

CHAPTER 7-5

BOOM MICROPHONES (THALES ACOUSTICS TYPES)
(Completely Revised)

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INTRODUCTION

- 1 This chapter describes boom microphones manufactured by Thales Acoustics. They are intended for use on protective flying helmets or headsets, in areas of high ambient noise. The boom microphone assembly, as supplied by the manufacturer, comprises microphone element, cable assembly with connector, boom and attaching parts. ◀

BOOM MICROPHONE ASSEMBLY 5965-99-784-9987

DESCRIPTION

- 2 This equipment (see Fig 1), Thales Acoustics type 8796, is a noise cancelling microphone mounted on an articulated arm assembly which provides adjustment to suit the user. The microphone assembly was introduced into Navy use by modification HM003 and is fitted to the Mk4A Flying Helmet by modification HM006. ◀

Microphone

3 The noise cancelling microphone type 8956, 5965-99-779-8036, has an impedance of 300 ohms. The microphone is attached to the boom by a mounting block incorporating two M3 threaded studs. Electrical connections from the microphone to the helmet are made via a screened cable which passes through the boom arms and terminates in a six way SILEC quick release connector 5935-99-653-9027. Note the following points:

3.1 For optimum performance position the microphone so that the microphone aperture (marked 'front') is approximately 1 cm from the user's lips.

3.2 Do not obstruct the rear opening of the microphone as this negates the noise-cancelling properties.

Boom arm and cable assembly

4 The boom assembly consists of a primary and secondary arm which are pivoted together to allow the microphone to be adjusted in relation to the user's lips. Fitted to the end of the secondary arm is the microphone housing which provides a discrete mounting to ensure the correct orientation of the microphone during fitting. The primary arm terminates in a ball joint within the helmet mounting assembly. An internal friction ball allows the boom arm to be clamped in position after adjustment to suit the wearer has taken place. The boom's vertical range of movement is limited to approximately 120° by two stops within the ball joint. One stop will arrest vertical movement downward during manoeuvres involving high gravitational forces, the other prevents over-rotation of the boom assembly damaging the internal electrical connector. When the microphone is not in use or during storage, the boom arm may be rotated to the vertical position thus allowing easier access to the inside of the helmet, ie during donning and maintenance.

SERVICING

5 Maintenance of the boom microphone is limited to periodic visual inspection for apparent mechanical and electrical damage. Visual inspection will normally precede and follow use, and at any other periods determined by local or statutory requirements. The user should carefully examine the microphone, the boom and the cable assemblies for signs of deterioration or damage, replacing parts where necessary. The microphone element is a sealed unit and can only be repaired by replacement, this also applies to the cable assembly which includes the connector. When it is necessary to replace the cable assembly, the complete boom assembly should be replaced. Electrical testing is performed using the Comprehensive Headset Test Set Type 21A/200/1, 10S/6625-99-620-0369 in accordance with current instructions contained in AP117L-0402-13. Faulty electrical performance will necessitate replacement of the microphone as detailed in Para 6.

Replacement of microphone element

6 To replace microphone element proceed as follows (refer to Fig 2):-

6.1 Remove and retain the two (2) countersunk screws which secure the top and bottom parts of the boom arm housing cover. Remove and retain the top part of the cover.

6.2 Carefully remove the screen wire of the Connector assembly from the top of the microphone element, type 8956. Gently pull the microphone element from the boom arm housing cover.

6.3 Note that the yellow wire of the connector assembly is fitted over the spigot in the bottom of the boom arm housing cover. If this is free from damage, leave in position, otherwise refer to Para 7. Discard the defective microphone.

6.4 Fit the replacement microphone element, type 8956, into the boom arm housing cover. The microphone is handed so that the microphone engages with the spigot to which the yellow wire is fitted in the bottom of the cover. This ensures that the word 'front', found on the microphone casing, faces the front.

6.5 Refit the screen wire over the spigot on the top of the microphone element, taking care not to damage the tag.

6.6 Refit the top of the boom arm housing cover, using the countersunk screws retained at Para 6.1. The boss, part of the top moulding, should be furthest from the microphone element.

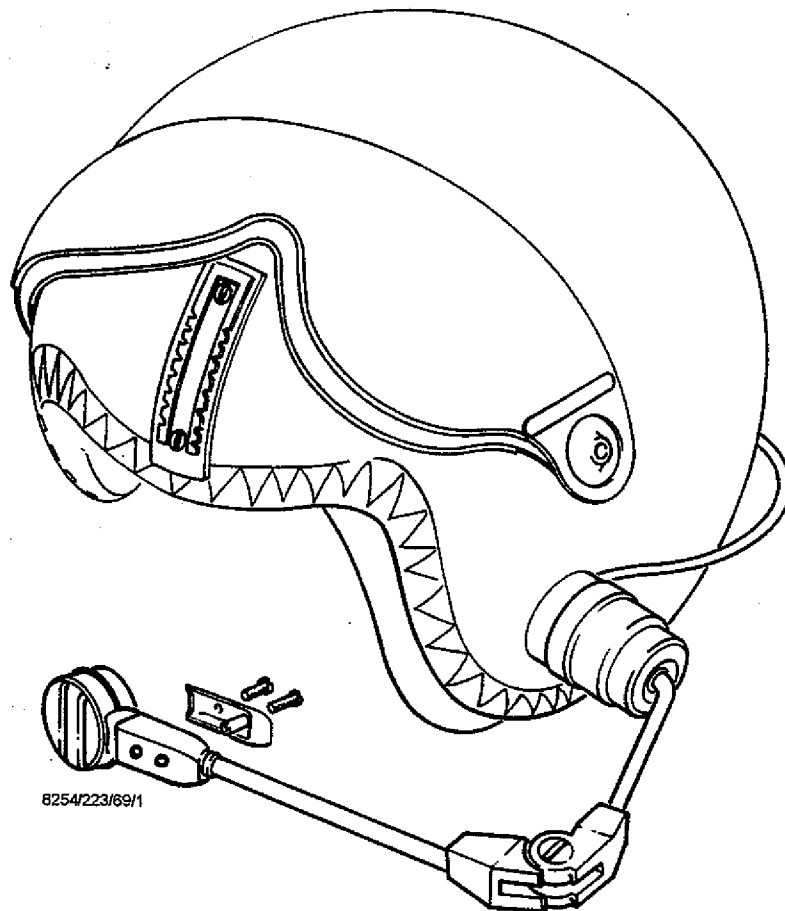


Fig 1 Boom microphone assembly 5965-99-784-9987

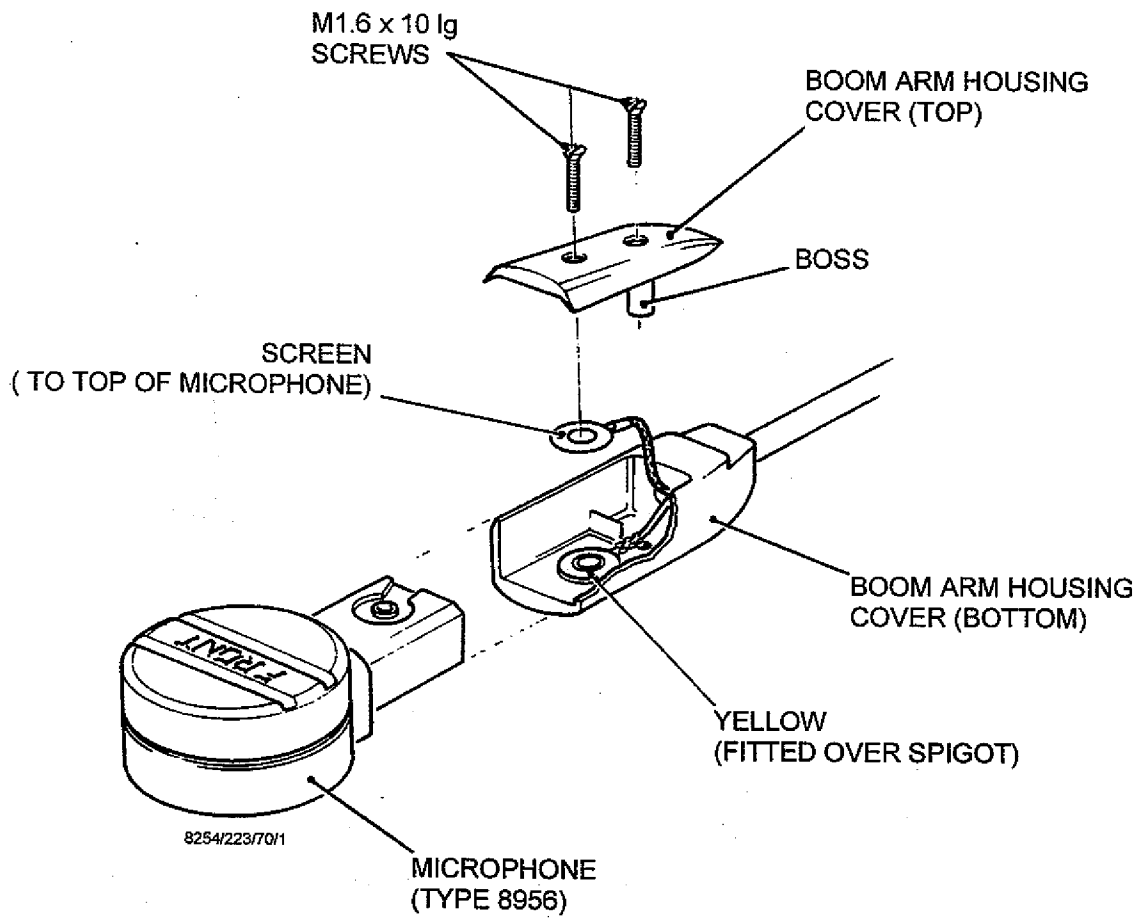


Fig 2 Boom microphone housing

Replacement of other assemblies

7 Defects found in the electrical connector or primary and secondary boom assemblies are rectified by replacing the boom arm and cable assembly Part No. 8630/1. If serviceable, the microphone should be retained for use with the replacement boom. After rectification of defects has been performed, the microphone should be tested in accordance with the relevant instructions contained in AP117L-0402-13.

BOOM MICROPHONE ASSEMBLY 5965-99-000-5983

DESCRIPTION

8 This equipment (see Fig 3), part no A2/28444 is a noise cancelling microphone mounted on an articulated arm assembly which provides adjustment to suit the user. Typically the boom microphone assembly is used on Jetgard Headsets (see Chap 3-4 of this publication).

Microphone

9 The noise cancelling moving coil microphone, 25690/B NSN 5963-99-757-3194, has an impedance of 200 ohms.

Boom arm and cable assembly

10 The boom assembly consists of a primary and secondary arm which are pivoted together with a knuckle elbow. This arrangement, together with a ball joint, provides a wide range of microphone positions for the user.

11 A connector is fitted to one end of the primary arm and mates with a boom microphone connector. Fitted to the end of the secondary arm are the boom arm housing cover and microphone.

SERVICING

12 Maintenance of the boom microphone is limited to periodic visual inspection for apparent mechanical and electrical damage. Visual inspection will normally precede and follow use, and at any other periods determined by local or statutory requirements. The user should carefully examine the microphone, the boom and the cable assemblies for signs of deterioration or damage, replacing parts where necessary. The microphone element is a sealed unit and can only be repaired by replacement. This also applies to the cable assembly which includes the connector. When it is necessary to replace the cable assembly, the complete boom assembly should be replaced. Electrical testing is performed using the Comprehensive Headset Test Set Type 21A/200/1, 10S/6625-99-620-0369 in accordance with current instructions contained in AP117L-0402-13. Faulty electrical performance will necessitate replacement of the microphone as detailed in Para 13.

NOTE

Numbers in brackets in Paras 13 to 25 refer to Fig 3.

Replacement of microphone arm

13 The primary boom arm assembly (15) is connected to the headset through a three pin socket on the headset and a three pin connector (7) on the primary boom arm assembly (15). To remove the primary boom arm assembly (15) from the headset, rotate the microphone arm connector shell anti-clockwise to unlock the connector (7). If necessary, use NSN 10/AH 5120-99-605-8899, wrench, spanner to assist with the rotation of the connector shell. After unlocking the connector, pull the microphone arm (15) away from the headset.

NOTE

The plug connector (35) should be fitted hand-tight only. Do not use NSN 10/AH 5120-99-605-8899, wrench, spanner to tighten the connector. ◀

14 To refit the primary boom arm assembly, push the plug connector (7) into the socket on the headset. Rotate the microphone arm connector outer shell clockwise to lock the connector to the headset.

Replacement of microphone

15 At the microphone end of the secondary boom arm assembly (3), slacken and remove the two screws (5) and nuts (4) to release the cover (2) from the secondary boom arm assembly (3), exposing the magnetic microphone (1). Release the two connections of the boom microphone connector (14), yellow and screen, from the microphone (1) and remove the microphone.

16 To refit the microphone, reconnect the two connections of the connector (7) to the microphone (1), with yellow to the rear and screen to the front. Refit the cover (2) to the secondary boom arm assembly (3), securing the cover with the two screws (5) and nuts (4).

Replacement of connector (boom microphone)

WARNING

LOCTITE 221. REFER TO THE LOCTITE 221 WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.

17 Remove the primary boom arm assembly (15) from the headset, as described in Para 13. Disconnect the microphone (1) from the boom microphone connector (7), as described in Para 15.

18 At the connector (7) end of the primary boom arm assembly (15), release the friction tension assembly (14) (see also Fig 4) to allow access to the connector connections. Using a suitable 'C' spanner, disconnect the connector (7) from the pins A (yellow) and C (screen). Pull the connector (7) through the backplate liner (8), the friction tension assembly (14) (see also Fig 4), primary boom arm assembly (15) and the secondary boom arm assembly (3).

19 Refit the connector (7) by feeding the connector cable through the secondary boom arm assembly (3), the primary boom arm assembly (15), the friction tension assembly (14) (see also Fig 4) and the backplate liner (8). Ensure that the friction tension assembly components are refitted in the positions shown in Fig 4 with the tension cap clamped only finger tight before fitting the $\frac{1}{4}$ " and $\frac{1}{8}$ " screws (16 and 17) in the positions indicated in Fig 3. Ensure also that the backplate liner (8) is refitted orientated as shown in Fig 5 and that the boom joint cover is replaced over the tension cap (Fig 4).

20 Make the connections to the microphone (1) as follows, yellow (core) to the rear connector, screen (sleeved) to the front connector. Refit the cover (2) to the microphone arm with the two screws (5) and nuts (4).

21 At the connector (7) end of the primary boom arm assembly (15), reconnect the connector (7) at terminal A (yellow) and C (screen). Do not overtighten the nut on the connector (7). Ensure that the screen is sleeved. Use a small amount of Loctite 221 to secure the connector (7) in place. Re-adjust the friction assembly (14) (see also Fig 4) tightness as required.

Replacement of boom microphone cable

22 Remove the primary boom arm assembly (15) from the headset, as described in Para 13. Disconnect the microphone (1) from the boom microphone connector (7), as described in Para 15. Access the connector connections as described in Para 18 and disconnect the connector cable.

23 Bend the boom assembly as shown in Fig 5. Using the existing connector cable, gently pull the replacement cable through the primary (15) and secondary (3) boom arm assemblies. Reconnect the microphone (1) as described in Para 16.

24 At the connector (7) end, allow 20 mm over of connector cable. Strip this back for 12 mm. Pick out and twist the screen cable. Strip the yellow core back for 3 mm.

25 Fit the green sleeve (9) to the screen on the connector (7) and, using crimp tool, M22520/1, NSN 5120-00-165-3912, crimp the pins to core and screen as follows: yellow core to Pin A, screen to Pin C and free pin to Pin B. Fit the 400058 sleeve (pink) over the boom microphone connector (14) and half way over the green sleeve (9). Refit the connector (7) as described in Paras 19 and 21. Refit the primary boom arm assembly (15) to the headset as described in Para 14.

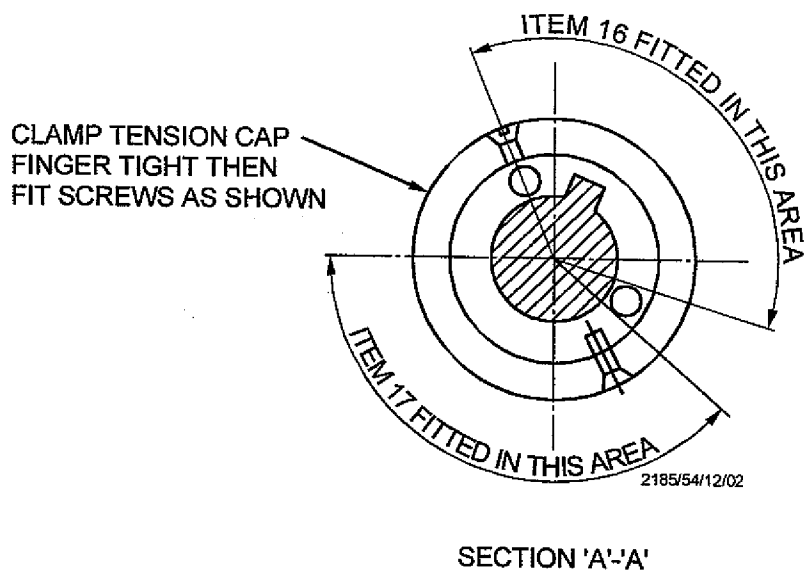
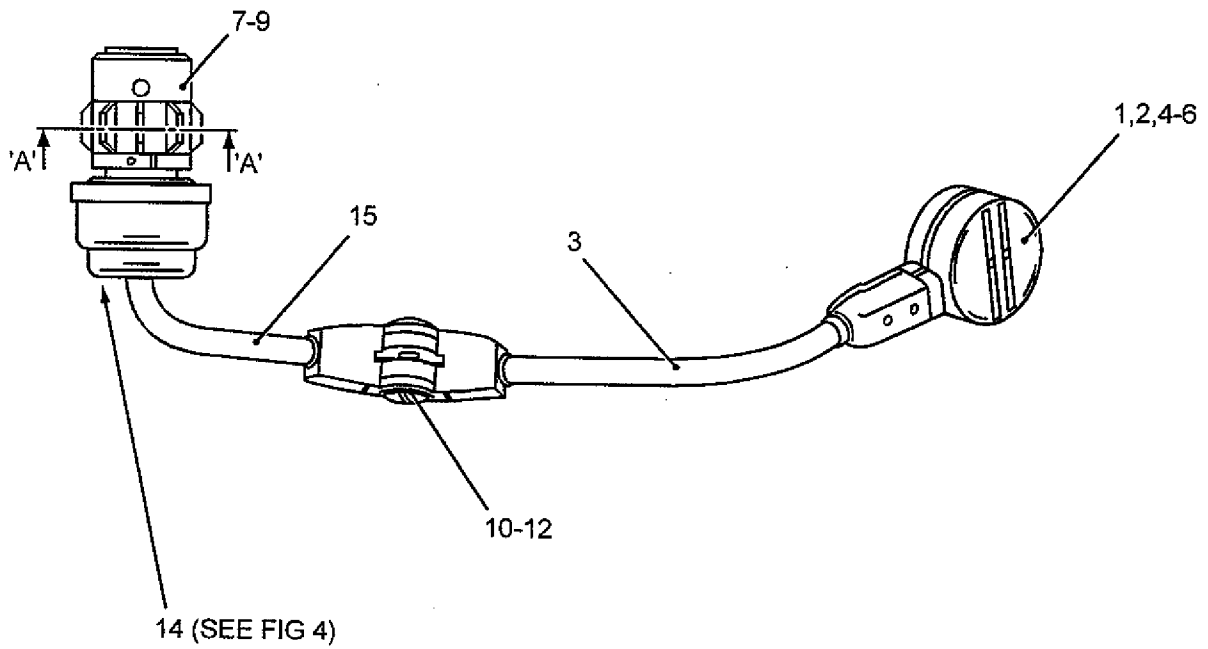


Fig 3 Boom microphone assembly 5965-99-000-5983

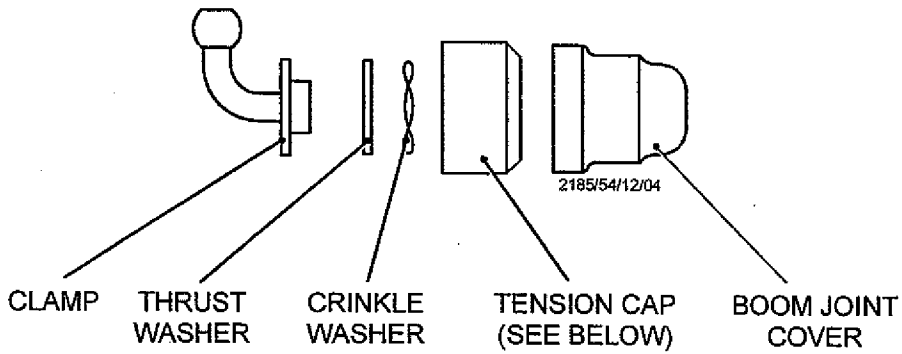


Fig 4 Boom microphone assembly 5965-99-000-5983: friction tension assembly

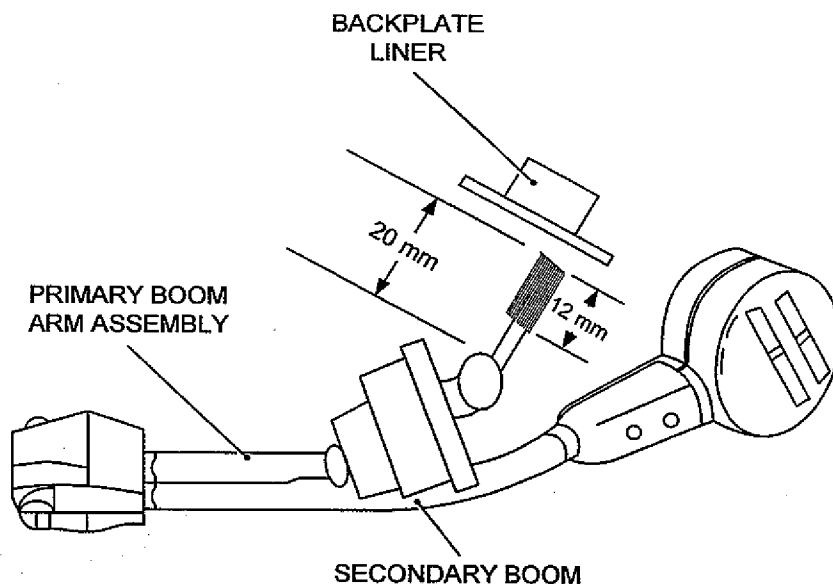


Fig 5 Boom microphone assembly 5965-99-000-5983: fitting of backplate liner

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