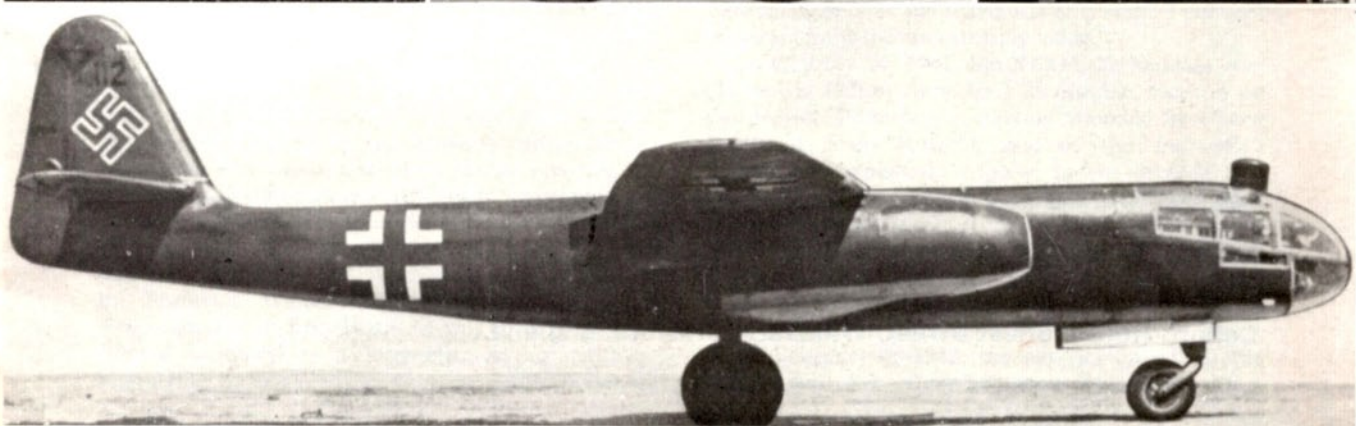
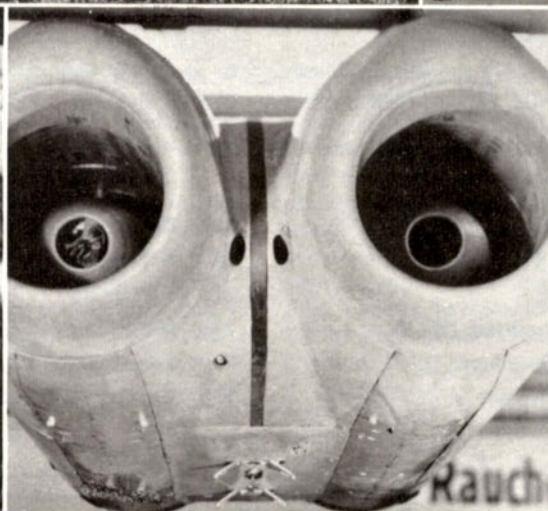
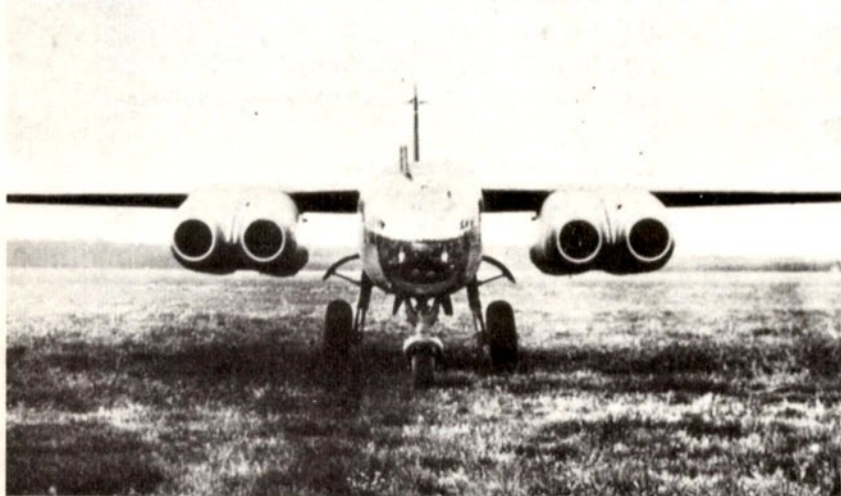
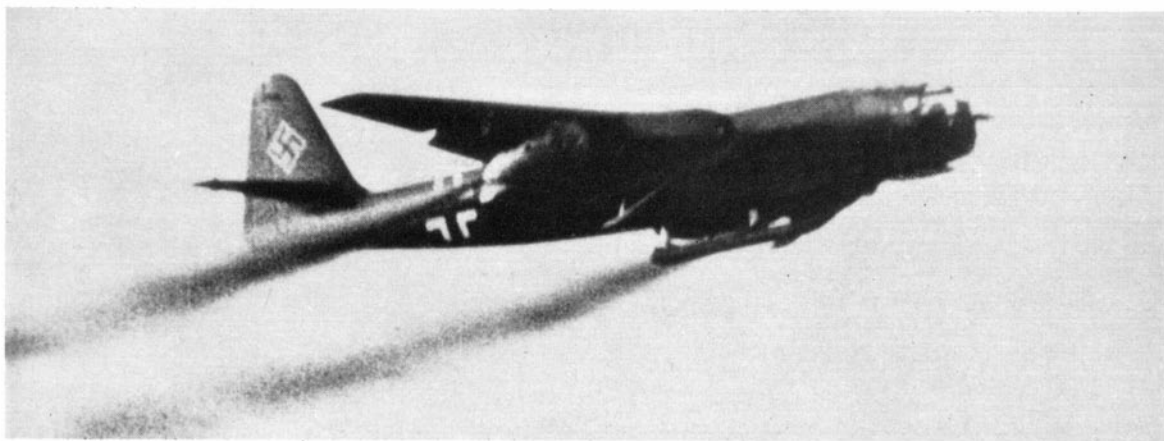


PROFILE

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ARADO Ar 234 BLITZ





One of the first Anton or "A"-series Ar 234 prototypes—probably the V 3—taking-off with the additional aid of Walter Ri 202 b (109-500) rocket motors mounted outboard of the turbojets. The central hydraulically-operated skid and under-engine outriggers have not yet retracted. (Photo: via Blitz Publications)

Arado Ar 234 Blitz

by Richard P. Bateson

BEFORE Poland was overwhelmed by Germany's runaway *Blitzkrieg* (lightning war) of September 1939, a young Austrian designer sat in a light and airy drawing office at the research centre of the Brandenburg-based *Arado Flugzeugwerke GmbH*. This modern building was sited on the eastern fringe of Brandenburg airfield.

The man was Emil Eckstein. The project on his board, the E 300. A tiny single-engined floatplane, it was to be capable of being folded, packed in a tube and stowed aboard a submarine until required for reconnaissance purposes.

By the autumn of 1940, Eckstein's labours on the Ar 231 (official *Reichsluftfahrtministerium*—German Air Ministry designation) were over. His talents were now absorbed in a far more revolutionary undertaking: that of producing the essential preliminary design features of an aircraft capable of exploiting the new turbojet motors then being readied by *Junkers Flugzeug-und Motorenwerke AG* under Dr. Ing. Anselm Franz, and by Dr. Hermann Oestrich of the *Bayrische Motorenwerke GmbH*. Initially, these firms had lagged behind *Ernst Heinkel AG* and its brilliant hired inventor Dr. Hans von Ohain. With the coming of war, the need to produce new forms of powerplant capable of improving on the performance of the piston engine was intensified. Now they profited by concurring with the *RLM's* wish to co-ordinate their engine programmes. Prof. Dr. Heinkel, individualistic as ever, refused all attempts by the Ministry authorities to intrude on what he considered his private preserve.

In January 1941 Eckstein left Arado and moved the 45 miles due west to Schönefeld where he took up gas turbine work with *Henschel Flugzeugwerke AG*. His legacy was the E 370. Initially a private venture backed by Professor Walter Blume, Director of *Arado Flugzeugwerke* and his Board, it was soon to be considered seriously as a long-term replacement for high-flying *Luftwaffe* reconnaissance aircraft such as

the twin-engined pressurized Junkers Ju 86 P then in front-line service.

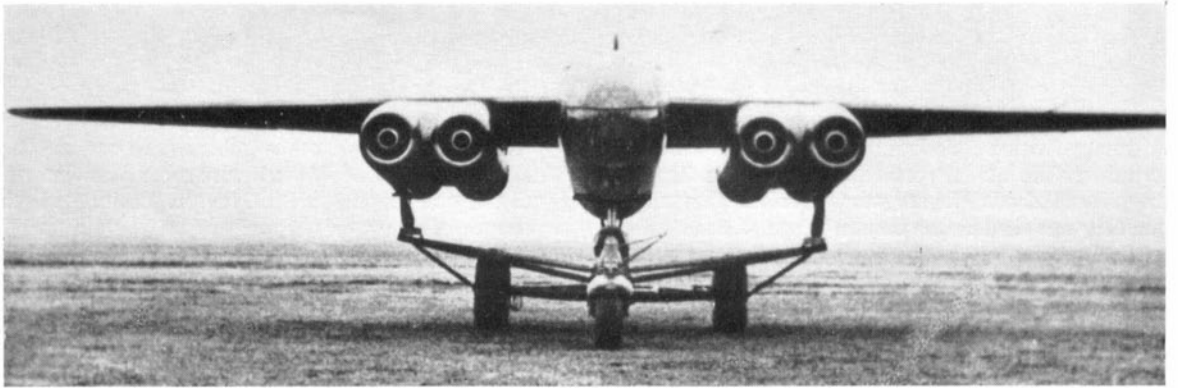
Although improved on by other employees, notably Messrs. Rebeski and Wenzel, with much aerodynamic expertise contributed by Dipl. Ing. R. Kosin, the basic concept of a conventional aircraft with semi-monocoque fuselage, shoulder-mounted unswept wing, cruciform tailplane and two underslung jet engines remained in being until the first flight in the summer of 1943. Eckstein had favoured a retractable tricycle undercarriage, mainly in order to avoid the problem of blast from the exhausting jet engines. It was an innovation that his successors abandoned—ironically, as later events showed. Some thought was given to using a multi-wheeled undercarriage then being adopted for the big Ar 232 transport. Although reducing runway loadings, this system was too complex. Eventually it was decided that a simple take-off trolley (of tricycle configuration) jettisonable after rotation, with landing effected on a retractable skid in the manner of some gliders, would be the most logical means, both in terms of cost and weight. To prevent minor damage as control was lost during the final stages of the landing run, auxiliary skids were fitted under the engine nacelles. The weight of landing gear calculated for the E 370 was only some 3 per cent of the total for the aircraft fully laden.

On October 24, 1941, the *RLM's Technisches Amt* (Technical Office) came to a favourable decision on the project. Following a meeting attended by *Oberst* (Colonel) Theo Rowehl, one of the *Luftwaffe's* leading reconnaissance experts, it was decided that the basic E 370 formula should be developed to a detailed German Air Force specification. Less than a month later, the Director-General of *Luftwaffe* Equipment, the *Generalluftzeugmeister*, Ernst Udet committed suicide. It now looked as if the 8-234, as the E 370 was *RLM*-designated, had very little future.

On February 4, 1942, the new incumbent at the *Technisches Amt*, *Generalfeldmarschall* (Field Mar-

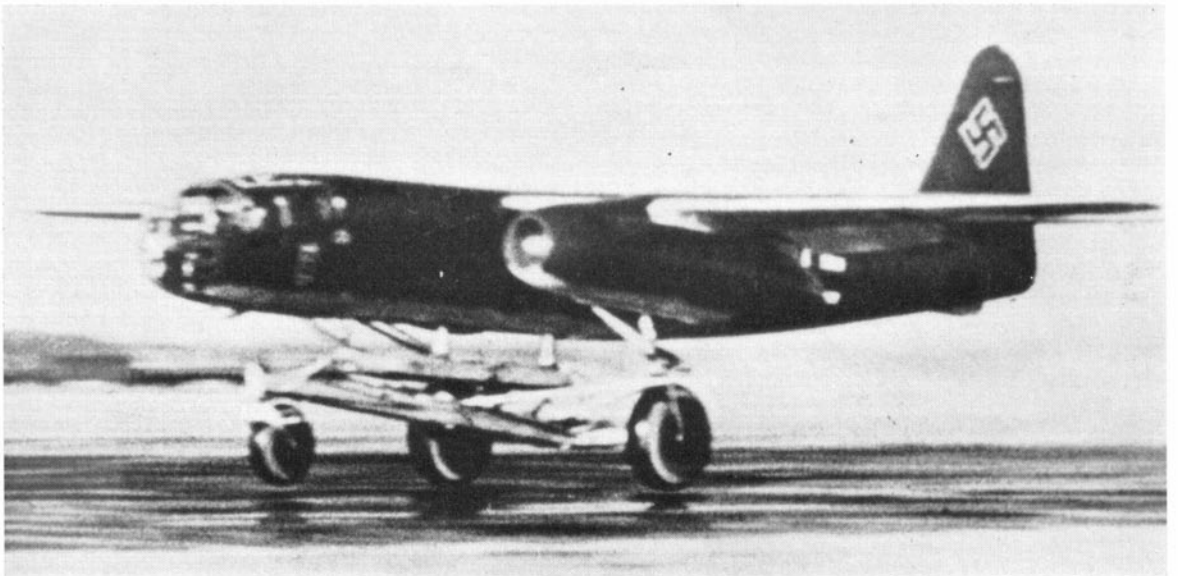


Vying with the Gloster Meteor F.Mk.I and the Messerschmitt Me 262 A for the title of the world's first operational jet aircraft, the Ar 234 V 5 (coded GK+IV), seen here on its jettisonable take-off trolley, was one of a pair of "A"-series prototypes converted for use as reconnaissance aircraft and flown by pilots of the Versuchsverband des Oberkommandos der Luftwaffe over the Allied beachheads in Northern France from late July 1944 onwards. (Photo: via The Royal Aeronautical Society)



Front view of the Ar 234 V 8 (GK+IY), the first Blitz to have "paired" BMW 003 A-0 motors and thus the forerunner of the highly successful "C"-series. This was the only "A"-series aircraft to have this engine combination. (Photo: via Blitz Publications)

Prior to its operational debut in the skies of Northern France, the Ar 234 V 5—seen here about to unstick on a test flight—was put through a series of intensive kine-theodolite-measured speed trials. The best performance was achieved on April 7, 1944. Powered by two Jumo 109-004 A-0 motors developing a thrust of 1,929 lb. each and at a weight of 11,905 lb., GK+IV reached a ground-speed of 451 m.p.h. at 6,989 ft. (404 m.p.h. true air speed). (Photo: via Blitz Publications)



shal) Erhard Milch, visited Brandenburg. This former business director of *Deutsche Lufthansa* (the national airline) was impressed with what he saw. As a result of this inspection, Professor Blume obtained a contract to go ahead with Ar 234 structural development and to start building a wooden mock-up. Just over two months later a preliminary authorization was given for the construction of six prototypes and work proceeded during the spring and summer of 1942 under the general direction of Herr Wenzel.

Throughout 1942 much theoretical design work, wind-tunnel testing of scale models and a development programme involving the E 370 concept and successor projects was carried through. As more efficient engines with increased power and reduced fuel consumption were mooted, so the all-up weight, range and operational flexibility of the Ar 234 improved on paper.

Before the harsh reality of Stalingrad cast a shadow over all aspects of German life, and material shortages forced the *RLM* to re-think its policy of backing a multiplicity of conflicting ventures, designers in the employ of most Axis aircraft firms lost themselves in a welter of imaginative if costly studies. Arado was no exception. One forward-looking creation, a swept-wing long-range bomber with an enlarged fuselage based on the Ar 234, but weighing some 17 tons all-up and powered by four separately-mounted jet engines mounted under the wings, was designated the E 560. It was submitted to the *Technisches Amt* in the autumn of that same year.

On December 28, 1942, the order for experimental Ar 234s was increased from six to twenty, designated V 7 to V 20. This additional work was a great encouragement to the Arado directors, but a follow-up to this agreement was more sobering. Milch's departments were not satisfied with the simple trolley and skid undercarriage configuration. They asked that structural investigation should be pursued leading to the installation of a retractable undercarriage so that a bomber variant, carrying a belly-mounted free-falling store, might be developed. So Eckstein's original calculations and drawings were retrieved. It was again obvious that the thin aerofoil section selected precluded main-wheel stowage in the wing, and redistribution of the fuselage fuel tanks was necessary to allow retraction of the narrow track layout that resulted. February 9, 1943 was the date on which the *RLM* agreed that Arado should build two experimental fast-bomber prototypes with the entire landing gear retractable into the fuselage.

During February 1943 the sixth and sixteenth pre-production Jumo 004 A-O jet engines were sent to Arado and installed in the Ar 234 V 1 first prototype. Early spring saw the next four *Kufenmaschinen* (skid aircraft) well on the way to completion in the experimental shop at Brandenburg. Engine runs and early taxiing trials showed that the A-O motors were not giving the maximum 1,850 lb. static thrust required of them. Attention was therefore paid to enhancing the take-off performance by fitting rocket-powered assistance units. Before the first flight, Arado had already made approaches to the *RLM* suggesting that four BMW 003 A-Os be considered as alternative power plants. Although theoretically producing some 90 lb. less thrust, the 003 unit was 530 lb. lighter than

its Junkers rival. Admittedly, the production Jumo 004 B-1 (then in the experimental stage) was a better proposition on a power-weight ratio basis than its A-O predecessor, but it still left a lot to be desired.

On the evening of July 30, 1943, *Flugkapitän* (Flight Captain) Selle, Arado's chief test pilot, took the Ar 234 V 1 (*W. Nr.* 130001) up for a trouble-free 14-min. flight. Its take-off weight was 13,955 lb. Selle was so confident in his handling of the first *Anton*—nickname for the "A" series 234s—that on the second trial on August 10, he flew it for no less than 54 mins. and pushed the speed up to 404 m.p.h. The third flight was not so successful. The aircraft made a forced belly-landing through Selle's inadvertent mishandling of the engine controls.

The second prototype, the Ar 234 V 2 had a short life. A few weeks after its first flight it was totally destroyed in an unexplained accident on October 1, 1943. The next three prototypes flew at roughly one monthly intervals and were all basically similar. The fifth, V 5, was the first to have the "B" version Jumo 004 motors, each being 220 lb. lighter than the earlier "A" variant.

In late 1943 development of German jet aircraft in general, and the production of the Ar 234 in particular, was vitally affected by a top-level demonstration for Adolf Hitler, leading functionaries of the National Socialist (Nazi) Party and high-ranking officers of all the armed services, held at Insterburg in East Prussia on November 26. The V 3 was sent disassembled by road to Insterburg where a party of Arado technicians hastened to get the third prototype ready for static display, parked between an experimental Junkers Ju 88 with smoke-laying equipment and a pre-production Ju 88 S.

Hitler, much taken with the jet and rocket aircraft demonstrated to him, was quick to issue an order giving Arado Flugzeugwerke *carte blanche* in its endeavours to obtain factory personnel, raw materials and funds so that a minimum of 200 Ar 234 Bs might be produced by the end of 1944. Surplus ground crew from disbanded piston-engined bomber units, originally earmarked for drafting to the Parachute Army as combat troops, were to be diverted to help on the assembly lines of plants constructing jet aircraft.

The Ar 234 V 6 was a departure from the previous two-jet layout. It was the first prototype to fly with BMW 003 A-Os and mounted four of these motors, two under each wing in separate nacelles. Although not a success, it proved the feasibility of a multi-engined Ar 234, and was to lay the basis for the four-jet "C"-series fitted with "paired" powerplants.

January 1944 was a traumatic month for the German aircraft industry. Conferences at Brandenburg and Arado's head office at Potsdam-Babelsberg, attended by senior Arado executives presided over by Walter Blume, considered the drastic pruning that had been sanctioned by Hitler on the advice of Albert Speer. Milch's star was by then well on the wane.

Production of the Heinkel He 177 A-5 strategic bomber (then being built in quantity at Brandenburg) was to cease and the jigs scrapped. Top priority was to be given to the development of the Ar 234 E and F projects. The latter (the more advanced of the two)



Manhandling the Ar 234 V 6 (GK+IW), the first prototype to feature a multi-engined layout of four BMW 109-003 A-0 motors in separate nacelles. On June 1, 1944, while on its seventh test flight, all four turbines failed in rapid succession. The pilot managed to re-start one (soon after it caught fire) and made a skilful forced landing.

(Photo: via Paul de Maeyer, *Air-Britain*)



The Ar 234 V 9 taxiing to take-off with a pair of Walter Ri 202 b (109-500) rocket A.T.O. motors slung under the wings outside the Jumo 004s. These rocket engines went out of production before the Blitz was firmly established in service and attention was focused on using more powerful motors (such as the Schmidding SG 34 for the Ar 234 C) in their place.

(Photo: via Blitz Publications)

was a 15-ton aeroplane, the result of scaling-up an earlier design study for the Ar 234 D (two-seat, multi-purpose version of the "C"-series). The Ar 234 F, powered by four 2,860 lb. static thrust Heinkel He S 011s or a pair of 6,600 lb. s.t. Jumo 012s, was to have a range of 1,860 miles and a top speed of 590 m.p.h. at 18,000 ft. First flight date of the Ar 234 F was set for January 31, 1945.

Other series of studies much in vogue throughout 1944 were the Ar 234 P-1 to P-5 designs—radar-equipped night-fighter derivatives of the two-seat Ar 234 D. A twin-jet, He S 011-engined, heavily-armoured ground-attack project, the E 395, also bore a strong likeness to the Ar 234.

From February 20-28, 1944, these grandiose plans were brought to naught as Allied bombers pounded aircraft plants throughout the length and breadth of Germany. Strangely enough, *Arado Flugzeugwerke* was one of the few firms to escape unscathed. Sited so far east, it was immune for a few months longer to large-scale aerial bombardment. The chaos produced by these "Big Week" raids—not least in the RLM's planning departments—was such as to upset the most carefully laid schemes.

Thus, with most *Focke-Wulf GmbH* plants little

Close-up from rear of the mainwheels and nosewheel of the Ar 234 V 9 (PH+SQ). This was the initial prototype of the "B"-series, distinguished by a then unconventional retractable tricycle undercarriage in place of the clumsier trolley and skid combination of the first eight "A"-series prototypes. Designed by Emil Eckstein during 1940, the problem of stowage for the mainwheels within the narrow confines of the fuselage was solved by an ingenious ploy of pivoting the wheels inward as the undercarriage members retracted forward. The nose-wheel retracted aft.

(Photo: via the German Aviation Research Group of *Air-Britain*)



more than smoking ruins, longer-term needs for jet-bombers capable of striking at the industrial areas of the United Kingdom and the Soviet Union had to take second place to maintaining the *Luftwaffe's* piston-engined fighter force in being. Production of FW 190 fighters started soon after the He 177 jigs had been removed from the Neuendorf factory on the west side of Brandenburg airfield. Arado (already assembling FW 190s in large numbers at Warnemünde) planned to build up to 800 FW 190s a month at Brandenburg, but a limit of 120 monthly was imposed by the RLM, no doubt because of material and fuel shortages. The volume of sub-contract production was such, however, that parts for scores of FW 190s had to be stored on barges in the Havel river until the Brandenburg plant could make use of them.

Dispersal of factories was now the order of the day. It had been arranged before "Big Week" to produce Ar 234s at a new Arado-run plant at Neu-Brandenburg, 130 miles north of Berlin. A special concrete runway was planned to cope with the lengthy take-off run of Ar 234s on works testing and delivery flights. This was now cancelled. By the summer of 1944, yet another line of Arado-built FW 190 Gs were under way at this centre.

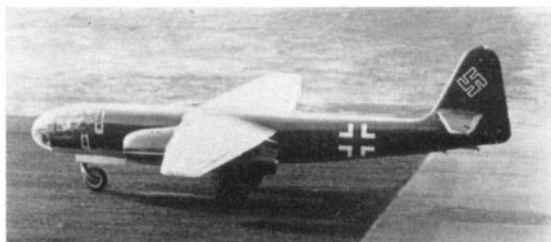
Production of the Ar 234 B-1 and B-2 reconnaissance and bomber (later dual rôle photographic reconnaissance and bomber/ground-attack) variants was centred on Alt-Lönnewitz airfield, 100 miles south of Berlin. The hangar accommodation at this former *Luftwaffe Fliegerhorst* (Air Force station) was turned into an assembly plant. The main administration of *Arado Flugzeugwerke GmbH* was soon to move from Babelsberg to Landeshut, in Silesia, as the nightly R.A.F. bombing raids on Berlin increased in ferocity. Finally, it was planned that expansion of Ar 234 production would result in yet another airfield, at Küpper, being used for building the *Blitz* (Lightning) as the type was now officially named.

There was a need for increased security measures as the initially minute circle of designers, engineers and pilots with knowledge of Germany's jet secrets dramatically expanded as more and more factories turned over to the construction of gas turbines, jet aircraft and associated assemblies. The *Blitz* was also allotted the production code name of *Hecht* (Pike). This was somewhat confusing. The same designation had earlier been given to a glide-bomb developed by the *Luftfahrtforschungsanstalt Hermann Göring* (Aeronautical Research Institute named after

the *Luftwaffe's* commander-in-chief) at Braunschweig-Volkenrode. Similarly, all German aircraft factories and assembly plants were given cover names. Thus Arado's main works became "*Max Kühl Nachfolger GmbH*", the Alt-Lönnewitz plant, "*Altan GmbH*", the Küpper centre, "*Sagos GmbH*"—a word play on Sagan, the nearest large town. In 1945, when the advance of the Red Army threatened to engulf the complete network of Arado factories and a small test department was evacuated to Wesendorf airfield on the Lüneburg Heath, this became "*Heidefahrten GmbH*", literally, "Heath Travel Ltd".

On March 12, 1944, the first prototype fitted with a retractable tricycle undercarriage, the V 9 (*W.Nr.* 130009, coded PH+SQ), took to the air. Three months later, the initial pre-production Ar 234 B-O (*W.Nr.* 140101) was delivered to the *Erprobungsstelle* (testing and experimental station) at Rechlin. The majority of the twenty Ar 234 B-Os eventually found their way to Rechlin or its complementary establishments at Tarnowitz (for weapons testing), Werneuchen (radio and radar trials), Gotenhafen (air-to-sea weapons experiments), Udetfeld (bomb development) or Karlshagen (missiles testing).

Prototype *V-Muster* and *Serienmaschinen* (production aircraft) were now flying in increasing numbers. A great step forward was the successful first flight of the V 8. Although one of the older trolley-and-skid prototypes, nevertheless it mounted four



Probably the most intensely used of all the Ar 234 prototypes (by May 20, 1944, it had flown 52 times), the V 9 was one of several V-Muster that were transferred to the Erprobungsstelle Rechlin and used for general development work by the Erprobungskommando 234.

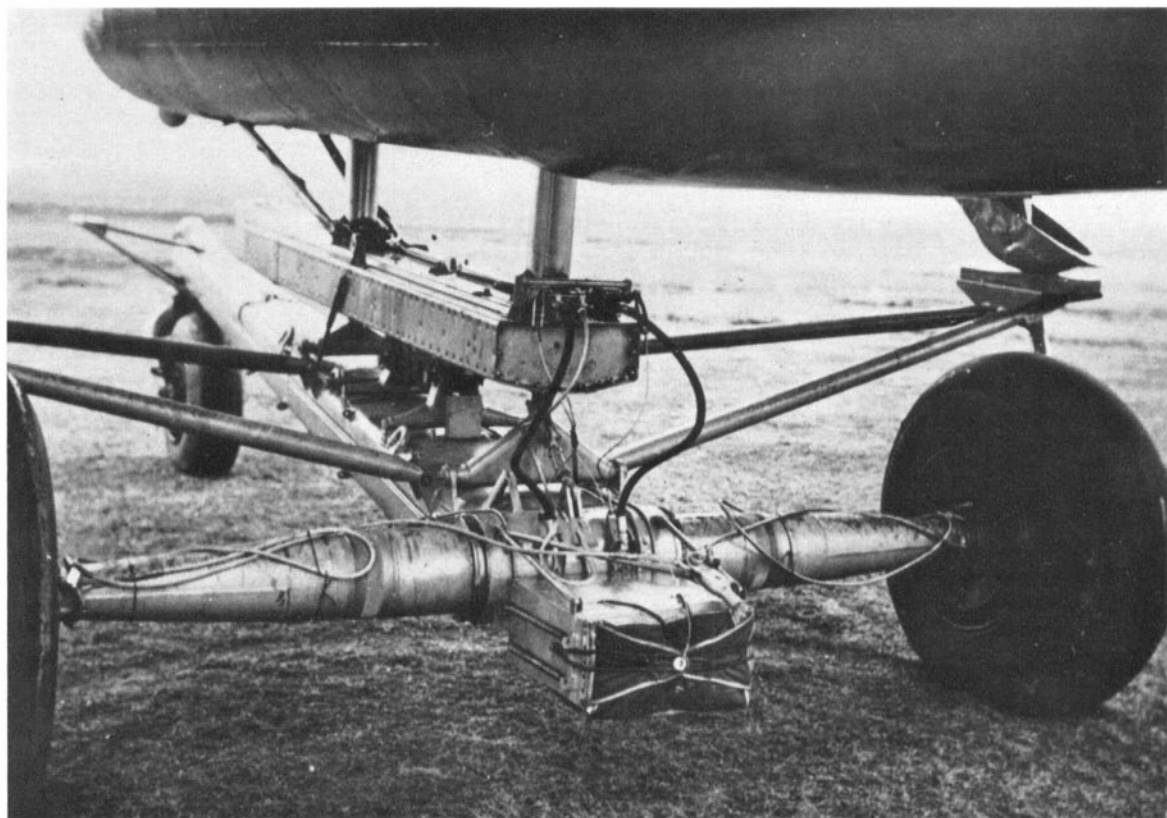
(Photo: via the German Aviation Research Group of Air Britain)

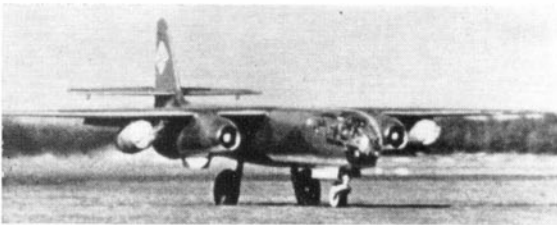
BMW 003 A-O motors in pairs within a cleanly designed nacelle under each wing. Test flying of the earlier V 6 with individual engines had shown this layout to have bad airflow characteristics. The success of the V 8 paved the way for the smooth introduction of the *Cäsar* or "C"-series Ar 234.

Certainly the most aerodynamically advanced of all the mass-produced variants of the Ar 234 flown by *Luftwaffe* pilots, the "C" would have been used in large numbers had the war continued into 1946. At the end of June 1944, no fewer than 3,500 Ar 234 C-3, four BMW 003-powered, multi-purpose bomber-reconnaissance aircraft were on order. The first

View from rear of the "A"-series trolley and skid undercarriage layout. The nosewheel of the trolley was steerable, the mainwheels being fitted with brakes actuated via the rudder pedals. It was originally intended that the trolley would automatically disengage as the Ar 234 reached take-off speed. This system proved faulty and manual release of the trolley was instituted. The trolley was retarded by parachute, this being stowed in the box at the extreme rear of the combination. Landing was effected on the central skid, with secondary outriggers under the engine nacelles.

(Photo: via the German Aviation Research Group of Air-Britain)





The Ar 234 V 9, fitted with under-motor bomb/drop-tank carriers, taking off with the assistance of a pair of Walter Ri 202 bs. These units were jettisoned after take-off, descended by parachute and could be refuelled and used again.

(Photo: via Blitz Publications)



On May 12, 1944, Flugkapitän Eheim flew the Ar 234 V 9 experimentally fitted with under-motor 66-gallon drop-tanks. These tests proved successful and such containers were extensively used by long-range reconnaissance units equipped with the Blitz.

(Photo: via the German Aviation Research Group of Air-Britain)

three were due for delivery during March 1945. Of the same overall dimensions as the twin-engined B-2, the C-3 was some 35 m.p.h. faster, could climb to nearly 40,000 ft. and had excellent handling characteristics.

With the invasion of the Continent of Europe on D-Day (June 6, 1944), the need for an aircraft capable of reconnoitring the beachheads and returning unscathed despite the overwhelming Allied fighter cover became paramount. The *Versuchsverband des Oberkommandos der Luftwaffe* (Luftwaffe High Command's Experimental Flying Unit), based at Oranienburg just north of Berlin, was chosen to bring back such vital photographic intelligence.

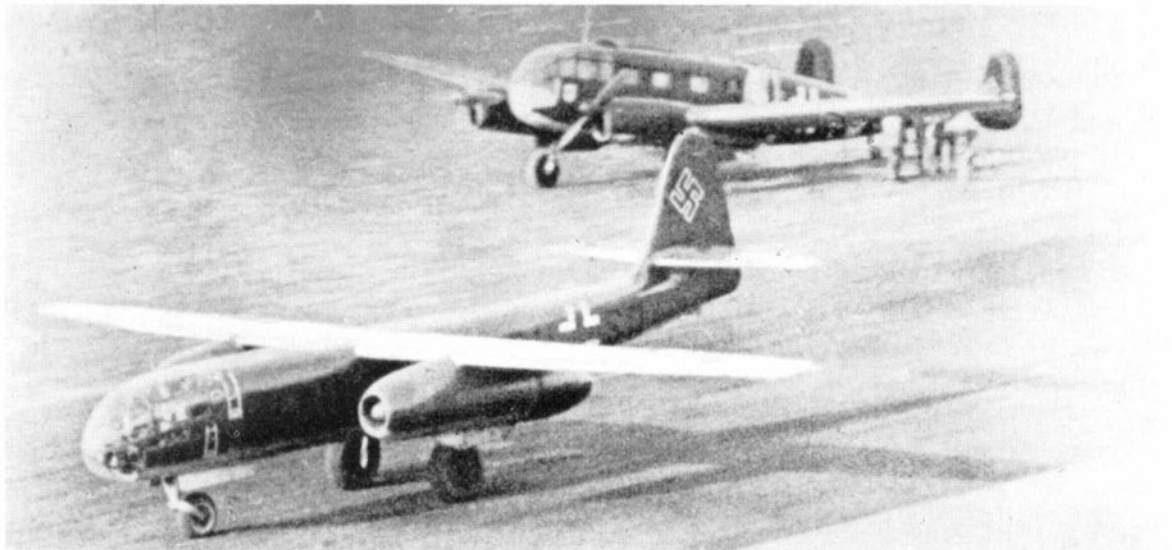
On the morning of July 8, 1944—just over a month, since Allied troops had first stepped ashore in Normandy—one after the other, the Ar 234 V 5 and V 7 lifted off the runway at Alt-Lönnewitz and set course northwards for Oranienburg. Here the final preparations were made to take the two *Kufenmaschinen*, modified to carry aerial cameras, to France. On July 20 all was ready for operations to begin from Juvincourt. Apart from two pilots, 18 Luftwaffe technicians and two signals staff, two Arado airframe mechanics and two Junkers engine specialists were included in the party.

Despite the vast Anglo-American air superiority, the German missions were entirely successful. Twenty-two hours were flown with the V 5 and

24 with the V 7. A maximum height of 37,730 ft. was reached on operations. Flame-outs anticipated at this height did not occur, and engine serviceability with the hand-built motors was good. A typical sortie from Juvincourt took place on August 2. Climbing to some 32,800 feet at an airspeed averaging 230 m.p.h., one of the prototypes circled the chain of Allied airfields around St. Pierre, its two Rb 50/30 cameras faithfully recording the scene below. One minute later the artificial harbour at Aisnelles-sur-Mer was within the camera's lenses. Attempts at fighter interceptions were few, and Allied aircraft orbiting Juvincourt were avoided by making a fast straight-in run to land without any precautionary circuit of the airfield.

The main problem, apart from the insecurity of the local roads and landline telephones caused by the unwelcome attentions of the *FFI* (French Forces of the Interior), was the constant bombing and strafing attacks made on the Ar 234s' base. Landing of the ski-aircraft on the torn-up runway presented great difficulties. A rough landing often meant that the main skid and supporting outriggers were ripped off. It was just such a contingency, probably caused by similar difficulties (though ending more catastrophically) with early Messerschmitt Me 163 rocket-fighter prototypes, which had made the *RLM* insist that production aircraft could not be so hampered.

Some idea of the relatively small size of the Blitz can be gauged from this view of the Ar 234 V 9 taxiing past a Luftwaffe Siebel Si 204 D two-motor communications aircraft.





The Ar 234 V 9 is seen here with an experimental bomb/drop-tank carrier under each engine nacelle. During April-May 1944, Flugkapitäne Eheim and Kröger flew a series of trials with this aircraft testing various combinations and calibres of bombs.

(Photo: via Blitz Publications)

Later, the *Versuchsverband* was to supplement the two Ar 234 As with a pair of the more versatile tricycle undercarriage-equipped "B" variants. These aircraft were to make the first jet-powered reconnaissance sorties over the United Kingdom.

The accent was now on readying the Ar 234 B for use as a high-speed bomber. On June 8 *Oberst* Walter Storp, a most experienced bomber pilot, 34 years old, veteran of many operational flights with *Kampfgeschwader* (Bomber *Geschwader*) 4 and 6, and a graduate of the staff college at Gatow, was given command of *Kampfgeschwader* 76. The third *Gruppe* of this *Geschwader* had been selected to prove the Ar 234 in combat.

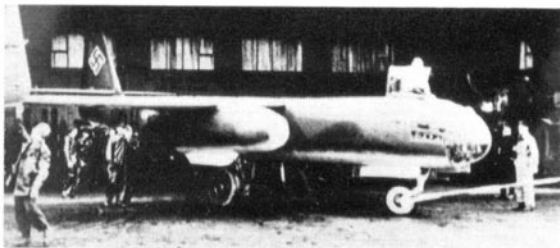
On August 24, 1944, III./K.G.76 took delivery of W.Nr. 140114, one of the twenty Ar 234 B-Os. Training of former Dornier Do 217, Heinkel He 111 and Junkers Ju 88 pilots at Alt-Lönnewitz increased apace. Production aircraft were now rolled off the assembly line and handed straight over to the *Gruppe*. A *Blitz* fuselage was used as a static trainer. The pupils were instructed in cockpit familiarization and starting procedures by *Arado Flugzeugwerke* personnel. After several hours theoretical training, the seasoned piston-engined pilots were sent off on their first jet solos. Accidents occurred mainly due to the inability of certain men to accustom themselves quickly to the speed advance of the Ar 234, and consequent need for rapid decisions. Fatal accidents happened when a pupil, more used to the approach speed of conventional types, misjudged the landing and overshot. Rough use of the throttles under stress was a frequent cause of engine failure. Touching-down at too high a speed often resulted in nosewheel collapse.

Towards the end of 1944, bomber pilots joined their fighter colleagues on Messerschmitt Me 262 conversion courses. A few weeks before the end of the war, one of the few B-1a two-seat trainer versions of this twin-jet fighter arrived at Alt-Lönnewitz. The accident rate dropped as a result of this acquisition.

On October 16, 1944, the successful first flight of the initial "C"-series Ar 234 prototypes, the V 19, was completed. Earlier, the V 13 (PH+SU), a "B"-series aircraft, had been flown with paired BMW 003s. By November 30, all twenty Ar 234 B-Os had been delivered and 95 out of an order for 190 B-1/2s had been assembled. That the *Berta* was only a stop-gap type is evidenced by the fact that the *RLM* was not planning to increase the total order for Ar 234 Bs beyond 210, while 1,795 C-3 multi-purpose, 330 C-4 reconnaissance, 1,395 C-5 bomber and 290 C-7 night-fighter variants were to be produced. The first three C-3 deliveries had been advanced a month; from March to February 1945. Two lines were laid down before the end of hostilities—at Alt-Lönnewitz and Brandenburg-Neuendorf. The latter plant had a total C-3 output not exceeding ten. Most were captured by the Russians minus engines. Three other Ar 234 C-3s were used at Alt-Lönnewitz for training newly inducted pilots of K.G.76.

Having achieved the goal of working-up the *Luftwaffe's* first tactical jet-bomber unit, *Oberst* Storp was promoted *Generalmajor* (Major-General) and posted to Narvik on November 1, 1944, to take command of all *Luftwaffe* forces within the area of 5. *Fliegerdivision* in Norway.

His successor was *Oberstleutnant* (Lieutenant-Colonel) Robert Kowalewski. A former Naval cadet, pilot since 1932, successively *Gruppenkom-*



A "still" from a captured Arado Flugzeugwerke GmbH training film of 1944 dealing with pre-flight inspection (extreme left) and ground-handling procedures for the Ar 234 B. One of the early tricycle undercarriage prototypes (probably the V 9 or V 10) is manoeuvred out of the experimental hangar.

(Photo: via Blitz Publications)

mandeur (commander) of II./K.G.26 flying torpedo-bombers in the Mediterranean and III./K.G.40 engaged in a variety of tasks over the Atlantic, Kowalewski already had experience of commanding a *Geschwader*, having just had a spell in charge of *Zerstörergeschwader* (Destroyer *Geschwader*) 76, a Messerschmitt Me 410 unit used for day-fighter attacks with air-to-air rockets on U.S.A. 8th Air Force bomber formations over Germany.

Leading III./K.G.76 was Major Hans-Georg Bätcher, yet another of the fast-diminishing band of fliers constantly in action since the earliest days of the war. On June 6, 1940, while *Adjutant* of I./K.G.27 *Bölcke* (named after the famous World War I ace), he had flown as an observer on a Rouen raid. This flight ended in disaster. Bätcher became a French prisoner-of-war and was not freed until a month later. However, he went on to remedy this early omission. Ultimately, he flew 658 bomber sorties. His combat time on the *Blitz* was limited. Early in 1945 he was promoted *Kommodore* (commanding officer) of a unit of ex-bomber pilots retrained to fly the Me 262 and ended the war leading jet-fighter missions in defence of the *Reich*.

On December 16, 1944, the Germans launched a large-scale counter-offensive from the Ardennes on a 45-mile wide front from Malmedy to Echternach. The object was to cross the river Meuse and seize the Allied supply centre at Liege. If successful, the *Wehrmacht* (German Army) and *Waffen-SS* (Armed-SS) were to drive on to Antwerp, the Allies' main port in north-west Europe. With the western front stabilized, this would split the Anglo-American camp, leave four

A prototype Ar 234 B—probably the V 9 or V 10—making a high-speed run for the benefit of movie cameras. Another cine film "still".

(Photo: via Blitz Publications)



armies in Holland and Belgium with much reduced means of re-supply and enable the V-1 flying-bomb and V-2 ballistic-rocket attacks on southern England to be intensified. Hitler ordered III./K.G.76 were to fly missions in support of this critical onslaught. Bätcher's *Gruppe* was at this time based at Achmer airfield near Osnabrück.

On December 21 Captain Donald S. Bryan was leading a flight of U.S.A.A.F. 328th Fighter Squadron* North American P-51 Mustangs south of Verviers. Suddenly a twin-jet aircraft passed under the Allied formation. As Bryan dived to attack it, another Ar 234 slid beneath him. He opened fire at 500 yards and continued scoring strikes all over the wings of the *Blitz*, but it finally pulled out of range and was gone.

Christmas Day, 1944 saw III./K.G.76 attacking Liege.

Pilot Officer R. Verran, a Royal Air Force Second Tactical Air Force fighter pilot of No. 80 Squadron was on a patrol led by Wing-Commander J. B. Wray, D.F.C., south-south-east of Liege; spotting an Ar 234, Verran jettisoned the drop-tanks of his Hawker Tempest Mk. V and, closing, managed to score several hits on the port Jumo before running out of ammunition. Wg. Cdr. Wray then closed to 800 yards on the port side of the Arado, firing several bursts from that range as he manoeuvred into a line-astern position. Once again the Ar 234 outpaced its opponents and disappeared.

New Year's Eve, 1944 produced a lot of Ar 234 activity.

Lieutenant-Colonel John C. Meyer, Deputy Group Commander of the 328th F.S., was involved in a series of running encounters with various Ar 234s from Viviers in France eastwards to Bonn on the river Rhine. During one attack, although the Mustang pilot observed no strikes, the German pilot nevertheless dumped his cockpit escape hatch and put the Ar 234 vertically into the overcast at 3,000 ft. Circling the area the Americans chased another *Blitz* towards Köln (Cologne) but it got away. Low on fuel, Meyer and his squadron ran through a formation of twelve-plus Bf 109s heavily laden with belly-tanks or under-fuselage bombs near Euskirchen.

On February 25, 1945, 1st Lieutenants Richard E. White and Eugene Murphy were returning from a strafing mission north-east of Hannover. Murphy was leading the Mustang-equipped 385th Fighter Squadron's "Blue" flight; White was his number four man. In the region of Steinhuder Meer, they sighted an Ar-234. Murphy chased it at an indicated airspeed of 315 m.p.h. Outpaced, he abandoned this one for another *Blitz* 3,000 ft. below. Catching the German pilot unawares, he used up all his ammunition on the hapless bomber. Calling to White, Murphy broke away. The Ar 234 levelled out just above the ground at 350 m.p.h. Suddenly, without warning, the bomber pilot cut his engines. White, right on the Ar 234's tail, overshot, reduced power and formed on the port wing of the *Luftwaffe* aircraft. The speed fell away more and White dropped 40° of flap to hold formation. The German pilot suddenly looked up, noticed White

*USAAF Fighter Squadrons mentioned in the narrative all belonged to specific Fighter Groups. Further details can be found in the appendices.

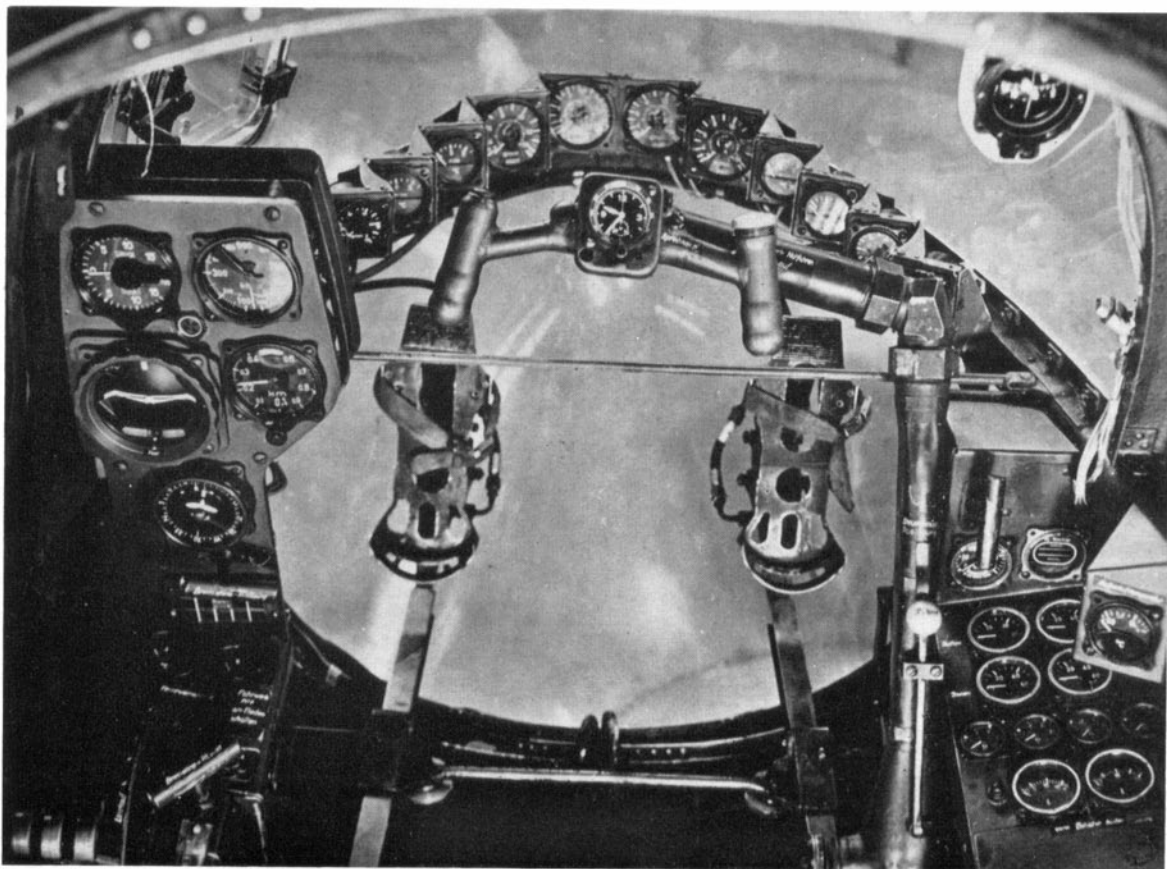


An Arado test pilot demonstrating the travel of the "spectacle"-type control column. This could be swung to the right and folded to enable the pilot to vacate his seat and move forward when approaching a target at high altitude on a level bombing run. With the Ar 234 under automatic control, the pilot knelt down in the nose of the aircraft and operated the Lotfe 7H tachometric bomb-sight.

(Photo: via Blitz Publications)

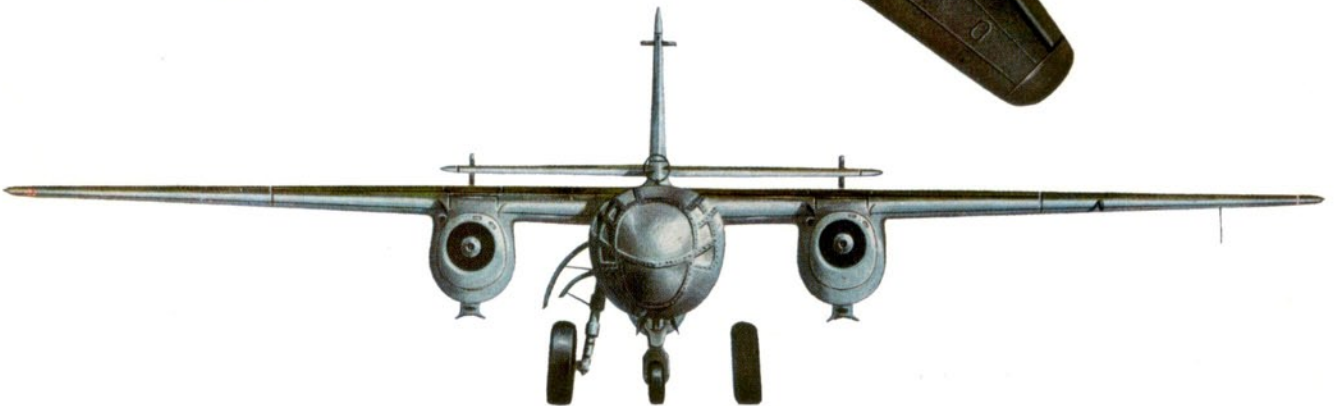
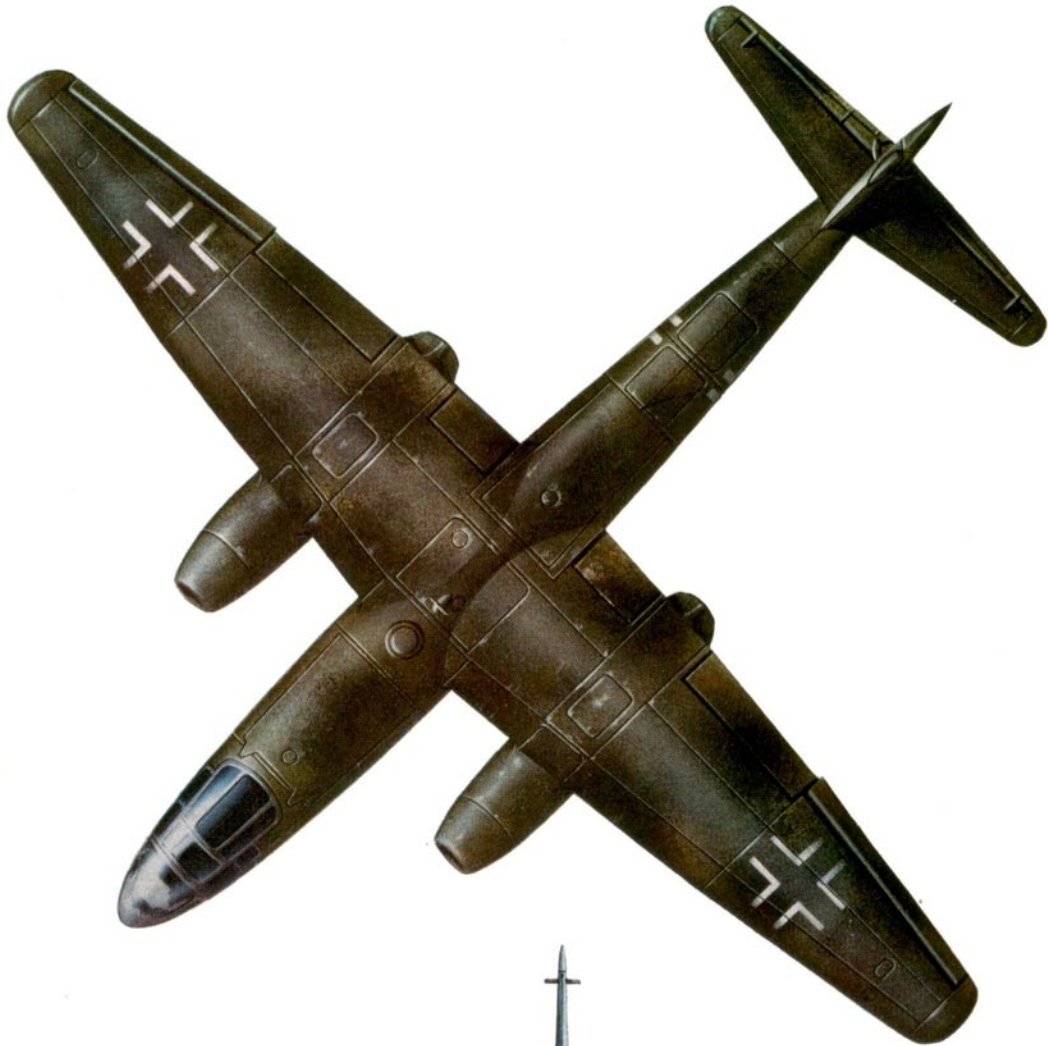
Pilot's view of the control and instrument layout of one of the prototype Ar 234s. Although large, the cockpit was cramped with equipment. Extensive Plexiglas glazing, 0.218-in. thick, gave the single crew member unparalleled forward vision, but early Ar 234s were almost blind from the rear and necessitated the development of an aft-looking periscope.

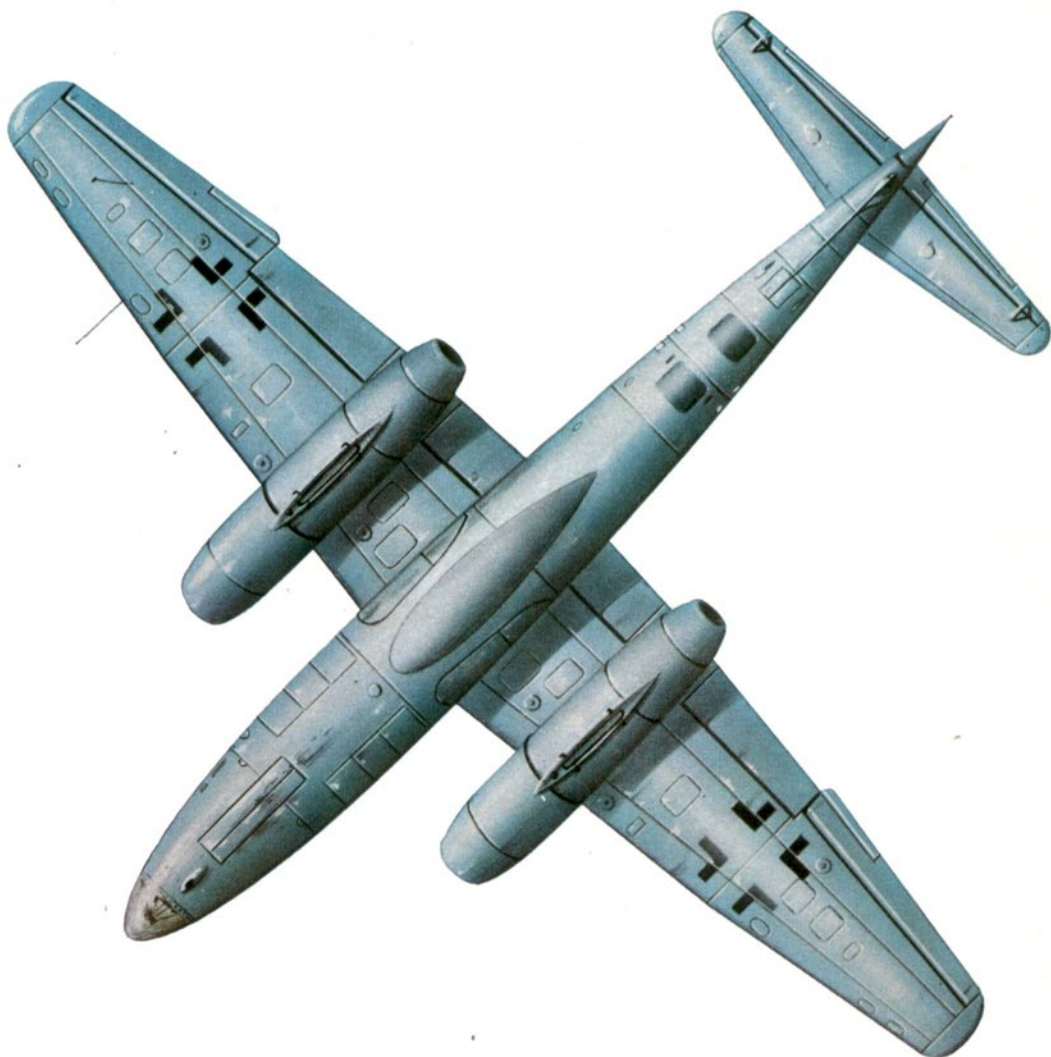
(Photo: via the German Aviation Research Group of Air-Britain)





Above The first Ar 234 B-2 to fall into Allied hands.





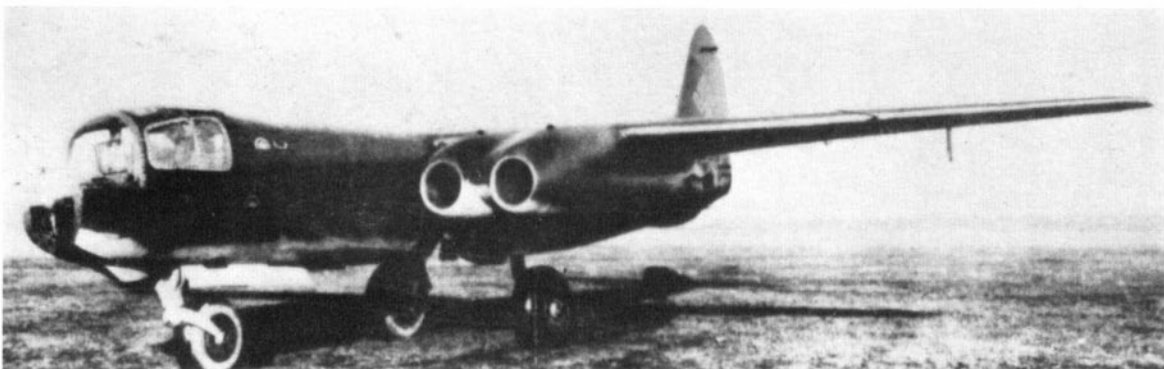
Arado Ar 234 B-1 of the Kommando Sperling 1.(F)/123 flown by *Hauptmann* Hans Felde and shot down by Squadron Leader David C. Fairbanks, RCAF, commanding officer of No. 274 Squadron flying a Hawker Tempest V. Destroyed over Rheine airfield on February 11, 1945, this *Blitz* had just returned from a photographic-reconnaissance flight covering the mouth of the river Humber and the port of Hull.

Thomas Brittain © Profile Publications Ltd



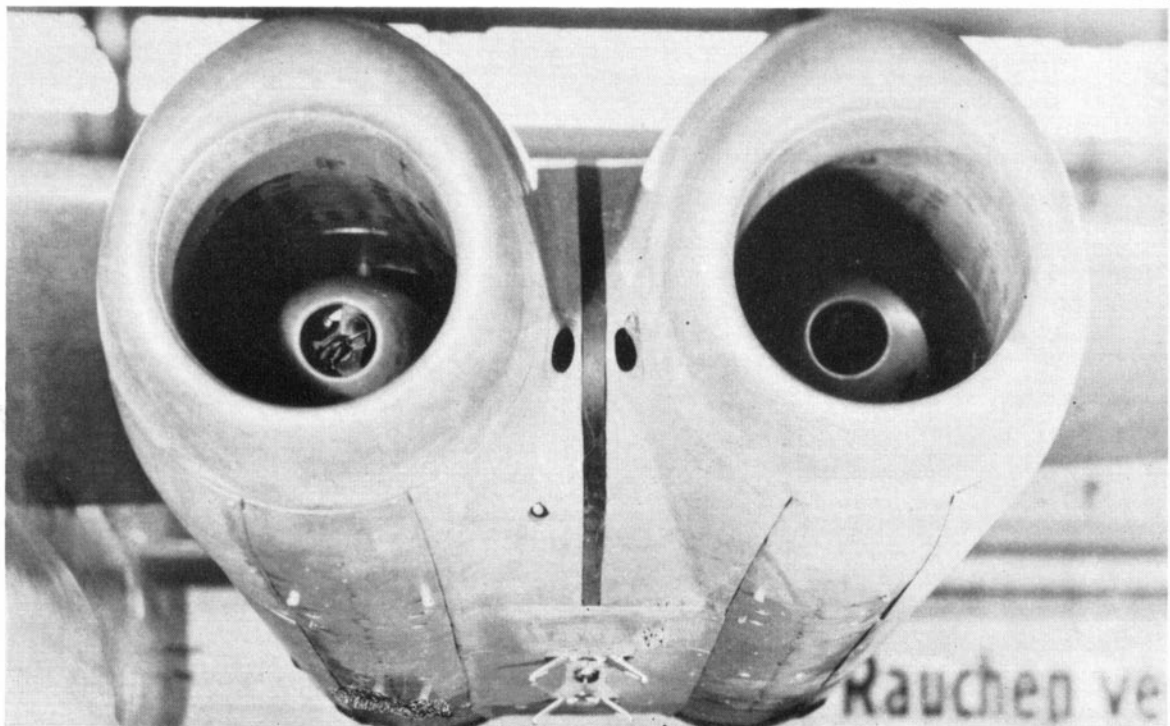


An early prototype Cäsar or "C"-series. Probably in the V-Muster range V 19 to 22, this was the only Luftwaffe four-jet aircraft in production at the cessation of hostilities.
(Photo: via Hans J. Ebert)



Three-quarters port front view of the Ar 234 V 21, first prototype for the C-3 series. Powered by four BMW 003 A-1 motors, this aircraft was flying during early December 1944 on general performance and handling trials connected with development of the Cäsar from Küpper, near Sagan.
(Photo: via the author)

Close-up of the port pair of BMW 003 A-1 motors fitted to the "B"-series prototype Ar 234 V 13. The difference between the A-0, A-1 and A-2 engines was mainly in the nature of detail design changes to facilitate production and their performance was almost identical. A sample motor weighed 1,340 lb., produced 1,760 lb.s.t. at sea level and had a limiting speed of 9,500 r.p.m.
(Photo: via Blitz Publications)



for the first time, instinctively pulled the Ar 234 into a turn to the right and lost control. The *Blitz* half-rolled at 30 feet and dived into the ground inverted.

March 2, 1945. The Ar 234 B-2s of *III./K.G.76* were out throughout the morning, making individual attacks on Allied armour and troop concentrations near Düren. Sorties were, in the main, made at low level despite the heavy fuel consumption characteristics of their Jumo 004s at low altitude. Twenty-two *Blitz* missions had been logged by lunch-time. Attacks were made in excess of 500 m.p.h. in a shallow dive, with the German pilots using the periscope mounted above the cockpit to line-up on their target. Catching an Ar 234 with any fighter possessed by the Allies was, in these circumstances, almost an impossibility. It was better to wait for the Ar 234 to return to its home airfield low on fuel, and then to try to shoot it down before the defences reacted.

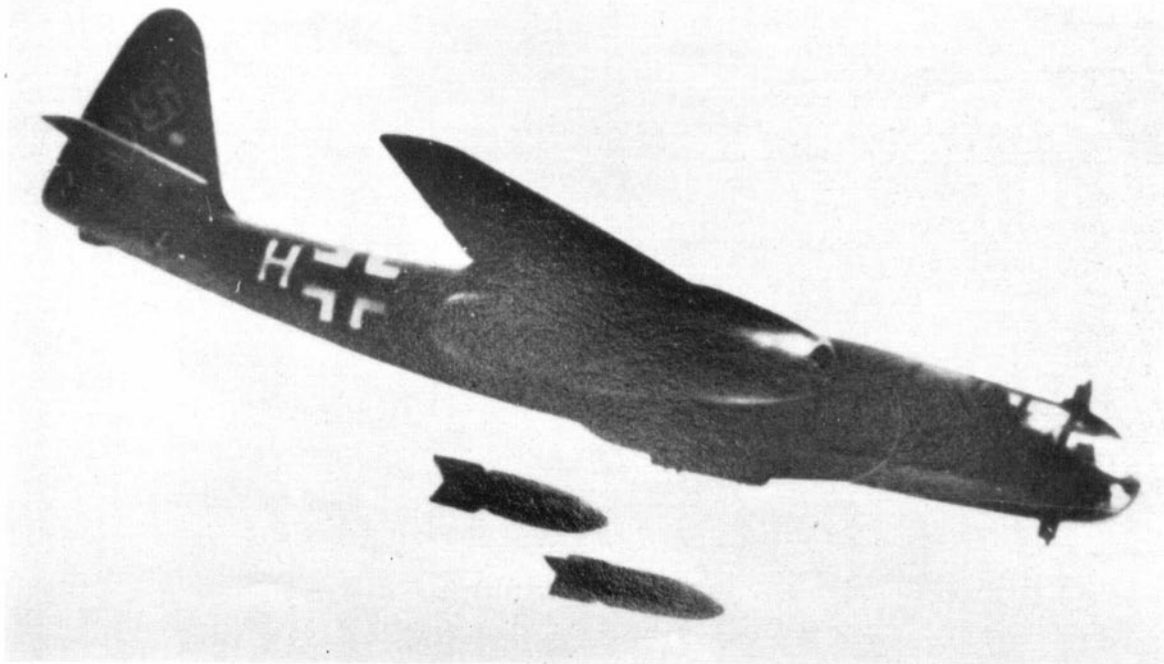
Between 07.25 and 08.30 hours, *II.*, *III.* and *IV./J.G.27* put up no fewer than 71 piston-engined Bf 109 Gs to protect landing Ar 234s and other types. They claimed two R.A.F. Tempests and a Spitfire for the loss of eight Bf 109 Gs shot down, two missing and four damaged. Even this sacrifice failed to stop two Ar 234s being picked off by the Royal Air Force and another *Blitz* damaged.

One of the Ar 234s was shot down in the area of Nijmegen in Holland by Flight Lieutenant D. J. Reid of No. 41 Squadron flying a Spitfire Mk. XIV. The German pilot baled-out safely. The other was credited to Flight Lieutenant G. W. Varley. He was one of several Tempest Mk. V pilots of No. 222 Squadron who ran into returning Ar 234s in the vicinity of Rheine and tangled with *Jagdgeschwader* (Fighter *Geschwader*) 27 in the process.



Responsible for introducing the Ar 234 into service as a high-speed bomber, Walter Storp (photographed here as a Major following the award of the Eichenlaub—Oak Leaf—to the Ritterkreuz—Knight's Cross—on July 14, 1941), was Kommodore of Kampfgeschwader 76 from June till October 1944. A veteran of the Norwegian, French, Battle of Britain and Mediterranean campaigns, Storp was one of the Luftwaffe's most experienced bomber pilots. (Photo: via the author)

An alternative method of attack with the *Blitz* was in a shallow dive using the BZA bomb-sight in conjunction with the periscope. Restrictions were imposed on the angle of dive due to surging of the jet engines and the difficulty of keeping the aircraft straight once the Ar 234 was established in the dive because of sensitivity of lateral trim. (Photo: via Flugkapitän Dieter Lukesch)





The Segelsdorf Ar 234 B-2, W.Nr. 140173 (F1+ MT) of 9./K.G.76 following re-erection at the Royal Aircraft Establishment. Photographed on March 21, 1945, the aircraft is complete except for a missing escape hatch (jettisoned during the belly landing) and shattered front fuselage glazing. The Jumo 004 Bs have been removed for detailed scrutiny. It was not flown again. (Photo: via Blitz Publications)

On March 14 Flight Lieutenant L. McAuliffe and F/O D. G. C. McLeland of No. 135 Wing, R.A.F., chased an Ar 234 over Quackenbrück airfield. Possibly hit by "friendly" flak, the Blitz suddenly dived into the ground and exploded. These Tempest Mk. V pilots claimed a half-share each in this victory. The next day, Flying Officer Frank A. Lang, an Australian pilot of No. 80 Squadron, R.A.F., pursued an Ar 234 for 20 minutes from Rheine to Linge, but although inflicting damage, the jet-bomber was too fast for even the speedy Hawker Tempest.

Four pilots of the American 82nd Fighter Squadron shot down an Ar 234 on the 19th while on a fighter sweep in the Osnabrück area en route to Berlin. Captain W. H. Brown, 1st Lieutenants H. H. Lamb and A. A. Rosenblum plus 2nd Lieutenant J. E. Parker, all flying P-51s, first bounced a formation of Bf 109s and then sighted a pair of Ar 234s. Badly damaged, with a port turbine in flames, one of the Ar 234 pilots jettisoned his canopy and squeezed out on to the cabin roof. The fire from one of the attacking

Mustangs raked the hapless figure, knocking him forward. He fell away into space without pulling the parachute release. The empty Ar 234 crashed into a farmhouse and exploded.

Achmer airfield was bombed by 2nd Division Consolidated B-24 Liberators of the U.S.A. 8th Air Force on March 21, 1945. As the last box of B-24s released their loads, Mustangs of the 350th and 351st Fighter Squadrons dived from 3,000 ft. for ground strafing attacks. When the last American aircraft had left the vicinity, no fewer than 10 Ar 234s were left wrecked or burning and another eight were damaged. Much of this havoc was wrought by P-51s led by Major L. Boone, who alone claimed eight Ar 234s destroyed (shared with First Lieutenant Richard N. Gustke—also of the 350th F.S.), despite the Ar 234s being well camouflaged and hidden under trees in woods surrounding the airfield.

April 12, 1945. III./K.G.76 was able to put a few aircraft into the air once again. Attacks were made on British gun emplacements near Bremen during the day.

The first Ar 234 B-2 to fall into Allied hands. Shot down by U.S.A.A.F. Republic P-47 Thunderbolts near the village of Segelsdorf on February 24, 1945, the abandoned aircraft was subsequently captured by troops of the U.S. 9th Army. It was dismantled and shipped to Farnborough for examination. (Photo: via Blitz Publications)



Flight Lieutenants H. O. Gaze and D. V. Lake of No. 41 Squadron, flying Spitfire Mk. XIVEs, engaged an Ar 234 at 17.00 hours. The *Blitz* went into a spin, Lake following it down after Gaze had set its starboard engine aflame. But at 300 ft. over the south-east outskirts of Bremen, the pilot brought the Ar 234 out of the spin. Lake chased the enemy jet over an airfield through a curtain of light *flak* and set the other engine on fire. The Ar 234 then hit the ground in crash-landing attitude and blew up.

Lieutenant-Colonel Dale E. Shafer leading the P-51-equipped 503rd Fighter Squadron at 20,000 ft. south-east of Regensburg on April 18, had just made rendezvous with the bombers he was to escort when he saw an Ar 234 some 3,000 ft. below. Diving on the *Blitz* at 325 m.p.h. he was disconcerted by the enemy bomber suddenly breaking to the left and going into a steep climb. Closing rapidly, he enveloped the Ar 234 in machine-gun fire. While at about 18,000 ft. the canopy suddenly flew away, the German pilot then riding his crippled aircraft down to 3,000 ft. Just after he baled out, the Ar 234 exploded.

Royal Air Force Hawker Typhoon Mk. IIB pilots of No. 182 Squadron were briefed to fly an armed reconnaissance in the Bremen-Cuxhaven area of northern Germany on April 20, 1945. The eight "Tiffies" led by Squadron-Leader Gray, D.F.C., attacked the dispersals on Nordholz airfield at 14.10 hrs. Opening with a rocket strafe, they followed this up with a 20-mm. cannon-firing run. After their second pass they pulled away leaving an Ar 234 and a Ju 188 on fire. A second Ju 188 was damaged.

At this late date the only recorded Ar 234 sorties still being flown from German soil were photographic reconnaissance missions carried out over Bavaria. These gave the High Command some inkling of the speed of advance of the U.S. motorised columns now converging on the last centres of resistance in the Austrian Alps. This occasional road cover was flown by a handful of Ar 234 B-1s from the first *Staffel* of *Fernaufklärungsgruppe* (Long-range reconnaissance Gruppe) 100 (I.(F)/100).

One of these fell to the guns of a Wattisham-based (England) P-51 Mustang of the 434th Fighter Squadron, U.S.A.A.F., on a bomber-escort mission on April 25. Whilst over Traunstein, the bomber's target, First Lieutenant Hilton O. Thompson noticed a "bogey" (unidentified aircraft) passing some 2,000 ft. above him. The American formation was then at 24,000 ft. The Ar 234—for that is what it was—turned to the south-east. Thompson closed and fired several bursts, the range decreasing from 600 to 300 yards. Pieces fell off the aircraft. First Lieutenant Harold L. Stotts then took up the chase. The German pilot baled out between 5,000 and 10,000 ft., the *Blitz* crashing in the vicinity of Berchtesgaden.

The last jet Arado destroyed by the Royal Air Force was logged on the early evening of May 2, 1945. The victors, flying Spitfire Mk. XIVBs, were three Belgian pilots led by a Britisher, Pilot Officer Watkins.

Pilot Officer Watkins of No. 350 (Belgian) Squadron, R.A.F., reported: "I was leading 'Flounder' section of six aircraft on an armed reconnaissance in the Rendsberg area. At about 17.00 hours whilst flying at 8,000 ft., I saw in the circuit at Hohn aerodrome a jet



Prior to evacuating Rheine airfield, the Germans removed the underslung Jumo 004 B motors from W.Nr. 140349, a burnt-out Ar 234 B, and substituted dummy motors. Here, an R.A.F. officer examines the substitutes. Although incapable of deceiving a close observer, it is possible that these false "engines" would not have been spotted by Allied photo-interpreters poring over cover of Rheine brought back by high-flying reconnaissance aircraft. (Photo: Imperial War Museum ref. CL 2415)

"Heidefahrten GmbH"—May 1945. Fliegerhorst *Wesendorf* was used during the final months of the war by Arado Flugzeugwerke GmbH for Ar 234 development flying. On April 4, 1945, heavy damage was inflicted during a daylight raid by the 8th Air Force; this was followed on April 10 by a series of American fighter strafing attacks that caused less material loss but more deaths. When British troops arrived, among the 129 aircraft found at *Wesendorf* were four Ar 234s, three badly damaged under collapsed hangars. Depicted here are the remains of one of the prototype "C"-series four-jet bombers. Although quoted elsewhere as the V 19, it is more likely that W.Nr. 130022 was the Ar 234 V 22.

(Photo: via the German Aviation Research Group of Air-Britain)





Captured at München-Riem (now Munich International Airport) at the end of April 1945 by American troops, this pre-production Ar 234 C-03 carries the work's number "006". As far as is known, this Cäsar was the only flyable four-jet aircraft to fall into the hands of the Western Allies. Apart from the paired jet motors, the revised contour of the nose section, reduced glazing and a more streamlined periscope all characterize this excellent design. Less obvious are the modified ailerons and smoother wing skinning which improved the aerodynamic characteristics of the type. The C-3 was just going into production when the war ended.

(Photo: via the German Aviation Research Group of Air-Britain)



An anonymous Ar 234 B-2 on the hard-standing at Farnborough during the summer of 1945. By the early winter of that same year, most of the Royal Aircraft Establishment's Blitz fleet had been ferried to the R.A.F. Maintenance Unit at Brize Norton pending disposal instructions. During the severe winter gales of 1946-7, insecurely picketed, these and many other enemy types were either blown over or severely damaged.

(Photo: Imperial War Museum ref. MH 4871)



Werk Nummer 140349, an Ar 234 B, probably caught by ground-strafting Allied fighters and burnt-out at Rheine airfield. All salvageable items, including the jet engines and aircraft's tyres were removed by the Germans and the empty shell was used as a decoy.

(Photo: Imperial War Museum ref. CL 2410)

On August 6, 1945, the R.A.F. Air Disarmament Wing at Sola airfield near Stavanger, Norway, played host to a party of visiting Scottish war correspondents. Here, Luftwaffe ground personnel under British supervision aid the start-up of an ex-Einsatz Kommando 1.(F)/5 Ar 234 B. It was this unit that carried out the longest overwater jet flights of the war, making occasional crossings of the North Sea to and from Scotland.

(Photo: Imperial War Museum ref. CL 3503)



aircraft which I identified as an Arado 234 going in to land. . . ."

Watkins attacked. Before breaking away he saw that the enemy twin-jet aircraft was trailing smoke.

Flight Lieutenant Bangerter takes up the story: "I followed after 'Pink I' (Watkins) and chased the E/A (enemy aircraft) as it was crossing the airfield boundary at 200 ft. approximately. The E/A turned (to) port away from the aerodrome with flaps and undercarriage down. I followed and fired cannons with 5° angle deflection and obtained strikes on port wing root and port engine; saw flames. I then broke to port."

Finally, Flight Sergeant Kicq and Flying Officer Van Eckhoudt described the dying moments of the engagement: " . . . made simultaneous deflection attacks, saw strikes and had to break away because of the overtaking speed. Five seconds later, E/A flipped on its back, port mainplane fell off and E/A struck the ground in a ball of fire. We claim this Arado 234 destroyed."

From May 8, 1945 the guns fell silent over a war-torn Europe. A great scramble now ensued between small teams of aeronautical experts from the leading Allied nations to secure as many of the remaining airworthy or undamaged German jet aircraft as could be found within the areas of occupation opened up to them. As luck would have it, the spoils were more or less equally divided. The *Arado Flugzeugwerke* factories and test airfields, with the sole exception of Wesendorf, fell to the Russians. This was counterbalanced by the Ar 234 having been used almost exclusively in operations against the threat from the west. Small numbers of the *Blitz* were, therefore, to be found at airfields extending in a rough arc from Norway through Denmark, via north and central Germany to as far south as northern Italy. These now fell into Anglo-American hands.

Very much to the fore in this little-publicized race were the British.

Out of a total of 137 powered aircraft and 16 gliders seized on former *Luftwaffe* airfields and ferried or shipped back to the United Kingdom for research purposes, at least ten and possibly twelve were Ar 234s. These were flown to the Royal Aircraft Establishment at Farnborough in Hampshire by a team of volunteer pilots from the Aerodynamics Flight at this world-famous test centre. Heading the recovery programme was German-speaking Lieutenant-Commander Eric M. "Winkle" Brown, R.N. Two Ar 234s were diverted to Cherbourg and handed over to the Americans, later being shipped to the U.S.A. Two more were donated to France for evaluation by the *Armée de l'Air* (French Air Force).

The first Ar 234 to land at the R.A.E. arrived from Tangmere on June 6, 1945, where it cleared Customs after crossing over from the Continent. Like AM 25 and AM 26 (special Air Ministry codings in lieu of R.A.F. serial numbers), a pair of Ar 234 Bs that flew in from Schleswig on the 25th of that month, it is possible that it was one of six captured on Karup-Grove airfield in Denmark. These Ar 234s were piloted by Squadron Leader A. F. Martindale, A.F.C., and "Winkle" Brown respectively. Over mid-Channel Martindale's *Blitz* suffered oxygen failure and a rapid descent had to be made, the trip being completed in formation at low level.

These flights were always of interest. On June 24, at



Pictured at Farnborough in the static park of the R.A.E.'s Enemy Aircraft Exhibition during October-November 1945, this Ar 234 B-2 (possibly one of the B-2/b photographic-reconnaissance versions) was constructed at Alt-Lönnewitz as W.Nr. 140476. It was one of six captured at Karup-Grove airfield in Denmark. Upon seizure by the British this Ar 234 was allotted the identification AM 26, while for subsequent test purposes it acquired the R.A.F. serial, VK 877. Its last flight was on October 7, 1945, when the Blitz was ferried to Brize Norton for storage. (Photo: *The Aeroplane*—Temple Press Ltd. ref. 1989C/23)

the start of the ferry flight from Denmark, Brown had a lucky escape when he was forced to abort a take-off. Running the motors up to full thrust, a Jumo 004 was blown clean off the wing. It is likely that the Arado had been sabotaged. After a careful check of another example he took off without incident on the first leg of the flight to Schleswig-Land airfield, the main collecting point for German aircraft earmarked for use by the British.

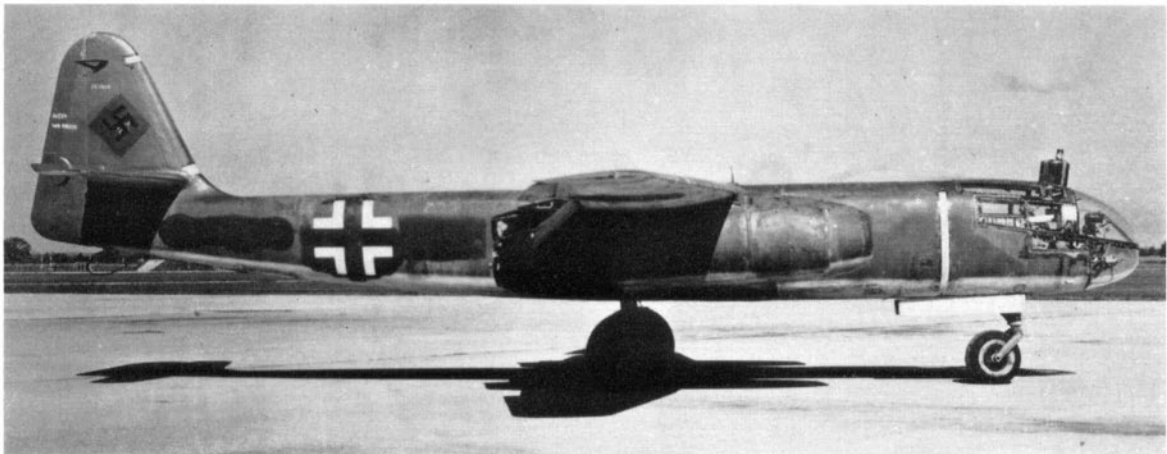
To speed-up the ferrying of seven Ar 234s located at Sola airfield near Stavanger, Norway, Brown persuaded a captured engineering test pilot, *Hauptmann* (Captain) Miersch, whom he had previously interrogated at a local P.O.W. camp, to help fly these ex-*Luftwaffe* aircraft back to England. Fearing that this German pilot would try to escape to neutral Sweden if an opportunity presented itself, Brown only gave him a course to steer, allowed him no maps and threatened to ram him if he tried anything suspicious. On October 3, during one such formation flight, Brown and Miersch encountered thick fog over the Zuider Zee, losing each other in the murk. Eventually

Miersch crashed at Eelde in Holland (he survived), while Brown managed the remarkable feat of landing in the dark at Nordholz with only one Jumo 004 functioning.

When they arrived on the other side of the Atlantic, four captured Ar 234s created something of a sensation. Shipped aboard the auxiliary carrier, H.M.S. *Reaper*, they were re-assembled at the Army Air Force Atlantic Overseas Air Depot at Newark, New Jersey. Three were allotted to the Air Force; another to the Navy. The U.S.N.'s specimen, BuAer (Bureau of Aeronautics) serial 121445, was ferried towards the end of August 1945 to the U.S. Naval Air Test Center at Patuxent River, Maryland. The one-hour flight was made without incident. Upon arrival, however, it was found that the Air Force had got the best of the bargain. The Navy's *Blitz* was not in good condition. Its tyres and inner tubes were positively unsafe. Lacking spares, the aircraft never flew again.

One Ar 234 B (W.Nr. 140312) was given the special Air Force Air Technical Service Command coding "FE 1010". Another was "FE 1011". One flew from

W.Nr. 140312 was one of four Ar 234s taken to the United States of America, post-war. A standard B-2 bomber, it was allotted the U.S.A.A.F. Technical Intelligence coding "FE 1010". (Photo: U.S. Air Force ref. 163942 AC)





Standing in knee-high grass and shrouded in tarpaulins, a damaged Ar 234 B-1 photographic-reconnaissance aircraft of 1.(F)33 is inspected by Danish officers on Karup-Grove airfield. Summer 1945. (Photo: Royal Danish Air Force)

Newark to Freeman Field near the town of Seymour in Indiana. A distance of 650 miles was covered in 100 minutes. Later, this *Blitz* was reputed to have been extensively tested at Wright-Patterson Air Force Base, Dayton, Ohio. Today one of these four Ar 234 Bs still survives, dismantled but in good condition. Owned by the Smithsonian Institution's National Air Museum and stored at Silver Hill, Maryland, it is intended that the Ar 234 will be re-erected (during 1970) prior to refurbishing and subsequent permanent exhibition.

This is the last of the breed existing in the West.

Whether a specimen survives within the Socialist bloc is doubtful. What is known is that the Russians also evaluated the *Blitz*. For no accountable reason the *NII VVS*—Experimental Research Institute of the Soviet Air Force—failed to take much interest in the Ar 234 until 1946. In March of that year an intact *Blitz* was located at Damgarten, on the Baltic coast,

north-east of Rostock (presumably the present East German airfield at Putnitz, or possibly Barth). The *NII VVS*'s solitary lend-lease Curtiss C-46 Commando twin-engined transport was flown from Moscow to Berlin carrying both the Chief Engineer, I. G. Rabkin and a well-known Russian test pilot, A. G. Kubyshkin, together with a team of engineers. The C-46 touched down at Berlin on March 26, 1946, and then flew on to Damgarten. The airfield was so small that the C-46 could not use it, and the *NII VVS* party had to proceed by road from another base.

While inspecting the Ar 234 the recovery team discovered that one engine was unserviceable. Despite this, and the pocket handkerchief nature of the field, by taking-on minimum fuel, Kubyshkin flew the Arado out and south to Rechlin. Here, the Russians had repaired the damage to the long concrete runways of the former *Erprobungsstelle* inflicted by the U.S.A. 8th Air Force. At Rechlin the other Jumo 004 failed and had to be replaced. Kubyshkin made other flights with the captured Ar 234 from Rechlin. On one of these an engine caught fire with the aircraft fuelled to capacity. Nursing the *Blitz* back to Rechlin the Soviet test pilot made a fine flapless belly landing after both undercarriage and flaps failed to function. The tail-braking parachute helped to prevent what might have been a fatal accident. A possible pointer that few other undamaged Ar 234s were available at this time in the Soviet Zone of Germany, is the fact that despite this incident the battered specimen was repaired and extensively flown by other *NII VVS* personnel. Frequent engine failures, however, prevented the planned ferry flight back to Moscow.

Series Editor: CHARLES W. CAIN

A battered and dusty Ar 234 B-0, W.Nr. 140114 (coded GM+BN), stands in a damaged hangar at Manching airfield. In the background are Ju-88 G night-fighters used in the defence of München (Munich). This *Blitz* was one of several pre-production Ar 234s flown from the *Erprobungsstelle* Rechlin. On September 14, 1944, when the aircraft was ferried to Burg near Magdeburg for modification in order to flight test an automatic pilot, the airframe time totalled only 7 hours 11 minutes. (Photo: U.S. Army ref. SC 195630)





Front view of Ar 234 B-0, W.Nr. 140114 (GM+BN), abandoned with open access panels in a hangar at Fliegerhorst (Air Force Station) Manching. Photographed on April 29, 1945, the airfield had just been captured by the 111th Corps, 3rd U.S. Army. Today, Manching is the new Federal German Erprobungsstelle (Rechlin is now within the territory of the German Democratic Republic) and is the main proving centre for West German military aircraft. (Photo: U.S. Army ref. SC 196209)

SPECIFICATION

ARADO Ar 234 B-2 *Blitz* Bomber

Dimensions

Span 47 ft. 3½ in.; length 41 ft. 5½ in.; height 14 ft. 1¼ in.; wing area 290.6 sq. ft.; wheel track 6 ft. 8¾ in.

Crew

One. Access to the cockpit by hand and foot-holds in the left side of the fuselage and through a hinged and jettisonable roof panel.

Powerplants

Two Junkers Jumo 109-004 B-1 turbojets. Each producing 1,984 lb. static thrust at sea level, dropping to 1,470 lb. s.t. at 29,529 ft.; 8-stage axial compressor, six constant-pressure individual combustion chambers, single-stage non-cooled turbine and adjustable tail pipe; air mass flow 48.6 lb./sec.; compression ratio 3.5; limiting engine speed 8,700 r.p.m.; specific consumption 3.086-3.174 lb./lb. hr.; maximum diameter 2.495 ft.; overall length 12.48 ft.; weight 1,655 lb.

Assisted take-off

At high take-off weights, the Ar 234 B-2 was fitted with two underwing Walter Ri 202b (109-500) rocket motors. These had a controlled thrust of 1,102 lb. for a burning time of 30 seconds. Units were jettisoned after take-off, descended by parachute and were re-usable.

Fuel

J2 diesel oil. Two fully flexible fuselage tanks. Forward tank 374 Imp. gals., aft tank 440 gals. Total internal fuel 814 gals. Additional 66-gal. drop tanks could be carried on the bomb-slip under each engine nacelle.

Armament

It was planned that the *Blitz* should be armed with two 15.1-mm. Mauser MG 151 cannon (250 rounds per gun) or two 20-mm. Mauser MG 151/20 cannon (200 r.p.g.) in a fixed *Magirus* bomb installation firing aft beneath the rear fuselage. Most operational Ar 234s were not fitted with this defensive armament. The B-2 was equipped with a PV 1b periscopic sighting head which could be switched to aft vision when sighting the remotely-controlled tail guns, a graticule being seen when scanning rearwards, the field of view being inverted.

The normal bomb load was limited to a maximum of 2,204 lb.

With rocket-assisted take-off, 3,307 lb. maximum could be carried.

The *Schlosslafette 1000/500X1BZ* bomb-carrier was mounted under the aircraft's belly. On the carrier was a multi-purpose bomb-

slip, *Schloss 502 A-1*, capable of retaining a single 2,204 lb. *SC 1000*, *SD 1000*, 1,102 lb. *SC 500* or *SD 500*, 551 lb. *SC 250* or *SD 250* bomb. Additionally, *AB 500* or *AB 250* cluster containers of small fragmentation bombs, incendiaries or flares were also carried. Under-engine nacelle slips could accommodate loads up to a 1,102 lb. bomb under each motor, if the normal 66-gallon drop tanks were not carried. Special arrangements had to be made if unusual stores (limited to a maximum of 3,086 lb.) such as the *SC 500 R*, *BT 700*, *BT 1400* and *PC 1400* were carried under the main fuselage slip.

Weights

Empty 10,802 lb.; crew, fuel and oil 7,092 lb.; Walter Ri 202b (109-500) rocket ATO units (if used) 1,235 lb.; normal loaded weight (with ATO units) 19,129 lb.; maximum taxiing weight 20,944 lb.; maximum take-off weight (without ATO units) 20,833 lb.; maximum take-off weight (with ATO units) 22,068 lb.; maximum landing weight 15,432 lb.

Performance

Maximum speed at full thrust with a belly-mounted *SC 1000* bomb, 413 m.p.h. at sea-level; 425 m.p.h. at 19,686 ft. Maximum speed (full thrust) after release of belly-mounted *SC 1000*, 438 m.p.h. at sea-level; 457 m.p.h. at 19,686 ft. Maximum speed (at 60 per cent thrust), 332 m.p.h. at sea level; 335 m.p.h. at 13,124 ft. Landing speed, 91 m.p.h.; time to climb to height at maximum take-off weight, 3.8 min. to 6,562 ft.; 26.9 min. to 26,248 ft. Range at sea-level at full thrust, 416 miles; range with outboard leg at 28,873 ft. and inbound leg at 35,435 ft., 994 miles. Tactical radius (40 per cent of total range), 397 miles. Service ceiling at maximum take-off weight, 28,873 ft.; endurance 57 mins. at sea-level, 150 mins. at height; landing run at 12,346 lb., 1,247 ft. (reduced to 820 ft. with ribbon braking parachute deployed).

Note

Some B-2 aircraft were delivered equipped for photographic-reconnaissance or special marking duties. Other bombers were used by reconnaissance units when replacement aircraft were in short supply, these being converted for this work in the field. Such modifications involving the fitment of aerial mapping cameras (2 × *Rb 50/30* or single *Rb 75/50-Rb 20/30* combinations; occasionally 2 × *Rb 75/30s* were used), fairing of the bottom gondola and detail changes took some 600 man hours. The following suffixes then applied:

B-2/b—with aerial cameras.

B-2/bp as B-2/b but with *Patin PDS* auto-pilot.

B-2/bpr—as B-2/bp but with 2 × 66-gal. drop tanks.

Main source: *Werkschrift 2234 B-2 Teil 0: August 1944.*

Cross-reference to USAAF fighter units mentioned in the narrative—(see footnote page 96).

Fighter Squadron	Fighter Group	Type	Base in England	Gp. Commanding Officer
82nd	78th	P-51	Duxford	Col. John D. Landers
328th	352nd	P-51	Bodney*	Col. James D. Mayden
350th	353rd	P-51	Raydon	Col. Ben Rimerman
351st	353rd	P-51	Raydon	Col. Ben Rimerman
385th	364th	P-51	Honington	Lt.-Col. Eugene P. Roberts
434th	479th	P-51	Wattisham	Col. Kyle L. Riddle
503rd	339th	P-51	Fowlmere	Lt.-Col. William C. Clark

*During early 1945 the 352nd Fighter Group operated on detachment from Chievres airfield in Belgium.

ARADO AR 234 PROTOTYPES

Prototype	Series Ar 234	No. and engine type	Remarks
V 1	A	2 × Jumo 109-004 A-O	Unarmed test aircraft, skid undercarriage.
V 2	A	2 × Jumo 109-004 A-O	Unarmed test aircraft, skid undercarriage.
V 3	A	2 × Jumo 109-004 A-O	Extensively flown. Used for control surface load tests, take-off roll time measurements, etc. In 1943 badly damaged after nosing-over, but repaired and still flying in July 1944. Ejector seat, skid undercarriage.
V 4	A	2 × Jumo 109-004 A-O	Reserve aircraft. Ejector seat, skid undercarriage. Still flying in July 1944.
V 5	A	2 × Jumo 109-004 A-O	Flown operationally by <i>Versuchsverband des OKL</i> as reconnaissance aircraft. Skid undercarriage.
V 6	A	4 × BMW 109-003 A-O in individual nacelles.	Extensively flown. Mainly used for engine trials; fuel flow, fuel pump research, etc. Skid undercarriage.
V 7	A	2 × Jumo 109-004 A-O	Flown operationally by <i>Versuchsverband des OKL</i> as reconnaissance aircraft. Skid undercarriage.
V 8	A	4 × BMW 109-003 A-O in two paired nacelles (one pair under each wing).	Used for tests of engine installation. Precursor of "C"-series engine layout. Skid undercarriage.
V 9	B	2 × Jumo 109-004 B-1	First prototype to have a retractable nosewheel and main undercarriage layout. Extensively flown. Used for engine trials, c. of g. tests, flying control measurements, rocket-assisted take-off experiments, etc.
V 10	B	2 × Jumo 109-004 B-1	Second "B"-series prototype. Complemented V 9 as trials aircraft. Tested three-axes automatic pilot, Wako braking-parachute, drop tank trials, etc. Later crashed.
V 11	B	2 × Jumo 109-004 B-1	Used for speed and height trials.
V 12	B	2 × Jumo 109-004 B-1	Later served as testing replacement after loss of V 10.
V 13	B	4 × BMW 109-003 A-1	Used for testing "paired" engine installation.
V 14	B	2 × Jumo 109-004 B-1	Radio trials aircraft.
V 15	B	2 × BMW 109-003 A-1	BMW engine test bed. Used for high-altitude trials.
V 16	B	(a) 2 × BMW 109-003 A-1 (b) 2 × BMW 109-003 R	(a) Fitted with wooden swept-back wing following earlier trials of laminar-flow wing. (b) At later stage to be fitted with a wooden swept-back wing and foreplane for high-speed trials employing rocket-boosted jet engines.
V 17	B	2 × BMW 109-003 A-1	BMW engine test bed.
V 18	B	2 × Jumo 109-004 B-1	To be fitted with an experimental metal swept-back wing.
V 19	C	4 × BMW 109-003 A-1	First C-2 series (unarmed reconnaissance) prototype. Paired engines. BMW trials aircraft. Used for pressure cabin tests, de-icing experiments, etc.
V 20	C	4 × BMW 109-003 A-1	Second C-2 series (unarmed reconnaissance) prototype. Paired engines. BMW trials aircraft. Used for pressure cabin tests, fuel feed, fuel pump and general tankage experiments.
V 21	C	4 × BMW 109-003 A-1	First C-3 series (armed bomber) prototype. Paired engines.
V 22	C	4 × BMW 109-003 A-1	Similar to V 21.
V 23	C	4 × BMW 109-003 A-1	Pressure cabin trials.
V 24	C	4 × BMW 109-003 A-1	Similar to V 24.
V 25	C	4 × BMW 109-003 A-1	C-3 series prototype.
V 26	C	4 × BMW 109-003 A-1	C-3 series prototype.
V 27	C	4 × BMW 109-003 A-1	C-3 series prototype.
V 28	C	4 × BMW 109-003 A-1	C-3 series prototype.
V 29	C	4 × BMW 109-003 A-1	C-3 series prototype.
V 30	C	4 × BMW 109-003 A-2	Planned to test re-designed undercarriage with enlarged diameter wheels.
V 31	C	4 × BMW 109-003 A-2	Experimental two-seat prototype.
V 32	C	4 × BMW 109-003 A-2	Experimental two-seat prototype.
V 33	No data	No data	No data

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Taken on September 20, 1946, this Ar 234 B-1 was one of the four Arados shipped to the United States during July 1945. Little has yet been discovered concerning the extensive test flying rumoured to have been carried out post-war with the Blitz at Wright-Patterson Air Force Base, Dayton, Ohio.

(Photo: U.S. Air Force ref. 166318 USAF)

