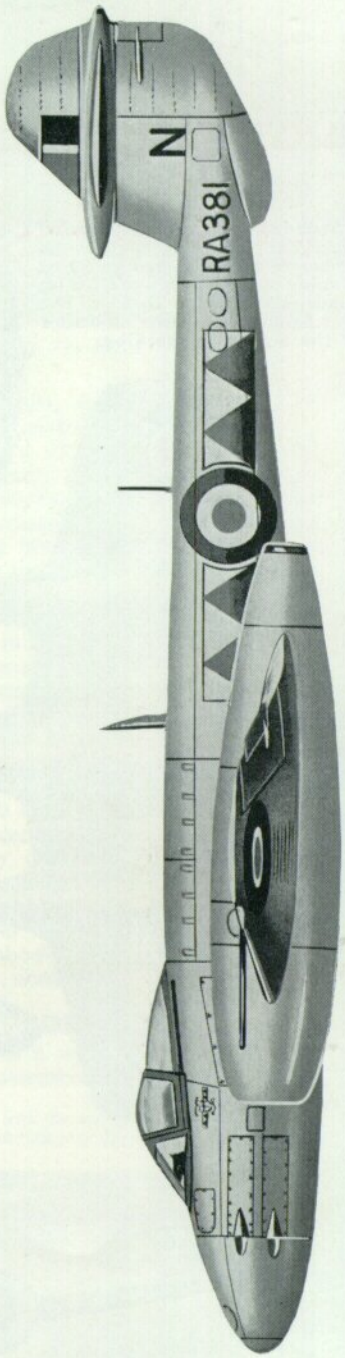
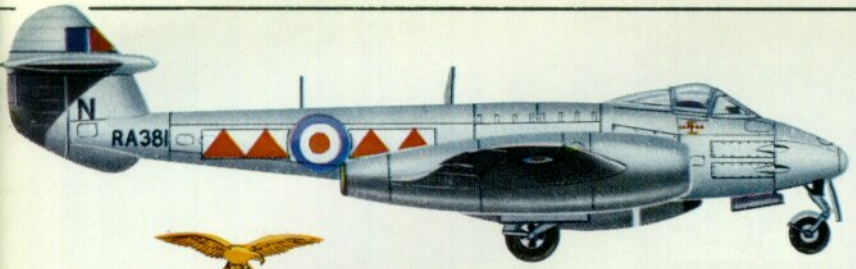
PROFILE
PUBLICATIONS

The Gloster Meteor F.IV

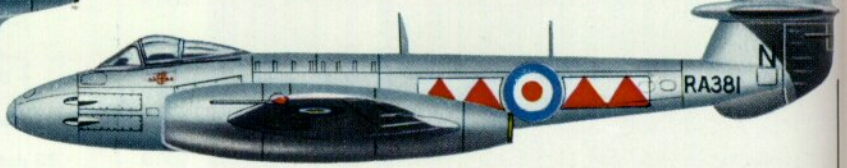


NUMBER 78
TWO SHILLINGS

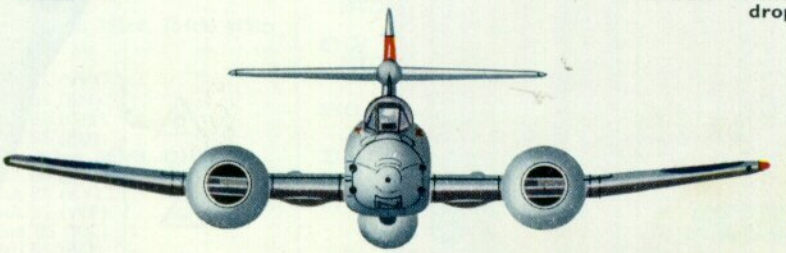
This particular Meteor, in common with several other aircraft of the Squadron, is shown carrying mixed styles of the national marking. The wing roundels and fin stripes are of the 1939–45 War period, and the fuselage roundels are of the post-war period.

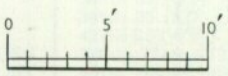


No. 600 Squadron was unique in having two official badges. The second badge was authorised by King George VI at the beginning of 1951. When carried on the Squadron's Meteor aircraft, the badge was flanked by smaller additions of the Squadron marking.

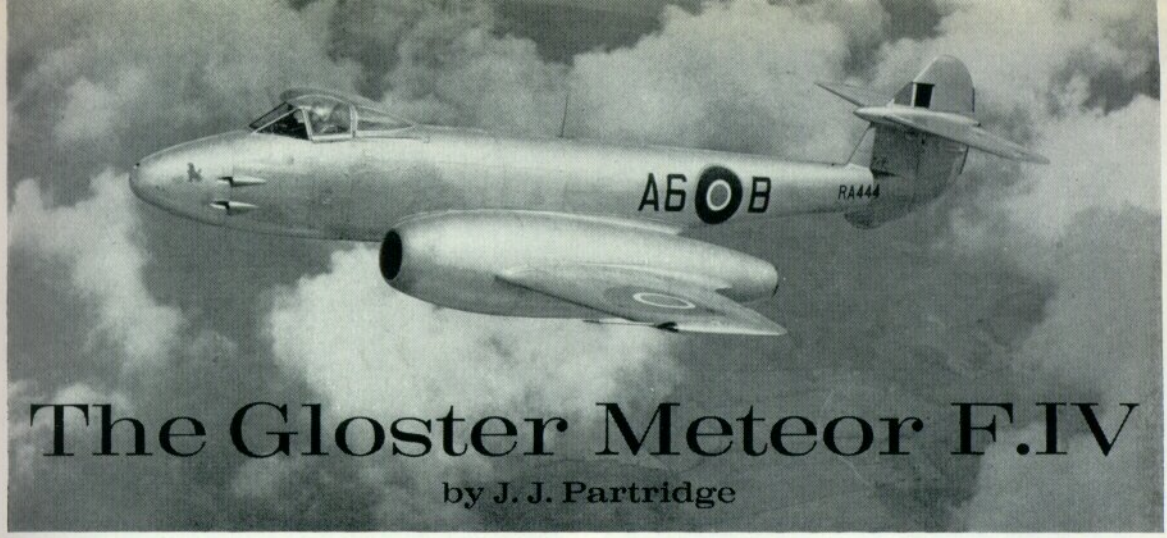


Port (left-hand) view shows the aircraft without the 180-gal. drop-tank.





GLOSTER METEOR F. Mk. 4, RA381, of No. 600, "City of London" Squadron, Royal Auxiliary Air Force. April, 1951.



The Gloster Meteor F.IV

by J. J. Partridge

Meteor F. Mk. 4 of No. 275 "Burma" Squadron in the all-silver finish, circa *1948–50. The squadron aircraft later carried 275's green and yellow check marking on either side of the fuselage roundel.* (Photo: Ministry of Defence)

The Gloster Meteor F. Mk. 4 was the first fully operational jet fighter to result from the F9/40 specification issued five years earlier. The eight prototypes had proved that the infant jet engine could carry a military load and had enabled a wide range of engines to be flight tested. The small batch of Mk. 1s had, to a large extent, continued this work but had also seen operational service against the V.1 flying bombs, being one of the only aircraft of that period to have the necessary speed to catch them at their operational height. The Mk. 2 which was to have been the production version of the Halford-engined prototypes was never built. The Mk. 3 was the logical development of the Mk. 1 with a few refinements such as the improved canopy and airbrakes, but the first production batch still had the Welland reverse-flow engine. However the development of the Rolls-Royce R.B.37 or Derwent 1 straight-flow engine was pushed forward to power the Mk. 3 and this showed a real improvement both in specific consumption and in total thrust.

This increase in thrust was able to push the airframe to the edge of compressibility troubles. Investigation showed that these were largely caused by disturbed flow around the nacelles and tunnel tests indicated that lengthening the nacelles would go a long way towards curing the troubles. Accordingly the last thirty Mk. 3s were fitted with the lengthened nacelle fitted to all the subsequent Marks.

In the meantime, Rolls-Royce had been developing the Nene engine which, while it followed the same general layout as the Derwent, was physically much larger and embodied many new features. It was the power unit specified for the Gloster E1/44 and the Supermarine E10/44 which was finally produced as the Attacker. The engine was much too large to fit comfortably into a Meteor despite the fact that a Mk. 4 did fly with Nenes, at a much later date, as a short take-off research machine. Rolls-Royce were convinced that the Nene layout was a good one and set about producing a scaled-down version. This was developed in a surprisingly short space of time and appeared as the Derwent 5 with a static thrust of 3,500 lb.

The installation of these engines was the basic modification which created the Meteor 4 and, while this massive increase in thrust produced the most spectacular results, it was by no means the only improvement introduced in the Mk. 4. It was the first Mark to have a fully operational pressure cabin, a very real necessity to an aeroplane with a time of 8 minutes to 40,000 ft. Underwing tanks were added to give an increased ferrying range. Pioneer work was done carrying bombs and rockets under the outer wings, paving the way for the ground attack Mk. 8s used in Korea. The gear tab ailerons were much appreciated by the pilots who found a marked improvement in handling throughout the speed range.

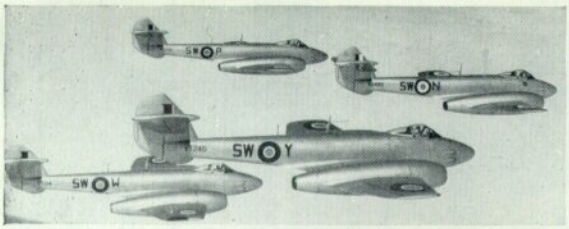
An unfortunate accident early in the life of the Mk. 4 gave rise to its most distinctive recognition feature, its clipped wings. An aircraft flown by Gloster test pilot Moss broke up in the air when the pilot appeared to misjudge a dive and became forced into a very rapid pull out. It was afterwards decided to cut 5 ft. 10 in. off the span to improve the stress factors in the centre section spars. This had to be done retrospectively on some aircraft which had been manufactured, before delivery to the Service.

This then was the final shaping of Britain's first "600+" fighter and although many minor modifications were embodied during its long and outstanding Service career, none was to produce any major change.

DESCRIPTION

The F9/40 was a war-time concept, designed to be built in sub-assembly units in as many widely dis-

"Ground start" with the aid of a trolley. The air intake guard is fitted for safety during ground running, replacing the earlier fixed mesh. (Photo: "Flight")



Meteor F. Mk. 4s of No. 222 Squadron. Squadron letters soon disappeared when many units applied their personal markings, such as those shown on the F. Mk. 4s in the illustration below. (Photo: "Flight")

No. 600 "City of London" Squadron with unit markings on fuselage. Note differences in roundels. (Photo: "Flight")

persed factories as possible. This structural breakdown remained unchanged in the Mk. 4 and made it one of the most easily transported, repaired or salvaged aeroplanes ever to go into service.

The fuselage was divided into three major units—nose, centre and rear. The basis of the front fuselage structure was two vertical webs and three solid bulkheads. The nose-wheel bulkhead carried the tubular structure from which the nose-wheel unit was mounted and formed the front wall of the pressure cabin. The seat bulkhead formed the rear wall while the front spar bulkhead completed the rear end of the front fuselage. Between the nose-wheel and seat bulkheads, the main diaphragms and the top skin were of heavy gauge light alloy to absorb the loads imposed by the 3 lb. sq. in. cabin differential pressure. The windscreen consisted of three bullet-proof panels set in a light alloy frame. The sliding hood was operated by a hand winding gear and could be jettisoned completely in an emergency. Both hood and windscreen were of dry air sandwich construction. The canopy lines were completed by a transparent rear fairing attached to the top magazine bay door which completed the top fuselage contour aft of the cabin and provided access to the ammunition tanks for the four 20 mm. Hispano guns. The latter were mounted between the main diaphragms and the outer skin and were accessible through large gun doors. The original F9/40 design had made provision for six guns, the other two being under the cabin floor. However these two guns proved to be so inaccessible that in certain jammed conditions, they would have had to be removed while still containing live rounds. Needless to say they were only fitted in one of the F9/40 prototypes, and then only fired on the ground.

The front fuselage was joined to the centre fuselage at four longeron joints, these members collecting the loads at the top and bottom of each main diaphragm. The centre fuselage was an integral part of the centre section and enclosed the fuel tank. The front and rear spar bulkheads formed the fore-and-aft boundaries of the bay, the structure between consisting of four tank bearers extended at each side to take the side skins and top longerons. The top was completed by two quickly detachable tank doors.

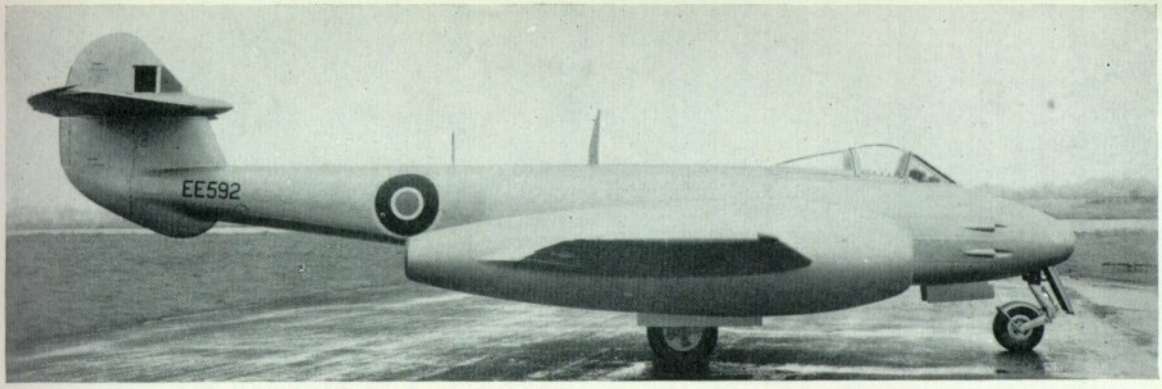
The rear fuselage, which was also attached at the four longerons, was of semi-monocoque construction with hoop Z section frames and top-hat section stringers. The last two frames were extended upwards to form the lower fin posts and to provide attachment for the tailplane and the upper fin.

The main plane was a two-spar, stressed-skin structure divided into two outer planes and a centre section. In the latter, the spars were spaced by six major ribs interspaced with lighter skin ribs. The engine nacelles were built up between the inner and outer engine ribs at each side and were each based on two main frames attached to the spars. Between these two ribs the rear spar was increased in depth so that the jet pipe could pass through it, both the webs and booms being of steel in this area. The nacelles gave splendid access to the power unit, the complete top half between the spars being detachable, in addition to the entire nose forward of the front spar. The undercarriage bays were formed inboard of the nacelles and between the spars, while behind the rear spar the tail ribs incorporated the top and bottom air brakes and the flaps.

The outer wings, which were attached by pin joints at the front and rear spars, had pressed and lattice-type ribs. The wing tips were detachable. The ailerons were internally mass-balanced and had geared tabs.

The components of the tail unit were of all-metal, stressed-skin construction. The high position of the

In the field with the Meteor 4. Above: *high-speed refuelling of a Norwegian Mk. 4.* Below: *armourers change the four 20-mm. cannon.* (Photos: Ministry of Defence)



Side, rear and underside flying view of a typical Meteor F. Mk 4 powered by Rolls-Royce Derwent 5 turbo-jets. E.E.592 *was a type G.41F Gloster-built aircraft.* (Photos: Ministry of Defence)

tailplane split the rudder into two halves which were joined by a tubular spar. The two elevators were joined in a similar manner, all these units being fitted with trim tabs.

The hydraulically-operated alighting gear was somewhat unusual. All three units were on the Dowty lever suspension principle which had been pioneered on the Gloster E28/39. They provided a robust yet compact unit essential to the low ground clearance associated with jet aircraft. The system had another advantage in that it could easily incorporate a leg-shortening device which greatly reduced the space occupied by the main legs when retracted. This was achieved by pivoting the shock absorber at a lower point than the top casting, so that as the unit was retracted, the shock absorber acted as a tie strut pulling the wheel fork in closer to the top casting. The units retracted sideways and were each enclosed by two doors. The nose-wheel retracted rearwards and was enclosed by three doors. It was fully castoring and incorporated a self-centring device. Since retractable undercarriages were then still considered a bit of a hazard, in addition to the normal electrical indicators, the nose-wheel was provided with a mechanical down lock indicator in the form of a red painted rod which stuck up through the top skin in front of the wind-screen when the down lock was fully engaged. Such a device was not considered necessary for the main wheels as the pilot could look back and see that they were at least down (if not locked).

The controls, apart from the rudder pedals, were conventional consisting of the normal spade grip control column which was connected to the elevators and ailerons by torque shafts, rods, chains and cables. Each rudder pedal was mounted on a separate roller unit moving in its own fore-and-aft guide. This was necessary because the cover which enclosed the nose-wheel in the retracted position occupied the space in which the normal rudder bar pivot would be mounted. After some initial trouble caused by the floor flexing under pressure, the system operated very well. The trimming tabs on the rudder and elevators were controlled from conventional hand wheels in the cabin. The rudder tab gearbox was offset from the hinge line so that the tab also operated as a balance tab.

Each engine was mounted between an inner and an outer engine rib, the trunnion at each side of the engine fitting inside a spherical bush which in turn fitted in a mounting block to give a high degree of self-alignment. Only one bush was pinned to its trunnion thus checking side float without preventing expansion and contraction due to temperature changes. The rear of the engine was steadied by four struts in diamond pattern, from the turbine casing to the sides of the nacelle.

An extension shaft from each engine wheel case extended forward through the front spar to drive a Rotol auxiliaries gearbox, the port gearbox driving a KX generator, a Heywood air compressor and a vacuum pump while the starboard box drove the Dowty Live-Line hydraulic pump and the second vacuum pump.

Fuel was normally carried in the two-cell, self-sealing tank in the centre fuselage and a drop tank under the fuselage. Fuel from the latter was transferred by air pressure into the main tank, the flow being controlled by a float valve in each cell. An electric low-pressure pump drew fuel through an inverted flight trap in each half and delivered it through a low pressure cock to its respective engine, the front half feeding the port engine and the rear half the starboard. A balance cock could be opened to

The small frontal area and clean lines of the Mk. 4 show up well in this head-on view. It also illustrates the good grouping and positioning of the four 20-mm. guns and shows the cine camera vision tube in the nose.

make all the fuel available to one engine if desired; in fact, flying on one engine was recommended for maximum endurance. Later in the aircraft's life, wing tanks were introduced for ferrying only. On one occasion an aircraft was modified in a hurry so that it could be ferried to the Continent. Unfortunately the inward vent valves were omitted in the rush. The wing tanks were used first and were shut off after they had emptied at about 30,000 ft. During the subsequent descent no air could enter the tanks to equalise the increasing ambient pressure. When the aircraft landed it was carrying two wing tanks that looked as if they had just been under a steam roller!

The hydraulic system operated the flaps, airbrakes and undercarriage, a large accumulator being provided to smooth the flow and act as a power reservoir in case of pump failure. A hand pump would operate all services very slowly.

Compressed air to operate the main wheel brakes and cock the guns was provided by a Heywood compressor charging an air bottle in the rear fuselage. The compressor was an innovation on the Mk. 4, previous Marks having two ground-charged bottles. A relic of the nose-wheel brake was the brake torque strut, long since non-functional but left to operate the nose-wheel door retraction mechanism.

Since in 1945 electrically-operated gyro-instruments were some way in the future, a cumbersome vacuum system, consisting of two engine-driven pumps and their oil separators, was fitted to operate the blind flying instruments.

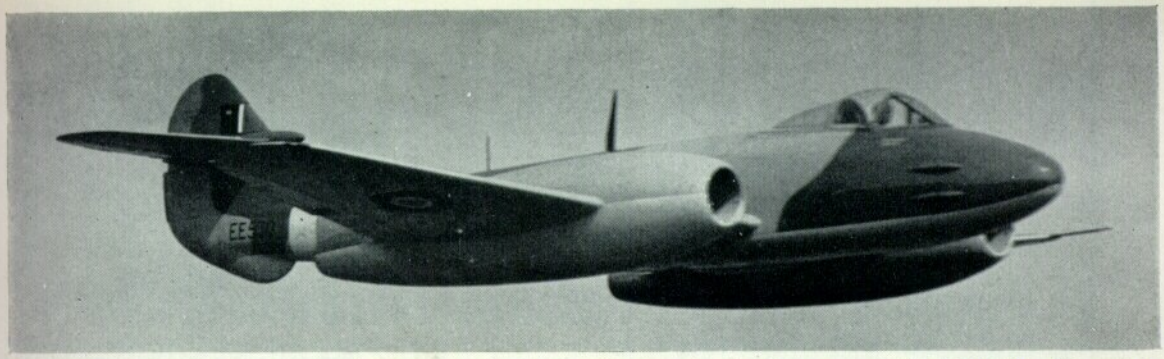
The pressure cabin system was unique in its day, being the only one to take its pressurising air directly from the engine compressor casings, the pipes from the two engines joining at the duplex non-return valve to prevent cross feeding. From this point a single pipe, which incorporated a control valve and a constant flow valve, ran to the cabin. A Westland (later to become Normalair) control valve under the cabin floor prevented any build up of cabin pressure below 7,000 ft.; above this height the escaping air was progressively restricted until the full cabin differential of 3 lb. sq. in. was achieved at 24,000 ft. This system also provided the heating with no temperature control. It worked well enough but looks a little primitive alongside today's sophisticated refrigeration and heating systems with fully automatic controls.

The main armament consisted of four 20-mm. Hispano Mk. II guns fed with ammunition via Mk. I or Mk. V belt feed mechanisms, cases and links being ejected through chutes in the bottom skin. Firing was by Dunlop electrical sear release units, controlled from a selective gun button which gave the pilot the choice of top pair, low pair or all four guns. The Mk. II gyro-gunsight was fitted with a recording camera and was ranged from a twist grip on the throttle levers. A G.45.B cine-camera was mounted in the fuselage nose.

The electrical system which operated the normal heating, lighting and instrument services was powered by one 1,500 watt, 24-volt generator, Type KX, charging two 12-volt accumulators in series. Towards the end of the production run, a modification to install twin 02 generators was raised but was fitted to only a handful of aircraft.

A T.R.1143, or later a T.R.1464, two-way V.H.F. radio was fitted with the added provision for beam approach. Radar identification was given by an R.3121 1FF installation.

Neville Duke, "Bill" Waterton and Teddy Donaldson discuss tactics for the 1946 attempt on the World Air Speed Record.



E.E.530 *with wide-span wings was used as a trainer for the second attempt by the Meteor on the World Air Speed Record. As originally delivered to the High Speed Flight, R.A.F., it was fitted with a normal transparent canopy. The metal rear canopy was fitted at a later stage.* (Photo: "Flight")

Other equipment included oxygen, gun heating and windscreen de-icing.

The Meteor had been faced with an acute C.G. problem ever since the two lower guns had had to be abandoned in the F9/40 stage. The tail heavy moment got worse and worse as more modifications were added, necessitating more and more ballast in the nose. The heavier engines and jet pipes in the Mk. 4 represented the penultimate straw and forced the Meteor 4 to carry no less than 1,095 lb. of ballast in the most adverse case. This was all in the form of lead and was dispersed as follows:

Fixed in the nose-wheel bulkhead ..	100 lb.
Fixed in the nacelle leading edges ..	250 lb.
Fixed on the main webs	275 lb.
Removable on the nose-wheel mounting	470 lb.

It was not until the Meteor Mk. 8 that the situation was relieved by an extra 30 in. of fuselage inserted between the front spar bulkhead and the frost fuselage so that the increased moment arm of the pilot and guns practically eliminated the need for ballast.

FLYING THE METEOR 4

The Meteor Mk. 4 was a simple aircraft to handle both on the ground and in the air. The controls were well harmonised and provided good handling qualities right up to the service ceiling. The clipped wings and gear tab ailerons improved the rate of roll, while the tendency to snake was noticeably less than on earlier marks.

With such enormous power and a very clean aircraft, it was extremely easy to exceed the limiting Mach No. of 0·8 even in level flight. To lose height quickly, it was essential to use the airbrakes which would be opened at any speed, a blow-back valve preventing undue strain. The deceleration was swift, 0·8G at 400 m.p.h.!

An excellent safety feature was the aircraft's tendency to pitch up gently at the edge of compressibility, providing a warning and correction at the same time.

At very high Mach numbers, the unpowered controls were almost solid, so that there was little fear of high stresses being imposed by violent manœuvres.

The single-engine performance was outstanding—over 400 m.p.h. at sea level with no serious deterioration in control.

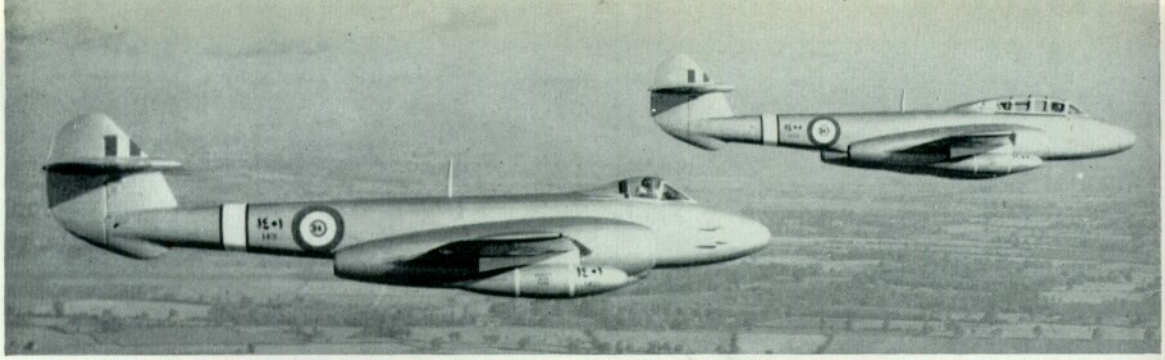
The approach was made at 125–130 m.p.h. with flaps and air brakes down. Full lateral and fore-and-aft control was maintained right down to the stall at about 105 m.p.h.

THE RECORD BREAKERS

The two aircraft which might be considered Mk. 4 prototypes were produced in 1945. These were two Mk. 3s, *E.E.454* and *455*, fitted with prototype Derwent 5 engines to attack the World Speed Record, at that time still standing at the pre-war figure of 469 m.p.h. On 7th November, Group Captain Wilson, flying *E.E.454* raised the record to 606 m.p.h., while Eric Greenwood flying *E.E.455* (sometimes known as the "Yellow Peril" from its overall yellow finish) could only manage 603 m.p.h.

A new record must better the existing one by at least 1% or in this case just over 6 m.p.h. As this was thought to be within the reach of the Lockheed Shooting Star, preparations for a new British attempt were put in hand in the summer of 1946 when the R.A.F. High Speed Flight was formed at Tangmere on 14th June. After training on standard Mk. 4 aircraft, two Mk. 4s especially prepared for the record

Above, top: E.E.455 "*Britannia*" *or the* "*Yellow Peril*", *achieved 603 m.p.h. when attempting the Air Speed Record in 1945.* Above, bottom: R.A.476 *broke the Turnhouse, Scotland–Bovingdon, Hertfordshire record.* Below: E.E.549 *which broke the World Air Speed Record in 1946 with a speed of 616 m.p.h. The Meteor now stands outside R.A.F. Innsworth.*
(Photos: the author)



The Egyptian Air Force operated the F. Mk. 4 and T.7 Trainer, examples of which are shown in flight over Gloucestershire. A total of twelve Mk. 4s and six T.7s were delivered. (Photo: Hawker Siddeley Aviation Ltd.)

attempt were delivered in August. These were serial numbered *E.E.549* and *E.E.550*. The guns had been removed and the gun ports faired over, the air brakes were locked down and generally all cracks and dents were filled. A 43-gallon fuel tank was installed in the magazine bay and two tanks of thirteen gallons each were fitted, one in each gun bay. An extra 563 lb. of ballast was necessary to compensate for the guns, giving the aircraft an all-up weight of 14,075 lb. in record-breaking trim. Special metal canopies with small transparent windows replaced the normal perspex hoods as the latter suffered from softening and distortion caused by the temperature rise induced by skin friction when flying at high speed at low altitudes.

Before the record attempt on 7th September, both aircraft had special Derwent 5 engines, rated at 4,200 lb. thrust for short periods, substituted for the 3,500 lb. thrust engines. The weather was far from ideal with low cloud and drizzle accompanied by a low air temperature. Group Captain Donaldson took off first in *E.E.549* at 5.45 p.m. and landed fourteen minutes later having raised the record to 616 m.p.h. Squadron Leader Waterton took off later in *E.E.550* but his average was only 614 m.p.h.

E.E.549 was displayed at the Paris Aero Show in November and on its return trip, set up a new Paris–London Record of 520 m.p.h. Since no special preparation had been made for this flight, Glosters thought that the record could be improved. Accordingly on 19th January 1947, *E.E.549*, again flown by Waterton, flashed over the timing point at Le Bourget and twenty minutes, eleven seconds later passed a similar point at Croydon having raised the record to 618·4 m.p.h.

Happily *E.E.549* has been preserved and now stands at the gate of R.A.F. Innsworth, Gloucestershire, only some four miles from the factory where it was built.

After an abortive attempt on 4th February, a Meteor 4 (*V.T.103*) raised the World's 100 kilometre closed circuit record to 542·9 m.p.h. on 6th February 1948, flying on a triangular course from Moreton Valance aerodrome.

During the demonstration tour of Europe in 1947, Coates Preedy set up a new Brussels to Copenhagen record of 630 m.p.h. in the privately owned Gloster Meteor *G-A1DC*.

MK. 4 VARIANTS

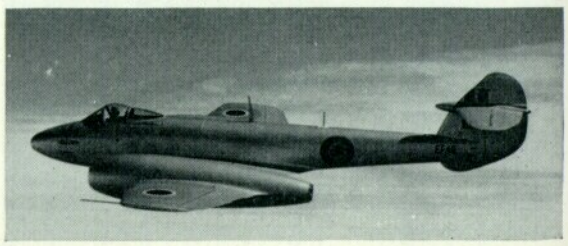
As had been the case with the earlier marks of Meteor, the Mk. 4 was much in demand as a test aircraft. Axial flow engines were reaching an advanced stage of development and it was natural that the Meteor was chosen to test them in flight.

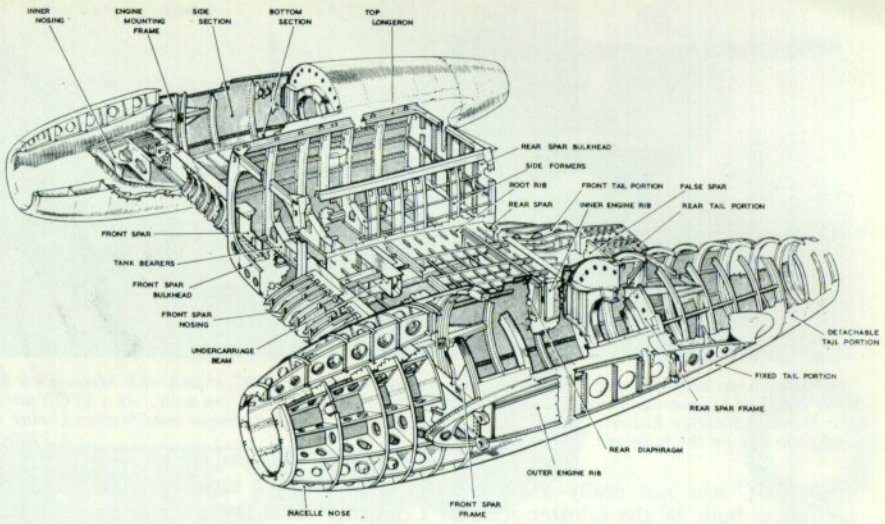
Two such engines were the Metropolitan Vickers F2/4 Beryl and the Rolls-Royce R.A.2 and 3 Avons. Both these engines were far too long to mount between the spars of the Meteor centre section and too large to be entirely underslung in the same manner as the M.V.F1. The problem was solved by fitting a curved section to both front and rear spars in the nacelles so that the engines could be underslung and still leave sufficient ground clearance when the longer type undercarriage units (similar to those used on the F1 F9/40) were used. This modification was applied to *R.A.490* to mount the Beryls and *R.A.491* for the Avons. Both had fantastic rates of climb, *R.A.491* with *R.A.3* clocking 2·7 min. to 40,000 ft. (12,190 m.) and 3·65 min. to 50,000 ft. (15,250 m.).

Later *R.A.490* was converted by Westland Aircraft in 1954 to take two Nene engines fitted with jet deflectors. As the engines had to be mounted forward of the front spar to allow the deflected jet to operate in the region of the centre of gravity, very large nacelles were necessary, extending some 8 ft. forward of the spars. A Mk. 8 tail unit and full span wings were fitted to give a span of 44 ft. 4 in. (13.51 m.). The trials were technically successful, a minimum indicated air speed of 65 knots (115 km. h.) being achieved but the installation was complicated. The Service had to wait another twelve years for the Hawker Siddeley Kestrel before it got its first jet-deflected aircraft.

The Royal Netherlands Air Force took delivery of a total of sixty-five Meteor F. Mk. 4s and they served from 1948 until 1962. (Photo: Ministry of Defence)

Belgium took delivery of the first of forty-eight Meteor 4s in April 1949, the last arriving the following September. The Mk. 4s were in service for five years before being replaced by the Mk. 8.





Structura heart of the Meteor F. Mk. 4 was the centre-section incorporating engine nacelles and undercarriage mounting.

R.A.491 was also subsequently modified to take a pair of French Atar engines. Among many other modifications a Mk. 8 front fuselage was fitted.

Reheat was also under intensive development at this time, *R.A.435* and *V.T.196* both being modified to take reheat tail pipes for the Derwent Mk. 5 and Mk. 8 respectively. The system increased the thrust of a Derwent by 25% but at a cost of a 900 g.p.h. fuel consumption.

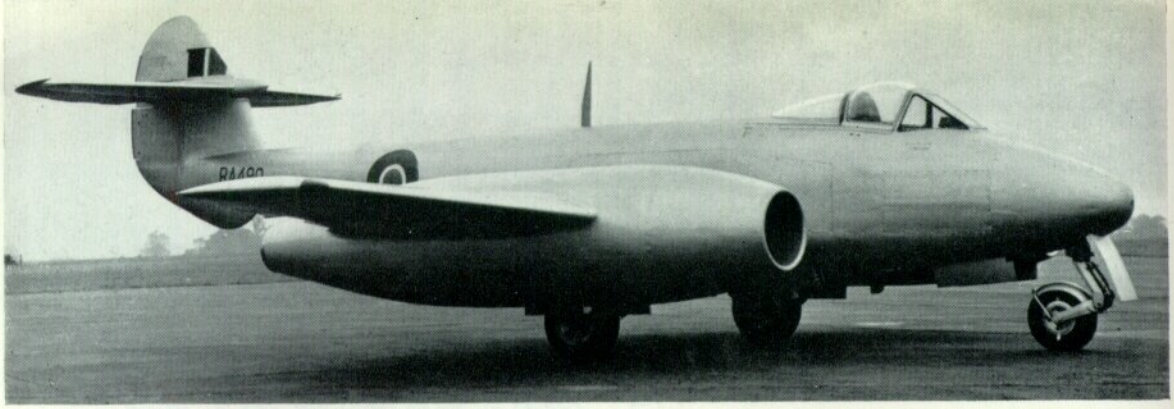
Flight Refuelling Ltd. were bringing their technique of air-to-air refuelling to perfection and two Meteor Mk. 4s, *R.A.438* and *V.Z.389*, were each fitted with a probe on the fuselage nose, connected to the main fuel tanks. The first fuel load was transferred on 2nd April 1950. The same method is still used by the R.A.F. today.

A trial installation on *R.A.382* was to influence the shape of subsequent marks of Meteor. The quantity of ballast necessary on the Mk. 4 was so high that it was decided to insert an extra 30 in. of fuselage at the front spar bulkhead joint, thus increasing the moment of the front fuselage. The modification was a success but some attendant troubles caused by the larger C.G. shift due to using ammunition was not finally cured until the E1/44 tail unit was fitted.

Following the successful trials of the Martin Baker ejection seat in the two-seater Meteor 3, *E.E.416*, it was decided to fit ejector seats to Meteor aircraft as standard equipment and the aircraft chosen for the trial installation was a Mk. 4, *V.T.150*. This entailed moving the windscreen forward, fitting a completely new one-piece hood, cutting out the centre of the seat bulkhead and sloping it back, fitting a retractable gyro gunsight and many smaller modifications to instruments and controls. The man-hours involved and the complexity of the work soon made it clear that it was unrealistic to modify existing aircraft, even though at least one foreign government had been sold some seats by an over-enthusiastic seat salesman. It was decided that these modifications, together with the installation of Derwent Mk. 8 engines, would be the basis of the Meteor F. Mk. 8 which would supersede the Mk. 4 in preference to the more sophisticated Mk. 6. *V.T.150* was further modified to take the E1/44 tail unit and the 30 in. front fuselage extension, so becoming a true Mk. 8 prototype.

Another variation pioneered by the Mk. 4 was the photographic reconnaissance rôle, *V.T.347* being converted to take two F36 vertical cameras in the rear fuselage and an F24 oblique camera on a mounting in the fuselage nose which was fitted with three optically flat windows. Thus the oblique camera could be set on the ground to operate straight ahead or to either beam. This version carried the normal armament and was known as the Meteor P.R. Mk. 5. Unfortunately it went to pieces in the air during a very fast run over Moreton Valance aerodrome on its first flight on 13th July 1949. The pilot, Rodney Dryland, was killed. However the installations were successful and were built into the F.R.9 and the P.R.10.

Rolls-Royce Derwent 5 engines equipped with afterburners were installed in RA435. *Note "eyelids" protruding from the engine exhaust.*
(Photo: Ministry of Defence)



Another RA-*serialled Meteor to be used as an engine test-bed was* 490, *shown with Metro-Vick Beryl axial-flow engines. These were later replaced by non-standard Rolls-Royce Nenes fitted with jet deflection units. As a STOL aircraft the Meteor was the forebear of the Hawker Siddeley Kestrel. The airframe was drastically modified; major modifications being the F. Mk. 8 tail assembly and the end-plate fins on the tailplane.* (Photo: Hawker Siddeley Aviation Ltd.)

G-A1DC was not really a variant but a private aeroplane built by the Gloster Aircraft Company to use as a demonstration machine on overseas sales tours. It was painted all scarlet with a white flash and registration letters. Its career came to an end when being flown by a Belgian pilot. One leg extended at 550 m.p.h. and the aircraft went into a series of wild upward rolls. The pilot regained control but the weakened leg collapsed on landing and the aircraft was damaged beyond repair.

IN R.A.F. SERVICE

The first Mk. 4s off the production line were finished in the standard day-fighter scheme of dark green and dark sea-grey on upper surfaces and medium sea-grey on under surfaces. It was a gloss dope finished with wax polish, but at about the same time, camouflage was abandoned by the R.A.F. and before delivery all Mk. 4s were finished with silver dope, cut and polished to a high gloss. The Meteor never left the factory without dope of some kind being applied. In later years fewer undercoats were applied and filling was not so thorough in the interests of weight saving and reducing man-hours.

A total of 465 aircraft were built for the R.A.F. in the following batches.

Built by Gloster Aircraft Co. at Gloucester: E.E.517–554, E.E.568–599, R.A.365–398, R.A.413–457, R.A. 473–493, V.T.102–150, V.T.168–199, V.T.213–247, V.T.256–294, V.T.303–347, V.W.255–304, V.W.308–315, V.W.780–791, V.Z.437.

Built by Sir W. G. Armstrong Whitworth Aircraft at Coventry: V.Z.386–419, V.Z.427–429, V.Z.436.

Between 1947 and 1952 the following squadrons were, at some period, equipped with Mk. 4s: 1, 41, 43, 56, 63, 66, 74, 92, 222, 245, 257, 263, 266, 500, 504, 600, 610, 611, 615 and 616.

THE METEOR 4 OVERSEAS

At the end of the war in 1945, Great Britain possessed the most highly developed jet fighter, in the form of the Meteor 4. The British Government and the Gloster Aircraft Company were quick to realise the export potential and an intensive sales drive was soon under way.

The first export contracts were placed by the Argentine Government in May 1947 for 100 aircraft, serial numbered 1·001 to 1·100. The first 50 were to have been R.A.F. aircraft and the second 50 were specially built. The aircraft were shipped in their sub-assembly units to be assembled by Gloster personnel in the Argentine, the last aircraft being delivered in September 1948. The finish was all silver with national markings. At first the serial numbers were painted in black on the nose but were later transferred to the rear fuselage. Also black anti-dazzle panels were subsequently added on the decking in front of the windscreen.

During the revolution of 1955, the Meteors were used by both Government and Rebel Forces in action, which resulted in the loss of at least two aircraft. The Meteor proved to be a reliable machine however and in 1961 at least half the original number were still flying.

Close on the heels of the Argentine order came an order from the Royal Netherlands Air Force in June 1947, for the first five of a total of 60 aircraft. Serial

At the end of a long career, albeit not exciting, a large number of Mk. 4s were converted to drones. As such they were designated the Meteor U Mk. 15. Illustration shows two manned U.15s under the control of a Firefly drone over Malta.
(Photo: via Paul Trither)

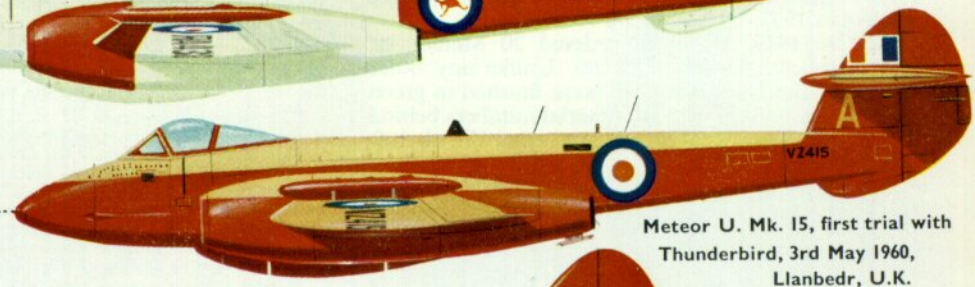
Meteor F. Mk. 4, No. 222 "Natal" Squadron (Code ZD).

Meteor F. Mk. 4, No. 263 "Fellowship of the Bellows" Squadron, Wattisham, U.K.

Meteor F. Mk. 4, WS111 as operated by Airwork Ltd. for the Sperry Gyroscope Company.

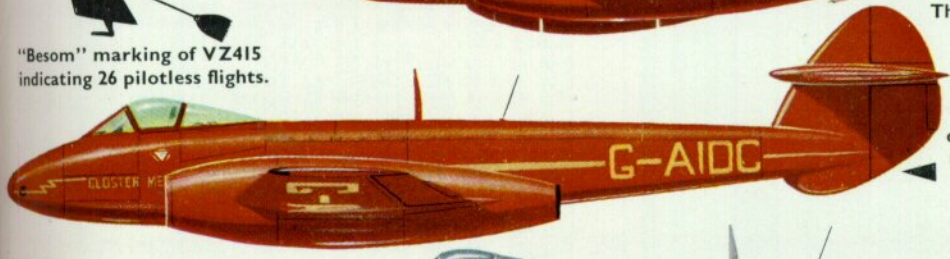
Fuselage only.

Meteor U. Mk. 15, R.A.A.F., Woomera, Australia.



Meteor U. Mk. 15, first trial with Thunderbird, 3rd May 1960, Llanbedr, U.K.

"Besom" marking of VZ415 indicating 26 pilotless flights.



Meteor F. Mk. 4 with armament removed, the original Gloster Private Venture Meteor.

Meteor F. Mk. 4, No. 323 Squadron, Royal Netherlands Air Force.

Belgium, immediate post-war.

Egypt.

Meteor F. Mk. 4, No. 723 Squadron, Royal Danish Air Force.

Meteor F. Mk. 4, 1st Fighter Interceptor Group, VIIth Air Brigade, Moran. Argentine Air Force.

Belgium.

The prototype Meteor F. Mk. 8 was VT150, *originally produced as an F. Mk. 4. Modification of the Mk. 4 airframe included a new tail assembly and a 30-inch fuselage extension.* (Photo: Hawker Siddeley Aviation Ltd.)

numbers ran from I.21 to I.81. The aircraft were in standard silver finish with black squadron letters and numbers fore-and-aft of the national insignia on the fuselage sides. Squadrons 322, 323, 326 and 327 were equipped with Mk. 4s.

In 1949, Belgium purchased 48 aircraft, serial numbered E.F.1 to E.F.48. These were issued to 349 and 350 squadrons. The finish on delivery was all silver with black serial numbers on the rear fuselage. The roundels had a narrow yellow ring.

Subsequently the aircraft were camouflaged with white squadron letters. The aircraft finally became obsolete in 1957.

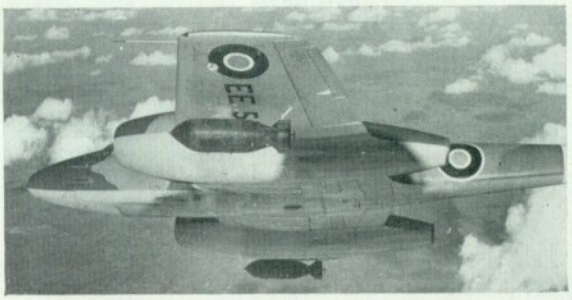
Later in 1949, Denmark ordered 20 Meteor 4s, serial numbered D.461 to D.480. Unlike any other Meteor 4s, the Danish aircraft were finished in green and grey camouflage with white serial numbers behind the fuselage roundels. The unit operating the aircraft was first known as the Third Air Flotilla of the Naval Air Service, but later as 723 squadron of the Royal Danish Air Force.

After the British Government's arms embargo was lifted, Glosters delivered the first of 12 Meteor 4s to Egypt in October 1949. Serial numbers ran from 1401 to 1412 and the aircraft were finished in silver dope.

France purchased two Meteor 4s for development work. The first was formerly *E.E.523* but was re-registered *F-WEPQ* before delivery. The second was *R.A.491*, the original Avon test-bed, which was converted to take Atar engines.

Meteor 4s of No. 66 carry out a mock stern attack on an R.A.F. Lincoln bomber. (Photo: Ministry of Defence)

Flight tests with 1,000-lb. bombs were carried out on E.E.519. *Carriage of 98-lb. rocket projectiles was also flight tested on this aircraft.* (Photo: Hawker Siddeley Aviation Ltd.)



SPECIFICATION

Dimensions: Wing span 37 ft. 2 in. (11·33 m.); overall length 41 ft. (12·5 m.); height over rudder 13 ft. (3·3 m.); height over cabin 8 ft. 7 in. (2·6 m.); height over wing tip 5 ft. (1·52 m.); wheel track 10 ft. 5 in. (3·23 m.); wheel base 13 ft. 4 in. (4·06 m.). *Main Plane:* Area, gross 350 sq. ft. (32·5 sq. m.); aspect ratio 3·9; aerofoil centre section E.C.1240; aerofoil outer section root E.C.1240; aerofoil outer section tip E.C.1040; incidence 1 deg.; dihedral centre section 0 deg. 52½ min.; dihedral outer section 6 deg.; aileron area total 28 sq. ft. (2·6 sq. m.); flaps area total 18 sq. ft. (1·67 sq. m.) airbrakes area total 13·5 sq. ft. (1·25 sq. m.). *Tail Unit:* Tailplane, span 15 ft. 8 in. (4·76 m.); area 61 sq. ft. (5·67 sq. m.); incidence 1 deg.; elevator area total 26·6 sq. ft. (2·47 sq. m.); fin area total 14·3 sq. ft. (1·33 sq. m.); rudder area total 19 sq. ft. (1·77 sq. m.).

Tank Capacities: Fuel, internal tank 325 Imperial gall. (1,480 litres), fuselage drop tank 180 Imperial gall. (818 litres), underwing tanks 2 ×100 Imperial gall. (910 litres). *Oil,* engine tanks 2 ×22 pints (25 litres).

Weights: Weight empty 10,050 lb. (4,562 kg.); military load 2,792 lb. (1,265 kg.); loaded weight (full internal fuel) 15,000 lb. (6,800 kg.); loaded weight (with fuselage drop tank) 16,750 lb. (7,600 kg.); loaded weight (with fuselage and wing tanks) 18,000 lb. (8,440 kg.); gross wing loading at 15,000 lb. 41·4 lb. sq. ft. (202 kg. sq. m.).

Performance: Maximum level speed: Sea level 585 m.p.h. (940 km.h.); 10,000 ft. (3,050 m.) 585 m.p.h. (940 km.h.); 20,000 ft. (6,100 m.) 570 m.p.h. (915 km.h.); 30,000 ft. (9,150 m.) 540 m.p.h. (870 km.h.); 40,000 ft. (12,190 m.) 490 m.p.h. (790 km.h.). *Maximum cruising speed:* Sea level 540 m.p.h. (870 km.h.); 30,000 ft. (9,150 m.) 530 m.p.h. (855 km.h.). *Maximum rate of climb:* Sea level 7,500 ft./min. (2,280 m./min.); 10,000 ft. (3,050 m.) 6,100 ft./min. (1,860 m./min.); 20,000 ft. (6,100 m.) 4,750 ft./min. (1,440 m./min.); 30,000 ft. (9,150 m.) 3,300 ft./min. (1,010 m./min.); 40,000 ft. (12,190 m.) 1,650 ft./min. (490 m./min.). Time to 30,000 ft. (9,150 m.) 5 min.; time to 40,000 ft. (12,190 m.) 8 min.; absolute ceiling 49,000 ft. (14,900 m.). *Range at 30,000 ft. (9,150 m.):* With full internal fuel 420 miles (670 km.); with full internal and fuselage drop tank 680 miles (1,100 km.); with full internal and fuselage and wing tanks 1,000 miles (1,610 km.). *Landing speed:* 125 m.p.h. (200 km.h.). *Stalling speed:* Flaps and alighting gear up 120 m.p.h. (195 km.h.); flaps and alighting gear down 105 m.p.h. (165 km.h.). Take-off distance to clear 50 ft. (15·25 m.) 834 yds. (760 m.). Landing distance from 50 ft. (15·25 m.) 1,000 yds. (910 m.).

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