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like displays, with information such as airspeed, altitude, angle of attack and g loading all shown. The screen is 4ft square and gives a four-colour presentation, compared with the 21in-square black-and-white units pre-viously available. Earlier systems also could handle only four students at a time. The instructors are in constant radio contact with their students, and an entire mission can be played back on tape after the exercise.

Ski-Jump costs
THE TOTAL cost of the Ski-Jump Harrier trials (see Flight for Novem-ber 20, page 1468, and for December 4, page 1630) is estimated at £250,000. The figure was given by Lord Winter-bottom in answer to a Parliamentary question on December 16. Describing the concept as "one of these elegant ideas that may produce benefits for little money," Lord Winterbottom said that the first phase of the pro-gramme was almost complete, and that flight trials at RAE Bedford were planned for late 1977.

GE tests experimental radar GENERAL ELECTRIC has developed an experimental airborne radar as part of the Defence Advance Project Agency's Howls (Hostile Weapons Location System) programme. The radar uses a lightweight phased-array antenna and has six operating modes: ground mapping; fixed and moving target detection; low-level Doppler spectrum signature-analysis; projective detection and tracking; and Doppler beam-sharpening. A micro-processor controls antenna scanning pattern and rate, transmit frequency, pulse width, pulse-repetition fre-quency, data-sampling window posi-tion, and data-sampling pattern.

According to Herbert J. Kindl, general manager of the company's aerospace electronics system depart-ment, the J-band radar will be used to investigate techniques for the detection and location of hostile weapons in the presence of radar clutter.

Series production of the Aeritalia G.222 transport is under way, with two aircraft for the Italian Air Force, one for Dubai and the second prototype seen together at Caselle airport, Turin. Some 44 are on order for Italy, three for Argentina and Dubai has an option on a second

USN multisensor enters

production
THE US NAVY has ordered into pro-duction the Tram (Target Recognition and Attack Multisensor) system developed by Hughes and first flown aboard an A-6E in October 1974. The USN plans to equip more than 250 aircraft with the system, which will enable them to locate and attack ground targets in total darkness.
A stabilised turret beneath the air-craft will carry a forward-looking infra-red (FLIR) sensor, a laser desig-nator/ranger and a laser receiver. The FLIR sensor is equipped with a zoom optical system and is boresighted with the Norden AN/APQ-148 radar carried by the A-6E, enabling the bombardier/navigator to change quickly from radar to infra-red track-ing and to obtain a magnified image.

The laser is also boresighted with the FLIR to provide range data and illuminate the target for laser-energy-seeking "smart" bombs or missiles. The initial order is for 36 systems, but the USN has options on two further batches. A pod-mounted version, which has been flown on the A-7E, could be ordered by the USAF.

M-X motor test
THE first test of a movable nozzle for the first stage of the proposed United States M-X ICBM was due to take place at the Rocket Propulsion Laboratory, Edwards AFB, on December 22. A second test will follow in April. Developed by the Chemical Systems Division of United Tech-nologies, the nozzle is l-5m long and weighs 1,350kg. Throat diameter is 37cm and exit diameter 1 • 18m. The rocket motor to which it is attached is the Super Hippo, which develops a thrust of 2,000kN for 60 sec. During the trial the nozzle was due to be slewed at angles of up to 15° by four electrically controlled hydraulic actuators.

Lockheed wins Iranian
contract
LOCKHEED AIRCRAFT SERVICE has received a contract from the USAF to provide three years of logistics sup-port to the Imperial Iranian Air Force. In December 1975 the IIAF asked a number of US companies to prepare plans for a logistics system based on that of the USAF but tailored to Iranian requirements. On December 16, 1976, Lockheed announced that it had received a $138 million contract to assist the IIAF in developing management and operating systems for its logistics organisation. Areas covered by the contract include purchasing and data automation systems; a supply and maintenance depot; and the training of Iranian personnel.

Australia's defence plans T

HE ROYAL AUSTRALIAN Am FORCE

will receive the first of its
Mirage-replacement Tactical Fighter
Force (TFF) in the early 1980s,
according to Defence Ministry re-quests for proposals (RFPs) now being circulated to prospective sup-pliers. The RAAF currently operates three squadrons of single-seat Mirage IIIOs plus 14 two-seat trainers, having bought an original total of 116 air-craft; the replacement programme is at present priced at about $A1,000 million.
Little is known about the exact re-quirements for the TFF aircraft. The latest defence white paper in Austra-lia indicates that the role has not yet been decided and it is not known whether the choice will fall on an air-superiority type, a multi-role air-craft or a mixture of fighters and

attack aeroplanes. The white paper does however say: "It is expected that, subject to all of the necessary evidence being accessible, a decision on the generic type of aircraft will be made in this financial year." It also says that the forces are consider-ing buying medium-range surface-to-air missiles to complement the TFF and "to provide for the exercise of an integrated air-defence system."
Some 11 aircraft types are seen as possible contenders for the TFF pro-gramme and RFPs have as a result been sent to the appropriate manu-facturers, as well as to the major Australian aircraft companies. The list is believed to comprise the F-15, F-14, F-18, Mirage F.l, Jaguar, Tor-nado, Viggen, A-7, A-10, Harrier and Kfir.

The RFP asks for proposals from