

Junkers Ju-88 Nightfighters

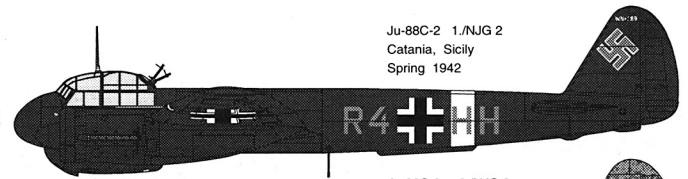
The Ju-88G was a progressive development of the Ju-88A bomber, which had from an early stage been modified into a heavy fighter, or Zerstörer, as the Ju-88C. The first Ju-88Cs had been delivered in 1940, used briefly by KG 30 on anti-shipping strikes, then used to form NJG 2, a nightfighter unit which was to attack RAF bombers and their bases in England. As it happened, this tactic was used only briefly, and in October 1941 NJG 2 was sent to the Mediterranean, where it remained until the spring of 1943. Before the autumn of 1943 the Ju-88C was built in very limited numbers, and NJG 2 was the only Nachtjagdgeschwader to receive the type, while the remaining units flew the Bf-110 and, to a much lesser degree, the Do-217/J/N.

By 1943 the need for a satisfactory nightfighter had become urgent. The Bf-110 was perfectly adequate for the controlled nightfighting of Himmelbett, where fighters were vectored onto approaching bombers by a ground station tracking the movements of both aircraft on radar, but after the fiasco at Hamburg in July 1943, new tactics were required. The most promising of these was pursuit nightfighting, or Zahme Sau, where the fighters would scramble at the approach of the bombers, then infiltrate the bomber stream and attack as the British proceeded to their target. Over the target, the twin-engine fighters would hold off to let the Fw-190s and Bf-109s of the Wilde Sau units attack the bombers, which were now backlit by the searchlights and fires on the ground, and then once the bombers wheeled back for England, the twins would resume their attacks. This required much greater endurance than the Bf-110 could offer, and a better top speed to close with the bombers. The Luftwaffe command were wildly optimistic about abilities of projects in development, but apart from the He-219, which itself was delayed by problems with its DB 603 engines, these projects were complete failures.

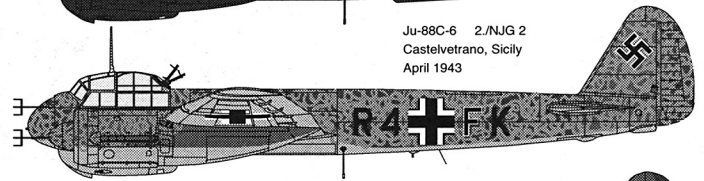
At the end of 1942 it was decided to double Ju-88C production to about 50 aircraft per month, not so much for use as nightfighters, but to equip individual Staffeln within existing Kampfgeschwadern for special roles: providing incoming U-Boats with air cover, escorting convoys in the Mediterranean, or attacking Soviet railroads. In mid-1943 this was increased further, and more aircraft began reaching the Nachtjagdflieger. By June NJG 2 reached full strength, IV/NJG 5 was equipped with the type, and over the next several months NJG 100 and the first three Gruppen of NJG 3 also re-equipped. Production of a limited series of Ju-88Rs was begun, powered by the BMW 801 engine which offered greater horsepower and gave the aircraft much better performance. The Jumo 211J which powered the Ju-88C had reached the limits of its design. An excellent powerplant, it could not be taken any further, and the weight of the additional armament and radar equipment installed in the Ju-88C cut into performance, a problem made worse by the increased drag of the radar array, which reduced speed by 10-15%. The only engine in production which could provide more power was the BMW 801, except that this powerplant was also used in the Fw-190A, which had absolute priority over deliveries. The Jumo 213, the planned replacement for the Jumo 211, was still in development, but the situation became urgent enough by the last half of 1943 that the RLM agreed to initiate production of a BMW-engined version of the Ju-88C, which received the designation Ju-88G.

A few Ju-88G-1s were in service by the end of 1943, although it was not until March 1944 that series production got underway. The Ju-88G-1 was built using existing tooling: the rear fuselage, tail and nacelles from the Ju-188E were mated with the nose and wings of the Ju-88C-6, apart from the gondola which was removed. After the first few aircraft, armament was removed from the nose and installed in a blister below the fuselage under the wing trailing edge, and other changes were made in the position and type of radio and radar antennae. The Ju-88G-1 was equipped with FuG 220 Lichtenstein SN-2c and FuG 350 Naxos, and the first Gruppe to receive the type, I/NJG 7, reached full strength in April 1944. That month Ju-88C production ceased, and from then the monthly deliveries of Ju-88Gs increased dramatically. By July the Ju-88G-1 was in service with III/NJG 1, NJG 2, NJG 3, IV/NJG 5, II and III/NJG 6, I/NJG 7, and NJG 100.

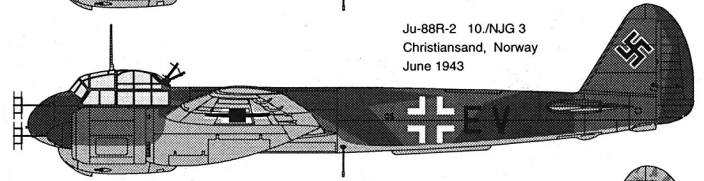
Production of the Ju-88G-6 also began in July 1944. In the Jumo 213E, Junkers engineers had finally found a reliable powerplant, and the Ju-88G-6 was built in large numbers before the collapse of the transportation infrastructure in March 1945 made manufacturing impossible. In 1944-45 some 2873 Ju-88 fighters were built,



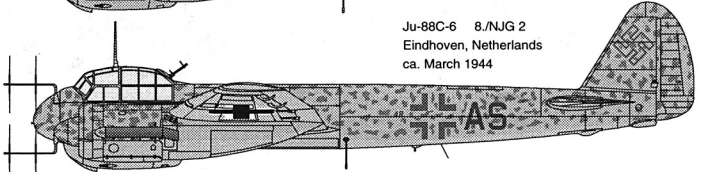
Ju-88C-2 1./NJG 2
Catania, Sicily
Spring 1942



Ju-88C-6 2./NJG 2
Castelvetrano, Sicily
April 1943



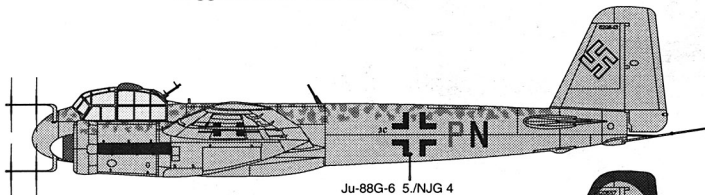
Ju-88R-2 10./NJG 3
Christiansand, Norway
June 1943



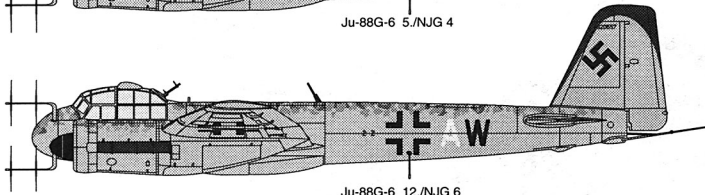
Ju-88C-6 8./NJG 2
Eindhoven, Netherlands
ca. March 1944

of which 700-800 were Ju-88G-1s and perhaps 150 were Ju-88C-6 and Ju-88R-2 versions. In the last half of 1944 production averaged some 275 aircraft per month, and the Ju-88G-6 replaced the G-1 in the units listed above, and was also used by the remaining Gruppen of NJG 5, NJG 6, NJG 7, NJG 101, NJG 102, and NJ-Staffel Norwegen. Unfortunately for the Germans, the abundance of this excellent nightfighter came too late. Once Allied forces had broken out of Normandy, huge gaps were left in the German radar net which made it increasingly difficult for Luftwaffe ground controllers to locate approaching bombers. Even the resurgence in technical developments which resulted in the appearance of new and more capable radars such as FuG 218 Neptun and FuG 240 Berlin by the end of the war had no effect. The acute fuel shortage of late 1944 made it impossible to send more than a few aircraft up at any time. The nail in the coffin of the Nachtjagdflieger was the poor level of training after 1943. Only experienced crews had any chance of intercepting the enemy in the darkness, and while these few Experten scored frequently, many with multiple kills in the course of an evening, the majority of available pilots lacked the ability even to find the bomber stream. By February 1945, at the time of the attacks on Dresden, the once proud Nachtjagdflieger had been reduced to an empty shell.

Suggested kit: DML Ju-88G



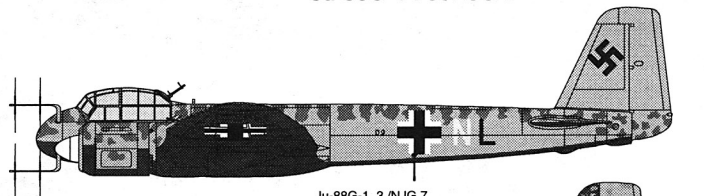
Ju-88G-6 5./NJG 4



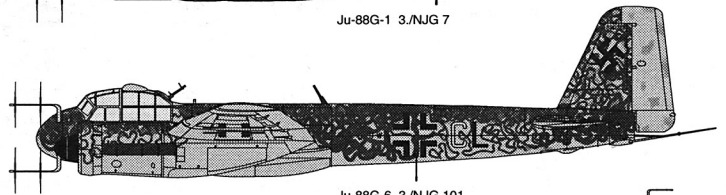
Ju-88G-6 12./NJG 6



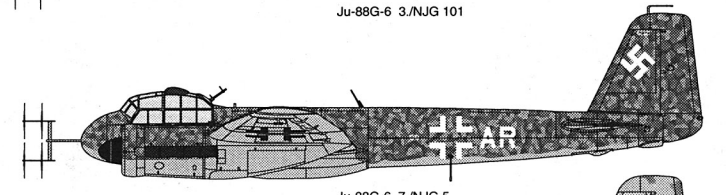
4205 - Junkers Ju-88G Nachtjäger
Ju-88G-6 : Stab.II/NJG 4, 5./NJG 4
7./NJG 5, 12./NJG 6, 3./NJG 101
Ju-88G-1 : 3./NJG 7



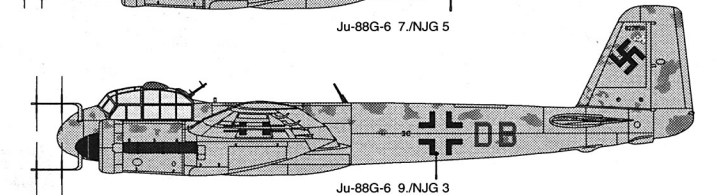
Ju-88G-1 3./NJG 7



Ju-88G-6 3./NJG 101



Ju-88G-6 7./NJG 5



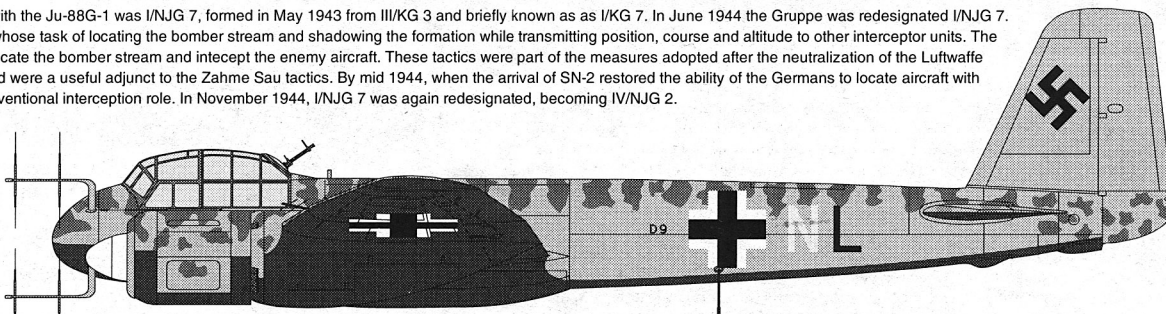
Ju-88G-6 9./NJG 3

- There are scores of books on the Ju-88 and the Luftwaffe Nachtjägers. Among the more useful are:
- Warplanes of the Third Reich; Wm.Green, Macdonald (1970) (excellent reference)
 - Geschichte der Deutschen Nachtjagd; Aders, Motorbuch (1973) (best history, in German)
 - Most Secret War; R.V.Jones, Ballantine (1976) (history of electronics development)
 - The Nuremberg Raid; Martin Middlebrook, Wm.Morrow (1974) (narrative history, good background)
 - Luftwaffe Camouflage & Markings; Merrick, Gallaspy, Smith, Kookaburra (1972) (best colour info)
 - Monogram Painting Guide; Merrick & Hitchcock, Monogram Aviation (1980) (paint chips, colour info)
 - Ju-88 Star of Africa; Griehl, Arms & Armour (1990) (good history of Ju-88 family, v.good photos)
 - Luftwaffe Night Fighter Units; Scutts, Osprey (essay, some photos)
 - Ju-88 in Action, Part Two; Squadron/Signal (photo essay)
 - Camouflage and Markings of the Luftwaffe, Vol.2; Model Art #356 (photos, Japanese text)
 - Ju-88, Famous Airplanes of the World #7; Bunrin-Do (1987) (photos, Japanese text, useful scrap views)
 - The Night Fighters; M.Griehl, Schiffer (1991) (photo essay, not much on Ju-88s)
 - Bombers of WW2, Vol.II; Aerodata (No.9) (plans for Ju-88A: Italeri kit matches these)
 - Air Enthusiast Quarterly Number 29 (good development history of family)
 - Air International, December 1975 v9n6 ("From the Cockpit")
 - Scale Aircraft Modelling, August 1991 v13n11 (Luftwaffe nightfighter camouflage)
 - Scale Models International, August 1993 v24n286 (1/72 plans, some photos, review of DML kit)
 - Flugzeug Magazin, January & February 1986 (comprehensive 1/72 plans, in German)
 - Military Aircraft Preview, April/May 1993 v1n5 (discussion of DML kit)

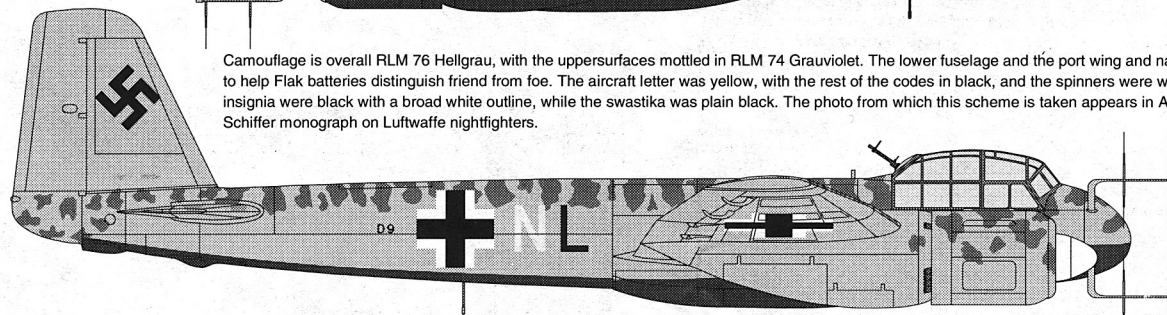
TALLY HO! P.O.Box 2338, Sidney, B.C. Canada V8L 3W6
 Aircraft Markings for the Modelling World

The first Gruppe to equip with the Ju-88G-1 was I/NJG 7, formed in May 1943 from III/KG 3 and briefly known as I/KG 7. In June 1944 the Gruppe was redesignated I/NJG 7. This was a unique formation, whose task of locating the bomber stream and shadowing the formation while transmitting position, course and altitude to other interceptor units. The other units were then able to locate the bomber stream and intercept the enemy aircraft. These tactics were part of the measures adopted after the neutralization of the Luftwaffe radar systems at Hamburg, and were a useful adjunct to the Zahme Sau tactics. By mid 1944, when the arrival of SN-2 restored the ability of the Germans to locate aircraft with radar, NJG 7 reverted to a conventional interception role. In November 1944, I/NJG 7 was again redesignated, becoming IV/NJG 2.

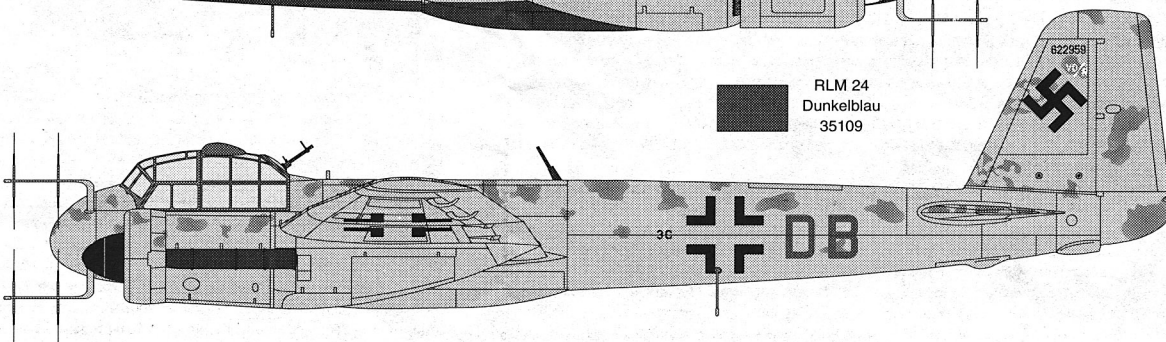
Ju-88G-1 WNr. unknown
D9#NL 3./NJG 7
Værløse, Denmark
landed at Bultofta, Sweden
6 October 1944
Pilot : Ofw. Jakob Schultz



Camouflage is overall RLM 76 Hellgrau, with the uppersurfaces mottled in RLM 74 Grauviollet. The lower fuselage and the port wing and nacelle were painted black to help Flak batteries distinguish friend from foe. The aircraft letter was yellow, with the rest of the codes in black, and the spinners were white. Wing and fuselage insignia were black with a broad white outline, while the swastika was plain black. The photo from which this scheme is taken appears in Aders' book and in the Schiffer monograph on Luftwaffe nightfighters.

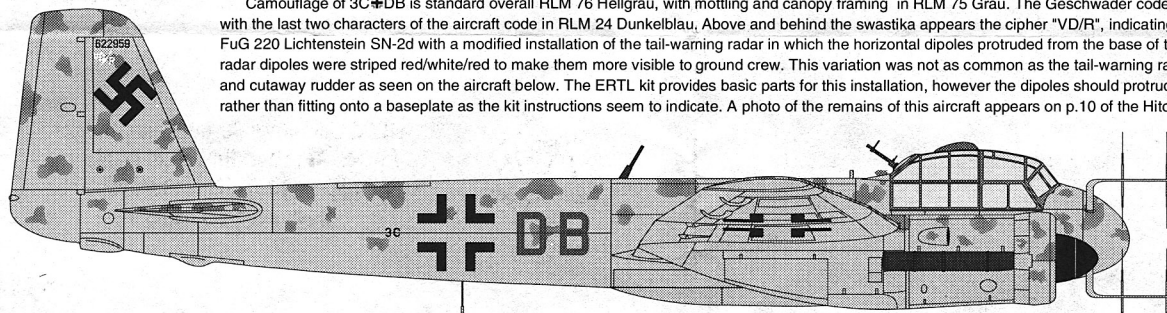


Ju-88G-6 WNr.622959
3C#DB Stab II/NJG 4
Spring 1945

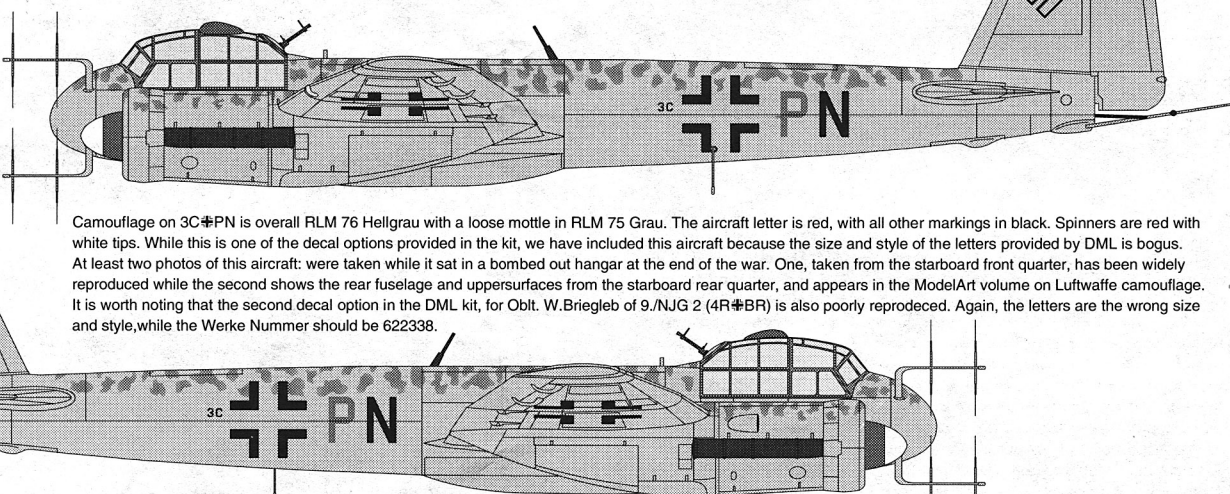


RLM 24
Dunkelblau
35109

Camouflage of 3C#DB is standard overall RLM 76 Hellgrau, with mottling and canopy framing in RLM 75 Grau. The Geschwader code and national insignia are black, with the last two characters of the aircraft code in RLM 24 Dunkelblau. Above and behind the swastika appears the cipher "VD/R", indicating the version of radar fitted, FuG 220 Lichtenstein SN-2d with a modified installation of the tail-warning radar in which the horizontal dipoles protruded from the base of the vertical stabilizer. The radar dipoles were striped red/white/red to make them more visible to ground crew. This variation was not as common as the tail-warning radar with the extended mast and cutaway rudder as seen on the aircraft below. The ERTL kit provides basic parts for this installation, however the dipoles should protrude through the tail skinning, rather than fitting onto a baseplate as the kit instructions seem to indicate. A photo of the remains of this aircraft appears on p.10 of the Hitchcock book.



Ju-88G-6 WNr.620643
3C#PN 5./NJG 4
Hamburg, Spring 1945



Camouflage on 3C#PN is overall RLM 76 Hellgrau with a loose mottle in RLM 75 Grau. The aircraft letter is red, with all other markings in black. Spinners are red with white tips. While this is one of the decal options provided in the kit, we have included this aircraft because the size and style of the letters provided by DML is bogus. At least two photos of this aircraft were taken while it sat in a bombed out hangar at the end of the war. One, taken from the starboard front quarter, has been widely reproduced while the second shows the rear fuselage and uppersurfaces from the starboard rear quarter, and appears in the ModelArt volume on Luftwaffe camouflage. It is worth noting that the second decal option in the DML kit, for Oblt. W.Briegleb of 9./NJG 2 (4R#BR) is also poorly reproduced. Again, the letters are the wrong size and style, while the Werke Nummer should be 622338.

| | | | | | |
|------------------------------------|--------------------------------|----------------------------------------|-----------------------------------------|-------------------------|-----------------------------|
| | | | | | |
| RLM 76 Hellgrau 36473, bluer | RLM 74 Grauviollet 36076 | RLM 75 Dunkelgrau 36123 or 36118 | RLM 81 Braunviolett 34096 + 34083 | RLM 82 Grün 34083 | RLM 83 Hellgrün 34128 |

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QSI Products



From 1943 Luftwaffe nightfighters left the factory in a very basic scheme of overall RLM 76 Hellgrau. They were delivered to finishing depots where the radar and other specialized nightfighter equipment was installed, and where the camouflage was completed by the addition of a mottle in RLM 75 Dunkelgrau, sprayed in an irregular pattern on top of the wings and tail and on the fuselage spine. This mottle varied widely from aircraft to aircraft, occasionally extending down the fuselage sides and to the vertical tail surfaces. National insignia on Ju-88G-1s at first were the standard black crosses with wide white edging, but in mid-1944 this changed to the hollow black outline style of Balkankreuz. Contrary to what the Federal Republic of Germany wishes us to believe, the swastika appeared on all German aircraft between 1933 and 1945, and a variety of styles were visible on Ju-88Gs. The most common was a plain black swastika, although a black swastika with white outline was quite common on Ju-88G-1s, and the hollow black outline style could be seen on Ju-88G-6s. Aircraft built at the Junkers Werke at Dessau were given serials in the 710000 range, and the serial number, when visible, was painted at the top of the vertical stabilizer in small numbers. Less frequently, it could be seen on the tail below the swastika in numbers approximately 15cm high. Aircraft built at Bernburg were given serials in the 620000 range, and this was applied consistently in 15cm letters above the swastika. Individual aircraft codes were usually carried on each side of the fuselage cross, with the Geschwader code in 12 or 15cm letters to the right of the cross, and the aircraft and Staffel codes to the left in 60cm letters. The aircraft letter was usually painted in the Staffel colour, and there are examples of aircraft where both letters appeared in that colour.

From mid-1944 Allied fighter-bombers routinely patrolled known German airfields, strafing targets of opportunity. Camouflage suitable for concealment of dispersed aircraft became increasingly common, as the basic scheme was touched up by the addition of irregular green spots and squiggles. While some of this would have been done using existing stocks of paint, at this time the RLM introduced three new colours: RLM 81 Braunviolett, RLM 82 Grün, and RLM 83 Hellgrün. It is likely that most of the Ju-88s in service from September 1944 were camouflaged with combinations of these new colours.

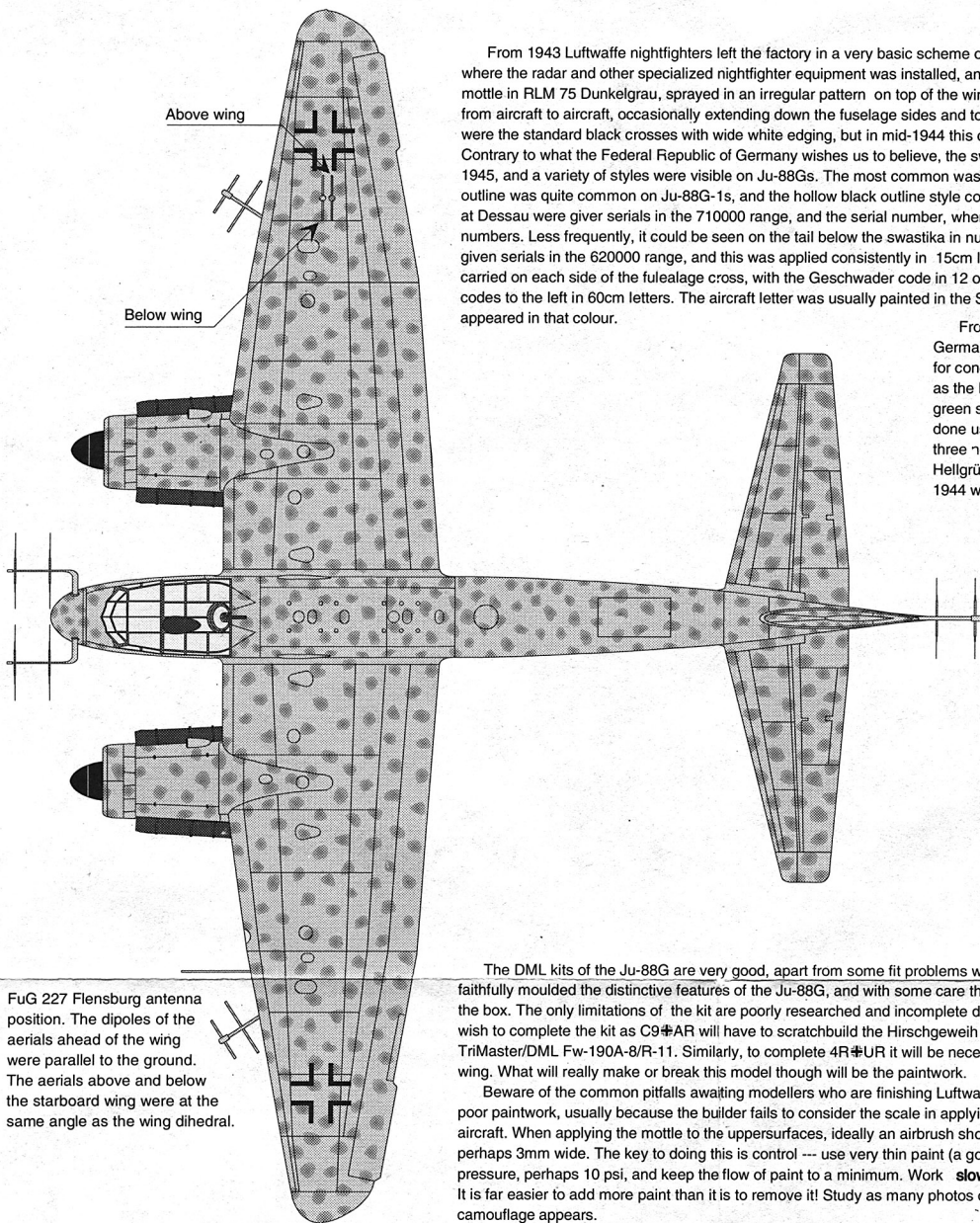
When building a model of the Ju-88G, some attention should be paid to the equipment fit of the particular aircraft selected. Many variations in equipment can be found in this aircraft: most were fitted with FuG 220 SN-2 radar, with or without rear warning radar, some with vertical dipoles, some with dipoles canted at 45°. Relatively few aircraft had FuG 227 Flensburg, which was extremely effective but which had been revealed to the Allies by the acquisition of 4R#UR. Most but not all Ju-88Gs were fitted with FuG 350 Naxos Z. Another item to consider is the Schräge Musik oblique cannon seen on the upper fuselage of many aircraft. Most aircraft carried two 20mm cannon beside each other against the rear bulkhead of what had been the bomb bay. Some aircraft had two cannon against the forward bulkhead, while others had their two cannon mounted one behind the other, and others had a single cannon in either position. Another area is the canopy, because there were three or four different fittings for the rear machinegun, and some aircraft had additional armoured glass applied over the windscreen. Wherever possible, check photos of the real aircraft. The scale drawings in Flugzeug magazine are very valuable, and illustrate all these many variations.

The DML kits of the Ju-88G are very good, apart from some fit problems which are easy to overcome. Unlike the 1/72 ERTL kit, DML have faithfully moulded the distinctive features of the Ju-88G, and with some care the basic kit can be built into an outstanding model straight from the box. The only limitations of the kit are poorly researched and incomplete decals, and the lack of alternate radar antennae. Modellers who wish to complete the kit as C9#AR will have to scratchbuild the Hirschgeweih radar array and swipe the rear-warning radar antenna from a TriMaster/DML Fw-190A-8/R-11. Similarly, to complete 4R#UR it will be necessary to add the FuG 227 Flensburg antennae on the starboard wing. What will really make or break this model though will be the paintwork.

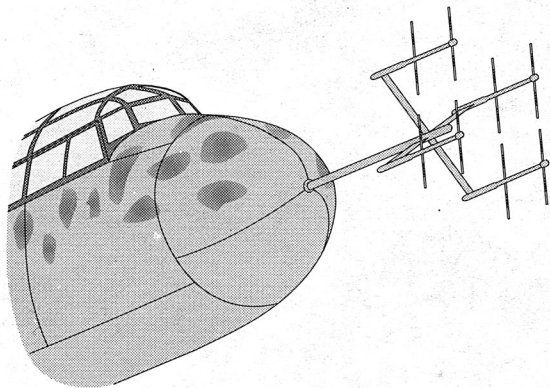
Beware of the common pitfalls awaiting modellers who are finishing Luftwaffe nightfighters. Many excellent models have been spoiled by poor paintwork, usually because the builder fails to consider the scale in applying the various mottling and squiggles typically used on these aircraft. When applying the mottle to the uppersurfaces, ideally an airbrush should be used which is able to lay down a fine line, in 1/48 scale perhaps 3mm wide. The key to doing this is control --- use very thin paint (a good rule of thumb is 60:40 parts thinner to paint) under low pressure, perhaps 10 psi, and keep the flow of paint to a minimum. Work **slowly**, and stop from time to time to clean the tip of the airbrush. It is far easier to add more paint than it is to remove it! Study as many photos of real aircraft as you can find to get a feel for how the camouflage appears.

Another common problem which can detract from the final appearance are spots which are too large, too regular in shape (polka-dots) or too evenly spaced. As you work bear in mind how big a 1/48 scale ground crewman would be, how wide a spray his paint gun would throw, and how far he would be able to reach standing on a ladder or a wing. The key to a realistic appearance is *not too much*. A subtle appearance is more accurate than humungous dark blobs, so go easy.

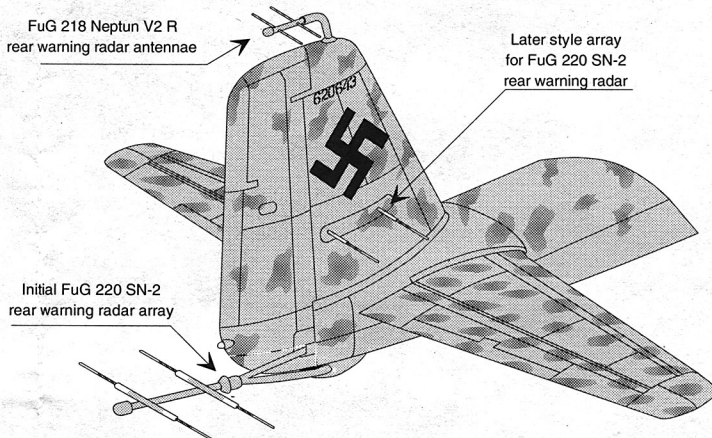
Finally, when you see artwork depicting German nightfighters, including these illustrations, realize that 99% of the time the artist is working from photos which show only part of the aircraft, and that he must "flesh out" the rest of the scheme according to his experience and instincts. For goodness sake don't try to match him dot-for-dot, because it ain't necessarily so. It's also a recipe for going crazy.



FuG 227 Flensburg antenna position. The dipoles of the aerials ahead of the wing were parallel to the ground. The aerials above and below the starboard wing were at the same angle as the wing dihedral.



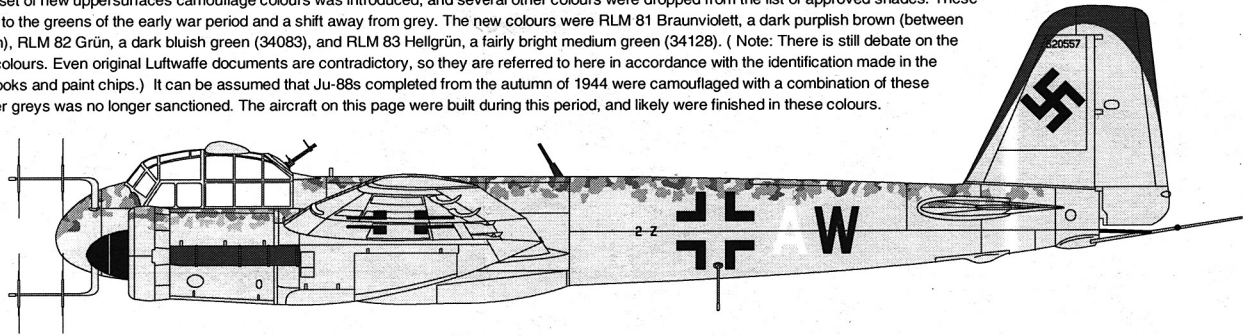
At the end of 1944 FuG 218 Neptun V2 R was introduced as a jamming-resistant replacement for FuG 220 Lichtenstein SN-2. This radar featured a new dipole array which offered less drag than the one used by SN-2. Both were colloquially known as Hirschgeweih or "Stag's Horn". By the end of the war, a few aircraft had also been fitted with Morgenstern, in which six dipoles were arranged along a central pole, canted at a 45° angle.



Radar dipoles were commonly painted white/red/white to minimize the risk of damage on the ground.

In the latter part of 1944 a set of new uppersurfaces camouflage colours was introduced, and several other colours were dropped from the list of approved shades. These new colours reflected a return to the greens of the early war period and a shift away from grey. The new colours were RLM 81 Braunviolett, a dark purplish brown (between 34096 and 34083, more brown), RLM 82 Grün, a dark bluish green (34083), and RLM 83 Hellgrün, a fairly bright medium green (34128). (Note: There is still debate on the correct identification of these colours. Even original Luftwaffe documents are contradictory, so they are referred to here in accordance with the identification made in the Kookaburra and Monogram books and paint chips.) It can be assumed that Ju-88s completed from the autumn of 1944 were camouflaged with a combination of these colours, since use of the earlier greys was no longer sanctioned. The aircraft on this page were built during this period, and likely were finished in these colours.

Ju-88G-6 WNr.620557
2Z✚AW 12./NJG 6
Ingolstadt, Spring 1945

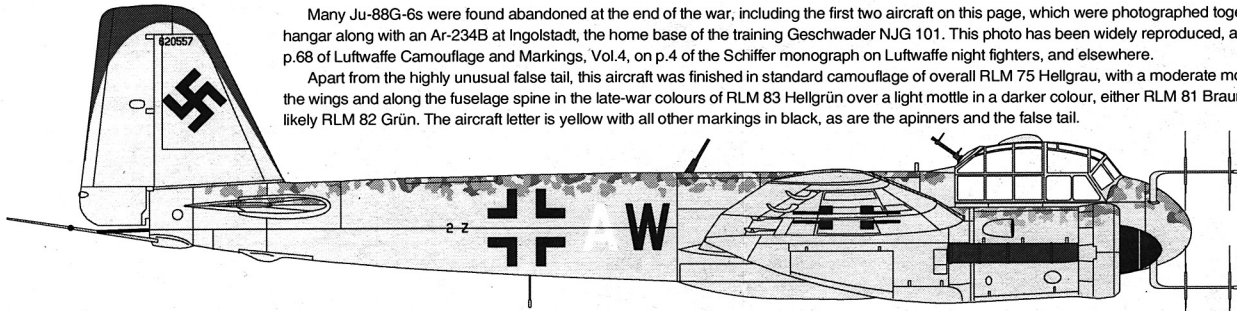


Many Ju-88G-6s were found abandoned at the end of the war, including the first two aircraft on this page, which were photographed together in a bombed-out hangar along with an Ar-234B at Ingolstadt, the home base of the training Geschwader NJG 101. This photo has been widely reproduced, and can be found on p.68 of Luftwaffe Camouflage and Markings, Vol.4, on p.4 of the Schiffer monograph on Luftwaffe night fighters, and elsewhere.

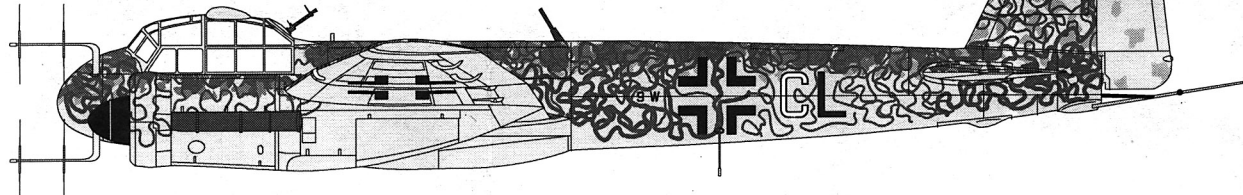
Apart from the highly unusual false tail, this aircraft was finished in standard camouflage of overall RLM 75 Hellgrau, with a moderate mottle on the top of the wings and along the fuselage spine in the late-war colours of RLM 83 Hellgrün over a light mottle in a darker colour, either RLM 81 Braunviolett or more likely RLM 82 Grün. The aircraft letter is yellow with all other markings in black, as are the spinners and the false tail.



RLM 81
Braunviolett
34096 + 34083



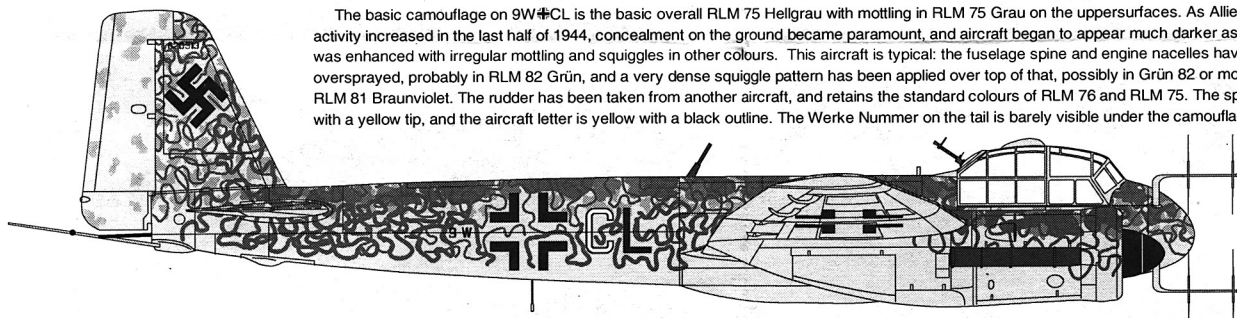
Ju-88G-6 WNr.620313
9W✚CL 3./NJG 101
Ingolstadt, Spring 1945



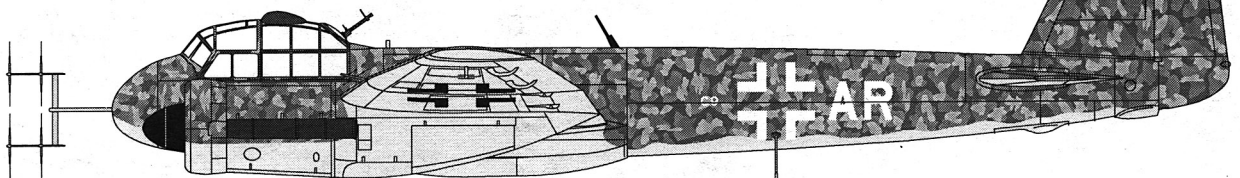
The basic camouflage on 9W✚CL is the basic overall RLM 75 Hellgrau with mottling in RLM 75 Grau on the uppersurfaces. As Allied fighter-bomber activity increased in the last half of 1944, concealment on the ground became paramount, and aircraft began to appear much darker as the basic scheme was enhanced with irregular mottling and squiggles in other colours. This aircraft is typical: the fuselage spine and engine nacelles have been heavily oversprayed, probably in RLM 82 Grün, and a very dense squiggle pattern has been applied over top of that, possibly in Grün 82 or more likely with RLM 81 Braunviolett. The rudder has been taken from another aircraft, and retains the standard colours of RLM 76 and RLM 75. The spinners are black with a yellow tip, and the aircraft letter is yellow with a black outline. The Werke Nummer on the tail is barely visible under the camouflage.



RLM 82
Grün
34083



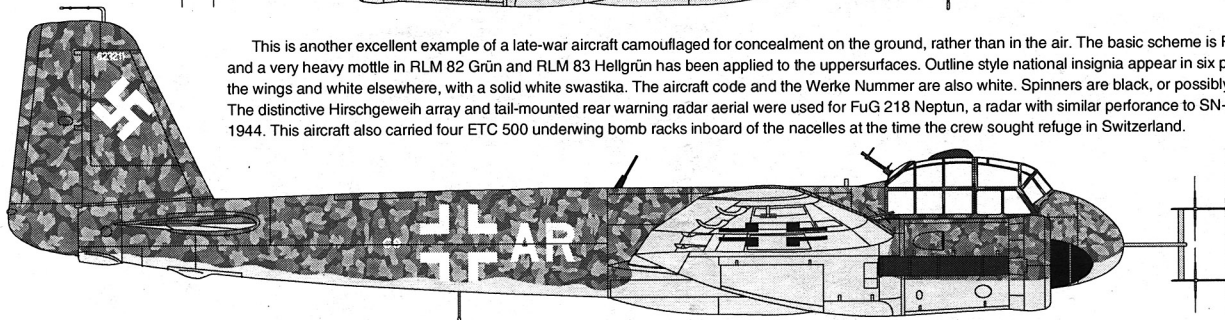
Ju-88G-6 WNr 623211
C9✚AR 7./NJG 5
Dübendorf, Switzerland
30 April 1945



This is another excellent example of a late-war aircraft camouflaged for concealment on the ground, rather than in the air. The basic scheme is RLM 76 Hellgrau overall, and a very heavy mottle in RLM 82 Grün and RLM 83 Hellgrün has been applied to the uppersurfaces. Outline style national insignia appear in six positions, black under the wings and white elsewhere, with a solid white swastika. The aircraft code and the Werke Nummer are also white. Spinners are black, or possibly RLM 70 Schwartzgrün. The distinctive Hirschgeweih array and tail-mounted rear warning radar aerial were used for FuG 218 Neptun, a radar with similar performance to SN-2 which appeared late in 1944. This aircraft also carried four ETC 500 underwing bomb racks inboard of the nacelles at the time the crew sought refuge in Switzerland.



RLM 83
Hellgrün
34128



Modelling the Ju-88G has been made easier by the ERTL kit, however there are some significant errors and omissions which should be addressed. Most evident are the ailerons, which had a broader chord outboard of the trim tabs, and these are ignored. The shape of both the BMW 801 and Jumo 213 is somewhat suspect, and the propellers are the wrong shape. The cooling fans for the BMW 801 are omitted, and the annular radiators on the front of the Jumo 213 nacelles are wrong, instead the type used on the Jumo 211J-powered Ju-88A/C is included. The radar aerials are very thick and lack the fineness of the originals. The aerials provided are for earlier FuG 220 Lichtenstein SN-2b, and the prominent rear dipole boom is not provided. The dipoles for the alternate style of SN-2r, as used on 3C✚DB, are rather heavy and the instructions indicate that they are mounted on a plate attached to the tail, while in fact they protruded through the tail skinning. No antennae are included for FuG 227 Flensburg or for the FuG 218 Neptun's Hirschgeweih array, despite the fact that the two kit decal options carry this equipment. The kit instruction are not precise on the configuration of the SN-2 dipoles: aircraft with SN-2c or SN-2d had their aerials canted at 45° and usually had SN-2 rear-warning radar antennae on a boom protruding from under the rudder.