

CHAPTER 3-6

HEADSET, AMPLIFIER (GROUND CREW)

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GENERAL DESCRIPTION

NOTE

Item numbers refer to Fig 1.

1 The amplifier, 5965-99-792-0240, is an amplifier assembly designed to match a four-wire headset with a magnetic microphone to a three-wire carbon microphone level intercommunication system. The amplifier is fitted in an in-line plastic box with flying termination connectors. The panel, electronic circuit (PEC) carries the microphone amplifier components and a small audio transformer which matches the headset earphone terminal impedance of 150 ohms to the intercommunication system impedance of 600 ohms. A brass clip attached to the amplifier box lid provides mechanical support for the amplifier.

2 The amplifier comprises an amplifier PEC (12) in a plastic box and electrical cord assemblies (10) and (11). The lid (2) of the box is held in place by four screws (4) and a gasket (3) prevents the ingress of moisture and dirt. The terminal holder (6) is fitted to the lid with two screws (7) and nuts (8). Cord assembly (10) connects the four-wire headset and microphone circuit to the amplifier PEC (12) through a socket. Cord assembly (11) connects the amplifier PEC (12) to the three-wire intercommunication system through a plug. Grommet retainers (9) hold the cord assemblies (10) and (11) in place in the amplifier box. The amplifier (12) is held in place in the plastic box by two screws (13).

CIRCUIT DESCRIPTION

NOTE

Item numbers refer to Fig 2.

3 The PEC component layout is given in Fig 2 and the circuit diagram of the amplifier in Fig 3. External connections are made to the PEC through ten electrical contacts (19) as shown. The headset is connected to socket SK1 as a four-wire balanced connection and the intercommunication system is connected to plug PL1 as a three-wire unbalanced connection. From PL1, the earphone connection is taken to transformer T1 which changes the impedance of the circuit from 600 ohms unbalanced to 150 ohms balanced. The earphone output is taken to the headset through socket SK1.

4 The headset magnetic microphone signals are applied to the amplifier through socket SK1 as balanced signals. The screen connection at the input is connected to the output common connector. The signals from the microphone pass through C1 to a two stage, negative feedback amplifier formed by TR1, TR2 and associated components. The overall stage gain can be varied from nominally 11 dB to 46 dB by RV1.

5 A supply voltage of 6 to 28 V DC is applied to the amplifier circuit from the intercommunication system through plug PL1. Diodes D1, 2, 3 and 4 are included to ensure that the polarity of the supply may be reversed without causing damage. The amplified microphone signals appear as an AC signal on the DC bias.

SERVICING

6 The amplifier must be tested at appropriate intervals and after servicing, for correct performance using Comprehensive Headset Tester Type 21A 400/6, 6625-99-794-0819. Refer to AP117L-0404-13 for test methods.

REPLACEMENT OF PARTS

7 Normally, repairs to the amplifier will be by replacement of faulty items.

Replacement of panel, electronic circuit (Fig 1)

8 Remove the lid (2) of the amplifier box by unscrewing four screws (4). Remove the gasket (3) from the box and retain. Disconnect electrical cord assemblies (10) and (11) from the PEC (12) connectors. Unscrew two screws (13) to release the PEC from the box.

9 To replace the PEC, secure the PEC to the box with two screws (13). Reconnect the electrical cord assemblies to the PEC. Fit the lid (2) and gasket (3) to the box using four screws (4).

Replacement of electrical cord assemblies

10 Remove the lid (2) and the gasket (3) from the amplifier box by releasing four screws (4). Disconnect the appropriate electrical cord assembly (10) or (11), whichever it is required to remove. Remove the grommet retainer (9) from the appropriate cord assembly. Remove the cord assembly (10) or (11).

11 Fit the replacement cord assembly (10) or (11) to the amplifier box and secure with the grommet retainer (9). Reconnect connections to the PEC as shown in Fig 1. Refit the lid (2) and gasket (3) to the amplifier box.

TECHNICAL SUMMARY

12 The technical data for the amplifier is as follows.

Amplifier box: Rectangular, black plastic, with removable lid.
85 mm x 40 mm x 30 mm

Termination

13 Termination details for the amplifier box are as follows.

Headset lead: 85 mm long	AM 626 socket	Tip - mic (common) 1st - mic (live) 2nd - e/p (common) 3rd - e/p (live)
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System lead: 85 mm long	PJ051 jack plug	Tip - e/p (live) Ring - mic (live) Sleeve - e/p (common) mic (common)
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Earphones 1:2 transformer converting 150 ohms headset earphone terminal impedance to 600 ohms system impedance.

Microphones:

Amplifier Characteristics	Input impedance	400 ohms
	Output impedance	5 kohms
	Gain at 1 kHz into 100 ohm series load	46 dB (nom)
	Gain range	11-46 dB by pre-set control
	Frequency range	300 Hz to 5 kHz
	Max output before distortion	250 mV RMS
	Noise (into 100 ohms)	2 mV RMS max (unweighted)
	DC supply	6 mA at 12 V DC
	DC supply volts	6 V to 28 V

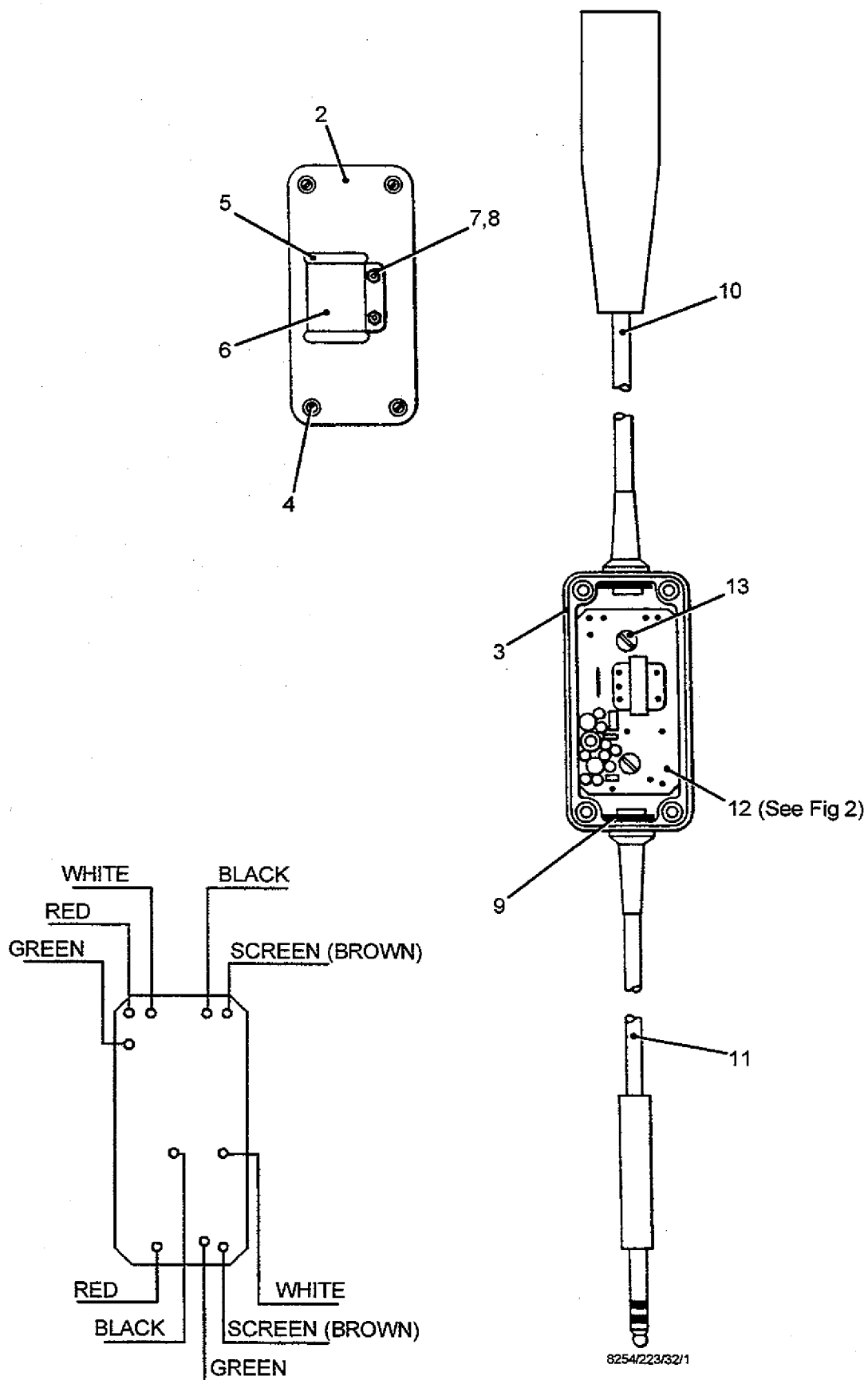


Fig 1 Amplifier 5965-99-792-0240

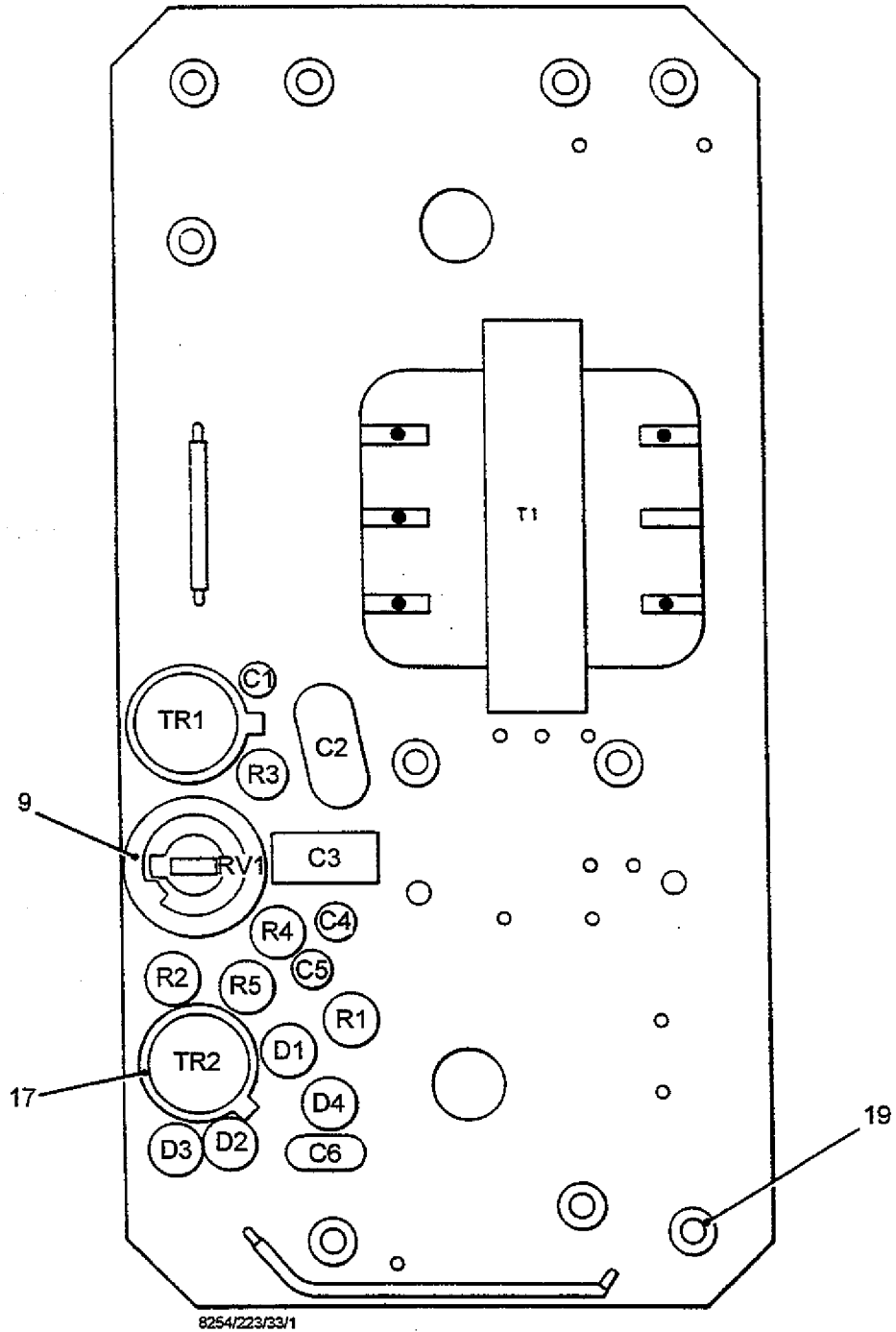


Fig 2 Panel, electronic circuit

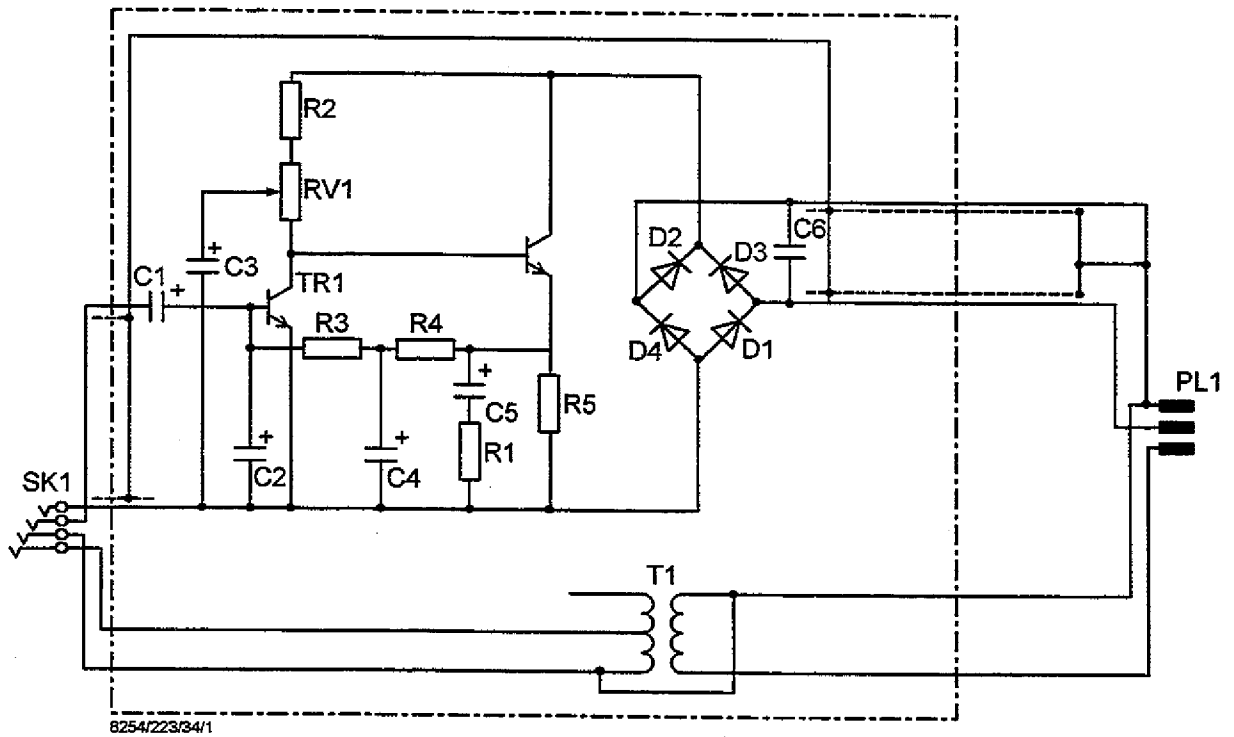


Fig 3 Amplifier circuit diagram

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