

# General Electric AN/FPS-6 & AN/FPS-90 Radar

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**AN/FPS-6 & AN/FPS-90**



General Electric Radar

The **AN/FPS-6 Radar** was a long-range height finding radar used by the United States Air Force's Air Defense Command. The AN/FPS-6 radar was introduced into service in the late 1950s and served as the principal height-finder radar for the United States for several decades thereafter, it was used by the Royal Air Force alongside their AMES Type 80s. Built by General Electric, the S-band radar operated on a frequency of 2700 to 2900 MHz. Between 1953 and 1960, about 450 units of the AN/FPS-6 and the mobile AN/MPS-14 version were produced; the **AN/FPS-90 radar** and AN/FPS-116 radar were identical to the AN/FPS-6 except for receiver modifications. The radar consisted of an antenna group, a transmitter group, a receiver group, an ancillary group. Most fixed sites had a remote group, which allowed the control of the radar from inside the operations center. Located in operations, was the anti-jam receivers; these receivers were fed with raw video from the tower receiver, output several types of processed video to enable operators to see through jamming.

## Operation

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The radar consisted of an antenna group, a transmitter group, a receiver group, and an ancillary group. Most fixed sites had a remote group, which allowed the control of the radar from inside the operations center. Also located in operations, was the anti-jam receivers. These receivers were fed with raw video from the tower receiver, and output several types of processed video to enable operators to see through jamming.

The ancillary group originally consisted of an AN/OA-270 Range Height Indicator (RHI), and then later upgraded to an AN/OA-929 RHI, which displayed the raw or anti-jam video, and allowed the operator to position the azimuth of the antenna. At SAGE sites, the antenna azimuth was selected by

command from the Air Division, and the operator could slew the antenna plus or minus ten degrees for fine adjustment.

The AN/FPS-90 radar was designated a high-power model, using a QK-338A magnetron and rated at 4.5 MW peak power, versus the QK-327A magnetron at 3.5 MW peak power. The receiver mixer was also modified to handle the larger signal dynamic range. Due to maintenance costs and high failure rates, these radars were all retrofitted to the same magnetron as the AN/FPS-6 by the late 1960s, and were no longer high power. The radar maintained its AN/FPS-90 designation due to the receiver modifications. Everything else was identical.

## AN/FPS-26 Radar

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<b>AN/FPS-26 Radar</b>	
<b>Country of origin</b>	<b>United States</b>
<b>Type</b>	<b>Height-Finder Radar</b>
<b>Frequency</b>	<b>5400 to 5900 MHz</b>
<b>Power</b>	<b>~5 megawatts (peak)</b>



In above photo, the foreground radome with dark-clad support structure houses a USAF AN/FPS-26A in late 1962. The two radars without radomes are [AN/FPS-6](#) heightfinders; the radome with an open steel grid support structure is an [FAA](#) search radar; and the two radars with radomes and white clad support structures are USAF AN/FPS-6A heightfinders.

The **Avco AN/FPS-26 Radar** was an Air Defense Command height finder radar developed in the Frequency Diversity Program with a tunable 3-cavity power klystron for electronic counter-countermeasures (e.g. to counter jamming). Accepted by the Rome Air Development Center on 20 January 1960<sup>[3]</sup> for use at SAGE radar stations, the AN/FPS-26 processed height-finder requests (e.g., from Air Defense Direction Centers) by positioning to the azimuth of a target aircraft using a high-pressure hydraulic drive, then "nodding" in either a default automatic mode or by operator command. The inflatable radome required a minimum pressure to prevent contact with the antenna which would result in damage to both (technicians accessed the antenna deck via an air lock.) To maintain high dielectric strength, the waveguide was pressurized with sulfur hexafluoride (SF<sub>6</sub>), which technicians were warned would produce deadly fluorine if waveguide arcing occurred.

FPS-26 units were installed at Luke AFB, MacDill AFB (1961), Hunter AFB (1961), Chandler AFS (1961), Baudette AFS (1963), Las Vegas Air Force Station (1963), Montauk AFS, Lockport AFS (1962), Fort Fisher AFS (1962), Winston-Salem AFS (1962), North Charleston AFS (1961), Aiken AFS, and Sundance AFS.<sup>[1]</sup> Charleston AFS, Charleston, ME (exact date of installation unknown some time between 1961-1963) Acme Missiles & Construction Corp., Rockville Centre, N.Y. built the radar tower facilities at Missile Master, Pittsburgh Defense Area, Oakdale, Pa.

### Variants

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A variant was the AN/FPS-26A with better ECCM capabilities.<sup>[5]</sup> which was installed at Cambria AFS (1963), Klamath AFS (1963), Point Arena AFS, Boron AFS, Hutchinson AFS, North Truro AFS (1963), Calumet AFS, Selfridge AFB, Empire AFS (1963), Finland AFS (1963), Fortuna AFS, Opheim AFS, Highlands AFS, Gibbsboro AFS (1963), Watertown AFS (1963), **Saratoga Springs AFS (1963)**, North Bend AFS, Mt. Hebo AFS, Benton AFS (1963), Oakdale AFS, St. Albans AFS (1963), Manassas AFS (1963), Cape Charles AFS (1963), Minot AFS, and Makah AFS.

In July 1965 for missile warning the AN/FPS-26 was modified to the Avco AN/FSS-7 SLBM Detection Radar for the AVCO 474N SLBM Detection and Warning System.