SECTION 4

OPERATION

1. GENERAL.

This section contains the procedures for starting the radiac set, for operating it to detect and measure atomic radiation and to locate radioactive objects or areas, and for stopping the set. The radiac set indicates the presence of radiation by clicks in the headset and by the reading shown on the radiacmeter panel meter. The meter reading and the frequency of the clicks are proportional to the radiation intensity.

2. STARTING THE EQUIPMENT.

Step 1. Remove the radiacmeter harness and headset from the carrying case.

Step 2. Attach hooks on harness to studs on radiacmeter.

Step 3. Place one arm through the opening, slip the harness over the head, so that the radiacmeter is on the left side of the body and the strap is over the right shoulder.

Step 4. The shoulder strap is adjustable for proper length to fit the individual carrying the unit. Lengthen or shorten the strap as required.

Step 5. When aural indications are desired, put on the headset and connect its plug to the jack on the radiacmeter panel.

Step 6. Observe the meter indication. If the pointer rests at the left of the center line, marked BATT, on the meter face, replace all batteries in the radiacmeter as instructed in Section 3, par. 2.

Step 7. Turn the range switch to 500.

3. RADIATION DETECTION AND MEASUREMENT.

Step 1. Listen for clicks in the headset or observe the meter reading while approaching the radioactive object or area.

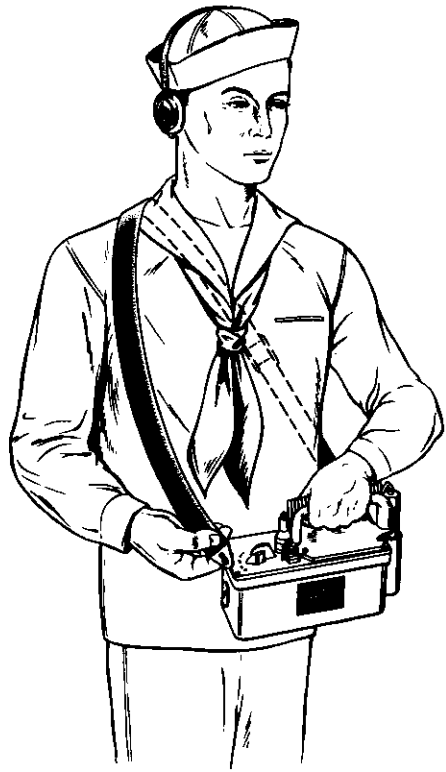


Fig. 4-1. Attachment of Harness

Note

If the radiac set is used in a dimly lighted area, tilt the radiacmeter so that the panel is in a 45-degree position whenever the meter reading is to be observed. Tilting the radiacmeter turns on an internal lamp and illuminates the meter face. A push button switch is also provided for use in dimly lighted areas. When the push button switch is used, it is not necessary to tilt the radiacmeter.

Step 2. Turn the range switch to a lower (more sensitive) range whenever the meter reading is less than 5 divisions; turn it to a higher (less sensitive) range if the meter pointer approaches the high end of the scale.

Step 3. When using only the headset for detection, keep the range switch at 500. When the radiation intensity is relatively weak, turn the switch to 5.

Step 4. When it is desired to locate a radioactive object or the center of a radioactive area, move the radiacmeter in the direction that produces an increase in the meter reading or in the frequency of the clicks in the headset. Continue moving in this direction until the point of maximum radiation intensity is found.

Step 5. To facilitate detection and measurement when the object or area to be investigated is relatively inaccessible, lift the radiac detector out of the well on the radiacmeter. Set the range switch at .5 or 5 whenever the radiac detector is used in this manner.

Step 6. When the radiation from an object or area is extremely weak, bring the radiation detector within a few inches of the object in order to obtain an indication of the radiacmeter, because the radiation intensity decreases rapidly with distance.

Step 7. To check the combined beta and gamma radiation of an object, turn the range switch to .5 or 5, lift the radiac detector out of the well on the radiacmeter, and move aside the beta shield at the end of the radiac detector probe. Point the exposed end of probe at the object to be investigated and move it, slowly, until a readable meter indication is obtained.

Step 8. If the equipment has been used continuously for more than 20 hours, check the condition of the batteries in the radiacmeter by turning the range switch to BATT COND. When the meter pointer rests to the left of the center line, marked BATT, on the meter face, replace all batteries as instructed in Section 3, par. 2.

4. STOPPING THE EQUIPMENT.

Step 1. Turn the range switch to OFF.

Step 2. Disconnect the headset plug from the jack on the radiacmeter panel, and remove the headset (if used).

Step 3. Stow the radiac detector in the well on the radiacmeter. If the detector does not slide easily into the well, or if the cable does not coil tightly over the handle, rotate the probe so as to add or subtract turns to the coiled cable until the detector can be readily stowed.

Step 4. Unhook the radiacmeter from the shoulder harness, and remove the harness.

Step 5. Stow the radiacmeter, harness, and headset in the case.

SECTION 5

OPERATOR'S MAINTENANCE

1. BATTERY CHECK.

Check the condition of the batteries by turning range switch S101 to "BATT COND" position. The pointer on meter M101 should read to the right of the thin center line marked "BATT" in the center of the meter scale. If the meter reading is low, the batteries are weak, and should be replaced as instructed in Section 3, par. 2.

Note that the above check tests the condition of battery BT103 and BT102 in parallel only. However, since the batteries are rated for approximately equal life, all batteries will normally be in the same condition unless the other batteries were recently replaced. Therefore, whenever battery replacement is required, replace the complete set of batteries.

2. EMERGENCY MAINTENANCE.

Notice to Operators

Do not perform the following emergency maintenance procedure without proper authorization.

Replacement of tubes in the radiacmeter or radiac detector is the only emergency maintenance possible during operation of the radiac set. Replace tubes as instructed in Section 7.

SECTION 6

PREVENTIVE MAINTENANCE

1. GENERAL.

Preventive maintenance is maintenance performed on equipment (usually when the equipment is not in use) to keep it in good working order so that there will be minimum interruptions in service. Preventive maintenance differs from trouble shooting and repair in that its object is to prevent the occurrence of troubles.

2. ROUTINE MAINTENANCE CHECK.

The procedures listed in table 6-1 are to be performed at the intervals indicated, unless these intervals are modified by the officer-in-charge.

Note

THE ATTENTION OF MAINTENANCE PERSONNEL IS INVITED TO THE REQUIREMENTS OF CHAPTER 67 OF THE BUREAU OF SHIPS MANUAL, OF THE LATEST ISSUE.

3. RETROPICALIZATION.

The radiac set has been moisture-proofed and fungi-proofed at assembly. No further treatment is required unless parts are replaced. Refer to Specification JAN-T-152, *Treatment, Moisture- and Fungus-resistant, of Communications, Electronic, and Associated Electrical Equipment* for the procedures to be used in retropicalization following parts replacement.

TABLE 6-1. ROUTINE MAINTENANCE CHECK CHART

What to Check	When to Check	How to Check	Precautions
1. Battery condition.	Weekly	Turn range switch to BATT COND. Meter pointer should rest at right of center line marked BATT.	Return range switch to OFF.
2. Exterior surfaces of radiacmeter, radiac detector, and shoulder harness.	Weekly	Wipe with a clean, dry cloth, removing all dirt and dust.	None.
3. Radiacmeter front panel screws.	Weekly	Tighten with screw driver.	Do not tighten excessively.
4. Range switch knob.	Weekly	Rotate knob. If loose, tighten setscrew with screw driver. Check to see that knob rests snugly against gasket. If it does not, loosen setscrew, push knob tightly against gasket, and retighten setscrew.	Do not tighten setscrew excessively.
5. Radiac detector plug.	Weekly	Remove all dirt from plug. Obtain special wrench symbol H301 from carrying case. Insert rounded end of wrench into plug slot, and tighten.	Do not tighten excessively.

TABLE 6-1. ROUTINE MAINTENANCE CHECK CHART (Cont'd)

What to Check	When to Check	How to Check	Precautions
6. Packing nut at both ends of radiac detector cable.	Weekly	Tighten with open end wrench.	Do not tighten excessively.
7. Radiacmeter circuit.	Monthly	Check radiac meter with radioactive test sample. (See Section 3, par. 3.)	The radioactive test sample should be used only to check on whether or not the radiacmeter is operating. It should not be used as an accurate means of calibrating or checking sensitivity of this unit. If reading decreases on successive readings over a period of time, investigate and correct cause.
8. Headset	Monthly	Remove dirt. Check tightness of screws and connections.	None.

SECTION 7

CORRECTIVE MAINTENANCE

1. GENERAL.

This section describes the symptoms produced by malfunctioning of the radiac set and the procedures used for localizing and correcting troubles. The most common cause of failure will be dead batteries. Always check the battery condition by turning the meter switch to BATT COND when the radiacmeter is inoperative. When the indicating meter pointer rests to the left of the center line marked "BATT," the batteries are depleted and should be replaced. This test, however, checks the condition of BT103 and BT102 parallel only. Since it is possible that the other batteries are defective, it is advisable to replace the other batteries before attempting to trouble shoot the equipment unless the other batteries were recently replaced.

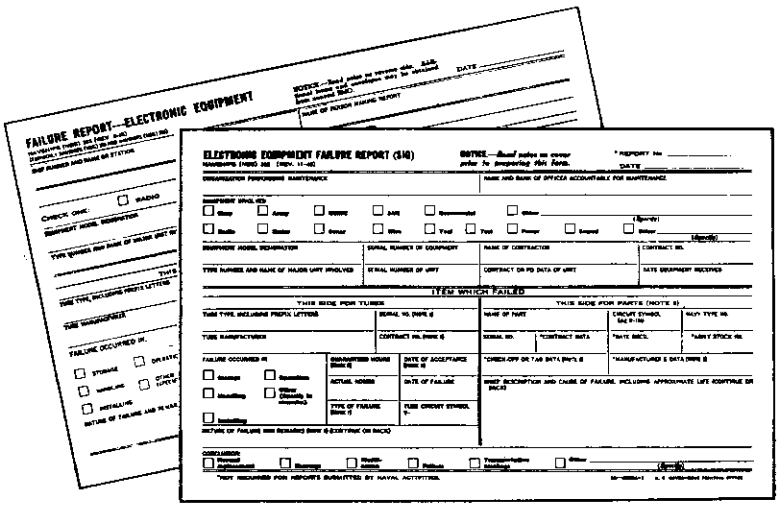


Figure 7-1. Failure Report, Sample Form

FAILURE REPORTS

A FAILURE REPORT must be filled out for the failure of any part of the equipment whether caused by defective or worn parts, improper operation, or external influences. It should be made on Failure Report, form NAVSHIPS 383, which has been designed to simplify this requirement. The card must be filled out and forwarded to BUSHIPS. Full instructions are to be found on each card. (See figure 7-1 for sample form.)

Use great care in filling the card out to make certain it carries adequate information. For example, under "Circuit Symbol" use the proper circuit identification taken from the schematic drawings such as T803, in the case of a transformer, or R207, for a resistor. Do not substitute brevity for clarity. Use the back of the card to completely describe the cause of failure and attach an extra piece of paper if necessary.

The purpose of this report is to inform BUSHIPS of the cause and rate of failures. The information is used by the Bureau in the design of future equipment and in the maintenance of adequate supplies to keep the present equipment going. The cards you send in, together with those from hundreds of other ships, furnish a store of information permitting the Bureau to keep in touch with the performance of the equipment of your ship and all other ships of the Navy.

This report is not a requisition. You must request the replacement of parts through your Officer-In-Charge in the usual manner.

Make certain you have a supply of Failure Report cards, and envelopes on board. They may be obtained from the nearest District Printing and Publication Office.

Note that the operation of the radiacmeter, radiac detector, and headset can be checked with the radioactive test sample. (See Section 3, par. 3.) This test will yield a qualitative estimate of the performance of the equipment; however, the absolute accuracy of the calibration cannot be determined by this means. The test should be made whenever the existence of trouble is suspected. If an incorrect indication is obtained, note the symptoms of the trouble, then localize the fault as instructed in paragraph 2, below.

2. THEORY OF LOCALIZATION.

The radiac set consists essentially of the G-M tubes, the high-voltage supply circuit, the pulse shaper and amplifier circuit, the indicating circuit, the headset, and the battery power supply. (See figure 2-1.) Careful consideration of trouble symptoms will usually make it possible to localize the trouble to one or more of the above circuit groups.

Because both aural and visual indications of radiation intensity are provided, troubles can be readily localized by observing whether the fault affects the indicating meter reading, the clicks in the headset, or both. If the headset is inoperative when the meter is indicating the presence of radiation correctly, the fault must lie in the headset and its associated components. If the meter is inoperative when clicks are being obtained in the headset, the fault must lie in the meter and associated circuit. However, if neither the headset nor the meter respond, the fault must lie in the circuits common to both. In this case, replace Z101, V104, V103, V102, and V101, one at a time, in the sequence listed, and check for proper operation after each replacement. If the fault persists replace the original tubes and Z101, then use the data contained in the voltage-resistance chart (figure 7-2) and in the waveform chart (figure 7-3) to trouble shoot the pulse shaper and amplifier circuit, the high-voltage power supply circuit, indicating circuit, and G-M tubes.

If the radiacmeter is inoperative or gives erratic indications on one or two of the ranges only, the trouble can be readily localized by reference to the complete schematic diagram of the radiac set (figure 7-8). Trouble on one range only indicates that section S101B (front) of the range switch or the associated resistors are defective. Troubles on both the 0.5 and 5 mr/hr ranges indicate that V102 or the probe cable is defective; similarly, trouble on both the 50 and 500 mr/hr ranges indicates that V101 is defective.

Note that the voltages applied to the G-M tubes and the pulse shaper and amplifier circuit are regulated. This is done in order to prevent erratic readings as a result of battery aging and other causes. Therefore, if meter readings are erratic, look for trouble in the voltage regulator circuits, and the meter damping circuit.

3. VOLTAGE-RESISTANCE CHART.

(See figure 7-2.)

CAUTION

Remove batteries from the radiacmeter before measuring resistances. Failure to observe this precaution may damage the ohmmeter as well as meter M101.

Magnitudes of voltage and resistance to ground from the pins at the socket of plug-in unit Z101 and all accessible tubes are contained in the voltage-resistance chart. The conditions under which these readings should be obtained are given in figure 7-2.

4. WAVEFORM CHART.

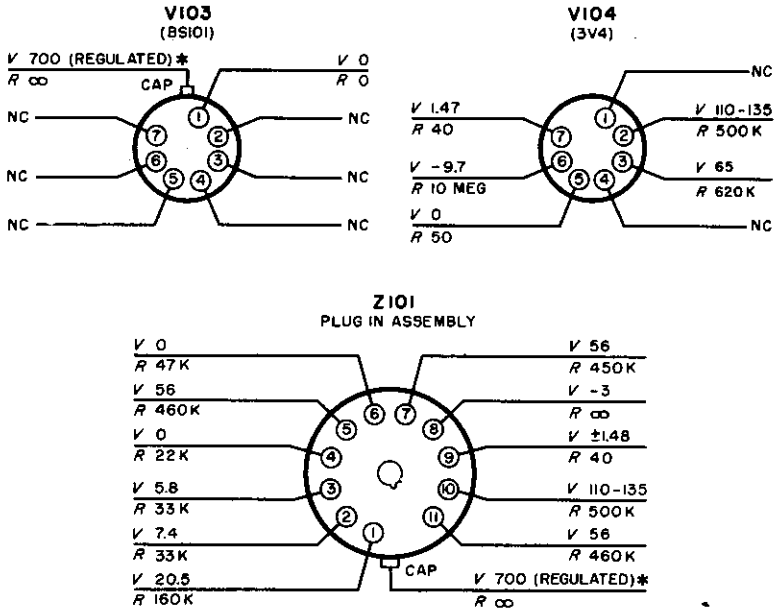
(See figure 7-3.)

Waveforms obtained at significant points in the radiacmeter under normal operating conditions, and the test conditions under which these waveforms are to be obtained are shown in figure 7-3. Be sure to duplicate these conditions accurately when observing the waveforms; if this is not done, the waveforms obtained may differ from those shown in figure 7-3 even though the equipment is operating correctly. These waveforms were obtained with an oscilloscope having a 2-megacycle band width.

5. TROUBLE SHOOTING CHART.

(See table 7-1.)

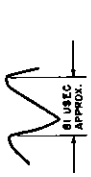
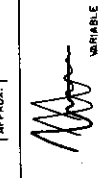
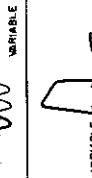
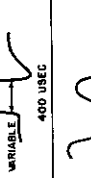
Commonly encountered trouble symptoms, probable location of faults, and procedures for locating defective components are contained in the trouble shooting chart. Refer to figures 7-4, 7-5, and 7-9 for the location of components mentioned in table 7-1.



NOTES:

1. READINGS FOR Z101 MADE WITH RANGE SWITCH ON 500 AND BATTERIES DISCONNECTED.
2. ALL READINGS MADE WITH VOLTOHMYST MODEL WV-97A EXCEPT (*) WHICH IS MADE WITH V.T.V.M. WITH 2000 MEGOHM INPUT RESISTANCE.
3. ALL VOLTAGES ARE DC.
4. ALL RESISTANCES IN OHMS UNLESS OTHERWISE SPECIFIED.
5. K = 1,000 OHMS
6. MEG = 1,000,000 OHMS
7. NC = NO CONNECTION
8. ∞ = INFINITY

Figure 7-2. Voltage-Resistance Chart

WAVEFORM	OSCILLOSCOPE LEAD CONNECTED TO	RANGE SWITCH POSITION	APPROX. AMPLITUDE (VOLTS PEAK-TO-PEAK)	RADIOACTIVE TEST SAMPLE USED	REMARKS
	PLATE LEAD, V 104	500	3.4	NO	CLIP OSCILLOSCOPE LEAD OVER INSULATION (NO DIRECT CONTACT)
	CAP, Z 101	500	27	YES	AMPLITUDE MAY VARY BETWEEN 0.5-VOLT AND 50 VOLTS
	GRID, V 104	500	23	NO	NONE
	J 101	500	2.75	YES	HEADSET DISCONNECTED
	PIN 6, Z 101	50	16.5	YES	NONE
	PIN 3, Y 104	50	22.5	NO	NONE

NOTE: WAVEFORMS TAKEN ON TEKTRONIX MODEL 512 OSCILLOSCOPE. HORIZONTAL WRITING SPEED SET AT 0.27×10^{-3} SECONDS / CENTIMETER. ORDINARY OSCILLOSCOPE SHOULD BE SET AT ABOUT 600 SWEEPS PER SEC.

Figure 7-3. Waveform Chart

ORIGINAL

TABLE 7-1. TROUBLE SHOOTING CHART

SYMPTOM	Probable Location of Fault	Procedure
1. Meter reads zero with range switch at BATT COND.	Battery connections	Check battery connections for corrosion and loose or broken leads.
	Range switch S101	Check contacts on S101C (front) and S101C (rear). Clean or tighten contacts if necessary.
	Meter M101 or multiplier R111	Check M101 and R111
2. No clicks in headset or indication on meter on any range when unit is tested with radioactive sample.	High voltage supply circuit	Measure voltage from cap of V103 to ground, using a 20,000 ohms per volt voltmeter. If less than 435 volts, measure voltages and resistances at V104 socket.
	Plug-in unit Z101	Check voltages at socket of plug-in unit Z101. If incorrect, replace Z101. If fault persists, replace original plug-in unit, and check R101.
	Range switch S101 & headset jack J101	Check contacts of S101. Clean or tighten contacts if necessary. Check J101 and C102.
3. No clicks in headset, meter indicates, on any range when unit is tested with radioactive sample.	Headset and J101	Check head set. Check J101.
	Plug-in unit Z101	Check voltages at socket of plug-in unit Z101. If incorrect replace Z101. If fault persists, replace original plug-in unit.
4. Clicks in headset on any range but no meter indication, when unit is tested with radioactive sample.	Indication circuit	Check voltages at socket of plug-in unit Z101; if incorrect replace Z101. If fault persists, restore original plug-in unit. Check C103, S101C (front), and S101C (rear).

TABLE 7-1. TROUBLE SHOOTING CHART (Cont'd)

Symptom	Probable Location of Fault	Procedure
5. No clicks in headset and no meter indication, on one or more ranges when unit is tested with radioactive sample.	G-M tubes	If fault occurs in both 0.5 and 5 mr/hr ranges, replace V102; if fault persists, check probe cable. If fault occurs in both 50 and 500 mr/hr ranges, replace V101. If fault persists restore original tubes.
	Range switch S101 or calibrating resistors	Check contacts on S101A (front) and S101B (front); clean or tighten if necessary. Check R103 through R110.
6. Constant meter reading on all ranges, independent of radiation intensity.	Plug-in unit Z101	Replace Z101.
7. Meter reading erratic or abnormally high when unit is tested with radioactive test sample. Note: Do not confuse the normal (slight) fluctuations of the meter pointer with the erratic operation indicated here.	Plug-in unit Z101	Check voltages and waveforms at socket of Z101 if incorrect, replace Z101. If fault persists, restore original plug-in unit.
	Range switch S101 or calibrating resistors	Check contacts on S101B (front), S101C (front), and S101C (rear); clean and tighten if necessary. Check R103 through R110. Check V103.
8. Meter scales do not change when range switch is rotated.	Meter card positioning mechanism	Check sprocket chain and its spring. Tighten setscrews on sprocket gears.
9. Meter face not illuminated when radiacmeter is tilted.	Meter illuminating circuit	Check E106, S102, and R116.

NOTE.—For accurate reading of the regulated output voltage, connect a microammeter in series with the cap of V103. Reading should be over 10 microamperes.

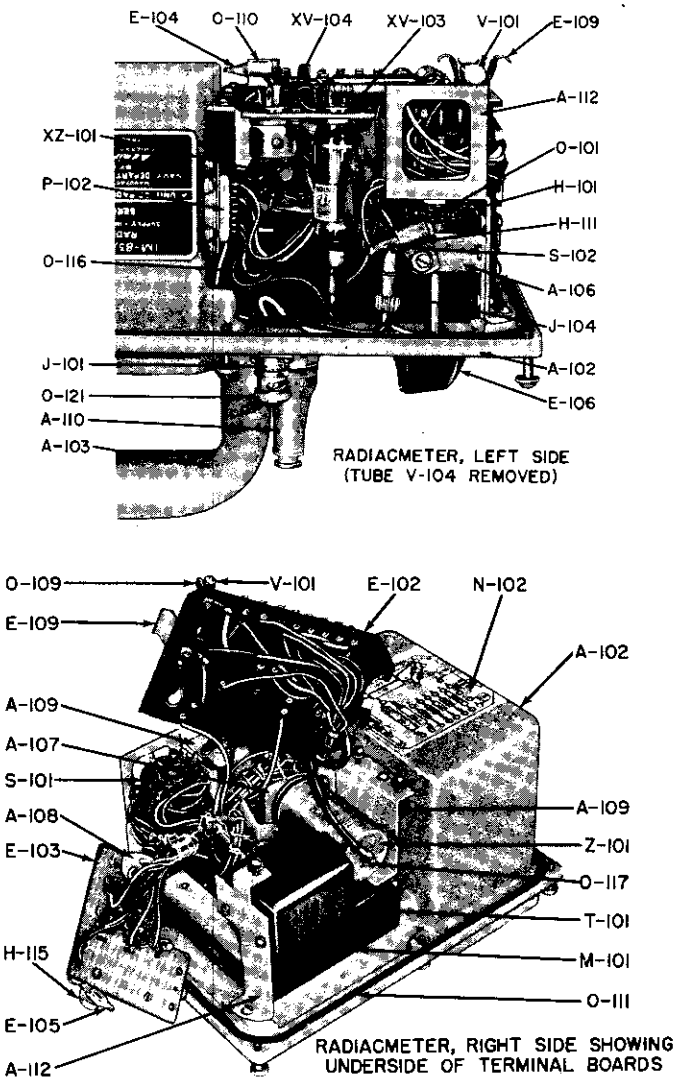


Figure 7-4. Radiacmeter, Showing Internal Components

6. CALIBRATION.

Note

Perform calibration at authorized calibration stations only.

a. GENERAL.—Radiac Set AN PDR-27F was calibrated when manufactured. Although recalibration may be necessary after replacement of plug-in unit Z101 or one of the G-M tubes, it is not necessary, ordinarily, when other components or tubes are replaced. Calibration is a tedious and difficult undertaking, and should not be done unless extreme accuracy of indication is required.

The following equipment is required for complete calibration:

1. An accurately calibrated radium source weighing two (or more) milligrams, or equivalent.

2. Accurate rulers or tapes for measuring the distance between the radium source and the radiacmeter.

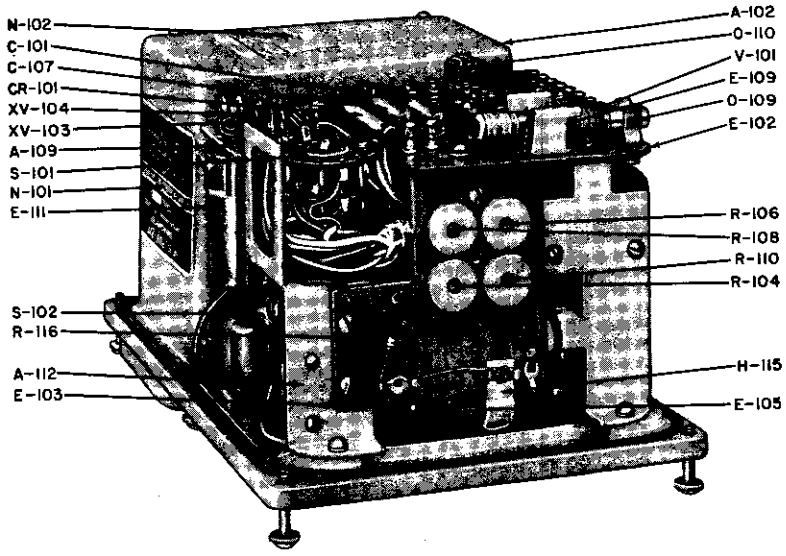


Figure 7-5. Radiacmeter Panel, Left Side, Showing Potentiometers

Calibration must be performed in an area free of large metallic objects. This precaution is necessary in order to avoid inaccuracies in the calibration due to secondary radiation effects.

b. CALIBRATION PROCEDURE.

WARNING

Calibration of this equipment necessitates the use of a radioactive substance. Exercise due caution in the handling of the source. Obey all radiation safety precautions. Perform the calibration as rapidly as possible to avoid prolonged exposure to the radiation.

Step 1. Remove the calibration port. Check to see that the beta shield covers the end of the radiac detector, then slip the detector into the well of the radiacmeter.

Step 2. Arrange the equipment as indicated in figure 7-6. Measure and adjust each distance carefully, then observe the radiacmeter indication; if it differs by more than 10 percent from the specified value, adjust the proper calibrations potentiometer until the correct value is indicated on the meter. If the weight of the radium source is not 2 milligrams, or if it is desired to calibrate the radiacmeter at intensities not shown in figure 7-6, use the following formula to find the relation between meter indication and distance between radiacmeter and radium source:

$$D = \sqrt{\frac{1.3 \times w}{r/hr}}$$

where

r/hr = radiation intensity in roentgens per hour

w = weight of radium source in milligrams

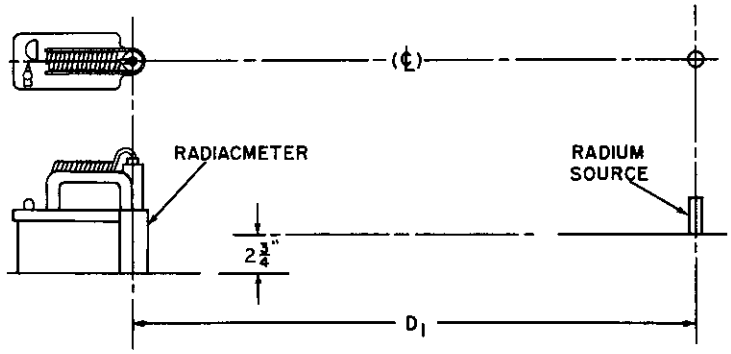
D = distance between radiacmeter and radium source in inches

Step 3. After adjusting all ranges, turn range switch to OFF.

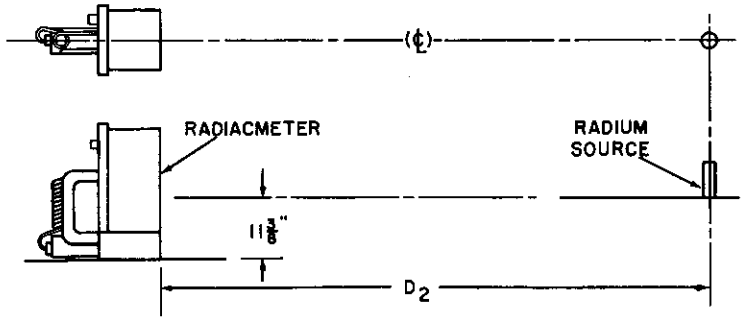
Step 4. Return the radium source to a safe location or remove the equipment from the radiation field of the source.

Step 5. Replace the calibration port using rounded side of the special wrench.

SETUP FOR .5 AND 5 RANGES



SETUP FOR 50 AND 500 RANGES



CHECK	RANGE	D_1 INCHES	D_2 INCHES	ADJUST	TO READ mr/hr
1	.5	80.6	——	R-110	.40
2	5.	25.4	——	R-104	4.
3	50.	——	8.06	R-106	40.
4	500.	——	2.54	R-108	400.

NOTE 1. ABOVE VALUES APPLY ONLY TO CALIBRATION BY 2-MILLIGRAM RADIUM SOURCE

NOTE 2. RADIUM SOURCE MUST BE SET UP IN LINE WITH DIMPLE IN STEPS 3 AND 4

Figure 7-6. Calibration Setup and Values

7. REMOVAL AND REPLACEMENT OF PARTS.

a. REMOVAL OF V102. *(See figure 7-7.)*

Step 1. Turn the range switch to OFF.

Step 2. Lift the radiac detector out of the well.

Step 3. With your fingers, spread the ears of the beta shield and remove the shield.

Step 4. Using the spanner end of the special wrench H301 *(See figure 1-1)* furnished with the equipment, unscrew the retaining ring (O205) and remove it.

CAUTION

The mica window of V102 is 0.0005-inch thick. Do not touch this window under any conditions. Damage to the tube will result.

Step 5. Being careful not to touch the mica window of V102, lift out the guard H204.

Step 6. Unscrew threaded ring at the end of the probe using the spanner end of the special wrench. Remove the cap; be careful not to lose the "O" ring.

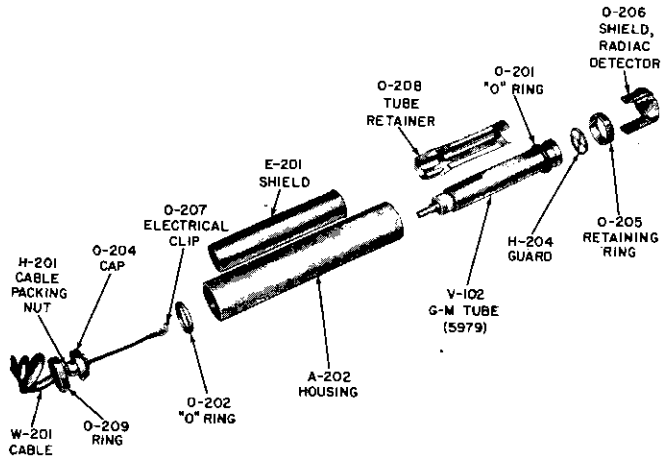


Figure 7-7. Radiac Detector DT-101/PDR-27F, Exploded View

Step 7. Using long-nosed pliers, remove the anode clip from the V102 anode cap.

Step 8. With your thumb, push the anode cap lightly into the housing, causing V102 to slide out of the front end of the probe housing.

b. REPLACEMENT OF V102. *(See figure 7-7.)*

Step 1. Slip the "O" ring over the anode end of V102, then roll the ring along the tube to within ½-inch of the flange near the mica window.

Step 2. Slide V102 into the housing until it is stopped by the "O" ring. Do not attempt to install the tube in any other manner. The ½-inch spacing of the "O" ring on the tube is essential so that the ring may slip into its proper position when the tube is inserted in its housing.

Step 3. Use a large flat surface, being careful not to touch the mica window. Hold the probe in a vertical position, with the window end of the tube against the flat surface. Exert light pressure until V102 rolls into its housing.

Step 4. Still holding the probe with the window facing down, replace the guard in the retaining ring. Screw the retaining ring into the housing and tighten with the spanner end of the special wrench.

Step 5. Insert the "O" ring in the rear of the housing.

Step 6. Using long nosed pliers, place the anode clip on the V102 anode cap.

Step 7. Screw the threaded ring into the rear of the housing. Using the spanner end of the special wrench, tighten the cap. Then tighten the cable packing nut.

Step 8. Replace the beta shield on the front of the probe.

c. REPLACING HIGH VOLTAGE AMPLIFIER V104 (3V4) TUBE.—In some 3V4 tubes, the plate current will not cut off at high voltages as required for proper operation in this equipment. In such cases the current through the High Voltage Regulator V103 (BS-101) will be less than 15 microamperes, which is the minimum requirement for proper operation.

d. REPLACING OF TRIGGER AMPLIFIER (Z101)

Step 1. Remove cap from external top lead.

Step 2. Loosen case grounding screw.

Step 3. Remove tube V104.

Step 4. With a blunt tool push on the bottom of the center plug of Z101.

Use caution as unit fits snugly in its socket and damage may occur to external top lead as unit becomes free.

TABLE 7-2. TUBE OPERATING VOLTAGES AND CURRENTS

Tube Type	Function	Plate (V) (1)	Plate (Ma)	Screen (V) (1)	Screen (Ma)	Cath. (V) (1)	Grid (V) (1)	D-C Heater (V)
3V4	High-voltage power supply amplifier tube	135 to 110	1.6 (1)	100 to 85	0.135 (2)	0 (3)	—1	1.3 to 1.0
BS-1	Radiation detector	700 to 435 (4)	0			0		
BS-2	Radiation detector	700 to 435 (5)	0			0		
BS-101	High-voltage regulator	700 to 450	0.015 to 0.030			0		

(1) Readings are dc, taken to ground with 20,000-ohm-per-volt d-c voltmeter

(2) Very wide variation

(3) At pin #5

(4) With S101 set at .5 or 5; otherwise 0

(5) With S101 set at 50 or 500; otherwise 0

TABLE 7-3. TUBE CHARACTERISTICS

Characteristics	TUBE TYPE			
	3V4	BS-1	BS-2	BS-101
Filament Voltage (V)	1.4 (parallel-connected)			
Filament Current (A)	0.10			
Plate Voltage (V)	90	700	700	700
Grid Bias (V)	–4.5			
Screen Voltage (V)	90			
Plate Current (Ma)	7.7	(too small to be measured)	(too small to be measured)	0.020
Screen Current (Ma)	1.7			
A-C Plate Resistance (Ohms)	120,000			
Transconductance (Microhms): Normal Minimum	 2000 1500			

Step 5. Insert new Z101 in the socket.
Step 6. Tighten case grounding screw.
Step 7. Replace V104.
Step 8. Replace cap to external top lead.

8. COMPONENT CHARACTERISTICS.

a. ELECTRON TUBES. Table 7-2 lists the operating voltages and currents of all accessible tubes in the radiac set. Note that data for the tubes in plug-in unit Z101 have not been included. Table 7-3 lists the characteristics of the accessible tubes in the radiac set. Data for the tubes in plug-in unit Z101 have not been included.

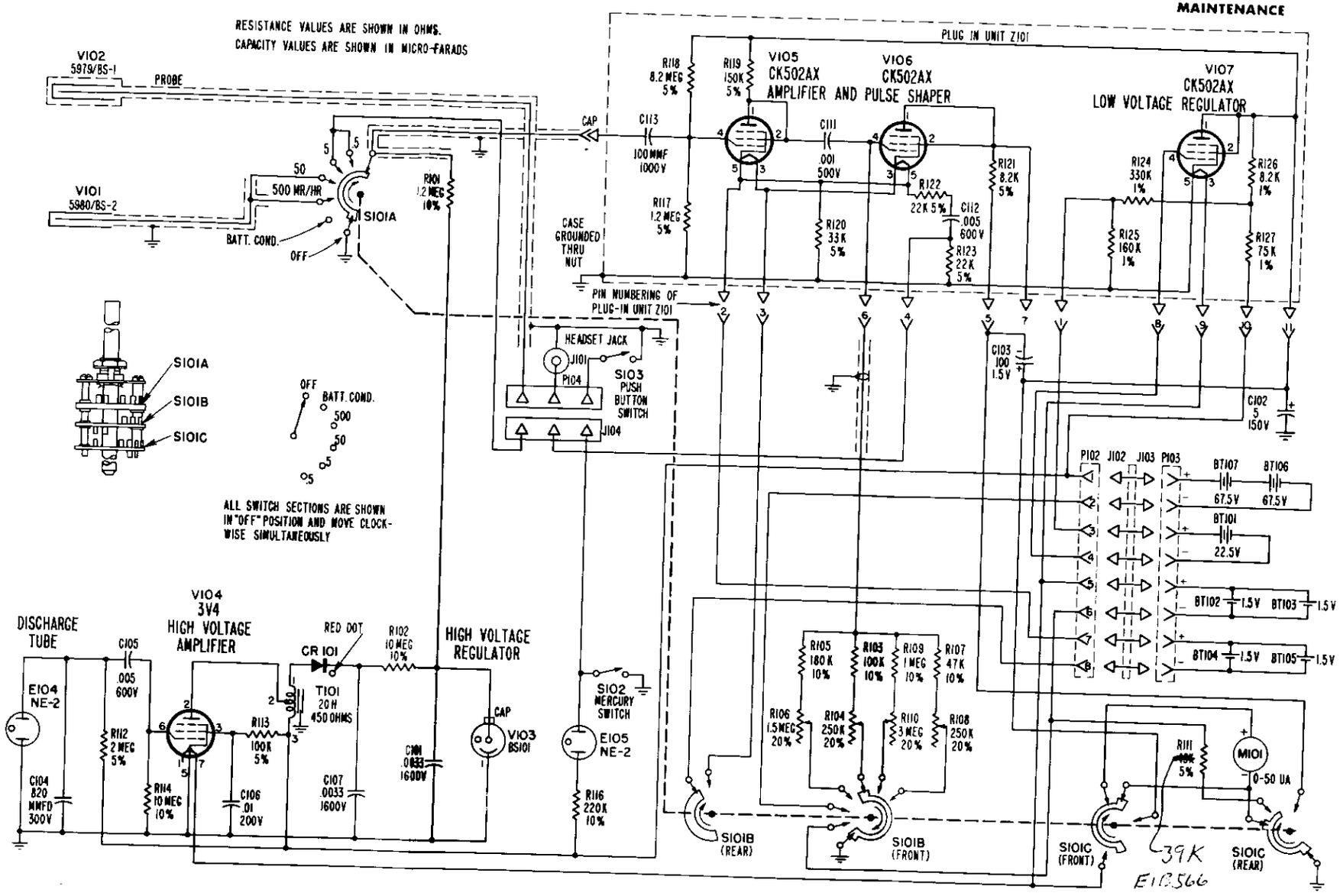
Note

All tubes of a given type supplied with the equipment shall be consumed prior to employment of tubes from general stock.

b. WINDING DATA. Winding data for inductor T101 are contained in table 7-4.

TABLE 7-4. WINDING DATA

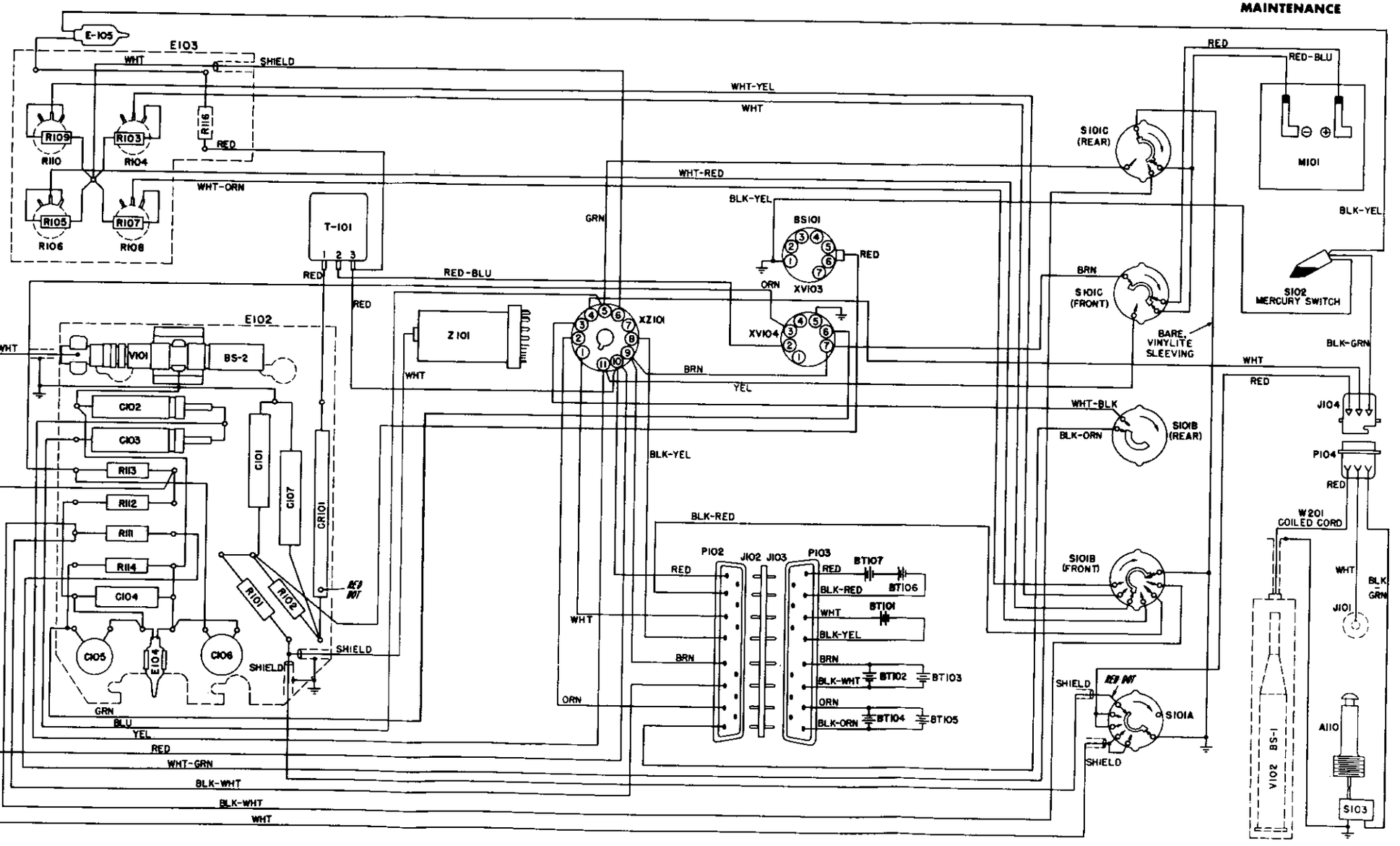
Designation Symbol	Admiral Part No.	Diagram	Winding	Wire	Turns	D-C Resistance (Ohms)	Working D-C (Volts)	Remarks
T101	574B4-1		Single center tapped	No. 36 Formex Insulated	5050	450	1070	Inductance: 17 hy min 22 hy max at 3 ma DC 400 cps 10V



NOTE:

1. UNLESS OTHERWISE INDICATED:
   ALL RESISTANCE VALUES ARE IN OHMS
   ALL CAPACITANCE VALUES ARE IN MICROFARADS
   ALL INDUCTANCE VALUES ARE IN HENRIES
   K = 1,000 OHMS
   MEG = 1,000,000 OHMS
   UF = MICROFARADS
2. ALL SWITCH SECTIONS ARE SHOWN IN "OFF" POSITION
3. SWITCH SECTIONS, AS VIEWED, ROTATE CLOCKWISE

Figure 7-8. Radiac Set AN/PDR-27F, Schematic Diagram



WIRE RUNNING LIST AND COLOR CODE		
FROM	TO	COLOR
XZ101-10	BT106(+), BT107(+)	RED
XZ101-10	R113	RED
XZ101-10	T101-3	RED
R-116	T101-3	RED
XZ101-9	BT102(+), BT103(+)	BRN
XZ101-9	XV104-7	BRN
XV104-7	S101C (FRONT)	BRN
R111	BT102(-), BT103(-)	BLK-WHT
R111	S101B (FRONT)	BLK-WHT
XZ101-2	BT104(+), BT105(+)	ORN
XZ101-8	BT101(-)	BLK-YEL
BT106(-), BT107(-)	S101B (FRONT)	BLK-RED
BT104(-), BT105(-)	S101B (REAR)	BLK-ORN
XZ101-1	BT101(+)	WHT
XZ101-11	C102, C103	YEL
XZ101-11	S101C (FRONT)	YEL
XZ101-3	S101B (REAR)	WHT-BLK
XZ101-5	S101C (REAR)	GRN
C105	XV104-6	GRN
XZ101-5	C103	BLU
XV104-5	BS-2, C101-GND	BLK
XZ101-6	R105	SHIELD
S101A	R101	SHIELD
BS-2	S101A	SHIELD
XV104-3	R113	ORN
XV104-5	S101B (FRONT)-GND	BLK
R106	S101B (FRONT)	WHT-RED
R108	S101B (FRONT)	WHT-ORN
R110	S101B (FRONT)	WHT-YEL
R104	S101B (FRONT)	WHT
R111	S101C (REAR)	WHT-GRN
M101(+)	S101C (FRONT)	RED HEAVY
M101(-)	S101C (REAR)	RED-BLU HEAVY
XV104-2	T101-2	RED-BLU HEAVY
CR101	T101-1	RED HEAVY

COLOR CODING ABBREVIATIONS:

BLK = BLACK
BLU = BLUE
BRN = BROWN
GRN = GREEN
ORN = ORANGE
RED = RED
YEL = YELLOW
WHT = WHITE
HEAVY = HEAVY WIRE

Figure 7-9. Radiac Set AN/PDR-27F, Wiring Diagram

SECTION 8
PARTS LISTS

TABLE 8-1. LIST OF MAJOR UNITS

GROUP SYMBOL	QTY.	NAME OF MAJOR UNIT	NAVY TYPE DESIGNATION	STANDARD NAVY STOCK NUMBERS
	1	Radiac Set	AN/PDR-27F	F16-Q-114446-100 Eqpt w/o spares
		Consisting of:		F16-Q-114446-200 Eqpt with spares
101-199	1	Radiacmeter	IM-85/PDR-27F	
201-299	1	Radiac Detector	DT-101/PDR-27F	
301-399	1	Case	CY-1296/PDR-27F	
401-499	1	Radioactive Test Sample	MX-1083B/PDR-27	N16-C-14241-1210
501-599	1	Headset	H-43A/U or H-43/U	N17-H-52003-1621 N17-H-52047-2108
601-699	1	Strap, Carrying	ST-125/PDR-27E	N16-S-690501-143

TABLE 8-2. TABLE OF REPLACEABLE PARTS

REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
A101	"Shop manufacture."	HOUSING: houses radiacmeter; p/o Army-Navy Radiacmeter IM-85/PDR-27F; aluminum, light gray finish; 2¼ lb. approx. weight; rectangular shape; 10-19/64 in. lg, 5-13/16 in. wide, 4-1/4 in. deep, o/a; six no. 8-32 thread tapped mounting holes; marked "RADIACMETER IM-85/PDR-27F" on base of housing; has cast probe well in rear; CQC part/dwg no. 520D33-1. or HOUSING: same as A101 except olive-drab finish; CQC part/dwg no. 520D33-2.	Housing for Radiacmeter
A102	"Shop manufacture."	PANEL MOUNTING: p/o Army-Navy, Admiral Corp. Radiacmeter IM-85/PDR-27F; aluminum, light gray enamel finish; 1 lb. 7 oz. approx; rectangular shape; 8-11/16 in. lg, 5-13/16 in. wide, 4-3/16 in. deep; six 0.136 in. dia. core no. 8-32 tap mounting holes; marked with cast letters "OFF," "BATT. COND" and with numerals "500," "50," "5," and "0.5"; has cutouts for meter, battery compartment cover, and for headset jack; has internally threaded mountings for Switch Actuating Sub-Assembly and for detector cord; CQC part/dwg no. 520D35-1. or PANEL MOUNTING: same as A102 except olive-drab enamel finish; CQC part/dwg no. 520D35-2.	Panel for radiacmeter, and battery compartment housing
A103	"Shop manufacture."	COVER: aluminum; light gray enamel finish; ⅝ lb/approx. weight; 5-7/32 in. lg, 5⅝ in. wide, 3-3/16 in. high o/a; four no. 8-32 tapped mounting holes on 4-15/32 in. and 3½ in. mounting centers; has handle hollowed on 9/16 in. radius to hold coiled probe cord; CQC part/dwg no. 520C34-1. or COVER: same as A103 except olive-drab enamel finish; CQC part/dwg no. 520C34-2.	Handle for radiacmeter, cover for battery compartment

SECTION 8
PARTS LISTS

ORIGINAL

TABLE 8-1. LIST OF MAJOR UNITS

GROUP SYMBOL	QTY.	NAME OF MAJOR UNIT	NAVY TYPE DESIGNATION	STANDARD NAVY STOCK NUMBERS
	1	Radiac Set	AN/PDR-27F	F16-Q-114446-100 Eqpt w/o spares F16-Q-114446-200 Eqpt with spares
		Consisting of:		
101-199	1	Radiacmeter	IM-85/PDR-27F	
201-299	1	Radiac Detector	DT-101/PDR-27F	
301-399	1	Case	CY-1296/PDR-27F	
401-499	1	Radioactive Test Sample	MX-1083B/PDR-27	N16-C-14241-1210
501-599	1	Headset	H-43A/U or H-43/U	N17-H-52003-1621 N17-H-52047-2108
601-699	1	Strap, Carrying	ST-125/PDR-27E	N16-S-690501-143

TABLE 8-2. TABLE OF REPLACEABLE PARTS

REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
A101	"Shop manufacture."	HOUSING: houses radiacmeter; p/o Army-Navy Radiacmeter IM-85/PDR-27F; aluminum, light gray finish; 2¼ lb. approx. weight; rectangular shape; 10-19/64 in. lg, 5-13/16 in. wide, 4-1/4 in. deep, o/a; six no. 8-32 thread tapped mounting holes; marked "RADIACMETER IM-85/PDR-27F" on base of housing; has cast probe well in rear; CQC part/dwg no. 520D33-1. or HOUSING: same as A101 except olive-drab finish; CQC part/dwg no. 520D33-2.	Housing for Radiacmeter
A102	"Shop manufacture."	PANEL MOUNTING: p/o Army-Navy, Admiral Corp. Radiacmeter IM-85/PDR-27F; aluminum, light gray enamel finish; 1 lb. 7 oz. approx; rectangular shape; 8-11/16 in. lg, 5-13/16 in. wide, 4-3/16 in. deep; six 0.136 in. dia. core no. 8-32 tap mounting holes; marked with cast letters "OFF," "BATT. COND" and with numerals "500," "50," "5," and "0.5"; has cutouts for meter, battery compartment cover, and for headset jack; has internally threaded mountings for Switch Actuating Sub-Assembly and for detector cord; CQC part/dwg no. 520D35-1. or PANEL MOUNTING: same as A102 except olive-drab enamel finish; CQC part/dwg no. 520D35-2.	Panel for radiacmeter, and battery compartment housing
A103	"Shop manufacture."	COVER: aluminum; light gray enamel finish; ⅝ lb/approx. weight; 5-7/32 in. lg, 5⅝ in. wide, 3-3/16 in. high o/a; four no. 8-32 tapped mounting holes on 4-15/32 in. and 3½ in. mounting centers; has handle hollowed on 9/16 in. radius to hold coiled probe cord; CQC part/dwg no. 520C34-1. or COVER: same as A103 except olive-drab enamel finish; CQC part/dwg no. 520C34-2.	Handle for radiacmeter, cover for battery compartment

A104	N17-B-500001-147	BATTERY BOX: fiberfill styrene-G; tapered box; mtg end, 3-9/16 in. lg, other end 3-11/16 in. lg, by front 4.016 in. wd, bottom 3.952 in. wd, by 2¾ in. h; 3 compartments, first 2-13/16 in. lg by 2⅜ in. wd, second 2-7/32 in. lg by 23/32 in. wd, third 55/64 in. lg by 3-9/16 in. wd; natural color; including contacts E107, E108; connector plug, P-103; cable clamp, H112; battery cable; CQC part/dwg no. GD437.	Battery container for BT101, BT106, BT107 and A105
A105	N17-B-500001-148	BATTERY BOX: fiberfill styrene-G; 3-3/16 in. lg o/a x 2¾ in. wd o/a; 2 compartments, both 1-5/16 in. lg x 2-9/16 in. wd, w/⅝ in. radius corners of 1-5/16 in. side including contacts E115; CQC part/dwg no. GB438.	Holds BT102, BT103, BT104, and BT105
A106	"Shop manufacture."	BRACKET: mercury switch mtg; "L" shape; aluminum, caustic dip and clear water dip lacquer finish; 1¼ in. lg x ⅜ in. wide max. x 1-13/16 in. high; mounts by two 0.166 in. dia mtg holes ¼ in. from each end; "S102" and "J-104" metal stamped on arm of bracket; 3 no. 4-40 pem nuts set in holes; p/o Army-Navy Radiacmeter IM-85/PDR-27F; CQC part/dwg no. GA480.	Mounts and supports mercury switch S102 and connector plug J104
A107	"Shop manufacture."	BRACKET: mounts Trigger Amplifier Z101; "L" shape; aluminum, caustic dip and clear water dip lacquer finish; 1½ in. lg by 1⅜ in. wide by 1⅜ in. mtg c; p/o Army-Navy Radiacmeter IM-85/PDR-27F; CQC part/dwg no. 515A171.	Mounts Radiacmeter Sub-Assembly Z101
A108	"Shop manufacture."	BRACKET: "L" shape, edges curved; aluminum, caustic dip and clear water dip lacquer; one arm of right angle ¾ in. lg by 7/16 in. wide, other arm ¾ in. lg by 13/32 in. wide; mounts by two 0.187 in. dia holes; one centrally located 9/32 in. from joint edge, other hole located off-center ¼ in. from common edge; has two no. 6-32 pem nuts set in the holes; p/o Army-Navy Radiacmeter IM-85/PDR-27F; CQC part/dwg no. GA334.	Joins terminal board E102 and E103
A109	"Shop manufacture."	BRACKET: irregular shaped; aluminum, caustic dip and clear water dip lacquer; 4⅜ in. lg by 2⅞ in. wd hy 2 in. high; mounts by two 0.156 in. dia mtg holes on 1-25/32 in. mtg centers; "V103," "V104," "BS101" and "3V4" metal stamped on bracket; p/o Army-Navy Radiacmeter IM-85/-PDR-27F; CQC part/dwg no. 515B172.	Mounts V103 and V104

REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
A110	N17-A-25801-1069	ACTUATOR, SWITCH: principal parts consist of 1 post, A113, 1 push button, H116, 1 water seal gasket, 0125, 1 water seal gasket, 0126, 1 retaining ring, 0127; 2 in. lg, approx ⅞ in. dia approx o/a; mts into radiacmeter panel by ⅜ in.—11 thd termination on one end of post; light gray enamel finish; CQC part/dwg no. GA425-1. ACTUATOR SWITCH: same as A110 except olive-drab enamel finish; CQC part/dwg no. GA-425-2.	Actuates Switch, S103, thru Spring Assembly 0124
A111	"Shop manufacture."	POST SUPPORTING: aluminum; caustic dip and clear water dip lacquer; holds meter by 0.140 in. dia by 0.109 in. fine straight knurled termination at one end of mounting, mounts to supporting object by no. 8-32 thd by ⅜ in. lg internal termination at other end; 0.640 in. lg by ¼ in. dia; CQC, part/dwg no. 529A28.	Spacer mounting for M-101
A112	"Shop manufacture."	MOUNTING: aluminum; caustic dip and clear water dip lacquer; supports rotary switch by 0.375 in. dia mounting holes; mounts meter thru four 0.187 in. dia mounting holes; mounts to terminal boards by four 0.156 in. dia mounting holes; irregular shape, 4⅞ in. lg by 3¼ in. wide; CQC, part/dwg no. 515C173.	Mounts S-101 and M-101
A113	"For reference only."	POST, SUPPORTING: houses push button, waterseal gasket and retaining ring of Switch Actuating Sub-Assembly, A110, p/o Army-Navy, Admiral Corp Radiacmeter, IM-85/PDR-27F; ALCOA #380 aluminum as per Navy Spec. 46A-14A, caustic dipped and painted light gray enamel; ⅞ in. dia, 1¾ in. high, o/a; mounts by ⅜ in—11 full thread portion of post; CQC part/dwg no. 520B37-1 p/o A110. or POST: same as A113 except painted olive drab enamel; CQC part/dwg no. 520B37-2.	Supports Push Button, H116
A114	"Shop manufacture."	BRACKET: supports tube bracket, CQC part/dwg 515B172; no. 14 GA B&S aluminum; caustic dip and clear water lacquer finish, irregular shape; 1-1/16 in. lg, 1¼ wd, ⅞ in. h approx; two mounting holes 0.125 in. dia; 5/16 in. by ¼ in. mounting C, and 3/16 in. by ¼ in. mounting C; CQC part dwg no. 515A195.	Supports one end of Radiacmeter

BT101	N17-B-59177-3036	BATTERY, DRY: 22.5 volts: 15 "FL-1" cells; rectangular shape; 1-15/16 in. lg, 1 in. wd, ⅜ in. h; w/out wax coating; 2 flat contact type terminals; 3/16 in. by 5/16 in. minimum, one centered on each end; sal-ammoniac paste type; Army-Navy, battery, dry, type BA-261/U; JAN, spec no. JAN-B-18A, spec type no. JAN-BA-261/U.	Supplies reference voltage for shunt voltage regulator grid
BT102	N17-B-58733-4980	BATTERY, DRY: mercury cell-1 cell; 1.345 v; cylindrical; 1.220 in. dia x .650 in. h; metallic case; 2 flat surface type terminals; General Dry Batteries, Inc. type RG-4(B).	Filament battery for V105, V106
BT103		Same as BT102.	Filament battery for V105, V106
BT104		Same as BT102.	Filament battery for V104, V107
BT105		Same as BT102.	Filament battery for V104, V107
BT106	N17-B-59476-5219	BATTERY, DRY: 67½ v; 45 cells; wrapped cell type; rectangular; 2-13/16 in. lg x 2-7/16 in. wd x 1⅜ in. dia; non-metallic case, snap type terminals; sal-ammoniac paste type; National Carbon Co. Div. of Union Carbide & Carbon Corp., type #457.	Plate power supply for entire unit
BT107		Same as BT106.	Plate power supply for entire unit
C101	N16-C-40595-3285	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section, case style no. 2, MBCA ref dwg Group 1; 3300 mmf, ±20% tolerance; 1600 v DCW; molded phenolic case; 1¼ in. ±1/32 in. lg, ⅜ in. + 1/32 in. dia excluding terminals; 2 terminals; wire lead type, one at each end, non-insulated, mineral oil impregnated; no internal ground connections; terminal mounted; designed to operate over temp range of −40°C to +85°C; CSF type no. 73P332016 (CQC part/dwg no. 565A4-1).	High voltage filter capacitor
C102	N16-C-19464-6810	CAPACITOR, FIXED, ELECTROLYTIC: case style no. 17 less paper tube & mounting strap, MBCA ref dwg Group 1; 1 section, 5 mf +100% −10%; 150vdcw plus 85°C to −40°C operating tem range; hermetically sealed metal can; 1⅛ in. lg, 7/16 in. dia max; 2, axial wire lead type terminals, located at opposite ends, uninsulated; negative terminal internally grounded to case; terminal mounted; capacity, tolerance and voltage stamped on case; CD catalogue no. BBR-5-150 (CQC part/dwg no. 567A2-2).	Shunt regulator storage capacitor

REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
C103	N16-C-20175-8375	CAPACITOR, FIXED, ELECTROLYTIC: case style no. 17 less paper tube and mounting strap, MBCA ref, dwg Group 1; 1 section; 100 mf +250% —10%; 1.5 vdcw plus 85°C to —40°C operating temp range; hermetically sealed metal can; 1⅛ in. lg, 7/16 in. max dia 2, axial wire lead type term, located at opposite ends, uninsulated; negative terminal internally grounded to case; terminal mounted; capacity, tolerance and voltage stamped on case; CD catalogue no. BBR-100-1.5 (CQC part/dwg no. 567A2-1).	Metal damping
C104	N16-C-30742-4312	CAPACITOR, FIXED, MICA DIELECTRIC: case style no. 22, MBCA ref dwg Group 1; 820 mmf, ±5% tolerance; 300 v DCW; molded low-loss bakelite case; 51/64 in. lg, 15/32 in. wide 7/32 in. thick; 2, wire lead type terminals, located one on each end; terminal mounted; CMR type no. OXM; CQC part/dwg 565C3-45.	Charging capacitor for sawtooth generator E104
C105	N16-C-18983-9876	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 5000 mmf min. capacity; 600 v DC working; insulated, Durez coated; 9/16 in. dia, 0.156 in. max thickness; 2, wire lead terminals, 1½ in. lg; terminal mounted, vacuum wax impregnated; CZN type no. DD502; (CQC part/dwg 565A1-5).	Coupling for grid of V104
C106		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10,000 mmf +100%, —20%; 500 v DC working; insulated, Durez coated; ¾ in. dia x 5/32 in. thk; 2 wire lead type terminals 1¼ in. lg; terminal mounted; vacuum wax impregnated; CQC part/dwg 565B13-1.	Screen RF by-pass, V104
C107		Same as C101.	High voltage filter capacitor
C108		NOT USED.	
C109		NOT USED.	
C110		NOT USED.	
C111	"For reference only."	CAPACITOR, FIXED, MICA DIELECTRIC: case style no. 22, MBCA ref dwg Group 1; 1000 mmf, ±5% tolerance; 500v DCW; molded low-loss bakelite case; ¾ in. lg, 7/16 in. wide, 3/16 in. thick; 2, wire lead type terminals, located axially on opposite sides; terminal mounted, leads 1¼ in. lg min; CQC, part/dwg no. 565C3-8; p/o Z101.	Coupling capacitor for V106

C112		Same as C105.	Coupling for J101; p/o Z101, listed for reference only
C113	"For reference only."	CAPACITOR, FIXED, MICA DIELECTRIC: case style no. 22, MBCA ref dwg Group 1; 100 mmf ±10% tolerance; 1000 v DC Working; molded low-loss bakelite case; 25/32 in. lg ½ in. wide, ¼ in. thick; 2, wire lead type terminals, located axially on opposite sides; terminal mounted, leads 1¼ in. lg min; CMF type no. V5B; p/o Z101, (CQC part/dwg no. 565C3-4).	Coupling capacitor to grid of V105
CR101	N17-R-51614-7839	RECTIFIER, METALLIC: selenium; designed for single phase half wave circuit, MBCA ref dwg Group 23; input, 900 v AC approx at 1350 cps, single phase; output, 900 v DC, 1000 microamps max current, half wave rectification; cylindrical shape, 2 in. lg ¼ in. dia o/a; terminal mounted by axial wire leads; 2 terminals, wire pigtail type, located axially on opposite ends; polarity indicated; International Rectifier Corp. part no. U45HP CQC part/dwg 593A1-2.	High voltage rectifier
		or	
	N17-R-51614-7801	RECTIFIER, METALLIC: Same as CR101 except 150 microamps max current; 1½ in. lg, 3/16 in. dia, o/a; International Rectifier Corp, part no. T-35-HP; CQC part/dwg 593A1-3.	Alternate for CR101
E101		NOT USED.	
E102	"Shop manufacture."	TERMINAL BOARD: glass melamine, 3/32 in. thick; 26 terminals, 25 turret lug type, 1 terminal lug type; w/o barriers; 4-9/16 in. lg, 3-5/16 in. wide; 2 irregular slotted mounting holes plus 2 keyhole type mounting holes; marked E102, E104, 5980/BS-2, C101, C102, C103, C104, C105, C106, C107, CR101, R101, R102, R111, R112, R113 & R114; CQC part/dwg no. 532C95.	Mounts high voltage circuit components and V101
E103	"Shop manufacture."	TERMINAL BOARD: glass melamine type GMG as per Spec 17P25; 4 terminals, solder lug type; w/o barriers; 2-13/16 in. lg, 2¾ in. wide, 3/32 in. thick, o/a; has three 0.144 in. dia mounting holes; marked E103, 500 MR R108, 50 MR R106, 5 MR R104, .5 MR R110, E105 and R116 on front, marked R103, R107, R109, R105 on back; impregnated w/fungicidal varnish, shaped in form of "L," CQC part/dwg no. 532B93.	Mounts calibration controls R104, R106, R108 and R110

REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
E104	G17-L-6806-120	LAMP, GLOW: 105-125v, 1/25W; glow lamp, 1/25 w, 65v AC striking voltage; 90V DC striking voltage; two wire lead base; bulb, T2, clear, 2 electrodes, W11 filament; 1-1/16 in. max over-all height; any burning position; neon gas, external resistance required, 200,000 ohms for 105-125v operation; Navy, lamp, glow, type no. VG11; CG type no. NE-2, CQC part/dwg 581A1-1.	Discharge tube for sawtooth generator
E105		Same as E104.	Meter illumination for M101.
E106	N16-K-700065-926	KNOB: round, pointer type, bakelite; black; designed to accommodate shaft, flatted, ¼ in. dia ½ in. deep shaft hole, set screw fastening; brass or non-ferrous metal insert of equal strength; white or ivory indicator line marking; 1¼ in. lg, ¾ in. wide, 21/32 in. high, o/a; counterbored shaft opening, corrosion protected; Rogan Brothers, part no. RB-41 CQC part/dwg 533A2-1.	Off, battery condition and range switch knob
E107	"Shop manufacture locally"	CONTACT, ELECTRICAL: p/o battery box A104; beryllium copper, silver plated finish; 1-1/16 in. lg by ¼ in. wd by ⅜ in. h contact surface; two mounting hole 5/16 in. from center of battery box w/.093 in. dia; contacts extend in straight line, opposite each other, and extend out from battery box 3/16 in.; connecting lead hole 0.047 in. from end on short leg; CQC part/dwg 518A59.	Battery contacts for battery box A104
E108	"Shop manufacture locally"	CONTACT ELECTRICAL: p/o battery box A-104, for BT101; beryllium copper, silver plated finish; 1-3/32 in. lg by ¼ in. wd by 7/16 in. h; contact surface; mounting hole on long leg, 7/32 in. from short leg and 0.093 in. dia; extends from battery box ⅜ in.; connecting lead hole 0.047 in. dia, 0.047 in. from end on short leg; CQC part/dwg 518A58.	Battery contacts for BT101
E109	N16-S-35921-1013	SHIELD ASSEMBLY, tube; p/o Army-Navy, Admiral Corp. Radiacmeter, IM-85/PDR-27F; c/o lead shield, E109B and phosphor bronze shield E109A, "U" shaped; 1-1/16 in. wide at top, 7/16 in. wide at bottom, 21/32 in. high, ⅛ in. lg; has one 0.125 in. dia mounting hole in center of base; passes high intensity gamma radiations only; CQC part/dwg no. GA170.	Low intensity gamma shield for V101
E109A	"For reference only."	SHIELD, ELECTRON TUBE: Phosphor-bronze, silver plated "U" shaped; 21/32 in. lg; 7/16 in. wide; ⅝ in./ deep approx o/a; mounted by screw through 0.125 in. dia hole; used w/lead shield E109B, p/o E109; CQC part dwg no. 515A68.	Low intensity gamma shield for V101, p/o E109

E109B	"For reference only."	SHIELD, ELECTRON TUBE: 0.008±0.00075 pure soft lead; "H" shaped; 1⅝ in. lg, ⅞ in. wide, o/a; friction mounted to E109A and has 0.125 in. dia mounting hole u/w E109A; p/o E109; CQC part/dwg no. 515A69.	Low intensity gamma shield for V101, p/o E109
E110	N16-S-35921-1014	SHIELD RADIAC DETECTOR: tube: p/o Army-Navy, Admiral Corp. Radiacmeter IM-85/PDR-27F, c/o phosphor bronze shield, E110A and lead shield, E110B, rectangular shape; 1.234 in. lg, 1 in. wide, approx 1/64 in. thick; cement mounted; passes high intensity gamma radiation only; CQC part/dwg no. GA168.	Low intensity gamma shield for V101
E110A	"For reference only."	SHIELD, ELECTRON TUBE: phosphor bronze, silver plated rectangular shape; 1.234 in. lg 0.968 in. wide; 0.008 in. thick, o/a; cement mtd to casting; u/w E110B, p/o E110; CQC part/dwg no. 515A66.	Low intensity gamma shield for V101, p/o E110
E110B	"For reference only."	SHIELD, ELECTRON TUBE: 0.008 in. pure soft lead, rectangular shape; 1¼ in. lg; 1 in. wide, 0.008 in. thick, o/a +0.00075 in. cemented to E110A; u/w E110A p/o E110; CQC part/dwg no. 515A67.	Low intensity gamma shield for V101, p/o E110
E111	N16-S-34557-8351	SHIELD, ELECTRON TUBE: brass or copper; nickel plate finish; cylindrical shape; 1¾ in. lg, 0.810 in. ID; cone shaped spring mounted inside and top; 55/64 in. dia, ⅝ in. h; JAN spec. no. JAN-S-28A; spec type no. TS-102U02; Cinch part no. 8691; CQC part/dwg 587B6-2.	Tube shield for V104
E112		NOT USED.	
E113		NOT USED.	
E114	*N17-I-69152-1710	INSULATOR, STANDOFF: phenolic, grade YN25, brown; cylindrical pillar shape; item code no. 10 with mtg hole on one side only; mounts by no. 4-40 NC2 tap, ¼ in. lg, threaded internally on one end; ⅜ in. lg by ¼ in. dia; vacuum impregnated with a fungicidal varnish; CQC part/dwg 532A96.	Supports terminal board E102 from housing A101
E115	"Shop manufacture."	CONTACT ELECTRICAL: p/o battery box A105, for filament batteries; beryllium copper, silver plated finish; 2¼ in. lg by ¼ in. wd by ⅜ in. h; contact surface; mounting hole in center, 5/16 in. from each end of flat surface; electrical connection made by contacts mounted in top of A104, and side of A104 through mounting bolts which mount E115; CQC part/dwg no. 518A57.	Battery contacts for filament batteries

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REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
E116	"Shop manufacture locally"	CONTACT, ELECTRICAL: p/o battery box A104, for BT106 and BT107; beryllium copper, silver pl finish; 1-1/16 in. lg by ¼ in. wide by 15/32 in. high contact surface; two mounting holes 5/16 in. from center of battery box; connecting lead hole 0.047 in. from end on short leg; C.Q.C. part/dwg 518A69.	Contacts for BT106 and BT107
H101	N17-C-480693-536	CHAIN: ladder type links, 0.185 in. pitch by 7/64 in. wide; brass, nickel plated; 5⅜ in. lg o/a; weldless chain construction; yield point 26 lb.; terminates in closed chain link on one end and open chain link on other end; p/o Army, Navy and Admiral Corp. Radiacmeter IM-85/PDR-27F; CBH type no. 1A; CQC part/dwg no. 530A7-1.	Drives meter scale changing mechanism
H102	*N16-N-88031-5379	NUT, packing: hex brass ⅜ ROD SAE 72, dull white nickel finish; .0003 in. dull white nickel, finished; ⅜-32 male thread; ¼ in. high, o/a; 0.369 in. to 0.373 in. wide across flats; 17/64 in. ID. threaded portion 7/64 in. lg; p/o Army-Navy and Admiral Corp. Radiacmeter IM-85/PDR-27F; CQC part/dwg no. 502A15-1-3.	Probe cable packing nut at radiacmeter
H103	"Shop manufacture."	WASHER, FLAT: round; brass, SAE, Spec no. 70A; 0.0003 in. dull nickel finish; 0.25 in. ID, 0.33 in. OD, 0.02 in. nominal material thickness, 0.02 in. max material thickness; CQC part/dwg no. 504A5-2-3.	Probe cable washer at radiacmeter
H104	*N16-C-200001-123	CATCH, fastener: harness catch; p/o Army-Navy, Admiral Corp. Radiacmeter IM-85/PDR-27F; stainless steel, 4 used, cad pl; 17/32 in. lg o/a, ⅜ in. wide across flats; mounts by no. 10/32 thd by ¼ in. lg stud at one end; w/ round button and hexagonal base; CQC part/dwg no. 527A34.	Fastens harness to radiacmeter
H105		NOT USED.	
H106	*N43-S-52925-1360	SCREW, captive: slotted drive; RH, semi-finished; stainless steel, cad pl; no. 8-32 NC2, ¾ in. lg; threaded portion ¼ in. lg; head 0.309 in. max dia by 0.120 in. max height; undercut ½ in. lg. by 0.135 in. dia; p/o Army-Navy, Admiral Corp. Radiacmeter IM85/PDR-27F; CQC part/dwg no. 501A5-1-52.	Fastens panel to housing

H107		NOT USED.	
H108	N17-C-780991-951	CLAMP, ELECTRICAL: 1/16 in. thick ethyl cellulose; 1 bolt type fastening device, also used as mounting bolt; 0.313 in. dia opening, ½ in. wide, o/a; 13/64 in. dia hole for mtg; designed to hold 5/16 in. dia rigid tube; Commercial Plastics Co. part no. CPC742-5 CQC part/dwg no. 511B7-4.	Holds connector receptacle J-104
H109		NOT USED.	
H110	N43-I-8129-926	INSERT, threaded: heli-coil threaded insert; p/o Army-Navy, Admiral Corp. Radiacmeter IM85/PDR-27F; stainless steel; helix shape; no. 8-32, 21/64 in. lg threaded 0.328 in. min lg; Heli-Coil Corp. part no. 1185-2C x 21/64; CQC part/dwg no. 501C6-6.	Mounts into panel A102
H111		CLAMP, ELECTRICAL: same as H-108.	Holds mercury switch S102
H112	"If required, will be procured by nearest Navy Shore Supply Activity on demand."	CLAMP, ELECTRICAL: 1/16 in. thick ethyl cellulose; 1 bolt type fastening device, also used as mounting bolt; 0.188 in. dia opening, 1½ in. lg approx ½ in. wide; 13/64 in. dia hole for mtg; designed to hold 3/16 in. OD rigid material; Commercial Plastics Co. CQC part/dwg no. 511B7-23.	Supports battery cable
H113	"If required, will be procured by nearest Navy Shore Supply Activity on demand."	NUT, clinch; pem nut type; steel, heat treated, cadmium plated; no. 4-40 NC-2; 0.1165 in. max lg; ¼ in. max dia; head, 0.165 in. dia, 0.054 in. lg; self-clinching fastener; p.o. Army-Navy, Admiral Corp. Radiacmeter IM-85/PDR-27F; Penn Eng & Mfg Corp part no. CL-440-2, CQC part/dwg 502B16-5.	Used with mounting brackets for Z103 and S102
H114	"If required, will be procured by nearest Navy Shore Supply Activity on demand."	NUT, clinch; pem nut type; steel, heat treated, cadmium plated; no. 6-32 NC-2; 0.1165 in. max lg; 5/16 in. max dia; head, 0.187 in., max dia. 0.054 in. lg; self-clinching fastener; p.o. Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; Penn Eng & Mfg Corp part no. CL-632-2, CQC part/dwg 502B16-8.	Used to mount Z102
H115	*N17-C-780875-125	CLAMP, ELECTRICAL: no. 20 ga B & S aluminum no. 52S4; caustic dip, clear water dip lacquer; fastened to glow lamp by friction; 13/16 in. lg, ⅜ in. wide, 3/16 in. by 5/32 in. mounting center; accommodates neon lamp ¼ in. dia. clamp u/w vinyl plastic sleeve, curved at one end w/5/32 in. rad. to fit part of neon tube; CQC part/dwg no. 515A55.	Mounts glow lamp E105 to Z103

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REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
H116	"For reference only."	BUTTON, push; drives S103 spring actuator; p/o Army-Navy, Admiral Corp. Radiacmeter IM-85/PDR-27F; brass; ½ hard per MIL-B-895; 1⅜ in. lg, 7/16 in. dia, o/a; undercut to 0.095 in. dia by 0.017 in. wide, ⅛ in. from bottom; mounts through waterseal gasket and retained by retainer ring of switch actuating sub-assembly, A110; colored light gray; CQC part/dwg no. 527A194-1 p/o A110. or BUTTON, push: Same as H116 except colored olive-drab; CQC part/dwg no. 527A194-2 p/o A110; for reference only.	Operates spring Assembly O124 which actuates S103
H117		NOT USED.	
H118	"Shop manufacture."	SCREW, CAPTIVE: slot drive; FH; stainless steel, passivate dip finish; no. 8-32 NC-2 thd; ¾ in. lg from mounting surface; ¼ in. lg approx threaded portion; p/o Army-Navy, Admiral Corporation Radiacmeter IM-85/PDR-27F; CQC part/dwg no. 501A12-3.	Fasten handle and cover A103 to battery compartment
H119	"For reference only."	BOLT, MACHINE: brass dull white nickel finish; external tooth lockwasher type; finished; round head; slot drive, 0.240 to 0.260 in. dia, 0.091 to 0.103 in. high; flat point; 6-32 thread; ⅜ in. minimum length, ⅜ in. nominal length; furnished items, 1 phosphor bronze external teeth lockwasher; 1 plain washer; 3 piece Sems screw 0.270-0.280 in. dia lockwasher and washer; CQC part/dwg no. 501A18-21.	Mounts E103 to E102 through A108, to A109 and to A112
H120	"If required, will be procured by nearest Navy Shore Supply Activity on demand."	NUT, PLAIN, HEXAGONAL: brass; dull white nickel finish; semi-finished; hexagon type 3/16 in.; 2-56 thread NCT; 3/16 in. wide across flats, 1/16 in. o/a height; double chamfered; CQC part/dwg no. 502A14-1-3.	Mounts on screw that fastens conductor of coiled cable, W201, to grid clip O207
H121		NOT USED.	
H122		NOT USED.	
H123		NOT USED.	

H124	"If required, will be procured by nearest Navy Shore Supply Activity on demand."	ELASTIC STOP NUT: brass; nickle finish; hexagon type w/nylon insert; 0.250 in. dia, 0.141 in. h; Elastic Stop Nut Corporation of America, part no. 96NM-40; CQC part/dwg no. 502B18-2.	Mounts J102 and J103
H125		WASHER, FLAT: round brass; dull white nickel finish; 0.144 in. ID, 0.25 in. OD, 0.3125 in. thk; C.Q.C. part/dwg 504B6-31-3.	Battery box cable clamp washer
J101	*N17-C-73108-1268 "Make from standard Navy Stock Number N17-C-73108-1267	CONNECTOR, RECEPTACLE: 1 female rd contact; not polarized; straight type; 1-1/16 in. lg, 11/16 in. wide, 11/16 in. high, o/a; radio frequency connector, 50 ohms nominal impedance, non-constant frequency impedance characteristic; cylindrical shape, brass body w/sq mtg flange, silver plated; styramic insert; 4 mounting holes, 0.136 in. dia, ½ in. by ½ in. mounting centers; weatherproof; Army-Navy-Air Force, Connector, Receptacle type no. UG-290/U modified per CQC dwg no. 588A2; MIL spec no. MIL-C-3608, Spec type no. UG-290/U modified per CQC part/dwg no. 588A2; CARO part no. IPC-2700 per CQC part/dwg no. 588A2.	Radiacmeter jack for Headset HT501
J102	N17-C-68319-6761	CONNECTOR, FEEDTHROUGH: one contact receptacle each side; 2 rows; 15 contacts; male; round; polarized; straight type; 1-17/32 in. lg, 1 in. wd, 23/32 in. thk; electrically rated, 5 amp 1,000 volt; rectangular shape; #28 G.A. U.S. Std Rev C.R. Steel; cad plate finish, iridite bleach; steel pins, silver plate, glass sealed; 6 mounting holes; two holes 5/32 in. dia, 1-5/16 in. mounting center by ½ in. from top; four holes ⅛ in. dia, ¾ in. by ¾ in. mounting C to C; includes weatherproof mounting gasket O119, protective shell J102A, gaskets O114 and O115; contacts numbered from 1 through 15,1 through 8 are used as wiring connections, 9 through 15 are used as guide pins only; Cannon Electric Co, part no. RE-7-324-900, CQC part/dwg no. GA445 made to w/stand 135 hr salt water spray.	Feeds battery leads through battery compartment wall
J102A	"For reference only."	SHELL, GUIDE PLATE: #28 G.A. U.S. Std Rev C.R. Steel, cad pl finish; rectangular shape; 1-17/32 in. lg, 31/64 in. wd, ¼ in. high; 2 mounting holes, ⅛ in. dia, 1-5/16 in. mounting centers; CQC part/dwg no. 588C27-4; p/o J102.	Guide plate for feedthrough connector J102
J103		For reference purpose only; p/o J102.	

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REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
J 104	N17-C-73459-1675	CONNECTOR, RECEPTACLE: 4 contacts; male; round; polarized; straight type; ⅞ in. lg, 9/16 in. dia; electrical rating 5 amps, 1600 v rms; cylindrical shape; melamine hood; locking type; CC part no. C4-20PVSHC; WE part no. M4P-LSHC; CQC part/dwg no. 588B30-8.	Receptacle for detector probe push button switch, and head set jack
M101	F17-M-32164-7084 1,650 E 1856	METER, ROENTGEN RATE: panel mounted; DC; scale, marked "MILLI-ROENTGENS PER HOUR" for all 4 scales, 0-.5 CW, 0-5 CW, 0-50 CW, 0-500 CW, graduated in center of scale on position 1; case, rectangular plastic, style no. 5, MBCA ref dwg group 27; flush mounted below panel, 3¾ in. lg ov body, 3½ in. width of body, 1-9/16 in. body depth, less shaft; ±2% accuracy at full scale reading; sensitivity, 80 millivolt drop across terminals, 1~~6,500~~ ohms ±500 ohms resistance across terminal; calibrated for non-magnetic panel; black scale markings, each scale color coded, 0-.5 bright green, 0-5 light green, 0-50 light green, yellow, bright red, 0-500 hright red; self-contained; four 0.180 in. dia mounting holes on 3.468 in. and 1.937 in. centers; 2 solder terminals; rotating scale controlled by linkage mechanism and operated by ½ in. lg by ¼ in. dia screwdriver slotted shaft on rear of meter; Navy, meter, Roentgen Rate Type no. 22734; Navy Spec MIL-R-15213 (SHIPS); CQC part/dwg no. 559B1.	Visual indicator of radiation intensity
MS101	#*N16-G-600001-185	GLASS: ⅛ in. clear glass; for meter window; sheet; 2-13/16 in. lg, 2 in. wide, ⅛ in. thick; corners bevelled ⅛ in. by 45 degrees; p/o Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; CQC part/dwg no. 521A2.	Window for M101
MS102	N52-C-1146-675	CEMENT, paste adhesive: for meter window; c/o ½ pint can of Minnesota Mining cement part no. EC801 and 2 oz glass jar of Minnesota Mining accelerator part no. EC807; waterproof, fuel resistant; u/w Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; CQC part/dwg no. 551A4.	For cementing meter window
MS103	N52-C-1142-675	CEMENT, liquid: for cementing rubber gaskets to metal 1 pt. can; waterproof; Minnesota Mining and Mfg Co. part no. 870; CQC part/dwg no. 551A1-3; Note: use G52-C-1566-100 for repair.	Cement rubber gaskets

MS104	N52-C-685-830	CEMENT, liquid: Minnesota Mining and Mfg Co part no. 847; CQC part/dwg no. 551A1-7; Note: use Navy stock no. G52C685-830 for repair.	For cementing shield E110 to housing A101
N101	"Shop manufacture."	PLATE, IDENTIFICATION: 2 identical plates; decalcomania; color, white letters and border lines, black background; inscribed "IM-85/PDR-27F RADIACMETER"; 3 in. lg, 2 in. wide, o/a; cemented to radiacmeter housing and to side of battery compartment; serial number block left blank; MIL spec no. MIL-8-5548, type III; CQC part/dwg no. 526A67.	Radiacmeter nameplate
N102	"For reference only."	LABEL: parts layout label for Z102; Warren water resistant text material; 2⅞ in. lg, 2-25/64 in. wd; black waterproof ink on white stock; cemented to outside bottom of battery compartment; part no. 540A40-1 inscribed in lower right hand corner; p/o Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; CQC part/dwg no. 540A40-1.	Label for Z102 layout
N103	"For reference only"	LABEL: layout label; Warren water resistant text.; 4 in. lg, 2¼ in. wide; inscribed w/part no. in lower right-hand corner, also inscribed w/battery designations and quantity; black waterproof ink on white stock; cemented to battery compartment; C.Q.C. part/dwg 540A66.	Battery box label
O101	*N17-S-500031-315	SPROCKET, chain: p/o Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; brass, bright nickel finish, hub ¼ in. ID, 7/16 in. OD, 7/32 in. wd; 12 teeth 0.710 in. pitch dia; mounts by two no. 8-32, ⅛ in. lg Allen head set screws; CBH part no. CBA12 modified per CQC part/dwg no. 530A4-1.	p/o meter scale changing mechanism
O102		Same as O101.	
O103	N17-S-46724-8624	SPRING: helical extension type; maintain tension on chain of meter scale changing mechanism; 0.020 in. dia tinned music wire; 0.140 in. ID, 0.180 in. OD, 21/32 in. lg; 17 turns; double twisted loop ends; mounts by two 0.140 in. ID loops, one on ea end; loops positioned 90 degrees from each other; p/o Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; CQC part/dwg no. 519B12-1.	Takes up slack in chain of meter scale changing mechanism

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/When the equipment spares are expended, do not request replacement. These items should be fabricated if additional parts are required.

REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
O104	"Shop manufacture."	GASKET: freeze resistant neoprene, 70 durometer; for switch shaft seal; "O" shaped; ¼ in. ID, ⅜ in. OD, 1/16 in. thick; rubber must withstand temp of —40°C to +70°C and meet requirements of Navy Specs 33R1H; Precision Rubber Products Corp part no. PRP-902-5; CQC part /dwg no. 512A2-2.	Seal at range switch shaft
O105	N33-P-1559-720	GASKET: freeze resistant neoprene, 70 durometer; gasket seal; "O" shaped; 5/32 in. ID, 9/32 in. OD, 1/16 in. thick; rubber must withstand temp of —40°C to +70°C and must meet requirements of Navy Specs 33R1H; Precision Rubber Products part no. PRP-902-2; CQC part/dwg no. 512A2-6.	Seal between radiacmeter panel and housing screw
O106		NOT USED.	
O107		NOT USED.	
O108	*N33-P-1560-203	GASKET: freeze resistant neoprene; Navy spec no. 33R1H; style no. 1, MBCA ref dwg Group 75 (Revised); cross sectional style no. 33, MBCA ref dwg Group 75 (Revised); nominal dimensional data, MBCA ref dwg 75 (Revised); ⅜ in. dia of aperture, 9/16 in. OD, 3/32 in. thick; 70 durometer rating; Precision Rubber Products Corp, PRP-902-8, CQC part/dwg 512A2-11.	Moisture seal between J101 and panel
O109	N17-C-804555-695	CLIP, ELECTRICAL: ferrule style 1, MBCA ref dwg Group 37; no. 24 gauge (B&S) beryllium copper; silver plated finish; dim., MBCA ref dwg Group 37, 9/16 in. lg, 0.385 in. wide, 13/32 in. high; plating to withstand 20% 200 hr salt spray test in accordance with spec AN-QQ-S-91, mounts by one mounting hole 0.171 in. dia in base; for tube 9/32 in. dia; CLF part no. 123002; CQC part/dwg 518A8-1.	Mounts anode of V101
O110	N17-C-804560-370	CLIP, ELECTRICAL: ferrule type 1, MBCA ref dwg Group 37; no. 24 gauge (B&S) beryllium copper; silver plated finish; dim., 33/64 in. lg, 11/32 in. wd, 7/32 in. high; one mounting hole 0.116 in. dia in base, plating to withstand 20%, 200 hr salt spray test; for tube ¼ in. dia; CQC part/dwg No. 518A8-2.	Mounts glow lamp E104

O111	N17-G-157254-756	GASKET: freeze resistant neoprene, Navy spec MIL-R-3065; style no. 2, MBCA ref dwg Group 75 (Revised); cross-sectional style no. 33, MBCA ref dwg Group 75 (Revised); nominal dimensional data, MBCA ref dwg Group 75 (Revised); 8-9/32 in. lg of aperture, 5-13/32 in width of aperture, ⅛ in. dia; 70 durometer rating; rubber must withstand temp of —40°C to +70°C; 0.010 in. flash; Mayfair Molded Products Corp part no. 2389; CQC part/dwg no. 512A49.	Seal between panel and housing A101
O112	N17-G-155904-690	GASKET: freeze resistant neoprene, Navy spec MIL-R-3065; style no. 2, MBCA ref dwg Group 75 (Revised); cross-sectional style no. 33, MBCA ref dwg Group 75 (Revised); nominal dimensional data, MBCA ref dwg Group 75 (Revised); 4⅞ in. lg of aperture, 3-1/16 in. width of aperture, ⅛ in. dia; 70 durometer rating; rubber must withstand temp of —40°C to +70°C; 0.010 in. flash; CQC part/dwg no. 512A48.	Seal between handle cover A103 and panel A102
O113	N17-C-804673-101	CLIP: electron tube; spring tempered steel; zinc plated and dichromate dipped; 0.665 in. wide, 25/32 in. lg, 19/32 in. thick, o/a; not insulated; for tube 11/16 in. dia; 1 mounting hole 0.135 in. dia; p/o Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; Prestole Corp part no. 500-625; CQC part/dwg no. 518A20-3; p/o A109.	Retains and partially shields V103
O114	"Shop manufacture."	GASKET: neoprene; style no. 1, MBCA ref dwg Group 75 (Revised); nominal dimensional data, .114 (±.005) ID, ¼ in. OD, "W" .070 (±.003) 5/64 in. thick; flash, actual dimensions 0.003 in. h, 0.005 in. wd; 40-50 durometer rating; must w/stand temp of 40°C to +70°C; Goshen Rubber Co. part no. GRC 27-1, GRC 27-1; CQC part/dwg no. 512A2-12.	Seal between mounting nuts and mounting of J102 and J103
O115	"Shop manufacture."	GASKET: black neoprene; style no. 1, MBCA ref dwg Group 75 (Revised); cross section style no. 33, MBCA ref dwg Group 75 (Revised); 5/32 in. dia of aperture o/a; 5/16 in. OD, .018 in. thick; 40-50 durometer; to withstand temp —40°C to +70°C; CQC part/dwg no. 512A1-19.	Seal between protective steel shell and panel A102
O116	"Shop manufacture."	CLIP, ELECTRICAL: grid-plate style 3, except lead connected radially, MBCA ref dwg Group 37; phosphor bronze; nickel plated finish; 19/32 in. high, 7/16 in. OD; black bakelite body insulation; 1 termination, wire pigtail type; terminal lead 4½ in. lg, ¾ in. of lead skinned and tinned; CQC part/dwg no. 590A3-2; used as electron tube contact clip.	Anode cap for V103

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REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
O117	N17-C-800113-251	CLIP: electron tube contact; contact clip for Trigger Amplifier, Z101; phosphor bronze, silver plated; ½ in. lg, 5/16 in. wide, 3/16 in. thick; 1 wire clamping ear connection; for pin 0.8 in. dia; CJA part no. 36021; CQC part/dwg no. 590A4.	Contact clip for Z101
O118	N16-W-180001-218	WASHER, FLAT: round; freeze resistant neoprene, 30 durometer; dim., ¼ in. ID, 5/16 in. OD, ⅛ in. nominal thickness, ⅛ in. max material thickness; Joseph S. Royal Co. part no. 253112, CQC part/dwg 512A19-1.	Probe cable gasket at radiacmeter
O119	N17-G-154167-593	GASKET: black neoprene; MIL-R-3065 type no. SC700F; dim. data, 1-17/32 in. lg, 1 in. wd, 1/32 in. thk; 6 mounting holes, 1 ea end, 0.156 in. dia, w/1.312 in. mounting C to C, 2 ea side, 0.109 in. dia, w/0.750 in. by 0.750 in. mounting C to C; center cutout 15/16 in. lg by 5/16 in. wd; CQC part/dwg no. 512A52.	Seal between panel A102 and connection receptacle (J102 and J103)
O120		NOT USED.	
O121	N17-C-200964-601	COVER, ELECTRICAL CONNECTOR: brass; silver plated; ⅝ in. lg, 9/16 in. dia, o/a; mounts by bayonet locking; has chain approx 2 in. lg; used as protective cover for headset jack; Army-Navy, Cap and Chain, JAN type CW-123/U; MIL Spec no. MIL-C-3608, Spec type no. CW-123/U; CARO part/no. IPC-1500; CQC part/dwg 588A19.	Cover for J101
O122	"Shop manufacture."	GASKET: black neoprene, MIL, MIL-R-3065, type no. SC700F; style no. 1, MBCA ref dwg Group 75 (Revised); cross sectional style no. 33, MBCA ref dwg Group 75 (Revised); nominal dimensional data, Group 75 (Revised); 1¼ in. dia of aperture, 1¾ in. outside dia, 1/32 in. thick; CQC part/dwg no. 512A1-12.	Seal for radiacmeter calibration port
O123	N16-C-146559-995	CAP: p/o Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; brass, cadmium plated; light gray enamel finish; round; 1-11/16 in. dia, 9/32 in. thick; mounts into calibration port by 1¼ in. dia-12 thd by 3/16 in. lg threaded body; has driving slot on top; CQC part/dwg no. 527A172-1.	Cap for radiacmeter calibration port
		or	
	N16-C-146559-995	CAP: same as O123 except olive-drab enamel finish; CQC part/dwg no. 527A172-2.	

O124		NOT USED.	
O125	"For reference only."	GASKET: black neoprene tubing; SC200F per MIL-R-3065 spec; ⅛ in. ID, ¼ in. OD, 0.343 in. lg; face must be square w/ctr line; CQC part/dwg no. 512A19-7; p/o A110.	Gasket between A113 and H116
O126	"Shop manufacture."	GASKET: neoprene, Navy Spec no. MIL-R-3065, type no. SC700F; style no. 1, MBCA ref dwg Group 75 (Revised); cross sectional style no. 33, MBCA ref dwg Group 75 (Revised); nominal dim. data, 0.531 in. dia of aperture, ⅞ in. OD, 1/32 in. thick; CQC part/dwg no. 512A1-18.	Seal between Post A113 and Housing A101
O127	"For reference only."	RING, retainer: push-button retaining ring; p/o Army-Navy, Admiral Corp Radiacmeter IM-85/PDR-27F; spring carbon steel, 0.0004 cadmium plated, chromate treated; circular "E" shape; 0.230 in. OD, 0.015 in. thick, 0.094 in. free ring dia; can mount in 0.095 in. dia 0.017 in. wide groove; Waldes-Kohinoor Inc. part no. 5133-12; CQC part/dwg no. 518B29-4-76; p/o A110.	Retains H116 in sub-assembly A110
O128		NOT USED.	
O129		Same as O110.	Mounts V101 at cathode.
P101		NOT USED.	
P102	N17-C-73306-4752	CONNECTOR, PLUG: 15 contacts; female type; round; polarized; straight type 1-17/32 in. lg, 31/64 in. wd, 27/64 in. thick; electrically rated, 5 amp, 1,000 volt; rectangular shape; contacts, copper base alloy, gold finish; case #28 G.A. U.S. Std Rev C.R. Steel; finish .003 cad pl, iridite bleach; contacts numbered 1 through 15, 1 through 8 used as wiring connections, 9 through 15 used as guide pins only; Dupont Molded Nylon insert part no. FM-10001 insert; Cannon Electric Co. part no. 19603-1; w/o shell P103B; CQC part/dwg no. 588C27-1.	Female plug for Radiacmeter connects to connector feed through J102
P103	"Shop manufacture."	CONNECTOR, PLUG: 15 contacts; female type; round polarized; straight type; 1-17/32 in. lg, 31/64 in. wd, 41/64 in. thk; electrically rated, 5 amp, 1,000 v; rectangular shape; contacts, copper base alloy, gold finish; case,	Female plug for battery box connects to J103

REFERENCE SYMBOL	STANDARD NAVY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
P103 Cont.		#28 G.A. U.S. Std Rev C.R. Steel, cad pl finish; contacts numbered 1 through 15, 1 through 8 are used as wiring connection, 9 through 15 used as guide pins only; DUPONT Molded Nylon part no. FM-10001 insert; w/junction shell assy, Cannon Electric Co part no. 19678-1; CQC part/dwg no. 588C27-1 and 588C27-2.	
P103A		Same as P102.	
P103B	N17-S-250051-367	SHELL, CONNECTOR PLUG: #28 G.A. U.S. Std Rev C.R. Steel, cad pl finish; irregular shape; 1-17/32 in. lg, 31/64 in. wd, 41/64 in. high; 2 mounting holes, ⅛ in. dia, 1.312±.005 in. mounting center by 7/64 in. from sides; Cannon Electric Co; CQC part/dwg no. 588C27-2.	Shell assembly to cover wiring end of P103
P 104	N17-C-71163-8444	CONNECTOR, PLUG: 4 contacts; female; round; polarized; straight type; 17/32 in. lg, ⅜ in. wide; electrical rating 5 amp, 1600 v rms; cylindrical shape; metal parts cad plated, iridite dip; mounted A106; CC part no. C4-205-VRN; WE part no. M4S-LRN; CQC part/dwg no. 588B30-1.	Receptacle for detector probe, push button switch and headset jack
R101	N16-R-50993-811	RESISTOR, FIXED, COMPOSITION: body style no. 14, MBCA ref dwg Group 2; 1.2 megohm total resistance, ±10% tolerance; ½ w power dissipation; F characteristic; 0.406 in. lg, max 0.175 in. dia, max, excluding terminals MBCA ref dwg Group 2; insulated, resistant to humidity and salt water immersion; 2 terminals, axial wire lead type; JAN spec no. JAN-R-11, spec type no. JAN-RC20BF125K; CQC part/dwg no. 560B5-BF-125.	Load Resistor for V101 and V102
R102	N16-R-51326-811	RESISTOR, FIXED, COMPOSITION: body style no. 14, MBCA ref dwg Group 2; 10 megohms total resistance, ±10%; ½w power dissipation; F characteristic; 0.406 in. lg max, 0.175 in. dia max; insulated; resistant to humidity and salt water immersion; 2 terminals, axial wire lead type; JAN, spec no. JAN-R-11, spec type no. JAN-RC20BF106K; CQC part/dwg no. 560B5-BF-106.	Series dropping resistor for V103
R103	N16-R-50633-811	RESISTOR, FIXED, COMPOSITION: body style no. 14, MBCA ref dwg Group 2; 100,000 ohms total resistance, ±10% tolerance; ½w power dissipation; F characteristic; 0.406 in. lg max, 0.175 in. dia max; insulated, resistant to humidity and salt water immersion; 2 terminals, axial wire lead type; JAN, spec no. JAN-R-11, spec type no. JAN-RC20BF104K; CQC part/dwg no. 560B5-BF-104.	Grid resistor for V106 when on 5 mr/hr range