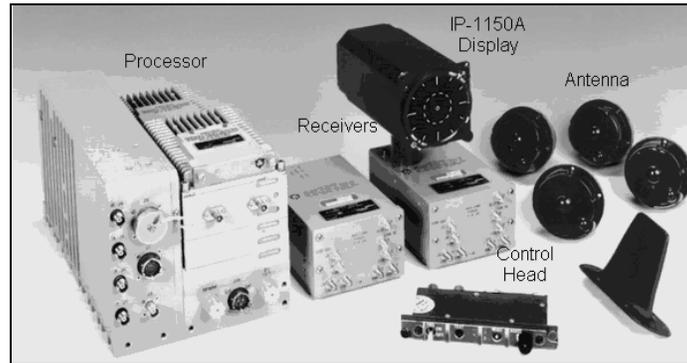


RADAR WARNING RECEIVER (RWR) AN/APR-39A (V)2



The APR-39A (V)2 Radar Warning Receiver (RWR) improves individual aircraft survival through improved aircrew situational awareness of the electromagnetic threat environment. The APR-39A (V)2 is a multi-Service (Navy/USMC, and Special Operations Force) next generation RWR upgrade to the existing APR-39 (V1). The upgraded system is intended for helicopters and other non-high performance aircraft. It is capable of detecting and providing alerts to the aircrew of surface to air missile (SAM) and antiaircraft artillery associated pulse, pulse Doppler, and continuous wave radar activities identified from a software programmable threat library. In addition to the cockpit video display, the APR-39A (V)2 provides the aircrew with synthetic speech audio threat warnings, facilitating a "hands on/heads up" aircrew posture. The system also integrates with other elements of the aircraft survivability equipment suite and, depending on aircraft configuration, provides control and display functions for the AVR-2/2A laser warning system family, the AAR-47 missile warning system, and the ALE-39 or ALE-47 countermeasures dispenser. The system retains the former APR-39A (V)1 low band vertically polarized blade antenna. The new, more sensitive, circularly polarized spiral antennas are a form and fit replacement for the previous equipment, as is the new night vision compatible cockpit video display and the cockpit control unit.

BACKGROUND INFORMATION

Early Navy operational testing in the USMC AH-1W helicopter, from FY91-92, found the system not operationally effective and potentially operationally suitable. Fleet introduction was not recommended until a subsequent OPEVAL could demonstrate satisfactory resolution of OT-IIA deficiencies.

OT-IIB in a USMC UH-1N helicopter (in accordance with a DOT&E-approved TEMP and test plan) was completed by COMOPTEVFOR in May 1995, with a finding of operationally effective and suitable and a recommendation for fleet introduction into UH-1N. Involvement by the Operational Test community in the DT leading to this phase of OT facilitated meaningful use of DT test results and allowed some streamlining of OT-IIB.

Since the APR-39A (V)2 RWR is not a major defense acquisition program, no B-LRIP report was produced. The system is covered by language in the National Defense Authorization Act for Fiscal Year 1989, Conference Report (H.R. 4481, page 345) which "directed that all future operational test

results for RWR update programs be reviewed and approved by the Director of Operational Test and Evaluation, prior to obligation of production funds."

The Navy Milestone III was approved in 1QFY96. APR-39A (V)2 systems are intended as the standard RWR for the UH-1N, AH-1, V-22, VH-60, HH-60, SH-60, CH-53, MH-53, KC-130, and the VH-3 aircraft. Follow-on Operational Test and Evaluations (FOT&Es) of the HH-60 and AH-1W were conducted during FY01 according to DOT&E approved test plans and results are being analyzed.

TEST & EVALUATION ACTIVITY

The first production units marked for testing were delivered in 3QFY99 and installed on the AH-1W, the lead FOT&E platform. The AH-1W APR-39A(V)2 Electronic Warfare suite and associated operating software were delivered to the government for independent validation and verification testing as part of host platform integration test efforts. Developmental flight testing on AH-1W and the HH-60H were completed in FY00. The FOT&E on these platforms was completed in FY01 and the results are being analyzed.

The APR-39A(V)2, as integrated on the MV-22, was delivered to the government as Contractor Furnished Equipment. The Electronic Warfare suite, as installed and integrated, was tested as part of the MV-22 complete airframe IOT&E in July 2000. Within the limited scope of these tests, the APR-39A (V)2 was effective and suitable. Plans to conduct FOTE in the HH-53 are now uncertain due to funding shortfalls, and FOTE in the KC-130 has been postponed indefinitely due to problems observed during DT on that platform.

TEST & EVALUATION ASSESSMENT

The APR-39A(V)2 is undergoing a multi-platform test and evaluation program, which encompasses several platforms undergoing unique phases of their acquisition life-cycle. Contractor qualification testing and government independent validation and verification testing have proceeded relatively well considering the complexity and integration challenges of these systems. Management of diverse platform mission and integration requirements has also gone well. Issues involving the Test and Evaluation Master Plan have been resolved and FOT&E has been conducted on two platforms. Data collected and evaluated from these tests will help to determine if the systems should be deployed and serve the Program Manager in executing follow-on contract award options for additional units.

The Program Manager should pay particular attention to follow-on platform integration efforts that plan on utilizing existing lead platform (AH-1W) test and evaluation data to support fielding recommendations. In the past, there has been a tendency to rely too heavily upon existing lead platform data and to overly minimize unique platform-specific test requirements. It is very important that platforms adequately develop and implement robust test objectives that address unique aircraft platform integration and system-level performance. Each follow-on platform should plan on testing the integrated system's operational effectiveness and suitability and perform an assessment of upgraded performance against what is currently fielded.