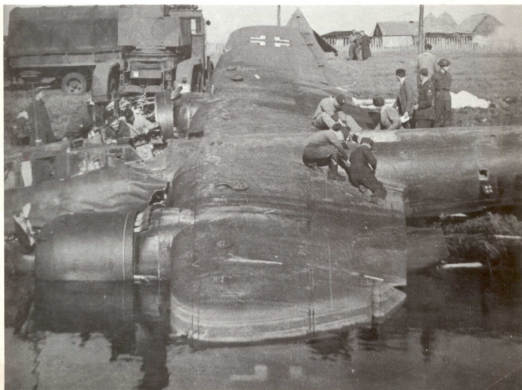


PROFILE Aircraft



Dornier Do 217 variants by Alfred Price





Dornier Do 217 variants

by Alfred Price

For its time, the Dornier Do 217 was a fast, modern design, well-liked by the German Luftwaffe crews who flew it in its intended, bomber, role. But, by the time the Do 217 entered service with bomber units, in mid-1941, the Allied fighter defences had been strengthened to the point where German bomber operations were rarely possible without incurring severe losses. The Dornier Do 217 spent almost all of its operational career in the West and the Mediterranean theatre. In consequence, all judgments as to the effectiveness of the Do 217 as a conventional bomber must be set against this background.

The Dornier Do 217 was the first new bomber design to enter large-scale service in the Luftwaffe (Air Force) after the outbreak of World War Two. In the closing months of 1940, the Do 217 began operations in a purely long-range reconnaissance role. For the next two years, from the summer of 1941 onwards, the Do 217 took the lead in the German retaliatory attacks on Britain and the bomber units involved suffered accordingly.

During this same period, some 350 Do 217s were converted to serve as night-fighters for the defence of Germany. Although fast, the night-fighter Do 217 was too unwieldy for the task and was never popular with its crews.

The Do 217 gained a new lease of life in the second half of 1943, and historical fame too, by

becoming the first aircraft to go into action using air-launched, guided missiles. These initial anti-shipping attacks provided the element of surprise and achieved some spectacular successes. However, later missions were to cost the German units dearly because Allied shipping was rarely allowed to venture within striking radius of the missile-carrying Do 217s without adequate defensive fighter cover.

By the spring of 1944, the Do 217 was nearing the end of its life as a bomber and the last examples reached the Luftwaffe in May 1944. Some were still used against Britain but they were only a small proportion of the force then engaged.

Yet right to the war's end, a few Dornier Do 217s remained operational in the reconnaissance role, the task for which the Do 217 had been first assigned operationally nearly five years previously.

Initial development

The Dornier Do 217 followed the Bavarian company's success with the Do 17 (see *Profile* No. 164) which was accorded, unofficially, the popular name of "Flying Pencil" ("Fliegender Bleistift") because of its relatively slim fuselage. The Do 217 was designed to meet a 1937 Specification issued by RLM, the German Air Ministry (Reichsluftfahrtministerium). This design specification was for a two-motor bomber with both horizontal- and dive-bombing capabilities and improved load-

Summer of '42: Luftwaffe personnel of the Second Gruppe of Kampfgeschwader 2 (II./K.G.2)—the "Holzhammer" ("Mallet" or "Wooden Hammer") Geschwader—relax in the warmth of the summer sun at the Netherlands air base of Gilze-Rijen in Noord-Brabant, between Breda and Tilburg. This is a Dornier Do 217 E-4 of I./K.G.2's Fifth Staffel (code: U5+ZN). About this time, the E-series was being replaced in production by the Do 217 K. "Holzhammer" was the only Geschwader ever to be fully equipped with Do 217s. Also, from the close of 1941 to the beginning of 1944, K.G.2 was charged with the major bombing assault against Britain; in consequence, K.G.2's losses were correspondingly severe. Photo: Bundesarchiv, ref. 362-2212-318



carrying and performance characteristics. At the time, the best bombers of the Luftwaffe were the Do 17 and the Heinkel He 111 (see Profile No. 15).

The RLM bomber requirement was strongly influenced by the earliest experiences of the Luftwaffe's Condor Legion in the Spanish Civil War which began in the summer of 1936. The operational baptism of the "Flying Pencil" also prompted the redesign of the basic Do 17 and led to the Do 17 Z-series.

Detailed design work on the Do 217 began in mid-1937 and, when finally "frozen" or design-sealed, resulted in a bomber that was basically an enlarged Do 17 Z. While following the general configuration of the Do 17 Z, the bigger Do 217 incorporated both aerodynamic and structural refinements. To satisfy the dive-bomber requirement, the tail section of the rear fuselage was designed to house a novel, "petal"-type dive-brake assembly. Although the bomb load capacity was increased from the Do 17's 2,200 pounds (1,000 kilograms) to 6,600 lb (3,000 kg), the wingspan was extended by about 3.3 feet (1.0 metres) and the fuselage by nearly 8 ft (2.40 m). As with the Do 17, the crew of four was to be accommodated in the bulbous nose section.

The first prototype, the Do 217 V1, powered by two 1,075 h.p. Daimler-Benz DB 601 A liquid-cooled, 12-cylinder, inverted-vee inline engines, undertook preliminary flight trials in August 1938. In the following month, the Do 217 V1 crashed at Tettwang, about 6 miles (10 kilometres) north-east of the Dornier-Werke GmbH headquarters at Friedrichshafen, on Lake Constance (the Bodensee). Both crew members were killed. These early tests had revealed shortcomings in respect of poor directional stability and sluggish response on the controls.

The prototype programme was too far advanced for these matters to hold up development of the new bomber and, before the end of the same year, two more Do 217s (the V2 and V3) were completed. In place of the DB 601 As, 950 h.p. Junkers Jumo 211 As, also liquid-cooled, 12-cylinder, inverted-vee inlines, were installed. One of these prototypes was used to test the tail air-brake system but the trials were marred by overstressing of the rear fuselage.

In early 1939, a fourth prototype (Do 217 V4) was ready for flight-testing and was similar to the V2 and V3.

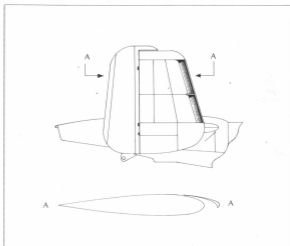
During this period, Dornier-Werke GmbH had begun to tackle the design faults already revealed. The official trials with the Do 217 V4—and resultant castigations—demanded a speedy end to the shortcomings. One of the most serious problems to be overcome was the dangerous tendency of the tail fins to give stall characteristics during a yaw at low speed; the sort of condition occurring during an asymmetric landing approach with one engine stopped. A fixed slot built into each fin's leading-edge effectively cured this aerodynamic fault.

The next three test aircraft (Do 217 V5, V6 and the V1E—a Replacement/Ersatz V1) incorporated the various design improvements while reverting to the original DB 601 A engines.

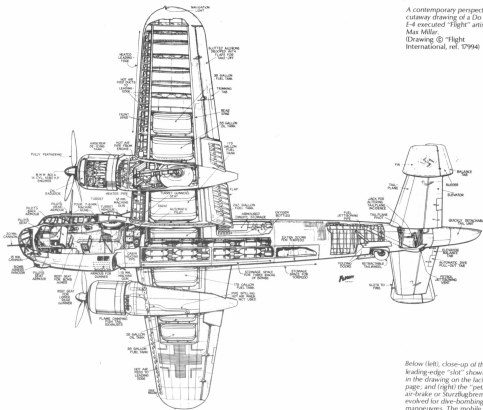
In the event, the DB 601 As did not perform well under test and the RLM favoured the installation of engines offering appreciably more power than that offered by either the DB 601 A or the Jumo 211A. A promising contender was

Pre-war German civil registration letters, D-AMSD, identify this early configuration Do 217 as the fourth prototype (Do 217 V4) which began flying trials in the first half of 1938. Seven of the nine initial prototypes (Versuchs 1 to V8 plus replacement V1E) were powered by inline engines: the Daimler-Benz DB 601 A being allocated to the V1, V5, V6 and V1E and the slightly lower-powered Junkers Jumo 211 A being assigned to the V2, V3 and V4. (Photo: Imperial War Museum, ref. MH452)

By incorporating an outwards-facing "slot" in the leading-edge of both vertical, fixed tail surfaces, the potentially dangerous stall characteristics were eliminated during asymmetric-power, low-speed, landing approach conditions. (Drawing: © Profile Publications Ltd)

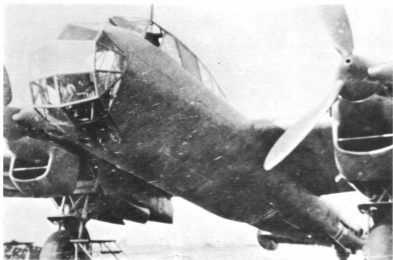


A contemporary perspective cutaway drawing of a Do 217 E-4 executed "Flight" artist, Max Miller (Drawing © "Flight International, ref. 17994)



Below (left), close-up of the leading-edge "slot" shown in the drawing on the facing page; and (right) the "petal" air-brake or Sturzflugbremse evolved for dive-bombing manoeuvres. The mobile jack used to ease the tail-end of the aircraft is noteworthy. (Photos: via John F. Brindley)





◀ What this photograph lacks in definition is compensated for by the rarity of the subject, namely one of the eight initial production batch of A-0 series Do 217s. After entering service in late 1940, these Do 217 A-0s were engaged on secret photographic reconnaissance of potential USSR targets prior to the June 1941 invasion of the Soviet Union. The cameras were installed in the bulged bay which extended from behind the nose section to a point almost in line with the mainplane's trailing-edge. (Photo: Archiv Schleppehäkel)

▶ (Top right) Kampfflugzeug Dornier Do 217, one of the pre-production Do 217 E-0 series in fact. BMW employed DD+LF in its BMW 801 flying test programme. (Photo: via John F. Brindley)

▶ A Dornier Do 217 E-2 (RH+EW) climbing away and showing the extension beyond the tail assembly containing the "petal" air-brakes for dive-bombing. (Photo: via John F. Brindley)

▶ The Do 217 E-2 was the first of the production series to incorporate the rear, electrically-operated, dorsal turret with its single 13-mm. MG 131 machine-gun. (Photo: via Ing. Hans Redemann)

▶ A Do 217 E-1 (FB+GN) bears the code and the "World-in-a-Ring" emblem of K.G.40, the first bomber formation to obtain Do 217s for front-line service. The photograph was taken in France at Bordeaux/Mérignac in 1941. (Photo: via F. Seinger)

▶ Dornier Do 217 E-2s warming-up on the factory airfield. Blister at rear of dorsal canopy houses loop aerial for the D/F direction-finding. (Left) Note mud-guard. (Photo: via John F. Brindley)

the 1,550 h.p. BMW 139, an air-cooled, 14-cylinder, 2-row radial developed by the BMW Flugmotorenbau GmbH. of Munich, in 1939.

The seventh and eighth Do 217s (V7 and V8) were fitted with the BMW 139 radials and were flown in the autumn or fall of 1939. By this time, however, the "promising" BMW 139 had already been abandoned by the engine company—cooling "bugs" hampered acceptance—in favour of the new BMW 801.

Cooling problems notwithstanding, the BMW 139 opened the way to the 1,580 h.p. BMW 801-powered prototype (the V9) which flew for the first time in early 1940. Effectively, the Do 217 V9 with BMW 801s and featuring an entirely redesigned fuselage—with deeper cross-section and enlarged bomb-bay—was the basis of the Do 217 E-series, which was put into mass-production in mid-1940. The bigger bomb

compartment now enabled the new sub-type to carry the largest bombs internally.

As briefly noted already, early in the Do 217 test programme it had been discovered that the rear-mounted "petal" air-brake could cause overstressing of the fuselage during the dive-bombing manoeuvre. Because the Luftwaffe and RLM insisted on the Do 217 having a dive-bombing capability—in order to exploit this greater-accuracy mode of bombing—Dornier worked hard to satisfy this requirement.

One of the test Do 217 Vs was modified to carry an extra pair of air-brakes. Installed between the fuselage and the engine nacelles, each air-brake comprised four parallel bars. When not in use, the air-brakes were locked in the normal, low-drag position. On entering the bombing dive, the air-brakes rotated through 90° about the axis of the centre bars and took



on the high-drag position. At this stage it was necessary to compensate for the resultant nose-down trim change. This was accomplished by way of automatically applied, elevator interconnected trim tabs. The mechanism to achieve this compensation proved to be over complicated. Following a test dive, the tabs jammed in the "up" position and when the pilot returned the air-brakes to the low-drag position, the nose of the bomber rose sharply. An uncontrollable stall condition then occurred and the test Do 217 crashed.

By the summer of 1940, the need for Luftwaffe long-range bombers to have dive-bombing capability was reduced in importance by the introduction of the new Lotfe (Lotferrohr) tachometric bomb-sight. The bombing accuracy achieved against stationary targets by trained crews was of the same order as those possible from diving attacks. In consequence, steep dive-bombing was not required of the Do 217 and the rear "petal" air-brakes were not fitted to the Do 217s operated by the Luftwaffe.¹

Production launched

Preparations for full-scale production had, in fact, been put in hand during 1939 before the seriousness of the development problems of the Do 217 had been fully appreciated. As an interim measure, the RLM instructed Dornier to complete a small number of pre-production examples. These were of two distinct types: Do 217 A-0 reconnaissance-bombers and Do 217 C-0 horizontal bombers.

The first pre-production aircraft to be completed was a Jumo 211-powered bomber known as the Do 217 C V1.

The A-0 reconnaissance aircraft were powered by DB 601 As and were similar to the early prototypes apart from the under-fuselage bulge extending almost to the trailing-edge of the wing. A pair of vertically-mounted cameras were mounted in the housing. Eight Do 217 A-0s were built and, as is related later in this *Profile*, they saw operational use.

The four DB 601 A-powered Do 217 C-0 bombers—like the A-0s completed in the summer of 1940—did not find any Luftwaffe application. They were assigned initially to bomb-sight testing and later to engine (DB 601 and Jumo 211) trials.

The Do 217 B and D designs never got past the paper stage and the first mass-production variant was destined to be the Do 217 E. A small run of pre-production Do 217 E-0s was completed in the autumn of 1940 and then deliveries of the E-1 version started, this being followed by sub-types E-2 through E-5, as detailed in the appendix.



¹The dive-brake was incorporated on certain E-series versions, even if rarely used—Editor.



In Luftwaffe service

The eight Do 217 A reconnaissance aircraft in the initial production batch went to the Special Staffel for High Altitude Flying. In fact, this title was a "cover", for the unit was part of Oberstleutnant Theodor Rowehl's special Gruppe operating under the direct control of the Luftwaffe High Command or Aufklärungsgruppe des Oberbefehlshabers der Luftwaffe.

From the closing months of 1940 the Dorniers, based at Cracow in Poland and Bucharest in Rumania, flew a series of clandestine reconnaissance missions deep into Russian territory in preparation for the German attack. Following the invasion, in June 1941, Rowehl's Gruppe continued in the same role but was now employed as a conventional reconnaissance unit on the Eastern front.

The first bomber unit to receive the new Dornier was the II. Gruppe of Kampfgeschwader 40 (II./K.G.40) operating from Soest in Holland and Bordeaux/Merignac in France; its Do 217 Es started to arrive in the spring of 1941, and the unit began operations in the anti-shipping role. As the year progressed II./K.G.40 was joined in this work by K.G.2, as this entire Geschwader became operational with the Do 217 E. Initially, the new aircraft were employed mainly on

shipping reconnaissance and minelaying sorties. When conditions appeared favourable they also made low-level or shallow-dive attacks on shipping. But, from the beginning of 1942, the anti-aircraft guns and fighter defences protecting the British coastal convoys began to make these attacks unprofitable. During a five-week period in February and March 1942, K.G.2 lost thirteen crews engaged in these operations.

During the second half of 1941 and the first quarter of 1942 there were few sorties against inland targets in Britain. With the Russian campaign in full swing, the Luftwaffe lacked the bomber strength in the West to mount powerful and sustained attacks in the face of the increasingly powerful defences. This quiescent phase came to an abrupt end following the destructive Royal Air Force Bomber Command attack on Lübeck on March 28 1942. Hitler demanded retaliation, regardless of losses to the units involved. On April 23, a force of 45 German bombers—for the most part Do 217s of K.G.2—launched an attack on Exeter. On the following night, 60 aircraft repeated the assault. During the next two nights the target was Bath, which suffered severe damage in these raids which together totalled 250 sorties.

Yet even as the German bombers were

A Do 217 E-2 (F8+CN) of K.G.40's 5. Staffel illustrates one type of night camouflage commonly applied during 1942. Only the individual aircraft letter "C" (white outlined red "C") is retained on the rear fuselage but the whole code is painted in miniature on the fixed vertical tail surface. (Photo: Bundesarchiv, ref. 375-2703-6a)

Another Do 217 E-2 with a different night-bomber paint scheme of black "scribbles" on grey. The code letters "FN" appear in white on the fin below and forward of the swastika symbol—possibly the unit is K.G.2's Second Gruppe. No German crosses have been applied on the mainplane upper surfaces. Bomb doors and entry hatch are open. (Photo: Bundesarchiv, ref. 483-2882-30a)



pounding Bath, those of the RAF were wrecking the German town of Rostock in a series of four destructive fire raids. Hitler was beside himself with rage when he heard of this development. On April 26, in an impassioned speech, he spoke of taking a copy of Baedeker's guidebook and marking-off each British city (marked with three stars as of "historical/artistic interest") when it was destroyed. Because of this, the series of attacks became known in Britain as the "Baedeker Raids".

Following the raids on Bath, both Norwich and York suffered heavily. Then, on the night of May 3, came the most devastating of the series of reprisal attacks. Once again the target was Exeter, but on this occasion the target-marking was accurate and the bombing concentrated. The fires quickly took hold amongst the heavily-timbered medieval buildings. Unhindered by the narrow streets, they raged unchecked until a large part of the city had been gutted.

During the remainder of May 1942, the German bombers, still for the most part the Do 217s of K.G.2, struck at Cowes, Hull, Poole and Grimsby and, on the final day of the month, Canterbury. Throughout the period of the reprisal attacks, losses had been mounting steadily, and June and July saw a marked reduction in the attacks on Britain. The dying spasm—three raids on Birmingham and one on Hull at the end of July—cost the Luftwaffe 27 bombers and caused little damage.

Following this painful ending, the badly-mauled Baedeker units settled down to rest and refit, but they were not to be allowed to undertake this without interruption. On August 19, Allied forces launched a large-scale seaborne raid on Dieppe. Virtually all the operational Luftwaffe units in France and Belgium went into action in the defence of the French port; K.G.2 sent its Dorniers against the concentration of Allied shipping. However, they found the way



barred by powerful standing patrols of fighters; that day the Geschwader launched nearly its entire strength of about 80 aircraft, and lost a quarter of them in fierce battles round Dieppe.

Lacking the replacements necessary to make good such a rate of attrition, Kampfgeschwader 2 was rapidly reduced to a state of impotence. While K.G.2 usually had sufficient aircraft, the provision of trained crews fell far below what was needed. Having started 1942 with an average monthly strength of 88 crews, by September K.G.2 was down to only 23 crews. But after this nadir in its fortunes K.G.2 was gradually built up again. By the end of the year it began sending out its Dorniers in ones and twos in daylight nuisance attacks on peripheral targets in Britain. Typical of these was the one mounted against Eastbourne on December 18. The solitary Do 217 swept in low over the sea, under the low cloud and the British radar cover. A stick of four 500 kg bombs was released across the town centre. There was scarcely any warning and the streets were crowded with Christmas shoppers. As a result, the loss of life was high; 18 people were killed, and 37 more suffered injuries.

A cluster of 1,000-lb SC 500 high-explosive bombs (identified by the yellow stripes on the tail cones) await delivery by the Do 217 E-2 in the background. Because these and many other types of bombs carried by the Luftwaffe were electrically primed only on release, they were considered safe enough to be left around parking areas in this fashion, prior to loading. (Photo: Bundesarchiv, ref. 375-2704-6a)



Head-on view of the Do 217 E-2, coded "HN", illustrated at the foot of the facing page. The Bomberklappen (bomb doors) show their unusual method of "sandwiching" in the open position. (Photo: Bundesarchiv, ref. 483-2882-6a)

At the close of 1942, two important new sub-types entered service; the Do 217 K and the almost identical Do 217 M. These versions had a completely redesigned forward section, with a rounded unstepped cockpit and a fully glazed nose. To safeguard production against possible aero-motor shortages, the new models were allocated different engines. The Do 217 K was fitted with the BMW 801 D radial developing 1,700 h.p. at take-off, while the Do 217 M was powered by the 1,750 h.p. DB 603 A inline. The new sub-types were both some 20 m.p.h. faster than the earlier E model. Simultaneously, the Dorniers began operating with two new devices intended to improve their chances of avoiding the defences; the FuG 101 radio altimeter—which made possible a low level approach to the target at night or in bad visibility—and the Neptun rearwards-looking radar, to provide warning of night fighters closing from astern.

With these technical improvements, the revitalised K.G.2 was hurled back into the fray over Britain in February 1943. But the defenders had not stood still in the meantime, and once again the German losses were heavy. During March 1943, the Geschwader lost 26 complete crews. The steady drain in men and machines continued into the spring, and the German bombers were not even safe when they had left the inferno of the British defences. Following the attack on Norwich on the night of May 4, British intruders struck at the Dorniers as they returned to their base at Eindhoven, in Holland, and shot down two of them. Flying in one of the aircraft was the Geschwader commander, Major Walter Bradel, who was killed.

From an official Luftwaffe account, written late in the war, a firm impression of the difficulties facing K.G.2 and the other units involved in raiding Britain can be gained. For example:

'In no other theatre of war are changes resulting from the reciprocal effect of technical and tactical developments, offensive and defensive weapons, so acutely and speedily perceptible. During the years 1942-43 the enemy found, usually within one to one-and-a-half months, an answer to every new method of attack [we employed].'

Night-fighter series

Early in 1942, the first examples of the Do 217 J, a night-fighter conversion of the Do 217 E bomber, were delivered to the Luftwaffe. The

aircraft had a redesigned nose in which was mounted the fixed, forward-firing armament of four MG FF (20 mm) cannon and four MG 17 (7.9-mm) machine-guns. Later, some of these aircraft were fitted with the FuG 202 Lichtenstein, a night-fighter search radar with a maximum range of about 2½ miles. For the most part these initial conversions were employed as operational trainers.

The next night-fighter sub-type was the Do 217 N, fitted with the more powerful DB 603 motors. But although the performance was markedly better than the earlier J sub-type, the new variant was not a welcome addition to the night-fighter force when it was issued to front-line units in the spring of 1943. Major Wilhelm Herget, who commanded I./N.J.G.4 at the time and who ended the war credited with 57 night victories, has told this author:

'In mid-1943 my Gruppe received sufficient Dornier 217N aircraft to equip one Staffel, because at the time the Messerschmitt 110 (see Profile No. 207) was in short supply and the High Command thought that the converted bomber's extra endurance might be useful. We found the 217 fast and very stable, excellent for instrument flying, and obviously a very nice bomber; but it was too heavy on the controls, and it climbed too slowly to be much good as a fighter. I flew the 217 once, just to try it. But after that I refused to use it on operations and reverted to my tried and trusted 110, which was greatly superior as a night interceptor.'

By the beginning of 1944 the Do 217 was being replaced in the front-line units by more effective types. Altogether a total of 364 Do 217 night-fighters were delivered to the Luftwaffe,¹ but

¹The Italian Air Force (Regia Aeronautica) received a dozen Do 217 J aircraft in 1942-43. The background to this story stems from Italy's total lack of night-fighter aircraft. When British night raids first caused trouble Fiat C.R.42s (see Profile No. 16) were impressed into the role, while during 1942-43, a small number of Reggiane Re. 2001Cns (see Profile No. 244) became available. In January 1942, an Italian mission visited Germany to inspect night-fighter operations there. Subsequently, the Italian Government requested the Germans to supply the Messerschmitt Bf 110. In June 1942, two Bf 110 Cs were supplied, followed by a third three months later. With that, Bf 110 deliveries ceased and six Dornier Do 217 J-1s were supplied during the period September 1942-February 1943. They (along with the Bf 110s) were issued to the 235^a squadriglia (part of the 41^a stormo's 467^a gruppo, based initially at Treviso and later at Lonate Pozzolo.

(As a footnote within a footnote, so to speak, it is of interest to observe that the 41^a stormo operated a Bristol Beaufighter (see Profile No. 137) for several months as a trainer. The ex-RAF aircraft had landed at Magnis (Syracuse) in January 1942, the pilot thinking he was in Malta. After testing at Gudonia it went to the 41^a stormo and was written-off on January 29, 1943 in a landing accident.)

The 235^a squadriglia did not particularly like the Do 217 J-1, which lacked radar, and the Italian Air Force asked for radar-equipped Bf 110 Cs. Instead, radar-equipped Do 217 J-2s were supplied—six examples during the period February-June 1943. The 235^a squadriglia saw a small amount of action with its Do 217 J, especially during heavy RAF raiding on northern Italy during August 1943, although British "Window"-dropping caused problems. One Avro Lancaster (see Profile No. 65) was shot down on the night of July 16-17, 1943, without the use of radar, but otherwise the Do 217 J did not contribute materially to the defence of Italy. When the Italians signed an armistice with the Allies on September 8, 1943, the German night-fighters were either destroyed by the Italians or flown away by Luftwaffe crews.

Key to colour side views

1 Dornier Do 217 V4, the fourth prototype (D-AMSD), of 1939.

2 Do 217 E-1 (code FB+MP) of the Second Gruppe of Kampfgeschwader 40; period, 1941.

3 Do 217 E-4/R19 (J5+NT) of the 9. Staffel/K.G.2; period, 1942.

4 Do 217 N-1 (BC+DV) of the 11. Staffel/N.J.G.4 (Nachtjagdgeschwader) based in France, 1943.

5 Do 217 K-2 (individual letter "B") with wing under-slung "Fritz-X" command-guided bomb. The Do 217 K-2 is depicted in the colours and markings of Major Bernhard Jope's aircraft as commander of K.G.100 operating in the Mediterranean theatre in the summer of 1943.

Colour patches

The six colour patches reading from left to right are:

RLM 73—Dark Green
RLM 72—Mid Green
RLM 65—Light Blue
RLM 24—Dark Blue
RLM 70—Black Green
RLM 02—RLM Grey

NOTES:

Colours in patches are shown full strength but in drawings to allow for weathering and so on.

Major Walter Bradel, a former Spanish Civil War pilot, commanded II./K.G.2 from the summer of 1942 until March 1943 when he then assumed command of the entire Geschwader. Returning from a night attack on Norwich, Norfolk (May 4-5, 1943), an RAF intruder attacked his Do 217 near Eindhoven in the Netherlands and Major Bradel was killed in the crash-landing that followed. (Photo: via the author)







operationally the type achieved little. Of all the roles undertaken by this versatile aircraft, this was certainly its least effective.

In action with guided weapons

From the beginning of the war the Germans had been concerned with the problem of increasing the effectiveness of aircraft attacks against merchantmen and warships. One answer to the problem was the dive attack but long-range aircraft like the Do 217 were too large and heavy for this. And level bombing from high altitude—necessary if the bombs were to reach sufficient velocity to pierce heavy armour—was notoriously ineffective against moving targets like ships. The real answer was an air-launched weapon, which could be directed on its target during its flight. Only in this way might a large aircraft stand a good chance of hitting an evading target, while at the same time staying out of reach of the surface vessel's guns. To meet this requirement two German firms each produced a radio command guided anti-shiping weapon.

The Henschel Flugzeug-Werke AG, of Schönefeld, near Berlin, produced the Hs 293 glider-bomb, which resembled a miniature monoplane with a wingspan of just over 3 metres (10 feet). In the nose was a 500 kg (1,100 lb) high-explosive warhead, and under the fuselage was a liquid-fuel rocket motor which accelerated the missile to a speed of 370 m.p.h. in 12 seconds after release. Then, with the fuel exhausted, the missile coasted on in a shallow dive towards its target. The range of the weapon depended upon its altitude at release; typically, this was about



Most distinctive external difference of the Do 217 K from previous variants was the redesigned nose to provide better visibility for the pilot. The ground view shows the balloon cable-cutter strip running horizontally across the middle of the glazed section. (Photos: via the Author)

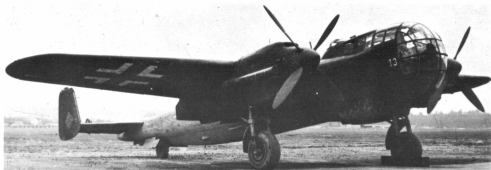
five miles if the launching aircraft was at 4,500 feet. A flare mounted on the tail of the missile enabled the observer in the bomber to follow its path; he operated a small "joy stick" controller which keyed the command transmitter with the required "up-down-left-right" signals, and these were radiated to the receiver in the glider-bomb. In effect, the observer had to steer the missile's tracking flare until it was superimposed on the target, then hold it there until the bomb impacted. The Hs 293 had little penetrative capability, and was intended mainly for use against lightly-armoured warships or freighters.

The second of the new German anti-shiping weapons, the Ruhrstahl company's Fritz-X guided bomb, was intended for use against heavily-armoured targets. Outwardly it looked like a normal bomb, except that it carried four stabi-

Look closely. This is a Do 217 E-4/R19 (Weisse Nummer 4272; code US+NT) of 9. Staffel, K.G.2, was modified with a periscopic gun-sight (26 inches long, of which the top 10 inches projected above the cockpit). In the tail cone was mounted a pair (Zwilling) of 7.9-mm MG 81 Z machine-guns. These fixed guns were aimed by the pilot who could see the attacking aircraft as a back-to-front, inverted image. This false presentation assisted aiming because the pilot had only to fly the Do 217 as if the target were in front of him to bring the guns on target. The MG 81 Z, of rifle calibre, had poor hitting power and most crews preferred the standard ploy of violent evasive action rather than careful aiming of the paired 7.9-mm guns. Few Do 217s carried this device and it is doubtful whether any successes were achieved. (Photo: Ing. Hans Redemann)

Fritz-X: A conventional armour-piercing (PC) 1,400-kg (3,085-lb) bomb, with a 270-kg (595-lb) warhead, married to a Telefunken missile-guidance system (FX), i.e.: PC 1400 FX and FX 1400 designations—ÉTRUC.





lizing wings mid-way along its body. The system of radio command guidance was the same as that employed with the Hs 293, using the same control unit and a similar tracking flare. Unlike the Hs 293, however, the *Fritz-X* was not powered. Released from altitudes between 16,000 feet and 21,000 feet, it accelerated under gravity to reach its impact velocity close to the speed of sound. The *Fritz-X* was aimed like a normal bomb using the bomb-sight, and the observer transmitted the command signals to correct its trajectory only during the final part of the missile's fall.

The Hs 293, the first of the new missiles to go into action, was carried by the Dornier Do 217 E aircraft of II./K.G.100. Although the bombers were able to carry two glider-bombs—one under each outer wing section—invariably during operations only one was carried, under the starboard wing. On the port wing rack, a drop tank was fitted, to extend the range of the aircraft and also to act as a counter-weight.

The first-ever attack using air-launched command guided-missiles was on August 25 1943, when twelve aircraft of II./K.G.100 under the command of Hauptmann Molinus attacked a Royal Navy escort group off the north-western tip of Spain. Only one of the ships suffered damage; and that was of a minor nature following a near miss.

Two days later, the missile-carrying Dorniers struck again and in the same place, this time at the five ships of the First Escort Group. The author is indebted to Captain Godfrey Brewer, the commander of the sloop *HMS Egret*, for his description of the action which followed:

'At about 2 pm we sighted 21 aircraft coming over the horizon. They quickly sized up the situation and split up into three groups of seven, each one concentrating on an A.A. ship but keeping out of gun range. No normal bombing attack developed but suddenly from *Egret's* opponents a puff of smoke appeared underneath each aircraft, an object shot ahead and above it for all the world as if a tennis player was throwing up a ball to serve, and then turned and sped towards us at very high

velocity. As they drew closer five exploded in the water either short or over, and one coming straight for the bridge was hit and exploded by a 20-mm Oerlikon shell—a very fine piece of shooting. But the seventh, which had looked as if it was going to pass down our starboard side, turned in and hit us abreast the after magazine. There was an enormous explosion as the magazine blew up, the sky was filled with burning pieces of cordite which fell all around us and, with a strange sense of detachment, I looked at my clothing on fire and thought "How odd!" Then something hit me on the head and I lost consciousness. The next thing I knew was that I was floating in the water alongside the upturned bow of *Egret*. She had capsized and as she did so I was washed out of the bridge structure by the inrush of water as she turned over. Out of a complement of 250 only 28 survived; and those were from the bridge personnel and the people from the two foremost guns, who had been sheltered from the appalling blast.'

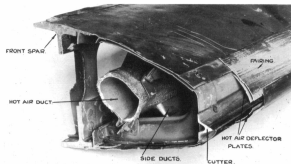
Thus it was that the 1,200-ton *Egret* gained the unenviable distinction of being the first ship to be sunk by a guided-missile. During the same engagement, the destroyer *Athabaskan* suffered damage.

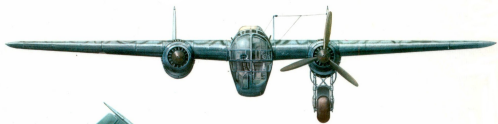
Sabotage of Hs 293s

During the months that followed, the Do 217's of K.G.100, and also the Heinkel He 177s of K.G.40,

A mud-spattered Do 217 M-1 was the inline engine counterpart of the radial engine Do 217 K-series. In the event, the "insurance" against shortages of the BMW 807 occurring did not have to be tested; thus, relatively few D8 603 A-powered Do 217 Ms were put into service. (Photo: Ing. Hans Redemann)

Section of Do 217 wing leading-edge showing both the de-icing hot-air duct and the balloon cable-cutter (Katonase) which ran the breadth of the mainplane and immediately behind the light-alloy outer covering. (Photo: via the Author)



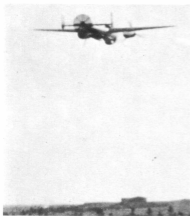




A Dornier Do 217 K-1 of the First Gruppe of Kampfgeschwader 66 (Z6+BH of I./K.G.66), summer of 1943, operating against England in a "Pathfinder" role while based at Chartres in France. The pilot was Leutnant Hans Altrogge.

Michael Trim © Profile Publications Limited.





carried out several further attacks on ships that ventured within their range. Yet successes were few because, as during the attack on *Egret*, a high proportion of the missiles failed to obey the guidance signals from the parent aircraft (see *Profile* No. 234). Later, in response to complaints from the aircrew, the technical staff at Merignac carried out an investigation into the cause of the failures; and it was then that Feldwebel Fritz Trenkle discovered that the aircraft had been sabotaged. He later recalled:

'The command guidance signals from the aircraft transmitter were carried to the aerial via a co-axial cable, and somebody had cut the central conducting wire half-way along its length and then reassembled the cable. It was very clever, and obviously done by an expert. When we tested the transmitters on the ground with the aircraft engines stopped, the central conducting wire made good contact and the signals were radiated properly. But when the engines were running the vibration caused the gap in the wire to open and close so that for long periods the guidance signals never reached the aerial. Once I had discovered the reason for the failure we checked all the Hs 293-carrying aircraft, Do 217s and He 177s, and found that about half had been "doctored" in this way. The S.S. carried out exhaustive enquiries at Merignac in an effort to find the culprit, but without success.'

Many hundreds of Allied sailors must now, unknowingly, owe their lives to the stealth and skill of this nameless French saboteur.

The attack on the Roma

While II./K.G.100 was operating with varying degrees of success over the Bay of Biscay, its sister Gruppe, III./K.G.100, was standing by at Istres in southern France awaiting the appearance of a suitable target for its armour-piercing *Fritz-X* bombs. The unit operated the Do 217 K-2, a specially modified high-altitude bomber variant with the wingspan increased by 19 feet to 81 feet

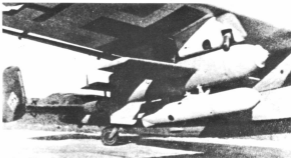
4 inches. As in the case of the Hs 293-carrying Do 217 E, the K-2 could lift two missiles; but only at the expense of range. On operational missions only one *Fritz-X* was taken; since the bomb was mounted between the Dornier's starboard engine and fuselage it caused no asymmetric problem, and there was no need for a counterbalancing weight on the port side.

On September 9, 1943, the Italian capitulated and, under the terms of the armistice, the main body of their battle fleet—comprising three battleships, six cruisers and eight destroyers—set sail from La Spezia for Malta to surrender. That morning German aircraft shadowed the warships, and early in the afternoon Major Bernhard Jope led a striking force of 12 missile-carrying Do 217 Ks after them. It was a beautiful Mediterranean summer's day with visibility almost unlimited, and Jope's crews had little difficulty in finding their quarry.

The Dorniers ran in to bomb at levels around 20,000 feet, and at that altitude the gunfire from

◀ Towards the end of World War Two, in Europe, some examples of Do 217s were fitted with a tail-mounted fabric brake parachute. This could be opened and closed in flight and permitted rapid deceleration; a useful manoeuvre to make attacking night-fighters overshoot, for example. (Photo: via the Author)

▲ Two photographs, believed to be the first to be published, showing a Fieschel Hs 293 A glider-bomb in position under the wing of a Do 217 E-5. Hot air from the parent aircraft's deicing system was fed into the weapon's guidance and control systems to prevent freezing up prior to air launching. Counterbalance for the single Hs 293 was achieved by a jettisonable fuel tank under the port wing. (Below) In close-up. (Photos: via W. Grbig)





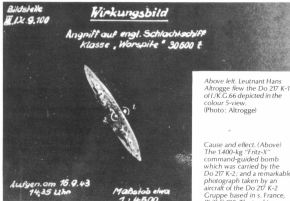
below was inaccurate and ineffective. On the surface far below, the Italian ships went into tight turns, twisting this way and that in an effort to throw the Germans off their aim. Confronted by normal high-altitude bombers the Italian moves would have been successful; a bomb takes nearly 45 seconds to drop from 20,000 feet, and in that time a fast warship can cover 700 yards forwards or to either side.

Jope's aircraft were loaded with radio-controlled bombs, however, and there was no saboteur at Istres. As a result, the evasive manoeuvres afforded the ships little protection. The first to be hit was the flagship, the battleship *Roma*; it struck her just to starboard of the after mast, punched its way clean through the ship and exploded immediately underneath her. Seriously damaged, *Roma*'s starboard steam turbines ground to a halt; the ship slowed down to 16 knots. A few minutes later *Roma* took a second hit, this time between her bridge and her "B" turret. This knocked out the steam turbines on her port side as well, and the battleship slid to a stop. Below decks a fierce fire raged, which quickly burnt its way through to the forward magazine; there was a great explosion and the ship folded up like a jack-knife, before breaking into two. She then sank, with heavy loss of life.

Shortly after the attack on *Roma*, her sister ship, the *Italia*, collected a Fritz-X on her bow; she took on some 800 tons of water and her speed was reduced to 24 knots. Even so, she was able to reach Malta unaided.

During the week that followed, Jope's men went into action against Allied shipping off the beach head at Salerno, and scored hits on the battleship HMS *Warspite*, and the cruisers HMS *Uganda* and USS *Savannah*; all three ships sustained heavy damage. In its efforts to penetrate the screens of defensive fighters, the German bomber force also suffered heavy losses, and after the first week III./K.G.100 (as well as II./K.G.100, which had attempted to intervene but without any notable success), was forced to cease its attacks off that part of the coast.

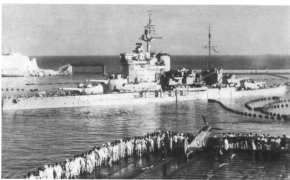
The next Allied landing operation in the Mediterranean was at Anzio in January 1944.

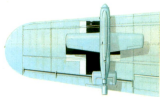
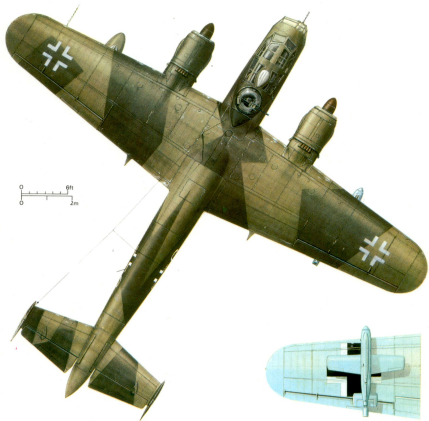


Above left: Lieutenant Hans Alrogge flew the Do 217 K-2 of I./K.G.66 depicted in the colour S-view. (Photo: Alrogge)

Cause and effect. (Above) The 1400-kg "Fritz-X" command-guided bomb which was carried by the Do 217 K-2, and a remarkable photograph taken by an aircraft of the Do 217 K-2 Gruppe based in s. France, III./K.G.100. The tracking flares "1" and "2" are visible as the "Fritz-Xs" plummet towards HMS *Warspite* off the beachhead at Salerno on September 16, 1943. (Below) The battleship *Warspite* limping into the Grand Harbour, Valletta, Malta, after being towed back from Salerno. Three "Fritz-Xs" put the *Warspite* out of action for nearly a year. (Photos: via the Author; B. Jope; RVM, ref. A20652)

But, by that time, the threat of the German missile-carrying aircraft was well appreciated and the shipping enjoyed lavish fighter protection. In spite of a German offensive effort of more than double that over Salerno—with attacks by the Do 217s of K.G.100 and the He 177s of K.G.40—the only major German success was the sinking of the cruiser HMS *Spartan*. And to achieve this, the raiders suffered heavy losses in aircraft and crews.





Operation "Steinbock"

At the end of 1943, the Luftwaffe began assembling units in the West for what was to become its final attempt at a manned bomber offensive against Britain: Operation *Steinbock*. By this time, the Do 217 was nearing the end of its service career; higher performance types like the He 177, the Junkers Ju 88S, the Ju 188 and the Messerschmitt Me 410 (see *Profile* No. 167) made up the bulk of the attacking force. Of a total of more than 500 bombers assembled for the operation only 76 were Do 217s, belonging to the Stab and the First and Third Gruppen of Kampfgeschwader 2.

Operation *Steinbock* opened on the night of January 21 1944, with a large-scale attack on London, and during the month that followed, the capital was raided in force on five more occasions.

Typical of the attacks was that mounted on the night of February 23, in which a total of 161 German bombers took part; the target being the dock area of London around Millwall. That night I./K.G.2, commanded by Major Schoenberger, put up 15 Do 217s; for the most part these aircraft carried a bomb-load of one AB 1000 container, filled with 590 × 1-kg stick incendiary bombs, and two AB 500 containers, each with 140 × 1-kg incendiaries. The aircraft took off from Melun/Villaroche just south of Paris, and flew via Evreux to cross the French coast at St Valéry-en-Caux at an altitude of 16,500 feet. From a position 25 miles from the coast of England on the outbound flight, to a similar position on the return flight, the bombers released one bundle of "Window" radar reflective foil (German code-name *Doppel*) every 30 seconds. After crossing the English coast at Eastbourne, the Dorniers began a gentle descent to bring them over their target at 13,000 feet, where they had orders to bomb between 22:30 and 22:42 hours. The route from Evreux to London was almost a straight line, and on this occasion there were no route markers to illuminate turning-points. At the target pathfinder Ju 88s and Ju 188s of I./K.G.66 had put down yellow sky markers set to ignite at 10,000 feet and the bomb-aimers had been briefed to aim at these. Also in the target area, the rate of "Window" dropping increased to the maximum possible—one bundle every 4 or 5 seconds. After bombing, the Dorniers turned left, and withdrew at high speed along their inbound track in a steady descent until they regained the French coast at about 650 feet. This high-speed descending withdrawal, covered by "Window" released during both the inbound and outbound flights, made interception very difficult for the RAF night-fighters. That night RAF Fighter Command claimed to have shot down four of the raiders. Most would appear to have been hit on their way to the target, and on this occasion none was from I./K.G.2. One of the I./K.G.2 aircraft was hit over the target by

anti-aircraft fire, however, and suffered damage to the starboard engine and cabin; the crew bailed out over Wembley but the Dornier, code-lettered U5 + DK, flew on by itself and nearly half-an-hour later made an almost perfectly belly landing on some allotments in Cambridge.

German losses were light on February 23, but this was not normally the case when the target was London. During January and February, the *Steinbock* raids cost the Luftwaffe a total of 129 bombers destroyed or damaged beyond repair.

The attacks on Britain continued through March and most of April in a similar vein, though from the second half of March the scope of the raids broadened to include Hull, Bristol and Portsmouth. On the night of April 29 there was an unusual departure when about ten Do 217 Ks of III./K.G.100 made an unsuccessful attack on warships in Plymouth harbour, using *Fritz-X* guided-bombs. There were no hits but two of the Dorniers fell to anti-aircraft fire. During May, the *Steinbock* attacks gradually petered out, as the German bomber units prepared for what was to be their greatest trial of all; the battle to ward off the long-heralded invasion of France.

Invasion of France

On June 6 1944, the Allied troops punched through the German coastal defences at Normandy and established a beach head. Among the bomber units sent against the massive concentration of shipping off the coast was only one Gruppe operating the Do 217, namely III./K.G.100 (by this time K.G.2 had been withdrawn from the front, to re-equip with the Ju 188). In the invasion area, the attackers found overwhelming fighter defences, and crews endeavouring to press home attacks on the ships suffered accordingly. Moreover, the adroit use of smokescreens prevented the effective use of the guided-missiles. During the first 10 days after the invasion, and in spite of crippling losses, the German bomber force sank only five small ships through direct air action. After that the

Key to colour three-view

A Do 217 E-5 of the Second Gruppe of K.G.100 (I./K.G.100) which carried out attacks with Henschel Hs 293 A glider-bombs against Allied shipping in mid-1943 while being based at Bordeaux/Mérignac, France. As counterbalance to the Hs 293, a large, jettisonable fuel tank was mounted under the port mainplane.

Major Bernhard Iope, who commanded K.G.200 during the summer of 1943 and led the famous attacks with guided bombs against the ships of the British and Italian fleets off Salerno in September 1943. (Photo: B. Iope)

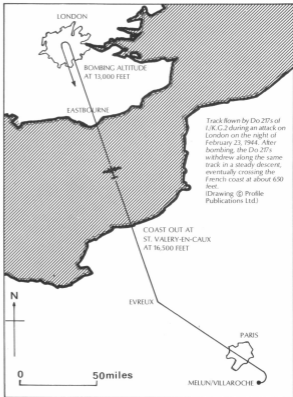


Luftwaffe resorted to a large-scale minelaying effort off the coast but this, too, failed to achieve more than a nuisance effect.

At the end of July, the American forces pushed their way westwards out of the initial bridgehead, then south down the western edge of the Cherbourg Peninsular and out into central France. The only place the Germans could hope to delay this powerful advance was at the bridge over the River Selune at Pontaubault, at the base of the Peninsular; the bridge is so small that today one may drive over it and hardly notice its existence but, at the beginning of August 1944, it was the key to a decisive land battle. So it came about that, alongside almost every other Luftwaffe unit left in France able to carry bombs, the Do 217s of Hauptmann Heinrich Schmetz's III./K.G.100 were sent to attack Pontaubault. For the first time, the Hs 293 was to be used against a land target. During the early morning darkness of August 7, six of the unit's Dorniers took off from Toulouse/Blagnac, each loaded with a single glider-bomb. The crews had orders to hit the bridge or, if this was not possible, to crater its approaches.

Shortly after 03:00 hours, Leutnant Hans Kieffer arrived in the area in his Do 217, only to find the target shrouded in a thick haze. Nor was that his only misfortune for, unknown to him, attentive British eyes had been following his progress. Flight Lieutenant J. Surman, piloting a de Havilland Mosquito XIII of No 604 Squadron, afterwards reported:

'At 02:45 hours when being vectored home the controller informed me that an aircraft was 2 miles ahead and on my starboard, and asked whether I would like to investigate. I turned



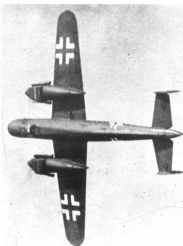
The big-span Do 217 K-2 with extra wing area required to fit the "Fritz-X" guided-bomb. Along the mainplane leading-edges are the total of six supporting posts for the horizontal wire aerials of the Lichtenstein radar. The fixed, forward-firing battery comprised four each of 20-mm MG FF cannon and 7.9-mm MG 17 machine-guns. Because the performance compared unfavourably with other night-lighters, most Do 217s became operational trainers. (Photo: Dornier)

Nachtjäger Do 217 I-2. This was the night-lighter conversion of the E-series bomber sub-type. Most noticeable on the "solid" nose is the aerial array for the Lichtenstein radar. The fixed, forward-firing battery comprised four each of 20-mm MG FF cannon and 7.9-mm MG 17 machine-guns. Because the performance compared unfavourably with other night-lighters, most Do 217s became operational trainers. (Photo: Dornier)

starboard and my navigator obtained a contact at 2 miles range, well to starboard. I closed in slowly on a vector of 280 degrees and then 240 degrees, and from 800 feet obtained a visual and identified it as a Do 217. I drew up and gave a short burst from 600 feet; the port engine exploded but did not catch fire, and I overshot.'

The Dornier's ventral gunner, Feldwebel Karl Salzer, had not seen Surman's Mosquito until the cannon flashes revealed its position. Kieffer then threw his aircraft into a violent corkscrew manoeuvre, and it was this that had caused Surman to overshoot. The Mosquito immediately swung round and made two further attacks, the last of which damaged the bomber's ailerons and caused an explosion in the fuselage fuel tank. As the Dornier went down out of control Kieffer ordered his crew to abandon, and soon after landing by parachute he was captured by American troops.

The last Do 217 was delivered to the Luftwaffe in May 1944, and after that the number in operation dwindled rapidly. Soon after the Pontaubault operation, III./K.G.100 was disbanded, and with that the bomber virtually passed out of service. However, as late as April 9 1945, there was a single night reconnaissance Staffel (I. Nachtaufklärungstaffel) operating 11 of these aircraft on the Eastern front. And three days later there was a brief resurrection in the bomber role when a force of 12 Do 217s, belonging to Versuchs-kommando/Kampfgeschwader 200, launched an attack with its 293 missiles against Russian crossings over the Oder River. Although hits were claimed, the action appears to have done little to slow the Red Army advance.



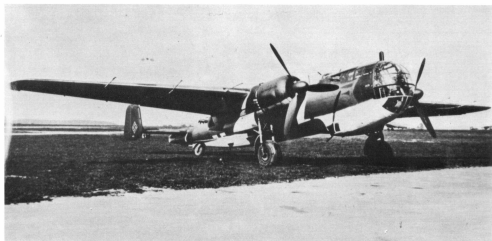
The Do 217 N was the night-fighter counterpart of the Do 217 M bomber sub-type and powered by the inline DB 603 As which gave a better performance than the earlier Do 217 variant with its BMW 801 radials. Despite the promise of this vertical banking view, the Do 217 N's limited manoeuvrability and sluggish rate of climb resulted in a brief combat career in the night-fighter force.

(Photo: via Heisel)



Lack of flame dampers on the Do 217 N's exhaust ports suggests the aircraft was employed in a training role. On the nose is the Lichtenstein aerial array. Behind the Do 217 N is a Do 217 K.

(Photo: via R. C. Seeley)





APPENDIX I:

Major Units to Employ the Do 217 in Action

As a bomber: I, II, and III./K.G.2; II./K.G.40; I./K.G.66; II. and III./K.G.100; Versuchskommando/K.G.200

As a night-fighter: II./N.J.G.1; II./N.J.G.2; I, II, III, and IV./N.J.G.4; II, III, and IV./N.J.G.5; I./N.J.G.6; I./N.J.G.100.

Dornier Do 217: Acceptances by the Luftwaffe

| Factory | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 |
|-----------------|------|------|------|------|------|------|
| Munich | 5 | 15 | 130 | 235 | 552 | 50 |
| Wismar | — | — | 6 | 300 | 296 | — |
| Friedrichshafen | — | — | 130 | 168 | — | — |
| | 5 | 15 | 266 | 703 | 848 | 50 |

TOTAL 1,887

APPENDIX II:

The Dornier Do 217 E-1 described

The fuselage was of stressed-skin construction, with Z-section and T-section stringers and Z-section formers. It was built in three parts: the nose, the middle section which was integral with the wing centre-section, and the tail section. The crew of four comprised a pilot, bomb-aimer/observer/nose-gunner, radio operator/mid-upper gunner, and ventral gunner,

all housed in the nose section. The rest of the fuselage, to within a few feet of the tail, was divided horizontally; the lower half comprised the bomb cell, with three sets of doors. At the extreme end of the tail provision for the fitting of the four "petal" dive-brake, but the brake was omitted from operational aircraft. Each fin carried a fixed leading-edge slat, with the trailing-edge on the inside; these delayed the onset of fin stalling during flight when the aircraft was in a yaw, likely to happen during a low-speed approach on asymmetric power. Tailplane incidence could be varied in flight.

The wing was built in three sections: the centre-section which incorporated the middle-fuselage and the engine nacelles, and the two outer sections. The main undercarriage members were double oleos, electrically operated, which retracted rearwards into the engine nacelles; the tail wheel was also retractable. The internal fuel load of 650 Imperial gallons was housed in five separate self-sealing tanks, one on each side of each engine and one above the bomb cell.

Two 1,580 horse power, air-cooled, fourteen cylinder BMW 801 MA radial engines powered the Do 217 E-1, each driving a fully feathering 3-blade wooden propeller, diameter 12 feet 5½ inches. Cooling air for the engines was drawn in by means of a 12-blade, engine-driven fan situated between the propeller

The designation Do 127 K-01 for "KE+JA" signifies that it was the first pre-production example of this sub-type bomber variant. The Do 217's outwards-facing "slots" in the tail fins' leading-edges show to advantage in this view.

Photo: via E. J. Creek

This photograph, taken at Bordeaux-Mérignac in August 1944, shows the Do 217 K-1 which had been allocated for shipment by surface blockade-runner to Japan. Instead, as the Allied ground forces approached, the aircraft was reassembled and flown back to Germany. Third from left is Feldwebel Fritz Trenkle whose account of French-sabotaged Hs 293s appears elsewhere in this Profile.

Photo: via F. Trenkle

A second view of the first pre-production Do 217 K ("KE+JA") illustrated in side view above.

Photo: via E. J. Creek



spinner and the annular cowling; there were no cooling gills. The carburettor air intake was situated behind this fan, as was the oil cooler.

In the lower part of the nose was a fixed 15-mm. MG 151 cannon, fired by the pilot. There was also provision for a flexible 20-mm. MG FF cannon in the lower starboard side of the nose, fired by the bomb aimer/observer, but this was omitted from many operational aircraft. The remainder of the defensive armament comprised four hand-held 7.9-mm. MG 15 machine-guns: two firing laterally through the rear upper side windows, one firing aft from the rear of the cockpit cover, and one in the ventral position.

The Do 217 was well furnished with protective armour. The pilot had a curved shield of armour plate 8.5-mm. thick covering the back of his seat, a seat bucket 5-mm. thick, and a further 5-mm. plate above and to the rear of his head. To the rear of the crew compartment was an 8.5-mm. thick, semi-circular armoured bulkhead 120 cm wide by 50 cm deep, with additional 5-mm. plating at the sides. The recess for the inflatable dinghy, situated in the fuselage above the trailing-edge of the wing, was armoured with 8.5-mm. plate at the rear, and 5-mm. plates at the sides, bottom and top.

APPENDIX III:

Dornier Do 217 variants summarized

Prototypes: The Do 217 V1 to V9 are outlined in the text (see the section "Initial development"), but it should be noted that there were further V-series aircraft, in addition to series prototypes designated Do 217 C V1, Do 217 K V1, Do 217 P V1, for example. Among subsequent V-aircraft was the Do 217 V 13 which was used to test turbosupercharged DB 603 A engines.

Do 217 A-0: Pre-production long-range reconnaissance aircraft; eight built in 1940. Power was provided by DB 601 A engines and defensive armament comprised three 7.9-mm. MG 15 machine-guns.

Do 217 B: Unbuilt project. No details to hand.

Do 217 C-0: Pre-production bomber, powered by DB 601 A engines; four built in 1940, plus Do 217 C V1 prototype (with Jumo 211s). Defensive armament five 7.9-mm. machine-guns and one 15-mm. MG 151 cannon; bomb load 3,000 kg (6,614 lb).

Do 217 D: Unbuilt project. No details to hand.

Do 217 E-0: Pre-production examples of definitive initial production bomber variant, powered by 1,580 h.p. BMW 801 MA engines, built in 1940. Defensive armament five 7.9-mm. MG 15 machine-guns and one 15-mm. MG 151 cannon; maximum bomb-load, 4,000 kg (8,818 lb) including 1,500 kg (3,300 lb) externally.

Do 217 E-1: First full-scale production version, similar to E-0; deliveries started late-1940. E-series aircraft could use a variety of modification kits (*Rüstsätze*) permitting installation of extra fuel, special bomb loads, extra armament, cameras, etc.

Do 217 E-2: Intended as dive-bomber, actually following the E-3 into production in 1941. Power provided by BMW 801 ML engines while defensive armament was changed to three 7.9-mm. MG 15s, two 13-mm. MG 131 machine-guns and one 15-mm. MG 151 cannon. (One modification kit peculiar to the E-2 was the fitting of four 7.9-mm. MG 81 machine-guns in the tail-cone for rear defence—designation Do 217 E-2/R19. A twin-MG 81 installation for the E-2 and other variants was also available.)



Do 217 E-3: This version resulted from early operational experience with the E-1 and featured extra armour for crew protection and a reinforced armament—two extra 7.9-mm. MG 15s and a 20-mm. MG FF cannon, the latter intended for anti-shipping use. Production of the E-1 and E-3 variants totalled about 100.

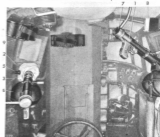
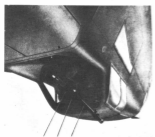
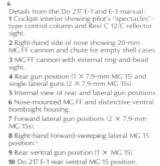
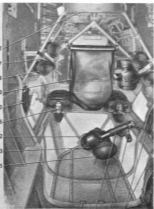
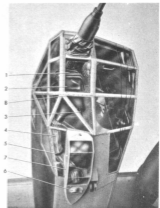
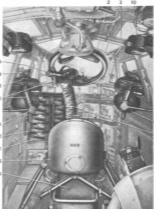
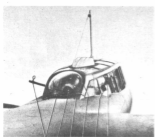
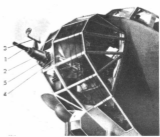
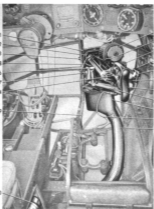
Do 217 E-4: The E-4 replaced the E-2 on the production line at the end of 1941 and was generally similar, although the dive brakes had proved to be unsuccessful and were usually deleted. Powerplant was two 1,580 h.p. BMW 801 C engines and leading-edge balloon cable-cutters were provided. Production ended in the summer of 1942, the E-series being replaced by the Do 217 K.

Do 217 E-5: Similar to the E-4, with provision to carry a Henschel Hs 293 A missile under each wing. Reportedly 65 were built.

Do 217 F: Unbuilt project. No details to hand.

The Place: Jury's Gut, near Lydd, in Kent. The time: October 12, 1941. This Do 217 E-3 of 5. Staffel of K.G.2, flown by Lieutenant Dolenga, had been on a sea reconnaissance over the Atlantic on the previous evening out of Evreux, in n. France, when it fell victim to disorientation created by British deception beacons. With fuel almost exhausted, the luckless German K.G.2 pilot was forced to land in s. England. (Photo: Imperial War Museum)





Do 217 G: Unbuilt project. No details to hand.

Do 217 HV1: Prototype modification of an E-1 powered by two DB 601 engines with turbo-superchargers. Tested in autumn 1941 but no production.

Do 217 J-1: Night-intruder conversion of Do 217 E-2 first tested late in 1941. Glazed nose of bomber replaced by solid fairing housing four 7.9-mm. MG 17 machine-guns and four 20-mm. MG FF cannon. Two 13-mm. MG 131s were also carried and provision was made for a 400-kg (880-lb) bomb load internally. Crew three.

Do 217 J-2: Similar to J-1, apart from installation of FuG 202 Lichtenstein radar and deletion of internal bomb-bay, the J-2 was produced from mid- to late-1942. A total of 157 J-series aircraft was apparently converted from E-models.

Do 217 K-1: Night-bomber with a completely new forward fuselage which replaced the E-series production in September 1942. Three prototypes converted from E-series aircraft—one (the Do 217 K V3) later used in development of DFS 228 reconnaissance sailplane. K-1 version was powered by 1,700 h.p. BMW 801 D engines and had a defensive armament of two 13-mm. MG 131 and four (or six) 7.9-mm. MG 81 machine-guns. Maximum bomb-load 4,000 kg (8,810 lb). Crew four.

Do 217 K-2: Carrier for the FX 1400 Fritz-X missile with wingspan extended from 19,00 to 24,50 m. (62.34 to 80.38 ft) and wing area increased from 56,6 to 67,0 sq. m. (609.2 to 721.1 sq. ft). Otherwise similar to K-1, although defensive armament could be increased by four 7.9-mm. MG 81s in the tail cone (and sometimes a pair of MG 81s in the rear of each engine nacelle).

Do 217 K-3: Similar to K-2, except that it could carry either the FX 1400 or Hs 293 A instead of being limited to the former.

Do 217 L: Modified version of the K-1 with redesigned cockpit area. Two prototypes (Do 217 L V1 and V2) tested early in 1943 but no production.

Do 217 M-1: Modification of K-1 to take two 1,750 h.p. DB 603 A engines in case of shortages of BMW 801s. Production began late in 1942 after successful prototype installation.

Do 217 M-5: Evaluation batch of Hs 293 carriers. Similar to M-1 apart from provision to carry one missile under the fuselage. Ground clearance problems with the Hs 293 resulted in lack of Luftwaffe interest and, hence, no production.

Do 217 M-11: Derivative of M-1 with increased wingspan of K-2. Provision to carry one FX 1400 or Hs 293 beneath the fuselage, as on M-5; likewise not produced in quantity. In fact, not many M-series aircraft went into service, about 200 M-1 airframes being converted into N-series night fighters during 1943.



Night duty. Luftwaffe armoures are seen loading a Do 217 of K.G.2 in preparation for an attack on England in early 1944. The containers are of the A8 500 type, each carrying 140 x 1-kilogram incendiary bombs. At a predetermined height, the container opened out into two halves and allowed the small fire-bombs to scatter before impact. (Photo: via the Author)

Do 217 N-1: Modification of the Do 217 M-1 for the night-fighter and intruder role. Prototype completed in mid-1942. Similar to J-2 in appearance apart from DB 603 A engines and retention of aft bomb bay for 400-kg (880-lb) load. Armament comprised four 7.9-mm. MG 17 machine-guns and four 20-mm. MG 151 cannon in the nose and two 13-mm. MG 131 machine-guns for rear defence. Some N-1s were converted to more streamlined configuration (deletion of dorsal and ventral MG 131 positions and addition of streamlined fairings) by Luftwaffe units, being redesignated Do 217 N-1/U1 (the "U" indicated Umsatz 1 = Modification 1). FuG 202 or FuG 212 Lichtenstein fitted.

Do 217 N-2: Refinement of N-1 with same forward-firing armament but rearward-defence MG 131s deleted and streamlining fairings fitted aft of cockpit and under forward fuselage, as introduced on N-1/U1. FuG 220 Lichtenstein SN-2 fitted in addition to FuG 202 or 212. Provision made for the installation of four 20-mm. MG 151 cannon firing upwards at 70° to the horizontal, this being known as *Schräge Musik* (Jazz Music). If *Schräge Musik* fitted, designation became

The Höhenzuweisung (High-altitude Directive) Do 217 P was based on the Do 217 E-2 and intended to be a high-performance, high-altitude three-seat reconnaissance aircraft. Illustrated ("BK+R") is the first prototype, the Do 217 P V1 which first flew in June 1942. The ventral bulge housed the HZ-1 installation (a 1,400 hp DB 605 T1) which provided the supercharging system for the two 1,750 hp DB 603 B engines. The development programme was terminated at the end of 1943.



Do 217 N-2/R22. Last N-series conversion completed late in 1943 after about 200 built.

Do 217 P-0: Three-seat high-altitude reconnaissance-bomber based on E-2 structure but featuring new nose-section and powered by two 1,750 h.p. DB 603 B engines supercharged by a 1,400 h.p. DB 605 T buried in the fuselage, the system being known as the HZ-Anlage (HZ-Installation). First prototype, the Do 217 P V1, started flight tests in June 1942 and featured normal Do 217 E-2 wings. The second and third prototypes (Do 217 P V2 and V3) and the three pre-production P-0s had the increased span wing of the Do 217K-2. Pre-production aircraft featured a defensive armament of two forward-firing and four aft-firing 7.9-mm. MG 81 machine-guns, while a 500-kg (1,100-lb) bomb could be carried under each outer wing section. Development abandoned at the end of 1943.

Do 217 R-0: Technically not a Do 217 variant at all, the designation Do 217 R-0 was given to five of the six Do 317 V prototypes, when development of this four-seat high-altitude bomber was abandoned at the end of 1943. The Do 217 R-0 was similar in general layout to the K- and M-series. Two 1,750 h.p. DB 603 A engines were fitted and defensive armament was two 7.9-mm. MG 81 and three 13-mm. MG 131 machine-guns, plus one 15-mm. MG 151 cannon. Two Hs 293 A missiles could be carried, one under each outer wing section, and provision was made for an internal bomb load of



3,000 yg (6,610 lb). The five Do 217 Rs were issued to III./K.G.300 in mid-1944 but probably did not see active operations (the unit was disbanded in August 1944).

Acknowledgements

The author would like to take this opportunity to convey his thanks to the following, for their invaluable help in the preparation of this Profile and the collection of the photographs: Captain C. Brewer, also Mr J. F. Brindley, Mr R. Smith, and Herren B. Jope, H. Altrogge, F. Selinger, W. Herget, W. Girbig, F. Trenkle, H. Redemann and H. Schliephake.

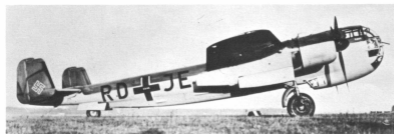
Shown here is the third prototype Do 217 K V3 on which is mounted the experimental DFS 228 V1 rocket-powered, prone-piloted, high altitude reconnaissance aircraft. The intention was to fly the DFS 228 pick-a-back to the operational area where it would be launched and continue to its target. The return gliding flight to friendly territory called for the skills of an experienced sailplane pilot. The DFS 228 was just about to begin rocket-powered flight trials when the war ended. (Photo: via the Author)

APPENDIX IV: REPRESENTATIVE TECHNICAL DATA FOR DO 217 VARIANTS

| Variant | A-0 | C-0 | E-2 | J-2 | K-1 | M-1 | N-2 | P-0 |
|----------------------|----------------|---------|-----------|---------------|----------|---------|---------------|----------|
| Role | Reconnaissance | Bomber | Bomber | Night-fighter | Bomber | Bomber | Night-fighter | Bomber |
| Crew | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 3 |
| Engine type | DB 601A | DB 601A | BMW 801ML | BMW 801ML | BMW 801D | DB 603A | DB 603 A | DB 603B* |
| Rating (h.p.) | 1,075 | 1,075 | 1,580 | 1,580 | 1,700 | 1,750 | 1,750 | 1,750 |
| Span, m | 79.00 | 79.00 | 79.00 | 79.00 | 79.00 | 79.00 | 79.00 | 24.50 |
| (ft) | 82.34 | 82.34 | 82.34 | 82.34 | 82.34 | 82.34 | 82.34 | 80.38 |
| Length, m | 17.22 | 17.22 | 18.20 | 18.20 | 17.00 | 17.00 | 18.20 | 17.95 |
| (ft) | 55.84 | 55.84 | 59.70 | 59.70 | 55.77 | 55.77 | 59.70 | 55.84 |
| Height, m | — | — | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | — |
| (ft) | — | — | 16.40 | 16.40 | 16.40 | 16.40 | 16.40 | — |
| Wing area, sq.m | 56.6 | 56.6 | 56.6 | 56.6 | 56.6 | 56.6 | 56.6 | 67.0 |
| (sq.ft) | 609.2 | 609.2 | 609.2 | 609.2 | 609.2 | 609.2 | 609.2 | 721.8 |
| Empty weight, kg | — | — | 8,855 | 8,730 | 8,900 | 9,065 | 10,280 | — |
| (lb) | — | — | 19,522 | 19,246 | 19,620 | 19,985 | 22,665 | — |
| Loaded weight, kg | — | — | 16,465 | 13,780 | 16,580 | 16,700 | 13,200 | 14,350 |
| (lb) | — | — | 36,300 | 30,060 | 36,530 | 36,810 | 29,100 | 31,630 |
| Maximum speed, km/h | 500 | 500 | 515 | 520 | 515 | 515 | 515 | 585 |
| (mph) | 310 | 310 | 320 | 323 | 320 | 328 | 320 | 363 |
| —at altitude, m | 6,000 | 6,000 | 4,000 | 4,000 | 4,000 | 4,000 | 6,000 | 13,800 |
| (ft) | 19,685 | 19,685 | 13,120 | 13,120 | 13,120 | 13,120 | 19,685 | 44,275 |
| Maximum cruise, km/h | 460 | — | 460 | 465 | 460 | 492 | 470 | — |
| (mph) | 286 | — | 286 | 289 | 286 | 306 | 292 | — |
| Climb (min) | — | — | 3'30" | 3'00" | 3'00" | 4'40" | 9'00" | 19'40" |
| —to altitude, m | — | — | 1,000 | 6,000 | 1,000 | 2,000 | 4,000 | 9,000 |
| (ft) | — | — | 3,280 | 19,685 | 3,280 | 6,560 | 13,120 | 29,540 |
| Service ceiling, m | — | — | 9,000 | 9,000 | 8,200 | 9,500 | 8,900 | 15,900 |
| (ft) | — | — | 29,530 | 29,530 | 26,900 | 31,170 | 29,200 | 52,165 |
| Range, km | 3,000 | 3,000 | 2,300 | 2,050 | 2,300 | 2,150 | 2,050 | — |
| (mi) | 1,864 | 1,864 | 1,430 | 1,274 | 1,430 | 1,336 | 1,274 | — |

Note: Conflicting specifications relating to the various models of the Do 217 were issued by Dornier and the RLM; generally, the latter source has been preferred. The data relating to the A-0 and C-0 models comes from Dornier.

*The Do 217 P-0 had a Daimler-Benz DB 605 T, rated at 1,400 h.p. installed in the fuselage to supercharge its two DB 603B engines.



A last look at the Do 217 K-2. The Weeke number (W.Nr. 4406) appears in white stencil on the nose in line with the propeller spinner and in the middle of the rear fuselage black cross. (Photo: USAF, ref. AC30058)

Series Editor
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