INTRODUCTION

1. The Hunter FGA Mk.9 is a single-seat, mid-wing fighter ground attack air-craft with swept-back wings, variable incidence tail plane, power-operated aileron and elevator controls and cabin pressurisation. It is powered by a single Rolls-Royce Avon 207 turbo-jet engine with a fifteen stage axial flow compressor. The engine is 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 tail end of the fuselage. 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 underside of the front fuselage. Provision is made for selective firing of the guns and sighting is effected through the medium of a gyro gun sight carried above the centre instrument panel in the cabin. The gun sight is provided with a manual and radar ranging control. A cine camera, which normally operates in conjunction with the guns, but can be operated independently if desired, is installed in the extreme nose of the air-craft. Provision is also made for the carriage of rocket projectiles on launcher rails under the wings. Pylons, to support overload fuel tanks or external stores according to the aircraft's operational duties, are provided for installation under each wing.

2. The pressurised cabin, which accommodates a fully-automatic ejection 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 on rails for entry and exit. In an emergency, the hood complete with rails, may be jettisoned. It is also automatically jettisoned immediately prior to the seat when seat ejection action is taken. The flying controls are of the normal stick and rudder bar type and operate the control surfaces by means of push-pull tubes. The rudder and port aileron incorporate small electrically-operated trimming tabs which are controllable from the cabin. Hydraulic boosters are provided to operate the ailerons and elevators.

3. The fuselage is a monocoque structure manufactured in three main portions, front, centre and rear. The front fuselage is reinforced by a keel member and four longerons and is provided with a detachable nose piece. The centre fuselage and stub wings, which house the air intakes, are built as an integral unit. The rear fuselage incorporates 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 at four attachments. The forward attachments are suspension linkages which pick up with the engine compressor casing, port and starboard. The rear attachments consist of swivel bearings and caps at frame 40A which engage with trunnions one on either side of the engine turbine nozzle box. An engine-driven accessories gearbox is mounted forward of the rear spar frame, the drive being taken from the engine by a universally-jointed shaft to a turret drive arm and thence by means of another universally-jointed shaft to the rear of the gearbox. The gearbox accomodates and drives the hydraulic pump and two generators which, together, supply all the hydraulic and electrical power for operating the aircraft's services. A fire extinguishing system is provided, which is operated manually from the cabin, or automatically in the event of a crash landing.

5. The swept-back outer wings are two-spar stressed-skin structures covered with heavy gauge skin which ensures a perfectly smooth finish and provides the necessary stiffness with a minimum of internal structure. Each outer wing is attached to its respective fuselage stub wing 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 facilitated by the provision of hydraulically-operated booster jacks installed in the wings.

6. The tail plane is a multi-spar swept-back structure constructed as a single unit, virtually sandwiched between the upper and lower portions of the fin and has limited movement to provide for variable incidence. It is hinged at the rear spar and is raised or lowered at the leading edge by means of an electric actuator which is controllable from the cabin. The elevators are of conventional design, their operation being facilitated by the provision of a hydraulic booster jack located in the fin. An interconnection, in the form of a follow-up linkage between the tail plane actuator and full power elevator, makes provision for the operation of the units as an electrically-operated flying tail. The upper portion of the fin is a two spar structure attached to the lower portion, which is integral with the rear fuselage, at the front and rear spars. The rudder is hinged to the upper portion of the fin. An air brake which, when in the closed position embraces the underside of the rear fuselage, is fitted to this aircraft. A braking parachute, which is housed in a fairing that extends rearwards over the tail cone, is also incorporated.

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 disc brakes which operate differentially in conjunction with the rudder bar and, to permit the maximum braking effort to be applied without the risk of wheel skidding. Maxaret units are incorporated. The nose wheel, which is fully castoring and self-centring during retraction, retracts forward into the fuselage immediately in front of the cabin, while the main wheel units retract inwardly into each outer wing. When retracted, all three units are totally enclosed within the structure by fairings and are locked up by catches on these fairings. When extended, the main wheel units are locked down by internal mechanical locks in the hydraulic jacks, but the nose wheel is locked down by a mechanical lock at the top of the leg. The attitude of all three units is shown on an electrically-operated indicator in the cabin. To maintain main undercarriage leg pressure at an optimum value under varying conditions, mechanical recuperators are provided.

8. The fuel is contained in flexible pressurised bag-type tanks installed in the fuselage and each outer wing. Two of the fuselage tanks are mounted in the centre fuselage forward of the engine and the other two in the rear fuselage where, together, they encircle the rear of the engine. 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 wing pylons, for the installation of drop fuel tanks which, when fitted, feed fuel to the wing tanks, displacement being effected by means of air pressure obtained from the fuel transfer system. The system is refuelled and defuelled through a standard refuelling valve located in the port wheel bay and fuel is fed to the engine from the two front tanks, being transferred to these tanks from the other tanks by means of air pressure obtained from the engine compressor. Matched electrically-driven booster pumps are installed in each front tank to supplement the engine driven pumps and, to ensure an even distribution of fuel from each side of the aircraft, a fuel flow proportioner is incorporated in the system. To ensure an adequate supply of fuel to the engine under negative 'G' conditions, a recuperator is accommodated in each front tank.

9. A pressure demand oxygen system, utilizing three high-pressure oxygen cylinders installed two on the starboard side of the nose wheel bay and the other on the port side, with an in-situ charging valve mounted below the starboard pair of cylinders, is incorporated in this aircraft. The regulator, together with a gauge indicating the contents of the cylinders, is mounted in the cabin. From the regulator, the supply pipe is taken to a quick-release connection on the ejection seat. An emergency bottle, fitted in the seat cushion, or under the seat pan, according to the type of ejection seat fitted, is automatically brought into operation when ejection action is taken. The emergency system may also be used if the main oxygen system fails in flight.

10. The radio equipment installed in this aircraft consists of a U.H.F. communication installation with which is associated a telebriefing installation, and a radio compass. The radar equipment consists of a D.M.E. navigational aid, an automatic I.F.F. installation and a radar ranging installation for use in conjunction with the gun sight. The U.H.F., D.M.E. and I.F.F. transmitter-receivers are carried in the radio bay located in the front fuselage, just forward of the transport joint. The radar head and ranging unit are both situated in the nose of the aircraft. All the installations are remotely controlled from the cabin.