STASSFURTER RUNDFUNK

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COMBINED INTELLIGENCE OBJECTIVES

SUB-COMMITTEE

LONDON—H.M. STATIONERY OFFICE

INVESTIGATION OF STASSFURTER RUNDFUNK, LODERBURGER STRASSE, STASSFURT, May 10, 1945

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CIOS Target Nos 1/278 & 7/119

RADAR
SIGNAL COMMUNICATIONS

COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

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Investigation of Stassfurter Rundfunk

1. Location of Target

The main factory was at Stassfurt (map ref. RD 650695). A subsidiary assembly plant and store was at Meisdorf (map ref. RD 460520). The research laboratories were said to be at Alexiabad (Hartzen Apparaten Bau Gesellschaft).

2. Description of Target

2.1. This was a medium sized works (1,400 employees of whom 800 were female) engaged before the war on broadcast receiver production. It was alleged by the Manager, Hans Pucher, that the capital of the firm had been British. It was now engaged on the manufacture of a tank communication set and the remote control units for HS293 and FX bombs. Samples of the latter units have been returned to C.I.O.S.

2.2. The factory was inspected and confirmed the statements as to the products. Of interest was the extensive use of zinc die castings for chassis and sub-assemblies. The die castings were made by Maale of Stuttgart and also by Fusor, Berlin. It was also noted that considerable use was made of special (as opposed to standardised) components such as a number of condensers assembled in one case, producing a very compact unit.

2.3. The subsidiary plant at Meisdorf was an old mill. Here assembly testing and storage of the remote control units was done.

2.4. It was stated that the factories had been visited by the S.S. before the capitulation and all documents and drawings relating to the products destroyed. However, all persons contacted seemed to be helpful and gave information on their own work and much else beside.

2.5. The main factory at Stassfurt was slightly damaged by released slave labour of which a small amount had been employed on unskilled work. According to the Manager, the latter received the same pay and housing, and being employed on heavy work usually more food, than the German workers! The Meisdorf factory was undamaged.

3. Remote Control Gear

3.1. The HS293 and FX bombs had been developed in 1942, originally controlled by radio but as a counter to jamming by a recently developed system of wire loop. It was alleged that efforts had been made during 1940-42 to develop a self homing bomb for use against ships. This used an iconoscope (made by Fernsch) with a spiral raster but the development was dropped due to failure to produce satisfactory iconoscopes. The present remote controls had been adopted instead. It was alleged that it was also used for radio control of air to air rockets and was to have been used for control of A.A. rockets (HS117)

3.2. It was explained that the FX bomb was steered by varying the drag produced by fins projecting across the air stream. These fins, a pair of which operate in directions at right angles to each other and the axis of the bomb, vibrate at 5 c.p.s. Normally they will alternately project an equal amount on each side, but the effect of steering control is to increase the time on one side and decrease it on the other, this producing an assymetrical drag. This scheme is alleged to avoid the high torques and control currents that would be necessary with normal type rudders.

3.3. The HS293 was understood to be controlled by operation of a pair of lateral surfaces only. These could either operate similarly to change the level of the glider or oppositely first to bank and then similarly to steer it. The gyro control for this was stated to have been made by Askania.

3.4. The radio controls were straightforward devices using R.F. modulated by four or five audio frequencies. Four of the frequencies provide directional control and in some cases a fifth frequency is provided for firing the charge (in case of aircraft to aircraft and ground to aircraft rockets). At the receiving end the audio frequencies are filtered out, rectified and operate relays. The Control currents were stated to be of square wave form, the mark-space ratio being varied. The "frequencies" of these control currents being 10 p.p.s. for HS293 and 5 p.p.s. for FX

3.5. The characteristics of the radio control system are as follows, the receivers being known as Strassburg and transmitters as Kehl:-

Strassburg type	R.F. Mc/s	L.F. Kc/s	Used with	Remarks
E 30 a	48-49	1,1.5,8,12	FX and HS293	In use
E 30 b	"	"	"	
E 230	"	"	"	
E 230 b	"	1,1.5,8,12,3.5.	Air to air rocket	3.5 firing control too easily jammed.
E 230 i	"	"	"	Not used.
E 230 v	"	6,9,13,16,0.2.	Air to air and ground to air.	Prodn. just started but not yet in use.
E 230-1	60(?)	1,1.5,8,12	FX and HS293	Reserved as A.J. measure.
E 230-2	20(?)	"	"	
E 230-3	Not known	13,16,21,27, 0.2.	Ground to air.	Few sets only, made for exptl. use.

3.6. The loop control system comprises a pair of steel wires paid out simultanesouly from plane and bomb. In the case of the HS293 about 20 Km. of twin wire is paid out and 10 Km. in the case of the FX. This steel wire, 0.2 mm. in diameter is insulated by an oxide coating. The wires are not twisted but paid out separately. To avoid the load of rotating drums the wire is coiled like a ball of string and taken from the centre of the ball, the twist in the wire apparently being accepted. It was pointed out that the wire is almost stationary in the air forming a catenary in the resultant direction of motion. This reduces the strain on the wires to tolerable values. This part of the production was done by Rheinmetall-Borzig A.G. The control systems are as follows:-

Type	Name	Function	Used with	Control current
S 207) Su 207)	Dortmund	Transmitter	HS293	450, 550, 650 and 750 A.C.
E 237	Duisburg	Receiver (includes amplifier)	"	
S 238	Detmold	Transmitter	FX	D.C., +, -
S 208	Düren	Receiver	"	X1 and X3 in value.

4. Information on projectiles for which control systems were made.

4.1. This information was given as hearsay, as it seems to have been the German practice to tell no more than necessary to the production engineers. It seems, however, that periodical meetings were held in Berlin nnd it was from talk at these that this information, for what it is worth, was gleaned.

4.2. It was the practice with the FX bomb to allow for the trajectory of fall and not attempt to keep it moving along the line of sight. Hence correction was only made towards the end of its fall. As this bomb required the dropping plane to remain steadily above it to maintain accurate observation, the plane was then an easy A.A. target and for this reason such a mission was not popular with the Luftwaffe. The maximum altitude from which this bomb can be used, due to limitations of visibility is 7000 metres. Apparently these bombs were successfully used against the Roma and against bridges over the Oder. It was thought that shortage of planes had prevented these bombs being used more than they had been. It was alleged that from 7,000 metres the point of impact of the FX bomb could be controlled within a circle of 1 kilometre diameter. The final accuracy claimed was not stated.

4.3. It was stated that controlled air to air rockets had been in use, especially against daylight formations. The rocket, some 2 m. long and of 40 to 50 cms. diameter, has a war head of 30 kg. of H.E. Its direction is controlled

by the firing plane, but the charge is fired by a seoncd plane observing from the flank. In practical operations this had been found difficult, especially if the bombers were being protected by fighters.

4.4. It was alleged that a guided A.A. projectile was nearly ready for use. This was the HS117. Other projects of this nature which had been abandoned were Euzin, Wasserfall and Rheintochter. The HS117 was about 2 metres long and one metre diameter. There are four fins about 60 cms. long projecting around the centre. It was not explained how direction was controlled. This projectile has a ceiling of 9 to 10 km., a maximum velocity of 300 m/s (i.e. just sub.sonic) and acceleration of 15 g. Observation may be by visual or radar means and fuzing by visual or radar observation or by proximity fuze. A 90 cm. dipole was stated to project from the nose of the projectile. This was insulated at the centre and had been developed by Doneg of Vienna. It was alleged that the proximity fuze operated on to pulsed radar system of range measurement and fired at the point of minimum range when rate of change of range was zero. It was further alleged that this was done with two valves! Questioning could elicit no further information, which was admittedly second-hand.

4.5. It was believed that centimetric P.P.I. systems were being developed for control of the ground to air and air to air projectiles. The latter was understood to be named "Neptune" but no further information could be obtained.