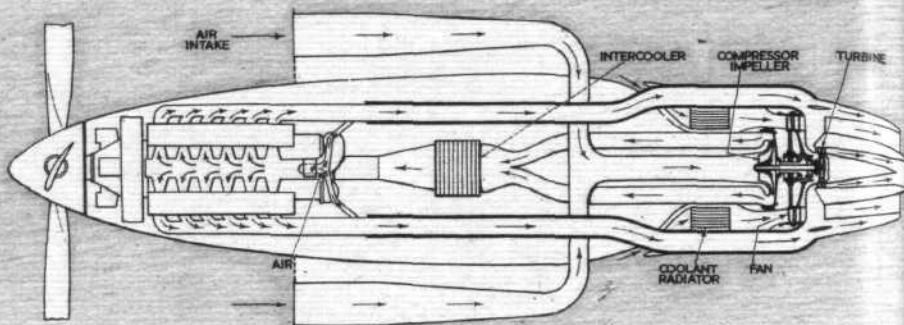


Model of 12B 40 in wing nacelle.



Schematic plan of 12B 40 wing-mounted installation.

HISPANO SUIZA 12B

systems. To prime the circuit prior to starting an electrically driven pump is operated for a few minutes. At the start, when the oil temperature at the delivery of the engine-driven pressure pump is below 40 C the pressure in the circuit is controlled by a thermostat and is carried to a value higher than normal. When running conditions are established the high-pressure system is held at 140 lb/sq in and the low-pressure system for the overhead camshafts at 28.5 lb/sq in. The valve effecting this reduction of pressure spills to an inclined trough from which oil feeds to the individual cylinder walls. As the temperature of oil at the pump delivery rises, a diaphragm type regulator

Bore	...	...	...	...	...	...	...	...	...	150 mm
Stroke	...	...	...	...	...	...	...	...	...	170 mm
Swept volume	...	...	...	...	...	...	...	...	...	36 lit
Compression ratio	...	...	...	...	...	...	...	...	...	6.85
Reduction ratio	...	...	...	...	...	...	...	...	...	2
Blower ratio (12B 00)	...	...	...	...	...	...	...	...	...	5.65
Blower ratio (12B 20)	...	...	...	...	...	...	...	...	...	6.82 and 8.91
Length (12B 00)	...	...	...	...	...	...	...	...	...	2,250 mm
Length (12B 20)	...	...	...	...	...	...	...	...	...	2,390 mm
Width	...	...	...	...	...	...	...	...	...	820 mm
Height	...	...	...	...	...	...	...	...	...	1,087 mm
Weight (12B 00)	...	...	...	...	...	...	...	...	...	910 kg
Weight (12B 20)	...	...	...	...	...	...	...	...	...	930 kg

reduces pressure in the main circuit to 85 lb/sq in but the low-pressure system remains unaffected at 28 lb/sq in. Filtration of lubricating oil has received special atten-

tion. On the delivery side of the pressure pump is an Autoklean filter holding any matter over 10 microns. This component is automatically cleared by means of a gear drive from the engine. Before each of the fuel injection pumps and the mixture regulator are further filters excluding matter down to 5 microns. The two scavenge pumps discharge past a magnetic filter to prevent metallic particles being carried into the external circuit. Scavenge oil is passed through another filter, of a size too large for incorporation in the engine, before reaching the oil cooler and thence the service tank for recirculation.

The two-speed unit, 12B 20, develops 2,200 h.p. for take-off, has a maximum continuous output of 1,700 h.p. at 2,700 r.p.m. up to 13,000ft altitude and will cruise at about 1,100 h.p. at 2,250 r.p.m. up to 16,000ft. Performance at altitude is markedly improved on the compounded unit, 12B 40. Output is not raised but maximum power is maintained up to a height of 27,800ft and cruising power up to 32,700ft.

Turbo-Compressor Unit

A wind-tunnel model of a wing installation of this interesting development, exhibited at the recent Paris Salon, had the efflux duct controlled by an axially movable "bullet" but, as shown in the schematic layout, this has now been discarded for deflector valves to regulate the delivery of exhaust gas to the turbine.

The H.S.600 turbo-compressor unit, housed in the rear of a slim nacelle, comprises a two-stage, axial turbine driving a relatively large diameter axial fan and a centrifugal blower. Air admitted through wing leading edge orifices is ducted to the eye of the blower and thence passed forward through an intercooler to the blower on the rear of the engine. Two ducts, each collecting the exhaust gas from a bank of six cylinders, lead to the rear, where the stream is divided between the turbine and the outer annulus of a propulsion nozzle. The fan draws air from a circumferential duct in the nacelle through the engine coolant radiator and delivers the heated air through the inner annulus of the nozzle. Turbine efflux is discharged by way of a central jet pipe. A variable quantity of air tapped off from the engine-driven blower is used to dilute and lower the temperature of the exhaust gas before it reaches the turbine.

F. C. S.

Front and rear views of the H.S.600 turbo-blower-fan assembly. Two-stage turbine wheel and shrouded compressor impeller of H.S.600 unit.

