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141. Part of Report No. AAEE/5712

MINISTRY OF AVIATION

**AEROPLANE AND ARMAMENT
EXPERIMENTAL ESTABLISHMENT**

BOSCOMBE DOWN

REPORT NO. 1 - XLIV C

RADIO ACCEPTANCE TRIALS OF COLLINS SYSTEM
H.F. SINGLE SIDING EQUIPMENT

PRESENTED BY

A.V. MEE

NAVIGATION AND RADIO DIVISION

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Corrigendum to 5th Part of Report No. AAEL/874/2

Dated 15th May, 1963.

AEROPLANE AND AIRCRAFT EXPERIMENTAL ESTABLISHMENT
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Gannet AEW.3 - XL.452

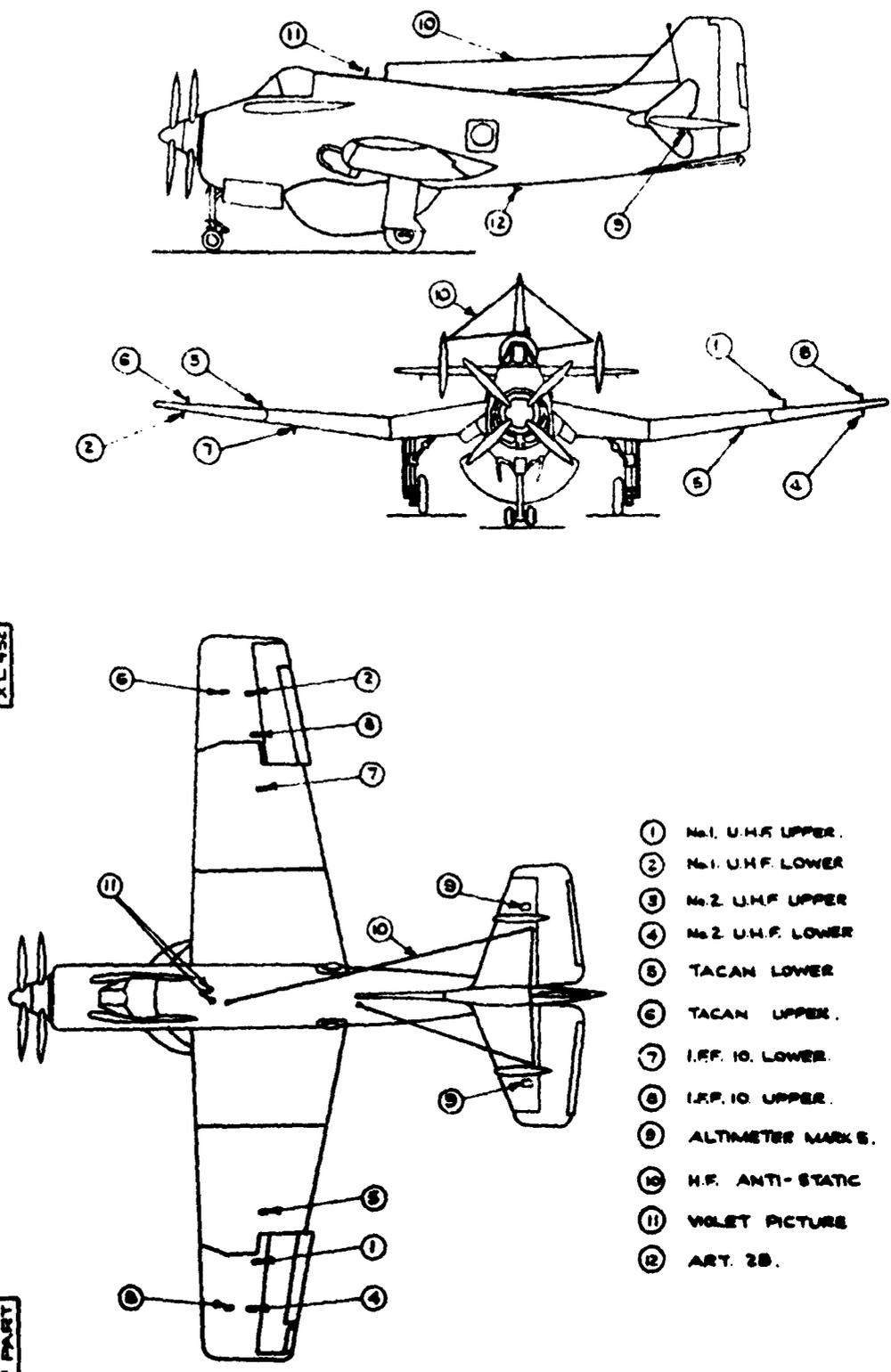
Radio Acceptance Trials of Collins 618T3
H.F. Single Sideband Equipment

Please remove and destroy Fig.1. Insert Fig.1 attached.

20.9.63.

FIG. I.

SK 475. 2ND PART OF REPORT NO. 2. AEE/871/2 5TH PART
 GANNET, A.E.W. MK 3 XL449 TRNKMP CH. MR VITHERS APP 1ST for 5 of XL 12 4 51
 XL452



- ① No.1. U.H.F. UPPER.
- ② No.1. U.H.F. LOWER
- ③ No.2. U.H.F. UPPER
- ④ No.2. U.H.F. LOWER
- ⑤ TACAN LOWER
- ⑥ TACAN UPPER.
- ⑦ I.F.F. 10. LOWER.
- ⑧ I.F.F. 10. UPPER.
- ⑨ ALTIMETER MARKS.
- ⑩ H.F. ANTI-STATIC
- ⑪ VIOLET PICTURE
- ⑫ ART. 28.

DIAGRAMMATIC SKETCH OF AERIAL POSITIONS.

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5th Part of Report No. AAE/871/2

15 MAY 1963

AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT
ROSCOMBE DOWN

Canet AEW.3 - XL.452

Radio Acceptance Trials of Collins 618T3
H.F. Single Sideband Equipment

Presented by

A.V. Russ
Navigation and Radio Division

A. & A.E.E. Ref: ANR/2E3
H.Q. Ref: DLRD(A) AL.1CN Ref No. DE837/OL/A110/TAW dated 1.6.62
Period of Trials: 9.7.62 - 12.11.62

Summary

Radio Acceptance trials have been carried out on the installation of the Collins 618T3 H.F. S.S.B. equipment and its compatibility with all other installations. The installation is satisfactory and Service release is recommended, subject to the comments at para.6 being actioned, for use in outside air temperatures up to 42°C (existing release standard for this aircraft).

This Report is issued with the authority of

Air Commodore,
Commandant, A. & A.E.E.

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1. Introduction

Radio Acceptance trials were required on the Collins 618T3 H.F. S.S.B. installation in a Gannet AE13 (XL452) aircraft.

2. Reports

2.1 Previous reports

2nd Part of Report No AAFV/871/2.

2.2 Included in this report

As shown above in para. 1.

2.3 Reports to follow.

Nil.

3. ARI 23090 Collins 618T3 H.F. - S.S.B.

3.1 Details of the installation

The transmitter receiver, Collins 618T3 and mounting type 390 were mounted behind the left hand seat in the rear cockpit in the space vacated by the ARI 18032 Transmitter/receiver.

The Controller, Collins type 714/E3, was mounted in the rear cockpit in the space vacated by the ARI 18032 controller.

The press to talk switch was mounted on the floor, foot operated, at each seat.

The microphone amplifier type UA.600 was mounted on the underside of the shelf supporting the Transmitter receiver.

The antistatic wire aerial length of 48 feet was achieved by forming a letter W shape as shown on figure 1. The forward aerial attachment to a metal mast approx. 22 inches high on top of the fuselage was offset to port of the fore and aft centreline and was approximately 22 inches aft of the Violet picture azimuth pair of aeriels.

The aerial connection to a termination point on the top of the fuselage was immediately above the aerial tuning unit. The internal connection inside the aircraft was 8 inches of unscreened wire.

The aerial tuning unit was mounted in the rear cockpit above the UHF sets, and was suspended from the roof in a tray made by Messrs. Faireys Ltd.

The morse keys, part of the ARI 18032 H.F. installation were left in their original position:

3.2 Comments on the installation

F.555 Serial No. AEV/22 dated 21.6.62 para. 5 states that there is no requirement for morse keys to be fitted. These and their associated wiring should be removed.

The silicon diode IN2160 in the AM/audio module CR14 failed on three occasions and was replaced ultimately by a silicon diode IN 645. This is a production modification initiated by Messrs. Collins Ltd., and steps should

be taken to ...

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be taken to ensure that the sets finally fitted have this modification incorporated.

The circlip retaining A11G5 gear wheel driven by the servo motor in the power amplifier unit failed on one occasion. The circlip was replaced by a new one and there were no more failures.

The "Antenna Tuner" aerial terminal comprises a knurled nut threaded spindle with a slotted hole in which a metal strip is retained. The metal strip is made to bear down on the stranded wires of the aerial connector when the knurled nut is screwed down. Initial tightening is easily achieved but the stranded wires can move in the large slotted hole and the connection becomes slack after a period of use. Frequent inspections will be required to maintain a good aerial connection.

It is recommended that the strands of the aerial connecting wire are contained in a seamless ferrule.

The "Antenna tuning unit" was unserviceable when examined after the aircraft returned from Malta. Collins Radio Ltd., repaired the unit and reported that the discriminator unit was defective. It was returned to the aircraft and has since given satisfactory service. Aircrew attention should be drawn to the following facts.

A momentary depression of the transmit button initiates the automatic tuning cycle, half power is applied to the antenna tuning unit which automatically seeks an impedance match. While tuning is in progress a note is heard in the earphones. The automatic tuning cycle, on half power, is limited to 30-50 seconds duration and then ceases.

The automatic tuning cycle can only be restarted by selecting a different frequency, transmitting and completing a tuning cycle and then reselecting the original frequency and trying again.

Failure to achieve an impedance match can be detected by the operator noticing that the time period was too long, but this is indecisive for periods exceeding 30 seconds. A positive indication is given by the 'SWR' indicator on the ATU, and numeral 5 (painted red) should not be exceeded when the transmit button is pressed.

After the cessation of the tuning cycle, when no tuning note is heard in the earphones; full power is applied to the aerial tuning unit when the transmit button is pressed. If an impedance match has not been achieved and an RF error signal is present then the antenna tuning unit will continue seeking a match. Continuous transmission while mismatched will ultimately result in the discriminator failing.

Consideration should be given to providing a V.S.WR indicator in front of the operator which will indicate to him that an impedance match has or has not been achieved. An indication of reflected power is all that is required. Instructions should be issued to operators not to transmit when the reflected power is high.

3.3 Flight Trials

Aerial Polar Diagrams

Aerial polar diagram trials were carried out with the aircraft flying at 5,000 ft. above base level, radiating on carrier frequencies of 2835; 6755; 11178; 15036; 18025 kc/s. The signal voltages received at the terminals of suitable vertically and horizontally polarised HF aeriels were measured on a calibrated HF receiver as the aircraft carried out orbits at

/35 nautical miles ...

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35 nautical miles distant. On every 1° change of heading the aircraft flew with its wings straight and level and transmitted for several minutes.

The polar diagrams obtained are illustrated in figs. 2-6.

Range Capability

The range capability of the aircraft installation was checked during a flight from the Aeroplane and Armament Experimental Establishment at Boscombe Down to Malta (1160 nautical miles) via Orange and Naples. Calls were made approximately every 10 minutes transmitting call sign, position, flight level, signal strength and readability.

Orbits were carried out prior to landing at the intermediate airfields to refuel.

Communication in the United Kingdom was carried out by Cove Radio Station at Farnborough. The ground installation comprised:- HF Receiver and S.S.B. Adaptor, Racal receiver No. RA17 and RA63; a Rohde and Schwarz HA 47/4 vertical bicone aerial and a transmitter type X7249 with a peak envelope power of 500 watts.

Flight Results

Daytime communication was checked on the outbound flight and night-time communication was checked during the return flight. As the take-off time for the return flight from Malta had to be brought forward, there was a complete darkness path only on the last leg (Orange to U.K.). However, there was no difficulty during a night communication schedule at Orange, when several messages were passed relating to a change in flight plan. The flight results are shown in Appendix 1. The signal strength and readability codes are as defined in BUCP.

In general during the outbound flight the aircraft signal strength was good; a little difficulty was experienced from interference but this was overcome by a change in sideband. The aircraft reported low signal strength for a period after taking off from Orange for Naples but their reception reports improved by the time they were abeam Elba. Subsequently signal strength was good both ways.

On the return flight, however, considerable difficulty was experienced particularly on the Malta to Naples leg when signals were weak and only readable with difficulty even when using a quadrant or Vee directional aerial (see para. 3.1.5). The radio Research Station at Slough reported there was a slight drop in critical frequency between 1300 and 1400Z on the 18th but that no abnormal effects should have been noticed on this path. During the Naples to Orange leg communication was only maintained by using the Vee aerial at Cove until the aircraft was about 10 miles South of Elba when it was possible to revert to the Bicone aerial. Signal strength was then satisfactory A/G/A until the aircraft landed at Orange. The last leg Orange to Thorney Island was satisfactory A/G/A until a change of frequency from 6755 to 3860 kc/s was made at 47 50N 00 40E. Thereafter severe interference from a f.s.k. station made reception very difficult and at times impossible. The signal strength of this interference was in the order of 280/300 μ V and considerably in excess of the aircraft's signal strength. Change of sideband could effect no reduction of this interference.

3.4 RF Impedance Measurements

RF impedance measurements were made using an "Indicator S17R" X13513 manufactured by Standard Telephone and Cables Ltd., reference 79-LRU-48B.

/Checks were ...

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Checks were made while the aircraft stood on the ground and again when airborne and the results are shown below.

When overseas bad mismatches were detected when using frequencies 11178; 15036; 13234, and even though the observer reselected frequencies several times an improvement could not be effected. See para. 3.2.5.

These results were satisfactory while the tuning unit was serviceable.

Ground 17.7.62

Air 16.7.62

Freq. Mc/s	Fwd.	Back	VSWR
2,860			
3	200	30	1.35
4	185	20	1.25
5,860			
6	190	25	1.3
8,860			
9	180	24	1.3
11,860			
12	172	30	1.4
14,860			
15	165	20	1.28
17,860			
18	190	13	1.15
20,860			
21	195	15	1.2
23,860			
24	200	95	2.8
25			
25,860			

Fwd	Back	VSWR
170	26	1.36
200	155	8
190	25	1.3
160	30	1.46
160	20	1.28
185	10	1.11
200	12	1.13
195	25	1.26
185	120	-
200	120	4.1

3.5 Temperature measurements

Temperature instrumentation was installed to measure the ambient air temperature at the blower inlet to the Transmitter receiver and immediately below the Aerial tuning unit. Measurements were recorded on the overseas trip with the following results.

17.7.62 Bescobe Down to Orange 3,000-8,000 ft.

Between the period 0855 to 1130 hrs the Transmitter temperature did not exceed 22°C and the ATU temperature did not exceed 20°C.

17.7.62 Orange to Naples

Between the period 1205 to 1405 hrs the minimum temperature measured at the transmitter and ATU was 8°C and 0°C when flying at 18,000 ft. These temperatures rose to 25°C at each measuring position when flying at 3,100 ft. at the end of the period.

17.7.62 Naples to Malta

Between the period 1550 to 1710 hrs the maximum temperature measured at each position was 30°C and 26°C at 1600 hrs when flying at 8,000 ft. At the end of the journey at 1710 hrs., when flying at 10,000 ft. the temperatures had dropped to 16°C and 10°C.

/18.7.62 ...

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18.7.62 Malta to Naples

Between the period 1345 to 1450 hrs the maximum temperatures measured were obtained at the beginning of the trip when flying at 8,000 ft., were 30°C and 28°C respectively.

18.7.62 Naples to Orange

From Naples to Orange, at 1,600 ft., when the temperatures measured were 32°C and 30°C respectively. These temperatures rose to 38°C and 34°C after approximately 3 hours.

19.7.62 Orange to Naples

Between the period 2020 to 2145 hrs the temperatures stabilised about 28°C and 25°C.

These results were satisfactory.

4. ARI 18120 - Violet Picture

4.1 Details of the installation

The HF Aerial and Aerial post were asymmetrically mounted approximately 20 inches forward and to port of the Violet Picture azimuth pair of aeriels. Fig. 1 refers.

4.2 Comments on the installation

RAE specification No. RAE/XRSP.3393 entitled Technical Requirements for Aerial System for UHF Homing Equipment states at para. 1.2.1 "that no aerial located asymmetrically shall be nearer than 3 feet".

4.3 Flight Trials

Flight trials were carried out to determine whether any deterioration of Homing performance had been introduced by the close proximity of the HF aerial post.

Anomalous homing indications were obtained when using the Violet Picture on frequencies of 235-250 mc/s., on maximum sensitivity, when flying at 4,000 ft., and resulted in the aircraft circling the beacon at approximately 6 miles radius. This did not occur when using minimum sensitivity setting. The homing indications, using frequencies above 250 mc/s., on maximum sensitivity when flying at 4,000 ft., were good.

The indications were sensible and resulted in good homings, on minimum and maximum sensitivity, using frequencies 236.1; 395.5; 395.8 mc/s, when flying at 2,500 ft.

5. Compatibility Trials

5.1 The aircraft installation comprised:-

- | | |
|-----|--------------------------|
| (a) | AFS. 20F |
| (b) | ARI 5885 Blue Silk |
| (c) | ARI 18107/1 Tacan |
| (d) | ARI 5378 Altimeter Mk. 5 |

(e) ...

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- (e) ARI 18124/4 UHF (Dual installation with 4 aerials)
- (f) ARI 18120 Violet Picture
- (g) ART28
- (h) ARI 5848 IPF 10
- (j) APX7. IFF interrogator (inoperative)
- (k) Intercom System
- (l) ARI 23090 Collins 618T. HF SSB.
- (m) De-icing equipment.

5.2 Equipment functioning checks

HF. SSB	Equipment Used	Comments
1. <u>FREQ. kc/s</u>	<u>IFF ON</u> Aerial switched to 'flight'.	Observations made on IFF Ground Station revealed no interference on the interrogated reply.
A.I. 10900 ± 5	1090 mc/s.	
USB & LSB 13625		
Transmitting 18166		
as above 10300 ± 5	<u>IFF ON.</u> Aerial switched to Flight.	No report of interference from IFF when listening on HF.
Receiving. 12875	1030 mc/s.	
17166		
25750		
as above. 23700	<u>TACAN ON</u>	nil interference from HF transmissions with Tacan on channel 98.
Transmitting 19750 ± 5	channel 98:	
14812	transmitting 1122 mc/s	
11850	receiving 1185 mc/s	
as above. 22460	<u>TACAN ON</u>	nil interference.
Receiving 18716 ± 5	as above.	
14057		
12477		
11220		
as above 2-24 mc/s	<u>Blue Silk On</u>	nil interference.
Receiving. in 2 mc/s		
steps.		
as above 2-24 mc/s	<u>ALTIMETER 5</u>	nil interference.
Transmitting in 2 mc/s		
steps.		
as above 9.5 to	<u>UHF ON - both sets</u>	nil interference.
Receiving. 12 mc/s	24.0 mc/s and 4 AE's.	
in .5 mc/s		
steps:		
19 mc/s	380 mc/s	nil
15 mc/s	300 mc/s	nil

HF/De-icing

The De-icing equipment was used during the trials and apart from a loud howl for 10 seconds on one occasion, had no adverse effect on the HF performance.

/5.3 ...

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5.3 HF to ART28 and APS20F

The aircraft was sent to Culdrose where a skilled Naval observer functioned the ART28 and APS20F together with the HF SSB. His report is appended below.

Report on Operation of APS.20F and ART28
together with SSB HF as fitted in
GANNETT AF III

Three sorties were flown altogether giving a total operating time of 2:00 hrs. The purpose being to see whether operation of the HF Radio had any adverse effect on the operation or performance of APS.20F Search Radar.

During the first sortie of July 13 all equipment (except AN-ART28) was switched on and approximately 25-30 random frequencies were worked. All APS-20 facilities were operated (i.e. high and low PRF, Tilt, Sector Scan etc.) and aircraft were detected and tracked at range with no diminution of performance or unusual interference on the indicators.

During the second sortie on the same day, with all equipment switched again, Culdrose Terminal was worked using ART-28. Again random frequencies were chosen plus several around 15 mc/s (12 approx. half the I.F. of APS.20F.).

No effect on the screen or difference in the normal performance of the relay was observed.

The last sortie in November 1962 was used to concentrate on frequencies either approaching, or else fractions of the APS.20F IF of 30 mc/s. Once again no adverse effect on the performance or appearance of the radar picture was observed.

Rather it seems does the APS.20 interfere with the H.F. as frequencies approaching 30 mc/s are selected; that is, from 28.20 mc/s upwards a harsh crackle or 'mush' noise occurs and its volume/intensity increases with each increase in frequency to the top of the range.

6. Conclusions and Recommendations

The installation is satisfactory and service release is recommended provided the comments on the installation at para. 3.2 are noted and remedial action taken.

The comments at para. 3.2.5 should be brought to the notice of crew members using the equipment.

The comments at para. 4.3 should be brought to the notice of crew members using Violet picture.

The temperature results show that the equipment should operate satisfactorily within the existing C.A. release clearance, which is for use up to an OAT of 42°C.

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OVERSEAS FLIGHT LOG

GANNET AEW3-X1452, 618T COMPS, FLIGHT TEST, UK-MALTA-UK
 A. & A. N. RADIO TRIALS T.I. NR44/62
 EXTRACTS FROM W/T LOG

PAGE 1

TIME GMT	POSITION	F.L.	FREQ.	S.B.	AIR TO GND.		GND TO AIR		QRM S/S	REMARKS
					S/S	R	S/S	R		
<u>17-7-62 Boscombe Down to Orange</u>										
0748	5S Boscombe	30	3860	U	5	5	5	5	-	A/B actual 0737Z
0800	35 SE Boscombe	30	3860	U	5	5				
0808	60 S Boscombe	30	5685	U	5	5	4	4		
0820	100 S Boscombe	30	5685	U	5	5	4	4		
0830	120 S Boscombe	30	5685	U	5	5	5	5		10m. from French coast.
0840	40 OON, 00 OOE	30	5685	U	5	5	5	5	(W/T)4	Some repetition necessary in QRM.
0852	48 30N, 30 OOE	30	5685	U	5	5	5	5		
0900	10W Chateau Bonn	30	5685	U	4	2	-	-	(W/T)5	Heavy QRM changed to L.S.B.
0901	" "	30	5685	L	5	5	5	5		
0910	60NW Chateauroux	30	5685	L	5	5	5	5		
0920	40N "	30	5685	L	5	5	5	5		
0930	5N "	50	5685	L	5	5	5	5		Climbing to 8000' for leg to Orange
0940	25SW "		5685	L	5	5	4	4		Evergreen heard, but nil QSO.
0950	46 OON, 02 3OE		5685	L	5	5		Not Given		
1000	45 30N, 03 1OE	80	5685	L	5	5				
1000	" "	80	8975	U	5	5	5	5	(R/T)5	(A/C readable, but strong QRM from Wardroom 6 and Drum major
1010	80 W Orange	80	8975	U	5	5	5	5	"	(A/C reported
1020			8975	U	5	2-3	-	-	"	(Cove as slightly weaker on LSB.
1020			8975	L	5	5	4	3		
1025	25 NW Orange		8975	L	5	5	5	5		
1026			3500 ORBIT FOR POLAR DIAGRAM							8975 kc.
1037	Orange		8975	L	5	5		Not Given		A/C touching down at this time.
<u>17-7-62 Orange to Naples</u>										
1205	3E Orange	50	8975	L	5	5	5	5		Climbing to FL200
1217	25E "	150	8975	L	5	5		Not Given		
1236	43 OON, 07 OOE	209	8975	L	4	4	2	3		
1250			8975	L	4	4	2	2		
1250			11178	U	4	4	2	2	(R/T)3-4	
1302	N of Corsica	100	11178	U	4	4	2	2	"	Cove advised L.S.B.
1314	Abean Elba	125	11178	L	4	4	4	4		
1324	42 10, 10 2OE	125	11178	L	4	4	4	4		Cove requested AM check.
1324	"	125	11178	AM	4	4	4	4		Intermittent QRM from American R/T
1338	Abean Rome	125	11178	L						"
1350	41 10N, 11 5OE	125	11178	L	4	4	3	3		"
1406	S of Ponza	350	11178	L	4	3	2	2		"
1420	Over Naples	-	11178	L	5	5	3	3		"
<u>17-7-62 Naples-Malta</u>										
1550	A/B Naples	-	11178	L	5	5	2	2	R/T	Cove advised check USB as a/c Rx suspect
			11178	U	5	5	3	3	R/T	a/c reported S/S slightly better but more interference.

TIME GMT	POSITION	F.L	FRQ.	S.B	AIR TO GND.		GND TO AIR		DRM S/S	REMARKS	
					S/S	R	S/S	R			
1555		-	11178	U	5	5	4	4	R/T	Cove on quadrant ac.	
1601	10S Naples	70	11178	U	5	5	4	4	R/T	Back on bicone ac.	
1612	50S Naples	100	11178	U	5	5	4	4	R/T		
1620	70S Naples	105	11178	U	5	5	2	2	R/T	Cove advised 1323k	
1620	"	105	1323k	U	4	5				A/C requested try LSB.	
1620	"	105	1323k	L	4	4	4	4			
1622	100S Naples	100	1323k	L	4	4	4	4			
1640	Centre of Sicily	100	1323k	L	5	5	4	5			
1650	80 N Anzio	-	1323k	L	4	5	4	5			
1700	40 N Halfar	-	1323k	L	4	5	4	5			
1701			Orbit for Polar Diagram 1323k kc.								
1703	Approaching Malta	-	1323k	L	4	5	4	5		A/C asked permission to close-down H.F. R/T.	
<u>18.7.62 Malta-Naples</u>											
1331			15036	L	3	3	3	3			
1342	100S Naples		15036	L	2	2	2	2		A/C reported having trouble with Tx.	
1353	60S Naples		15036	L	2	2	2	2		tuning.	
1353	60S Naples		1323k	L	3	3	3	3		*Quadrant aerial	
1405	10S Naples		1323k	L	3	3	3	3			
Signal strength on the bicone aerial was generally weak and at times scarcely perceptible, during this leg.											
1627	QTO Naples		<u>18.7.62 Naples-Orange</u>								
1646										Boscombe reported contact on 1323k kc	
1655			1323k	L	4	4	4	4		Cove on correct frequencies 11/8 MC.	
1657			11178	L	4	4	4	4	R/T	A/C delayed Naples with Brake trouble.	
1705	25 NW Ponsor	15	11178	L	4	4	4	4	"	Qvee aerial	
1718			11178	L	3	3			"	Cove tried 3 aeriels.	
1726	41 4ON, 12 OOE	18	11178	L	3	3	2	2		Bicone, quadrant and Vee.	
1740	42 1ON, 11 1OE	18	11178	L	3	3	2	2			
1747	42 2ON, 10 5OE	16	11178	L	3	3	2	3			
1748			8975	L	4	4	1	1		Cove reverted to Bicone.	
1800	10S Elba	16	8975	L	4	4					
1812	42 OON, 09 3OE	16	8975	L	4	4	4	4			
1820	43 OON, 09 OOE	16	8975	L	3	4					
1827	43 1ON, 08 4OE	16	8975	L	3	4	3	3			
1837	43 2ON, 08 OOE	16	8975	L	3	4	3	3			
1849	43 2ON, 07 3OE	25	8975	L	4	5	3	2			
1859	43 3ON, 07 OOE	86	8975	L	4	5	3	4		Crossing French coast.	
1905	43 4ON, 06 3OE	74	8975	L	5	5	4	3			
1916	44 OON, 05 4OE	78	8975	L	5	5	5	5			
Orbit for Polar Diagram 8975 kc. 20E Orange											
1939	Landed Orange		8975	L	5	5					
2130	On Ground at Orange		8975	L	3	4					
<u>19.7.62 Orange-Thorney Island</u>											
1857	44 3ON, 04 2OE		8975	L	3	3	3	3		Climbing to FL100.	
1910	44 4ON, 04 OOE	100	8975	L	4	5	3	3		QSY 6755 kc. LSB.	
1915		100	6755	L	4	3	3	3		Boscombe Radex now operating.	

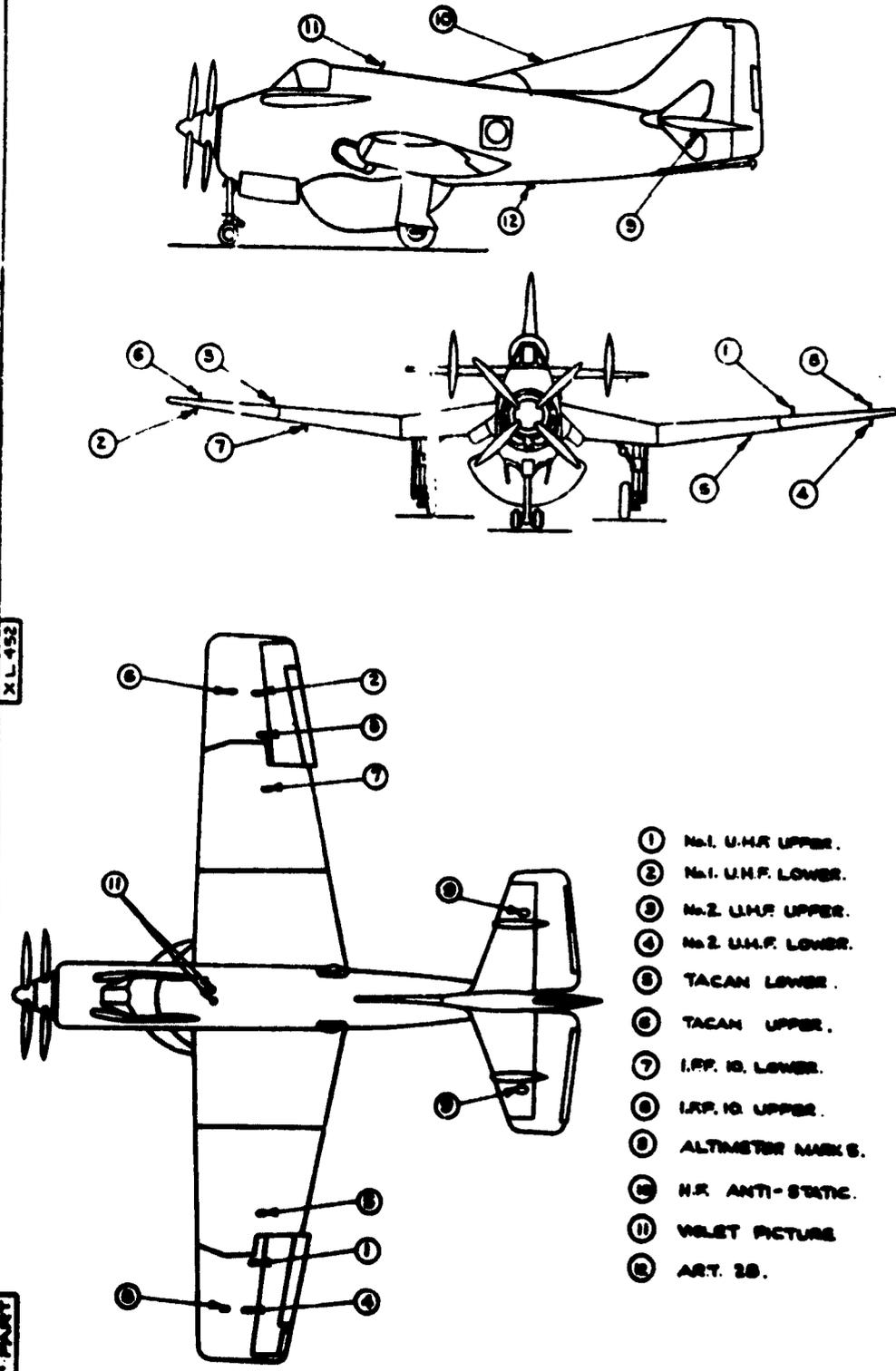
TIME GMT	POSITION	W.L	FREQ	M.O.B	AIR TO GND.		GND TO AIR		ORF S/S	REMARKS
					S/S	R	S/S	R		
1926	45 30N, 03 20E	100	6755	L	4	4	4	4		
1940	Chateauroux 76	100	6755	L	4	4	Not Given			
1948	50 SE Chateauroux	100	6755	L	4	4	4	4		
2000	20 S "	100	6755	L	3	4	3	3		
2010	Chateauroux	60	6755	L	3	4	4	4		
2020	47 40N, 01 00E	24	6755	L	3	3	4	4		
2025	47 50N, 00 40E	250	6755	L	3	4	4	4		OSY 3860 LSB.
Lost contact with A/C until 2050. f.s.k. T QRP-280										
2050	49 00N, 02 00E	16	3860	"	3	3	4	4	fsk5	
2100	-		3860	U	2	2	-	-	"	A/C requested LSB.
2100			3860	L	1	1	-	-	fsk5	
2110	10N Le Havre		3860	L	2	2	-	-	"	
2120	50 00N, 00 20W		3860	L	2	2	Not Given		"	
2125	30 SW Thorney Is.		3860	L	2	2	"	"	"	

Signal strength and readability codes as defined in BJCP2.

<u>Signal strength</u>	1 - scarcely perceptible	<u>Readability</u>	1 - unreadable
	2 - weak		2 - readable now and then
	3 - fairly good		3 - readable with difficulty
	4 - good		4 - readable
	5 - very good		5 - perfectly readable.

FIG. I.

SK No. 475. 2nd PART OF REPORT No. A8A88/871/2 5th PART
 CANNST. AEW. MK. B. XL449 TR 111111 CH. MR WITHERS. APP XL for S of 12. 12. 4. 61



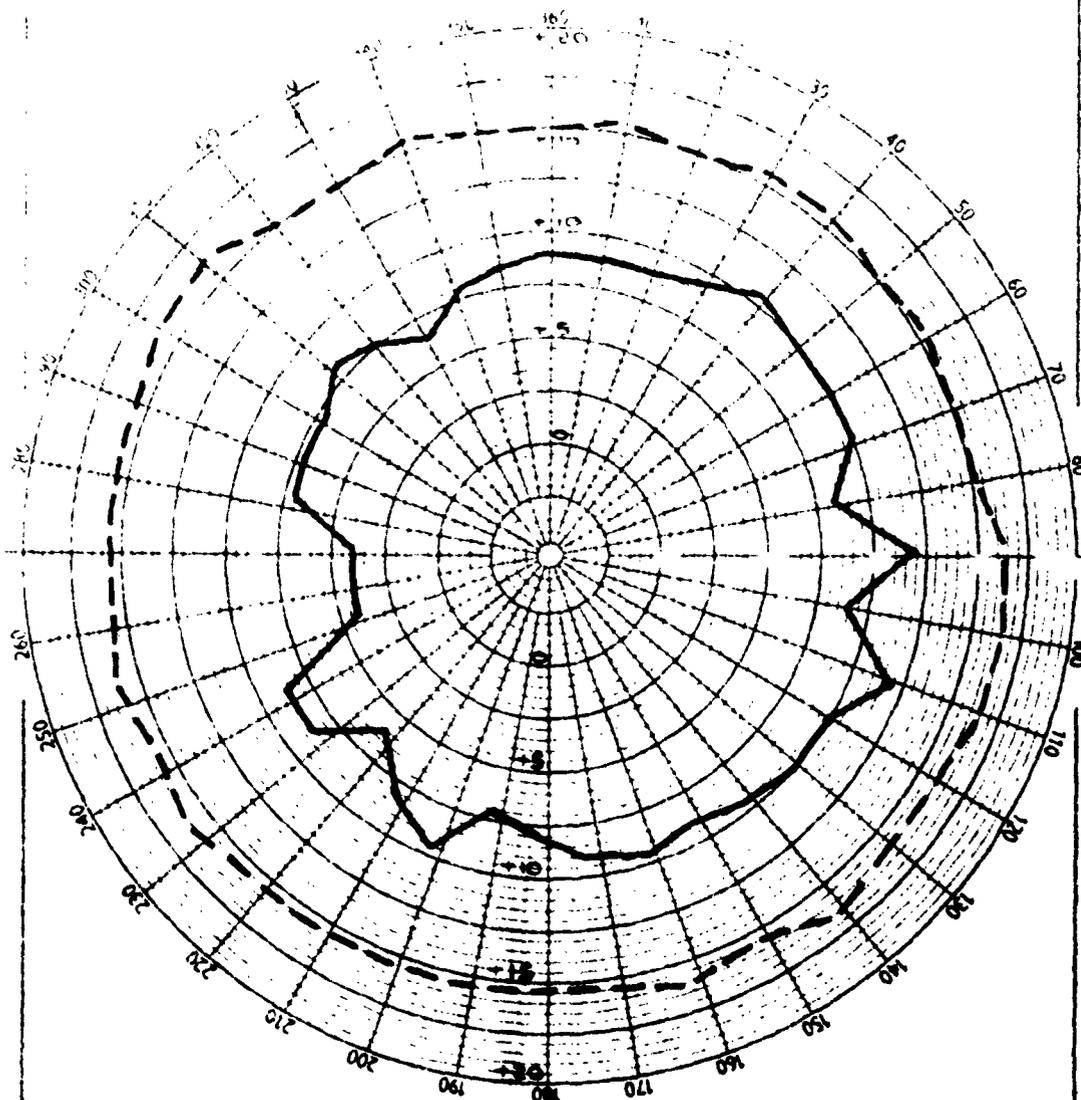
- ① No.1. U.H.F. UPPER.
- ② No.1. U.H.F. LOWER.
- ③ No.2. U.H.F. UPPER.
- ④ No.2. U.H.F. LOWER.
- ⑤ TACAN LOWER.
- ⑥ TACAN UPPER.
- ⑦ I.F.F. 10. LOWER.
- ⑧ I.F.F. 10. UPPER.
- ⑨ ALTIMETER MARKS.
- ⑩ H.F. ANTI-STATIC.
- ⑪ VIOLET PICTURE
- ⑫ ART. 28.

DIAGRAMMATIC SKETCH C: AERIAL POSITIONS.

FIG. 2

FREQUENCY 20.55 MC.
DISTANCE FROM BASE 53 NAUTICAL MILES
HEIGHT ABOVE BASE 5,000 FT.
AIRCRAFT C-47 CANNON AIRCRAFT
DATE 19/10/42
AFC 1001810

MEASUREMENTS ARE
TAKEN ABOVE 100 MV.



— HORIZONTAL POLARISATION.
- - VERTICAL POLARISATION.

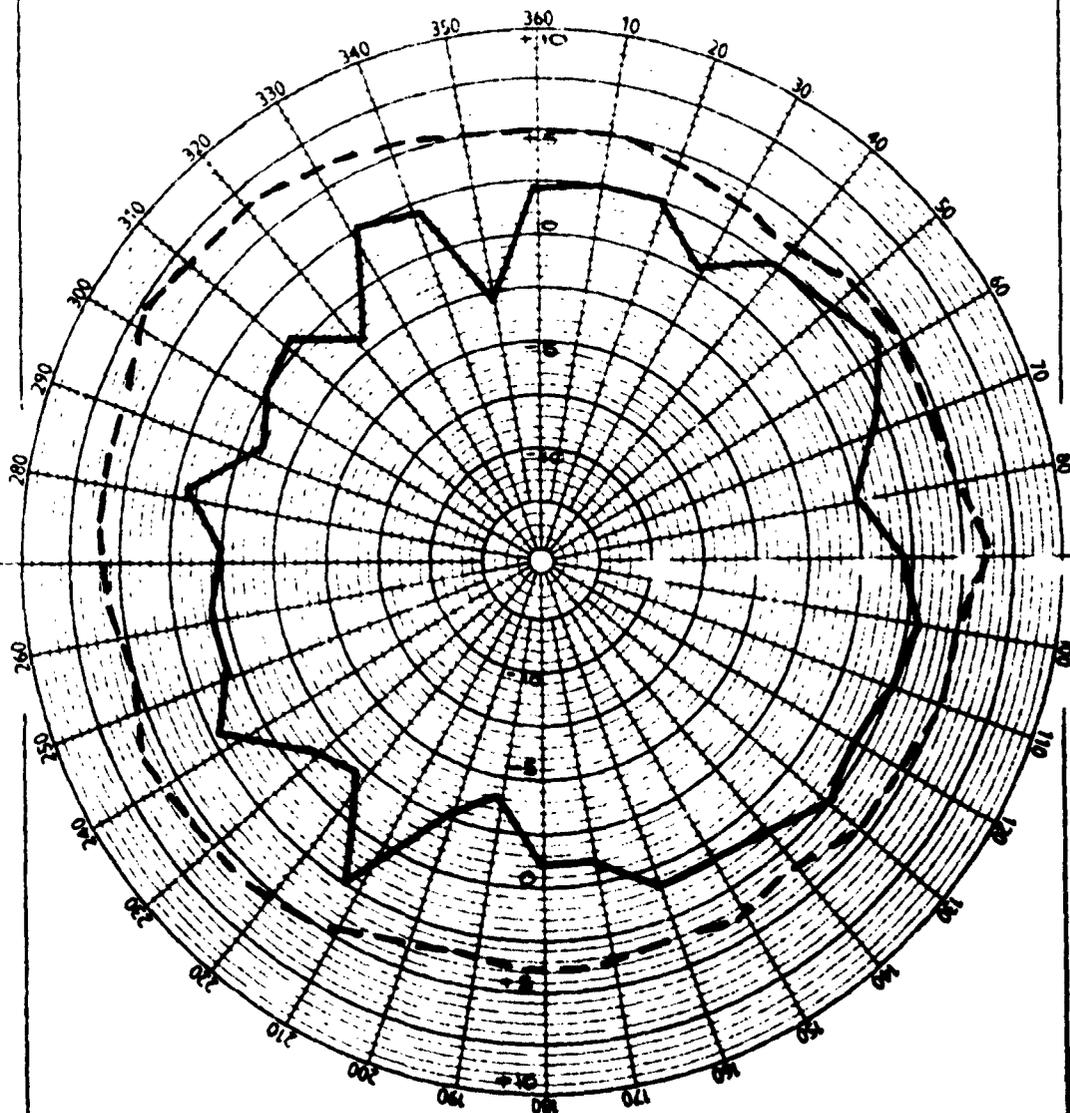
ORBITAL POLAR DIAGRAM OF
H.F. AERIAL SYSTEM.

5TH PART OF B. 1. 2. 3. 4. 5.

FIG. 3

FREQUENCY - 5755 KC/S
DISTANCE FROM BASE - 33 NAUTICAL MILES
HEIGHT ABOVE BASE - 5000 FT.
AIRCRAFT - TYPE - GANNET A.F.W. 3
No. 11 AL 452
DATE - 9-11-60
A.R.L. - 418 13 M.F.

MEASUREMENTS ARE IN DB'S
ABOVE 100 d.B.



— HORIZONTAL POLARISATION
- - VERTICAL POLARISATION

ORBITAL POLAR DIAGRAM OF
H. F. AERIAL SYSTEM.

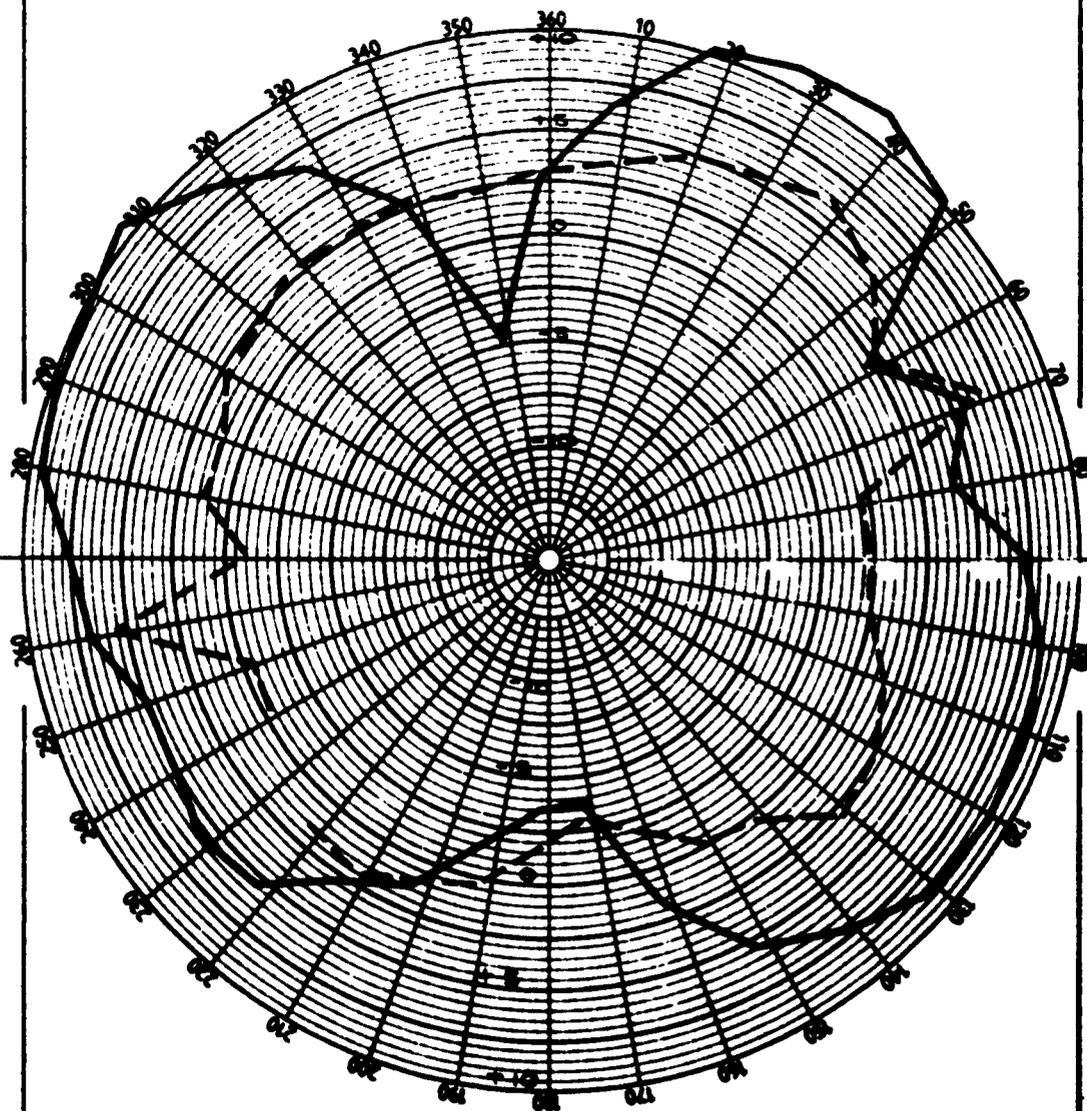
5TH PART OF SA No 8
571/2 1760

FIG. 4

FREQUENCY - 1117.8 KC/S
DISTANCE FROM BASE - 35 NAUTICAL MILES
HEIGHT ABOVE BASE - 5,000 FT

AIRCRAFT TYPE - GANNET A.F.W. 3
No - XL 452
DATE - 2-6-32
A.R. - 918 T.H.F.

MEASUREMENTS ARE IN DBS
ABOVE 100 μ V



— HORIZONTAL POLARISATION
- - - VERTICAL POLARISATION

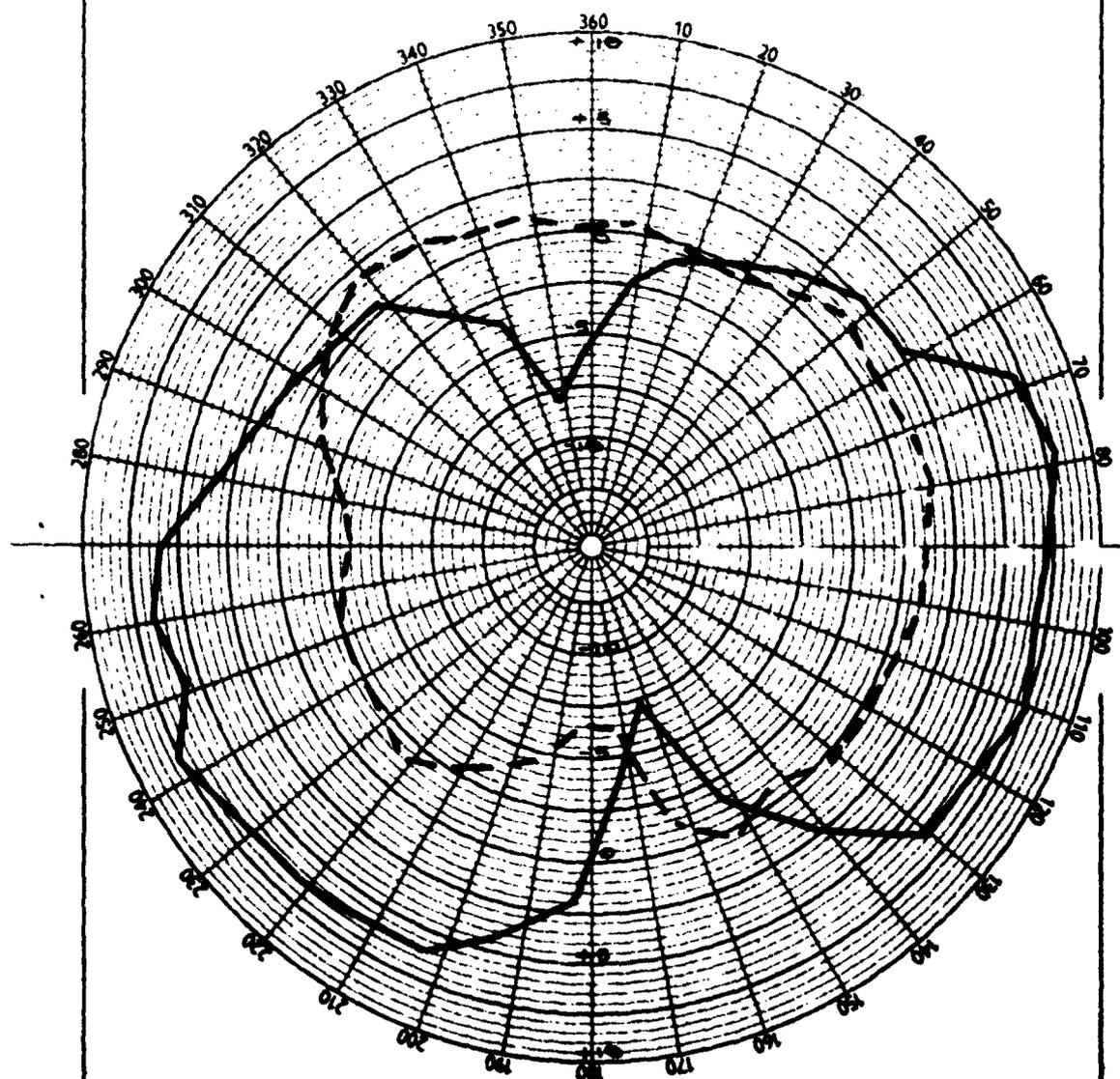
ORBITAL POLAR DIAGRAM OF
H.F. AERIAL SYSTEM.

5TH PART OF 671/A
S.W. No. 1769

FIG. 5

FREQUENCY - 15036 KC/S
 DISTANCE FROM BASE - 34 NAUTICAL MILES
 DIAMETER - 4 NAUTICAL MILES
 HEIGHT ABOVE BASE - 5,000 FT
 AIRCRAFT - TYPE - GANNET A.E.W. 3.
 No - XL 452
 DATE - 2.9.62
 AIR - GIBTS HF

MEASUREMENTS ARE IN DB'S
 ABOVE 100 μ V



———— HORIZONTAL POLARISATION
 - - - - VERTICAL POLARISATION

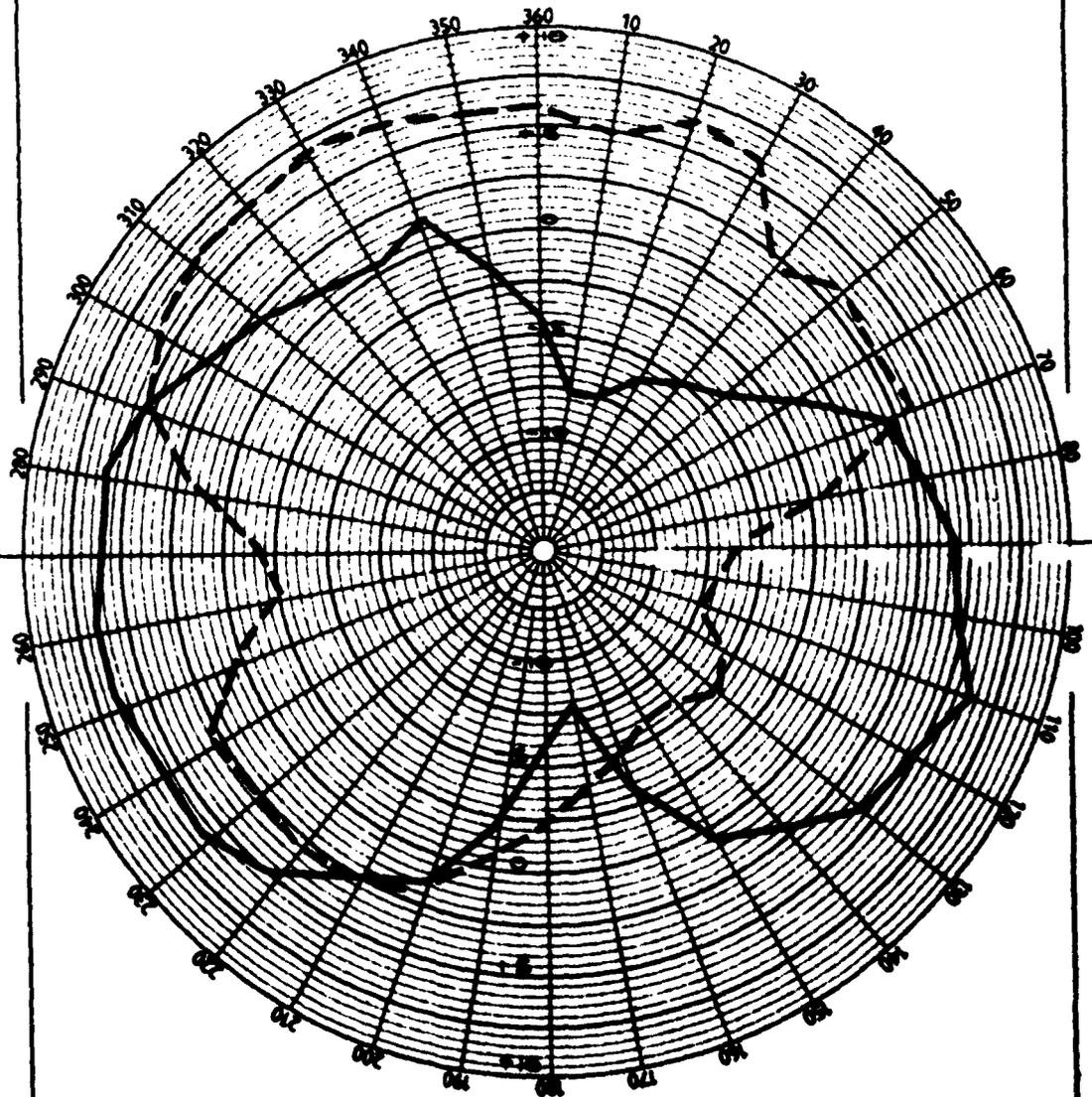
ORBITAL POLAR DIAGRAM OF
 H.F. AERIAL SYSTEM.

5TH PART OF 671/2 1170

FIG. 6

FREQUENCY - 15025 KC/S
DISTANCE FROM BASE - 33 NAUTICAL MILES
HEIGHT ABOVE BASE - 5,000 FT
AIRCRAFT - TYPE GANNET A.E.W. 3
No. - AL 452
DATE - 3-11-32
A.R.I. - GIB IS HF

MEASUREMENTS ARE IN dB'S
ABOVE 100 μ V.

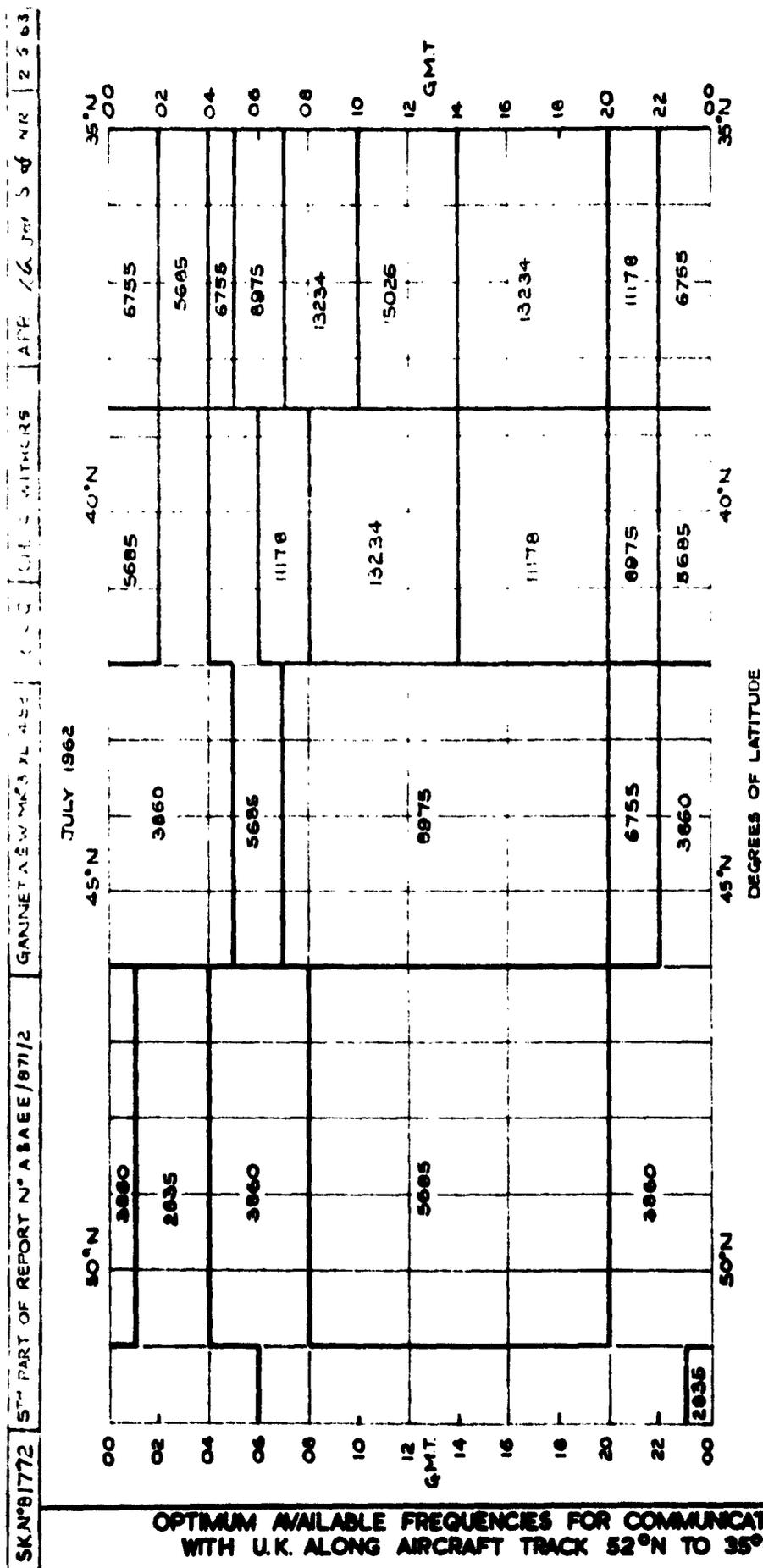


— HORIZONTAL POLARISATION
- - VERTICAL POLARISATION

ORBITAL POLAR DIAGRAM OF
H. F. AERIAL SYSTEM.

5TH PART OF
STATION

FIG. 7.



OPTIMUM AVAILABLE FREQUENCIES FOR COMMUNICATION
WITH U.K. ALONG AIRCRAFT TRACK 52°N TO 35°N.



*Information Center
Knowledge Services*
[dstl] Porton Down,
Salisbury
Wiltshire
SP14 6AQ
22060-6218
Tel: 01980-613252
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8725 John J. Kingman Road, Suit 0944
Fort Belvoir, VA 22060-6218
U.S.A.

AD#: AD 342811

Date of Search: 18 November 2008

Record Summary: AVIA 18/4146

Title: Gannet AEW Mk 3 XL.452: radio acceptance trials of Collins 618T3 HF single sideband equipment

Availability Open Document, Open Description, Normal Closure before FOI Act: 30 years

Former reference (Department) 871/2 Pt 5

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