373N701
15			#6 Internal Shakeproof					373N104
15			#4 Split Lock Washer					310NLS4
15			1/4 Split Lock Washer					310NLS16
5			10-32 Ph. B. H. Screw 3/8 L					343N6GUTP

MISCELLANEOUS REPLACEABLE PARTS

1			Commutator Assembly, Unit G		64C	347E-2		347E-2
1			Commutator Flexible Coupler		64C	GA-1205A		GA-1205A
35			Turret Coil Contact Spring		64C	GA-1202A		GA-1202A
1			Top Mian Bearing Grease Retainer		54A			302N27

MISCELLANEOUS REPLACEABLE PARTS (Cont.)

Quan.	Navy Type Number	All Symbol Designations Involved	Description	Navy Dr. and/or Spec.	Mfr. Code	Mfr's. Desig-nation	Spcl. Tol. or Mod.	Contractor's Drawing or Part Number
1			Bottom Main Bearing Grease Retainer					302N36
2			⅝ 10 Bristo Wrench					24N971
2			⅝ 8 Bristo Wrench					24N972
2			⅝ 6 Bristo Wrench					24N973
1			Leather Pulley Belt					233N104
15			Ring Spring for Split Couplers between Units A, B, C, & D					340N708
7			Coupler Shaft End Loading Spring for Couplers between Units A, B, C, & D.					340N107

APPENDIX

Table VIII

LIST OF MANUFACTURERS

84A Arrow-Hart & Hegeman Co.
103 Hawthorne St.
Hartford, Conn.

40B Bodine Electric Company
2272 West Ohio Street
Chicago, Illinois

90B Bryant Electric Company
Barnum Station
Bridgeport, Conn.

25C Centralab, Inc.
900 East Keefe
Milwaukee, Wisconsin

55C Chicago Transformer Corp.
3501 West Addison
Chicago, Illinois

75C Cornell-Dubilier Elec. Corp.
1000 Hamilton Blvd.
South Plainfield, New Jersey

96C Cutler-Hammer
1333 West St. Paul Ave.
Milwaukee, Wisconsin

60D Drake Mfg. Company
1713 West Hubbard St.
Chicago, Illinois

40G General Electric Company
Schenectady, New York

63G General Instrument Company
829 Newark Avenue
Elizabeth, New Jersey

85G Guardian Elec. Mfg. Co.
1620-27 W. Walnut Street
Chicago, Illinois

05H Hammarlund Mfg. Company
424 W. 33rd St.
New York, New York

28J International Resistance Co.
1100 Terminal Commerce Bldg.
Philadelphia, Penn.

70J Jensen Radio Mfg. Co.
6601 S. Laramie Avenue
Chicago, Illinois

91J Howard B. Jones
2300 West Wabansia Ave.
Chicago, Illinois

42L Leach Relay Co.
5915 Avalon St.
Los Angeles, California

78L Littelfuse Laboratories
4765 Ravenswood Ave.
Chicago, Illinois

05M P. R. Mallory & Company
1941 Thomas Street
Indianapolis, Indiana

41M Micarta Fabrication, Inc.
4619 E. Ravenswood Ave.
Chicago, Illinois

83M The Monowatt Electric Corp.
66 Bissell
Providence, Rhode Island

05N National Company, Inc.
Malden, Mass.

05P Oak Mfg. Company
1260 Clybourne Ave.
Chicago, Illinois

15P Ohio Carbon Company
12508 Berea Road
Cleveland, Ohio

25P Ohmite Mfg. Company
4837 Flournoy Street
Chicago, Illinois

38R Radio Condenser Co.
Camden, New Jersey

66R Raytheon Production Corp.
Newton, Mass.

02S Sangamo Electric Co.
1935 Funk Street
Springfield, Illinois

20T Thordarson Electric Mfg. Co.
Huron & Kingsbury Sts.
Chicago, Illinois

45W Weston Electrical Inst. Corp.
619 Frelinghuysen Ave.
Newark, New Jersey

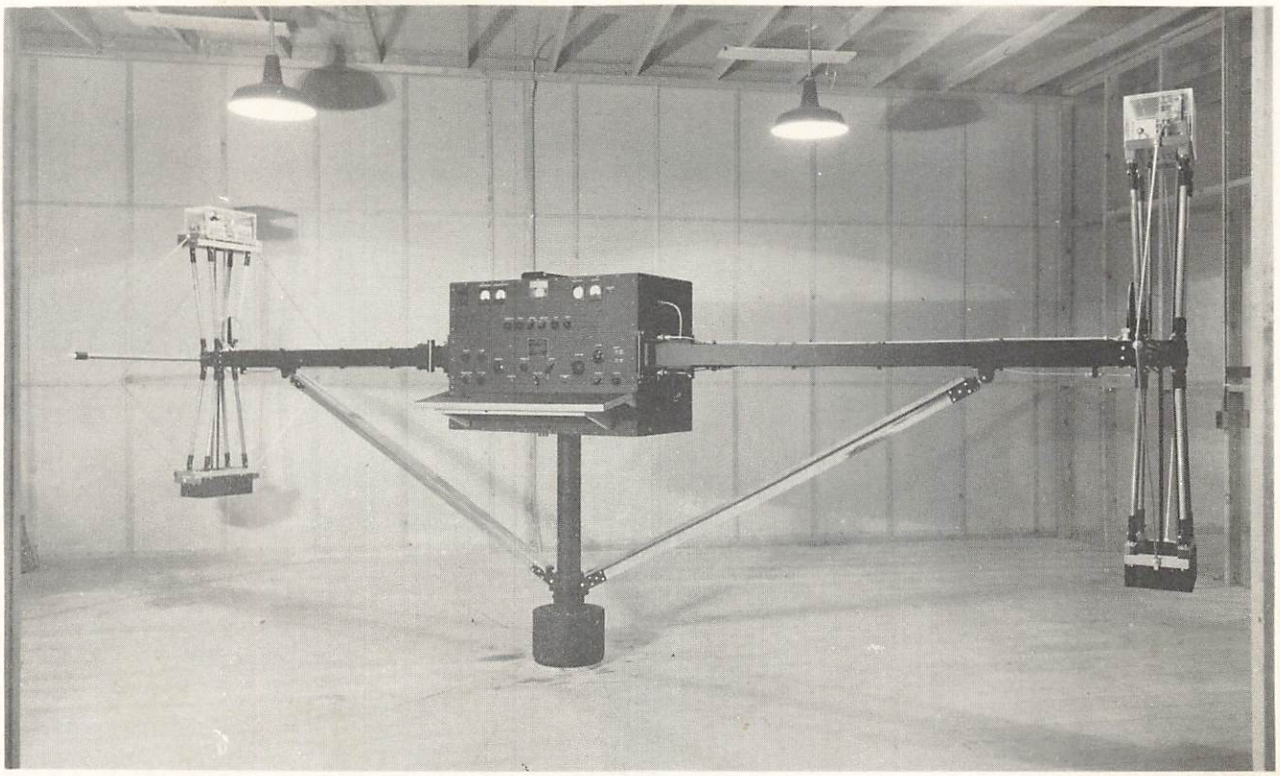


FIG. 1 MODEL DAB RADIO DIRECTION FINDING EQUIPMENT
FRONT VIEW

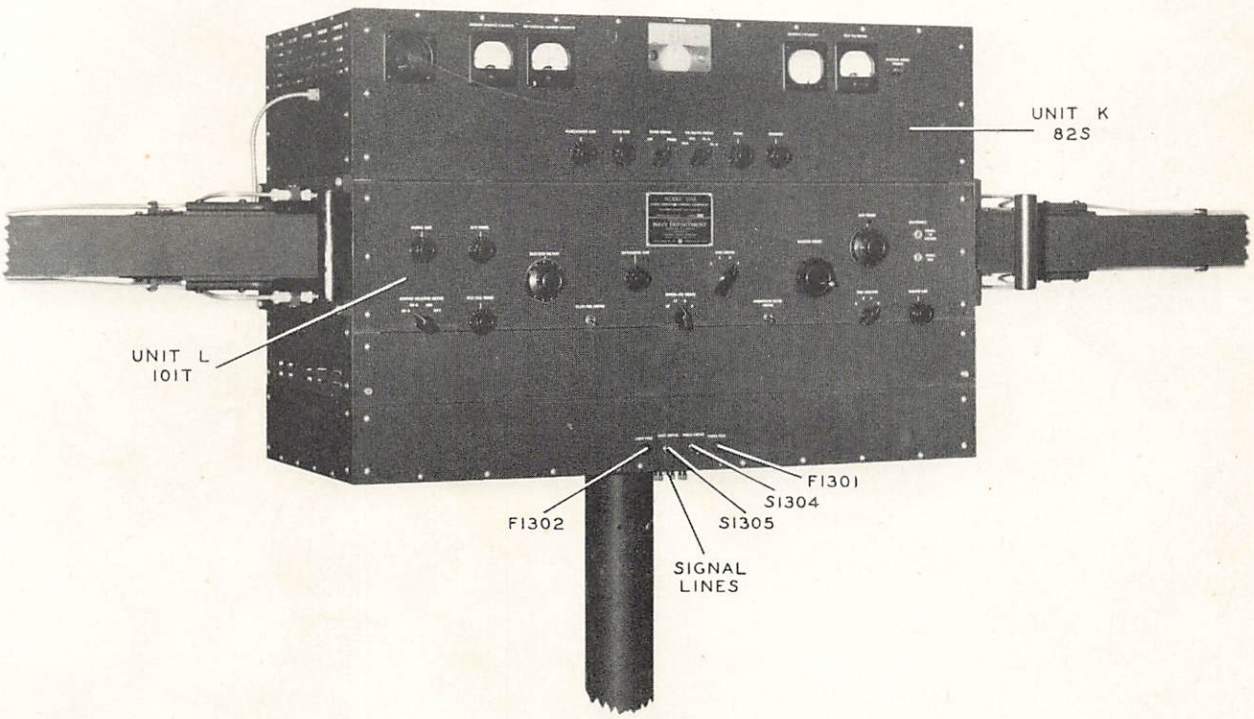


FIG 2 MAIN CABINET
FRONT VIEW

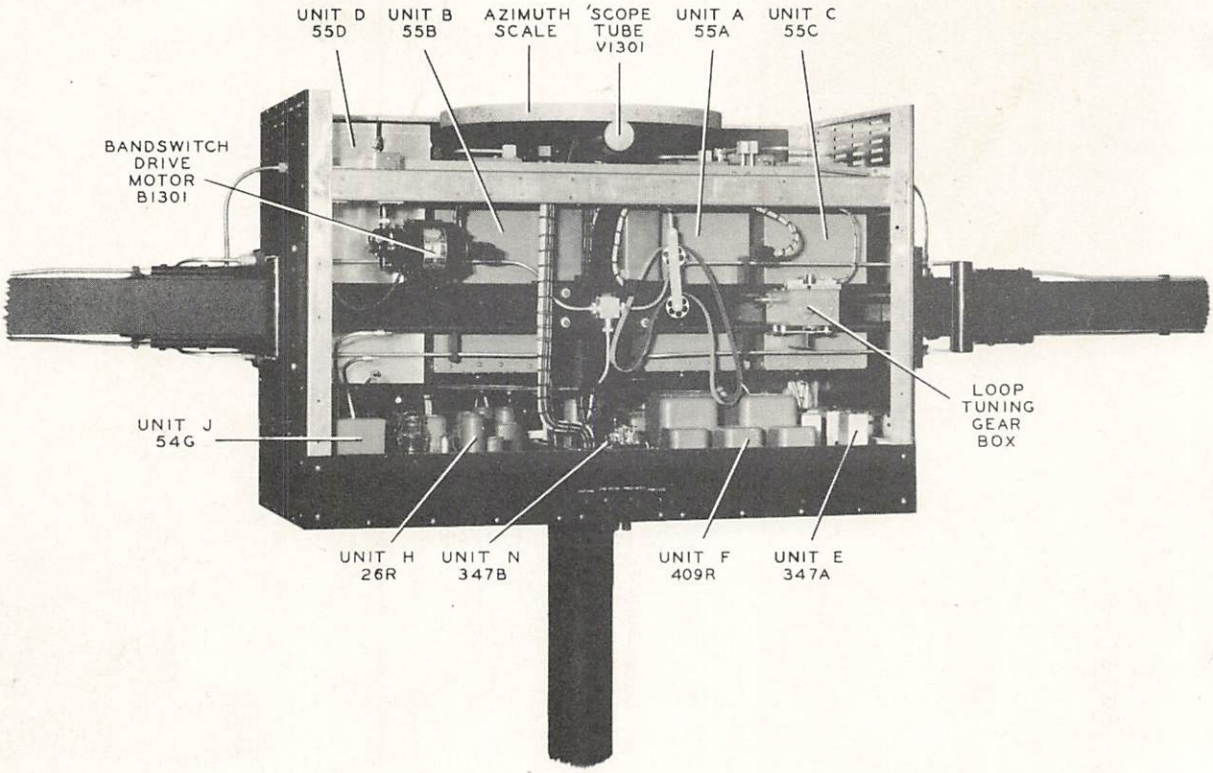


FIG 3 MAIN CABINET
FRONT PANELS REMOVED

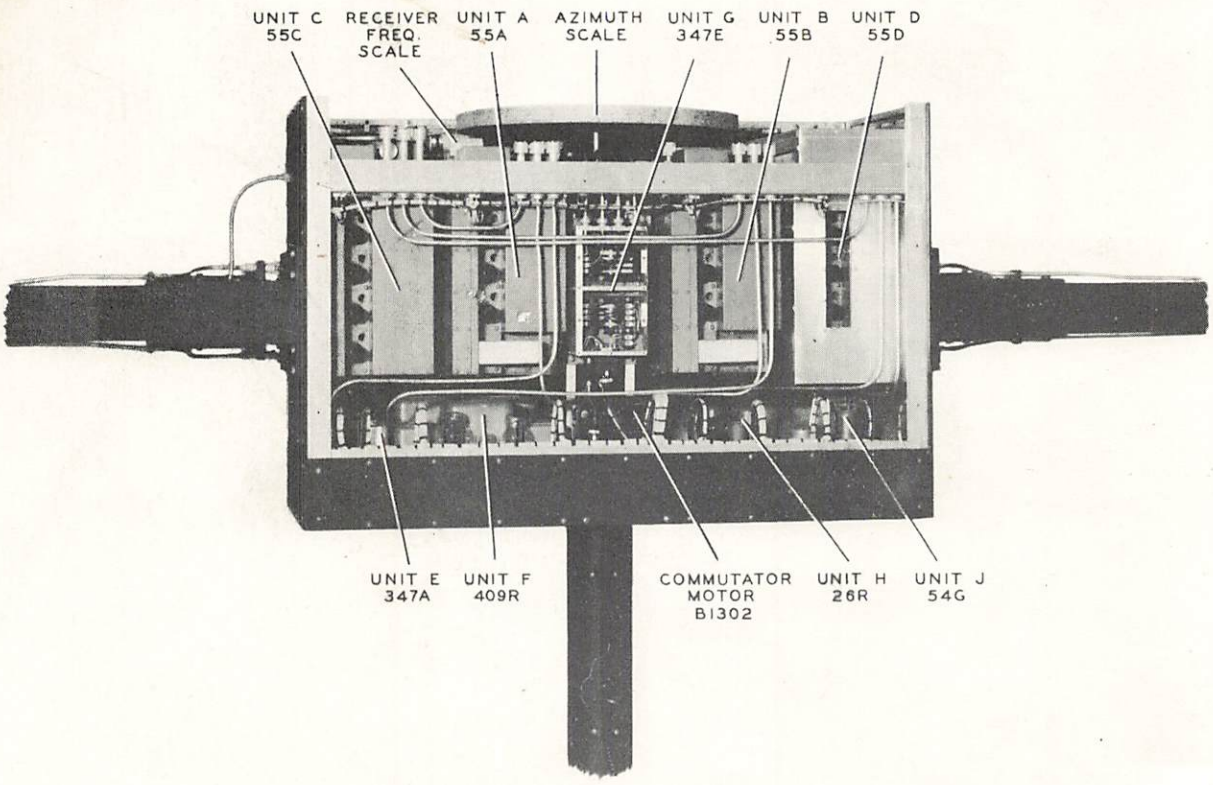


FIG. 4 MAIN CABINET
REAR PANELS REMOVED

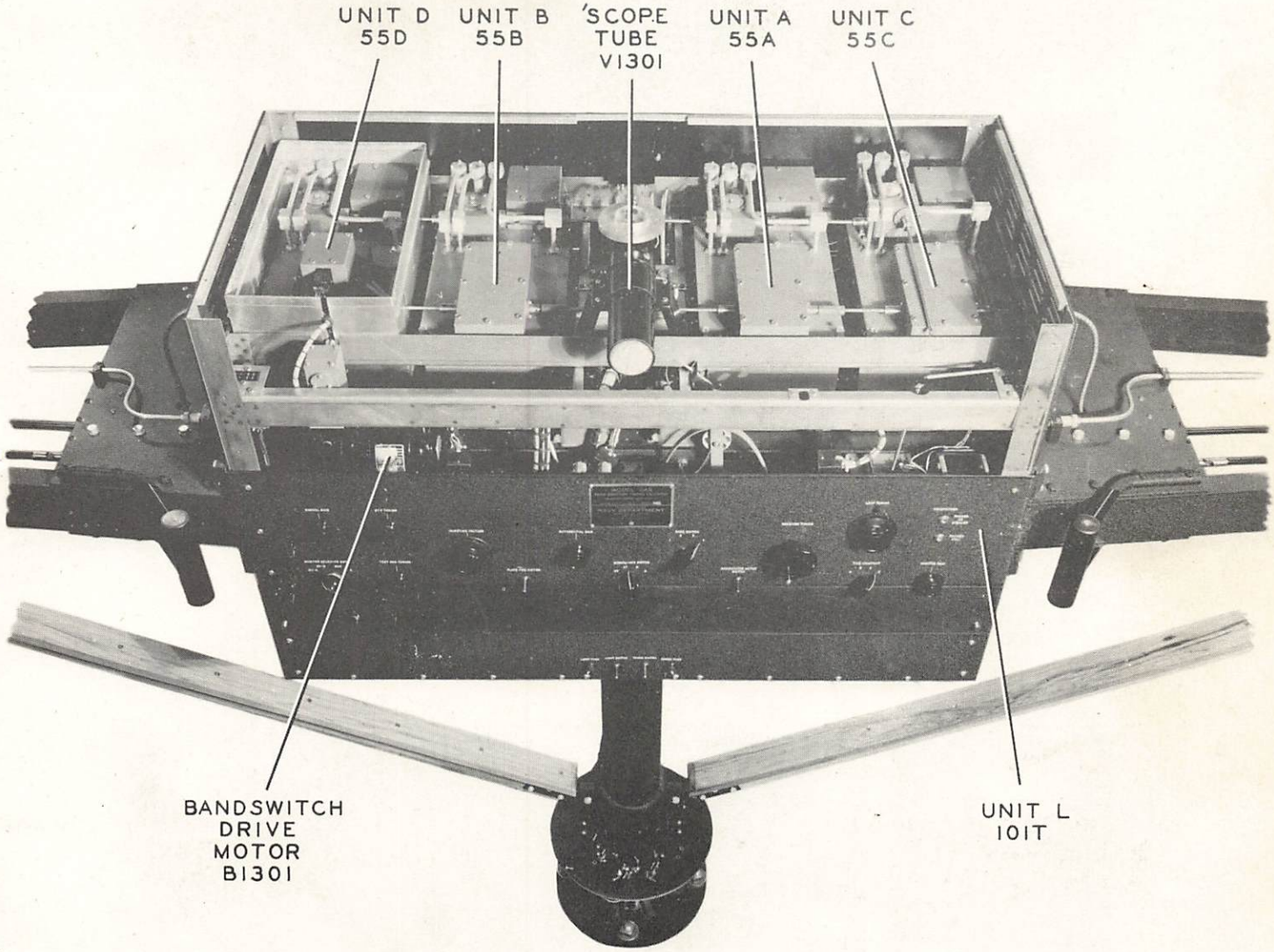


FIG. 5 MAIN CABINET
TOP COVER REMOVED

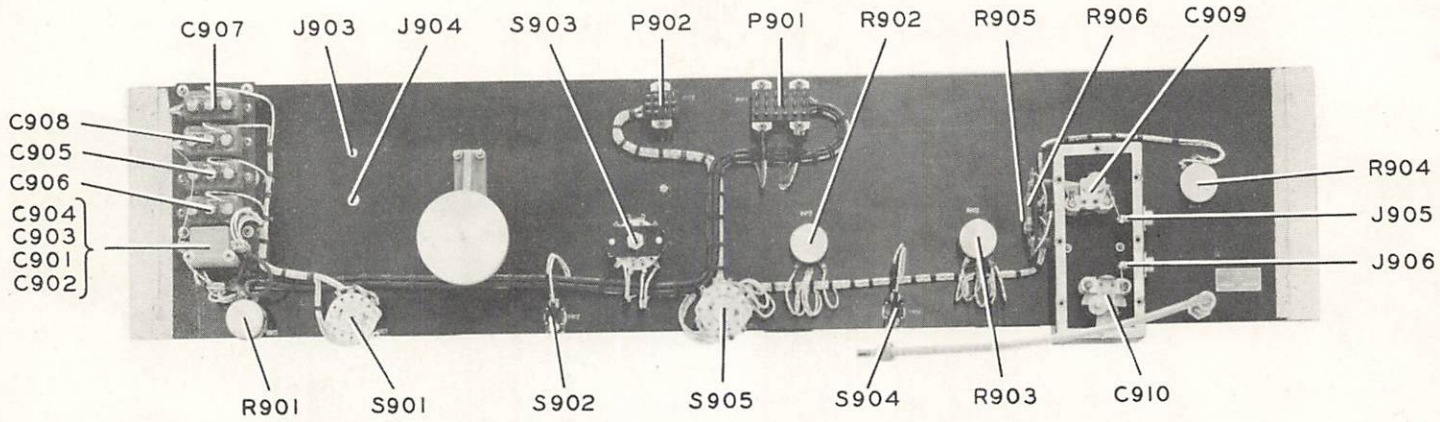


FIG. 6 101T CONTROL PANEL
REAR VIEW

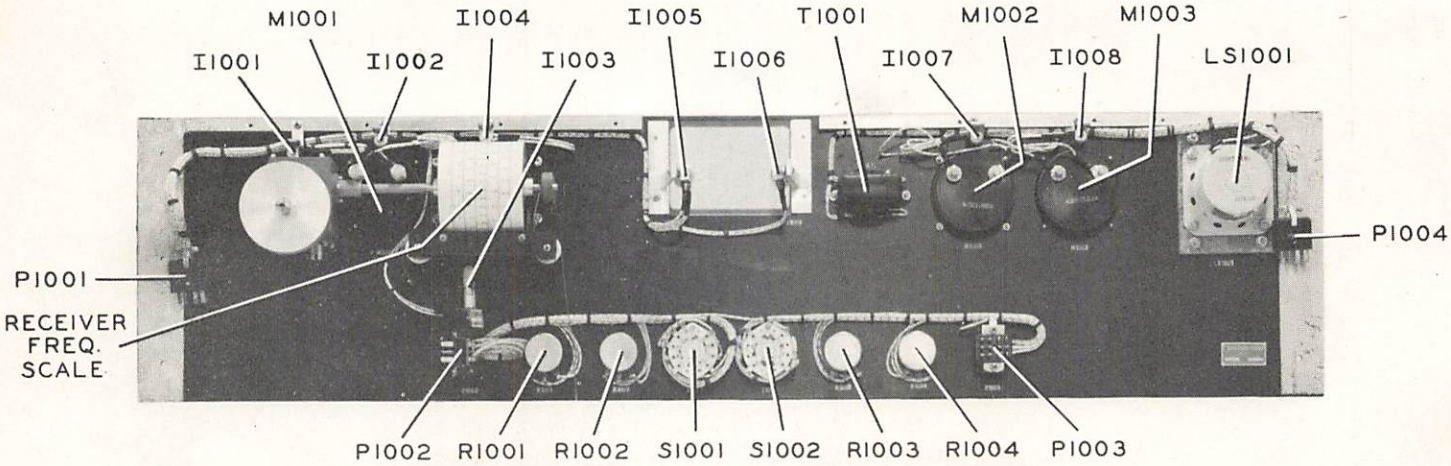


FIG. 7 82S METER PANEL
REAR VIEW

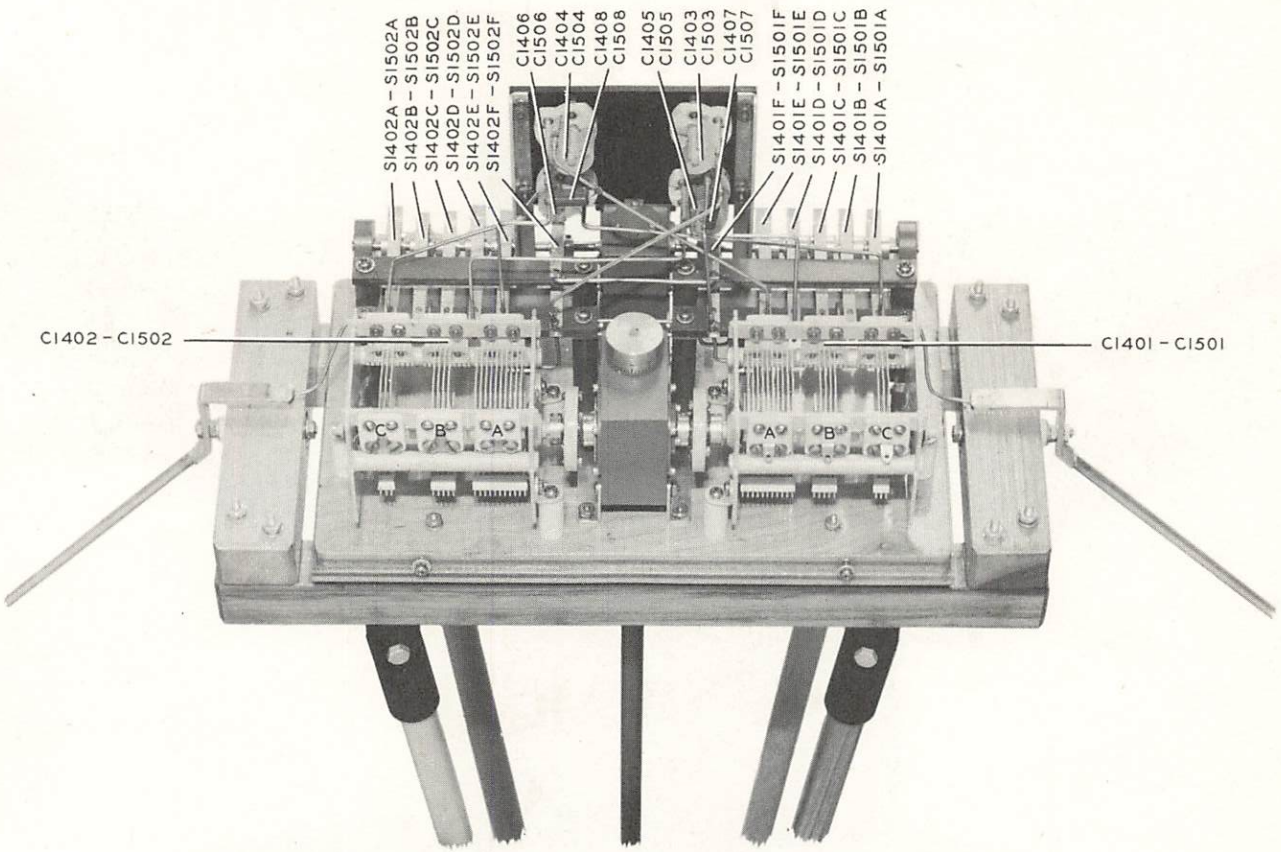


FIG. 8 348E RIGHT & LEFT LOOPS
UPPER ASSEMBLY - TOP VIEW

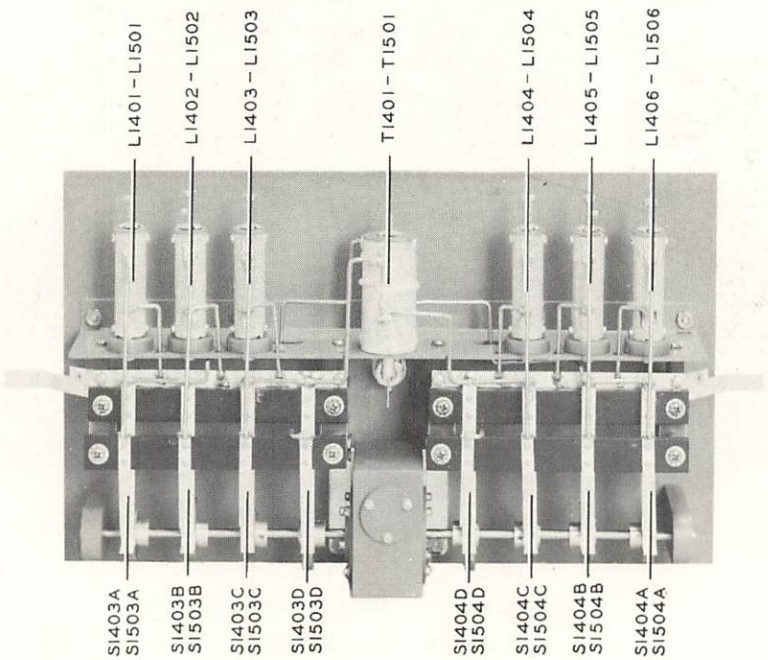


FIG. 9 348E RIGHT & LEFT LOOPS
LOWER ASSEMBLY - BOTTOM VIEW

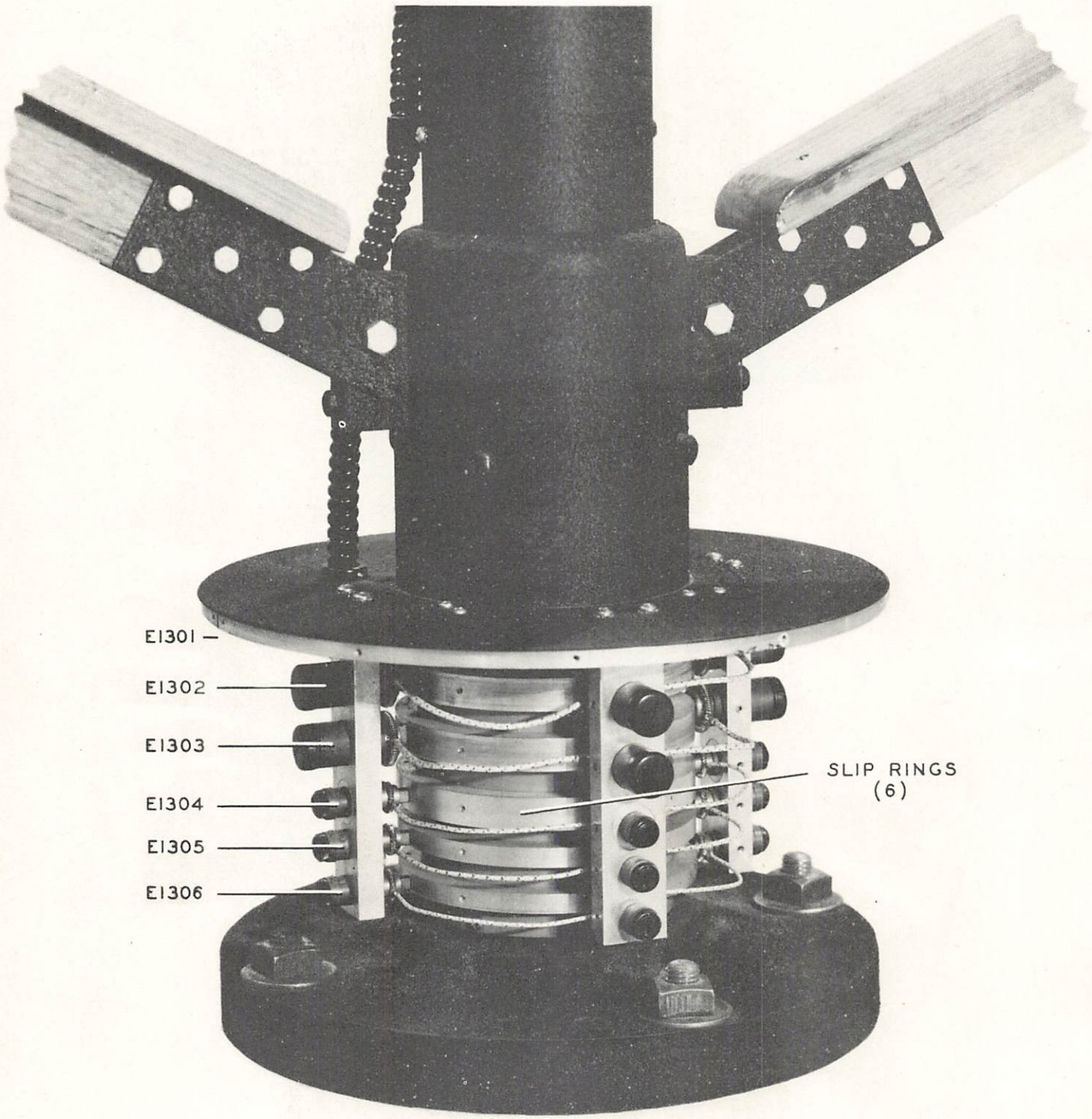


FIG. 10 SLIP RING ASSEMBLY
COVER REMOVED

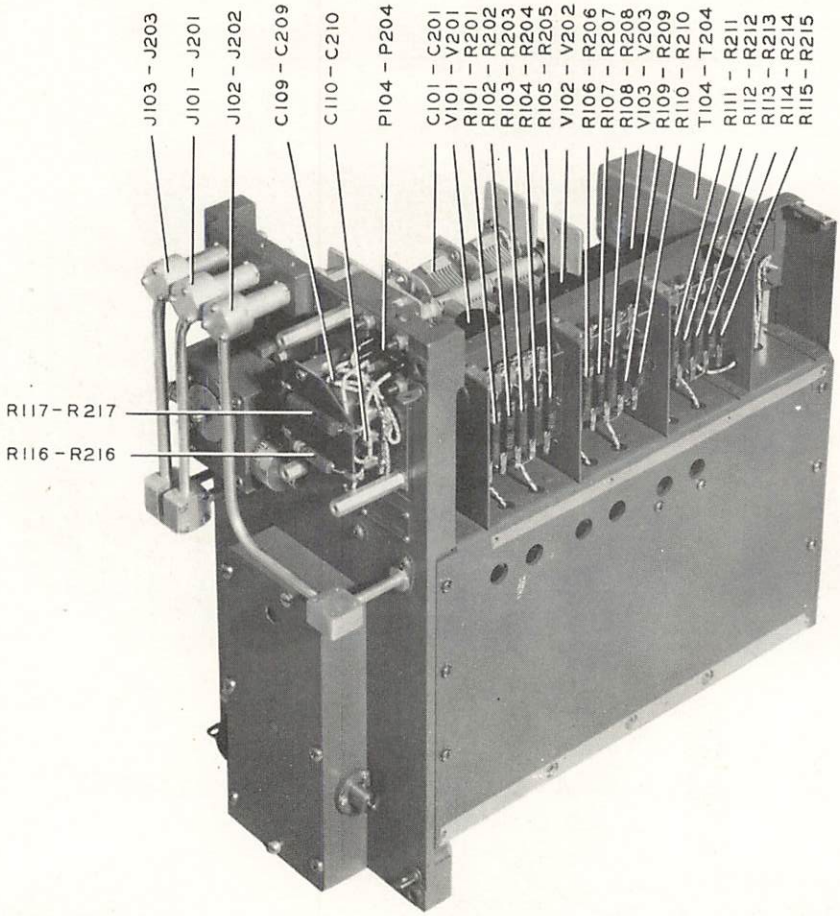


FIG. 11 55A & 55B R-F TUNER UNITS
COVER PLATES REMOVED

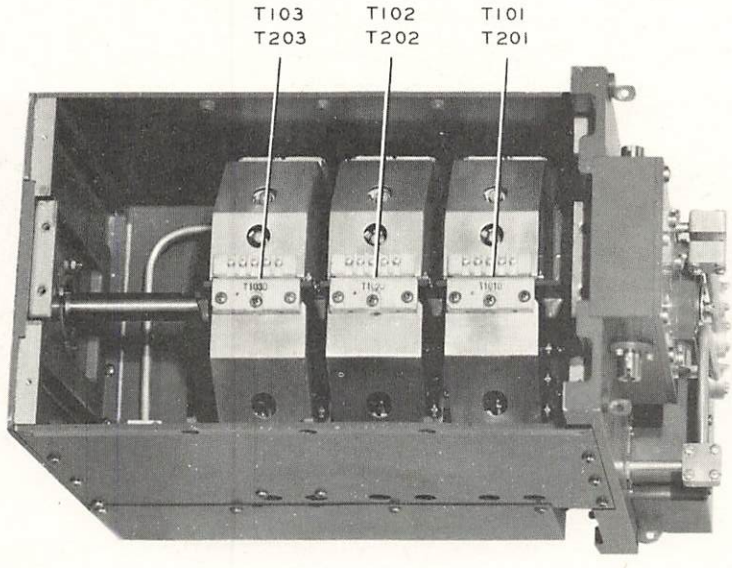


FIG. 12 55A & 55B R-F TUNER UNITS
COIL TURRET EXPOSED

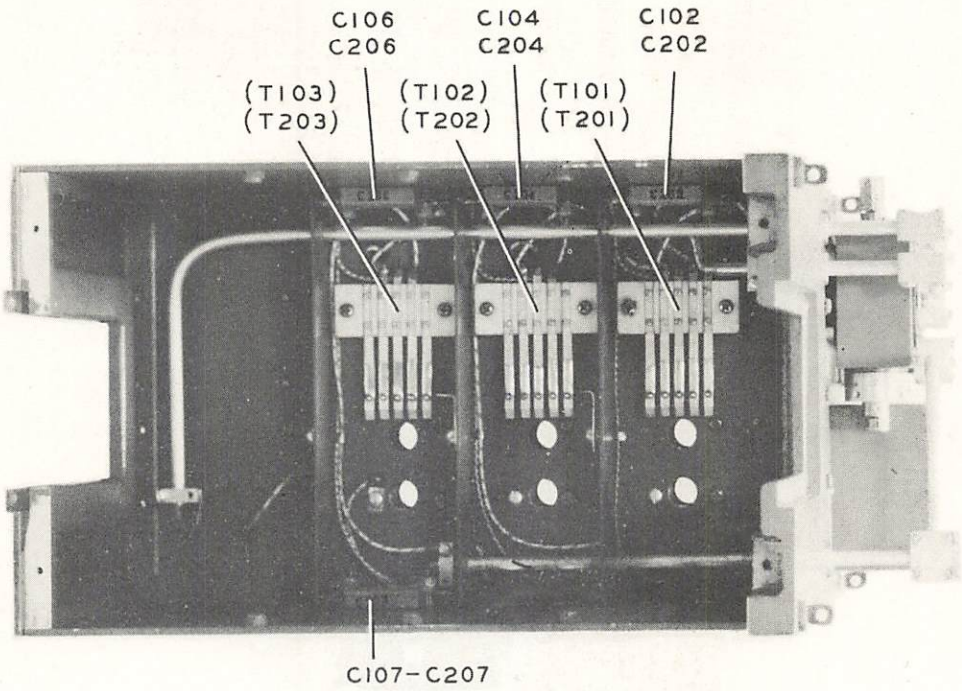


FIG. 13 55A & 55B R-F TUNER UNITS
COIL TURRET REMOVED

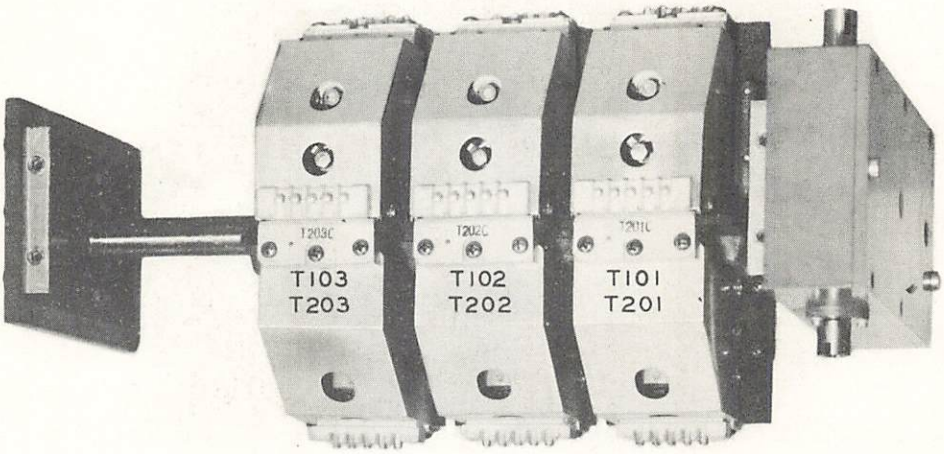


FIG. 14 COIL TURRET FOR 55A & 55B UNITS

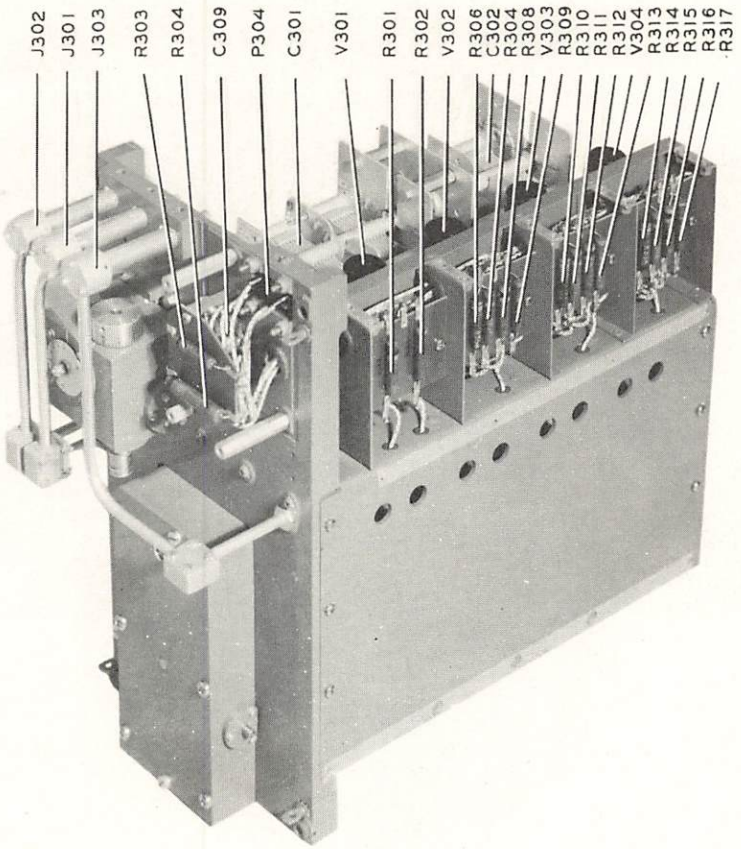


FIG. 15 55C OSCILLATOR UNIT
COVER PLATES REMOVED

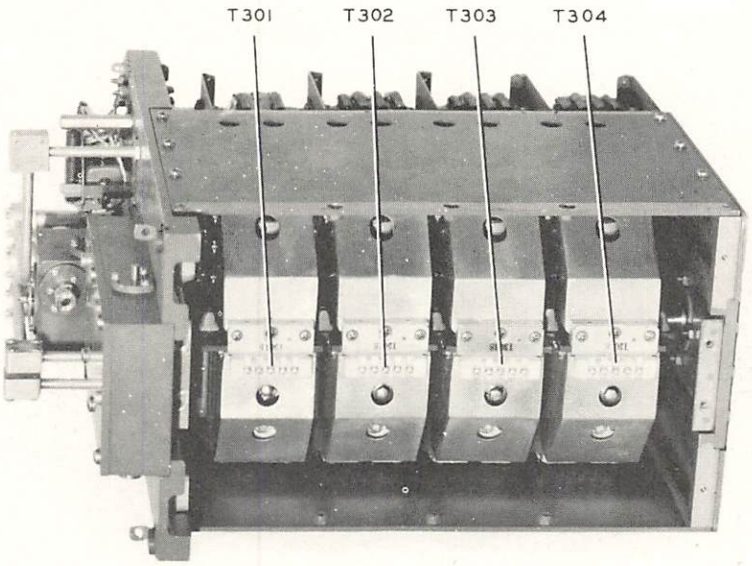


FIG. 16 55C OSCILLATOR UNIT
COIL TURRET EXPOSED

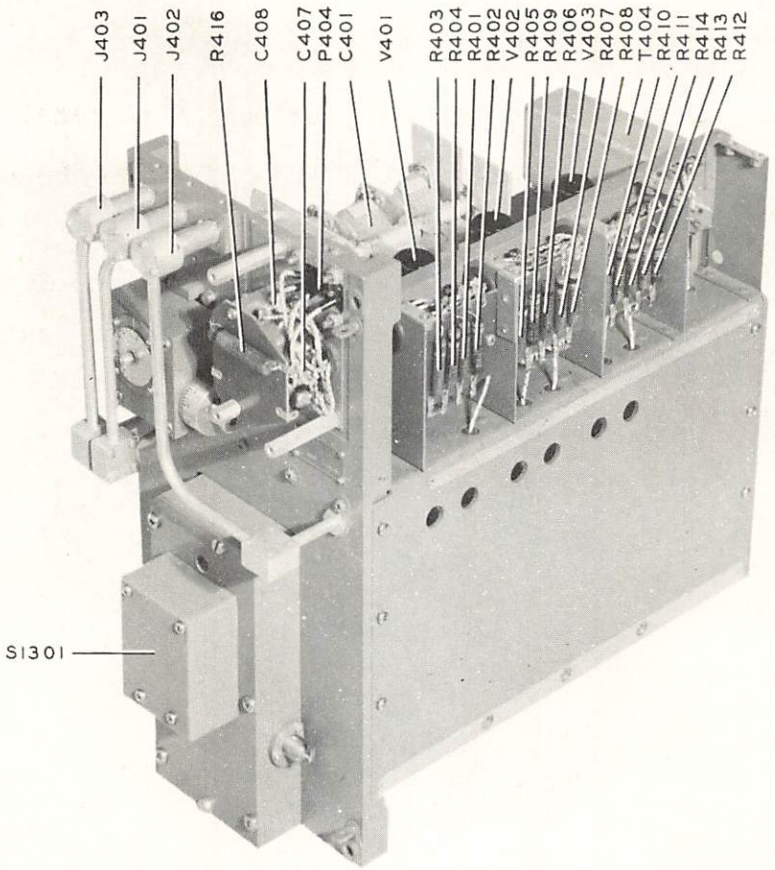


FIG. 17 55D MIXER UNIT
COVER PLATES REMOVED

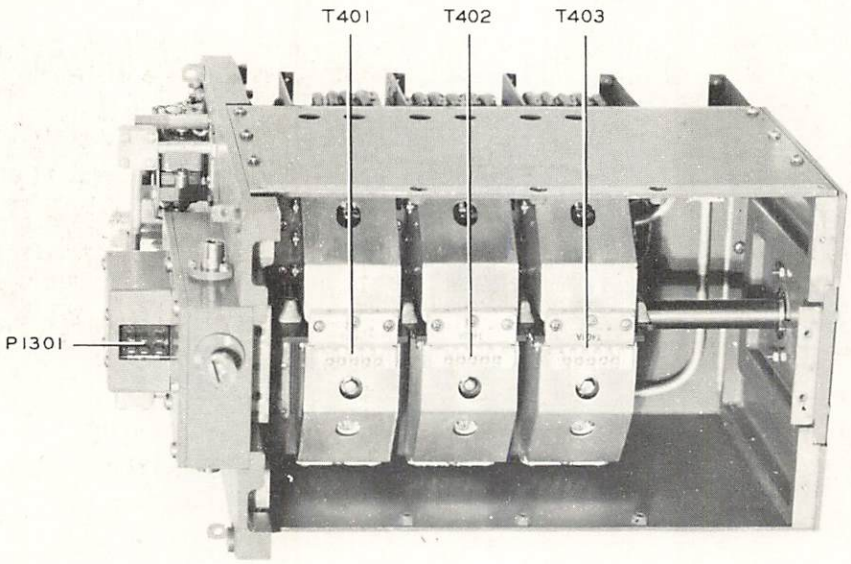


FIG. 18 55D MIXER UNIT
COIL TURRET EXPOSED

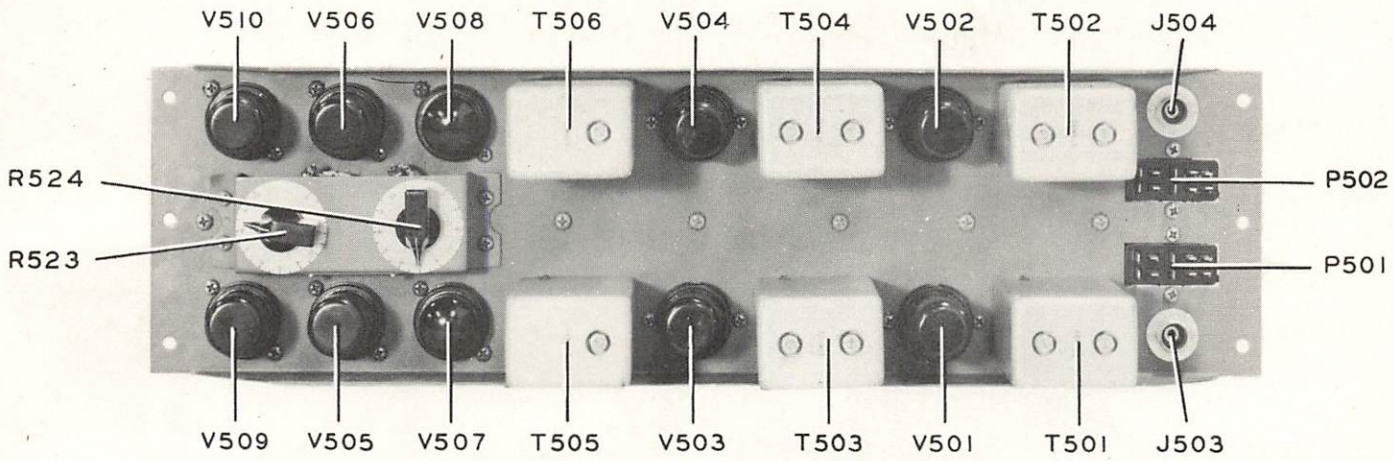


FIG. 19 347A I-F AMPLIFIER
TOP VIEW

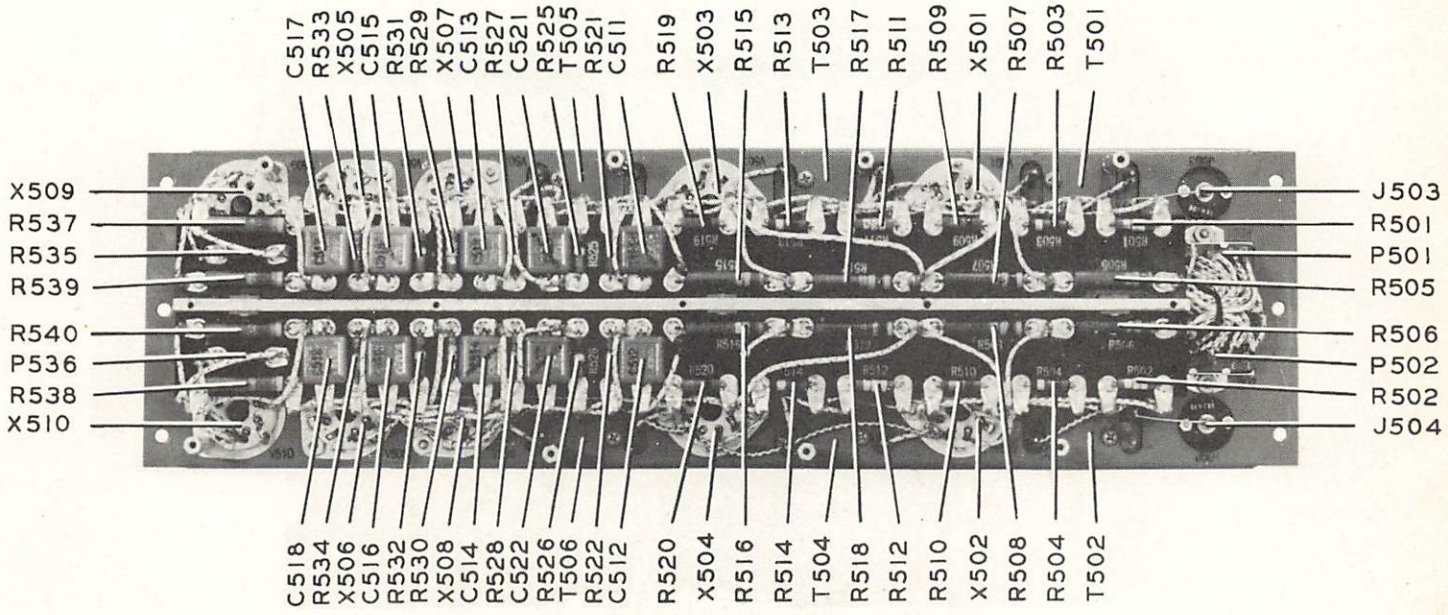


FIG. 20 347A I-F AMPLIFIER
BOTTOM VIEW

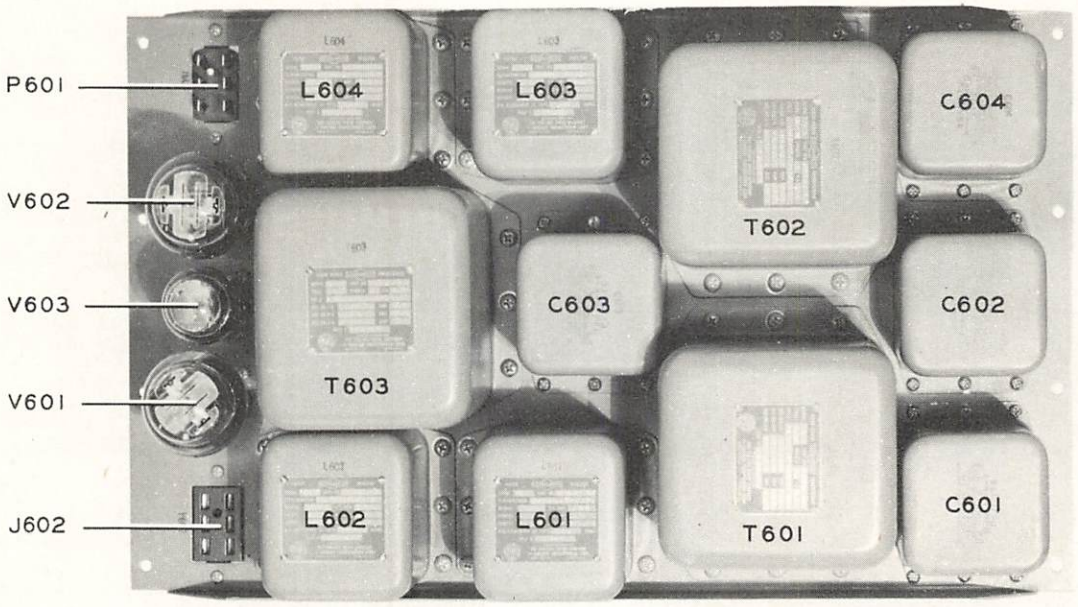


FIG. 21 409R POWER SUPPLY
TOP VIEW

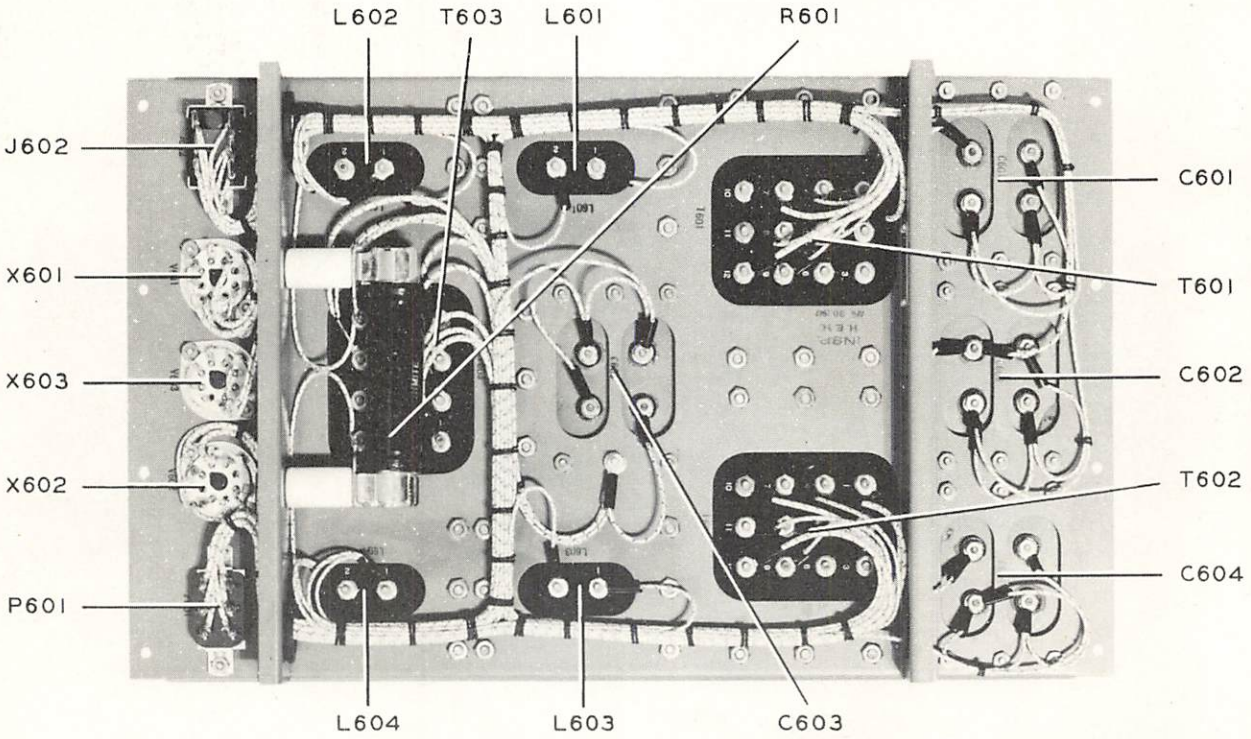


FIG. 22 409R POWER SUPPLY
BOTTOM VIEW

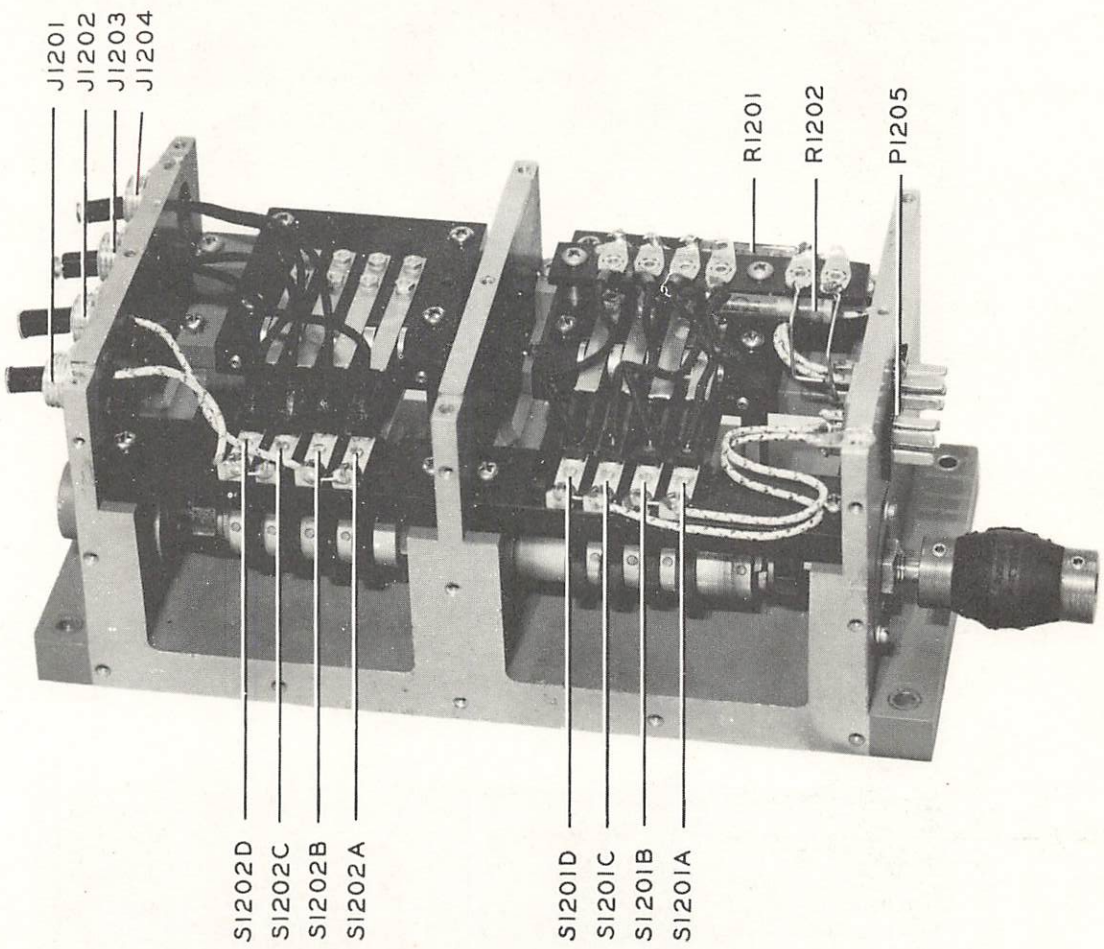


FIG. 23 347E COMMUTATOR UNIT
COVER PLATE REMOVED

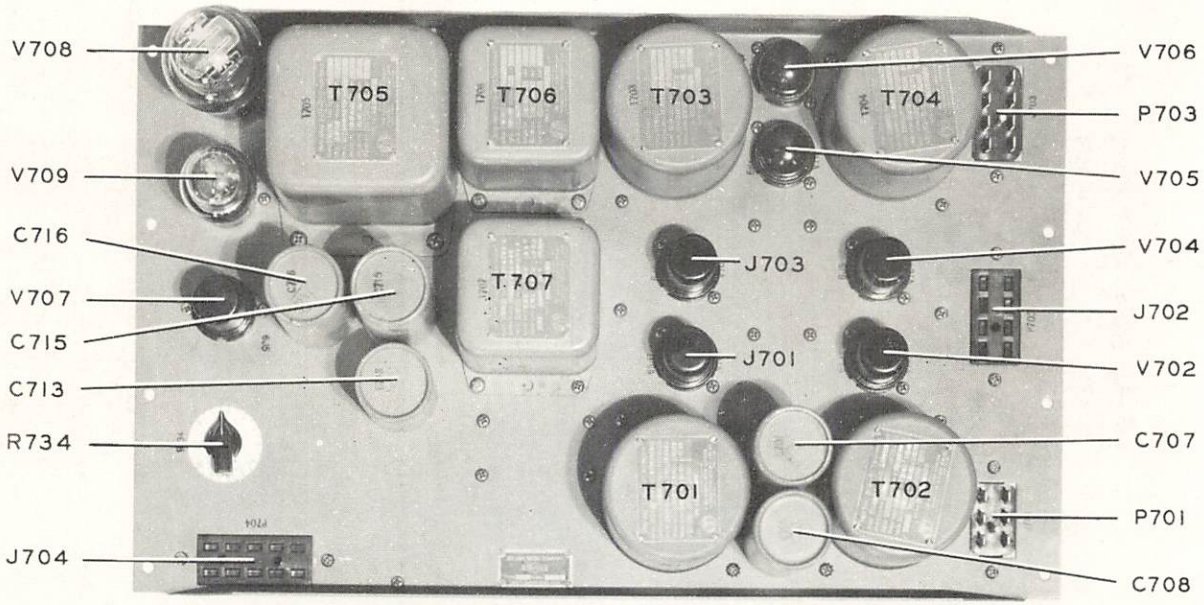


FIG. 24 26R AUDIO AMPLIFIER
TOP VIEW

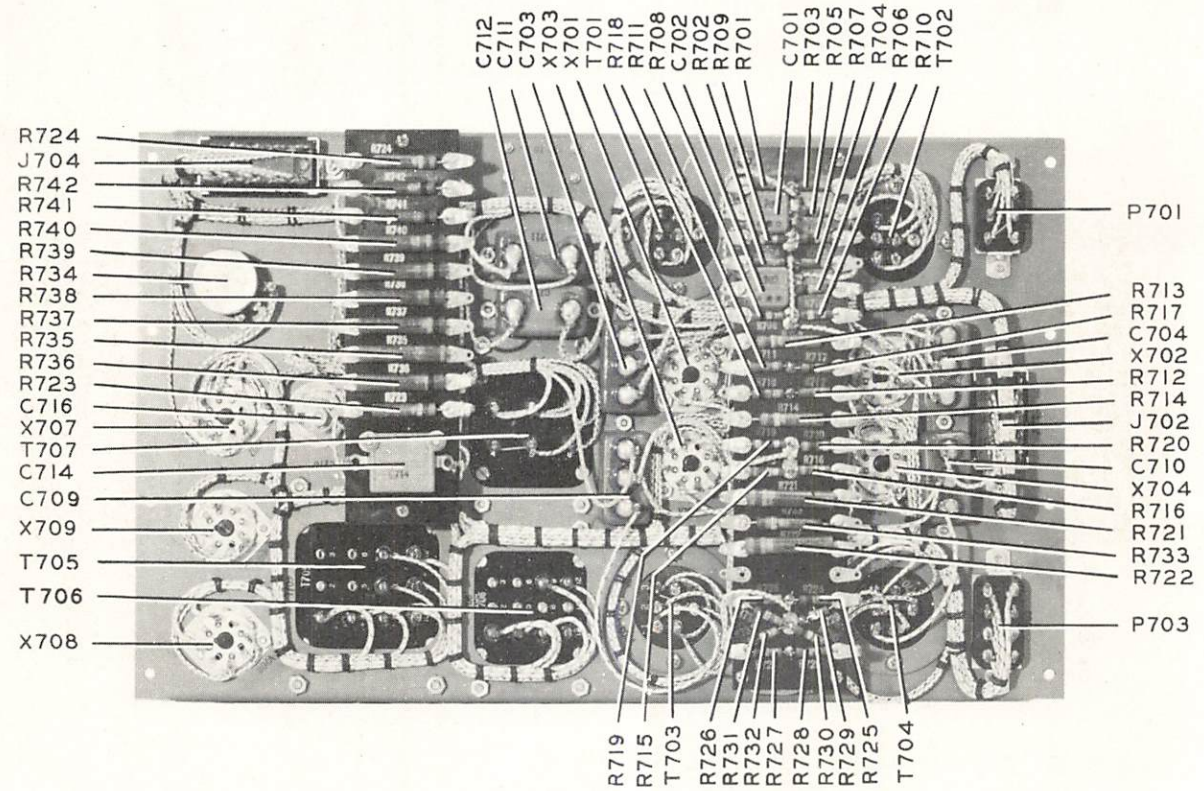


FIG. 25 26R AUDIO AMPLIFIER
BOTTOM VIEW

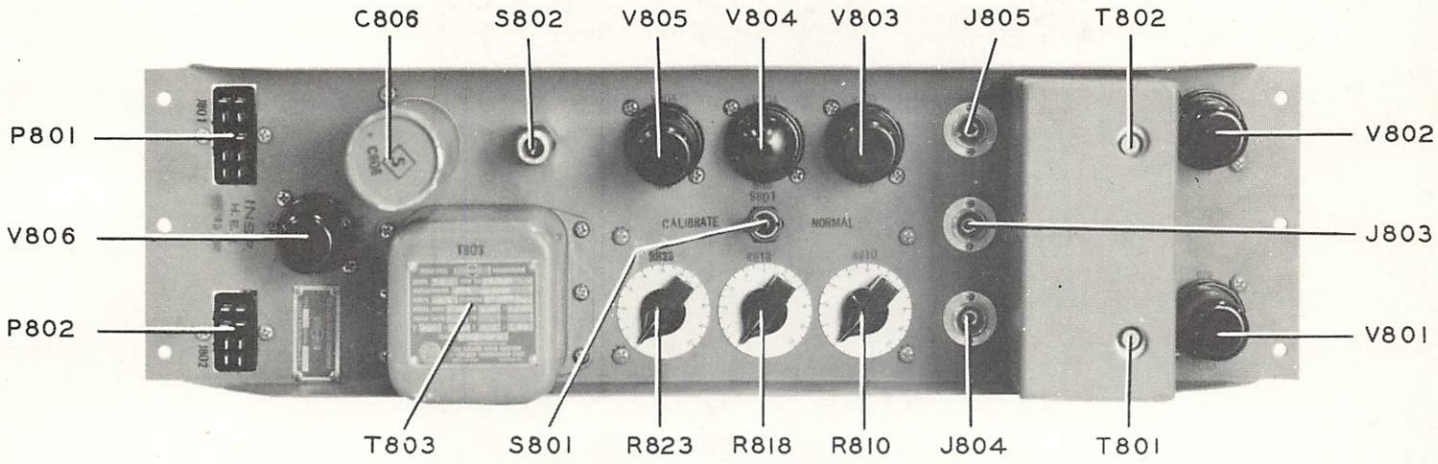


FIG. 26 54G MONITOR UNIT
TOP VIEW

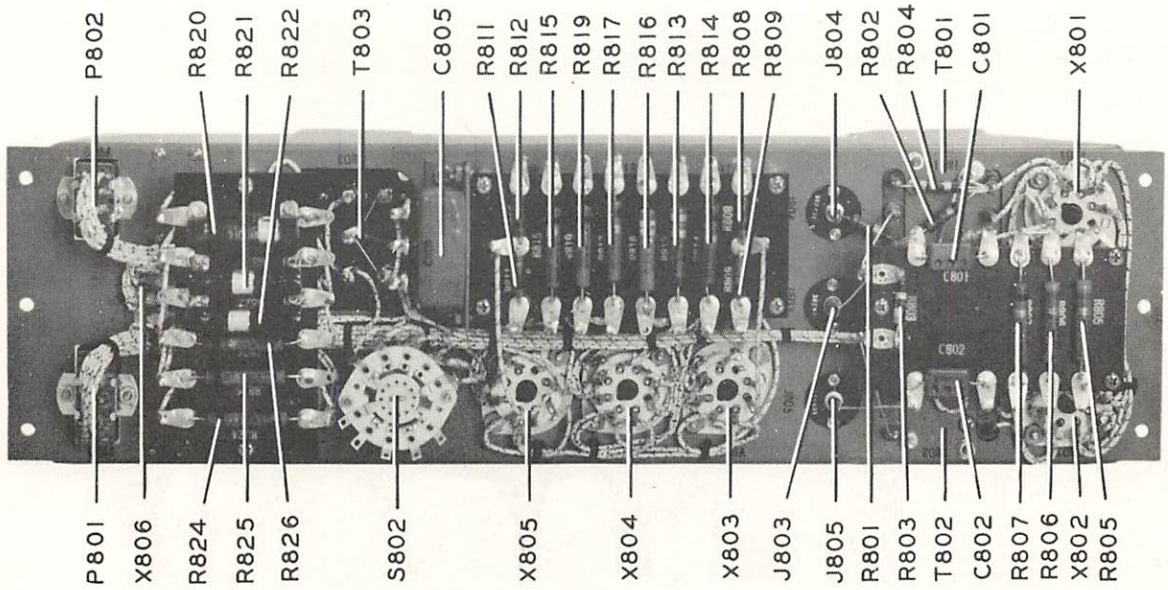


FIG. 27 54G MONITOR UNIT
BOTTOM VIEW

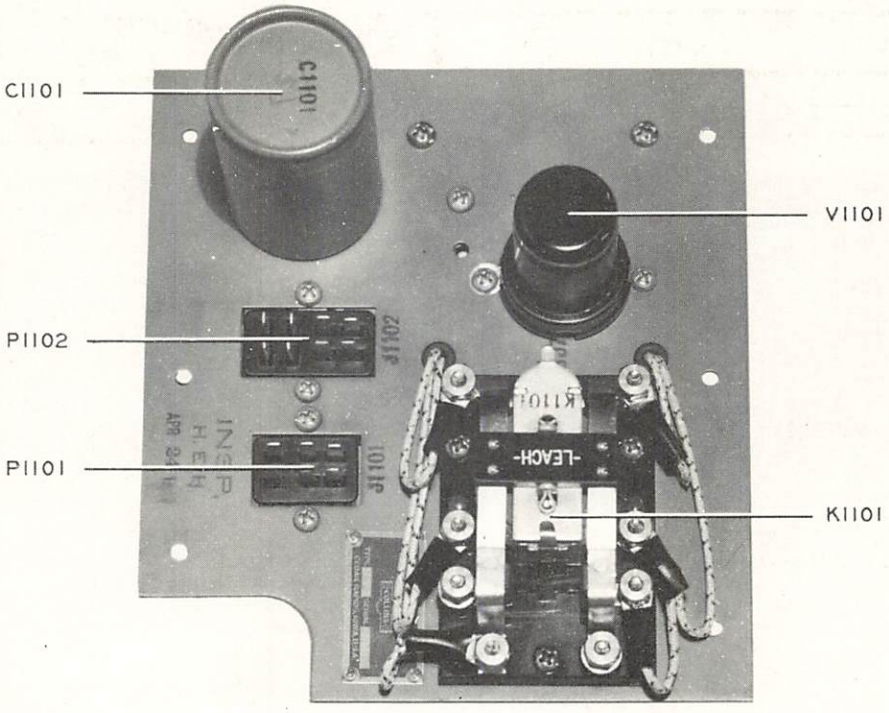


FIG. 28 347B OSCILLOSCOPE AMPLIFIER
TOP VIEW

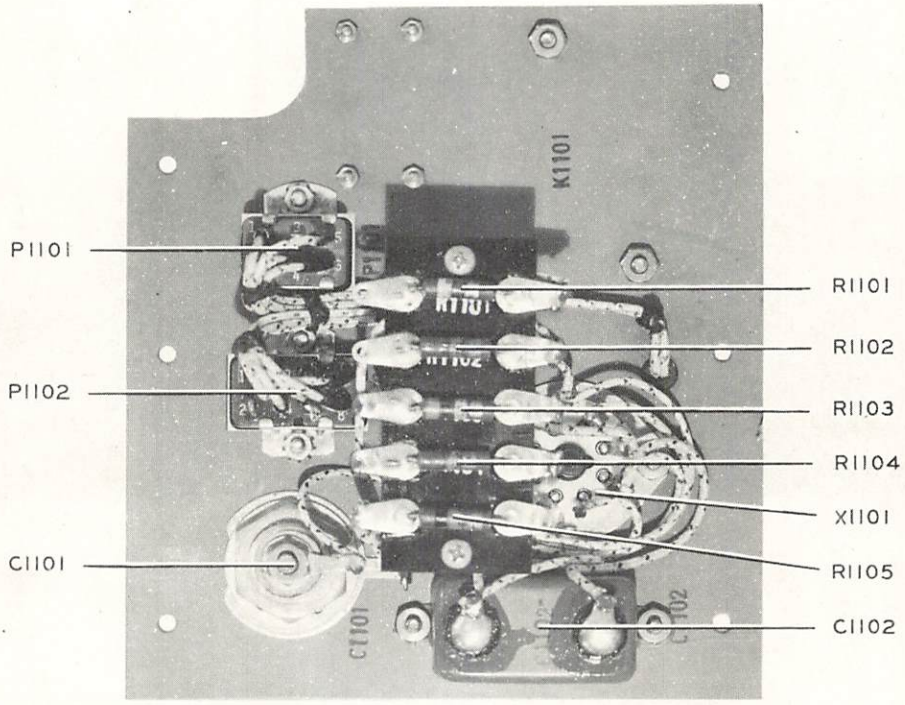


FIG. 29 347B OSCILLOSCOPE AMPLIFIER
BOTTOM VIEW