INTRODUCTION

1. The HUNTER F Mk. 4 is a single-seat, mid-wing fighter aircraft with swept-back wings, variable incidence swept-back tail plane, power-assisted aileron and elevator controls and cabin pressurisation. It is powered by an Avon Mk. 107 or 113 straight flow turbo-jet installed centrally within the fuselage, with its air intakes in the leading edges of the stub wings and a straight-through jet pipe exhausting at the fuselage tail-end. The armament consists of four electrically-fired and controlled 30 mm. Aden guns carried, together with their ammunition, in a removable pre-armed armament package located in the front fuselage. The guns are sighted by a Mk. 5 gyro gun sight, which is provided with manual or radar ranging control and carried above the centre instrument panel on a retractable mounting. A ciné camera, which normally operates in conjunction with the guns but can be operated separately if desired, is installed in the nose of the aircraft. A universal pylon, to support overload fuel or external stores according to the aircraft's operational duties, is installed under each outer wing.

2. The pressurised cabin, which accommodates a fully automatic ejector seat complete with survival equipment, is protected forward of the pilot by heavy plating. It is provided with an electrically-operated hood which slides rearwards for entry and exit. In an emergency the hood may be jettisoned. The flying controls are of the normal stick and rudder bar type and operate the control surfaces by push-pull tubes. The rudder and port aileron are provided with small electrically-operated trim tabs controllable from the cabin.

3. The fuselage is a monocoque structure constructed in three main portions: front, centre and rear. The front fuselage, which is provided with a detachable nose piece, is reinforced by a keel member and four longerons while the centre fuselage and the stub wings, housing the air intakes, are built as an integral unit. The rear fuselage is constructed with the lower portion of the fin as an integral part and is terminated by a detachable tail cone.

4. The engine is mounted in the centre fuselage structure at four attachment points. The forward points being suspension linkages, located on either side, which pick up with the engine compressor casing. The aft points consist of mounting blocks, situated on either side of the rear transport joint frame, which are designed to allow for engine expansion and engage with trunnions on the engine turbine nozzle box. An engine-driven accessories gearbox is mounted at the bottom of the engine bay, just aft of the rear spar on the port side. This drives the hydraulic pump and two generators. A fire extinguisher bottle, stowed between the air intakes just forward of the engine, is connected to the extinguisher inlet connection on the engine.

5. The swept-back outer wings are two-spar stressed-skin structures covered with heavy gauge skin which ensures a perfectly smooth finish and gives the required stiffness with the minimum of internal structure. Each wing is attached to the fuselage stub wings by joint pins and high-tensile steel plug-ends at the front and rear spars. Electro-hydraulically operated split trailing edge landing flaps extend along the underside of each wing to the inboard ends of the ailerons. The ailerons are conventional structures, their operation being assisted by hydraulic booster jacks located in the wings.

6. The variable incidence tail plane is a multi-spar swept-back structure built in one piece and sandwiched between the upper and lower portions of the fin. It is hinged at the rear spar and raised or lowered at the leading edge by an electrically-operated actuator which is controllable from the cabin. The elevators are of conventional design, their operation being assisted by a hydraulic booster jack, situated in the fuselage tail-end. The upper portion of the fin is a two-spar structure attached to the lower part, which is integral with the rear fuselage, at the front and rear spars. The rudder is hinged to the upper portion of the fin.

7. The tricycle alighting gear is electro-hydraulically operated, all three units being of the liquid-spring shock-absorber type. The main wheel units are fitted with hydraulically-operated brakes, which operate differentially in conjunction with the rudder bar, and the nose wheel unit is fully castoring and self-centring during retraction. The nose wheel retracts forward into the fuselage immediately in front of the cabin, and the two main wheels retract inward into each outer wing. When retracted all three units are totally enclosed within the structure by fairings and locked up by catches on these fairings. When extended, the main wheels are locked down by internal mechanical locks in the hydraulic jacks and the nose wheel is locked down by a mechanical lock at the top of the leg. The attitude of all three units is shown by an electrically-operated indicator in the cabin.

8. The fuel is contained in flexible pressurised bag-type tanks installed in the centre fuselage and in each outer wing. The centre fuselage tanks are mounted forward of the engine, two on each side, between and around the air intake ducts, while the wing tanks are installed in the leading edge of each outer wing just outboard of the wing root. Provision is also made, on the universal pylons, for the installation of drop tanks, which when installed feed fuel to the wing tanks by air pressure supplied by the transfer system. The system is re-fuelled through a standard pressure re-fuelling valve, located in the port wheel bay. Fuel is fed to the engine from the two forward tanks, being transferred from the other tanks by air pressure from the engine compressor. Matched electrically-driven booster pumps are installed in each front tank to supplement the engine-driven pump and to ensure correct distribution of fuel in each side of the system. Each pump is fitted with inverted-flight valves and installed in a "negative G" fuel trap to allow for inverted flight. Drop fuel tanks may also be installed, one under each outer wing, and when fitted the fuel is fed by air pressure into the two front fuel tanks. The fuel gauges are of the Smiths-Weymouth electronic type.

9. A pressure demand oxygen system consisting of two high-pressure cylinders installed on the starboard side of the nose wheel bay with an in-situ charging valve located below them, is incorporated in this aircraft. The regulator and a gauge indicating the contents of the oxygen cylinders are located in the cabin. The supply pipe from the regulator is taken to a quick-release connection on the ejector seat. An emergency oxygen bottle, fitted to the dinghy pack, is automatically brought into operation when ejection action is taken and may also be used if the main oxygen system fails.

10. The radio equipment consists of an A.R.I.5490 twin V.H.F. communication installation, while the radar equipment consists of an A.R.I.5849 D.M.E. navigational aid, an A.R.I.5131 Mk. 3GR automatic I.F.F. installation and an A.R.I.5820 radar ranging installation. The D.M.E. and I.F.F. equipment are provided with suppressed aerials built into the structure and the V.H.F. installation uses a single whip aerial projecting below the port outer wing. All the transmitter-receivers are carried in the radio bay located in the front fuselage just forward of the front transport joint, while the radar head and range unit are situated in the nose of the aircraft. The equipment is remotely controlled from the cabin.

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