

## CHARGERS, RADIAC DETECTOR PP-1578/PD AND PP-1578A/PD (NSN 6625-00-542-1177)

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Headquarter Department of the Army, Washington, DC

6 October 1982

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### REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve the manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publication and Blank Forms) direct to: Commander, US Army Communications-Electronics Command ATTN: DRSEL-ME-MP, Fort Monmouth, NJ 07703.

A reply will be furnished direct to you.

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\*This technical bulletin supersedes TB SIG 226-8, 31 October 1961, and TB 11-6865-215-12/1, 24 December 63.

**Section I GENERAL**

**1-1. Scope**

This bulletin describes Chargers, Radiac Detector PP-1578/PD and PP-1578A/PD and contains instructions for operating, checking, cleaning, and field testing these equipments.

**1-2. Index of Technical Publication**

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

**1-3. Maintenance Forms, Records and Reports**

*a. Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

*b. Report of Packaging and Handling Deficiencies.* Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73/AF400-54/MCO 4430.3E.

*c. Discrepancy in Shipment Report (DISREP) (SF 361).* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33B/AFR 75-18/MCO P4610.19C/DLAR 4500.15.

**1-4. Reporting Equipment Improvement Recommendations (EIR)**

If your Radiac Detector Charger need improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command ATTN: DRSEL-ME-MP, Fort Monmouth, NJ 07703. We'll send you a reply.

**1-5. Administrative Storage**

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from administrative storage, the PMCS should be performed to assure operational readiness. Original packing case may be used when repacking equipment for shipment for repair.

**1-6. Destruction of Army Electronic Materiel**

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

**Section II. DESCRIPTION AND DATA**

**1-7. Purpose and Use**

The PP-1578/PD is a frictional generator of static electricity required to charge radiacmeters (commonly called dosimeters). It is used to charge Radiacmeters IM-9/PD, IM-19/PD, IM-20/PD, IM-93/UD, IM-94/PD, IM-112/PD, IM-143PD, and IM-147/PD. With the adapter provided, the PP-1578(\*)/PD may be used, also, to charge United Kingdom dosimeters No. 1 (0 to 0.5 roentgens (r)), No. 2A (0 to 5 r), No. 3 (0 to 50 r), No. 4 (0 to 150 r), No. 4A (0 to 150 r), and No. 5 (9 to 500 r).

**1-8. Technical Characteristics**

*a. PP-1578/PD.*

output voltage . . . . . 0 to 250 volts dc.  
Polarity of output voltage . . . . . Reversible, positive or negative.  
Output voltage regulation. . . . . 190 to 250 volts.  
Output capacitance. . . . . 0.002 microfarad.

*b. PP-1578A/PD*

Output voltage . . . . . 0 to 300 volts.  
Polarity of output voltage . . . . . Reversible, positive or negative.  
Output voltage regulation. . . . . 180 to 300 volts.  
Output capacitance. . . . . 0.002 microfarad.

**1-9. Table of Component**

Item	Dimensions (in.)			Volume (cu in.)	Weight (oz)
	Height	Depth	Width		
<b>PP-1578/PD (fig. 1):</b>					
Charger .....	2	3	1 1/2 .....	9	8 (including adapter and carrying case)
Adapter .....	3/4	-----	9/32 dia (top) .....	...	
Carrying case .....	2 1/4	3 1/4	7/16 dia (bottom). 1 3/4 .....	...	
<b>PP-1578A/PD (fig. 2):</b>					
Charger .....	3	3 1/8	2 5/8 .....	24.64	12 (including adapter, adapter container, and carrying case).
Adapter .....	15/16		5/8 dia (top) .....		
Adapter container .....	1		3/4 dia .....		
Carrying case .....	3	3 3/8	3 .....		

**1-10. Description**

*a. PP-1578/PD* (fig. 1). The PP-1578/PD consists of mechanical and electrical parts enclosed in a water-tight metal case. A charging socket with a chuck mechanism that secures the dosimeter during charging, and a rotatable charging knob are mounted on the top of the case. A dust cap that protects the charging socket when the charger is not in use is secured to the case by a bead chain. An adapter that permits the charger to be used to charge United Kingdom dosimeters is stored in the dust cap when the adapter is not in use. A circular glass window in the bottom of the case admits light to the bottom of the charging socket to illuminate the reticle of the dosimeter during charging. A cloth carrying case enclosed the assembled

charger, adapter, and dust cap. Metal hooks on the back of carrying case permit the equipment to be attached to the belt of the operator for transportation.

*b. PP-1578A/PD* (fig. 2). The PP-1578A/PD is similar to the PP-1578/PD (*a* above) but has some physical differences that facilitate operation. A charging pedestal is provided instead of a charging socket and no chuck mechanism is used. The charging knob is located on the side of the case. A rectangular window is located in the front end of the case and a prismatic lens system directs light to the bottom of the charging pedestal. The adapter, when not in use, is stored in a separate, cylindrical container. An elastic strap secures the adapter container in the carrying case.

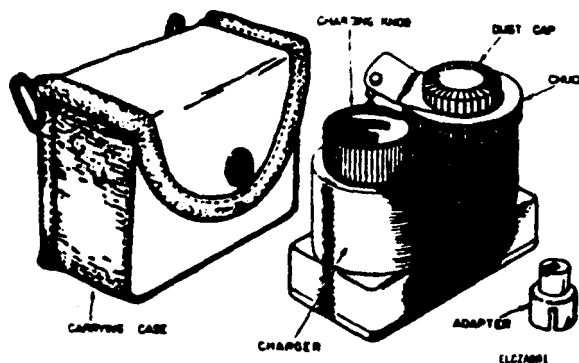


Figure 1. Charger, Radiac Detector PP-1578/PD.

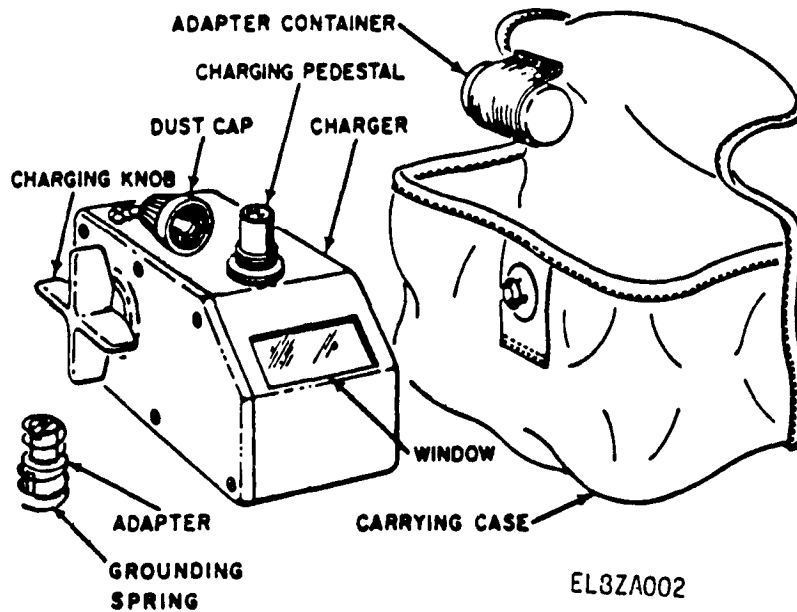


Figure 2. Charger, Radiac Detector PP-1578A/PD.

1-11. Differences in Models.

Item	PP-1578/PD	PP-1578A/PD
Operating position	Hand-held	Rests on horizontal surface.
Charging contact	Charging socket used	Charging pedestal used.
Chuck mechanism	Secures dosimeter in charging socket	Not used.
Light aperture (window)	Circular; located in bottom of charger case	Rectangular; located in end of carrying case
Prismatic lens system	Not used	Used.
Charging knob	Circular, knurled type; located on top of charger.	Bar type; located on side of charger.
Dust-cap	Push-in plug type	Screw-on cap type.
Adapter	Push-on type; stored in dust cap	Screw-on type; stored in adapter container secured in carrying case.
Overall dimensions (less carrying case)	2 inches high by 1 1/4 inches wide by 3 inches deep.	3 inches high by 2 5/8 inches wide by 3 1/8 inches deep.
Weight	8 ounces	12 ounces.

Section III. OPERATING INSTRUCTIONS

1-12. Control

The PP-1578/PD has one control - a charging knob (fig. 1 and 2). Clockwise rotation of the charging knob generates a positive charge. Counterclockwise rotation of the charging knob generates a negative charge.

b. Pull the dust cap straight out of the charging socket

c. Check to be sure that the charging socket is clean and dry. Clean and dry the charging socket (para 1-16), if necessary.

1-13. Operation of PP-1578/PD (fig. 1)

a. Remove the charger from the carrying case.

**CAUTION**

The dust cap is not airtight or watertight. If water or moisture has collected, or if dust, dirt, or other foreign matter has entered the charging socket, the charging socket must be cleaned and dried thoroughly before use or the charger will not operate properly.

*d.* Rotate the check counterclockwise to its fully opened position.

*e.* If a United Kingdom dosimeter is to be charged, install the adapter as follows:

**CAUTION**

Use the adapter only when United Kingdom dosimeters are charged. Do not attempt to charge other types of dosimeters with the adapter installed.

(1) Remove the adapter from the dust cap and make sure that the adapter is clean and dry.

(2) Insert the adapter, larger end down, into the charging socket. Be sure that the adapter seats firmly in the charging socket.

*f.* If the charger has not been used for a considerable time (a month or longer), turn the charging knob

clockwise a minimum of 10 revolution to activate the voltage regulator.

*g.* See that the charging end and the body of the dosimeter to be charged are thoroughly clean and dry.

*h.* Insert the charging end of the dosimeter into the charging socket as far as it will go; apply a firm pressure straight downward.

**CAUTION**

Do not apply too much pressure on the dosimeter or the plastic disk in the charging end of the dosimeter may rupture.

*i.* Hold the dosimeter firmly in the charging socket and tighten the chuck by rotating it clockwise until the dosimeter is held securely in the charging socket.

*j.* Hold the charger, with the dosimeter installed, so that the window is toward a good source of light.

*k.* Look into the viewing end of the dosimeter and observe the reticle. If the indicating fiber can be seen, charge the dosimeter in the normal way (*l* below). If the indicating fiber cannot be seen, proceed as follows:

(1) Rotate the charging knob clockwise five full revolutions and then observe whether the indicating fiber now is visible. If the indicating fiber can be seen, charge the dosimeter in the normal way (*l* below).

(2) If the indicating fiber still cannot be seen, rotate the charging knob counterclockwise five full revolution and observe whether the indicating fiber has appeared. If the indicating fiber can be seen, charge the dosimeter in the normal way (*l* below).

(3) If the indicating fiber still cannot be seen, rotate the charging knob counterclockwise an additional five revolutions and again observe whether the indicating fiber has appeared. If the indicating fiber is visible, charge the dosimeter in the normal way (*l* below). If the indicating fiber is not visible, the dosimeter or the charger is faulty.

*l.* Watch the reticle of the dosimeter and turn the charging knob clockwise until the dosimeter reading is 0 (indicating fiber on 0). If the indicating fiber goes to the left of 0 on the reticle scale, rotate the charging knob back and forth or turn it counterclockwise until a 0 reading on the reticle is obtained.

*m.* With a dosimeter still installed on the charger, watch the indicating fiber closely. The permissible

leakage discharge rate is too slow to be evident by a change in the reading on the dosimeter reticle scale. If the rate of leakage is fast enough so that the indicating fiber can be seen to move upscale away from 0 on the reticle, either the dosimeter or the charger is dirty or faulty. Proceed as follows:

(1) Loosen the chuck, remove the dosimeter from the charging socket, and observe the reading on the dosimeter reticle.

(2) If the leakage still is great enough so that the indicating fiber can be seen to move, clean the charging end of the dosimeter and repeat the charging procedure (*l* above). If, after the second charging, leakage still is evident when the dosimeter is removed from the charger, the dosimeter is faulty.

(3) If the leakage is evident when the dosimeter is installed in the charger but not when it is removed, clean the charging socket thoroughly (para 1-16) and repeat the charging procedure (*l* above). If, after the second charging, leakage still is evident when the dosimeter is in the charger but not when it is removed, the charger is faulty but is still serviceable if it will charge a dosimeter below 0. Follow the instructions in *n* below.

(4) On some dosimeter, particularly low range instruments, an instantaneous partial discharge a *capacitive jump* may occur as the dosimeter is removed from the charger. After the dosimeter has been charged (*l* above), loosen the chuck, remove the dosimeter from the charging socket, and observe the reading on the reticle. If the indicating fiber has jumped upscale, follow the instructions in *o* below.

*n.* If leakage is evident only when the dosimeter is in the charger (*m(3)* above), proceed as follows:

(1) Install the dosimeter in the charger (*h* above). Press down firmly on the dosimeter but do not tighten the chuck.

(2) Turn the charging knob clockwise until the indicating fiber is off scale to the left of 0.

(3) Watch the indicating fiber closely and remove the dosimeter from the charger the instant the indicating fiber reaches 0 on the reticle.

(4) If necessary, repeat the procedure (1), (2), and (3) above until a 0 reading is obtained after the dosimeter is removed from the charger.

*o.* If a captive jump (*m(4)* above) occurs, proceed as follows:

(1) Install the dosimeter in the charger (*h* and *i* above) and turn the charging knob clockwise until the indicating fiber is on the downscale side of 0 on the reticle an amount to the captive jump.

(2) Remove the dosimeter from the charger and observe the reading.

(3) Repeat this procedure ((1) and (2) above) until a 0 reading is obtained after the dosimeter has been removed from the charger. A 0 reading on the dosimeter must be obtained after the dosimeter has been charged and checked or the dosimeter is not charged properly.

**1-14. Operation of PP-1578A/PD (fig. 2).**

*a.* Remove the charger from the carrying case.

*b.* Unscrew the dust cap end lift it off the charging pedestal.

*c.* See that the charging pedestal is clean and dry: if necessary, clean and dry it (para 1-16).

*d.* If a United Kingdom dosimeter is to be charged, install the adapter as follows:

**CAUTION**

Use the adapter only when United Kingdom dosimeters are charged. Do not attempt to charge other types of dosimeters with the adapter installed.

(1) Remove the adapter from the adapter container. *Do not remove the adapter container from the elastic strap in the carrying case.*

(2) Make sure that the adapter is clean and dry.

(3) Place the adapter, threaded end down, over the charging pedestal; do not overtighten.

*e.* If the charger has not been used for a considerable time (a month or longer), turn the charging knob clockwise a minimum of 10 revolutions to ac-

tivate the voltage regulator.

*f.* Place the charger on a flat, level surface, such as a bench or table, with the window of the charger toward a good source of light.

*g.* See that the charging end and the body of the dosimeter are thoroughly clean.

*h.* Place the charging end of the dosimeter over the charging pedestal and press the dosimeter straight down onto the charging pedestal.

**CAUTION**

Be sure to press the dosimeter straight down. Do not apply too much pressure to the dosimeter, or the plastic disk in the charging end of the dosimeter may rupture.

*i.* Charge the dosimeter and check the dosimeter and the charger as described in paragraph 1-13k, *l*, and *m*.

**NOTE**

The PP-1578A/PD has no chuck. To remove the dosimeter from the charger, lift the dosimeter off the charging pedestal.

**1-15. After-operation Procedures**

*a. PP-1578/PD.*

(1) Remove the adapter (if used) from the charging socket and place the adapter in the dust cap.

(2) Press the assembled adapter and dust cap into the charging socket.

(3) Place the assembled charger in the carrying case and fasten the flap.

*b. PP-1578A/PD.*

(1) Unscrew the adapter (if used) from the charging pedestal and place the adapter in the adapter container in the carrying case.

(2) Screw the dust cover into place over the charging pedestal.

(3) Place the assembled charger in the carrying case and fasten the flap.

**Section IV. CLEANING AND TESTING****1-16. Cleaning**

a. Clean the charging socket (PP-1578/PD) or the charging pedestal (PP-1578A/PD) and the adapter with a detergent and rinse them thoroughly with

clean, distilled water. Use as little water as possible and avoid splashing or spilling water on the painted surfaces of the charger.

**CAUTION**

Do not use cleaning compound or other solvent type cleaners.

b. Air-dry the equipment thoroughly. Do not wipe the adapter, the inside of the charging socket, or the outside of the charging pedestal with cloth or other

material that may leave lint or other residue on the charging surfaces. Such foreign matter would defeat the purpose of cleaning.

**CAUTION**

Do not bake the equipment dry.

c. Clean the exterior of the charger with a clean, dry, lint-free cloth.

charging pedestal of the PP-1578A/PD (para 1-14f-h).

**1-17. Field Testing.**

Test the PP-1578/PD as follows:

c. Charge the dosimeter in accordance with the instructions in paragraph 1-13h and 1. A 0 reading on the dosimeter reticle should be obtained with no less than one-fourth revolution nor more than five revolutions of the charging knob.

a. Rotate the charging knob clockwise five full revolutions.

b. Install a Radiacmeter IM-9/PD in the charging socket of the PP-1578/PD (para 1-13g-j) or on the

d. Check the performance of the charger and the dosimeter in accordance with the instructions in paragraph 1-13m.

**NOTE**

To keep the maximum number of usable Chargers, Radiac Detector PP-1578/PPD in the field users will retain those chargers that can charge a dosimeter below 0, regardless of the voltage output, and that exhibit a leakage discharge rate slow enough to enable the user to remove the dosimeter from the charger when the charge leaks up to 0.

e. Use a Radiacmeter IM-93/UD and repeat the procedure described in b, c and d above.

**Section V. PREVENTIVE MAINTENANCE CHECKS AND SERVICES****1-18. Quarterly Preventive Maintenance Checks and Services**

Perform the maintenance functions indicated in the quarterly preventive maintenance checks and services chart (para 1-19) once each 3-month (quarterly) interval in addition to the required cleaning and testing services. All preventive maintenance should be performed at the same time. Under combat condition, a daily

or at least once a week preventive maintenance will be performed. All deficiencies or shortcomings will be recorded, and those not corrected during cleaning, testing, checks and services will be immediately reported to higher echelon by the use of forms and procedures specified by TM 38-750. Equipment that becomes inoperative and cannot be repaired should be replaced.

**1-19. Quarterly Preventive Maintenance Checks  
and Services Chart**

No.	Item	Procedures	Reference
1	Completeness	See that equipment is complete.	Pages 2 & 3
2	Carrying case	Check the carrying case for tears, fraying, and broken metal hooks (PP-1578/PD), or damaged elastic strap for carrying the adapter container (PP-1578A/PD. Replace defective carrying case.	
3	Publication	This technical bulletin must be usable and all changes pertinent to this publication must be on hand.	DA Pam 310-1
4	Modification work orders	Check to see that all URGENT MWO's have been applied to the equipment and that all NORMAL MWO's have been scheduled.	DA Pam 310-1

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