SECTION 4

AERIALS

Chapter 1

AERIAL, AIRCRAFT, 5985-99-911-8266

LIST OF CONTENTS

LIST OF TABLES

Note . . .

Table 1 *appears at the end of the Chapter.*

LIST OF ILLUSTRATIONS

Introduction

1. The aerial, aircraft, 5985–99–911–8266, (McMichael type EDC/18136), illustrated in fig. 1, is a British version of the antenna, 5985–99–932–6362, (Derveaux type 248). The aerial is a blade approximately 9 inches in height from its mounting base and is mounted on the outside of the aircraft skin.

2. Servicing of the aerial to third line standards is restricted to the use of recovered serviceable spare parts. No spares backing of major components will be provided and minor components, such as Neoprene washers and PTFE insulators are to be made available by local purchase from the manufacturers of the aerial.

Mechanical and electrical servicing

Test equipment

3. The test equipment required to carry into effect third line servicing and repair on the aerial is listed as follows:—

	Test instrument	*Service Ref. No.*	*Manufacturer's Ref.*
(1)	Insulation tester Type C	5G/152	Evershed and Vignoles Wee Megger
(2)	Multimeter CT498	5QP/17447	Avo model 9S

Tools

4. Most of the tools required to service the aerial are contained in the standard tool kit issued to technicians. Four additional tools are required and these are listed as follows:—

	Tool	*Service Ref. No.*
(1)	Torque wrench	1L/197
(2)	Socket	1L/106
(3)	Bar extension u.h.f. aerial	10AG/9106303
(4)	Magnifier, illuminated	6A/948

Cleaning

5. The materials used to clean the internal components of the aerial are listed below:—

(1)	34D/246	White spirits
(2)	32B/250	Cotton cloth, best white, No. 1

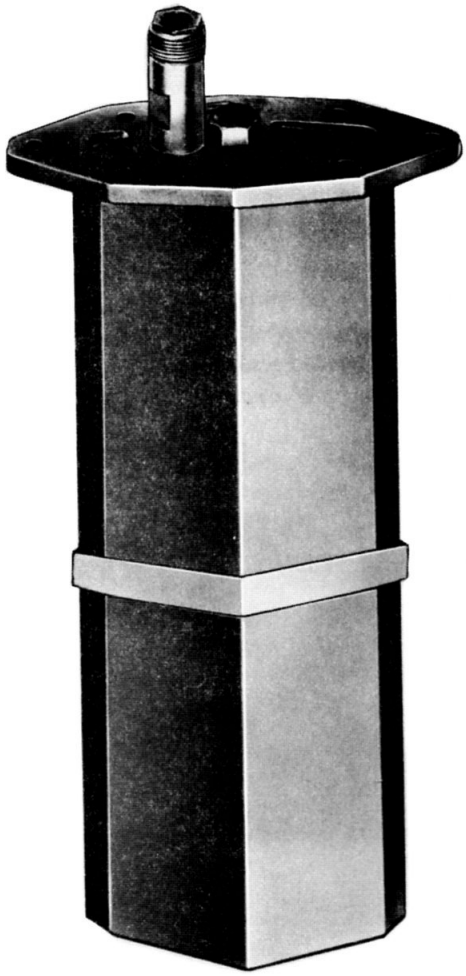

Fig. 1. Aerial, aircraft, 5985–99–911–8266

6. No solvent other than the white spirits mentioned above is to be used to clean the internal components of the aerial. Other cleaning agents will adversely affect the insulation. After components have been cleaned, they are to be handled by the use of tweezers to prevent contamination with grease and moisture. Components are to be perfectly dried, preferably with dry air under pressure.

Component replacement

7. Authorised replacement components only are to be used, and are to be accurately assembled and fitted to their original positions. Before using components recovered from unserviceable aerials as spare parts, the recovered components should be carefully examined using the illuminated magnifier and particular attention should be paid to the following points:—

(1) Cleanliness.

(2) Corrosion and burns on upper and lower housings.

(3) Condition of PTFE insulators and sleeves

(4) Condition of probe assembly and clamp bolt

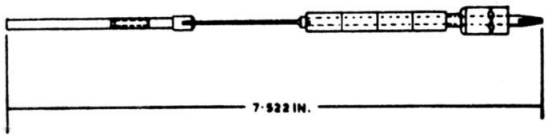

Fig. 2. Aerial, aircraft, 5985–99–911–8266: probe assembly

8. On receipt of the aerial for servicing, ensure that the inspection and repair record and other documents correspond to the equipment to be serviced. Examine the item for any defects, paying particular attention to the following points:—

(1) Signs of deterioration and/or damage.

(2) Component deficiencies

(3) Badly executed and defective soldered joints

9. Faults revealed during this examination are to be rectified and the aerial should then be examined to ascertain its state of modification. A list of modifications applicable to the aerial is given at the end of the Chapter in Table 1.

Dismantling procedure

10. To assist in the dismantling procedure, reference should be made to the sectional drawing given in fig. 2, and the illustration of the probe assembly given in fig. 3. To dismantle the aerial proceed in the following manner:—

(1) Using suitable spanners, remove the probe assembly nut and the clamp bolt.

(2) Exerting force in line with the aerial, separate the upper and lower housings from the PTFE insulator.

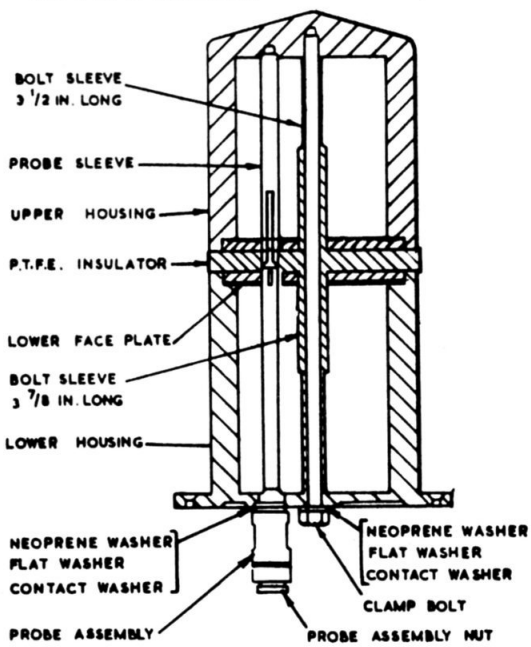

Fig. 3. Aerial, aircraft, 5985–99–911–8266: component location

(3) Using a suitable spanner remove the probe assembly from the lower housing.

(4) Remove the 3½ inch bolt sleeve and the probe sleeve.

(5) Remove the lower face plate and the 3⅞ inch long bolt sleeve from the lower housing.

(6) Remove the seven insulators from within the probe sleeve.

(7) Remove and discard the neoprene washers from the probe assembly and clamp bolt. The associated metal washers are to be retained.

(8) Remove and discard the insulator bushing, 10B/9482940 from the top of the probe assembly.

(9) Carefully press the probe out of the probe assembly.

(10) Unsolder and dismantle the probe assembly.

Reassembling and testing the probe assembly

11. Reassemble the probe, insulators and probe wire as shown in fig. 3.

Note . . .

The utmost care must be taken to avoid dry joints and on no account must solder be allowed to travel along the length of the wire away from the joints. Ensure that the wire used is of the correct gauge and length.

12. Connect the multimeter adjusted to its ohms range, across the extremities of the probe and ensure that a reading of zero ohms is obtained.

13. Ensure that the length of the probe lies within the limits of 7·512 to 7·532 inches.

Reassembling the aerial

14. To reassemble the aerial, proceed in the following manner:—

(1) Place the lower face plate (with the 3⅞ inch bolt sleeve), the PTFE insulator and the upper face plate (with the 3½ inch bolt sleeve) into a suitable mandrel (cylindrical metal rod).

(2) Insert the mandrel with the three items attached, into the upper housing ensuring that the probe sleeve locates correctly into the locating hole in the housing and that the upper face plate and the PTFE insulator locate correctly into the recess at the entrance to the housing.

(3) Fit the lower housing over the mandrel and on to the upper housing, ensuring that the PTFE insulator and the lower face plate are correctly located into the recess at the entrance to the lower housing.

(4) Place the following items, in the order indicated, on to the clamp bolt—contact washer, flat metal washer and a new neoprene washer. Slide the bolt into the lower housing and screw it into the upper housing.

(5) Using the torque spanner adjusted to break at 16 ft. lb., the bar extension and the socket, tighten the clamp bolt until the torque spanner breaks and then withdraw the mandrel.

(6) Using the tweezers, place seven serviceable insulators onto a suitable rod, insert the rod into the probe aperture in the base of the lower housing and into the probe sleeve in the upper housing. Ensure that the insulators are pressed firmly home into the probe sleeve. Place the aerial so that the base is uppermost and remove the rod.

15. Fit a new insulating bush (to replace that removed in para. 10, sub-para. (8)), to the top of the probe body. In the order indicated fit the contact washer, the flat metal washer and a new meoprene washer onto the probe body. Insert and screw the probe body into the lower housing. Using the minimum amount of force necessary, insert the probe assembly into the probe body taking care to ensure that it fits correctly.

16. Insert a new insulator bush (10B/9482941) into the probe assembly socket and fit the probe assembly nut to the probe assembly.

TABLE 1

Modifications

Mod. No.	A.P. Leaflet	Class	Brief details of modification
6579/1	B73	B/2	To prevent the ingress of moisture into the aerial housing, a sealing compound, 8030–99–945–0627, is applied to the external area of the aerial housing at the mating point of the upper and lower housing.

Note . . .

For full details of this modification and the method used to incorporate it, reference should be made to the appropriate leaflet in A.P.2531J, Volume 2.