

**GEC AVIONICS**

**THE F-5 HUDWAC.  
TACTICAL SUPERIORITY  
FOR THE TIGER.**



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# THE F-5 HUDWAC. NOW, THE PERFORMANCE OF THE F-5 WITH THE ADVANTAGES OF AN ADVANCED HEAD UP DISPLAY/WEAPON AIMING COMPUTER.

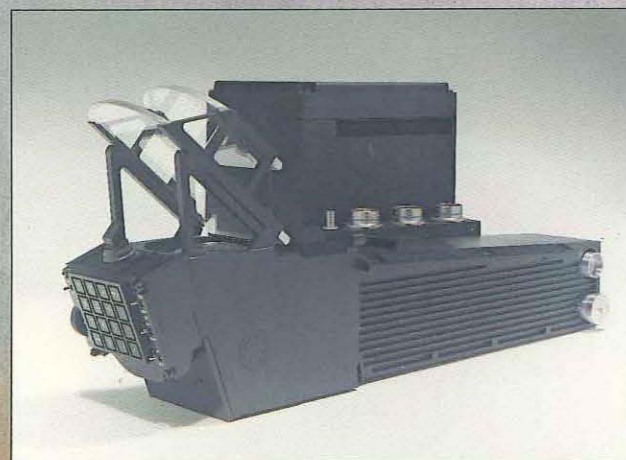
Today, fighter aircraft must be prepared to operate in an increasingly sophisticated tactical combat environment.

In both the air-to-air and surface-to-air arena, rapid advancements in technology, especially in electronics and guidance systems, have quickened the pace of avionics obsolescence in a number of highly capable combat aircraft with years of airframe and engine life remaining.

## THE FIRST PRODUCTION HEAD UP DISPLAY/WEAPON AIMING COMPUTER FOR THE NORTHROP F-5 TIGER II.

GEC Avionics F-5 HUDWAC is now in production, making it possible for the first time, to combine the excellent performance and maneuverability of the

**THE F-5 HUDWAC DECREASES PILOT WORKLOAD WHILE INCREASING WEAPONS DELIVERY ACCURACY.**  
By presenting both flight performance and tactical data within



In fact, operational demonstrations have revealed dramatic air-to-air superiority over F-5's equipped with existing electro-mechanical sighting systems, while air-to-ground accuracy was improved by a factor of better than three-to-one.

## NAVIGATION, AIR-TO-GROUND AND AIR-TO-AIR COMBAT MODES.

The F-5 HUDWAC modes are selected automatically, based on the arming switch position. They include Navigation (with a landing sub-mode), Continuously Computed Impact Point (CCIP) and Continuously Com-

puted Release Point (CCRP)\* for air-to-

the pilot's normal field of view, the F-5 HUDWAC increases his situational awareness, thus increasing survivability and improving mission performance.

ground weapon

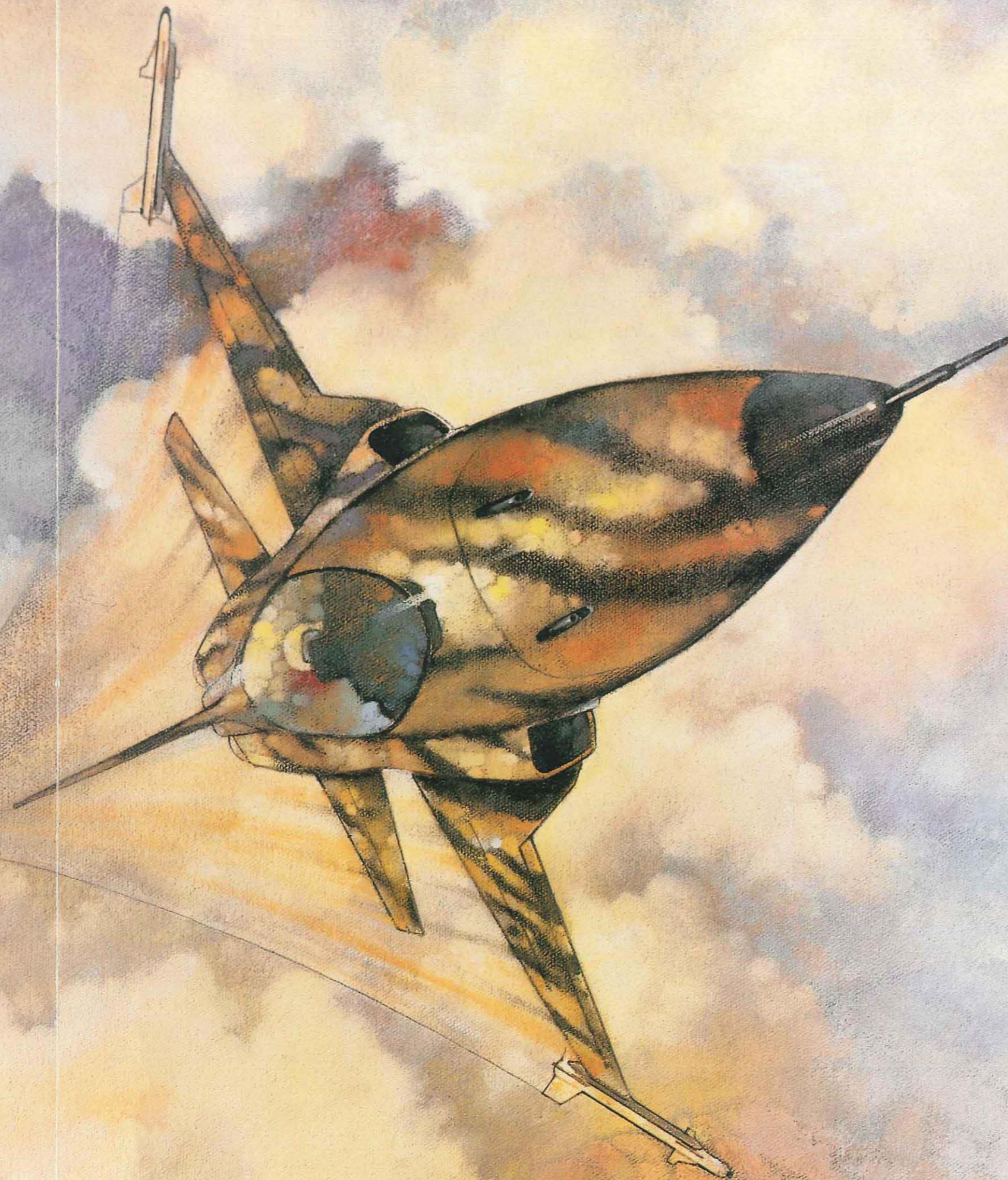
delivery. Air-to-air modes include Air-to-Air Missile, Lead Computing Optical Sight (LCOS) and Dogfight, a combination of the Missile and Gun modes.

Additionally, an "Electronic Bullet" mode allows realistic, effective air-combat training.

MIL STD 1787 symbology is presented in a format which is easy to use, and is tailored to the aircraft's tactical situation. The system's digital computer provides continuously updated, real-time aiming solutions for a variety of weapon configurations, resulting in significantly improved weapons delivery accuracy.

F-5 with the advantages of an advanced Head Up Display and Weapon Aiming Computer.

Designed to be retrofitted into all F-5 E and F configurations with no structural modifications to the airframe, the system is a cost-efficient means of upgrading the aircraft's combat capabilities in a wide range of tactical situations.



## A COST-EFFECTIVE SYSTEM DESIGNED FOR RELIABILITY, SUPPORTABILITY, AND GROWTH.

The F-5 HUDWAC utilizes technology and hardware derived from GEC Avionics' combat tested, and highly successful, major production Head Up Display programs. Incorporation of these tactically proven electronic components achieves both an improved MTBF and lower overall costs, since the majority of the system's elements are already in production.

Engineered for future growth, the Electronics Unit is designed to interface with existing and future sensors and with weapons systems (such as the APG-69 radar or the AIM-9P-4 missile) which might also be added as part of an aircraft modification program. The unit is reprogrammable, easily accommodating new weapon configurations.

Because the HUDWAC increases weapons delivery accuracy, the system also results in lower training costs, as fewer

sorties are needed to maintain pilot proficiency.

## GEC AVIONICS. A WORLD LEADER IN HUDWAC TECHNOLOGY.

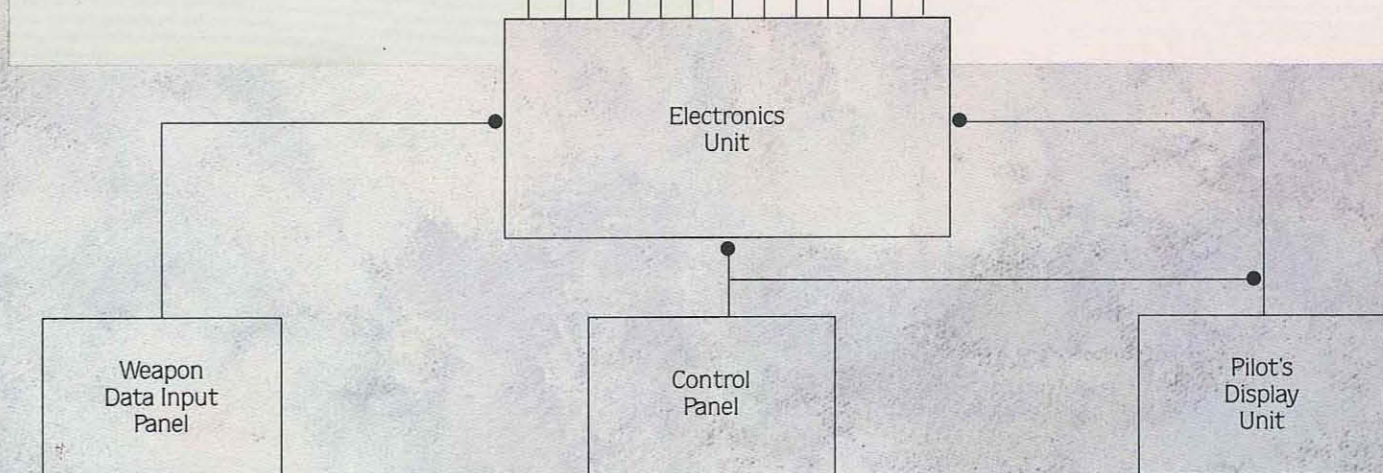
With more than 20 years of Head Up Display experience, GEC Avionics is a world leader in HUD technology. Over 6,000 systems have been produced and deployed in more than 25 different types of combat aircraft around the world, including the F-16, A-4, A-7, A-10, the Mirage, the Buccaneer and others.

### F-5 E/F HUDWAC TODAY

- AHRS or LN-33 Inertial Navigation System
- Central Air Data Computer
- Radar APQ 153/157/159
- Armament Controls
- Landing Gear Control
- MIL 1553B Databus (LN-39)

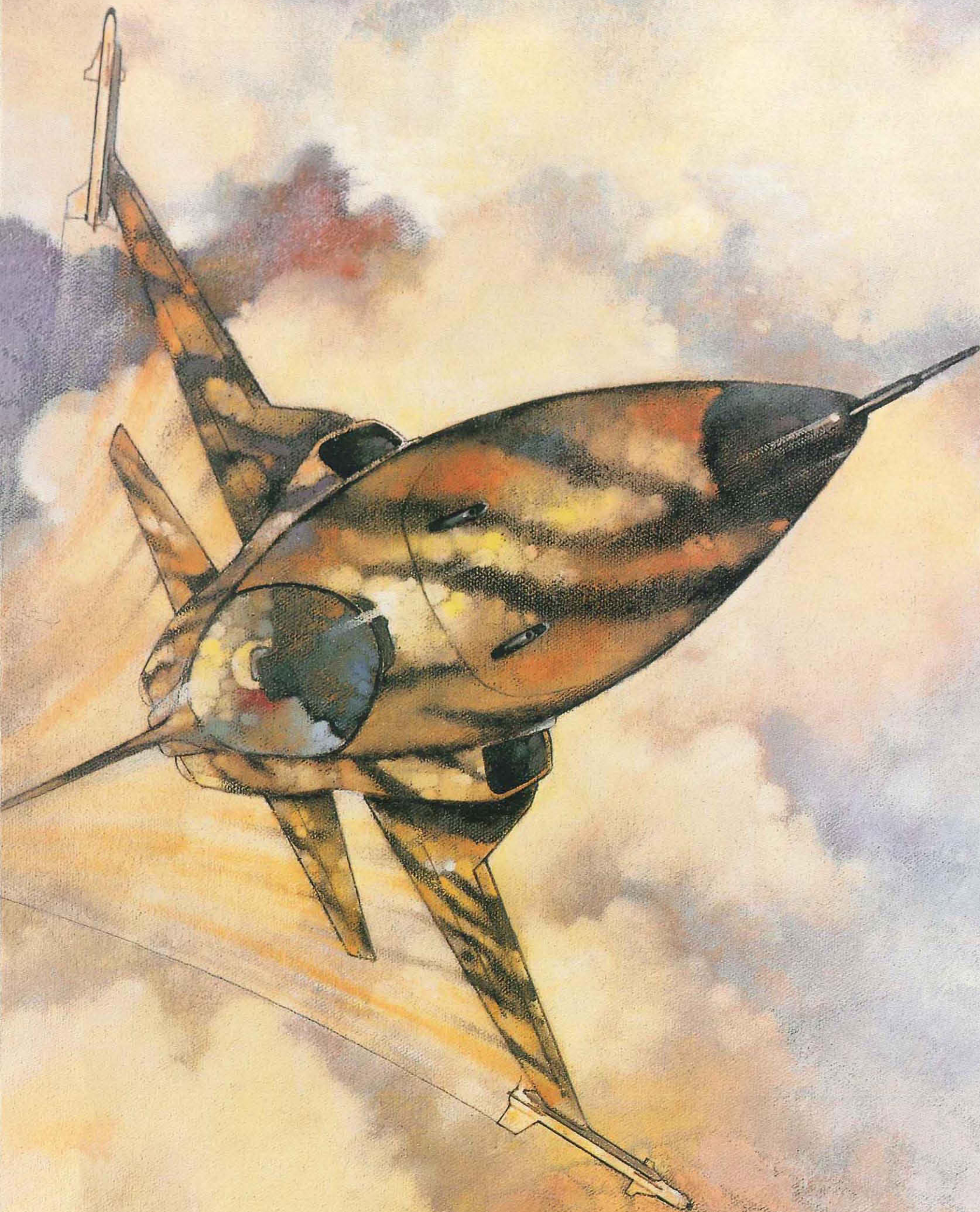
### GROWTH

- Radar AN/APG-69(V)
- Line of sight seeker AIM-9L or AIM-9P-4
- Laser Rangefinder
- Laser Spot Seeker
- Radar Altimeter
- Instrument Landing System
- Laser INS



The HUDWAC is compatible with a wide range of sensor and other avionic/aircraft inputs. It accepts a comprehensive line of analog, synchro, discrete and digital inputs. Modular construction makes it possible to design a system which satisfies the requirements of each aircraft.

\*Dependent upon aircraft avionics.



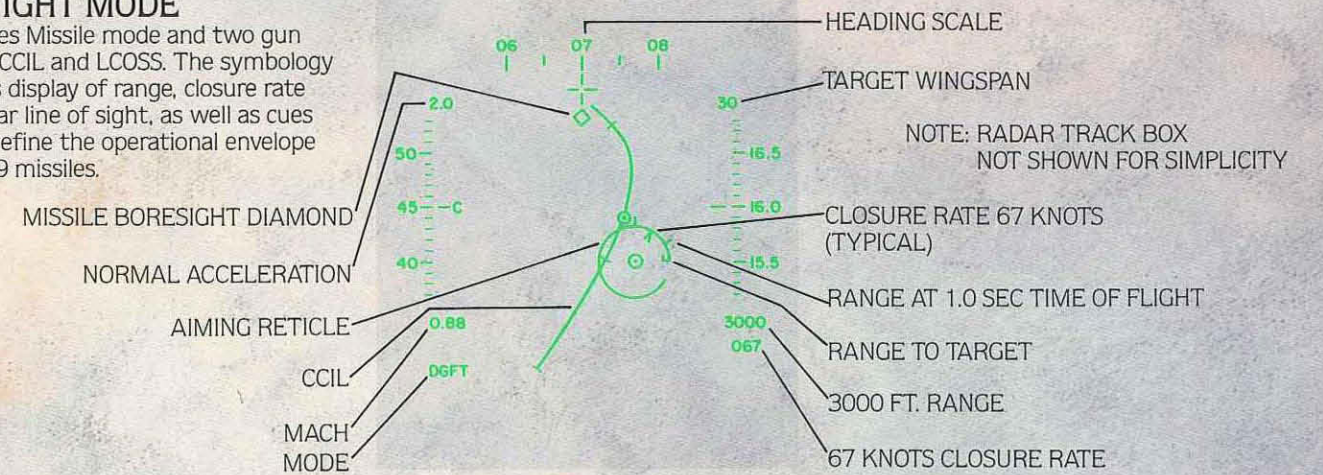
### CCIP MODE

(Continuously Computed Impact Point)  
 HUDWAC takes into account actual airspeed, dive angle and G forces from aircraft sensors to continuously predict weapons impact point. The CCIP pipper marks the impact point if bombs were released at any given instant.



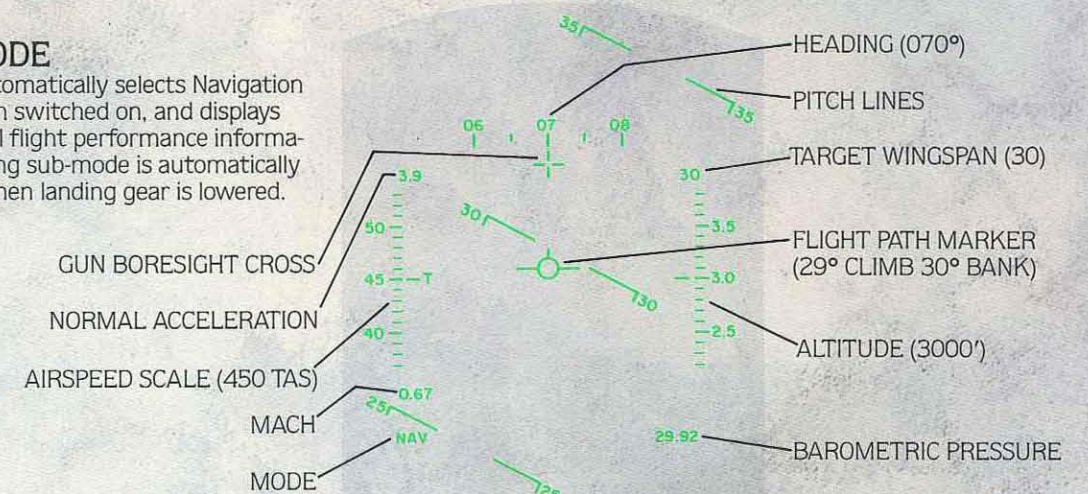
### DOGFIGHT MODE

Combines Missile mode and two gun modes, CCIL and LCOSS. The symbology includes display of range, closure rate and radar line of sight, as well as cues which define the operational envelope of AIM-9 missiles.



### NAV MODE

System automatically selects Navigation mode when switched on, and displays non-tactical flight performance information. Landing sub-mode is automatically selected when landing gear is lowered.



GEC Avionics Inc.  
 2975 Northwoods Parkway/Norcross  
 P.O. Box 81999  
 Atlanta, Georgia, U.S.A. 30366  
 Telephone (404) 448-1947  
 Telex: 708447 TWX: 810-757-4257

GEC Avionics Ltd.  
 Airborne Display Division  
 Airport Works  
 Rochester, Kent ME1 2XX, England  
 Telephone: Medway (0634) 44400  
 Telex: 96304

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