

### FIELD EXPEDIENT FOR CHARGING RADIACMETERS IM-93/UD AND IM-147/PD

Headquarters, Department of the Army, Washington 25, D. C.

8 October 1958

**1. Scope.** a. This bulletin contains instructions for making and using a field emergency dosimeter charger (fig. 1) for Radiacmeters IM-93/UD and IM-147/PD (usually called dosimeters).

**Caution: Improper use of this dosimeter charger may permanently damage the dosimeter. Read and follow these instructions carefully.**

b. Forward comments on this publication to Commanding Officer, United States Army Publi-

cations Agency, Fort Monrnmouth, N. J.

**2. Purpose and Use.** Normally, Radiacmeters IM-93/UD and IM-147/PD are charged by using Radiac Detector Chargers PP-630A/PD and PP-1578/PD. However, if the proper charger is not on hand, an emergency charger may be made, thereby keeping in operation a vital warning device.

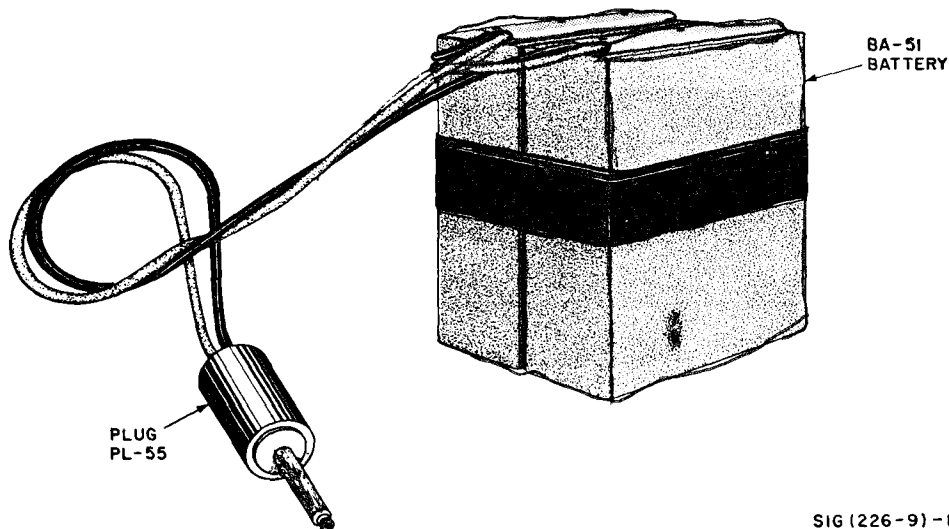


Figure 1. Field emergency dosimeter charger.

### 3. Materials and Tools Required.

- Dry Battery BA-51 (two).
- Plug PL-55 or equivalent.
- Resistor (any value between 1 and 10 megohms).
- Suitable wire (stranded or solid hookup wire, field wire, lamp cord, etc.).
- File.
- Center punch and hammer.
- Tape.

**4. Fabrication.** a. File down the ball of Plug PL-55 as shown in figure 2. After the ball has been filed flat, punch a dimple in the center of the flat surface with a center punch. The dimple should be suitable to accept the charging pin of the dosimeter.

b. Tape two Batteries BA-51 together. Wire the plug, the current-limiting resistor, and the two series-connected batteries as shown in figure 3. If Batteries BA-51 are not available, any com-

bination of batteries that yield 135 to 150 volts may be used.

c. Tape all exposed wiring so as to prevent shock to the user and to avoid excessive battery drain.

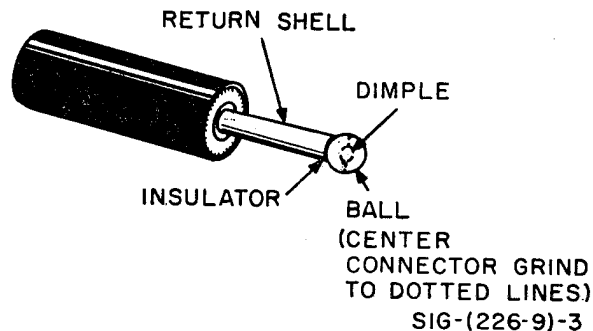


Figure 2. Filing the ball of Plug PL-55.

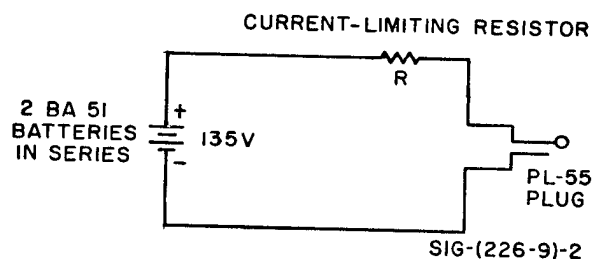


Figure 3. Connection schematic for dosimeter charger.

## 5. Use.

*Note.* If the dosimeter has some charge, do not use this emergency charger. Only use when completely discharged.

a. Insert the Plug PL-55 into the charging end of the dosimeter so as to engage the charging pin. Cock the plug at an angle so that the side of the plug contacts the side of the dosimeter which will insure a complete electrical connection (fig. 4). Use only slight pressure to depress the dosimeter charging pin; hold for about a second, which should be sufficient to put a charge on the dosimeter. Be especially careful not to use radial force that might bend or break the dosimeter charging pin. It should be emphasized that charging the dosimeter by this emergency procedure is a delicate operation and extreme care should be used.

b. This emergency charger will put enough charge on the dosimeter to leave the quartz fiber in some position on the scale. The user should note this position on the scale. Record this reading in a note book. When the dosimeter is read at a later time, the difference between the readings will indicate the radiation dosage that the user has been subjected to.

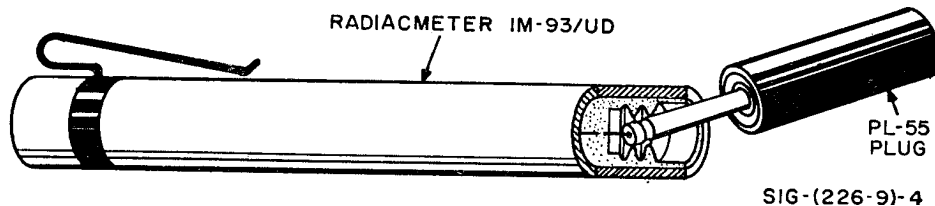


Figure 4. Applying plug of emergency charger to the charging pin of dosimeter.

By Order of *Wilber M. Brucker*, Secretary of the Army:

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*Chief of Staff.*

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*NG*: State AG (6); units—same as Active Army except allowance is one copy to each unit.

*USAR*: None.

For explanation of abbreviations used, see AR 320-50.

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# THE METRIC SYSTEM AND EQUIVALENTS

## WEIGHT MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches  
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches  
 1 Kilometer = 1000 Meters = 0.621 Miles

## WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces  
 1 Kilogram = 1000 Grams = 2.2 lb.  
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

## LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces  
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

## SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches  
 1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet  
 1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

## CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches  
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

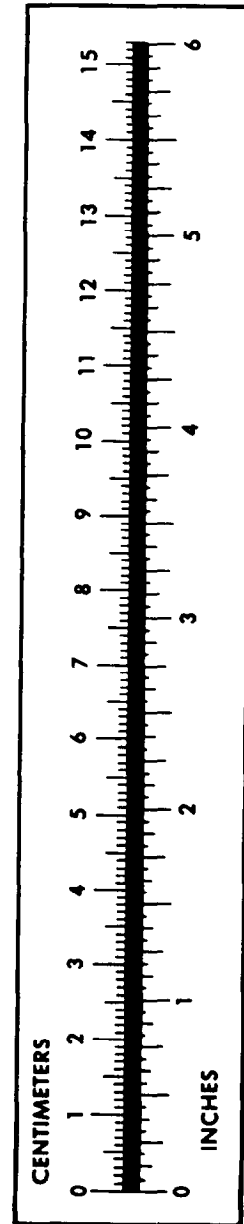
## TEMPERATURE

$5/9(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$   
 212° Fahrenheit is equivalent to 100° Celsius  
 90° Fahrenheit is equivalent to 32.2° Celsius  
 32° Fahrenheit is equivalent to 0° Celsius  
 $9/5^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

## APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
its	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
ometers per Liter	Miles per Gallon	2.354
ometers per Hour	Miles per Hour	0.621



**PIN: 012956-000**