CHAPTER 7-2

OXYGEN MASK MICROPHONES

CONTENTS

GENERAL DESCRIPTION

1 Oxygen mask microphones are intended for use in oxygen breathing masks used by aircrew. They are fully tropicalised, sealed assemblies constructed specifically for fitting into an oxygen mask shell. Each microphone comprises a microphone element, on-off switch and cord assembly.

2 The microphones described in this chapter are similar in construction. Three varieties of microphone element and six varieties of cord assembly are available and may be assembled in any combination. Table 1 lists the combinations which are provisioned for Service use. Fig 1 and 2 show the general and exploded views of microphone, dynamic 5965-99-932-4159, which is typical of the series. The NATO nomenclature 'microphone, dynamic' is applied to all equipments in this series. Item numbers in the following paragraphs refer to all figures.

Microphone elements

3 The microphone element is specifically designed to be light in weight in order to minimize the tendency for gravitational forces to unseat the oxygen mask from the user's face during airborne manoeuvres. The microphone and switch assembly is sealed to maintain the overall sealing of the oxygen mask. Four small holes in the microphone element housing and one in the microphone diaphragm provide an air leak to eliminate the pressure difference that would otherwise develop across the diaphragm during a change in ambient pressure. This air leak can equalise the pressure difference resulting from a pressure change inside the mask of one atmosphere in three seconds. The following microphone elements are used in this series.

▶ (1) 5965-99-911-6834 : Thales Acoustics type 13100. ◀

(2) 5965-99-953-1138 : Clement Clarke International type E17/35.

▶ (3) 5965-99-653-2503 : Thales Acoustics type 2930. ◀

Switch, sensitive 5930-99-932-4160

4 The switch is a rotary on-off type. Its case forms the mounting plate for the microphone element and incorporates a stem for attaching the cord assembly and a flange for attachment to the oxygen mask. Instructions for fitting the equipment in a mask are given in the relevant Air Publication for the mask.

5 The microphone element is attached by two screws (23) and (25) which also provide the electrical connections. Screw (24) forms one switch contact, screw (26) forms the other. The switch rotor (14) operates with a wiping action to maintain good contact during repeated zero level switching. It is retained on its shaft by a circlip (15) and contact pressure is provided by spring (13). The rotor is assembled to the switch cover (9), which is attached to the case by three screws (17) and sealed by ring (16).

Cord assemblies

6 All cord assemblies have two tinsel type conductors, terminated at one end with 8BA tags and at the other end with either a 2-pole socket 5935-99-944-8102 (6) or a connector 5965-99-653-9027 (7) (for the Mk 4 protective flying helmet). Table 1 shows the standard cord lengths available.

SERVICING

7 The equipment is to be tested at appropriate intervals and after servicing for correct electrical performance, using the Comprehensive Headset Test Set Type 21A/200/1, 6625-99-620-0369, or Type 21A/400/6, 6625-99-794-0189. For details of test methods, refer to AP117L-0402-1 Chapter 4, or AP117L-0404-1 Chapter 4 respectively.

REPAIR

8 Repair of the equipment is restricted to replacement of the cord assembly, switch or microphone element. The microphone element is a sealed unit and must be replaced complete if found faulty.

Cord assembly replacement

9 Roll down the rubber sleeve (4) to expose the screw terminals on the switch stem. Remove the ▶ whipping securing the cord and remove the two 8BA screws (21). Similarly roll back the sleeve on the replacement cord and connect it so that, when viewed from the switch side, the green lead is connected to the left-hand terminal. Whip the cord assembly to the switch stem with 14-16 turns of Thread, black, No 40, 8310-99-125-0525. Seal the whipping with Varnish 5970-99-225-0808, allow to dry and roll back the rubber sleeve. ◀

Switch replacement

WARNINGS

(1) VARNISH. REFER TO THE VARNISH WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.

(2) TRICHLOROETHANE. REFER TO THE TRICHLOROETHANE WARNING IN THE PRELIMINARY PAGES TO THIS PUBLICATION.

(3) LOCTITE 241. REFER TO THE LOCTITE 241 WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.

10 Removing or fitting the microphone element and switch case requires the use of either a socket, 3.5 mm metric, 5120-99-163-1906 locally modified to a maximum diameter of 4.5 mm (0.175 in) or a special box spanner, shown in Fig 3. It is prepared by turning down the outside of a 3.2 mm box spanner to a diameter of 4.1 ± 0.08 mm ± (0.162 ± 0.003 in).

11 Remove the three 10BA screws (17) securing the switch cover, and remove the cover complete with switch knob and rotor.

12 If it is also desired to replace the switch case (18), disconnect the cord assembly according to Para 9. Remove screw (23) and, using the special box spanner, screw (25) to release the microphone ▶ element and insulating disc (28). ◀

NOTE

Screws (24) and (26) are not to be removed.

13 New switches are issued with screws (23) and (25) retained by nuts, which are to be removed. Re- ▶ assemble the microphone element, insulating disc and switch case. Apply varnish 5970-99-225-0808 to ◀ the threads of screws (23) and (25) before assembling. Tighten screw (25) with the special box spanner and ensure that the head is free from varnish. Leave the assembly for not less than 15 minutes before handling and three hours before use.

14 Reconnect the cord assembly, according to Para 9.

15 Clean the 10BA screws (17) and the screw thread inserts in the switch case with Trichloroethane 6810-99-220-3782. Allow to dry thoroughly and avoid contaminating the rest of the assembly. Refit the switch cover. Apply Loctite 241, 8030-99-224-8261, to the screws (17) and thread inserts, refit the screws and leave the assembly for not less than 15 minutes before handling and three hours before use.

Microphone element replacement

16 Remove the switch according to Para 11.

17 Remove the microphone element from the switch case according to Para 12.

18 Replacement microphones are issued with screws, which are to be removed and discarded. Refit the switch case and switch cover, according to Paras 13 and 15.

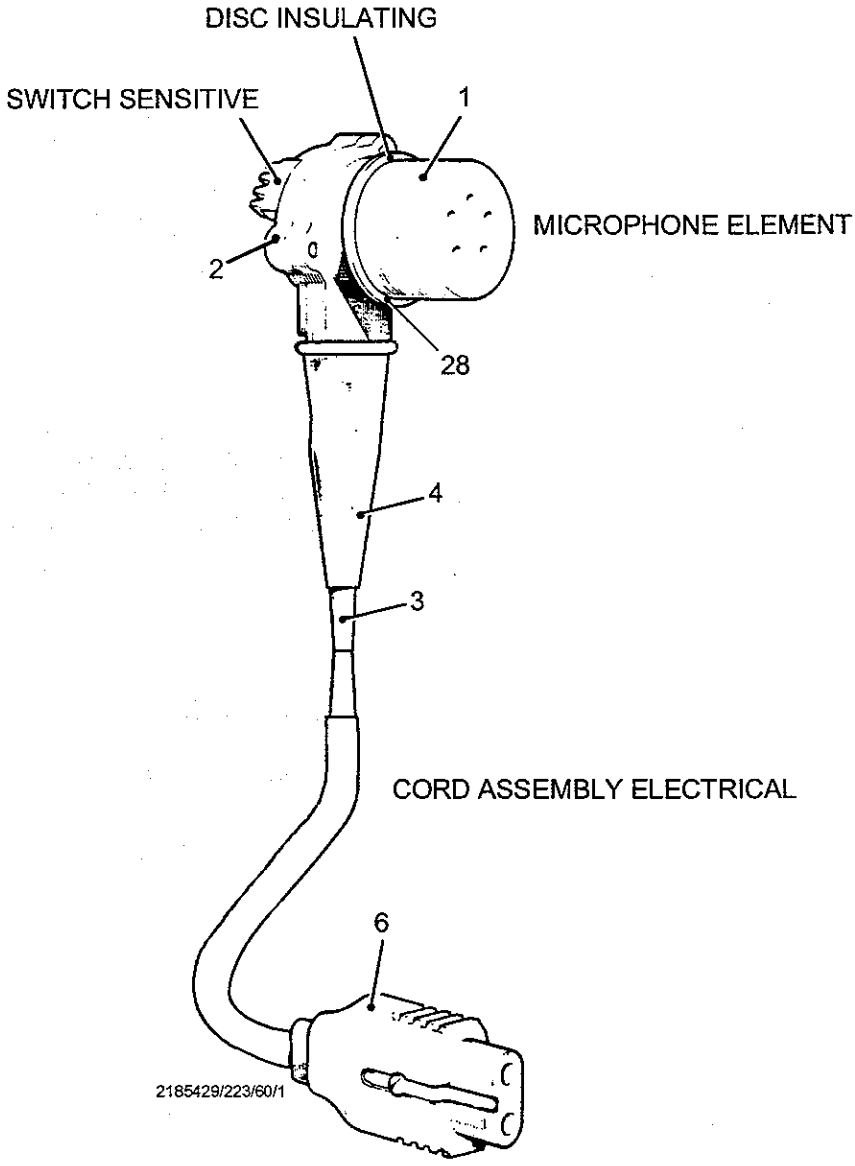

Fig 1 Microphone, dynamic 5965-99-932-4159 : general view

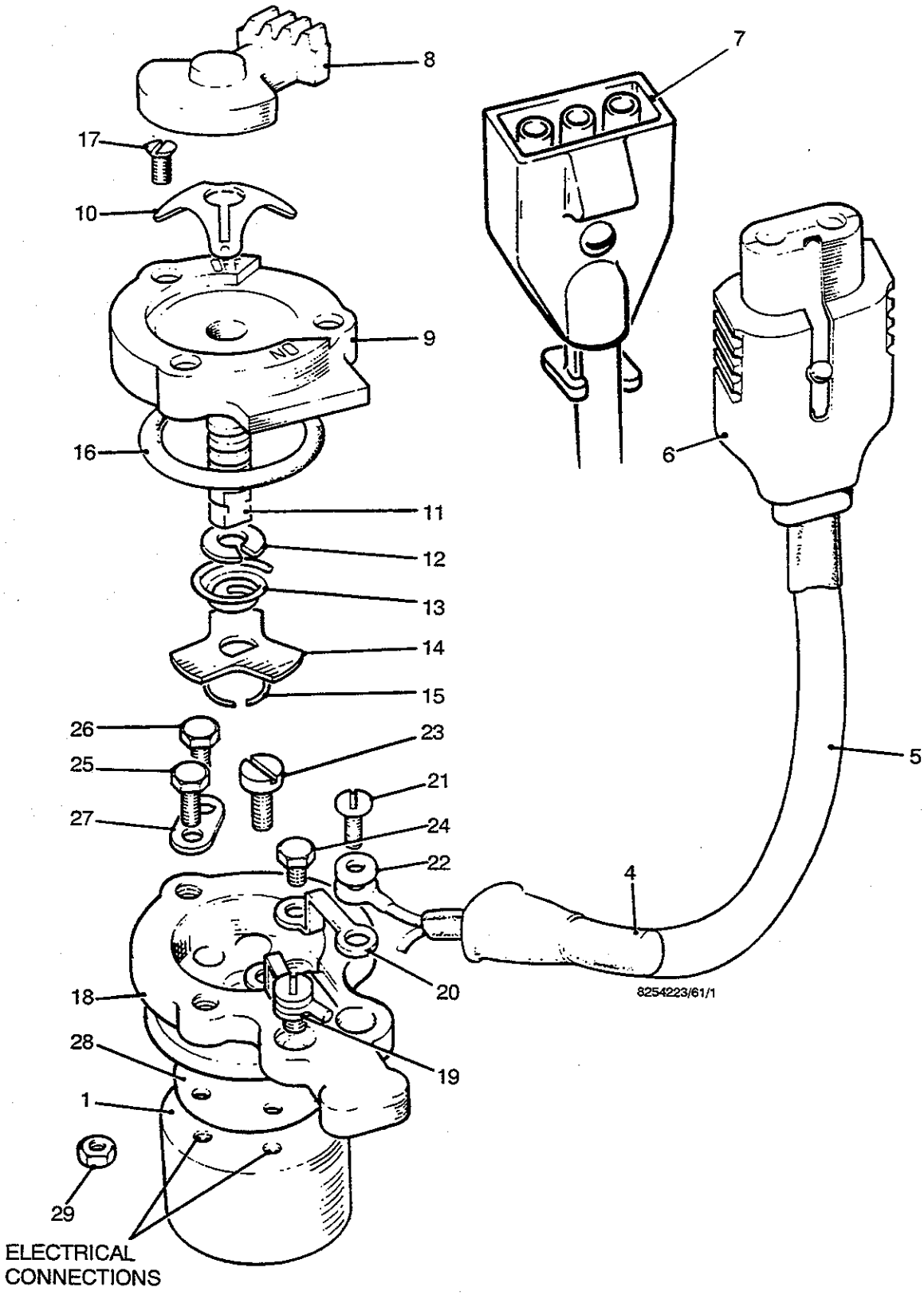

Fig 2 Microphone, dynamic 5965-99-932-4159 : exploded view

TABLE 1 OXYGEN MASK MICROPHONES

Equipment	Microphone Element	Cord Assy Nominal Length	Connector
5965-99-932-4159	5965-99-911-6834	5965-99-932-4158 285 mm	5935-99-944-8102
5965-99-999-2773	5965-99-911-6834	5965-99-999-2774 355 mm	5935-99-944-8102
5965-99-951-3811	5965-99-911-6834	5965-99-948-9034 445 mm	5935-99-944-8102
5965-99-953-1136	5965-99-953-1138	5965-99-932-4158 285 mm	5935-99-944-8102
5965-99-953-1137	5965-99-953-1138	5965-99-999-2774 355 mm	5935-99-944-8102
5965-99-107-0709	5965-99-953-1138	5965-99-948-9034 445 mm	5935-99-944-8102
5965-99-755-3174	5965-99-653-2503	5965-99-932-4158 285 mm	5935-99-944-8102
5965-99-755-3175	5965-99-653-2503	5965-99-999-2774 355 mm	5935-99-944-8102
5965-99-755-3176	5965-99-653-2503	5965-99-948-9034 445 mm	5935-99-944-8102
5965-99-791-9352	5965-99-911-6834	5965-99-775-5633 285 mm	5935-99-653-9027
5965-99-791-9355	5065-99-911-6834	5965-99-775-5634 355 mm	5935-99-653-9027
5965-99-791-9358	5965-99-911-6834	5965-99-775-5632 445 mm	5935-99-653-9027
5965-99-791-9353	5965-99-953-1138	5965-99-775-5633 285 mm	5935-99-653-9027
5965-99-791-9356	5965-99-953-1138	5965-99-775-5634 355 mm	5935-99-653-9027
5965-99-791-9359	5965-99-953-1138	5965-99-775-5632 445 mm	5935-99-653-9027
5965-99-791-9354	5965-99-653-2503	5965-99-775-5633 285 mm	5935-99-653-9027
5965-99-791-9357	5965-99-653-2503	5965-99-775-5634 355 mm	5935-99-653-9027
5965-99-791-9360	5965-99-653-2503	5965-99-775-5632 445 mm	5935-99-653-9027

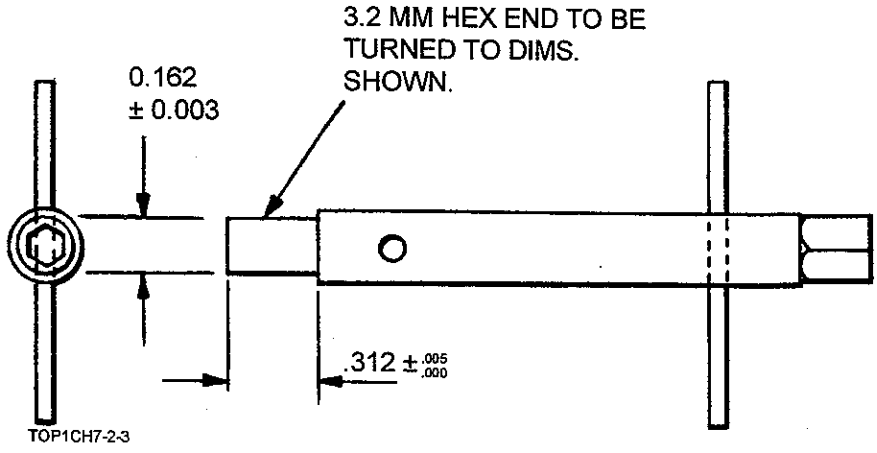

Fig 3 Special box spanner