Sea Fury

HAWKER AIRCRAFT LTD
KINGSTON-UPON-THAMES
SURREY

H H

HAWKER

SEA FURY

F.B. MK. 11

SINGLE-SEATER FIGHTER

H H

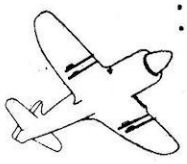
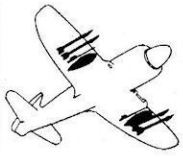
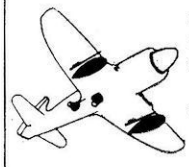
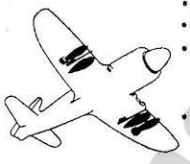
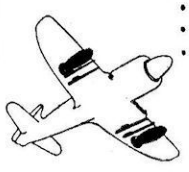
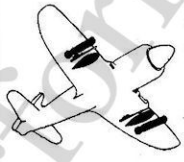
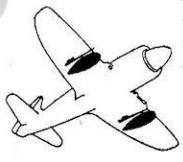
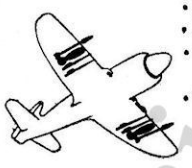
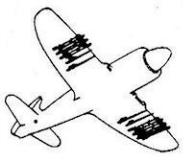
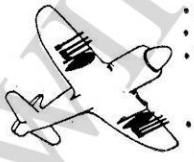
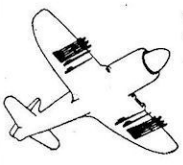
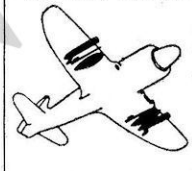
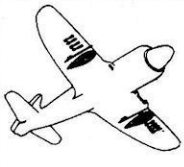
PRINTED IN ENGLAND BY McCORQUODALE & CO. LTD. LONDON, S.E.1

HAWKER FURY SINGLE SEATER FIGHTER

INTRODUCTION

A high-performance single-seater fighter monoplane with a low cantilever wing, the Sea Fury is recognisable as belonging to Hawker's famous line of single-seater fighters. In general appearance, its lines are reminiscent of its predecessor, the Tempest; it is, however, an entirely new aeroplane, the construction of the fuselage being monocoque throughout.

The Fury is fully equipped for tropical service, being fitted with air filters, is designed for deck landing and accelerated take-off and has power-operated folding wings. Among all aircraft fitted with

ALTERNATIVE EQUIPMENT	ALL-UP WEIGHT	C.G. POSITION	ALTERNATIVE EQUIPMENT	ALL-UP WEIGHT	C.G. POSITION
 • FOUR 20 m/m GUNS • 580 RNDS. AMMN.	12,350 LB. (5,602 Kgs.)	.274 A.M.C.	 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 45 GALLON (204 litre) DROP TANKS • FOUR TRIPLEX R.P., 180 LB. (82 Kg.) HEADS	14,379 LB. (6,522 Kgs.)	.259 A.M.C.
 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO F.24 CAMERAS • TWO 90 GALLON (409 litre) DROP TANKS	13,918 LB. (6,313 Kgs.)	.276 A.M.C.	 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 45 GALLON (204 litre) DROP TANKS • TWO 500 LB. (227 Kg.) BOMBS	14,259 LB. (6,468 Kgs.)	.270 A.M.C.
 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 1,000 LB. (454 Kg.) BOMBS	14,602 LB. (6,623 Kgs.)	.272 A.M.C.	 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 45 GALLON (204 litre) DROP TANKS • TWO CLUSTERS	14,139 LB. (6,413 Kgs.)	.270 A.M.C.
 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • FOUR TRIPLEX R.P., 180 LB. (82 Kg.) HEADS	13,596 LB. (6,167 Kgs.)	.260 A.M.C.	 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 90 GALLON (409 litre) DROP TANKS	13,841 LB. (6,278 Kgs.)	.271 A.M.C.
 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 500 LB. (227 Kg.) BOMBS • TWO TRIPLEX R.P., 180 LB. (82 Kg.) HEADS	14,099 LB. (6,395 Kgs.)	.266 A.M.C.	 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWELVE 3" R.P., 60 LB. (27 Kg.) HEADS	13,528 LB. (6,136 Kgs.)	.260 A.M.C.
 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 45 GALLON (204 litre) DROP TANKS • SIX 5" R.P., 60 lb. (27 Kg.) HEADS	13,971 LB. (6,337 Kgs.)	.266 A.M.C.	 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWELVE 5" R.P., 60 LB. (27 Kg.) HEADS	14,008 LB. (6,354 Kgs.)	.262 A.M.C.
 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 45 GALLON (204 litre) DROP TANKS • TWO SMOKE CURTAIN INSTALLATIONS	14,349 LB. (6,509 Kgs.)	.272 A.M.C.	 • FOUR 20 m/m GUNS • 580 RNDS. AMMN. • TWO 45 GALLON (204 litre) DROP TANKS • TWO L.S. CARRIERS WITH EIGHT PRACTICE BOMBS	13,301 LB. (6,033 Kgs.)	.272 A.M.C.

conventional internal combustion engines and propellers, it is the fastest in the low to medium altitude range, having a Bristol Centaurus 18-cylinder two-row radial air-cooled engine, and its extreme cleanness of line allows wide radius of action at high cruising speeds.

The machine is equipped for a large variety of alternative roles. In addition to its high quality as a pure fighter it is eminently suited to close support work, for attacks on communications, and for fast raids on selected pin-point targets. The aircraft are also fitted for long-range photographic reconnaissance, carrying one vertical and one oblique F-24 type camera in the fuselage.

For close support work the Fury has a very high acceleration in the dive in which it can be safely flown as fast as any other comparable aircraft. The aircraft pulls out and climbs very rapidly off a dive to a height of about 10,000 ft. in an almost vertical zoom.

The following is a list of the alternative uses to which this versatile aircraft may be put :—

Long Range Photographic Reconnaissance Fighter, carrying :—

Four 20-mm. guns with 580 rounds of ammunition.
Two F-24 cameras.
Two 90-gall. drop tanks.
Maximum range, 1,825 miles.
Radius of action (with 15 mins. combat), 845 miles.

Fighter-Bomber, carrying :—

Four 20-mm. guns with 580 rounds of ammunition.
Two 1,000-lb. bombs.

Long Range Fighter, carrying :—

Four 20-mm. guns and 580 rounds of ammunition.
Two 90-gall. drop tanks.

Rocket Fighter, carrying :—

Four 20-mm. guns and 580 rounds of ammunition.
Twelve 3-in. rocket projectiles with 60-lb. heads ; or twelve 5-in. rocket projectiles with 60-lb. heads ; or four rocket projectiles with 180-lb. heads.

Long Range Rocket Fighter, carrying :—

Four 20-mm. guns and 580 rounds of ammunition.
Two 45-gall. drop tanks.
Eight 5-in. rocket projectiles with 60-lb. heads ; or four rocket projectiles with 180-lb. heads ; or eight 3-in. rocket projectiles with 60-lb. heads.

Long Range Fighter-Bomber, carrying :—

Four 20-mm. guns and 580 rounds of ammunition.
Two 45-gall. drop tanks.
Two 500-lb. bombs or two clusters of small anti-personnel bombs.

Long Range Fighter with Smoke-Screen Equipment, carrying :—

Four 20-mm. guns and 580 rounds of ammunition.
Two 45-gall. drop tanks.
Two smoke-curtain installations.

Long Range Fighter-Bomber with Rockets, carrying :—

Four 20-mm. guns and 580 rounds of ammunition.
Two 500-lb. bombs.
Two rocket projectiles with 180-lb. heads.

Long Range Practice Fighter-Bomber, carrying :—

Four 20-mm. guns and 580 rounds of ammunition.
Two 45-gall. drop tanks.
Two light series carriers with eight 8½-lb. practice bombs.

It is noteworthy that the wings can be folded with 1,000 lb. bombs in position, enabling the aircraft to be bombed up or fitted with rocket projectiles prior to spreading the wings on the Flight deck.

FLYING QUALITIES

Particular attention has been paid in design to pilot's comfort and view. The layout of the cockpit is roomy and all the controls are accessible and instruments easily visible. The slightly upswept top line of the fuselage gives the pilot a particularly good forward and downward view, and this, combined with the ease and accuracy with which the Fury handles in the air, makes flying near the ground easy at all speeds and enables a straight and steady approach to be maintained when coming in to land. The handling characteristics near the stall are exceptionally good, full lateral and longitudinal control being retained during the approach. The Sea Fury sets a new standard in the single-seater fighter class with regard to manoeuvrability, the Hawker patent spring tabs which are fitted to ailerons and rudder being in part responsible for the lightness and full effectiveness of the controls throughout the whole speed range.

MANUFACTURE AND PRODUCTION

The fuselage of the Fury is built in four portions, engine mounting, centre fuselage, rear fuselage and tail end. Production of the aircraft is thus economical of space, and the centre fuselage which contains cockpit and controls becomes a small and convenient unit round which a number of men can be simultaneously engaged on various jobs of work. The wing is attached to the fuselage at four points by means of four single bolts.

MAINTENANCE

Ease of maintenance has been carefully considered in the design of this aircraft. The units are of small size and the joints are of the simple bolted type in order to facilitate dismantling and assembling by service personnel in the field. The various components can be summarised as follows :—

(i) Centre Fuselage : This is the principal unit of the aircraft embodying the cockpit and simple attachments for the engine mounting, wings and rear fuselage.

(ii) Power Plant : The complete power plant and mounting is readily detachable at the forward bulkhead of the centre fuselage.

(iii) Wings : The wings are of normal two-spar stressed skin construction and contain the undercarriage, the armament and fuel tanks. Port and Starboard wings are connected together on the centre line of the aircraft by bolted and riveted joints. Air intakes for the carburetter are situated in the leading edge of each wing at the root end. Immediately outboard of the air intake in the leading edge of the port wing is the oil cooler, while outboard of the starboard intake is a nose fuel tank shaped to form the leading edge of the aerofoil.

(iv) Rear Fuselage : The rear fuselage, of monocoque construction, is fixed to the centre fuselage by a circumferential joint, the two portions being secured together by bolts.

(v) Tail End : The tail end is attached to the rear fuselage by a similar circumferential bolted joint. The fin is integral with the fuselage rear end and the cantilever tail plane is built in one piece, passing through the fuselage at the base of the fin. Rudder and elevators are easily detachable.

(vi) Fuel Tanks : All fuel tanks are independent of the structure, easily removable and self-sealing. All internal tanks are of the Mareng bag type.

PILOT'S COCKPIT

The cockpit is totally enclosed ; entry and exit are normally obtained by sliding the hood backwards, but in case of emergency the hood and a panel on the port side of the cockpit may be jettisoned. The sliding hood, similar to that of the Tempest, is a single piece of blown Perspex which is optically almost perfect and provides an all-round view for the pilot, which gives the pilot a feeling of the utmost confidence. The pilot and the most vulnerable parts of the aircraft are protected by armour plating and a windscreen of bullet-proof glass is fitted. Protection against 20-mm. fire is provided from the rear. The flying controls are of the conventional stick and rudder-bar type ; the seat is adjustable for height and the rudder bar for leg reach.

Oxygen equipment is provided and the normal set of instruments and blind flying panel are fitted. Means for heating and ventilating the cockpit are provided. Altogether, to judge by single-seater fighter standards, the layout of the cockpit is spacious and comfortable, permitting the machine to be flown for long periods without undue fatigue.

STRUCTURE

Wings. The stressed-skin cantilever wing consists of port and starboard planes which are bolted together below the fuselage on the centre line of the aircraft and attached to the fuselage at four pick-up points. The wings are semi-elliptical in shape with square-cut tips. The under surface of each wing is horizontal for approximately one-third of its span as far as the main undercarriage attachment, outboard of which there is a $5\frac{1}{2}^{\circ}$ dihedral. In the bottom surface of the inboard portion of each wing there is a well which houses the undercarriage wheel in the up position. A fairing, attached to each shock absorber strut, and hydraulically-operated doors which are hinged beneath the centre line of the aircraft, cover the well when the wheel is retracted. A fuel tank is situated in the wings between the spars immediately outboard of the wheel well. An air intake for the carburetter is provided in the leading edge of each wing immediately outboard of the fuselage ; outboard of the port air intake the oil cooler is situated in the leading edge of the wing, the air passing over the cooler being ejected from the under surface of the wing forward of the front spar ; outboard of the starboard intake a fuel tank forms the leading edge of the starboard wing, from the air intake to the change in dihedral. Four 20-mm. guns are mounted in the wings outboard of the change in dihedral and 580 rounds of ammunition are carried in ammunition boxes installed beside

the guns. Navigation lamps are fitted in the wing tips and downward identification lamps are carried in each wing. An electrically heated leading edge pitot projects forward from the port wing tip. The wings can be folded by hydraulic power immediately outboard of the gun bay which facilitates stowage aboard an aircraft carrier.

Basically, each wing consists of a structure of front and rear spars, inter-spar ribs, nose ribs, and tail ribs, with a covering of light alloy sheet strengthened by stiffeners. The rear spar is cranked sharply forward from the centre line of the aircraft to the change in dihedral. This allows the working parts of the guns and the ammunition boxes to be installed behind the rear spar where they are easily accessible for servicing and rearming. The gun bay is of unusual construction as there is no internal structure behind the rear spar, in spite of the fact that the latter is much further forward than is usually the case. Aft of

the rear spar, the top surface of the wing above the gun bay consists of two access doors through which the guns are maintained and rearming is made easy, the trailing edge of the rear top access door forming the trailing edge of the wing. Another gun access door is provided in the under surface of the wing and all three doors are held in place on metal landings by turnbutton fasteners. The magazine bays are covered in the upper surface of the wing by detachable access doors also secured by turnbutton fasteners.

The mass-balanced ailerons of modified Frise type are of sheet metal construction, each consisting of a light alloy channel-section spar built up to form a D-shaped nosing, and a number of light sheet metal ribs covered with pretensioned duralumin skin, riveted to the spar and ribs.

The ailerons are controlled through a system of push-pull rods. Mounted on the aileron spar is the patented Hawker spring tab control. The aileron lever is attached to a torsion bar which twists through an angle proportional to the force exerted by the pilot and, in twisting, operates the aileron tab in an opposite sense to the movement of the aileron, thus assisting the pilot's effort and making the ailerons light at high speeds. In this way a proportion of the pilot's force is always metered out to the tab.

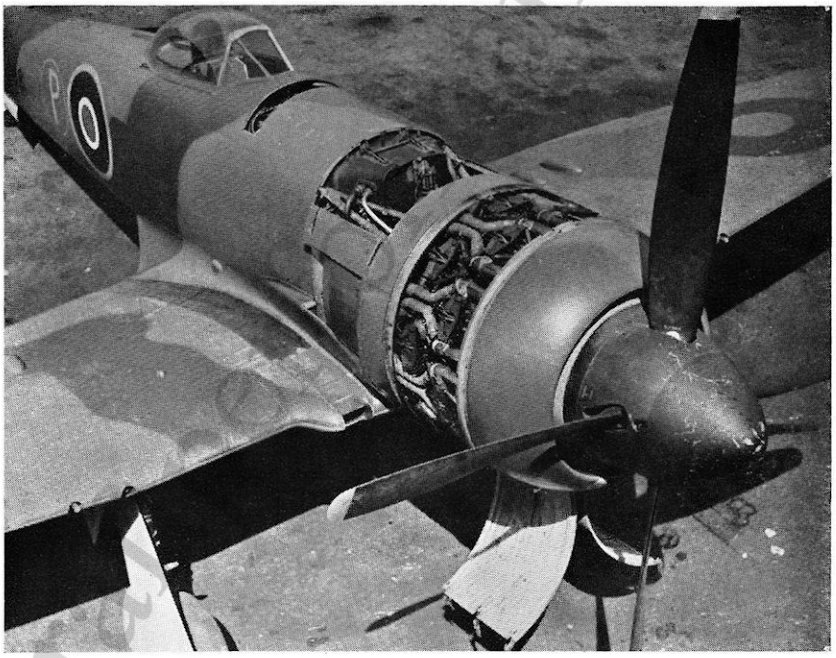
The split trailing edge flaps are in four portions, two under each wing, and they extend outboard from the fuselage to the inboard end of the aileron. The two portions in each wing are joined together at the change in dihedral, the flap spars being interconnected by a universal joint. A mechanism is provided for ensuring that the flap setting is the same on both sides of the aircraft at all times. Each pair of flaps is operated by a hydraulic jack.

The aerofoil section is the same as that used on the Tempest which is a special high-speed section developed by Hawker's, the thickness chord ratio at the root being 14 per cent. and at the tip 10 per cent. The maximum thickness of the section is at 37.5 per cent. of the chord. This section has excellent characteristics over the whole speed range, and the aeroplane has no vices near the stall. The section was, however, primarily designed for high-speed conditions where, owing to the fact that there are no sharp changes in pressure gradients, the onset of compressibility effects are delayed. The aircraft is thus able to fly and dive at very high speeds without any adverse effect on stability or control.

FUSELAGE

Engine Mounting

The fuselage is an all-metal structure consisting of four portions, engine mounting, centre fuselage, rear fuselage and tail end. The engine mounting is constructed of tubes bolted to machined fittings at the joints. The tubular steel members are attached to a mounting ring on the engine by means of steel side plates and to the centre fuselage at four points by machined steel forgings. To prevent vibration stresses being transmitted to the airframe the engine is flexibly mounted on rubber.



Centre Fuselage

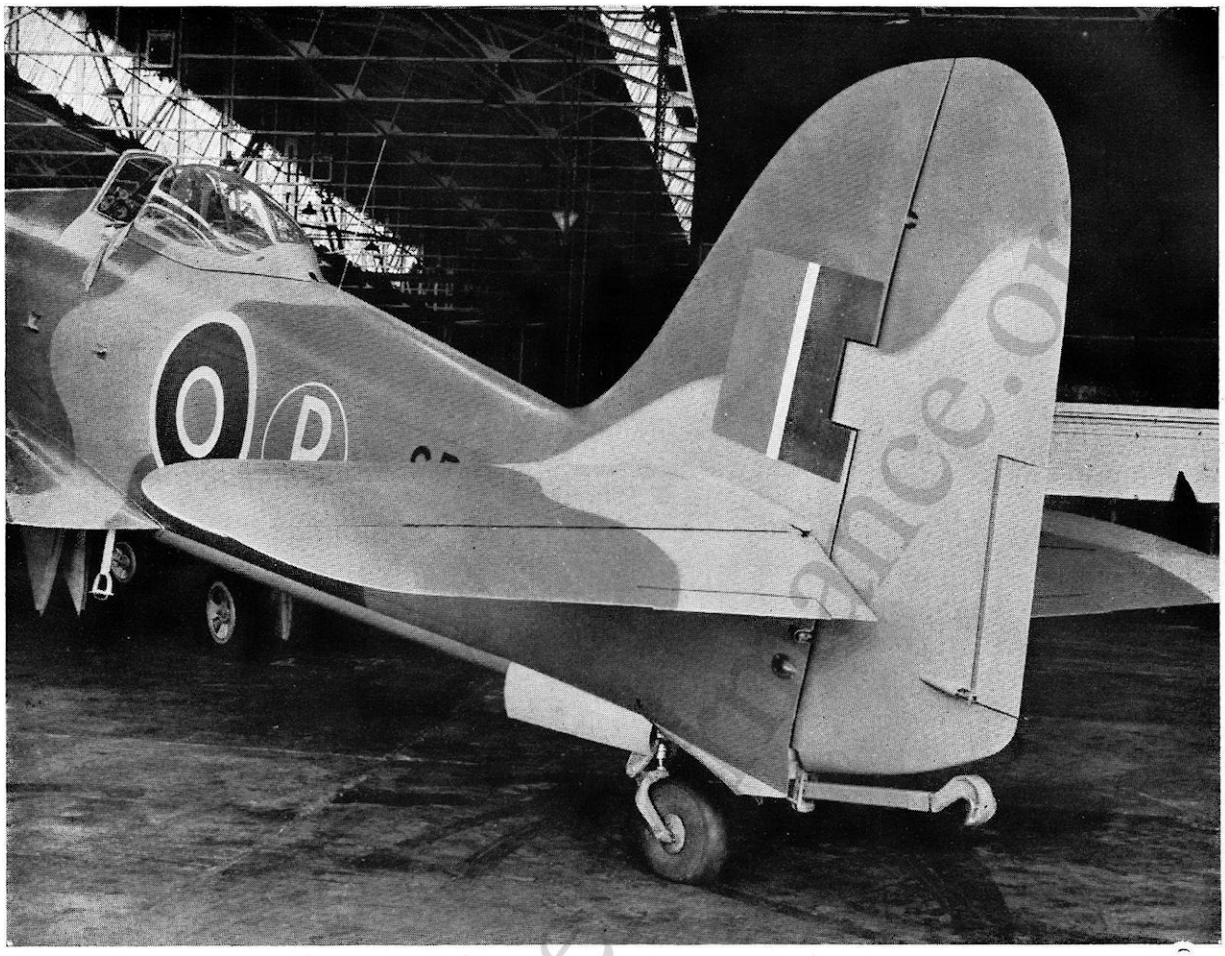
The centre fuselage is a monocoque structure consisting basically of four main longerons and a number of transverse frames and bulkheads, the whole being covered by a metal skin to which longitudinal stringers are riveted. The pick up points for the front spar of the wing are at the base of the side of the front bulkhead, and for the rear spar at the base of a frame at the level of the cockpit.

Rear Fuselage

The monocoque rear fuselage is of fully-stressed skin type. It is built up of transverse frames and longitudinal top-hat section stringers and is covered with a sheet metal skin, the whole assembly being riveted together. The rear fuselage is attached to the centre fuselage at its forward end and to the tail end assembly at its rear end by means of circumferential bolted joints. Access to the joints between the centre fuselage and the rear fuselage is obtained by means of a large door in the underside of the fuselage, which greatly facilitates dismantling and assembling.

Tail Unit

The tail unit consists of a single piece cantilever tail plane with aerodynamically and statically balanced elevators of stressed skin metal construction and mass-balanced rudder covered with a pre-stretched metal skin. Trimming tabs, operated from the cockpit, are fitted to each elevator and a spring-



operated tab to the rudder. The fin is integral with the fuselage rear end and the tail plane is assembled to the fuselage by passing it through the base of the fin and bolting it to attachments on transverse frames in the structure of the fuselage tail end.

Undercarriage

The alighting gear consists of two main wheel units which retract inwards and slightly backwards into wells between the wing spars and a tail wheel unit which retracts forward into the fuselage, the operations being effected by hydraulic power. Mechanical locking and electrical indicating devices are provided as well as a warning lamp. The shock absorbers are of the Oleo-pneumatic type, each fitted with a single point for charging. Pneumatically-operated brakes are actuated by a lever on the control column, the brakes operating differentially in conjunction with the rudder bar.

Armament

The four 20-mm. guns are electrically controlled from a special switch on the control column grip and can be fired altogether or in pairs. All guns fire outboard of the propeller disc and the ammunition for them is carried in the wing. A camera gun mounted in the port wing can be operated separately or in conjunction with the guns. A gyro gun-sight is fitted in the cockpit. Provision is made for the carrying of two 1,000-lb. bombs, one under each wing, or alternatively for rocket projectiles up to a maximum of twelve 5-inch rockets with 60-lb. heads.

Electrical and Radio Installation

The radio equipment, which is carried behind and below the pilot, consists of V.H.F., I.F.F., and Homing Beacon installations. An engine-driven generator supplies electrical current for the cockpit, navigation, attitude and identification lamps, fuel contents gauges, fuel pressure and supercharge warning lamps, carburetter and cylinder priming and fuel pump test switches, cartridge engine starter, booster coil, camera gun, undercarriage position indicator and warning lamp, hook warning lamp, wheel door control, oil cooler control, gun sight, bomb and R.P. controls, etc., and radio supply.

POWER UNIT INSTALLATION

The power plant for the Sea Fury is designed as a closely-cowled detachable unit, the engine being the 18-cylinder air-cooled radial Bristol Centaurus with .44 gear ratio. The engine is carried on a flexible mount on a ring to which is bolted a steel tubular mounting structure formed with four pick-up eyes. These eyes are the main attachment points by which the power plant is secured to the airframe lugs on the bulkhead face.

Engine

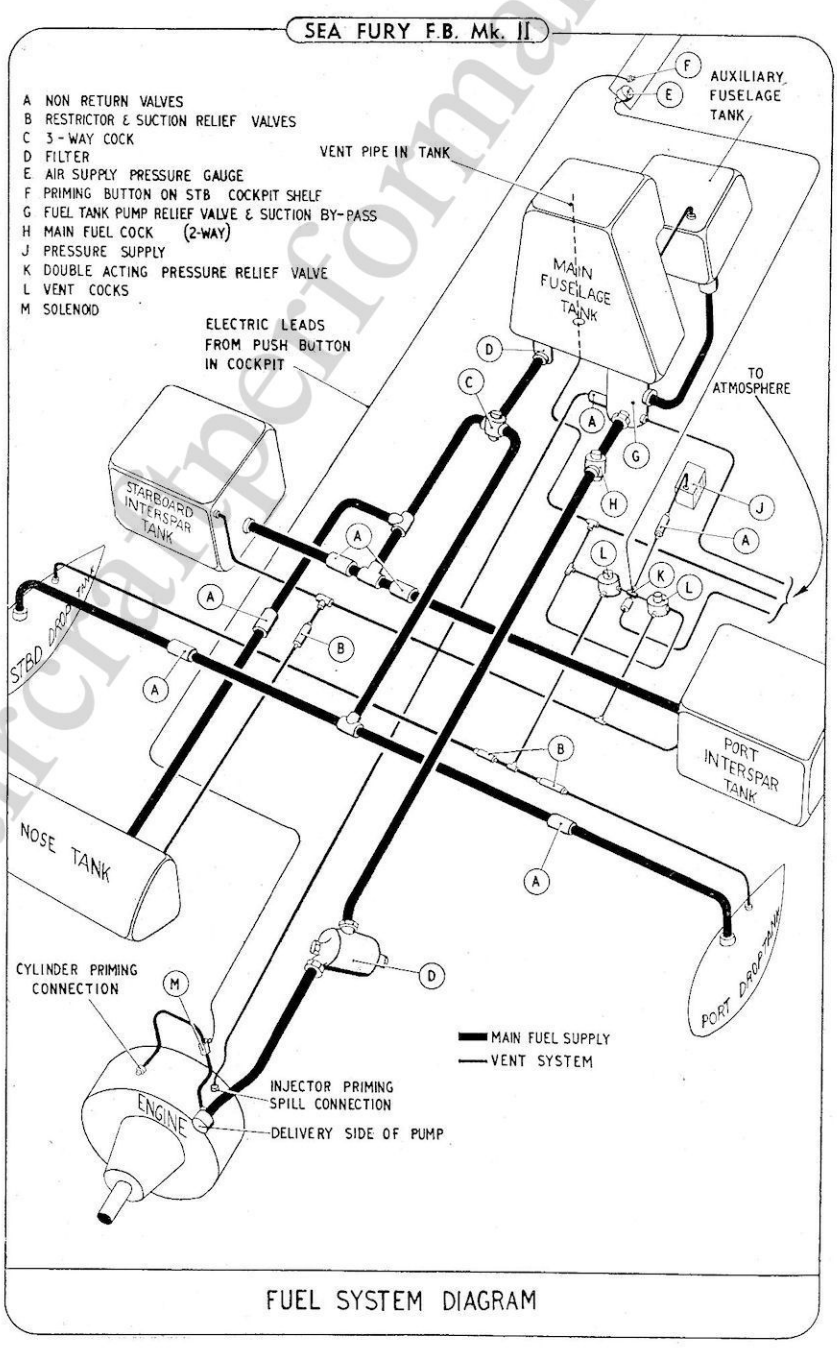
The 18-cylinder radial sleeve-valve engine is arranged in two rows of nine cylinders. The engine develops its maximum power in medium supercharger gear when it gives 2,560 h.p. at 9½ lb. boost. At maximum power altitude in full supercharger gear, it develops 2,300 b.h.p.

Propeller

A Rotol constant-speed left-hand tractor propeller of 12 ft. 9 in. diameter is fitted, having five duralumin blades with variable pitch ranging from 29° 15′ to 64° 15′.

Fuel System

A "transfer" fuel system is used in this aircraft, which means that fuel is always supplied to the engine from the main tank. The fuel is carried in five fixed self-sealing tanks, two in the fuselage, just aft of the engine, one between the main spars in the inner portion of each wing, and one in the leading edge of the starboard wing. Two 45-gallon or 90-gallon drop tanks may also be carried, one under each wing. Fuel is always delivered to the engine from the main tank into which it is transferred from the other tanks by air pressure, the engine pump being supplemented by a "booster" pump in the sump of the main tank. The main fuel cock control is mounted on the starboard cockpit shelf together with the drop tank jettison and selector levers. The air pressure in the system is shown by a gauge on the starboard cockpit shelf.

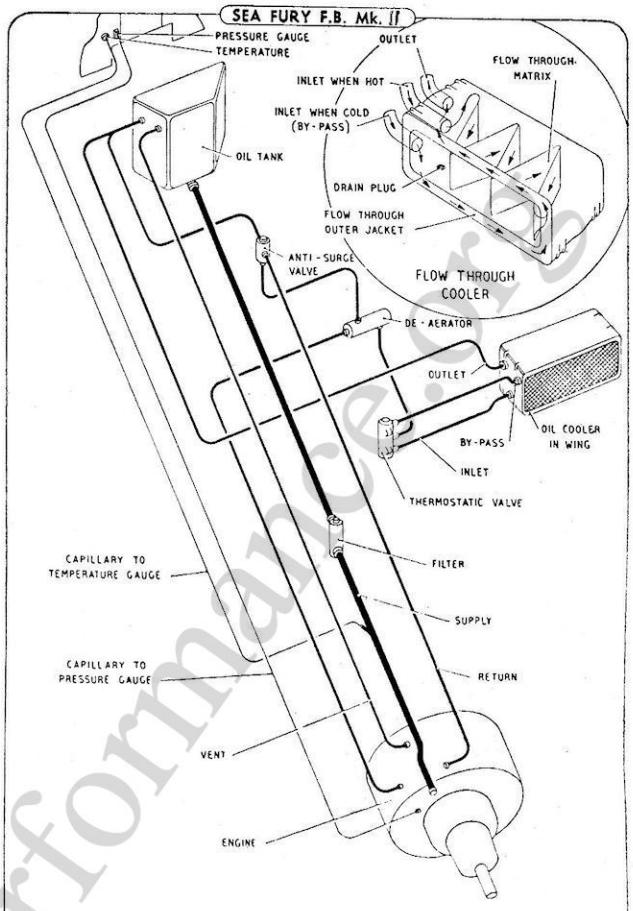


FUEL SYSTEM DIAGRAM

Oil System

Oil is supplied from a tank of 14 gallons effective capacity, mounted on the front face of the fireproof bulkhead.

The system includes a filter, a thermostatic valve, an anti-surge valve and an oil cooler, which is mounted in the leading edge of the port wing. The flap controlling the flow of air over the cooler is automatically adjusted by thermostatically controlled electric jacks.



OIL SYSTEM DIAGRAM

Carburetter Air Intake

Twin entry air intakes are located in the wings, the air being led by ducts to the injector. The R.A.E. Stromberg carburetter can be supplied with warm, cold or filtered air as required. Filtered air, when required, is taken in through louvres in the underside of the engine rear panel and passes through Vokes filters over the louvres into the shutter box. The selection by the pilot of cold or filtered air brings into operation electric jacks which control the shutter. Warm air is provided by means of a separate control in the cockpit.

Engine Cooling

The flow of air through the low velocity cowl is controlled by sliding shutters at the exit from the cowl. A manually controlled electric motor governs the position of the shutters so as to give adequate cooling to all cylinders under all conditions of flight. The area of the exit is varied by a sliding movement of the shutters in a fore and aft direction so that the shutters do not project into the external airstream and upset the flow over the fuselage. The position of the doors is such that the accessories compartment is also open to the cooling air stream. Engine temperature is measured by a thermo-couple fitted to the head of one of the cylinders.

Exhaust System

The exhaust system has back-swept pipes ; eighteen separate pipes, each serving one port in the front and one in the rear row of cylinders, being divided to form two sets of outlets. Both sets terminate immediately forward of the controllable sliding gills.

Engine-driven Accessories

The engine-driven gearbox, with its accessories, is mounted on the forward face of the fireproof bulkhead and remains on the airframe when the power plant is detached. A special light gearbox is provided with four drives which operate the hydraulic pump, the vacuum pump, the 24-volt 1,500-watt generator and the air compressor.

Starting

An electrically fired Coffman cartridge starter is used for starting the engine, which eliminates the necessity of having ground batteries at each of the dispersal points around the airfield.

SEA FURY F.B. MK. 11

(Centaurus 18)

GENERAL PARTICULARS

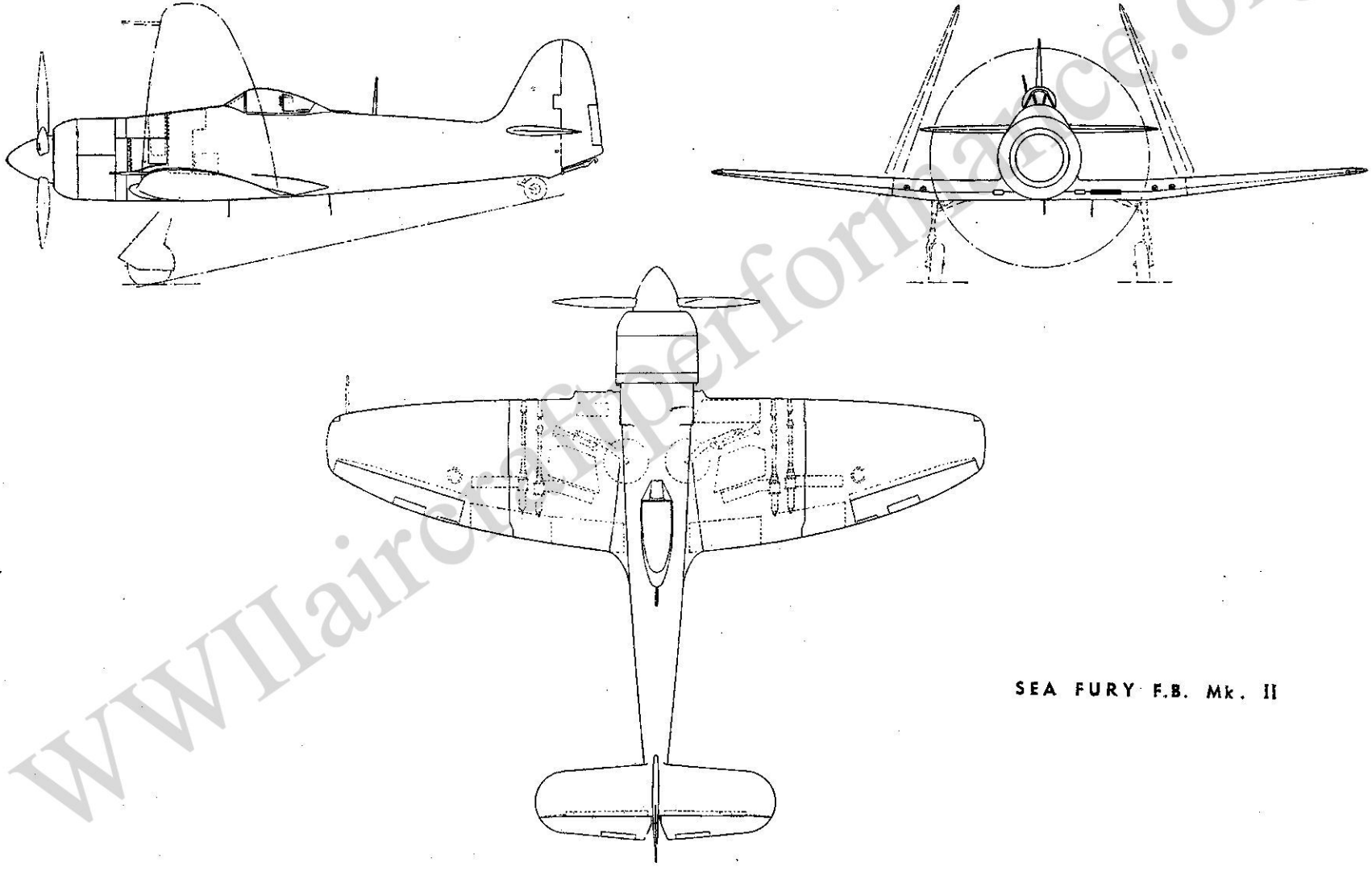
	British	Metric
All-up weight, with 200 galls. (909 litres) of fuel	12,350 lb.	5,602 kg.
Wing loading	41·1 lb./sq. ft.	201 kg./m.^{2}
C.G. Position	·274 c.	·274 c.
Length, overall	34 ft. 7 in.	10·55 m.
Maximum height, wings spread, tail down, one propeller blade vertically up	14 ft. 7½ in.	4·458 m.
Height, tail up, wings spread, one propeller blade vertically down	12 ft. 3½ in.	3·747 m.
Height, wings folded, tail up	16 ft. 1 in.	4·90 m.
Height, wings folded, tail down	15 ft. 10 in.	4·83 m.

Wings

Span, b....	38·4 ft.	11·71 m.
Wing area (gross), S	280 sq. ft.	26·0 m.^{2}
Aspect ratio	5·26	5·26
Aerofoil Section—Special Hawker High-Speed Section:—		
Thickness/Chord Ratio at Root	14·5%	14·5%
Thickness/Chord Ratio at Tip	10%	10%
Root Chord length	8·9 ft.	2·72 m.
Tip Chord length	3·55 ft.	1·082 m.
Wing incidence	2½°	2½°
Dihedral, Inner Portion of Wing	Nil.	Nil.
Dihedral, Outer Wing	5½°	5½°
Area of Split Flaps	31·4 sq. ft.	2·92 m.^{2}
Flap Span	18·9 ft.	5·76 m.

Lateral Control

Aileron type—Blunt-nose Frise, Metal covered with Spring Tab Balance		
Aileron area, S″ (total 2 Ailerons aft of hinge)	18·03 sq. ft.	1·677 m.^{2}
Balance area (total 2 ailerons)	6·54 sq. ft.	0·607 m.^{2}
Spring Tab area (2 Tabs)	1·41 sq. ft.	0·131 m.^{2}
Aileron movement	15½° up 18° down	15½° up 18° down



SEA FURY F.B. Mk. II

	British	Metric
Directional Control		
Fin and Rudder Area, S″	26·7 sq. ft.	2·48 m.²
Rudder Area	13·2 sq. ft.	1·228 m.²
Spring Tab Balance—Area	0·97 sq. ft.	0·090 m.²
Rudder Movement	27° port 27° st'board	27° port 27° st'board
Fin Setting	Central	Central
Longitudinal Control		
Tailplane Area (gross), S′	51·2 sq. ft.	4·76 m.²
Elevator Area (2 Elevators aft of hinge)	13·62 sq. ft.	1·265 m.²
Type of Balance—Set back hinge, shrouded		
Balance Area (2 Elevators)	3·2 sq. ft.	0·298 m.²
Trim Tab Area (2 Tabs)	1·29 sq. ft.	0·120 m.²
Elevator Movement	23½° up 11½° down	23½° up 11½° down
Alighting Gear		
Main undercarriage—Two cantilever units retracting inwards.		
Track	12 ft.	3·658 m.
Dowty Oleo-pneumatic Shock-absorber Struts.		
Dunlop Wheels, Tyres, Tubes and Brakes.		
Tail Wheel Unit—Cantilever Unit retracting forwards.		
Dowty Oil Compression Shock Absorber Strut.		
Dunlop Wheel, Tyre and Tube.		
Fuel and Oil Systems		
Fuel tanks capacities:—		
Normal—		
Main fuselage tank	94 galls.	427 litres
Auxiliary fuselage tank	30 galls.	136 litres
Interspar tanks, two, each 28 galls.	56 galls.	255 litres
Nose tank in leading edge of wing	20 galls.	91 litres
Total fuel capacity (normal)	200 galls.	909 litres
Long range—		
Drop tanks, two, each 45 galls.	90 galls.	409 litres
or Drop tanks, two, each 90 galls.	180 galls.	818 litres
Maximum fuel capacity	380 galls.	1,725 litres
Oil tank capacity:—		
Oil (effective capacity)	14·5 galls.	66 litres
Air space	4·5 galls.	20 litres

SEA FURY F.B. Mk. 11

(Bristol Centaurus 18)

PERFORMANCE

5-blade propeller ; 12·75 ft. dia. ; $S._7$ = ·153

Gear ratio = ·444 ; Weight = 12,350 lb.

2,700 R.P.M. and 9½ lb. Boost

Standard Altitude ft.	*True Air Speed m.p.h.*	*Rate of Climb ft./min.*	*Time to Height mins.*
0	380	4,320	·00
4,000	405	4,320	·90
6,500	416	3,880	1·60
16,000	432	3,220	4·35
20,000	450	2,850	5·70
30,000	415	1,260	10·80

Take-off

Deck take-off distance in 27-knot wind with flaps set at 20°

Take-off Weight lb.	*Take-off Deck run ft.*
12,350	500
13,840	630

Still-air take-off with flaps at 20°

Weight lb.	*Ground run ft.*
12,350	960
13,840	1,200

Range

Max. still-air range with two 90-gallon drop tanks, 1,800 miles at 290 m.p.h. at 10,000 ft.

Radius of action, if tanks are jettisoned before combat, is 720 miles at 10,000 ft. expended as follows :—

Run Up	22 galls.
Climb to 10,000 ft.	10 ,,
Cruise at most economical cruise speed	138 ,,
Combat for 15 mins.	66 ,,
Cruise return	127 ,,
Reserve	7 ,,
Total fuel used	370 galls.

SEA FURY F.B. Mk. 11

(Centaurus 18)

WEIGHT SUMMARY

			Weight		
	lb.		*kgs.*		%
Mainplane, including centre section	1,854		841		15·0
Fuselage	757		343		6·1
Tail unit	231		105		1·9
Landing gear	718		326		5·8
Flying controls	84		38		·7
TOTAL STRUCTURE UNIT		3,644		1,653	29·5
Engine, dry	2,755		1,259		
Mounting, cowling and accessories	859		390		
Oil cooling system	153		69		
Propeller	709		322		
Fuel tanks and system	292		132		
Oil tank and system	86		39		
TOTAL POWER UNIT		4,874		2,211	39·5
Power Services	481		218		
Protection	241		109		
Operational equipment...	439		199		
Armament (4 × 20-mm.)	542		246		
Pilot and parachute	200		91		
Ammunition (580 rounds)	363		165		
Fuel (200 gallons)	1,440		653		
Oil (14 gallons)	126		57		
TOTAL SERVICE LOAD		3,832		1,738	31·0
TOTAL NORMAL ALL-UP WEIGHT ...		12,350		5,602	100%

SEA FURY F.B. Mk. 11
POWER PLANT

Propeller.

Type and Drawing Number	Rotol
Number of blades	5
Blade material	Dural
Diameter	12 ft. 9 in.
Gear Ratio	·444
Solidity	·153

SEA FURY F.B. Mk. 11
POWER PLANT

Engine.

Type and Mark Number	Centaurus 18	
Gear	M.	S.
Take off B.H.P.	2,480	
Periods up to 5 minutes :—		
R.P.M. and Boost	2,700 +	9½ lb./sq. in.
Height	4,250 ft.	17,000 ft.
Maximum B.H.P.	2,560	2,300
Periods up to 30 minutes :—		
R.P.M. and Boost	2,400 +	6½ lb./sq. in.
Height	5,000 ft.	16,000 ft.
Maximum B.H.P.	2,160	2,000
Maximum continuous cruise :— (Rich mixture)		
R.P.M. and Boost	2,400 +	6½ lb./sq. in.
Height	5,000 ft.	16,000 ft.
Maximum B.H.P.	2,160	2,000
Maximum continuous cruise :— (Weak mixture)		
R.P.M. and Boost	2,400 +	2½ lb./sq. in.
Height	10,750 ft.	21,250 ft.
Maximum B.H.P.	1,660	1,530