

Further Report on the Crew of the Ju.88 8-3 Z6 + FH of
1/K.G.66) shot down by A.A. 5 miles N.W. of Alost, on 23rd
January 1945.

(Previous A.D.I.(K) Report No.142/1945)

LAST FLIGHT.

1. It will be remembered that this aircraft was brought down while acting as pathfinder to a minelaying operation in the Scheldt Estuary. The flight was described in detail in the previous report and there is only one point of interest to add; that after marking the minelaying point at the mouth of the Scheldt, the Z6 + FH was to go on to attack the night fighter airfield at Knocke/Le Zoute, for which purpose 18 x 50 kg. S.D. bombs were carried. If the lighting at Knocke airfield was not on when the crew reached it they were to use their bombs on A.A. batteries as targets of opportunity.

I/K.G.66.

2. It is confirmed that 1/K.G.66 based at Dedolstorf has reverted to its old duties as a specialised pathfinder unit. It is organised in the same way as when it operated against England in the spring of 1944, that is to say with the 1st Staffel using the "Y" procedure, the 2nd the "Truhe". (the German equivalent of Gee), and the 3rd the EGON procedure. There is, however, one important innovation; the 1st Staffel has been receiving instruction in a new navigational method, a combination of the "Y" and Egon procedures, which will be described in a later section of the present report.

3. P/Ws' knowledge of the Gruppe's activities was confined to their own Staffel; they knew that the 2nd Staffel used "Truhe" and that there were a number of German Gee stations, but they did not know the locations of the latter and could give no further details.

4. Shortly before the crew of the Z6 + FH was shot down, the 1st Staffel had received three new crews, bringing their strength up to 12. Aircraft for these new crews, however, had not yet arrived.

ACTIVITIES.

5. The present crew had joined 1/K.G.66 at Dedolstorf in May 1944, having previously been with 4/K.G.54, with which unit

they had flown 7 operations in Italy and 10 against this country.

6. At Dedolstorf they did little or nothing during the summer of 1944 beyond some very scanty training and they did not make their first operational sortie until December 4th; this was a weather reconnaissance over an area of the North Sea East of the Thames estuary in preparation for a mining sortie in the Scheldt that same night.

7. In about October or November it had been known in K.G.66 that the Germans believed the Allies to be planning a large-scale landing in the Bay of Venice, suit that K.G.66 was to be moved South to take part in a "Total Einsatz" (full-scale operation) against it. The landing did not, however, materialise.

8. At the beginning of VON RUNDSTEDT's offensive a number of aircraft of K.G.66 were detailed to mark an area near Eupen where paratroops were to be dropped. The operation was kept a close secret and members of the unit were forbidden to write home until the flight had been completed. Some of the paratroops were dropped from Ju.52's of T.G.30; about 100 aircraft in all took part in the mission.

9. A few days later 4-5 aircraft of 1/K.G.66 took off from Dedolstorf to act as pathfinders for a bomber force in an attack on some woods to the North of Bastogne which were stated to conceal a concentration of artillery. They were accompanied by 3-4 Ju.88 A-4's of K.G.200, the crews of which were receiving pathfinder instruction from K.G.66.

10. When the K.G.66 aircraft arrived over the target the weather was very bad with low cloud and poor ground visibility and as the crews could not identify the target they returned home with their markers. The crews of K.G.200, however, being new to this kind of operation, decided to drop their markers rather than return with them, the result being that the wrong target was marked.

11. The Kommandeur of I4.1.66 made a complaint to Generalmajor PELZ and soon afterwards the aircraft of K.G.200 were withdrawn from Dedolstorf.

12. At about Christmastime some 12 aircraft of 1/K.G.66, six of them acting as pathfinders and illuminators and the remainder as normal bombers, flew another sortie to the

Bastogne area. They flew on a course Dedolstorf - Hanover - Paderborn - Bonn/Mangelar airfield (marked by a searchlight dome) a light beacon at Trier - a point immediately behind the German lines, where the starting point of the target marking run was indicated by Flak star shells. From the latter point the present crew flew by D/R for about two minutes on a given course and at a given height before releasing their flares and ground markers.

TARGET MARKING.

13. The flight to the Bastogne pocket described above gives a typical instance of the method of navigation used by those aircraft of K.G.66 which did not employ special navigational aids. The target marking run was flown on D/R and just before the target was reached the aircraft began dropping their flares. Ten of these were dropped in a straight line at ten-second intervals - i.e. about 1000 metres apart - and laid so that the centre of the line was over the target. The aircraft then made a 180° turn, identified the target by the light of the flares and then dropped coloured ground markers, usually green, on the target itself.

14. The normal load carried was ten flares and two A.B.250's containing ground markers. The flares were released from a height of 2000 metres; they illuminated at about 1200 metres and burned down to 200 metres above ground.

LUX BUOYS.

15. The Lux buoys used by K.G.66 for minelaying operations and, as stated in the previous report, used by certain aircraft of the Gruppe whilst pathfinding for at least one V.1 launching operation, are carried in A.B.250 containers. The containers can, of course, be released from any height but they must be fused to open, releasing the Lux buoys, at a minimum height of 200 metres.

16. P/W said that in very clear weather the Lux buoys could be seen at a distance of about 20 km. from an aircraft flying at a height of 2000 metres.

NAVIGATION.

17. As befits a pathfinder unit, K.G.66 treats the question of navigation as of primary importance during briefing. Full details of W/T and visual beacons, Sonne, and other

navigational aids are given to the crews at least two hours before take-off to allow ample time for study, and the observer of the present crew states that with these aids it is very difficult to go wrong unless the radio apparatus refuses to function.

18. If the flight has gone according to plan the operation is not examined in detail at the subsequent interrogation, but if anything has gone wrong the latter is investigated very thoroughly and the observer had to make a full report.

SPECIAL NAVIGATIONAL AIDS.

Egon.

19. It was stated in the previous report that a detachment of K.G.66, consisting of three crews of the 1st Staffel and four crews of the 3rd Staffel, was sent about the middle of November 1944 to Zwischenahn where they were told that they would have to fly sorties under Egon control in conjunction with He.111's carrying V.1's.

20. During the first fortnight in December the crews carried out a certain number of Egon practice flights but the weather was so bad that the present P/W, who were members of the party, made only one flight. This was to Texel and the aircraft experienced severe icing conditions both on the outward and homeward routes. Possibly as a result of the aeriels icing up they received no instructions from the ground; on returning to base they were told that the Freya had plotted them the whole way to Texel and back and had sent them instruction, but had received no response.

21. The observer states that the usual operational height for the Egon procedure is up to 4000/5000 metres, at which height the maximum control range is about 350 km.

"Y" Procedure.

22. The present crew returned from Zwischenahn to Dedolstorf about the middle of December. Up to this time none of them had received more than theoretical instruction in the "Y" procedure, but about a week later on December 20th/21st, the W/T operator made one flight as a member of another crew undergoing "Y" training.

23. This flight was from Dedolstorf to Wittenberg, about 100 km. to the E.N.E. The aircraft was controlled from a "Y"

installation at Dedolstorf consisting of one single mast with a small aerial array at its head of which P/W could give no exact description. Instructions were passed to the aircraft over the FuGe 17 and when the ground control wanted to fix the aircraft the W/T operator of the crew depressed the "Y" key on his FuGe 17 for five seconds on request.

24. The flight was a failure. The "Y" beam became bent owing, P/W thinks, to variations in the electric main current, which fluctuated between 220 and 180 volts, and when the bombing signal was received the aircraft, although still on the beam, was at Magdeburg, some 95 km to the South of Wittenberg.

25. The next day the Staffelkapitän of 1/K.G.66 undertook a similar flight, which was more successful. When he received his bombing signal he was over Seehausen, only a few km. S.W. of Wittenberge.

The New "X" Procedure.

26. This new procedure is basically a combination of the "Y" beam and the Egon procedure. A "Y" beam - referred to by P/W as "Oskar"; the code name known to have been applied to the original "Y" beam used in 1940 - is employed in conjunction with the FuGe 28, the FuGe 25a and a clock which P/W called the "Y" clock, but which appears from their description to be similar in principle to, if not identical with, the "clock" reported in April 1944 as having been devised for the Egon procedure. (A.D.I.(K) 160/1944).

27. The knowledge of the present P/W on the new procedure was only derived from theoretical instruction. They had heard whilst at Zwischenahn in December 1944 that the system was to be introduced in their Staffel, but there was some delay in obtaining the necessary apparatus, notably the "Y" clock, and at the time when P/W were captured on January 23rd, only two or three aircraft of the Staffel were equipped.

28. P/W themselves had received a certain amount of theoretical instruction during January but only one of them - the W/T operator - had seen the "Y" clock. They were to have received airborne instruction on January 25th and 26th flying over the North Sea one northerly course from Leeuwarden; it was thought that the necessary airborne instruction could last about 8-10 days in all and that early in March aircraft of the Staffel would be ready to use the new procedure operationally over the front line areas.

29. The type of "Y" beam station used is described by P/W as a number of main aerial masts about 10-12 metres high interspaced with smaller vertical dipoles which radiate one main beam and a series of about six secondary beams on each side of it at diminishing intervals, the first being at 13° from the main beam. The array is located on a large turntable for directional purposes. P/W stated that two of these "Y" stations were at Leeuwarden and on the mainland near Den Helder respectively.

30. For the reception of the "Y" beam the aircraft carries a FuGe 28, the visual indicator of which is referred to according to circumstances as "Kommando" or "Anzeiger". When the aircraft is flying along the main beam to the target the pointer on the dial gives "Kommando", that is to say when the pointer indicates left it "commands" that a correction to the left must be made to return to the beams. When the aircraft is flying on a secondary beam, however, the pointer is referred to as "Anzeiger" and "indicates" the position of the aircraft in relation to the beams. When the pointer indicates left for instance, the aircraft is to the left of the secondary beam and a correction to the right must be made to bring it back to that beam.

31. The reverse holds good when flying back from the target to base but for convenience the visual indicator can be switched over for the return flight to indicate in the same way as on the outward flight.

32. The continuous tone of the secondary beam is undulating while that of the main beam is level and the difference can be readily distinguished by the W/T operator. It is usual for the aircraft to fly along a secondary beam until instructions are received over the "Y" clock or the FuGe 17 to fly on the main beam.

33. The "Y" clock indicates by means of radio impulses from the ground station a previously-arranged series of code instructions similar to those used in the Egon procedure. Its great advantage is that it dispenses with almost all R/T or W/T signals between ground central and aircraft.

34. P/W did not know the FuGe number of this instrument and none of them, with the exception of the W/T operator, had heard any other name for it than the "Y" clock; the latter had once or twice heard it referred to as the SNK-Gerät, but he had no idea what these initials denoted.

35. The description given by P/W is strikingly similar to that contained in A.D.I.(K) 160/1944 paras. 29-36. Basically the clock consists of a cathode ray tube screen about 20 cm. in diameter with numbers from 0 to 9 spaced at intervals round its circumference. Each of these numbers denotes a code instruction, the significance of which is given on the W/T briefing sheet for each operation and is varied from sortie to sortie.

36. Numbers 1 to 3 or 4 are reserved for the individual aircraft and in explanation of this P/W says that at the most four aircraft would be used as pathfinders proper, whilst other aircraft in the unit would be used to renew the markers and flares laid by these four aircraft, flying probably on Egon or even on D/R to bring them near enough to the original marking to enable them to correct their course themselves.

37. The remaining numbers, i.e. 0 and 4 or 5 to 9, are allocated to the respective code instructions, such as "distance from ground station to aircraft", "distance from aircraft to target", "height", "change course left", "change course right", and bomb release warning.

38. The "hand" of the look appears as a wedge-shaped blip on the screen of the Cathode ray tube about two-thirds out from its centre. It rests at a neutral position at twelve o'clock and is moved to the various figures by means of impulses from the ground station lasting only 1/100th of a second, and therefore calculated by the Germans to be unjammable by us.

39. There is an aerial in a shallow perspex-covered bola in the centre of the underside of the fuselage, but P/W could not describe this array or say whether it was for the "Y" beam reception or for the SNK-Gerät.

40. During its flight the aircraft keeps its FuGe 25a switched on and is plotted by ground Radar, which gives any necessary instructions over the "clock". According to P/W the positions 1 and 2 on the FuGe 25A indicate "Grob-Messung" (coarse fix) and "Fein-Messung" (fine fix) respectively.

41. The method of working with the new "Y" procedure is as follows:

The aircraft flies by D/R from its base until it picks up the secondary beam of the "Y" station, along which it then flies until instructions are received to move over to the main beam. The W/T operator has his FuGe 17 switched on ready to receive any instructions, and the FuGe 25A is switched on in position 1.

42. From time to time signals are received from the ground, the warning to the W/T operator being a continuous tone of about 2 - 3 seconds on the FuGe 17 indicating to him that he is to stand by to receive instructions over the clock. Shortly afterwards a small white indicator on the top of the clock lights up and the blip moves round from the neutral position at 12 o'clock to one of the numbers between 1 and 4 indicating the particular aircraft being called. After stopping at the number for a second or two only, the blip returns to the neutral position.

43. The message for the particular aircraft called then begins. If the instruction, for instance, is "change course to the right by 15°", the blip will first move to the number allotted to "Change course right" and then in turn to the numbers 0, 1, 5, indicating 015°, returning to the neutral position after each individual number. Acknowledgment of the message is made by switching the FuGe 25A off and on again. If this is done instructions are continued if necessary, but if no acknowledgment is received by the ground control, the instruction is repeated until acknowledged with the FuGe 25A.

44. Should the aircraft wander owing, for example, to disturbance of the beam, fresh instructions are sent from time to time by means of the clock. Shortly before the target is reached, instructions are received via the "clock" to switch over to position 2 on the FuGe 25A for a fine fix on the last run to the target.

45. One minute before the actual target is reached the W/T operator receives his standby warning on the FuGe 17 followed by the appropriate code number on the clock denoting that the markers or flares must be released in 60 seconds time. The W/T operator or the observer then "stops" this time on his watch, but the flares or markers are not-released until a red lamp lights up above the clock; this may be a little short of 60 seconds or a little longer.

46. The bomb release signal could also be given over the FuGe 17 instead of over the clock. The method in this case would be that at the beginning of the 60 seconds a morse signal such as -. would be given and then when the time of release was reached a further -. , the flares being released on the final dot.

47. The clock is usually placed in front of the observer so that he can acknowledge signals with the FuGe 25A, which is also situated within his reach.

48. Although two or three aircraft of 1/K.G.66 are at present fitted with SNK, it is the intention to fit all aircraft of

the Staffel with this new apparatus. The aircraft retains, however, its normal radio equipment, so that it can operate with either Egon or the new "Y" procedure as required. The aircraft were flown from Dedolstorf to Celle for the fitting of the SNK.

FuGe 217. (Radar).

49. The Z6 + FH was fitted with a FuGe 217. The crew had little practical experience with it - they had used it on only one sortie, in the course of which nothing was picked up - and they appear to have had rather inadequate instruction in its function, but they were able to give the following description of the apparatus.

50. The FuGe 217 differs from the FuGe 216 in both the display and the aerials. In the FuGe 217 the display is horizontal across the middle of the screen and through the centre of it runs a vertical white line which represents zero. The return from the aircraft itself shows on both sides of this middle white line, whilst the blip from the enemy aircraft shows on one side or the other.

51. The range runs to both left and right, with an extreme on either side of 8 km. The exact object of ranging from the middle is not known to P/W and they can only suggest that it may be to indicate whether the aircraft approaching from the rear is to the left or right.

52. The W/T operator states that the crew had had this apparatus explained to them merely as equipment for searching to the rear and had never heard of it in connection with D/F'ing, although having a vertical line in the centre of the screen with display on both sides of it would indicate that perhaps it could be used for this purpose.

53. Although the screen is calibrated up to 8 km, the actual maximum range at K.G.66's normal operational height - some 2000 metres - is only about 4 km, as this is the distance on the display between the return from the parent aircraft and the ground return; the observer assumes that the minimum range at which an aircraft can be identified is about 500 metres, but it may be a little less.

54. Below the screen are three control knobs for focus, brilliance and range; the latter has two positions, one for a coarse setting giving the 8 km, range, and the other a fine setting for a range of 4 km.

55. There is an aerial array above each wing surface; that on the starboard wing, P/W believes, is the transmitter, and that

on the port wing the receiver. The main support for each array protrudes rearward from the wing surface at an angle of about 35° from the horizontal, at a point about a quarter of the way inboard from the wingtip and just forward of the aileron.

56. Running upwards from the main support, at a slight angle to the vertical, are three feeders, each with a horizontal dipole at its tip, extending about 15 cm. to either side of the feeder. The feeders are staggered in length, the forward one being highest and the aft one lowest; the latter is almost directly over the trailing edge of the wing.

57. During lectures on FuGe 217, the instructor had drawn the lobe of search and P/W says that whereas in the FuGe 216 this was to the rear and downwards, in the FuGe 217 it was to the rear and above the aircraft, with the deepest point only some 400 metres below the aircraft itself.

58. The explanation of this may be that the operations carried out by K.G.66 were mainly those entailing a low flying height - anything from ground level up to 2000 metres - and therefore any contact by night fighters would be free the rear above rather than below. The angle of search is about 30° from the centre on each side, and there is a small lobe of search, probably about 1 km, to the front of the aircraft.

59. Crews are not enthusiastic about the FuGe 217 and the present one, although it had been flying several months with it, had only once used it on one sortie, mainly because when they switched it on it disturbed the whole of the radio equipment in the aircraft. Not only the intercom, but also ground signals over the FuGe 17 or FuGe 10 are upset, and it also makes D/F'ing extremely difficult. Apart from this, P/W also believe that the radiations facilitate the work of our airborne search equipment.

JU.88 S-3.

60. The Z6 + FH, a Ju.88 S-3, was fitted with Jumo 213 engines. The crew are very enthusiastic about this aircraft and state that with the Jumo 213's it has the following speeds at about 2000 metres:-

2300 r.p.m.....	380 k.p.h.	A.S.I.	without bombs.
	370 k.p.h.	"	with bombs.
2400 r.p.m.....	390 k.p.h.	"	without bombs.
	380 k.p.h.	"	with bombs.
2700 r.p.m.(highest... cruising speed)	440 k.p.h.	"	without bombs.
	430 k.p.h.	"	with bombs

61. They themselves had never exceeded 440 k.p.h. and in fact they usually flew with 2300 r.p.m. The rate of climb was stated to be 8 metres per second with bombs at 270-280 k.p.h. A.S.I. and 15 metres per second without bombs at 240-250 k.p.h.

PERSONALITIES - 1/K.G.66.

62. Oberleutnant HANSEN is Technical Officer of the Gruppe.

63. 1st Staffel.

Staffelkapitän	Oberleutnant PIOTA.
Ia.(Operations Officer)	Oberleutnant HEBERSTREIT.
N.O.(Signals Officer)	Leutnant KUBLER.

64. The following are crews in the 1st Staffel:-

Pilot:	Oberleutnant PIOTA.	Leutnant ALTROGGER.
Observer:	Unteroffizier SEMPFF.	Feldwebel HERMANN.
W/T:	Unteroffizier KONNER.	Oberfähnrich GRAUENHORST.

Pilot:	Leutnant KUBLER.	Oberleutnant TRAUBER.
Observer:	Feldwebel MALLY.	Fähnrich SCHNEIDER.
W/T:	Unteroffizier SCHMIDT.	Feldwebel BEHRENS.

Pilot:	Stabsfeldwebel FISCHER.	Feldwebel HOFSTELLER.
Observer:	Oberleutnant HEBERSTREIT.	Unteroffizier VOGEL.
W/T:	Stabsfeldwebel BACHMANN.	Feldwebel NIED,

Pilot:	Oberfeldwebel JACOBS.	Unteroffizier KELLER.
Observer:	Oberfeldwebel JAGLA.	Unteroffizier SCHONFELD.
W/T:	Unteroffizier BINGEL.	Unteroffizier SILKE.

65. Stabsfeldwebel FISCHER, who pilots Oberleutnant HEBERSTREIT the IA of the Gruppe, is in the Stabstaffel but is attached to the 1st Staffel.

66. Oberfeldwebel LEHR, a pilot in the Staffel, has gone off to the Luftkriegsschule and will shortly be returning as a Leutnant. His W/T operator Feldwebel TOMASCHEK is at present without a crew.

67. Oberfeldwebel SIEMER has left the 1st Staffel and is now in the Kriegsschule; it is not known if he will return to the Staffel.

68. Apart from the above, three new crews with an Oberleutnant, an Oberfeldwebel and an Unteroffizier as pilots, names unknown, arrived a few days before the present crew was shot down.

2nd Staffel.

69. The following are pilots in the 2nd Staffel:-

Oberleutnant GUSZ.
Oberleutnant MADETZKI.
Unteroffizier ROTGANGEL.
Feldwebel ROTH.

70. Oberleutnant GUSZ is the Staffelkapitän; his observer is Unteroffizier ULLRICH.

3rd Staffel.

71. The following are members of the 3rd Staffel:-

Pilot: Leutnant BERCHTOLD.
Observer: Unteroffizier GRUNEL.
W/T: Oberfeldwebel KURZ.

Pilot: Oberleutnant MEHLS.
" Leutnant HINZ.
" Gefreiter KANDZORA.

Losses.

72. The following were lost during the operations over the Bastogne pocket:-

1st Staffel - Oberfeldwebel SCHMALZBAUER.

3rd Staffel - Fähnrich TULLNER.
Oberfeldwebel MOTZ.
Leutnant SCHUBERT.

73. The W/T Operator of the last named was Feldwebel LABINSKI.

K. G. 54.

74. It has been stated earlier in this report that prior to joining K.G.66 this crew, had been in II/K.G.54. In December 1944 one of them met a friend from his old unit who told him that II/K.G.54 was in process of converting to the Ar.234. Unfortunately, no further details were available.

A.D.I.(K)&
U.S. Air Interrogation.
19th February 1945.

S.D. Felkin,
Wing Commander.