On July 13, 1944, within little more than two months of the service début of the Ju 88G-1, by an extraordinary stroke of good fortune for the R.A.F., an example of this fighter (4R + UR) from 7./NJG 2 landed inadvertently at Woodbridge, Essex, its pilot having made the error of flying a reciprocal compass course when returning from a patrol over the North Sea. The Lichtenstein SN-2 and Fliensburg were prizes of the utmost importance, and within 10 days R.A.F. Bomber Command was successfully jamming the SN-2 of the Nachjagd, subsequently removing the Monica tail-warning radar from its bombers to render the Fliensburg equipment useless.

The Ju 88G-1 was, in fact, the first fighter variant with BMW 801 air-cooled radials to be produced in substantial numbers, the supply situation with this type of power plant having restricted production of the earlier Ju 88R series. The crew, which initially comprised three members but was later to be augmented by a second observer when the progressive introduction of additional avionic equipment rendered effective operation difficult without an increase in the crew complement, was protected by an armoured glass windscreen, front and side armour, and an armoured aft gun mounting for the 13-mm. MG 131. In addition to the SN-2 and Fliensburg radar, equipment included FuG 10P H.F. and FuG 16ZY V.H.F. radio, FuG 25 I.F.F. radio, an FuG 40L radio altimeter, an FuR 12 radio direction finder, and a FuG 120a Bernetine which automatically recorded on a paper chart ground beacon bearings, and a PeGe 6 radio compass.

Standard fuel tankage comprised a 91 Imp. gal. tank outboard and a 93.4 Imp. gal. tank inboard of each engine nacelle, a 230 Imp. gal. tank in the aft bomb-bay, and a 108 Imp. gal. tank in the forward bomb-bay, the space beneath the last-mentioned tank being occupied by the 200-round ammunition boxes for the four MG 151 cannon. The Ju 88G-4, which followed the G-1 on the assembly line, differed only in adopting as standard the various items of avionic equipment incorporated progressively in the earlier model. Some examples of this model were equipped with a rearward-facing Lichtenstein SN-2 aerial for tail warning, plus a "schragfeste Musik" installation of two upward-firing MG 151 cannon with 200 r.p.g., similar additional items of equipment being added to the Ju 88G-6a which, manufactured in parallel, differed from the G-4 primarily in having BMW 801G rather than 801D engines.

The Ju 88G-6b added FuG 350 Naxos Z to its equipment inventory, this 30-mile range receiver for H2S emissions having a rotating aerial mounted in a housing above the cockpit, but this BMW 801G-powered model quickly gave place to the Ju 88G-6c powered by Jumo 213A liquid-cooled engines driving VS 111 wooden airscrews and offering 1,750 h.p. plus 237 lb. thrust for take-off and combat ratings of 1,600 h.p. plus 223 lb. thrust at sea level, and 1,440 h.p. plus 266 lb. thrust at 19,700 ft. Owing to a rearrangement of equipment, it was found necessary to mount the upward-firing "schragfeste Musik" weapons immediately aft of the cockpit, e.g. considerations necessitating an 81 Imp. gal. reduction in the capacity of the aft fuselage tank.