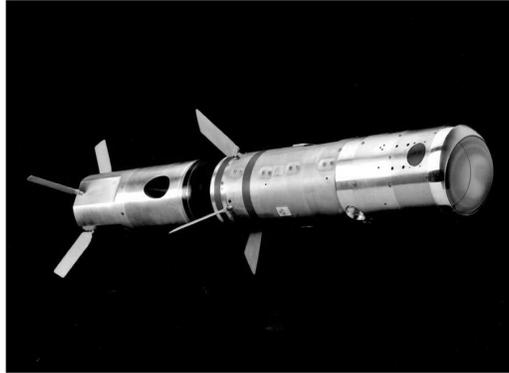


## **TOW FIRE AND FORGET (TOW-F&F)**



The Tube-launched Optically-controlled Wireless-guided (TOW) Fire and Forget (F&F) anti-tank missile system includes the TOW F&F missile and its associated High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) integration appliqué kit for compatibility with the TOW Improved Target Acquisition System (ITAS). The missile is intended to be a wooden-round, that is, not be maintained by troops in the field. The ITAS provides target tracking and guidance commands to the missiles in the commanded mode. Relative to HMMWVs currently equipped with the baseline TOW missile, the TOW F&F is intended to improve effectiveness and survivability through a fire-and-forget capability that does not require the gunner to guide the missile through its flight. A back-up alternative wireless command-guided mode was required to improve the ability to engage targets in conditions that prevent lock-on in the fire-and-forget mode. The program includes modification of current TOW ITAS training devices to add the characteristics of the TOW F&F.

The Army cancelled the TOW-Fire and Forget Program on November 30, 2001.

### **BACKGROUND INFORMATION**

For the light, early entry forces equipped with the HMMWV-mounted ITAS, the TOW F&F is designated an interim missile system. It is intended to bridge the gap between the aging TOW 2A and TOW 2B missiles currently in the stockpile and the Common Missile, conceptualized to be deployed around 2010. The TOW F&F acquisition strategy capitalizes on reuse of existing TOW 2B components, e.g., rocket motors and warheads, from missiles currently in the stockpile.

### **TEST AND EVALUATION ACTIVITY**

Soldiers examined prototype hardware configurations as part of the early user involvement in FY01. No other formal testing has been initiated.

DT, OT, and LFT&E strategies were incorporated into a TEMP to support Milestone II and subsequent contractor selection. Planned operational testing events include a Limited User Test in FY03 and an IOT&E in FY04. The LFT&E program, spanning FY02 to FY05, includes three phases that will begin with warhead testing and then progress through end-to-end firings against representative tank targets.

OSD approved the TEMP on May 2000 with the provision that it be resubmitted after contact award so that contractor technical choices could be integrated with the test program described in the TEMP. The TOW Fire and Forget LFT&E program, spanning FY02 to FY05, includes three phases that will begin with warhead testing and then progress through end-to-end firings against representative tank targets.

## **TEST AND EVALUATION ASSESSMENT**

A DOT&E's major concern with the TOW-F&F TEMP draft is the relationship between modeling and simulation (M&S) as a risk reduction endeavor and the desire by the PM to reduce costs and minimize missile flight tests through the use of M&S to complement or supplement operational effectiveness and suitability assessments.

DOT&E also is concerned that the upgraded TOW training devices will not adequately match the actual TOW F&F missile launch signature and long range. One of the key lessons learned from the Javelin OT&E experience was that high-fidelity training equipment must be developed, tested, and assessed prior to the IOT&E to support better troop training of anti-armor gunners (this applies to the IOT&E as well as to the normal pre-combat training). High-fidelity equipment is also required to ensure accuracy in scoring force-on-force target kill effectiveness in the IOT&E and for subsequent force-level training opportunities. If the training devices do not faithfully emulate the performance of the real system, then there is the potential for significant negative training by soldiers preparing for combat. Additionally, poor emulation by the training devices could unduly compromise any performance comparisons of TOW F&F to predecessor systems in force-on-force exercises during operational tests.

Finally, DOT&E believes that missile reliability maintenance and testing over its 10-year shelf life warrants additional emphasis, especially since the cost of the TOW F&F missiles will severely limit test articles and essentially eliminate post-fielding firings of live missiles.

The TOW F&F LFT&E program will couple existing lethality test data with the results of planned end-to-end missile firings against threat tank targets in OT. Because the fired missile selects its own hit point, this approach allows for the most realistic hit point selection for lethality evaluation. However, the number of such firings against threat targets is relatively small, so even a few misses could cause a loss of data. Backup firings and the use of a multi-phase test approach will mitigate this risk.