

THE FOLLOWING INFORMATION HAS BEEN OBTAINED FROM P/W AS THE STATEMENTS HAVE NOT AS YET BEEN VERIFIED, NO MENTION OF THEM SHOULD BE MADE IN INTELLIGENCE SUMMARIES OF COMMANDS OR LOWER FORMATIONS, NOR SHOULD THEY BE ACCEPTED UNTIL COMMENTED ON AIR MINISTRY INTELLIGENCE SUMMARIES OR SPECIAL COMMUNICATIONS.

A G.A.F. PATHFINDER UNIT.

Further Report on Ju.88 S-1, Z6+IN, of 5/K.G.66, brought down in the sea off Brighton on 25th March 1944.

(Previous A.D.I.(K) Report No.141/1944).

1. The present report may be taken as the third of a series - the first two in which were A.D.I.(K) Reports Nos. 64 and 108/1944 - dealing with the most recent G.A.F. pathfinder practice.
2. The principal subject of interest which has emerged from the interrogation of the one survivor of the Z6+IN is the employment by his Staffel of a method of target pinpointing known as the Egon procedure.
3. Since the issue of the last pathfinder report, the pilot of the Z6+HK, who was wounded when shot down on February 24th, has become available for interrogation and he has also contributed to the information which this report contains on the activities of I/K.G.66.

EGON PROCEDURE

4. On the night of 24th/25th March, the Z6+IN of 5/K.G. 66 was engaged in pathfinding for the attack on London; the petrol tanks were holed by A.A. fire and on the way home the aircraft came down in the sea through lack of fuel after the crew had baled out.
5. The Z6+IN, which was equipped with the FUG.25a, FUGe.10, FUGe.16, PeilGe.6 and the FUGe.216 ("Neptun") tail warning device - the latter out of order - had laid its flares by means of course and pinpointing data supplied by its own ground control.
6. This system of controlling aircraft from the ground is known as the "Egon Verfahren" (Egon Procedure) and in

operation depends upon response radiated by the FUGe.25a in the aircraft being picked up and D/F'd by two Freyas.

7. During flight, the position of the aircraft is continuously plotted by means of data supplied by the Freya and necessary course corrections are passed to the aircraft by ground control in the form of coded W/T and R/T signals.

8. Orders for flare or bomb release are similarly transmitted, allowances for drift being taken into account by the plotting centre; an accuracy to within 0.3° - or according to P/W about 200 metres - is claimed for the placing of the flares. (It should be noted that 0.3° at a distance of as little as 150 km. is nearer 900 m.)

9. The Egon Procedure at present being used, relying as it does on course and bomb-release signals passed by W/T and R/T, is as yet only in an extemporised form. A new attachment to the FUGe.25a in the aircraft will shortly provide for visual signals appearing on a Cathode Ray Tube and will eliminate all W/T and R/T course and bombing signals without basically altering the present procedure.

10. This attachment is now being tried out by 4/K.G.66 at Strausberg and according to P/W it is about to be introduced into operational use; the apparatus and its method of operation are described in a later section of this report.

Operation of Egon Procedure.

11. At the briefing for a pathfinder operation, crews are given a course to the target and a height at which the flares or bombs are to be released.

12. After take-off, the FuGe.25a in the aircraft is switched on and Freya No. 1 plots the aircraft; the FuGe.25a radiations giving the single-letter recognition characteristic of the aircraft are received by the Freya and range and bearing data are passed from the Freya to the plotting room.

13. The Egon plotting table is similar to the night-fighter Seeburg Tisch; a transparent map of the area of operations is laid on a glass table and the aircraft is represented by a red spot of light which is thrown on the underside of the glass by an automatic projector connected directly to the Freyas. The course of the pathfinder aircraft can thus be followed visually and any corrections necessary are given by Control.

14. In the vicinity of the target Freya No.2 takes the aircraft over from Freya No.1 and thereafter no further course

corrections, but only the flare or bomb release instructions, are given.

15. The height of the aircraft cannot be checked by the ground Control and it remains with the pilot to see that his height at the time of release conforms with the instruction given at the briefing.

16. When marking targets over London the aircraft were usually briefed to fly over southern England at 9,500 metres, reducing height to 8,500 metres to release the flares. The height of flight given at the briefing for Egon-controlled aircraft was never less than 6,000 meters over London.

Communication with Aircraft.

17. The whole of the Egon procedure depends in its operation on a short series of code-words used in communication between Control and aircraft; these code-words are already familiar, having been borrowed from the G.A.F. controlled night-fighters.

18. It, was stated by P/W that recently the R/T channels of communication had been seriously disturbed by British countermeasures and to combat such interference it has recently been the practice to transmit all traffic passing from Control to the aircraft in R/T and W/T simultaneously, the latter in two different channels.

19. The R/T traffic passes on the frequency band of the FuGe.16 whilst both the W/T channels are within that of the FuGe.10 and PeilGe.6. One of these two W/T channels is received by the aircraft on the PeilGe.6; this is on a frequency of 563 kc/s., the signals being superimposed on the broadcasting programme of Calais I - the familiar vehicle for the outpourings of one William Joyce. The other is received on another frequency on the FuGe.10,

20. The series of signal code-words, their equivalents in the morse channels and their significant in the procedure are as follows:-

| <u>W/T</u> | <u>R/T</u> | <u>Meaning</u> |
|-----------------------------|--------------|------------------------|
| (Preceded by a/c call-sign) | | |
| KKK | Kommen | You are being plotted. |
| AAA | Autobahn | Change bearing to..... |
| RRR | Rolf | Bearing 5° right. |
| 2 RRR | Zweimal Rolf | Bearing 10°right. |
| LLL | Lisa | Bearing 5° left. |
| UUU | Kirchturm | Height |

| | | |
|---------|---------------------------|--|
| CCC | Caruso | Fly straight and level cours. |
| ZZZ | Pauke Pauke | Open bomb doors. |
| -(dash) | -(W/T dash) | Pre-release signal of 3-4 secs. |
| .(dot) | .(W/T dot) | Bomb or flare release signal. |
| ? | Kurfürst | Acknowledge that signal is understood, (reply on FuGe.25a) |
| AAA HHH | Autobahn Mat (Heimat). | Set course for base. |

21. In operations the first signal which passes from Control to the aircraft is the information that Freya No.1 has engaged the aircraft and plotting has commenced. This signal opens with the aircraft call-sign, e.g. CA1, followed by KKK or Kommen; in subsequent signals the two letters of the aircraft call-sign are omitted and the number only given.

22. The aircraft has no communication with its control but replies to this and other signal, by manipulation of the FUGe.25a - switching off for 3-4 seconds signifying that the signal has been received and understood and repeated switching off and on signifying the contrary.

23. Course corrections are passed to the aircraft in units of 5°, represented by the code-words Rolf or Lisa or their morse equivalents; thus Rolf or Lisa = 5° and three times Rolf or Lisa = 15°. In passing such instructions, Control signals the aircraft's call-sign followed by the following type of message:-

R/T: Autobahn dreimal Rolf.
W/T: AAA - 3 - RRR.

24. Whilst the aircraft is being followed by Freya No.1, any necessary corrections in course continue up to the point where the order is given to fly on a straight and level course after which no further course corrections are made and orders for release of flares follow.

25. When the aircraft is in a position to commence the bombing run the order "Pauke Pauke" (open bomb doors) is given, at which point Freya No.2 takes over and a pre-release signal of a single dash is given, followed by a release sign of a single dot.

26. The aircraft then signals "Quitting" (operation completed) by manipulation of the FUGe.25a switch, Control gives the order to return, and the aircraft is vectored back to base.

27. It is noteworthy that for this purpose again the subterfuge of Calais I has been resorted to; on the last flight of the Z6+IN the crew was briefed to return to

Montdidier unless the march "Kommt zurück" ("come back") was played by Calais; on hearing this tune a landing was to be made at Soesterberg. "Kommt zurück" was duly played and the Z6+IN was on its way to Soesterberg when it came to grief off Brighton.

28. It was stated that with the Egon procedure it was possible for the ground control to direct one aircraft every ten minutes; it is the practice, however for the flare dropping aircraft to orbit the target after release of one cluster of flares and to be controlled in a second run over the target after an interval of six minutes to renew the concentration before the first flares have burned out.

EGON GERAT - FUG.25a ATTACHMENT.

29. The introduction of the attachment to the PuGe.25a, consisting of a Cathode Ray Tube presentation unit, will dispense with all W/T and R/T signals as navigational aids in the Egon Procedure.

30. The attachment, which was invented and tried out at Rechlin by one Stabsingenieur BENES, consists of a unit placed in the fuselage of the aircraft and a presentation unit, placed between the pilot and observer, embodying a Cathode Ray Tube of about the same diameter as that of the Lichtenstein.

31. The attachment was thought by P/W to have a common aerial array with the FUGe.25a, the latter aerial being a rod about 35 om. in length.

32. The scale of the Cathode Ray Tube consists of a circle divided into equal segments, each of which represents, and is marked with, one of the code-words used in the Egon Procedure. The circle is surrounded by an outer circle which is marked clockwise from 0 to 9, the 0 being at 12 o'clock in the circle, so that the whole scale has much the appearance of a dartboard.

33. In operation, the Egon Procedure will be followed in the manner already described, but the visual signal on the tube will replace the aural signals at present in use.

34. A short blip, radiating from the centre of the tube, first appears in the segment representing the appropriate signal, such as "Autobahn". Bearings are then given in the same way by a long blip, also from the centre, appearing opposite a succession of figures in the outer circle, for instance 3 followed by 5 and 5 repeated represents 355°.

35. Course corrections can similarly be given by a short blip appearing for example, in the "Rolf" segment followed by a long blip opposite 3 in the outer circle, which would mean '3 times Rolf' or a correction of 15° right.

36. Height can similarly be given by indicating "Kirchturm", followed by the necessary figures.

TARGET MARKING PROCEDURE.

37. According to the pilot of the Z6 + HK, which was shot down on 24th February 1944, the Verbandsführer - Master of Ceremonies - is being employed in target marking procedure; this was denied by the P/W from the Z6+ IN, who was in another Staffel, but the pilot of the Z6 + HK claims to have acted as Verbandsführer on his last operation.

38. It was stated that the first pathfinder aircraft and the Verbandsführer arrive simultaneously over the target and when the pathfinder aircraft lays the first flares their position is checked by the Verbandsführer from a higher altitude.

39. If the flares have not been correctly laid, the Verbandsführer drops a single red flare, which he places above the false cluster as a sign to the attacking force; by then himself proceeds to place flare in what he considered to be the correct position. If by now the attacking force is nearing the target, he is said to inform the formation leaders by R/T in clear of the change in marking and that the false cluster is to be ignored.

40. It is noteworthy that both of the present P/W were convinced that decoy flares have been dropped on several occasions during attacks; P/W stated that this would be countered by the Verbandsführer announcing this by R/T and/or dropping a flare of a different colour.

41. The burning time of the normally used single candle flare, the Mark.C.50, is given as seven minutes and these are renewed by the pathfinder aircraft, with the help of navigational aids, in their sixth minute of burning.

42. The normal load of flares carried by the pathfinder aircraft is eighteen Mark.C.50's; these are dropped in three runs with six on each run, or alternatively in two runs of nine.

I/K.G.66.

Order of Battle.

43. According to the most recently captured P/W, I/K.G.66, although it has for some time had a strength of five Staffeln, is still nominally one Gruppe. Up to 25th March 1944 the disposition and equipment of these Staffeln were as follows:-

| <u>Staffel</u> | <u>Equipment</u> | <u>Base</u> |
|----------------|----------------------|------------------------------------|
| 1&2/K.G.66 | Ju.88 S-1 Ju.188 | Avord, forward base Montdidier. |
| 3/K.G.66 | Ju.88 S-1 Ju.188. | Cormeille-en-Vexin. |
| 4/K.G.66 | Ju.88. Ju.188. | Strausberg |
| 5/K.G.66 | JU.88 S-1 | Avord and Montdidier. |

44. Up to about the first week in March the 1st, 2nd and 5th Staffeln were based at Montdidier but continued attention from Allied aircraft, including a fighter-bomber attack in which three aircraft were destroyed, forced a move further back to Avord, K.G.40 being ousted from that airfield in the process.

45. Aircraft of all three Staffeln still used Montdidier operationally, however, and fuelling facilities were available there; it was usual to fly from Avord to this airfield immediately before starting off on operations.

46. Major SCHMIDT is still Kommandeur of I/K.G.66, he just escaped being written off recently, however, when his aircraft was shot down by Mosquitoes between Avord and Montdidier. His crew was killed.

47. Hauptmann SCHMIDT, the Staffelkapitän of the 2nd Staffel, was lost in the attack on Hull on 19th March; his successor is not known.

48. Oberleutnant de MILDE, a signal officer formally at Halle is Staffelkapitän of the 3rd Staffel and Oberleutnant BÖHMANN now commands the 5th Staffel.

49. The 5th Staffel has sixteen officers on its strength, most of whom are signal officers. Two of these are Leutnant SCHUBERT and Leutnant MEUHAUSER.

ACTIVITIES OF I/K.G.66

50. It must be emphasised that recent P/W of K.G.66 have had small knowledge of the activities of other Staffeln of the Gruppe beyond their own; the W/T operator of the Z6+IN,

although he claimed a knowledge above the average, must be classed with the other P/W since his information was mainly from hearsay. He, like the others, can only be relied upon where his own Staffeln is concerned.

51. The 5th Staffeln was formed in about May 1943 from personnel of the 3rd Staffeln, with the addition of some crews from K.G.6. Losses, which have been heavy, have since been replaced with crews from the other Staffeln of K.G.66 as well as from K.G.54 and K.G.2.

52. This Staffeln commenced operations with target marking by D/R but in about December 1943. December 1943 the Egon Procedure was practised at Rechlin and later on from Montdidier.

53. According to this P/W the activities of the Staffeln of I/K.G.66 are at present divided as follows:-

| | |
|------------------|--|
| 1st Staffeln.... | thought to be engaged as backers-up. Navigational aid used uncertain. |
| 2nd Staffeln.... | Pathfinding, using "Gee" (see A.D.I.(K) 108/1944). |
| 3rd Staffeln.... | Known as the Störstaffeln (jamming Staffeln). Radar investigation and jamming flights. |
| 4th Staffeln.... | Non-operational: perfecting new Egon apparatus as well as trying out a "Queen Bee" aircraft. |
| 5th Staffeln.... | Known as the "E" Staffeln: pathfinding using the Egon Procedure. |

INVESTIGATION AND JAMMING.

54. The Störstaffeln - the 3rd - is said to have commenced operating in August 1943 in the fields of the anticipation and attempted diversion of Bomber Command night attacks.

55. A few Ju.88 S-1's of this Staffeln are variously equipped with the Hyperbel Gerät, the "Naxos" search receiver such as is used in U-boats for the detection of Radar transmission, and a set known as the "Viktor 1" for jamming R/T.

56. In operations, an extra member of the crew is carried - an English speaking signals officer - sometimes the aircraft may be fitted with drop tanks.

57. When making investigation flights with the object of anticipating Bomber Command's targets, the aircraft are allotted specific areas of operation - the area off the North Sea coast between Boulogne and Denmark has the code-word

"Rodelbahn" - and the first duty of the special W/T operator is to discover any British navigational aids which may be in operation.

58. The frequencies and bearings of such transmissions are passed to a plotting centre which, using data from several investigating aircraft, instigates counter-measures to the navigational aids and the laying of decoy flares short of the conjectured target.

59. Should the British navigational aids in use be discovered in the earlier stages of an attack, the practice is said to be to withhold any countermeasures until the later stages, to ensure that no intermediate evasion of these countermeasures can take place.

60. It was stated that the Staffel was at present only making these investigational flights as far as Western Germany but that they had already claimed some successes in their efforts to divert attacks.

FW.190's ON NIGHT OPERATIONS.

61. It was stated that the, F.W.190's of S.K.G. 10 which use Rosières and an airfield in Holland as their bases are now equipped with FuGe.25a and controlled by the Egon Procedure.

62. Several pilots of the F.W.190's are said to have reported wonderful bombing results before the installation of the FuGe.25a took place, whereas they in reality merely made a pleasant flight over some innocuous area and jettisoned their bomb. With the introduction of the FuGe.25a many of the pilots who did not understand its functions are said to have found themselves facing a court martial.

63. The signal to the F.W.190's to remain over the target was stated to be "Walzer" and the homing signals the words "Radetzkymarsch".

A.D.I.(K)
5th Apl.44.

S.D.Felkin
Wing Commander

AMENDMENT TO A.D.I.(K) REPORT NO. 160/1944.

Paragraph 27: Delete and substitute:-

"27. It is noteworthy that for this purpose again the subterfuge of Calais I has been resorted to. In the last flight of the Z6 + IN the signal for the crew to return to Montdidier was to be the tune "Komm' zurück, ich warte auf dich" (well known in this country under the title of "J'attendrai") played every three minutes by Calais; if this tune was not played, the crew was to land at Soesterberg. "Komm' zurück" was duly played and the Z6 + IN was on its way to Montdidier when it came to grief off Brighton. The pilot of the Z6+HK also referred to a procedure of this nature. He stated that the playing of a waltz was the signal to remain over the target and the Radetzky March the signal to return to base. No doubt the tunes played and their significance would be varied from sortie to sortie."

Paragraph 63: Delete.