

SECRET

A. D. I. (K) Report No. 318/1944

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.

GERMAN KNOWLEDGE OF 'OBOE'.

1. Attached is a translation of a paper issued by the General der Flakwaffe on 24th May 1944 concerning the British 'Oboe' procedure - called by the Germans the Boomerang.
2. Apart from showing that the enemy understands the working of 'Oboe' the report is of interest as it indicates the lines on which German defence was concentrating. Night-fighters are dismissed summarily and the main hope is that, by knowing the approach course, the height and the speed of the attacking aircraft, the Flak defences must be concentrated near the bomb release point so as to produce a "Vernichtungsfeuer" by which success was certain. The report also hints that, since the German knew the 'Oboe' frequencies, radio counter-measures were in hand.
3. One other point of interest is the high standard of the plots of aircraft attacking on the night of 2nd February 1944. This Sketch of is reproduced as Appendix II.
4. The original document has been passed to A.D.I.(Science).

A.D.I.(K)  
29 June 44.

S.D. FELKIN  
Wing Commander

TRANSLATION

SECRET

("TOP SECRET")

Oberkommando der Luftwaffe  
General der Flakwaffe  
(General der Flakausbildung)

Bernau b/Berlin d.24.5.1944  
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Subject: Combating "Boomerang" Aircraft.

Attached are instructions for dealing with aircraft attacks using the Boomerang procedure.

In view of the importance of defence against this new method of attack adopted by the enemy it is imperative that all units be instructed in the Boomerang procedure and that counter-measures are adopted on the lines laid down in the attached instruction.

Subsequent observations and experiences are to be reported to the General in charge of A.A. defences.

Distribution:

All independent Flak Groups as well as interested sections of O.K.L., O.K.H., O.K.M., SS-Führungs-Hpt.-Amt, Höhere Kdre., Flakersatzdivision General der Jagdflieger, Generalnachrichtenführer, General d. Kampfflieger u. GL/Flaktechnisches Amt.

(Sgd) v. Axthelm.

Generalleutnant.

TRANSLATION

SECRET

("TOP SECRET")

Encl. To: OKL - Gen.d.Flakwaffe  
(Gen.d.Flak-ausb.)  
Nr.0236/44 g.Kos. (A/C)  
Dated 24/May/44.

**A. General.**

Recently, nuisance raids have been developing more and more into high altitude precision attacks against pin-pointed targets (particularly important industrial complexes) by means of a special navigational procedure known as the "Boomerang" procedure. So far, "Boomerang" attacks have only taken place at night on the Rhine-Westphalian industrial area, Aachen and Osnabrück, airfields and railway stations, in the area of Luftgau Belgium/N. France, Paris and targets in Brittany.

The "Boomerang" aircraft employed were Mosquitoes belong to 105 and 109 (B) squadrons, stationed at Marham. Immediately after take-off the aircraft climb to the prescribed attacking height of 8,000 to 11,000 metres, with a view to checking wind drift.

The enemy is carrying out on an increasing scale his precision attacks and pathfinder technique using the "Boomerang" procedure. It is clear from the increase of activity that the enemy is constantly expanding his "Boomerang" organisation and improving the technique. An expansion of these attacks on further targets with ever increasing effect is the result.

It is therefore essential to bring to bear everything in our power with a view to combating "Boomerang" aircraft. The basic principle is that aircraft must be shot down.

**B. The "Boomerang" procedure.**

The "Boomerang" procedure is the most accurate method of remote control at present known. It consists of controlling aircraft by means of Radar stations located in S., S.E. and E. England. These stations work together in pairs of which one is the main station, and passes navigational signals to the aircraft. One signal from this station indicates the course to the pilot whilst the other is for the bomb-aimer to release the bombs. (see App. 1).

The aircraft to be controlled flies under its own control to an agreed point, where the remote control takes over. The aircraft is then directed by W/T to the turning point, which is on an arc centred on the Radar station in England and passing through the bomb dropping point. Constant corrections from the ground station in England keep the aircraft on its course (see App. 1) but in spite of the great accuracy of measurement deviations up to 300 metres are possible.

The total time required for the target approach is 8 to 15 minutes. As soon as an aircraft passes over the target, the next one is taken over by control. The time interval between attacking aircraft is frequently reduced by attaching several uncontrolled aircraft to one controlled aircraft, or by using further pairs of Radar stations. The uncontrolled aircraft aim their bombs on ground or air markers. The approach to targets East of England is made from a N. - S., S. - N. or S. - W. direction. Targets South of England are approached W. - E. or E. - W. The course depends upon the relationship of the two Radar stations to one another.

Unless there is a disturbance by a jamming station the final phase of the line of approach becomes an arc centred on the ground control station in England and passing through the objective to be attacked.

It has been observed that simultaneous flights to different objectives on a N.- S., S.- N. as well as S.- W. and N.- E. courses, have been carried out, which proves that the enemy has already set up several ground stations.

The range of this system is limited by the curvature of the earth and for a flight at a height of 9,000 metres, the range is between 400 - 450 km. The bombing accuracy depends on the reading and measuring accuracy of the ground station in England. The accuracy is within a square of approximately .5 km. by .5 km.

So far, the followings types of "Boomerang" attacks have been made:-

- a) Single "Boomerang" aircraft.
- b) One "Boomerang" aircraft followed by 2-5 uncontrolled aircraft.
- c) "Boomerang" aircraft as Pathfinders for a following bomber force.
- d) "Boomerang" Pathfinders as decoy marker flare-droppers and "window" aircraft. (Translator's note: the German text is ambiguous. The word is "Scheinmarkierer" which may mean decoy or

illuminating markers. The subsequent context suggests the former).

The "Boomerang" Pathfinders at first saturate the approach and target area with "Window", then place light markers over the target. The bomber stream then follows up immediately on the "Boomerang" course.

### **C. Counter-measures.**

The following take part in "anti-Boomerang" attacks:

- a) Night fighters.
- b) Radio jamming service
- c) Flak.

I. Our own Mosquito night-fighters (sic) have not had any worth-while successes in shooting aircraft down prior to the bomb release or to the commencement of the Pathfinder activity. Over a period of time, however, night-fighters should be more successful, provided high flying aircraft are employed.

Uncontrolled night-fighting with the aid of search lights is possible if our own fighters are high enough and in sufficient numbers in the waiting area over the Flak zone. Because of vapour trails, it is possible to pick out high-flying aircraft by searchlights.

II. The radio jamming service has appreciated the principles of the "Boomerang" system and has set up jamming stations. It is possible to force part of the approaching aircraft off the approach line by jamming. However, the enemy soon recognises the disturbance and can change over to a pre-arranged alternative frequency. The radio jamming service has already met with success, but is still limited in its effectiveness.

III. The main burden of defence, now as before, rests with the Flack. For the successful execution of the "Boomerang" system conditions must be fulfilled:-

1. The attack must take place at a constant height of about 8,000 - 11,000 metres.
2. The target approach must follow a fixed course for several minutes. (Course for every objective known).
3. The ground speed must remain constant throughout the approach. (140 - 180 metres/s.)

These known and partly constant target factors constitute a great weakness to the enemy. In addition the Mosquito,

because of its wooden construction, is highly vulnerable to well-directed Flak.

If, in spite of these favourable conditions, the Flak has only so far obtained little success, the fault lies in the increased factor of error when engaging targets at great heights, and also to the high speed of the Mosquito.

On the other hand, the courses flown at the moment are well-known. This factor, together with the known target heights and target speed, enable the point of bomb release for each individual objective to be calculated accurately and in advance. These known facts, combined with the total fire-power of all batteries within reach of the bomb-releasing area, should produce a successful "Vernichtungsfeuer" (annihilation fire) and prevent accurate bombing and lead to aircraft being shot down.

#### **D. Methods of Shooting.**

- 1.) The shooting method employed on principal is annihilation fire.
- 2.) Provided that:
  - a) The course is known,
  - b) The target approach is fixed and confirmed by the Malsi Flak Calculating instrument.
  - c) It is known with certainty that our own radio jamming does not result in the deviation of the enemy aircraft from its course and that the speed and height remain constant. This contradicts L.Dv.400/4b und VER-Flak 18 Ziff.11)
- 3.) If the precise plotting is difficult, the following measures are to be taken:
  - a) The track is to be set in accordance with the known value.
  - b) The ground speed is to be obtained and passed on by the Flak transmitter. In the absence of this data, action is to be taken on the basis of previous experience. (Translator's note: in other words, use your own brains).
  - c) Height is to be obtained from accurately adjusted Radar and is to be passed over the Flak transmitter.
- 4.) With reference to the manner, in which "Boomerang" courses are to be obtained for individual objectives, Commands will contact Luftgaukommando VI

with a view to ascertaining the courses for their own particular area.

#### **E. Tactical Employment.**

Suitable steps must be taken in the event of a change in the direction of approach of "Boomerang" aircraft, and if possible one to two batteries (special Eis. batteries) will be brought into the probable direction of approach for immediate action.

#### **F. Counter-measures.**

The following is to be noted when combating "Boomerang" aircraft:

- 1.) Most accurate alignment of the respective batteries (adjustment of instruments and guns, calibration of direction-finding apparatus, re-checking of ballistic correction of the moment in order to eliminate the meteorological factor).
- 2.) Blocking together of the movement of target values:
  - a) Set course for known value.
  - b) Determine ground speed and height from previously emplaced batteries over Flak transmitter.
- 3.) As far as possible the Trupp should be provided with uniform ammunition (as few different batches as possible); calibration shoots should be carried out with this ammunition and muzzle velocity determinations with (?special) calibration ammunition should be avoided.
- 4.) Accurate meteorological reports must be obtained every two hours for heights up to 11,000 metres. These must be actual and not extrapolated. Contact must be made with the nearest airfield.
- 5.) Charge temperature should be periodically determined by means of the two specially equipped cartridges (Messcartuschen) placed in the ammunition dump.
- 6.) The ammunition used for checking drill time should be carefully controlled and the error should be eliminated.
- 7.) Preliminary practices should be made along the known lines of approach by means of special fire control tables prepared for this purpose. Test shoots should

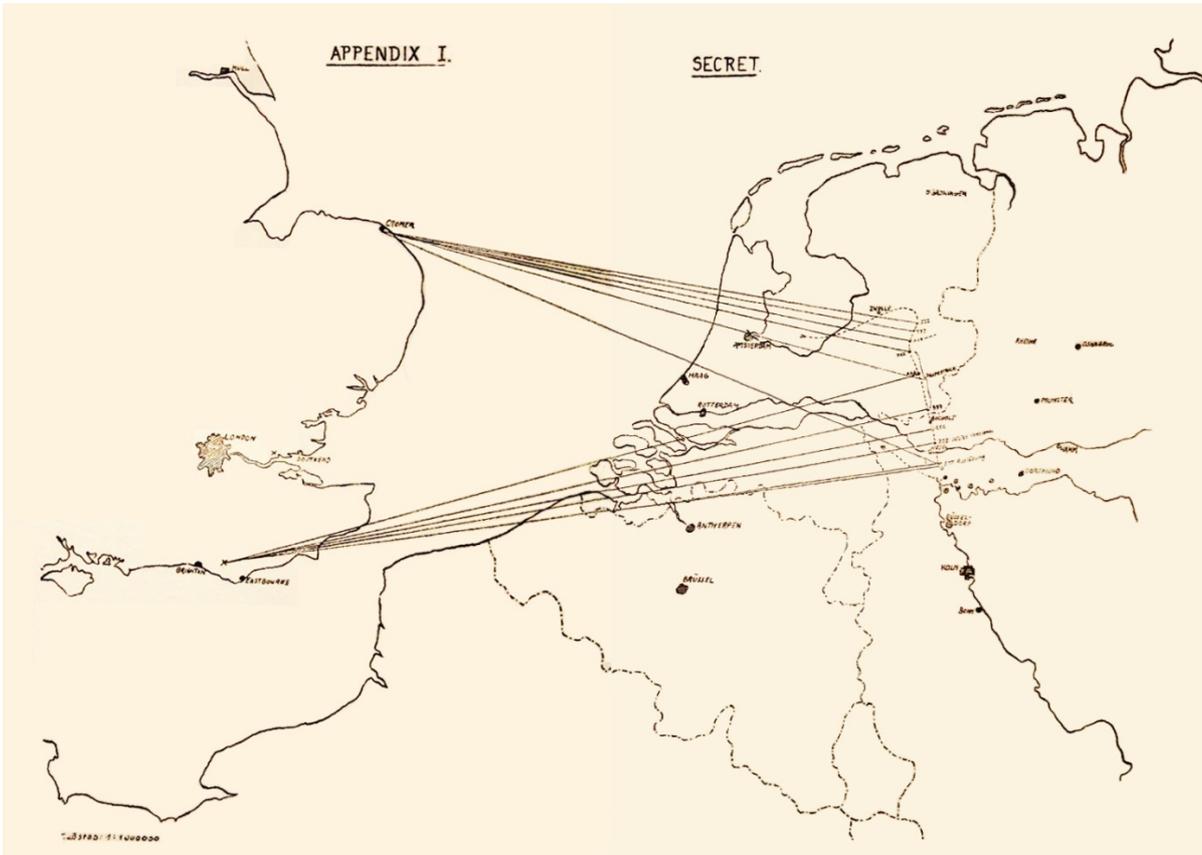
be carried out using intervals of one second. (FAS I will supply fire control tables for "Boomerang").

- 8.) All actual "Boomerang" courses should be charted on the Malsi plotting table as a check against the actual plots. (See Appendix II).

A systematic research of shooting at great heights, having due regard to the available ammunition has been inaugurated. Results are to be expected shortly and until then all existing orders and instructions hold good. In order to keep counter measures apace with the enemy's intentions, it is essential to inform higher quarters of any new observations made during "Boomerang" attacks. The Luftgaukommando and Divisions are instructed to report regularly their experiences of "Boomerang" counter-measures to the General der Flakwaffe.

APPENDIX I.

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APPENDIX II

"BOOMERANG" FLIGHTS OF 2.2.44.

HEIGHT:-8000 - 8400 M.

SPEED:-135 - 150 M./SEC.

SCALE:- 1 : 50,000

