United States Air Force
Radiac Set
AN/PDR-56F

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Radiac Set

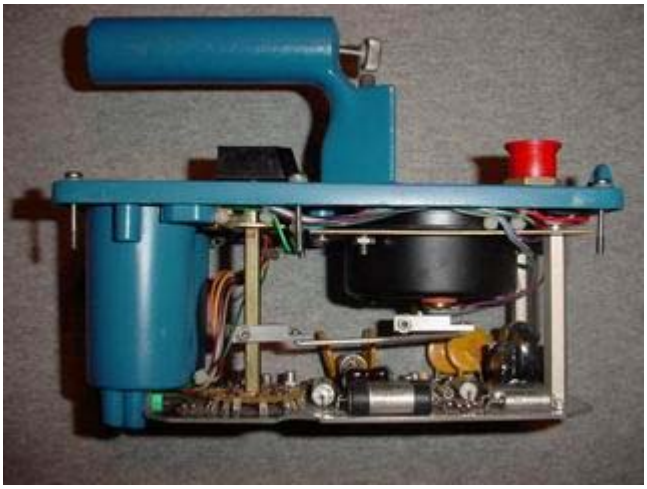
Measures 0 - 1,000,000 Counts Per Minute over 4 scales.

Set includes:
IM-160F/PDR-56 Radiacmeter / DT-590/PDR-56 X-Ray Probe

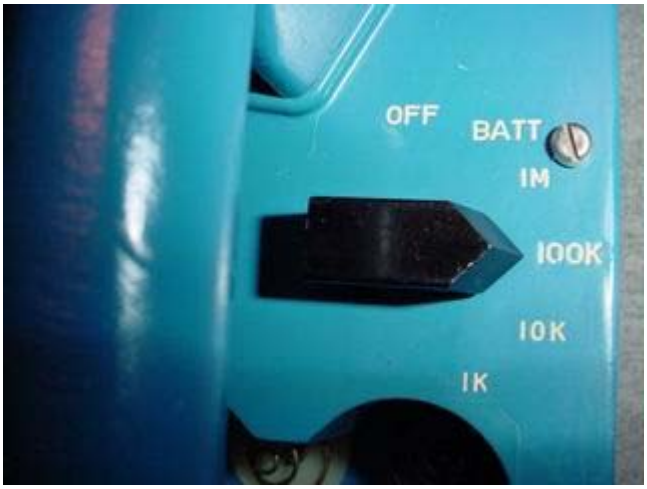
DT-224B/PDR-56 Main Alpha Probe / DT-228A/PDR-56 Auxiliary Probe
H43B/U Headphones / ST-123 Carrying Strap
B-4623 Coiled Cord / B-1112 Probe Handle Extension
CY-7375/PDR-56F Carry Case

Manufacturer: Nuclear Research Corp. Serial Number: B-0765
This unit uses two BA-30 or BA-3030/U ("D" size) 1½ volt batteries, it is complete and working.
This Radiac Set was used at Arnold Air Force Base in Tennessee.

IM-160F/PDR-56 Radiacmeter




IM-160F/PDR-56 Radiacmeter inside views.



IM-160F/PDR-56 Radiacmeter meter face and control panel.
The scales on the meter change and are color coded as follows:
0 - 1,000,000 Counts Per Minute = Red
0 - 100,000 Counts Per Minute = Orange (shown above)
0 - 10,000 Counts Per Minute = Pink
0 - 1,000 Counts Per Minute = Yellow
The battery check scale is white.
To the left of the handle is a "Meter Reset" button that zero's the meter when pressed.
This button is visible just below the headphone jack in the top picture.

IM-160F/PDR-56 Radiacmeter with DT-224B/PDR-56 Scintillation Probe

Click here to compare to a IM-160D/PDR-56

Inside Of DT-224B/PDR-56 Scintillation Probe

Alpha particles enter through the Mylar® polyester film screen, hitting a phosphor scintillation screen and
creating small flashes of light. Clear Lucite® "light pipes" then direct the light from the screen to the

photomultiplier tube that is contained in the vertical portion of the probe. This photomultiplier tube is also used with the DT-228A scintillation probe shown below. The black plastic cover in above left photograph slides over the bottom of the meter for protection when not in use.
The DT-224B probe of the AN/PDR-56 is calibrated so that 50 counts per minute above background measured l/16 to 1/8th inch above the surface is equivalent to 50 picocuries or 0.01 ugm/m2 of Plutonium -239 under the area of the probe.

DT-228A/PDR-56 Auxiliary Probe & DT-590/PDR-56 X-Ray Probe

The DT-228A probe of the AN/PDR-56 is calibrated so that l count per minute above background measured l/16 to 1/8th inch above the surface is equivalent to 1 picocurie of Plutonium -239 under the area of the probe.
Click here for a chart showing the relationship of counts per minute to Plutonium 239 concentration.
This chart is from DoD publication 3150.8-M

The Auxiliary Probe is attached just below the cord connector on the handle. It uses the same photomultiplier tube as the DT-224B probe, it has a Mylar® polyester film screen, and phosphor scintillation screen, but without the light pipes.
The X-Ray probe has it's own photomultiplier tube and connects to the meter with or without the shown probe handle extension. The handle extends from 14¼" to 23½".


B-4623 Probe Connector Cord on Left.

H43B/U Headphones and St-123 Carrying Strap on right.
According to maintenance records, this cable replaced a missing one on January 3, 1992. The headphones use a BNC connector. According to the maintenance records received with this kit, these headphones were replacements added June 24, 1996

Government price in 1969, for the PDR-56: $300.00
Cost for off base calibration in 1994: $1,186.56
The AN/PDR-56 has been replaced by the AN/PDR-77

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Radioactivity, **D**etection, **I**ndication, **A**nd **C**omputation