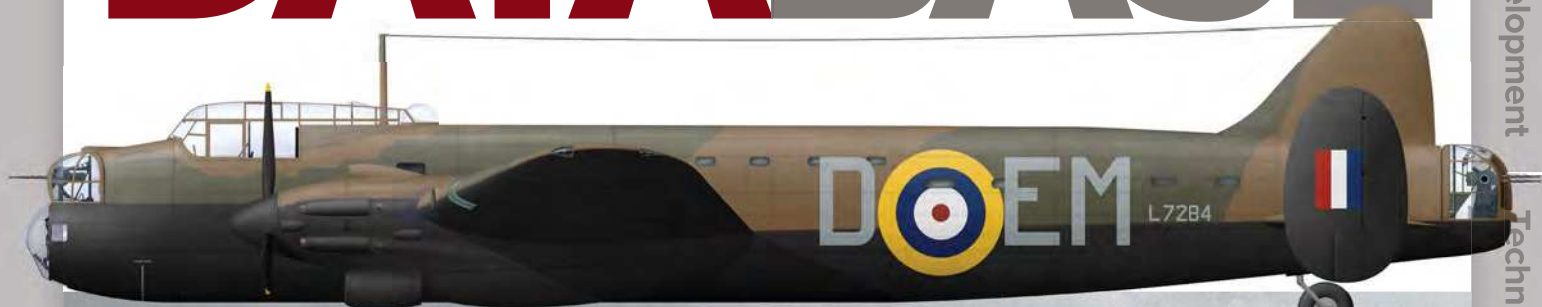


DATA **DATA** BASE



Manchester I L7284/EM-D
of No 207 Squadron.
CHRIS SANDHAM-BAILEY

17
IN-DEPTH
PAGES

AVRO MANCHESTER

WORDS: ANDREW THOMAS



Mk1a L7515/EM-S shows the broader tailplanes adopted on this version of Manchester. It joined No 207 Squadron on 10 October 1941, flying 14 operations before passing to No 106 Squadron with which it notched up a further 10. KEY COLLECTION

The great expansion of the RAF during the mid-1930s saw several monoplane medium bomber designs joining Bomber Command, meaning that, by the start of the war, the Handley Page Hampden, Armstrong Whitworth Whitley and Vickers Wellington were well established in service. It was to supplement and then replace these that further parallel specifications for new, modern types were issued in 1936. The first, P12/36, was for a large, long-range, four-engined heavy bomber and eventually resulted in the Short Stirling. In contrast, P13/36 was for a twin-engined monoplane medium bomber capable of carrying a bomb load of 8,000lb. It too was to be suitable for employment worldwide, and in addition to level bombing was to conduct 30° shallow dive-bombing. There was also a requirement to carry two 18in torpedoes.

Interestingly, the specification took in provision for the aircraft be stressed for catapult-assisted take-offs to allow operation at maximum payload from the then limited runway lengths available. This requirement was effectively dropped in 1938, though some trials were later conducted with the prototype at RAE Farnborough.

Several companies examined P13/36, but only Avro and Handley Page went on to



An original model of the Avro proposal to meet the P13/36 specification. PETER H. T. GREEN COLLECTION

submit offerings to the Air Ministry. Aware of the need, the Avro design team led by Roy Chadwick had already begun preliminary work. Both the Avro 679 and Handley Page HP56 were intended to carry a bomb load of up to 12,000lb and be fitted with defensive armament

Prototypes of both were ordered, with anticipated service entry during 1939.

From the start, Chadwick and the Avro team gave great consideration to ease of manufacture, with an eye to dispersed assembly and damage repair. A contract against

including engine and hydraulic systems. The Vultures performed faultlessly.

With these conducted satisfactorily, at 15.00hrs on 25 July the Avro chief test pilot, Capt H. A. 'Sam' Brown, with S. A. 'Bill' Thorn as co-pilot and two test engineers made the maiden flight of the new bomber. It landed 17 minutes later, but was reported as "successful". Nonetheless, Brown was concerned about the length of the take-off roll despite the aircraft's light weight, and the longitudinal and directional stability.

L7246 made eight test flights from Ringway before the engines started to give real concern. On 1 September, variable-pitch Hydromatic propellers replaced the original two-pitch units. Eventually, on 2 December it was transferred to

“ L7246 made eight test flights before the engines gave real concern ”

in power-operated nose, tail and dorsal gun turrets. They were initially intended to be powered by the new Rolls-Royce Vulture engine that was under development, but Handley Page later abandoned this in favour of a four-engined design that emerged as the Halifax.

specification 19/37 for 200 aircraft was placed in July 1937 and construction of the first prototype proceeded at Avro's experimental department at Ringway, Manchester. There in the early summer of 1939 the completed first prototype, L7246, underwent ground testing,

Before its maiden flight, the first Manchester prototype, L7246, reveals its clean lines, the lack of the distinctive central fin, and the two sets of exhaust pots on each side of the engine required by the Vulture's 'X' configuration. KEY COLLECTION





Although the requirement had been dropped, the first prototype later underwent trials of launching assisted by a heavy catapult at RAE Farnborough. KEY COLLECTION

the Aeroplane and Armament Experimental Establishment at Boscombe Down. These early tests confirmed that what had now been christened the Manchester was directionally unstable, but this could be easily cured by the fitting of a third, shark-type fin on the rear fuselage. Within days, a larger, more rounded fin appeared and this became the production standard. However, during a test on 23 December the port Vulture failed and the prototype was unable to maintain height on the remaining powerplant. It force-landed in a cabbage field, fortunately without injury or serious damage.

This highlighted a greater concern, as from the start the Vulture had failed to deliver the anticipated power output. It was also displaying worrying unreliability, threatening to ruin

the potential of what otherwise appeared a promising design. After repair the prototype returned to Boscombe Down in early May 1940.

Production of the Manchester I against an initial order for 200 began at the Avro plant at Woodford in July 1939.

“ Directional instability was cured by fitting a third, shark-type fin ”

A dispersed production plan was established in the Manchester area, though only that at the Metropolitan-Vickers (Metrovick) facility in Trafford Park came to fruition.

As well as the need for the central fin, early handling tests showed a high wing loading, so

the production aircraft had the wingspan increased to cure the problem. The first production Manchester, L7276, came off the line and on 19 July was sent to the A&AEE for service testing. This highlighted further maladies. Just over two months earlier, on 26 May, second

replaced with fabric-covered fittings. L7247 also had the wings extended by 9ft 11in to 90ft 1in, effectively correcting the stability issues. After repairs from its forced landing L7246 was sent to RAE Farnborough, where amongst other tests it conducted catapult trials, although the requirement had long since been dropped.

New Manchesters were starting to flow off the Avro production line, though many were often to be seen parked around the Woodford perimeter track awaiting engine, propeller or hydraulic modifications before being released for service. Initial service trials were completed at Boscombe Down on 21 December, though two days later the Manchester manufacturing programme received a significant setback. The night Blitz was at its

prototype L7247 had flown. This too was initially fitted with the shark's fin type of central fin and was armed with nose, tail and ventral turrets. The latter was soon replaced by an FN-7 dorsal turret, while the production-standard fin was adopted and the metal-covered ailerons were



L7246 after being towed into position at Ringway, ready for its first flight on the afternoon of 25 July 1939. BAE SYSTEMS



TOP: Second prototype L7247 was fitted with nose, tail and ventral turrets, the latter of which is in its extended position. It was retracted for take-off and landing. KEY COLLECTION

ABOVE LEFT: Originally known as a Manchester III, BT308 soon became the first Lancaster. KEY COLLECTION

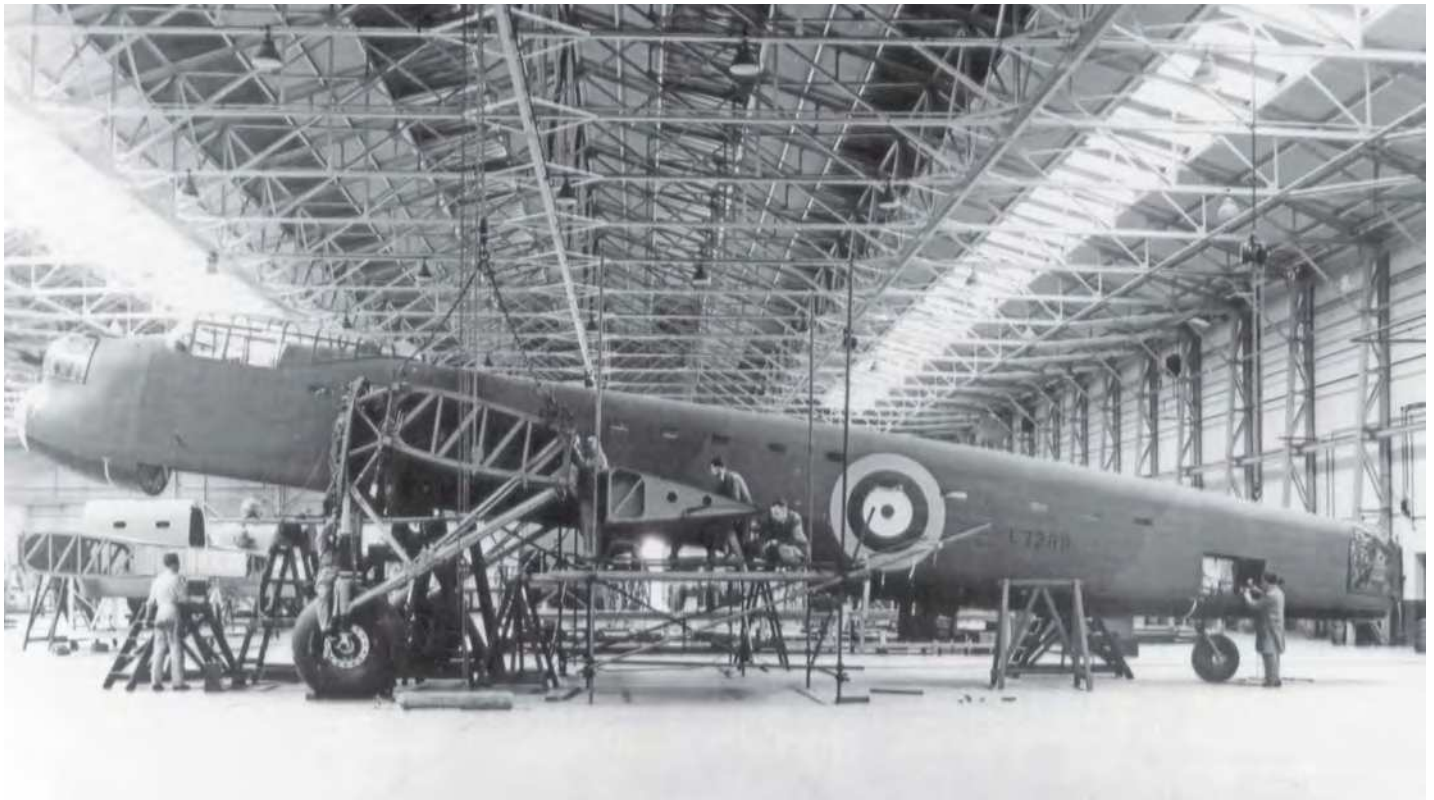
ABOVE: Adoption of the Lancaster tail produced the Manchester Ia, the first example of which, L7320, is undergoing a test flight from Boscombe Down on 26 September 1941. KEY COLLECTION

LEFT: The 17-minute maiden flight was conducted by Avro chief test pilot Capt H. A. 'Sam' Brown (right) with S. A. 'Bill' Thorne (left) as co-pilot. They are pictured in front of an Anson I. PETER H. T. GREEN COLLECTION

height, and during an attack on Manchester that night the Luftwaffe struck the new Metrovick plant at Trafford Park, destroying the first completed aircraft as well as a dozen more (R5768-R5780) that were on the production line. As well as the assembly building, valuable tools and production jigs were wrecked, so delaying full manufacturing. Metrovick would turn out just 44 Manchesters, though interestingly the serials of the destroyed aircraft were replicated.

Alternative power sources for the Manchester were already being examined, with the Manchester II projected to have two 2,100hp Napier Sabre

engines. One airframe was delivered to Napier at Luton, but the project was dropped before the powerplant had been installed. A second proposal for the MkII was the 2,520hp Bristol Centaurus radial and these were actually fitted, though not flown as Roy Chadwick and the Avro team had proposed a more attractive option to the Air Ministry. Fitted with an enlarged wing and a redesigned centre section, the Manchester III had four 1,145hp Rolls-Royce Merlin Xs, and BT308 flew at Woodford on 9 January 1941. It showed real promise and was immediately renamed Lancaster. The name Manchester was already tainted with failure.



On the line at Woodford, Manchester I L7280 was the 6th production aircraft, and illustrates the size and strength of the Dowty undercarriage. VIA HARRY HOLMES

The basic design of the Avro 679 was for a mid-wing, all-metal, cantilever monoplane with a two-spar flush-riveted wing, a flattened circular-section semi-monocoque fuselage and twin tails. The fuselage was constructed with longitudinal stringers, to which was flush-riveted an external alloy skin. The wings comprised a two-spar construction with internal aluminium ribs which also received that type of skin. Within the wings were the self-sealing fuel tanks and the mounts for the Vulture engines. The tail was of similar construction, with twin fins and rudders that offered the dorsal gunner a near-uninterrupted field of fire.

Most of the seven-man crew were housed in a forward cabin beneath a large canopy that gave excellent all-round vision. It had an astrodome for the navigator's use with a sextant. The canopy was fitted with some armoured panels, and armour was to be added to some of the seats and other vulnerable areas. To the rear of the main cabin was a

small crew rest area. Forward in the nose was the bomb aimer's prone position with optical sight and bomb release controls; above it was the nose turret. The whole area was warmed by ducted air from a radiator in the wing. Access by the crew to all areas was via a walkway and there were several escape hatches throughout the fuselage.

The powerful hydraulic system not only retracted the heavy Dowty undercarriage but operated the trailing-edge wing flaps and various radiator and intake shutters. Unlike other comparable bomber designs, Chadwick's had a massive bomb bay that extended for almost two-thirds of the underside of the fuselage. It gave the fuselage great strength, and was later to easily facilitate the carriage of ever-larger bombs and meet the torpedo-carrying requirement. The large bomb doors were also hydraulically operated, and, like the undercarriage and flaps, had a back-up pneumatic system. The bomb release system's interlock prevented release if the bomb doors were closed. ➔



The captain had the navigator sitting behind him, while on the right the co-pilot used a collapsible seat.

KEY COLLECTION



A feature of the Manchester that continued into later Avro 'heavies' was the huge, uninterrupted bomb bay that gave the design great strength. The 2,000lb AP bomb sits in a No 83 Squadron aeroplane. KEY COLLECTION

SPECIFICATIONS		
	Manchester I	Manchester Ia
POWERPLANTS	Two Rolls-Royce Vulture I 24-cylinder piston engines, 1,760hp each	Two Rolls-Royce Vulture I 24-cylinder piston engines, 1,760hp each
DIMENSIONS		
Wingspan:	90ft 1in	90ft 1in
Length:	68ft 10in	68ft 10in
Tail width:	28ft	33ft
WEIGHTS		
All-up:	50,000lb	50,000lb
PERFORMANCE		
Max speed:	265mph at 17,000ft	265mph at 17,000ft
Cruise speed:	205mph	205mph
Ceiling:	19,200ft	19,200ft
Range:	1,630 miles with 8,100lb of bombs	1,200 miles with 10,350lb of bombs
CREW	7	7
ARMAMENT	Two .303in Browning machine guns in nose and dorsal turrets, four .303in Browning machine guns in nose and dorsal turrets; up to 10,350lb of bombs	Two .303in Browning machine guns in nose and dorsal turrets, four .303in Browning machine guns in nose and dorsal turrets; up to 10,350lb of bombs

The three Nash & Thompson gun turrets — the two-gun FN5 in the nose, the dorsal-mounted FN7 and the four-gun FN20 tail turret — were hydraulically operated. Provision was made for the fitting of an FN21A with two guns in the ventral position, but other than testing on the second prototype this was not used.

One feature from the development of the Lancaster that improved its predecessor was the increase of the tail span to 33ft, combined with larger fins and rudders and deletion of the central fin. Enhancing the aircraft's stability, this modification was incorporated onto new-build airframes and retrofitted to others. Thus equipped the aircraft was designated Manchester Ia.

Vulture: the Achilles heel

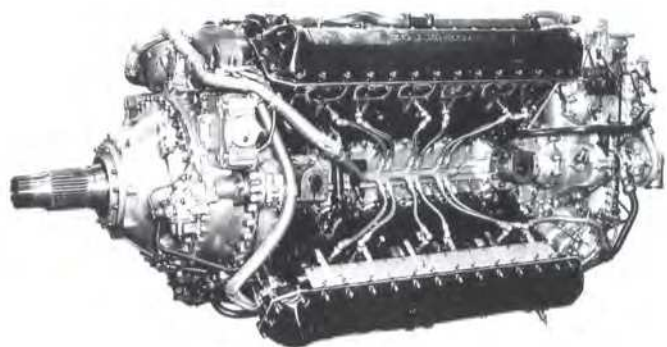
When the Air Ministry requirement for an engine of up to 2,000hp to power a series of new designs for the early 1940s began to emerge, the aero-engine team at Rolls-Royce under chief designer A. G. Elliott responded. Their proposal was for a 24-cylinder, liquid-cooled engine of an 'X' configuration, initially based on four six-cylinder banks of the highly successful Kestrel. Development of what was to emerge as the Vulture began in September 1935, the engine being anticipated to deliver 1,760hp. As development progressed Avro — not the ministry — took the decision to adopt it for the Manchester, though during early test-running the Vulture revealed serious problems. Because stresses on the two-bolt connecting rod caused it to fail, a

four-bolt conrod was developed. Another major problem never satisfactorily solved was insufficient lubrication to the main bearings.

The complete 24-cylinder Vulture was run for the first time on 1 September 1937, by which time its development was in the hands of Rolls-Royce's newly formed Aero-Engine Division, with Albert Elliott as chief engineer. The second engine began testing in January 1938, and the next five months later. By November the three units had accumulated 1,150 hours of bench running. This showed that the Vulture developed 1,760hp, but also a further problem with the coil ignition requiring a change to magnetos.

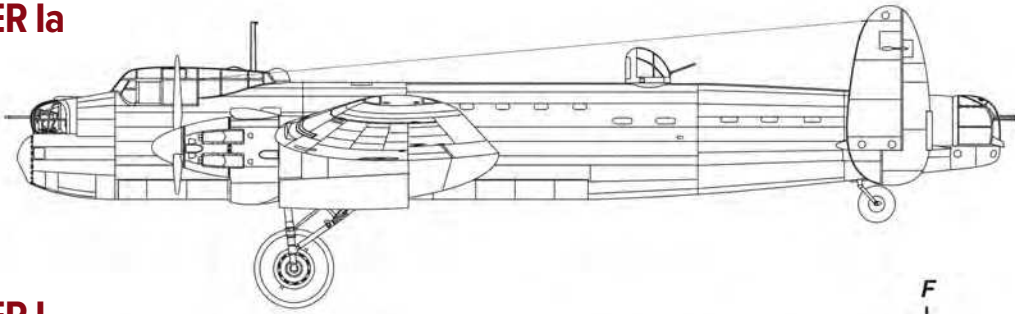
To continue development the prototype Hawker Henley light bomber, K5115, was converted as an engine testbed, a large ventral intake being mounted under the bomb bay to house the radiator and oil cooler. The cowling was modified to accommodate the Vulture's four rows of exhaust stacks and a carburettor scoop added forward of the cockpit. Fitted to the Henley, the Vulture was first flown on 17 April 1939 when K5115 took off from Hucknall. Testing proceeded through the summer, development engines having already been sent to Ringway for integration into the Manchester prototype, the first engine run being made on 26 June. A second Henley was modified as a Vulture testbed, L3302 taking to the air as such on 3 May 1940.

Despite severe misgivings as to its reliability, the Vulture was ordered into production with an initial contract for 700. Full-scale manufacturing commenced in January 1940.

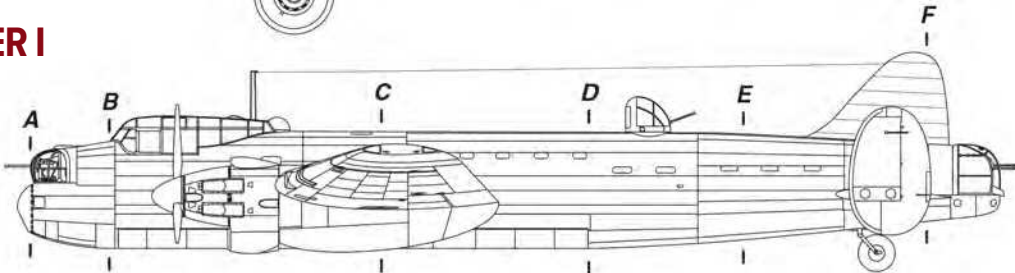


The 24-cylinder Rolls-Royce Vulture that proved so troublesome. It was 7ft 3in long, 3ft 2in wide, 3ft 8.5in high and weighed 2,450lb. ROLLS-ROYCE

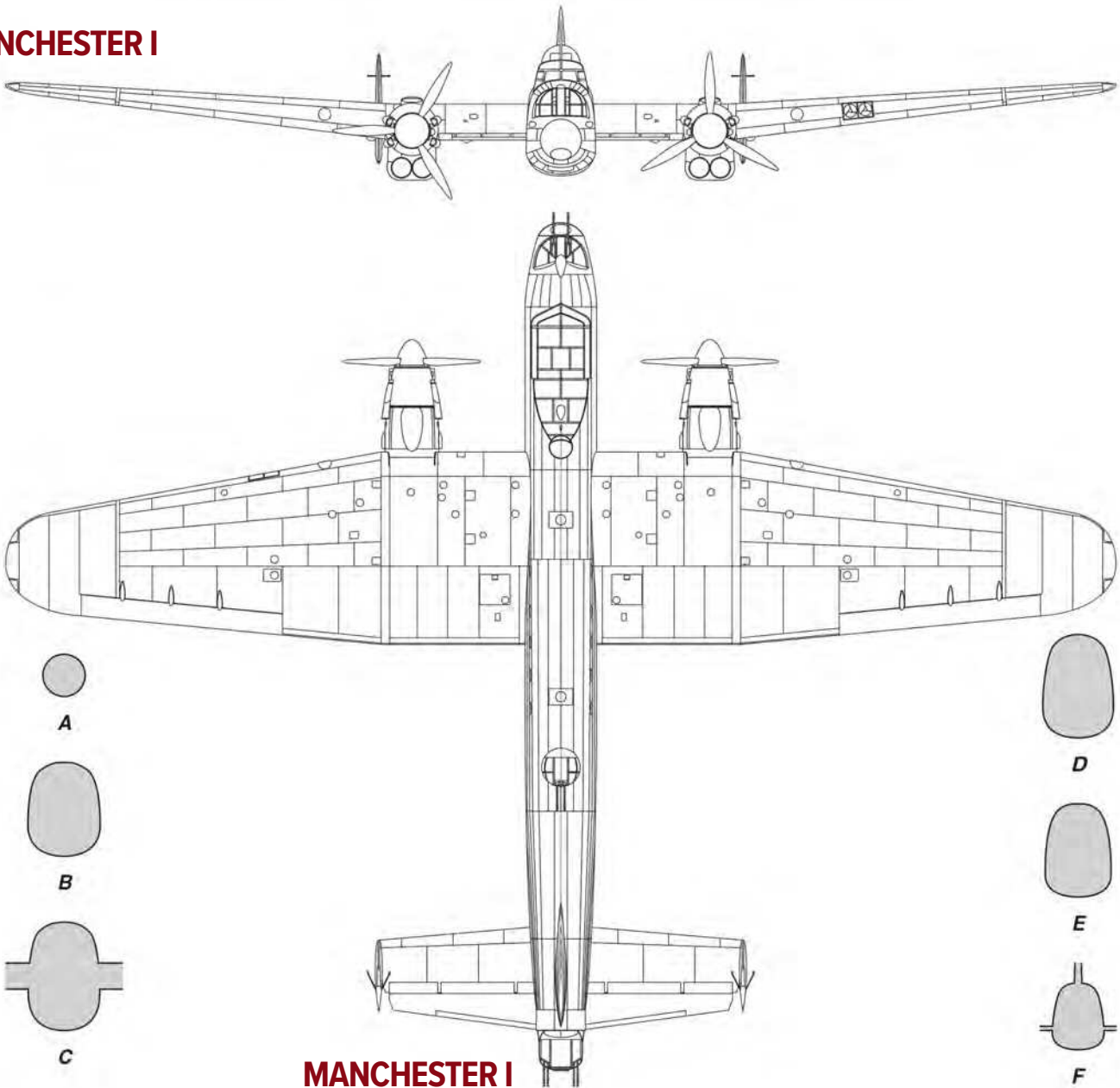
MANCHESTER Ia



MANCHESTER I



MANCHESTER I



MANCHESTER I

Such were the aircraft's problems that the Manchester never made a large-scale operational contribution

Despite considerable misgivings as to the reliability of its Rolls-Royce Vulture engines, No 207 Squadron was re-formed at RAF Waddington on 1 November 1940 as part of No 5 Group, Bomber Command, to introduce the Manchester to service. It was commanded by Wg Cdr Noel 'Hettie' Hyde, who became a very popular CO.

The unit received its first Manchester on the 6th, and slowly the core of experienced crews got to grips with the complex new aircraft, trying to understand the frailties of the powerful Vultures. Among the more serious problems encountered was the Manchester's single-engine performance and propeller feathering. The unorthodox 24-cylinder engines were the type's Achilles heel, with the main big-end bearings and star rod design, the conrods and lubrication continuing to give trouble. In an effort to reduce weight the ventral FN21A gun turret was removed and other modifications made.

By the middle of February 1941, No 207 Squadron had six operational Manchesters. Thus, on the evening of the 24th six crews were briefed for the type's operational debut. At the controls of L7300/EM-F, Hyde led five more aircraft — most

L7284 was in at the outset with No 207 Squadron, being among the aircraft that flew on the Manchester's operational debut — the Brest raid of February 1941. KEY COLLECTION



of which carried a dozen 500lb bombs — off from Waddington between 18.35 and 18.50hrs to attack the heavy cruiser *Admiral Hipper*, moored in Brest harbour.

The six Manchesters made individual attacks from between 10,000 and 15,000ft in the face of flak and searchlights. Nonetheless, L7284/EM-D flown by Fg Off Peter Burton-Gyles, known as 'BG', made several orbits over the target to establish the best direction for the bomb

run. Its observer/bomb-aimer, Sgt Ken Houghton, dropped a stick of six bombs. A hydraulic problem meant the bomb doors could not be closed, and resulted in Burton-Gyles having to make a wheels-up landing back at base. Fg Off Frankie Eustace, meanwhile, had to land L7286 at Boscombe Down. All the others, L7288/EM-H flown by Sqd Ldr Charles Kydd, L7279/EM-B in the hands of Fg Off Johnnie Siebert and L7294 piloted by Fg

Off Mike Lewis, touched down safely at Waddington by 00.30hrs on the 25th, met by visiting VIPs.

The hydraulics of Hyde's aircraft had played up, and other observations from the crews resulted in Avro engineers making more modifications. Although the raid was modest, at least the new bomber had taken part. But of the six captains involved, four were later killed on operations and the other two became prisoners of war.

No 83 Squadron Mkla L7427/OL-N *Ar hyd y nos* (All through the night) was among the four aircraft which flew the unit's inaugural Manchester mission, to Boulogne on 28 January 1942. KEY COLLECTION





No 61 Squadron at Hemswell, to which L7284/QR-H belonged, made its debut on what was the biggest Manchester raid to date when 18 attacked Boulogne on 21 June 1941. J. STRETTON

Despite the ongoing problems, further deliveries saw No 97 Squadron under Wg Cdr Denys Balsdon begin re-equipping at Coningsby at the end of February. The move onto operations coincided with a crisis of Vulture engine supplies from Rolls-Royce, while the engineers at Waddington struggled to produce operationally capable aircraft. On 3 March, when the main target was Cologne, No 207 Squadron was only able to send two Manchesters on a small diversionary raid against Brest. Bad weather meant neither 'BG' nor Flt Lt Derek French could locate the target. The latter was chastised the next morning for having jettisoned his bombs to lighten his aeroplane.

Weather and serviceability conspired against further operations for 10 days, until the night of 12 March. As Fg Off Hugh Matthews lifted L7313/EM-C off from Waddington, it was attacked and shot down by a Ju 88 intruder from NJG 2 flown by Fw Hans Hahn. The whole crew was killed, except for wireless operator Flt Sgt Bill Cox who lost a leg. On the Manchester's deepest penetration thus far, six aircraft attacked Hamburg, each carrying 10 500lb bombs. The others continued, and in fine weather

successfully dropped their loads on the Hamburg shipyards.

Three Manchesters attacked Lorient on the 20th, though L7278/EM-A, flown by Flt Sgt

the Vulture caught fire. Most of the crew bailed out before the blazing aircraft came down, with the loss of its skipper and wireless operator Sgt Bennett

became the third to receive the Manchester when L7307 was delivered by Fg Off Geoff Hall on 18 March. Three more (L7279, L7281 and L7304) arrived on 15 April, though engine problems significantly slowed the conversion programme. Power losses and bearing and crankshaft failures were now causing real concern, the engine bearing issues resulting on 13 April in all Manchesters being grounded temporarily.

The 10th night of Manchester ops, to Kiel on the night of 8 April, saw the debut of No 97 Squadron. It contributed four

“ Engine bearing issues resulted in all Manchesters being grounded ”

Frank Harwood, suffered oil pressure problems and climbed very slowly. A loss of oil pressure in the port engine resulted in a rapid rise in temperatures, and

Hogg who had gallantly stayed to help.

Stationed at Hemswell, No 61 Squadron — commanded by Wg Cdr George Valentine —

Two attacks against Berlin were flown by No 207 Squadron's L7380/EM-W, but it was lost during the second on 7-8 September 1941. R. KIRBY



aircraft, while No 207 Squadron sent eight, led by the CO. The bombers crossed the North Sea bathed in full moonlight and 'Hettie' Hyde managed to coax L7302/EM-R up to almost 17,000ft. Over the port they were coned and engaged by heavy flak. Running out from the target, L7302's starboard engine temperature increased rapidly and the Vulture burst into flames. Feathering the propeller had no effect, so the crew bailed out and were captured.

Operations continued at a low rate, still with a depressing number of engine problems, though during a raid against Hamburg on 2 May by a trio from No 207 Squadron, 4,000lb 'Cookie' bombs were dropped from the Manchester for the first time. The evening of 9 May saw four aircraft making 207's

maiden attack on Berlin. Flt Lt Taylor's crew in L7393/EM-V returned early and Flt Lt Murray diverted to attack Mannheim. Plt Off 'Kipper' Herring, flying L7316/EM-U, was intercepted over the Dutch coast at 23.20hrs by a Bf 110 that his rear gunner, Sgt 'Tiny' Hallam, claimed

The following night, two aircraft were sent back to Berlin, though night fighters were very active over Schleswig-Holstein and intercepted L7309/EM-J flown by Sqn Ldr Charles Kydd. Sgt Oliver, in the rear turret, tried to fight off the two Bf 110s. Wireless operator Sgt Linklater

second Bf 110 carried out seven attacks and each time hit the bomber in the tail, fuselage and wings, but miraculously struck nothing vital. Oliver managed to beat off the attacker, but loss of height and leaking fuel tanks forced them to head home. On landing it was discovered that much of the tail had been shredded. Both Oliver and Linklater received the DFM.

Four more of 207's troublesome Manchesters returned to Berlin on the 15th. To their intense frustration Burton-Gyles's crew, having reached the city, could not open the bomb doors. Flt Lt Gardiner's aircraft dropped its load and returned uneventfully. Two more Manchesters from No 97 Squadron participated, and it suffered its first loss when L7323/OF-A ditched. 97 lost another

“Kydd threw the Manchester around, constantly losing height”

shot down. They carried on, bombed and returned safely to Waddington even though the aircraft was hit by heavy flak. Flt Lt Peter Burton-Gyles reached the enemy capital as well and dropped his six 1,000lb bombs from 18,000ft.

acted as fire co-ordinator from the astrodome as Kydd threw the heavy Manchester around the sky, albeit constantly losing height. As one of the fighters broke away, Oliver hit it with a long burst and it dived away, apparently out of control. The

DATAFILE

DOWN IN HOSTILE TERRITORY

On 27 March 1941, No 207 Squadron contributed four Manchesters to an attack on the industrial city of Düsseldorf. At 19.30hrs, Flt Lt John Siebert, an Australian — with Sgts R. Robson as co-pilot, George Formison DFM as navigator, Jim Taylor as wireless operator, J. MacDougal as mid-upper gunner and rear gunner Peter Gurnell — eased L7303/EM-P off Waddington's runway carrying a load of four 1,000lb bombs and 420 4lb incendiaries. Soon after take-off, an engine on Fg Off Arthur Paape's mount, L7318/EM-K, lost oil pressure. He had to turn back, but the others continued.

Siebert's aircraft arrived at the target area three hours later, locating Düsseldorf with little difficulty. He made two runs, in the face of the Ruhr's much-feared flak. One near-miss rocked the starboard wing as he set course for home, but approaching the Dutch border at 23.30hrs the starboard engine lost power and started to smoke. It was promptly shut down and the aircraft immediately began to lose height, for even at full rpm the port Vulture proved unequal to the task and lost power as well. Siebert announced he was unable to keep it up much longer and the bomber went into a sideslip. Jim Taylor broadcast a 'mayday', and as he did so a burst of fire from a night fighter passed the port side of the crippled Manchester. It came from Messerschmitt Bf 110C 'G9+GN', flown by Ofw Gerhard Herzog from the Eindhoven-based III./NJG 1.

It is by no means certain that Herzog's fire contributed to the fate of the already doomed Manchester, though the starboard engine caught fire and the hydraulics failed almost immediately afterwards. Siebert ordered his crew to bail out, as Jim Taylor recalled: "I had seen the tracer flying past us and also missed the call to abandon the aircraft. However, as MacDougal moved to the nose hatch from his turret he gave me a firm thump. He went out and I pulled all my



Part of Manchester I L7303 eventually returned to base 55 years later. ANDREW THOMAS

leads out and clipped on my 'chute before diving after him, but because the mainwheel had flopped down I just missed it. A flare went off beneath us and I could see water."

The flare described by Taylor had been dropped by Gerhard Herzog.

Without hydraulics, Peter Gurnell's rear turret had lost power and he had difficulty extricating himself from the aircraft, now in a steep dive, but he eventually followed the others, also narrowly missing the mainwheel. Although they landed in water, it was only a few inches deep. Wading ashore, Jim was met by some locals who fed him before taking him to contact the Dutch underground. Like his colleagues, he was captured the next day and they were reunited at Eindhoven airfield, except for their captain. Johnny Siebert's body was found

with the parachute still unopened. It is likely he had been struck by one of the flailing mainwheels. His body was brought to Eindhoven, where Taylor and the co-pilot had the task of identifying him before he was buried with full military honours in Eindhoven cemetery. After a period of rigorous interrogation his crew became PoWs for the remainder of the war.

Remarkably, it was later discovered that the ancestors of Johnny Siebert and his nemesis, Herzog, originated from the same village in Germany. When L7303 came down, it had crashed into a barn at the van den Berk family farm at Roessel near Helmond, killing all the livestock though the family escaped injury. After the war the van den Berk family established contact with Jim Taylor and Peter Gurnell, and when conducting excavations for a new barn in 1996 they dug up a small piece of the wreckage of the Manchester. They sent it to Gurnell's widow, who in turn passed it on to RAF Waddington, so after 55 years a part at least of L7303 had returned to base.



Photographed in March 1942, L7427/OL-Q of No 83 Squadron displays the twin-gun FN7 dorsal turret. It was shot down soon afterwards in an attack on the Blohm und Voss shipyards in Hamburg, with just one survivor from the crew. KEY COLLECTION

against Berlin on the 15th, after which there were no further operations until mid-June. It was evident that Berlin was a difficult and dangerous objective, and with the Manchester's manifest shortcomings the type was allocated to shorter-range targets for a time. Engineers worked continually on the Vulture engines, changing oil filters and viscosity valves to try and alleviate the problems, but with limited success.

Manchesters rejoined the fray on 21 June when 18 aircraft — the most so far — attacked Boulogne. Each was armed with a 7,500lb load of 500lb GP bombs. Six came from No 61 Squadron, making the unit's Manchester debut. They were led by Wg Cdr George Valentine in L7387, who dive-bombed the port. All made it back to Hemswell soon after dawn. It was a faltering start for the unit, however. Soon after 23.00hrs on the 23rd, Valentine led five Manchesters from Hemswell for their first raid on Germany, targeting Düsseldorf. All returned safely, though Flt Lt Riley's crew was unable to identify the target so brought

their bombs back. All three units headed for Kiel on the night of 26 June, No 61 Squadron again providing five aeroplanes. Fg Off Ken Webb's machine was shot down over the coast near Brunsbüttel at 01.30hrs by a night fighter from 3./NJG 1, flown by Oblt Walter Fenske. It was the first of 16 Manchesters lost by the squadron.

Several more engine fires led to a decision on 29 June to again ground the Manchester. HQ

“An increasing litany of difficulties was plaguing the type”

No 5 Group stated that each of the three operating squadrons had to conduct intensive flying on aircraft fitted with the latest 'slave' engines, notching up 240 hours on the five-hour sorties.

Operations recommenced on 7 August when a trio from No 207 Squadron joined a raid on Essen, while in clear skies on the 10th nine Manchesters made for Berlin. Three were from No 97 Squadron and six from 207.

Some had difficulty climbing to an operational height. Over the Netherlands, L7381/EM-R flown by Fg Off Mike Smith was attacked and blew up spectacularly, a victim of IV./NJG 1 Dornier Do 215B 'G9+OM' flown by Oblt Ludwig Becker. The others were subjected to heavy flak at the target which set Sqn Ldr Dicky Taylor's L7377/EM-G on fire, turning the rear fuselage into a 'blow-lamp'. Only two of the crew survived. By now

an increasing litany of difficulties including excessive tail flutter, propeller feathering control faults and hydraulic failures was plaguing the type.

After attacks on Düsseldorf, Mannheim and Cologne, the next trip to the 'Big City' was on 7 September when three No 207 Squadron Manchesters were joined by No 61 Squadron's Wg Cdr Valentine flying L7388. He was accompanied

by Waddington's station commander, Gp Capt John Barrett, and the navigator and gunnery leaders. Over Berlin the aircraft was shot down by flak and the crew killed. It was a bitter blow, as Wg Cdr Cam Weir later recalled: "I received word that George Valentine had been shot down on a raid on Berlin. I took command of the squadron. He was a great loss to us. The squadron's build-up was not helped by a move to Woolfox Lodge later in the month, nor the order to pass available aircraft to No 97 Squadron, so it was to be December before we became fully operational."

When a 197-strong force was sent to Berlin on 12 September, four Manchesters from 207 were part of it. Over the enemy coast Flt Lt Mike Lewis in L7380/EM-W was attacked by a 4./NJG 1 Bf 110, in the hands of Fw Siegfried Ney, whose fire struck the port engine and fuel tank. The crew bombed Wilhelmshaven but had to force-land in the Frisian Islands and were taken prisoner. Over Berlin, L7432/EM-Z *London Pride* flown by Fg Off 'Kipper' Herring was hit by flak after bombing and

lost an engine. Herring dived to escape the flak, but on levelling out the Manchester still lost height very gradually. The crew disposed of all unnecessary weight, whereupon icing caused the aircraft to descend further. On a single engine, the crew struggled back over the North Sea to England, a five-hour flight for which Herring received a well-deserved DSO. It was the squadron's last raid on Berlin for more than a year.

Sorties to the Ruhr, Hamburg and Bremen over the couple of months that followed involved both 97 and 207. But by November, with the Lancaster showing such promise, Manchester production was halted after just 209 units had been completed. Availability remained low, and when on the night of 7 November all 400 available aircraft from Bomber Command were despatched for a raid on Cologne, just 15 were Manchesters. Nonetheless, in the closing weeks of 1941 the Scampton-based No 83 Squadron under Wg Cdr Stuart 'Mary' Tudor began replacing its Hampdens with the Avro twin.

After many tribulations, No 61 Squadron resumed Manchester ops during the early hours of 8 December when the CO, flying L7519, led five aircraft in an attack on Boulogne. While running in to the target, L7494 took a direct flak hit and exploded, killing 26-year-old Sqn Ldr John Riley, the 'A' Flight commander, and his crew. A dozen other Manchesters from 97 and 207 penetrated further to bomb Aachen. A rare daylight attack 10 days later saw Wg Cdr Denys Balsdon in L7490/OF-U leading 11 of No 97 Squadron's aircraft to strike the battle-cruiser *Gneisenau*, which was berthed in Brest. In misty

weather and with a significant fighter escort the bombing went well, though the CO's aeroplane was one of several hit by the cauldron of fire over the port and by enemy fighters as they came away. Bf 109s shot down R5795/OF-W, which crashed in the sea with only three survivors. Having almost got back to Coningsby, the CO's Manchester was seen to stall and crash near the airfield, killing all on board.

The first operation of 1942 was a return to Brest on 9 January. Nos 97 and 207 Squadrons combined to send 11 aircraft, this time at night. One of the latter's Manchesters was lost. No 61 Squadron was back in action on the 10th when Sqn Ldr Arthur Paape led six aeroplanes in an attack on the port of Cherbourg, an engine failure causing one to crash en route. Dropping low,

technique commencing at 14,000-16,000ft and using a tachometric bomb-sight.

Two Manchesters from 207 went down while operating against Hamburg on the night of 14 January. The six sent there by 97 on the 15th represented that squadron's last Manchester operation as it stood down to convert to the Lancaster. The writing was on the wall, but at Coningsby a few days later No 106 Squadron, commanded by Wg Cdr Bob Allen, began re-equipping when L7390 was delivered, while at Skellingthorpe No 50 Squadron under Wg Cdr John Southwell started to convert from Hampdens.

Manchester operations by No 83 Squadron got under way on 28 January, when four aircraft led by Sqn Ldr John Rainford in

minus hydraulics. Others were not so fortunate. Fg Off John Parsons and several of his crew died in R5787/QR-M when it crash-landed in Brittany having received flak damage. Flt Lt Fraser ditched just off the coast having been hit, most of those on board being captured, and Flt Lt Harry Page's entire crew died when they ditched in the Channel, again flak being to blame. On a ghastly night, the squadron had lost 14 men killed and eight captured, though Sgt Wright evaded and made it home.

The long-expected break-out from Brest of the *Scharnhorst*, *Gneisenau* and *Prinz Eugen* came on 12 February. Under heavy escort, the Kriegsmarine vessels made an audacious return to German ports in what became known as the 'Channel Dash'. As part of the massive RAF response, 16 Manchesters from Nos 61, 83 and 207 Squadrons went to attack the ships in very poor weather. Wg Cdr 'Ginger' Weir in L7458 led five Manchesters, armed with 500lb bombs, and braving enemy fighters and anti-aircraft fire. His aircraft sustained damage, as did L7477/QR-N flown by Sqn Ldr Paape, its rear peppered by flak hits. All returned but little had been achieved. Fg Off Cooper's crew dropped No 83 Squadron's first 4,000lb bomb during a raid against Mannheim on 14 February, while mining operations continued and 61 lost Flt Sgt Peter Webster's crew, shot down off Terschelling when thus engaged on the 16th.

Ten days on from the 'Channel Dash', a submarine reported a German flotilla, including *Prinz Eugen*, heading up the Norwegian coast. A strike by Royal Navy Swordfish from HMS *Victorious* was planned. In

“ On a single engine, Herring's crew struggled back to England ”

only Paape and Sgt Webster bombed the target.

From now on, 61 was to play a much greater part. The next night, an aircraft flown by Flt Sgt Eric Noble participated in an attack on Wilhelmshaven; on the 14th, two more joined an attack on the Blohm und Voss shipyard in Hamburg, this time as part of a 'bomber stream'. Flt Lt Sooby dropped his incendiaries on an easterly heading in spite of the flak barrage. This was repeated a night later, though Flt Lt Beard's crew bailed out of L7495 on the return leg when short on fuel. No 61 Squadron attacked Bremen during the night of the 17th and 18th, adopting — in contrast to other units — a glide-bombing

L7427/OL-N — which wore a design of a crescent moon and stars with the Welsh motto *Ar hyd y nos* (All through the night) — joined a raid on Boulogne. A pair from 61 attacked Brest.

Both squadrons featured in a maximum effort against Brest on the 31st when 61 sent nine Manchesters, 83 six and 207 four. Most of 61's aircraft carried the 2,000lb (900kg) armour-piercing bomb, though in L7472 Flt Lt Fraser had an experimental 4,000lb (1,800kg) weapon. There was a maelstrom of fire but most of 61's crews made glide attacks. Plt Off Archie Searby dropped his bombs on the dry docks but was coned by searchlights and damaged by flak and returned

Manchester Ia L7493/EA-F on the strength of No 49 Squadron. CHRIS SANDHAM-BAILEY



Groundcrew prepare to load a 2,000lb armour-piercing bomb, designed to attack capital ships, into Mkl L7385/OL-C of No 83 Squadron.

RAF SCAMPTON VIA PETER H. T. GREEN



support, Bomber Command was ordered to mount diversionary raids on coastal fighter airfields. Among the small bomber force were five Manchesters belonging to No 83 Squadron at Scampton, detailed to attack Sola airfield near Stavanger. In haste, crews were made up of available personnel. Sqn Ldr John Rainford in L7522/OL-N, carrying six 1,000lb bombs, was first off at 03.48hrs. Two returned early, but as dawn broke the remainder were still an hour from the target. Rainford bravely elected to carry on in daylight, covered by the bad weather. Fg Off Mackie encountered severe icing and jettisoned his bomb load, while in the thick cloud Flt Lt Dave McClure was unable to find the airfield. Rainford's mount was shot down just off the coast by Bf 109s, the first of the squadron's eventual nine Manchester losses.

The type's next major operation came on 3 March, when of 200 bombers sent to the Renault vehicle factory at Billancourt near Paris, 25 were Manchesters from all three units. No 61 Squadron contributed nine to the third wave of an experimental maximum effort. They arrived early but were successful, Paape hitting several buildings within the works. Five nights later, No 61 Squadron sent 10 aircraft to Essen, as did 83, while 207 contributed five. The flak was described as "fearsome". Essen was attacked on succeeding nights, which included 207's last Manchester operations.

Cologne was hit on the 13th, while on the 20th No 106 Squadron began operations — the day Wg Cdr Guy Gibson arrived as CO. Essen was the target once again during the night of the 25th. On the way

in, L7497 of No 61 Squadron was shot down by a Bf 110 of 7./NJG 1 flown by Oblt Helmut Wollersdorf. It blew up, killing Sgt Christopher Furby and all his crew. The remainder of 61's aircraft bombed by the light of flares dropped over the target, notwithstanding a heavy flak barrage. Plt Off John Hubbard's Manchester was shot down over the Netherlands on the way back, the 31st victory for Oblt Helmut Lent from II./NJG 2. Only two crew members survived. On a bad night, 83 lost two crews and 106 its first aircraft when L7390, flown by 23-year-old Flt Lt Robert Dunlop-Mackenzie, was shot down by 6./NJG 2's Oblt Ludwig Becker.

The ancient Hanseatic port of Lübeck was the target of a devastating night attack on the 29th. No 61 Squadron participated, but by then its first Lancasters had arrived and the

unit had begun converting onto them. The only Manchester lost was No 83 Squadron's R5781/OL-R, along with Fg Off Theo Lumb and crew.

Manchester Ia R5837/OL-R, flown by Sqn Ldr David McClure, was one of three aeroplanes from No 83 Squadron that took off from Scampton on 6 April, bound once more for the giant Krupp armament factory in Essen. Over the target the aircraft was hit by flak and McClure was badly wounded. The aircraft went out of control for a short time, and in the confusion Sgts Hall and Hurley bailed out, being taken prisoner. The co-pilot, Flt Sgt Rayment, managed to regain control of the damaged machine and, with the assistance of the rest of the crew, flew it safely back to Scampton. Rayment received an immediate award of the DFM. Several Manchesters from 61 also participated in



Sitting among the Lancasters that were replacing them, No 49 Squadron Manchester las L7453/EA-T, flown by Sgt J. W. Heard, and R5789/EA-K in the hands of Sgt T. V. Webster prepare to depart Scampton for the 25 June 1942 thousand-bomber raid against Bremen. DR J. ALLAUM

this mission, Flt Sgt Eric Noble's L7470 being shot down by a Bf 110 of II./NJG 1 flown by Oblt von Bonin.

The damage to R5837 was soon repaired, and on 8 April — with Plt Off M. A. Sproule as captain — it flew a leaflet-dropping raid on Paris. Over France it was hit by flak and, with one engine dead, was ditched in the Channel while trying to return. Sproule was picked up after spending 15 hours in the water, but the rest of his crew were lost. Elsewhere that night, during a raid on Hamburg which was the first for the Manchesters of No 50 Squadron, No 83 Squadron lost Plt Off Jack Morphett and his crew when L7427 went down near Cloppenburg. The first Manchester for Wg Cdr Leonard Slee's No 49 Squadron arrived at Scampton on 17 April, whereupon its Hampdens soon disappeared.

In R5770, Wg Cdr Guy Gibson took off at 22.15hrs on the 25th for his debut Manchester operation. He bombed Rostock from 4,800ft in good visibility, noting that the bombs fell on the target, though the results were obscured by smoke. They landed back at Coningsby at 05.05 after

The inaugural Manchester operation by No 49 Squadron went into the books on the night of 2 May, when leaflets were dropped on Rennes. Another unit, the Canadian-manned No 408 Squadron at Syerston, began receiving the type on the 18th, though it had only taken

he launched Operation 'Millennium', the first 'thousand-bomber' raid. This force included 45 Manchesters: two from No 44 Squadron's conversion flight, 15 from No 49 Squadron, the same number from No 50 Squadron, a quartet from No 61 Squadron, three belonging to No 83 Squadron, five operated by No 106 Squadron and a solitary machine on the strength of No 408 Squadron's conversion flight. The hope was to swamp the defences, and losses were lighter than usual, but the Manchester units suffered heavily. Four were lost: Plt Off John Carter in L7429 and Plt Off Philip Floyd in L7290, both from No 49 Squadron, No 106 Squadron's Sgt J. B. Wilkie who crash-landed L7456/ZN-K on Lohausen airfield near Düsseldorf, and Plt Off Leslie Manser of No 50 Squadron in L7301/ZN-T (see the Insights section). Making

“ L7289 was the last of 78 Manchesters lost in action ”

a seven-hour 20-minute sortie. He flew his second, and last, bombing raid in the type on 8 May, an attack on the Heinkel works at Warnemünde. Fierce opposition could not prevent him from dropping his six 1,000lb bombs on target from just 3,500ft, though he noted in his logbook, “A hot trip.”

delivery of 10 examples by the time re-equipment was halted a month later. It began switching to Halifaxes in September.

Since assuming the leadership of Bomber Command, Air Marshal Sir Arthur Harris had wanted to stage a major demonstration of its capabilities, and on the night of 30 May

a very brief sojourn into Manchester operations was No 408 Squadron, whose conversion flight contributed L7401/EQ-A flown by Sqn Ldr Lyall Price. Unsurprisingly, it had to abort with hydraulic problems.

Bomber Command unleashed a second ‘thousand-bomber’ raid the following night, this time with Essen as the target. The force included 32 Manchesters, and only one — R5794 of No 49 Squadron — was lost, falling to a night fighter near Antwerp. Six examples from No 61 Squadron were involved, half of which came back early. The raid also saw the end of Manchester operations by No 83 Squadron, while 408’s Sqn Ldr Price this time bombed successfully from 12,000ft despite the poor visibility, returning safely.

Manchesters were still operating in reducing numbers. Two from No 49 Squadron and one from 50 were lost attacking Emden on 6 June, the former also losing Sgt John O’Brien’s crew in L7387 against the same target on the 20th. Five nights later the Manchester had its operational swansong in the final ‘thousand-bomber’ raid, when the port of Bremen was the target. A dozen aircraft from No 50 Squadron were joined by two each from 49, 61 and 106, and a single machine from No 44 Squadron’s conversion flight. Most of these units were now largely Lancaster-equipped. L7289 of No 50 Squadron was hit by flak and crashed near the target, 21-year-old New Zealander Sgt John Roy and his crew all being killed.

This was the last of 78 Manchesters lost in action; 45 more were destroyed in non-operational accidents. The 193 examples which entered operational service with Bomber Command had dropped 1,826 tons of bombs and an unknown number of mines.

With the Lancaster well established in service, the surviving Manchesters continued in use as operational trainers with the conversion flights of several squadrons through the summer of 1942. Despite the unreliable engines, the general similarity of the aircraft to the Lancaster — such as the crew positions

DATAFILE MANCHESTER UNITS			
Squadron/unit	Codes	Base/s	Period
9*	WS	Waddington	September-October 1942
44*	KM	Waddington	February-October 1942
49	EA	Scampton	April-July 1942
50	VN	Skellingthorpe	April-June 1942
61	QR	North Luffenham, Syerston	July 1941-June 1942
83	OL	Scampton	June 1941-May 1942
97	OF	Coningsby	February 1941-February 1942
106	ZN	Coningsby	February-June 1942
207	EM	Waddington, Bottesford	November 1940-March 1942
408*	EQ	Balderton (detachment at North Luffenham)	May-June 1942
420*	PT	Waddington	May-June 1942
No 25 OTU**	PP	Finningley	May 1941-April 1942
No 1654 HCU**	UG	Swinderby, Wigsley	October 1942-July 1943
No 1656 HCU**	BL	Lindholme	October 1942-circa July 1943
No 1660 HCU**	TV	Swinderby	October 1942-October 1943
No 1661 HCU**	GP	Waddington, Winthorpe	November 1942-October 1943
No 1485 Flight**		Coningsby	June-August 1942
Torpedo Development Unit**		Gosport	April 1942-unknown

Key: * — Conversion flights only, not on operations; most merged into No 1661 HCU ** — Partial equipment

and configuration — meant they were useful for transition purposes. In October, these flights became the initial cadres for the new Heavy Conversion Units which were formed

at Wigsley (No 1654 HCU), Lindholme (1656), Swinderby (1660) and Waddington and Winthorpe (1661). The last Manchesters were withdrawn in October 1943, the final

flight probably being on 13 October when Flt Lt W. G. ‘Junior’ Gardiner flew L7307 from Swinderby to Syerston to become a static training aid at No 5 Lancaster Finishing School.



A very fine image of a No 207 Squadron Manchester I running up its starboard Vulture engine at Waddington in September 1941. CROWN COPYRIGHT

It was never the Manchester airframe that gave trouble — indeed, it handled well, as demonstrated by Mkla L7515/EM-S. KEY COLLECTION



Collingwood ‘Col’ Smith DFM, who flew with No 97 Squadron, said of the Manchester, “Although the aircraft itself had some shortcomings, it was a basically sound design as was shown by the Lancaster. It was the Vulture that was just awful! The Vultures did not give enough power, but if you ran it at max power for too long to gain a decent height they overheated and caught fire. You felt that if you lost one, that was it, you weren’t coming home whether you feathered the propeller or not. There was only one way you went — down! Apparently, to save money the bearings were made without any silver so they were not hard enough, so would collapse the conrod and your engine just destroyed itself. I was lucky to fly most of my tour on the incomparable ‘Lanc’!”

But there were conspicuous acts of heroism among Manchester crews. Among the 35 Manchesters that participated in the first ‘thousand-bomber’ raid on Cologne was L7301/ZN-D, flown by 20-year-old Fg Off Leslie Manser of No 50 Squadron. Earlier in the day he and his crew had collected the aeroplane from Coningsby, so it still wore No 106 Squadron’s code letters, and being one of its training aircraft the mid-upper turret had been removed. Instead, to their astonishment, the crew was issued with two hand-held Vickers guns despite there being no mounting for them! It was one of 15 aircraft launched by the unit, the most of any Manchester squadron that night.

The flight to Cologne was uneventful and the bombing went well, but over the target at 7,000ft the aircraft was coned by searchlights. Despite violent evasive manoeuvres, involving a descent to just 1,000ft, it was continually hit by anti-aircraft fire until it was clear of the city. The rear gunner had been wounded, the port engine was overheating and the cabin had filled with smoke, but Manser pressed on in the hope of getting home. After a time, the port engine burst into flames which spread to the wing, causing the speed to drop dangerously. With the Manchester barely controllable, Manser ordered the crew to bail



Mk1a L7320 on test during September 1941. The new twin-fin configuration worked well, but the Vulture engines emphatically did not. KEY COLLECTION

out. Struggling to hold control to allow them to do so, he waved away the offer of a parachute. As the last of the crew left the blazing aircraft, they saw it fall out of control and crash near

up by the Resistance and eventually returned home.

As a result of their testimonies as to his self-sacrifice, Leslie Manser was posthumously awarded the Victoria Cross, his

when in extreme peril, thinking only of the safety of his comrades, Flying Officer Manser displayed determination and valour of the highest order.”

Those qualities were often necessary for those who flew the Manchester, such were its problems. But although it was an operational failure, the basic design incrementally evolved from the ashes of abject failure into a family of aircraft through the Lancaster, Lincoln and Shackleton that was to remain in operational service with the RAF until March 1991 — more than 50 years after its entry into service.

“It was a sound design. It was the Vulture that was just awful!”

the village of Bree, north-east of Genk in Belgium, taking its skipper with it. Remarkably, only one of the crew was captured. The remaining five were picked

citation stating, “In pressing home his attack in the face of strong opposition, in striving, against heavy odds, to bring back his aircraft and crew and, finally,



ABOVE: The sad remains of Manchester la L7301, in which Fg Off Leslie Manser died during the first thousand-bomber raid on Berlin. PETER H. T. GREEN COLLECTION

ABOVE RIGHT: Fg Off Leslie Manser VC was aged just 20 when he lost his life. VIA ANDREW THOMAS



Development
Technical Details
In Service
Insights