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unit instructions

313V-2

Radio Set Control

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Figure 1-1. 313V-2 Radio Set Control

general description

1.1 Purpose of Unit.

The 313V-2 Radio Set performs all control functions of the 618T-() Transportable HF Communication System. The 313V-2 provides remote control operation, and may be located up to 350 feet from the 618T-() Receiver-Transmitter.

1.2 Description of Unit.

The 313V-2 case is equipped with cam action spring fasteners for quick and easy mounting. Knobs for rf sensitivity, volume control, frequency and mode selection provide complete control of the 618T-(). A receiver alarm light and alarm reset button give indication and control of the operation of the receiver overload protector. The wattmeter on the front panel is equipped with a polarity switch for measuring forward and reflected rf power output. A light switch is included to control panel lights for night operation. Jacks are provided on the front panel for plugging in microphone, key and headset. Connectors on the bottom of the 313V-2 are for cables to the 76F-1 Speaker/Amplifier and the distribution box of the 790U-1 Speaker-Control Mounting.

1.3 Lamp Complement.

Table 1-1 lists the lamp complement of the 313V-2.

TABLE 1-1. LAMP COMPLEMENT

LAMP	COLOR	COLLINS PART NO.	GE CATALOG NO.
Panel (1)	Red	262-0176-00	327
Frequency indicator (2)	Red	262-0465-00	327
Receiver alarm (1)	Red	262-0176-00	327

1.4 Equipment Specifications.

1.4.1 PHYSICAL.

Size 3-5/8 inches wide, 4-1/2 inches deep,
11-1/2 inches high including connectors.

Knob projection 1-1/8 inches maximum above front panel.

Weight	7 pounds.
Construction	1/16-inch aluminum box, 3/16-inch aluminum cover. Gaskets and O-rings provide waterproofing.
Mounting	Three quick release fasteners.
Ambient temperature range	-40° C to +50° C.
Altitude	To 15,000 feet.
Vibration	Requirements of MIL-STD-167 (Ships) Type 1.

1.4.2 ELECTRICAL.

Power input	28 volts dc at 300 milliamperes nominal current (when 76F-1 Speaker/Amplifier is connected and operating).
Lighting	Two red lights behind panel illuminate the frequency indicator dials. A red light above wattmeter illuminates the meter and dials. A red light is used as a receiver alarm indicator.
Audio output	300 ohms, 20 dbm maximum.
Audio input	100 ohms, carbon microphone.

2.1 General.

The 313V-2 Radio Set Control contains switches which control the operation of the radio set. The 313V-2 operates the 618T-(), turns on the equipment in the power unit, and supplies band information to the 490B-1 Antenna Coupler.

The desired control function is activated by grounding the proper terminal through a switch. Refer to figure 2-1.

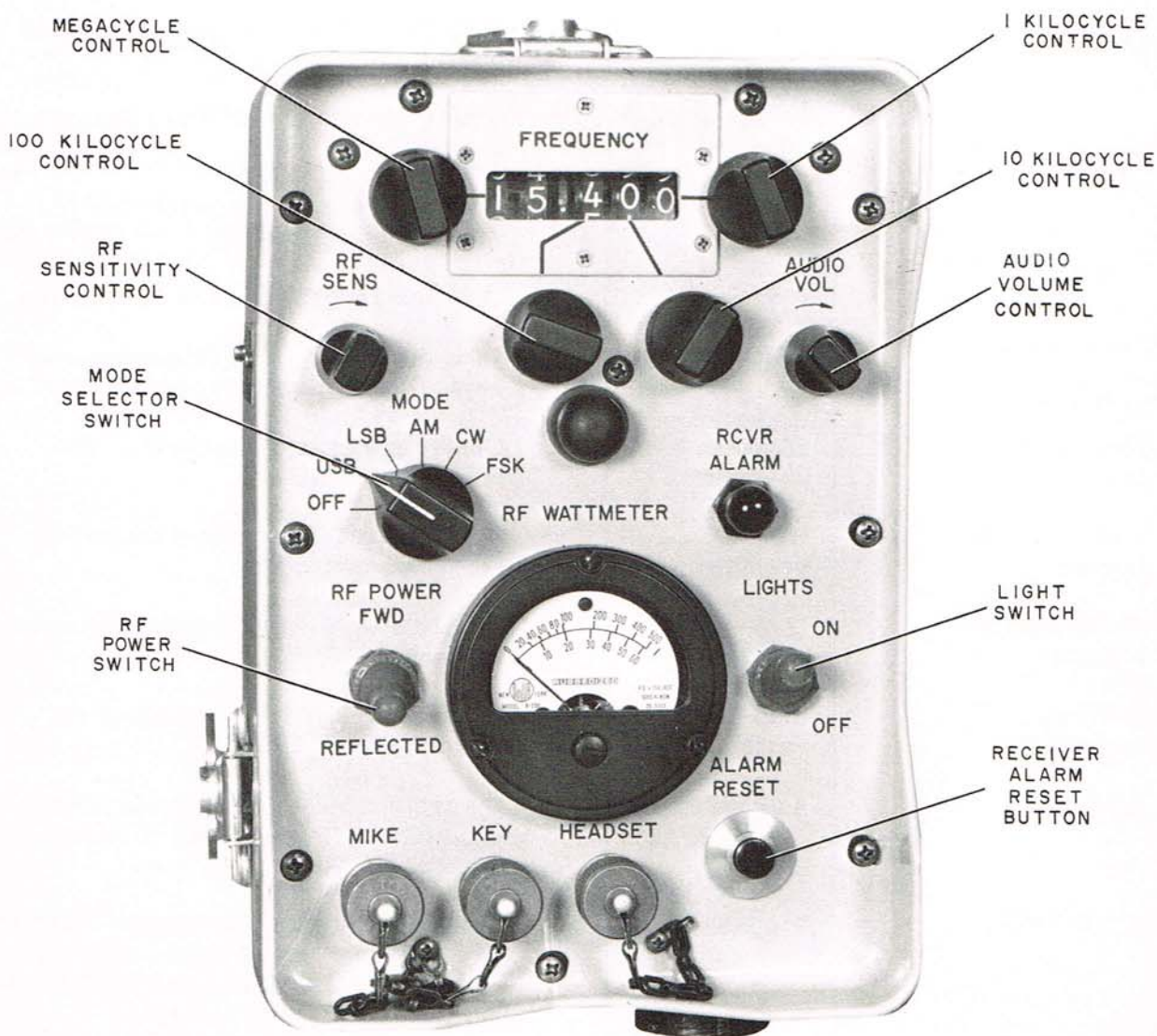


Figure 2-1. Control Switches

Also contained in the 313V-2 are the audio and rf gain controls operated by the AUDIO VOL and RF SENS knobs on the control panel.

2.2 Switch Functions.

See figure 2-1 for switch location and table 2-1 for switch functions.

TABLE 2-1. OPERATING CONTROLS

SWITCH	POSITION	FUNCTION
MODE	OFF	Turns off power to the radio set.
	USB	Puts the radio set in upper sideband operation.
	LSB	Puts the radio set in lower sideband operation
	AM	Puts the radio set in amplitude - modulation operation.
	CW	Puts the radio set in CW operation.
	FSK	Puts the radio set in frequency shift keying (teletypewriter) operation.
Megacycle control	Step-variable	Controls megacycle indicator on frequency selector.
100-kilocycle control	Step-variable	Controls 100-kilocycle indicator on frequency selector.
10-kilocycle control	Step-variable	Controls 10-kilocycle indicator on frequency selector.
1-kilocycle control	Step-variable	Controls 1-kilocycle indicator on frequency selector.
RF SENS	Variable	Controls a 5000-ohm, 10-log taper potentiometer to provide rf sensitivity control for the 618T-().
AUDIO VOL	Variable	Controls 300-ohm, bridged-T attenuator to vary audio output from 618T-() to headset. The audio signal to 76F-1 is not affected by this control.

TABLE 2-1. OPERATING CONTROLS (Cont)

SWITCH	POSITION	FUNCTION
RF POWER	FWD	Used to read forward power output (upper scale of RF WATTMETER).
	REFLECTED	Used to read reflected power output (lower scale of RF WATTMETER).
LIGHTS	ON	Turns on panel and frequency dial lamps.
	OFF	Turns off panel and frequency dial lamps.
ALARM RESET button		When RCVR ALARM light indicates that receiver antenna circuit has been interrupted, resets alarm and establishes continuity in the receiver antenna circuit.

3.1 Maintenance Tests.

3.1.1 TEST EQUIPMENT REQUIRED.

The equipment required is listed in table 3-1.

TABLE 3-1. TEST EQUIPMENT REQUIRED

EQUIPMENT	MANUFACTURER/MODEL
Power supply, 28 volts dc, 3 amperes	
Audio signal generator	Hewlett-Packard 200CD
Vtvm	Hewlett-Packard 400D
Test Set	(See figures 3-1 and 3-2 for suggested test set schematic and front panel layout)
Shorting plug	PJ-055B (CPN 361 0018 00) Sleeve shorted to tip

3.1.2 INITIAL ADJUSTMENTS.

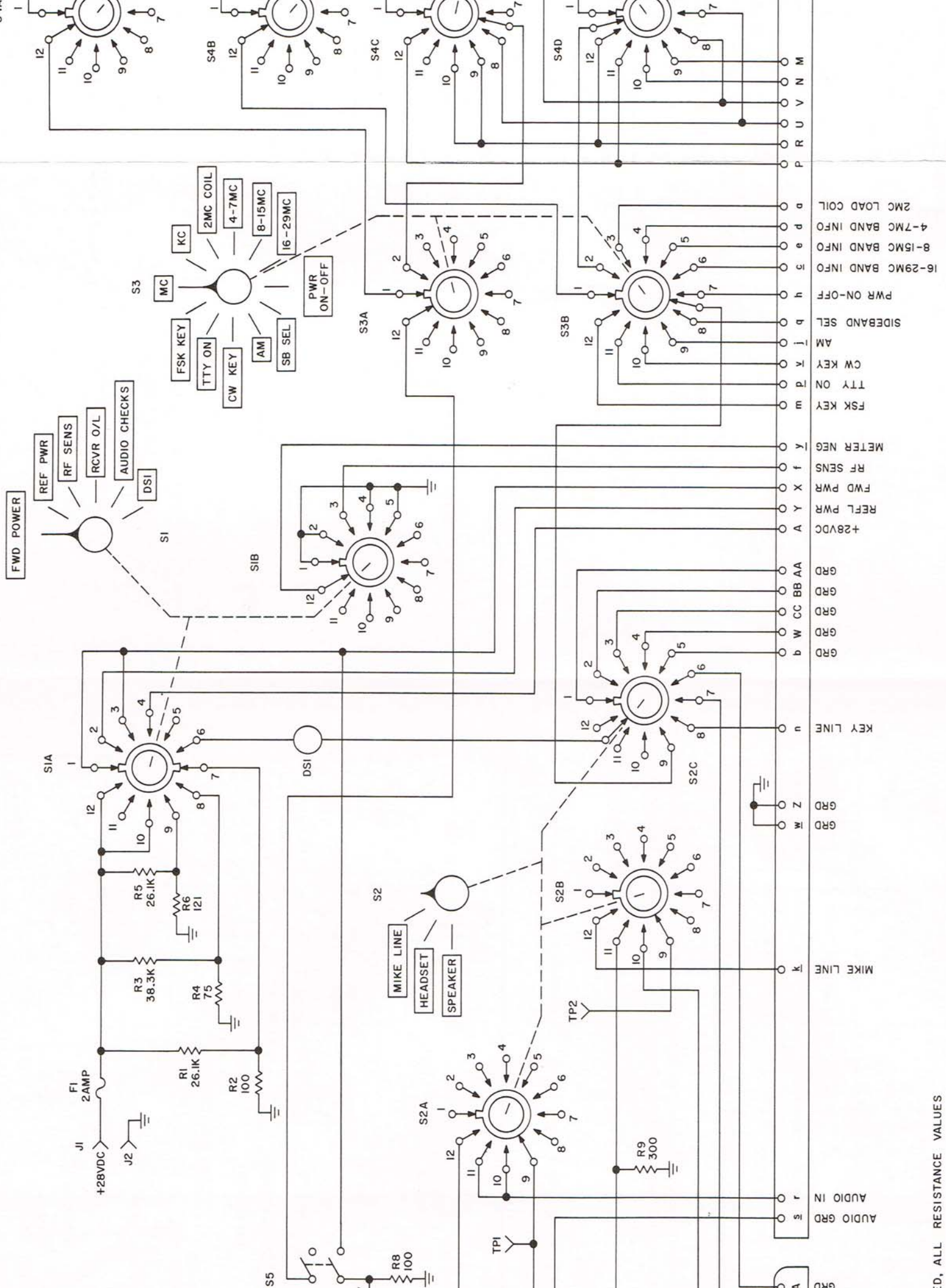
a. Set all 313V-2 controls to the extreme counterclockwise position or to zero as applicable.

b. Set the test set switches as follows:

S1	DS1
S2	9
S3	PWR ON/OFF
S4	1
S5	OPEN

c. Connect all cables from the test set to the 313V-2.

d. Apply 28 volts dc to J1 of the test set and ground J2.



ED, ALL RESISTANCE VALUES

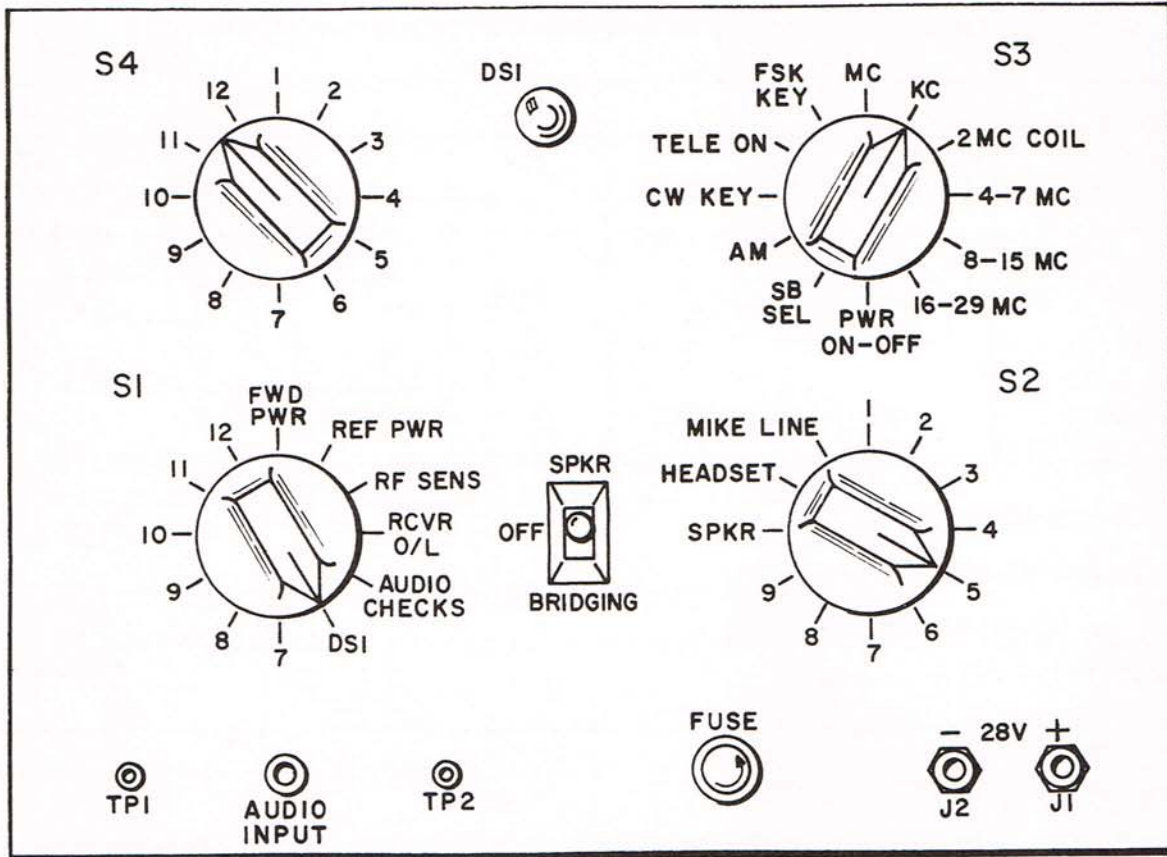


Figure 3-2. 313V-2 Test Set, Front Panel

3.1.3 MODE SELECTOR SWITCH TEST.

Position MODE switch on the 313V-2 and S3 on the test set as shown in table 3-2. Determine proper operation by noting the condition of the test set lamp for all switch positions shown.

TABLE 3-2. MODE SELECTOR SWITCH TEST

MODE SELECTOR SWITCH	S3					
	PWR ON/OFF	SB SEL	AM	CW	TELE ON	FSK KEY
OFF	O	O	O	O	O	O
USB	X	X	O	O	O	O
LSB	X	O	O	O	O	O

TABLE 3-2. MODE SELECTOR SWITCH TEST (Cont)

MODE SELECTOR SWITCH	S3					
	PWR ON/OFF	SB SEL	AM	CW	TELE ON	FSK KEY
AM	X	X	X	O	O	O
CW	X	X	O	X	O	O
FSK	X	X	O	O	X	X

X indicates test set lamp on.
O indicates test set lamp off.

NOTE: When S3 is in CW position a shorted plug must be inserted in the KEY jack in the 313V-2.

3.1.4 FREQUENCY SELECTOR TESTS.

3.1.4.1 MEGACYCLE SELECTOR TEST. Rotate S3 on test set to the MC position. Use table 3-3 to determine proper grounding of the control wires. Use table 3-4 to position megacycle selector on the 313V-2 and S4 on the test set for bridging tests.

TABLE 3-3. MEGACYCLE SELECTOR TEST

MEGACYCLE SELECTOR	S4				
	1	2	3	4	5
2	X	O	O	O	O
3	X	X	O	O	O
4	O	X	X	O	O
5	O	O	X	X	O
6	O	O	O	X	X
7	X	O	O	O	X
8	O	X	O	O	O
9	X	O	X	O	O

TABLE 3-3. MEGACYCLE SELECTOR TEST (Cont)

MEGACYCLE SELECTOR	S4				
	1	2	3	4	5
10	O	X	O	X	O
11	O	O	X	O	X
12	X	O	O	X	O
13	X	X	O	O	X
14	X	X	X	O	O
15	O	X	X	X	O
16	X	O	X	X	X
17	O	X	O	X	X
18	X	O	X	O	X
19	X	X	O	X	O
20	X	X	X	O	X
21	X	X	X	X	O
22	O	X	X	X	X
23	O	O	X	X	X
24	X	O	O	X	X
25	O	X	O	O	X
26	O	O	X	O	O
27	O	O	O	X	O
28	O	O	O	O	X
29	O	O	O	O	O

TABLE 3-4. MEGACYCLE BRIDGING TESTS

MEGACYCLE SELECTOR	S4
7	2
9	2
13	3
18	2
25	3
29	1

With megacycle selector and S4 in the positions shown, the test set lamp should light when S5 is pushed to the BRIDGING position.

3.1.4.2 100-KILOCYCLE SELECTOR TEST. Turn S3 on test set to the KC position. Use table 3-5 to determine proper grounding of control wires. Use table 3-6 to position the 100-kc selector on the 313V-2 and S4 on the test set for bridging tests.

TABLE 3-5. 100-KILOCYCLE SELECTOR TEST

100-KILOCYCLE SELECTOR	S4			
	9	10	11	12
0	X	O	O	O
1	O	X	O	O
2	X	O	X	O
3	X	X	O	X
4	X	X	X	O
5	O	X	X	X
6	X	O	X	X
7	O	X	O	X

TABLE 3-5. 100-KILOCYCLE SELECTOR TEST (Cont)

100-KILOCYCLE SELECTOR	S4			
	9	10	11	12
8	O	O	X	O
9	O	O	O	X

X indicates test set lamp on.
O indicates test set lamp off.

TABLE 3-6. 100-KILOCYCLE BRIDGING TESTS

100-KILOCYCLE SELECTOR	S4
0	10
0	12
1	9
8	9

With 100-kilocycle selector and S4 in positions shown, test set lamp should light when S5 is pushed to the BRIDGING position.

3.1.4.3 10-KILOCYCLE SELECTOR TEST. Rotate S3 to the KC position. Use table 3-7 to determine proper grounding of control wires. Use table 3-8 to position the 10-kc selector on the 313V-2 and S4 on the test set for bridging tests.

TABLE 3-7. 10-KILOCYCLE SELECTOR TEST

10-KILOCYCLE SELECTOR	S4			
	5	6	7	8
0	X	O	O	O
1	O	X	O	O
2	X	O	X	O
3	X	X	O	X
4	X	X	X	O
5	O	X	X	X
6	X	O	X	X
7	O	X	O	X
8	O	O	X	O
9	O	O	O	X

X indicates test set lamp on.
O indicates test set lamp off.

TABLE 3-8. 10-KILOCYCLE BRIDGING TESTS

10-KILOCYCLE SELECTOR	S4
0	6
0	8
1	5
8	5

With 10-KILOCYCLE selector switch and S4 in positions shown, test set lamp should light when S5 is pushed to the BRIDGING position.

3.1.4.4 1-KILOCYCLE SELECTOR TEST. Rotate S3 on the test set to the KC position. Use table 3-9 to determine proper grounding of control wires. Use table 3-10 to position the 1-kilocycle selector on the 313V-2 and S4 on the test set for bridging tests.

TABLE 3-9. 1-KILOCYCLE SELECTOR TEST

1-KILOCYCLE SELECTOR	S4			
	1	2	3	4
0	X	O	O	O
1	O	X	O	O
2	X	O	X	O
3	X	X	O	X
4	X	X	X	O
5	O	X	X	X
6	X	O	X	X
7	O	X	O	X
8	O	O	X	O
9	O	O	O	X

X indicates test set lamp is on.
O indicates test set lamp is off.

TABLE 3-10. 1-KILOCYCLE BRIDGING TESTS

1-KILOCYCLE SELECTOR	S4
0	2
0	4
1	1

TABLE 3-10, 1-KILOCYCLE BRIDGING TESTS (Cont)

1-KILOCYCLE SELECTOR	S4
8	1
With 1-kilocycle selector switch and S4 in positions shown, test set lamp should light when S5 is pushed to the BRIDGING position.	

3.1.5 2-MEGACYCLE LOADING COIL AND BAND TEST. Use table 3-11 to position the megacycle selector switch on the 313V-2 and S3 on the test set to determine proper operation of the 2-megacycle loading coil and band information control lines.

TABLE 3-11. BAND INFORMATION TEST

MEGACYCLE SELECTOR	S3			
	2-MC LOADING COIL	4-7 MC	8-15 MC	16-29 MC
2	X	O	O	O
3	O	O	O	O
4	O	X	O	O
5	O	X	O	O
6	O	X	O	O
7	O	X	O	O
8	O	O	X	O
9	O	O	X	O
10	O	O	X	O
11	O	O	X	O
12	O	O	X	O
13	O	O	X	O
14	O	O	X	O

TABLE 3-11. BAND INFORMATION TEST (Cont)

MEGACYCLE SELECTOR	S3			
	2-MC LOADING COIL	4-7 MC	8-15 MC	16-29 MC
15	O	O	X	O
16	O	O	O	X
17	O	O	O	X
18	O	O	O	X
19	O	O	O	X
20	O	O	O	X
21	O	O	O	X
22	O	O	O	X
23	O	O	O	X
24	O	O	O	X
25	O	O	O	X
26	O	O	O	X
27	O	O	O	X
28	O	O	O	X
29	O	O	O	X

X indicates test set lamp is on.

O indicates test set lamp is off.

3.1.6 AUDIO TEST.

Rotate S1 on the test set to AUDIO CHECKS position. Connect the output of the HP-200CD to the AUDIO INPUT jack of the test set. Rotate S2 to HEADSET position. Using the HP-400D VTVM, adjust the output of the 200CD to 5.0 volts rms, 1000 cps and apply to the AUDIO INPUT jack of the test set. The voltage measured at TP1 should be 5 volts rms. Measure the voltage at both the extreme clockwise and extreme counterclockwise positions of the AUDIO VOL control of the 313V-2. The clockwise measurement should be not less than 4.9 volts rms and the counterclockwise measurement should not exceed 50 mv.

Adjust the AUDIO VOL control to obtain minimum output at TP2. Rotate S2 to the SPEAKER position, and check TP1 for 5 volts rms. The voltage at TP2 should be between 0.70 and 0.85 volt rms.

Rotate S2 to the MIKE LINE position. Check TP1 for 5 volts rms. The voltage measured at TP2 should be not less than 4.9 volts rms.

3.1.7 RF WATTMETER TEST.

Place S1 of the test set in FWD PWR position and the RF POWER switch of the 313V-2 in the FWD position. The indicated power on the upper scale of the RF WATTMETER should read between 270 and 310 watts. Rotate S1 to the REF POWER position and the RF POWER switch to REFLECTED. Again on the upper scale of the RF WATTMETER there should be an indication between 90 and 110 watts.

3.1.8 RF SENSITIVITY CONTROL TEST.

Rotate S1 of the test set to RF SENS position and set the RF POWER switch of the 313V-2 to FWD position. Rotate the RF SENS control on the 313V-2 throughout its range. The high reading on the upper scale of the RF WATTMETER should be between 350 and 460 watts. The low reading should be between 20 and 60 watts.

3.1.9 RECEIVER OVERLOAD PROTECTION TEST.

Rotate S1 on the test set to RCVR OVLD position. The RCVR ALARM light should go on. Press the ALARM RESET button and the RCVR ALARM light should go out and stay out as long as the button is down.

3.1.10 SPEAKER 28-VOLT DC TEST.

Rotate S1 on the test set to RCVR OVLD position. Push S5 on the test set to SPEAKER 28 VDC position. The upper scale of the RF WATTMETER should read between 270 and 310 watts.

3.2 Preventive Maintenance.

3.2.1 LUBRICATING PROCEDURES.

- a. Oil all bearing surfaces with Univis P-38 (MIL-I-6085) oil, applying sparingly with fingers. Wipe off excess and do not allow any oil to drip onto associated equipment.
- b. Grease the teeth of all gears, applying with a toothpick or small screwdriver. Take care to work the grease in well. Remove all excess grease.

3.3 Frequency Indicator Disassembly.

- a. Remove the front panel of the 313V-2 by removing the nine screws holding it to the cover.
- b. The megacycle wafer switch may be removed by unscrewing the three screws on the aluminum mounting plate beneath the switch. Set the frequency to 2.000 mc before removing the switch.

- c. Remove the knob and the nut from the shaft of the AUDIO VOL control, and slide it back through the panel.
- d. Remove the three screws on the front panel, and loosen the set screws on the frequency selection knobs with an Allen wrench to remove them.
- e. It is not necessary to remove the FREQUENCY plate from the front panel.
- f. The indicator unit should slip out easily to the rear.
- g. The gears may be removed by loosening their set screws and punching out their taps. New gears must be drilled to accommodate a tap before installation.
- h. Make sure the megacycle switch wafer assembly shaft is turned to the clockwise stop when meshing the gears in reassembly.

3.4 Replacement of Lamps.

- a. The front panel lamp may be removed by unscrewing the lamp holder on the front panel of the unit.
- b. To replace the frequency dial lamps it is necessary to first remove the front panel by unscrewing the nine Phillips screws on the panel.
- c. On the back of the front panel, unscrew the Phillips screw holding the copper strip to the lamp bases. Remove the screw, strip, and terminal lugs. The lamps may now be easily removed.
- d. In replacing the frequency dial lamps, be sure to slip them through the white terminal lugs before inserting them into the white lamp housing. Slip the Phillips screw through the red terminal lug and secure the copper strip to the lamp housing.

section 4

parts list

ITEM	DESCRIPTION	COLLINS PART NUMBER
CONTROL, RADIO SET-313V-2		522-3356-00
AT1	ATTENUATOR, VARIABLE: 300 ohms impedance, $\pm 20\%$, 5W	383-0197-00
C1	NOT USED	
C2	CAPACITOR: 575 uf +125% -10%, 50 vdc; mfr code 56289 part no. D30964	183-0012-00
C3	CAPACITOR: 0.01 uf +80 -20%, 100 vdc; mfr code 72982 part no. 805-014 X5VO 103Z	913-3680-00
C4	Same as C3	913-3680-00
C5	Same as C3	913-3680-00
C6	Same as C3	913-3680-00
DS1	LAMP: mfr code 96906 part no. MS25237-327	262-0179-00
DS2	LAMP: mfr code 24446 part no. 327SR	262-0465-00
DS3	Same as DS2	262-0465-00
DS4	Same as DS1	262-0179-00
P/O DS4	LENS: mfr code 72619 part no. 101-971	262-0376-00
H1	COVER, ELECTRICAL, CONNECTOR: 13/16 in. dia by 7/16 in. thk with chain; Amphenol part no. 9760-10	357-8115-00
H2	Same as H1	357-8115-00
H3	Same as H1	357-8115-00
H4	COVER, ELECTRICAL, CONNECTOR: 1-3/32 in. dia by 0.662 in. thk with chain; Amphenol part no. 164-377	372-1686-00
H5	GASKET: synthetic rubber; 0.239 in. dia aperture 0.379 in. od, 0.070 in. thk material	013-0248-00
H6 thru H8	Same as H5	013-0248-00
H9	GASKET: synthetic rubber; 0.737 in. id, 0.103 in. w; Precision Rubber Prod. Co. part no. 902-14	200-0230-00
H10 thru H12	Same as H9	200-0230-00
H13	GASKET: synthetic rubber; 0.364 in. id, 0.504 in. od, 0.070 in. thk material	013-0234-00
H14	Same as H13	013-0234-00
H15	Same as H13	013-0234-00
H16	BRACKET, CAPACITOR: steel, 13/16 in. id, 5/8 in. w, 1/8 in. dia mtg holed; Prestole Corp. part no. E 50005-051	139-0088-00
H17	CATCH, LUGGAGE: CRES; 0.187 in. by 0.656 in. by 1.437 in.; Simmons Fastener Corp. part no. SL-3	015-1859-00
H18	Same as H17	015-1859-00
H19	Same as H17	015-1859-00
H20	BOOT, SWITCH: rubber or neoprene; 1 in. lg overall	266-5241-00
H21	Same as H20	266-5241-00
R1	RESISTOR, VARIABLE: 5000 ohms, $\pm 10\%$, 2 w; mfr code 01121 part no. GWP	380-3490-00
R2	RESISTOR: 270 ohms $\pm 5\%$, 6.5 w; mfr code 81349 part no. RW67V271	747-5449-00
R3	NOT USED	
R4	RESISTOR: 300 ohms $\pm 1\%$, 1/2 w; mfr code 81349 part no. RN65D3010F	705-7071-00
R5	Same as R4	705-7071-00
R6	Same as R4	705-7071-00
R7	RESISTOR: 5600 ohms $\pm 10\%$, 1/2 w; mfr code 81349 part no. RC20GF562K	745-1384-00
R8	RESISTOR: 1000 ohms $\pm 10\%$, 1/2 w; mfr code 81349 part no. RC20GF102K	745-1352-00
S1	P/O COUNTER	
S2	P/O COUNTER	
S3	P/O COUNTER	
S4	P/O COUNTER	

ITEM	DESCRIPTION	COLLINS PART NUMBER
S5	SWITCH: mfr code 76854 part no. 229124-K2	259-1730-00
S6	SWITCH: mfr code 81640 part no. C3100E3R	260-1263-00
S7	SWITCH: mfr code 81350 part no. ST42D	266-3075-00
XDS1	LIGHT: mfr code 97198 part no. L20144	262-2058-00
XDS2	NOT USED	
XDS3	NOT USED	
J1	CONNECTOR: mfr code 96906 part no. MS3112E16-26S	371-6732-00
J2	CONNECTOR: mfr code 77820 part no. PT07C8-4S	371-6730-00
J3	JACK: mfr code 37942 part no. CMA-49021A	358-1050-00
J4	JACK: mfr code 81349 part no. JJ-034	358-1040-00
J5	JACK: mfr code 81349 part no. JJ-089	358-0014-00
L1	REACTOR: 0.25h, mfr code 70674 part no. A10252	678-1187-00
L2	COIL: 100 mh, mfr code 81349 part no. LT7K209	240-0193-00
L3	Same as L2	240-0193-00
M1	AMMETER: mfr code 94916 part no. ADD5-20280	476-0353-00
O1	KNOB: set screw type, fluted, grooved, black phenolic w/ aluminum insert; 15/16 in. dia, 1-3/32 in. w, 3/4 in. h	544-0779-004
O2	Same as O1	544-0779-004
O3	KNOB, BAR: aluminum, black semigloss enamel; 11/16 in. by 11/16 in. overall	544-7268-002
O4	KNOB: setscrew type, rd w/ bar face, plain gripping surface, zinc alloy body; 15/16 in. max od, 3/4 in. thk overall; Doehler-Jarvis Corp. part no. 15017	281-0095-00
O5 thru O7	Same as O4	281-0095-00
O8	KNOB, BAR: fabricated; black semigloss enamel, alloy body; set screw type; 1/8 in. shaft, 11/16 in. od undercut to 9/16 in. d	553-6843-002
XDS4	LIGHT: mfr code 72619 part no. 101-3830-9	262-0375-00
ROTATING COUNTER		553-6730-005
H22	SPACER, SLEEVE: aluminum; 0.035 in. thk wall, 0.187 in. od, no. 4 screw size, 0.562 in. lg	541-5989-002
H23	Same as H22	541-5989-002
H24	Same as H22	541-5989-002
H25	SHIM: brass; 0.193 in. dia, 0.375 in. od, 0.010 in. thk overall	543-3180-002
H26	Same as H25	543-3180-002
H27	CLAMP, GEAR: aluminum; chromate dip; 6-40NF-2B, 0.3125 in. id, 0.562 in. od, 0.200 in. thk	544-7868-002
H28	Same as H27	544-7868-002
H29	Same as H27	544-7868-002
H30	WASHER, SPRING, TENSION: brass; 0.005 in. thk, 0.062 in. overall h, 0.375 in. od	503-5213-001
H31	Same as H30	503-5213-001
MP1	GEAR, SPUR: aluminum; anodized finish; 56 teeth, 20° pressure angle; 0.050 in. dia by 0.265 in. lg	546-6237-002
MP2	GEAR, SPUR: aluminum; 20 complement of teeth, 0.417 in. pitch dia, 4 slots bottom flush; 0.458 in. over-all dia by 0.296 in. over-all lg	546-6236-002
MP3	GEAR HELICAL: aluminum; anodized finish; 28 teeth, 20° pressure angle, 0.250 in. dia by 0.406 in. lg	546-6243-002
MP4	Same as MP3	546-6243-002
MP5	SHAFT, TRANSFER: CRES; 0.125 in. dia by 1.078 in. lg over-all dim	546-6235-002
MP6	GEAR, SPUR: nylon; 0.455 in. od of gear, 0.364 in. pitch dia, 0.105 in. w face, 0.343 in. lg over-all; Durant Mfg. Co. part no. BB 2219 PINION	015-0891-00

313V-2 Radio Set Control

ITEM	DESCRIPTION	COLLINS PART NUMBER
MP7	GEAR SHAFT, HELICAL: aluminum; 0.344 in. dia by 1.234 in. lg; 21 tooth complement	546-6258-002
MP8	GEAR SHAFT, HELICAL: aluminum; 0.344 in. dia by 1.078 in. lg; 21 tooth complement; helix angle 45° left hand	546-6257-002
MP9	GEAR, SPUR: aluminum; anodized finish; 0.187 in. thk, 11/32 in. dia od, 0.1881 in. id; 15 teeth, 20° pressure angle	546-6238-002
MP10	Same as MP9	546-6238-002
MP11	SHAFT, STRAIGHT: CRES, passivate finish; 1/16 in. flat one end; 0.2498 in. dia. 2-1/2 in. lg	553-6846-002
MP12	GEAR, BEVEL: aluminum; 0.405 in. dia by 0.156 in. lg; 20 tooth complement	544-7907-002
MP13	Same as MP12	544-7907-002
MP14	GEAR, BEVEL: aluminum; 0.435 in. dia by 0.281 in. lg; 20 tooth complement; four slots at 90°	544-7908-002
MP15	Same as MP14	546-6234-002
MP16	DRUM, SCALE: delrin; black gear with white numbers 0 thru 9; 1.003 in. dia by 0.410 in lg	546-6248-002
MP17	DRUM, SCALE: delrin; black gear with white numbers 0 thru 9; 1.003 in. dia by 0.356 in. lg	546-6232-002
MP18	DRUM, SCALE: delrin; black gear with white numbers 0 thru 9; 1.003 in. dia by 0.435 in. lg	546-6233-002
MP19	DRUM, SCALE: delrin; black gear with white numbers 0 thru 9; 1.003 in. dia by 0.312 in. lg	546-6228-002
MP20	Same as MP19	546-6229-002
MP21	SHAFT, SHOULDERED: CRES; passivate finish; 0.1875 in. dia by 1-1/4 in. lg	546-6229-002
MP22	SHAFT, SHOULDERED: CRES; passivate finish; 0.1875 in. dia. 1-19/32 in. lg	259-1728-00
S1	SWITCH, ROTARY: 3 circuit (3 pole), 28 positions 2 sections; 11 fixed contact, 2 moving contacts	259-1272-00
S2	SWITCH, ROTARY: 1 circuit (1 pole), 10 positions 1 section w/ 36° detent; 2 moving contacts, 9 fixed contacts; Oak Mfg. Co. part no. 199400-BA1	259-1272-00
S3	Same as S2	259-2172-00
S4	Same as S2	

ITEM	DESCRIPTION
VENDOR'S CODE AND NAME INDEX	
CODE	VENDOR'S NAME AND ADDRESS
08805	Large Lamp Dept. GECO Cleveland, Ohio
37942	Mallory P. R. and Co. Inc. Indianapolis, Ind.
56289	Sprague Electric Company North Adams, Mass.
70674	ADC Products Inc. Minneapolis, Minn.
72619	Dialight Corp. Brooklyn, New York
72982	Erie Technological Products, Inc. Erie, Pennsylvania
76854	Oak Mfg. Company Crystal Lake, Illinois
77820	Bendix Corp. (The) Scintilla Division Sidney, New York
81349	Military Specifications Promulgated by Standardization Division Directorate of Logistic Services DSA Washington, D.C.
81350	Joint Army-Navy Specifications Promulgated by Standardization Division Directorate of Logistic Services DSA Washington, D.C.
81640	Control-Switch Division Controls Co. of America Folcroft, Pa.
94916	Wac Line, Inc. Dayton, Ohio
96906	Military Standards Promulgated by Standardization Division Directorate of Logistic Services DSA Washington, D.C.
97198	Controls Co. of America Folcroft, P.A.

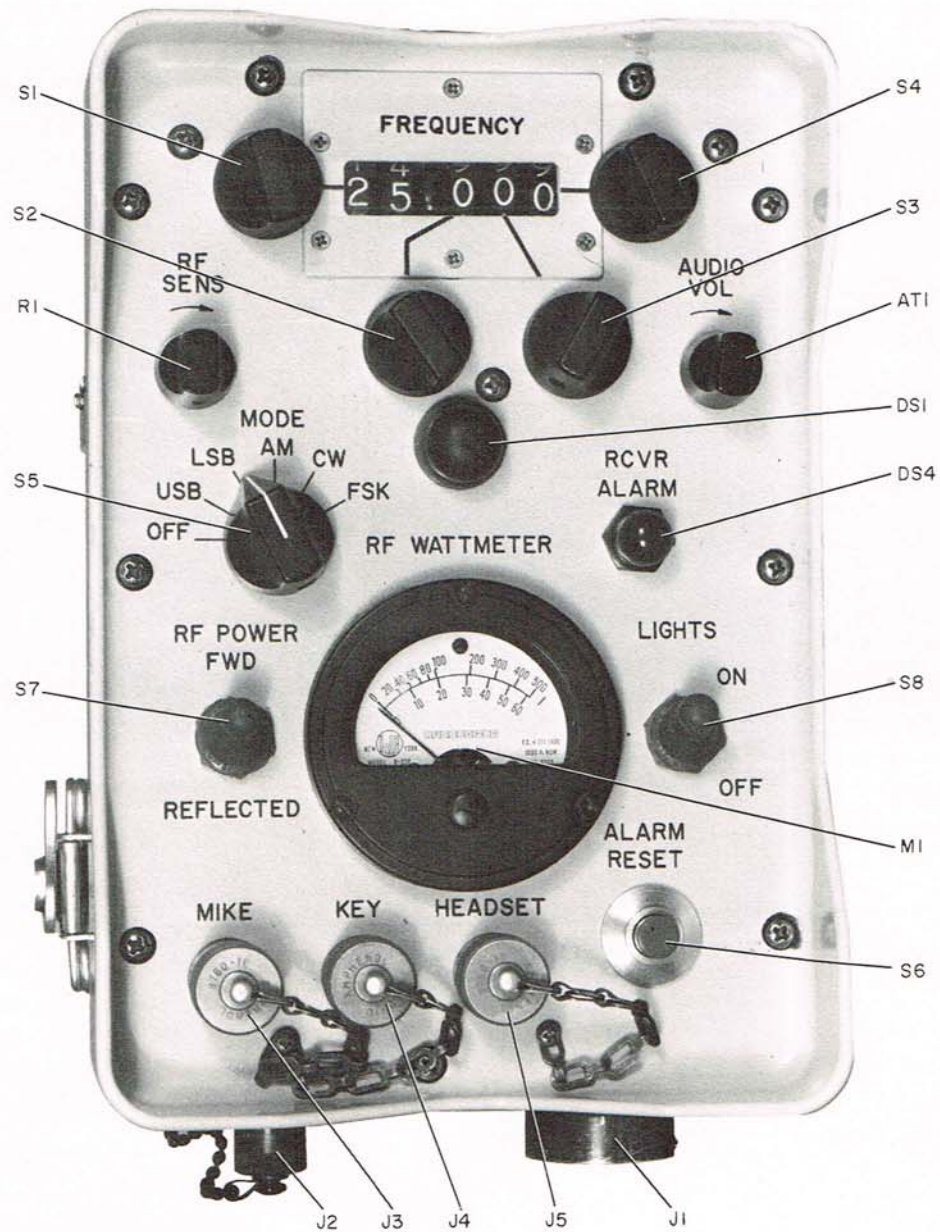


Figure 4-1. 313V-2 Radio Set Control, Front View, Component Location

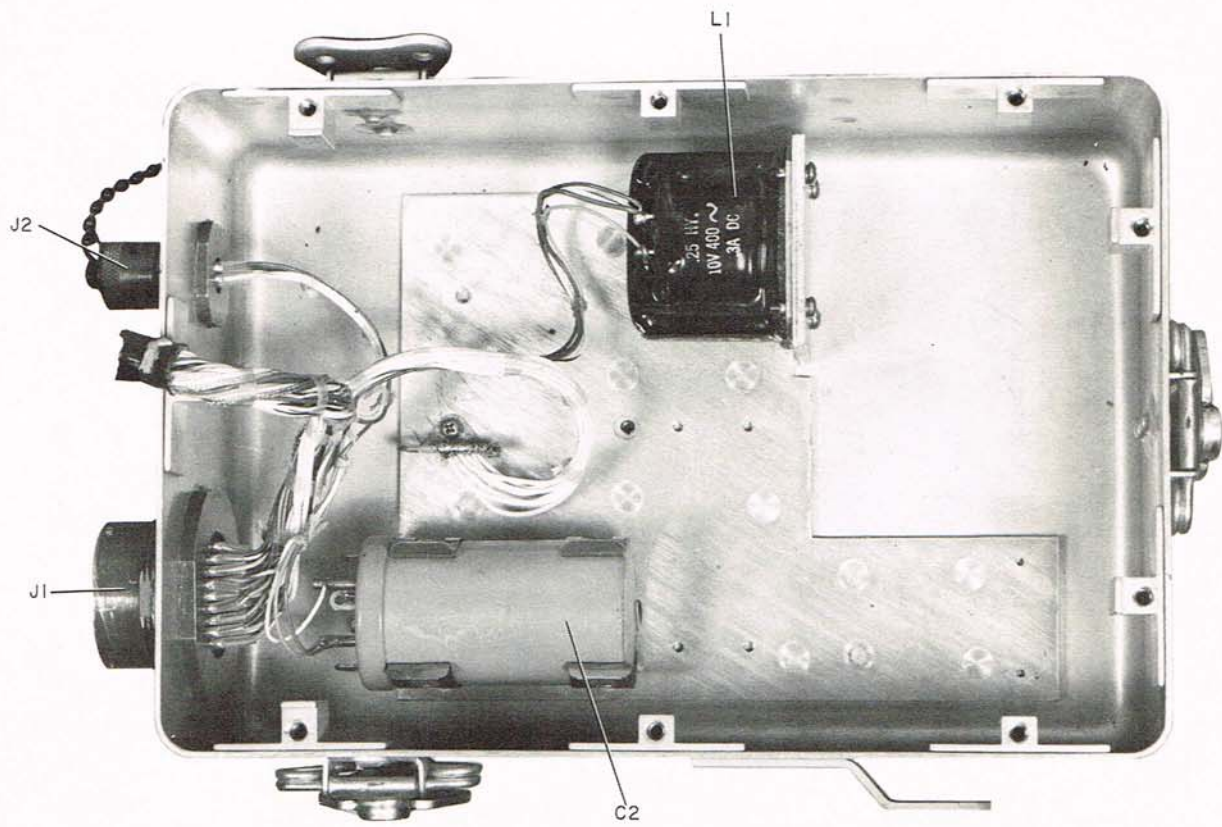


Figure 4-2. 313V-2 Radio Set Control,
Internal Cover View, Component Location

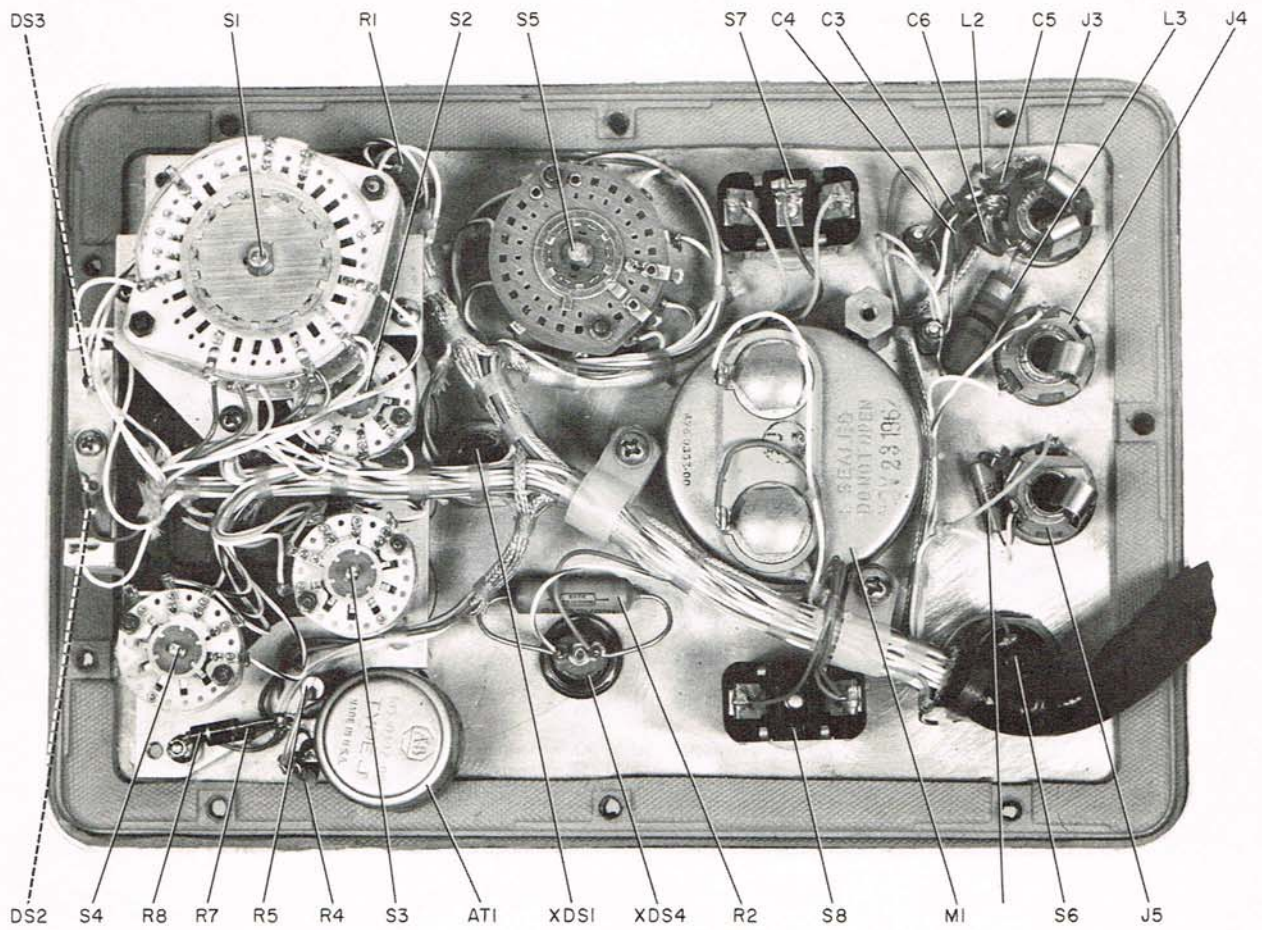


Figure 4-3. 313V-2 Radio Set Control,
Rear View of Front Panel, Component Location

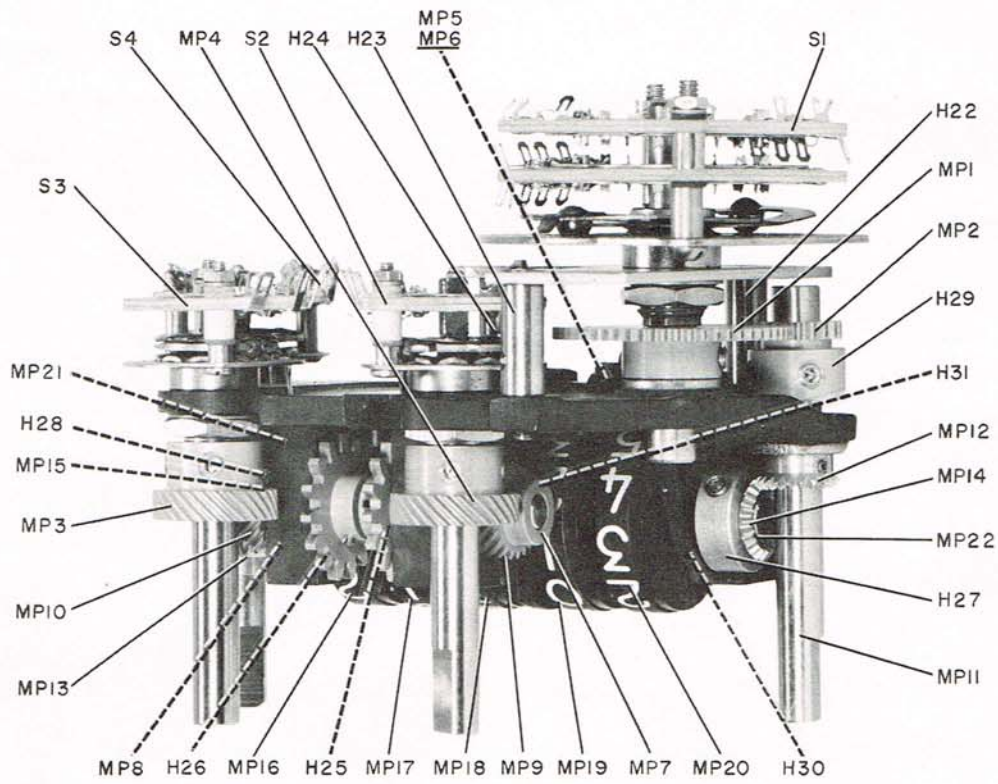
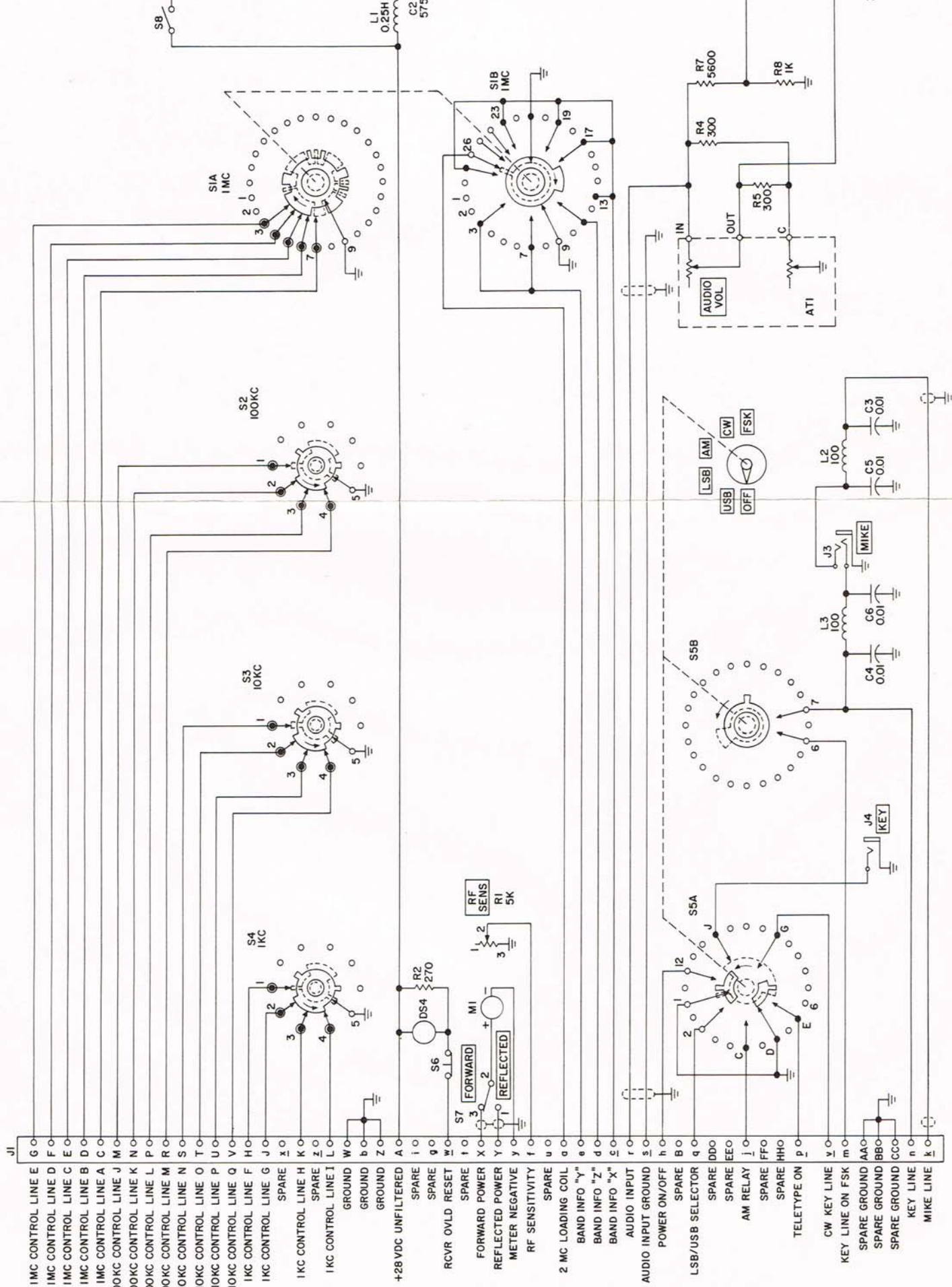
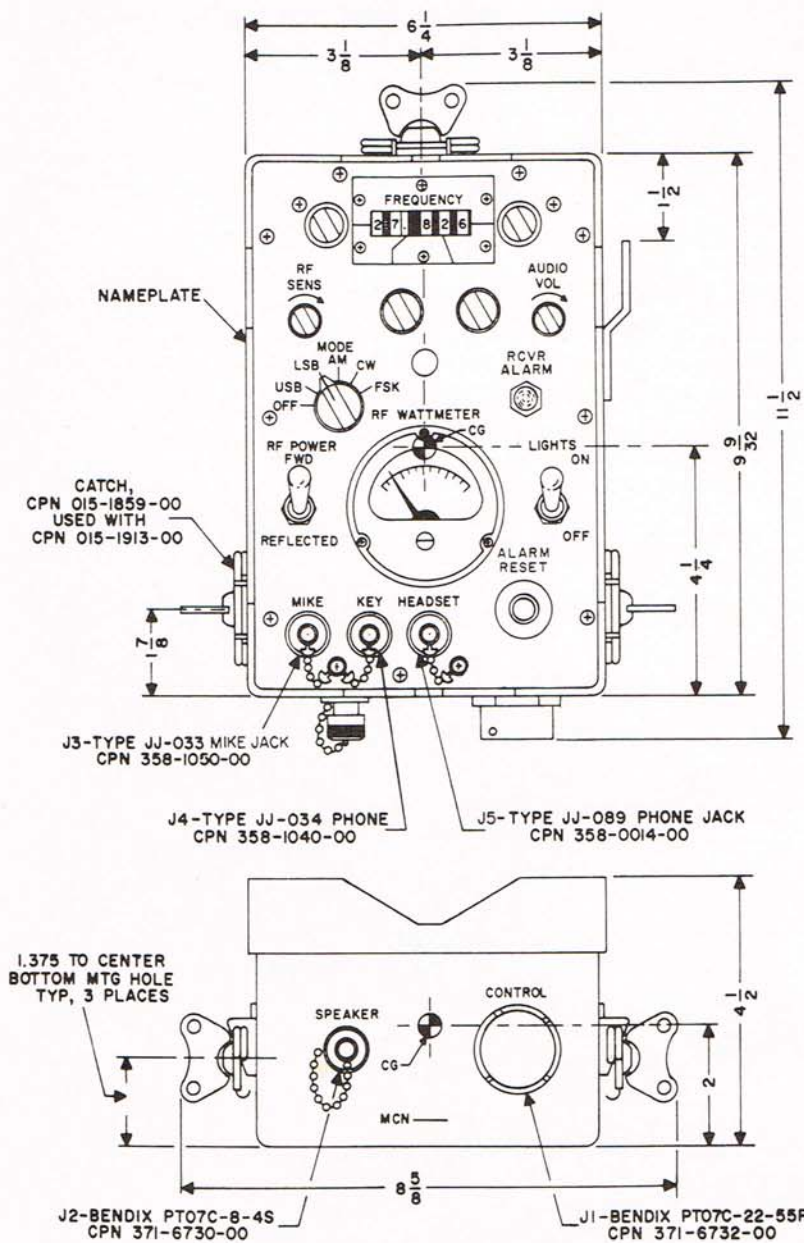


Figure 4-4. Counter Assembly





CONNECTOR PIN ASSIGNMENTS:

- J1-A +28V DC FILTERED
 - B SPARE
 - C IMC FREQ WIRE A
 - D IMC FREQ WIRE B
 - E IMC FREQ WIRE C
 - F IMC FREQ WIRE D
 - G IMC FREQ WIRE E
 - H IKC FREQ WIRE F
 - J IKC FREQ WIRE G
 - K IKC FREQ WIRE H
 - L IKC FREQ WIRE I
 - M IOOKC FREQ WIRE J
 - N IOOKC FREQ WIRE K
 - P IOOKC FREQ WIRE L
 - R IOOKC FREQ WIRE M
 - S IOKC FREQ WIRE N
 - T IOKC FREQ WIRE O
 - U IOKC FREQ WIRE P
 - V IOKC FREQ WIRE Q
 - W GROUND
 - X FORWARD POWER
 - Y REFLECTED POWER
 - Z GROUND
-
- AA SPARE GROUND
 - BB SPARE GROUND
 - CC SPARE GROUND
 - DD SPARE
 - EE SPARE
 - FF SPARE
 - GG SPARE
 - HH SPARE
-
- a LOAD COIL
 - b GROUND
 - c BAND INFORMATION "X"
 - d BAND INFORMATION "Z"
 - e BAND INFORMATION "Y"
 - f RF SENSITIVITY
 - g SPARE
 - h POWER ON/OFF
 - i SPARE
 - j SB/AM SELECTOR
 - k MIKE LINE
 - m KEY LINE ON FSK
 - n KEY LINE
 - o FSK ON
 - p LSB/USB SELECTOR
 - q RCVR AF HOT
 - r RCVR AF COLD
 - s SPARE
 - t SPARE
 - u CW KEY LINE
 - v RCVR OVLD RESET
 - w SPARE
 - x DIR COUPLER GROUND
 - y SPARE
-
- J2-A GROUND
 - B GROUND
 - C +28V DC FILTERED
 - D AUDIO OUTPUT TO AF AMPL UNIT
-
- MATING CONNECTORS
- P1 - BENDIX PT06P-22-55S, CPN 371-2210-00
 - P2 - BENDIX PT06P-8-4P, CPN 371-6016-00
 - P3 - PJ-068 MIKE PLUG, CPN 361-0001-00
 - P4 - PJ-055B PHONE PLUG, CPN 361-0018-00
 - P5 - PJ-055B PHONE PLUG, CPN 361-0018-00

Figure 5-2. 313V-2 Radio Set Control, Outline and Mounting Dimensions