

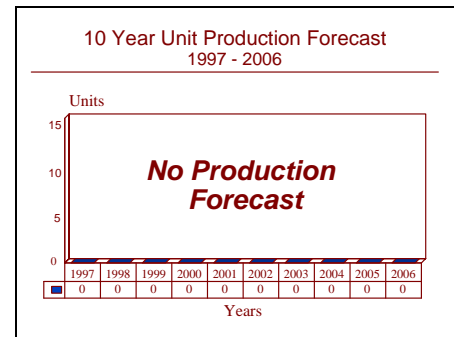
ARCHIVED REPORT

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APN-194(V) - Archived 3/97

Outlook

- In service; on-going logistics support
- Limited market for spare and repair parts



Orientation

Description. Radar Altimeter.

Sponsor

US Navy

Naval Air Systems Command

Washington, DC 20361-2140

USA

Tel: +1 703 692 3122

(NAVAIR HQ is in the process of moving to the Naval Air Warfare Center, Patuxant River, Maryland)

Contractors

Honeywell, Inc

Military Avionics Division

2600 Ridgeway Pkwy

Minneapolis, Minnesota (MI) 55413

USA

Tel: +1 612 951 1000

(Development/production)

Status. In service, ongoing logistic support.

Total Produced. Over 8,000 systems are estimated to have been produced.

Application. Standard altimeter on all US Navy fixed-wing and high-performance aircraft, including F-14, F/A-18, P-3C, A-4, EA-6B and A-7E. It is also used on the Harpoon anti-ship missile.

Price Range. Unit cost is an estimated US\$6,500.

Technical Data

| Dimensions | Metric | US |
|------------------------|---------------------------|--------------------|
| Weight: | | |
| R/T unit | 2 kg | 4.4 lb |
| Indicator | 0.7 kg | 1.6 lb |
| Dimensions: | 7.9 X 9.7 X 18.8 cm | 3.1 X 3.8 X 7.4 in |
| Characteristics | | |
| Frequency: | 4.3 GHz | |
| Power: | 5 W | |
| PRF: | 20 kHz | |
| Pulse width: | 0.02 or 0.2 μ sec | |
| Operational altitude: | 0 to 5,000 ft | |
| Accuracy: | \pm 3 ft or 4% | |
| Stability: | \pm 45° stable to specs | |
| MTBF: | 2,500 hr (guaranteed) | |
| Output: | Digital or analog | |

Design Features. The system includes a receiver-transmitter (RT-1015 and RT-1042), two antennas, one or more height indicators, such as the JG1073CC (left) and JG1061CC9 (right), which meet all requirements of MIL-A-81605(AS). The APN-194 is half the size of the APN-141 it replaced on the Navy's fixed-wing combat aircraft.

Operational Characteristics. The unit determines absolute altitude from sea level to 5,000 ft over land and water and provides an aural visual warning to the pilot at a minimum preselected altitude.

Variants/Upgrades

There are no specifically identified variants.

Program Review

Background. The APN-194 is a leading-edge pulse radar altimeter first introduced by Honeywell in 1971. It was modified to all solid state in 1979. Support has continued, including annual procurement of spare and replacement systems, mostly through component procurement.

Low Probability of Intercept Altimeter (LPIA). On November 5, 1993, the Naval Air Systems Command announced that it intended to procure the Engineering and Manufacturing Development (EMD) of a Low Probability of Intercept Altimeter (LPIA). The award would include options for initial production quantities. The F/A-18 would be the lead platform, but any Navy aircraft carrying an APN-171 or APN-194 was a potential platform. There could also be Air Force interest with an

option to modify the Navy systems to meet unique Air Force requirements. Modified non-developmental items were desired, and a laboratory demonstration of existing altimeters would be required as part of the proposal evaluation.

On December 22, 1995, the Naval Air Systems Command published a notice of intent to develop a Low Probability of Intercept Altimeter Receiver Transmitter under Solicitation N00019-95-R-0029. NAVAIR proposed procuring the Engineering and Manufacturing Development (EMD) of a Low Probability of Intercept Altimeter Receiver Transmitter (LPIA RT) to replace the RT-1015 and RT-1015A, as well as RT-1042 & RT-1042/APN-194. The contract would contain the EMD

effort of six to fifteen units and two production options of 25 to 200 units each.

In addition, the contract would provide for three optional EMD efforts for an LPIA Receiver/Transmitter of six units to replace the Navy's RT-829A/APN-171; RT-

1411D/APN-209 for the Army; and RT-1438 & RT-1692/APN-232 used by the Air Force. This Request for Proposals followed a previous July 19, 1991 Sources Sought Synopsis, a Draft RFP (N00019-92-R-0020), as well as a Request for Information dated June 9, 1995.

Funding

Funding for production and support from aircraft lines and O&M account.

Recent Contracts

There are no recent contracts recorded, although solicitations for logistics support components and repair efforts continue.

Timetable

| | | |
|-----|------|--|
| | 1971 | First introduced |
| | 1979 | Solid-state modification |
| Dec | 1995 | Announcement for LPI Altimeter solicitation notice |

Worldwide Distribution

This is used on aircraft procured by many US allies. Known users are: **Canada, Japan, Norway, The Netherlands, Spain, Pakistan** and **Portugal**. Some equipment may still be in use in **Israel** and **Greece**. **Iran** purchased F-14s with this equipment onboard.

Forecast Rationale

This is a simple, reliable, and widely used system. The US Navy is interested in replacing its APN-194 radar altimeter and has looked at the Air Force standard APN-232 CARA. Instead, Naval Air Systems Command will evaluate a variety of new systems as possible replacements for the APN-194 as part of its LPI Altimeter procurement. This effort promises to become a tri-service effort since all of the services would benefit from a new, low probability of intercept altitude measuring device. With the addition of newer navigation equipment, such as GPS, the need to radiate is reduced. Cutting down as many emanations as possible will be of significant benefit, even for non-stealthy aircraft.

APN-232 would have to be reduced in size and some technical changes made to accommodate low probability of intercept requirements. The CARA system derives its

name from the set's combined ability to measure both low and high altitudes, ranging from 0 to 50,000 feet AGL, a major factor in the pending replacement decision. The manufacturer is pushing hard for expanding CARA's market because it has excess production capacity as other production orders are being completed.

The replacement LPIA is probably going to be a significantly modified new system able to meet the increasingly stringent Navy requirements, along with those of the other services.

There will be limited component procurement through the forecast period. There is no requirement to support aircraft production, but there will be a small market for spare and repair parts as well as other support. This will be limited, however, because of the reliability of the equipment.

Ten-Year Forecast

No production forecast.