CUT/FADE AMPLIFIER AM1/504

Introduction

The AM1/504 forms part of the O.B. Video Mixer[1] and accepts up to 10 monochrome video inputs any one of which may be selected to provide a direct output or an output via a remotely-controlled fader. It has unity gain. The AM1/504A is the colour-signal version.

The amplifier is built on to a CH1/13D chassis with index pegs 1 and 3. It contains the sub-units listed below. An external power supplier is required.

UN9/510 3-channel switch unit
UN9/509 single channel switch unit (AM1/504)
UN9/504A single channel switch unit (AM1/504A)
AM5/506 2-channel amplifier (AM1/504)
AM5/506A 2-channel amplifier (AM1/504A)
AT3/501 Remotely Controlled Fader

General Description

A block diagram of the unit is given in Fig.1. A remotely-controlled diode switch is used in each of the 10 signal inputs. A switch-latch facility ensures that only one diode switch can pass a signal and that all the diode switches shall be released if the unit is plugged into a system which is already powered. A diode catch facility guards against the failure of a switch to release as another is selected.

Maintenance

Routine maintenance is not required, but the following points can be checked occasionally.

1. Overload point. With an input of 10 kHz an output of 2·25 volts p-p should be obtained at the output terminals before the onset of clipping.
2. The transient disturbances on switching between channels should not exceed 150 mV peak. Adjustment is by means of RV2 on UN9/509 (R23 on UN9/509A) and by means of RV3, RV4 and RV5 on the UN9/510. One channel should be selected as a reference (usually channel 10) and its control left untouched.
3. The gains of the 10 channels should be matched so that the signal levels at both outputs are within ±0·1 dB of the input signal level. Adjustment is by means of RV1 on UN9/509 (R5 on UN9/509A) and RV1, RV2 and RV6 on the UN9/510 the signal being monitored at output 1. *Gain 1* on UN9/509 (R26 on UN9/509A) should be at mid position. Output 2 is matched against output 1 by adjustment of the *Gain 2* control on UN9/509 (R27 on UN9/509A).
4. To check the law of the remotely-controlled fader AT3/501, connect the *Control* monitoring point to chassis and note the amplitude of the output signal at output 2 of the AM1/504. The output signal should be reduced by 21·5 dB with respect to the input. Adjustment is by RV2 (AT3/501).

Reference

1. MX1/501
2. Design Department Specification No.6.81(62)

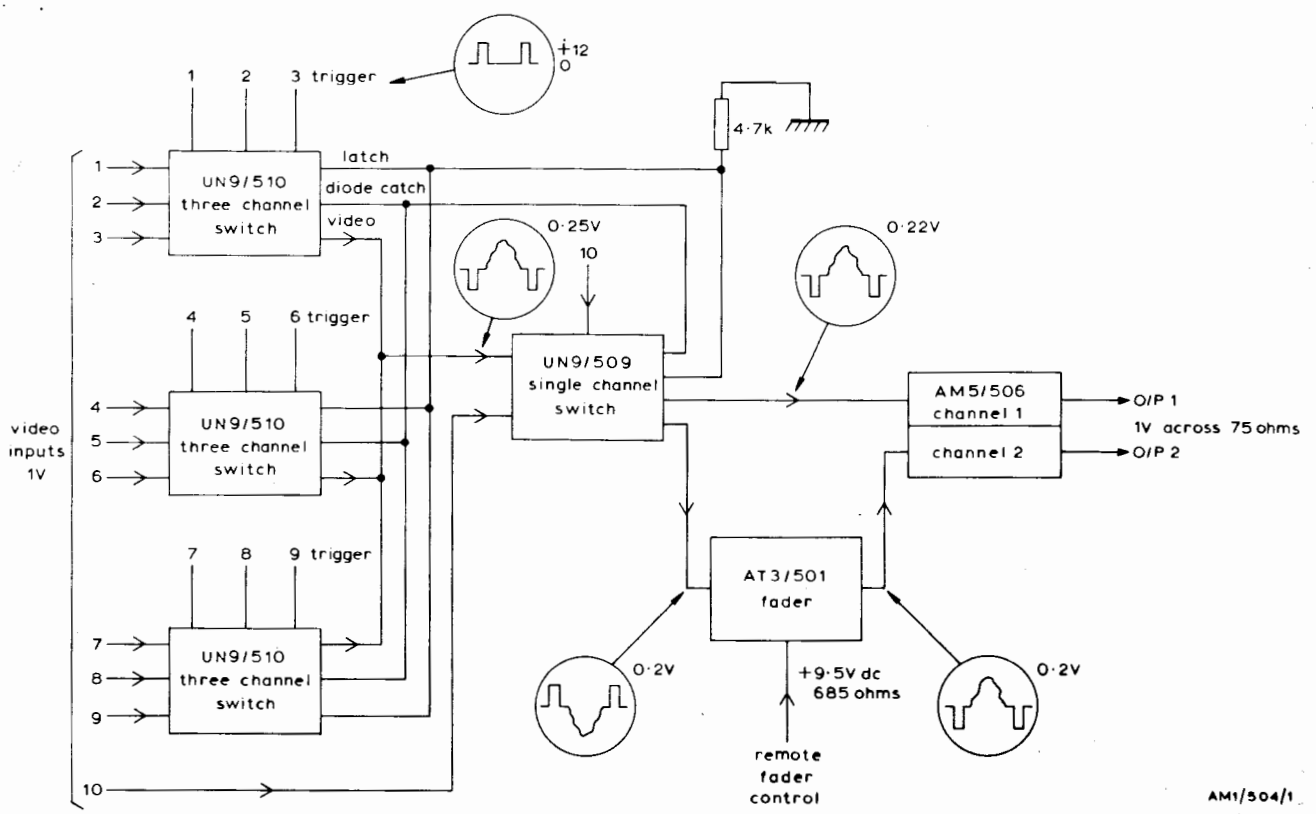

Fig.1. AM1/504: Block Diagram

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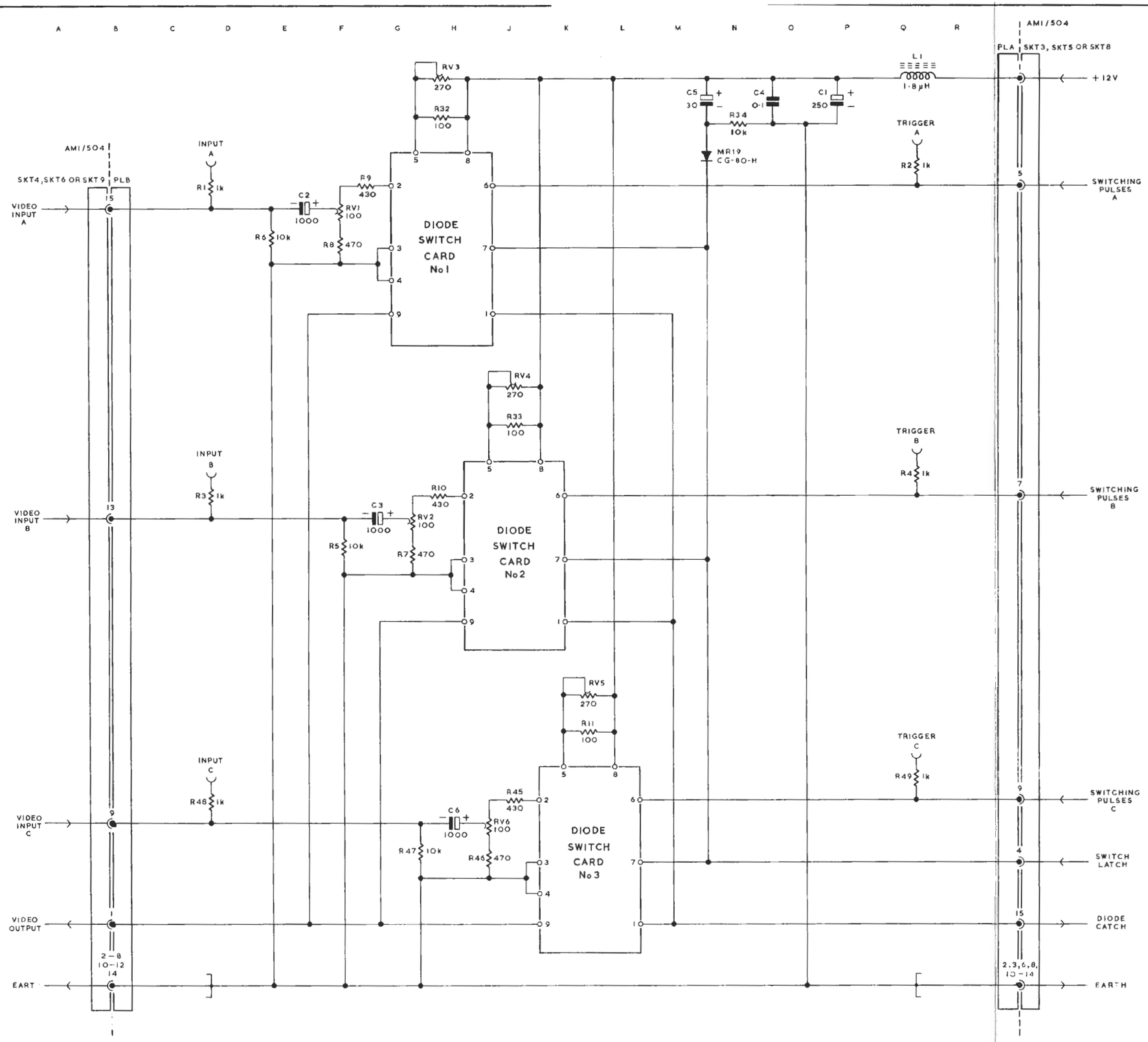
COMPONENT TABLE: FIG. 17

Comp.	Loc.	Type	Tolerance per cent
C1	P1	Plessey CE1256/422 12V	
C2	E2	Plessey CE1242/432 6V	
C3	F8	Plessey CE1242/432 6V	
C4	O1	Hunts B500K 150V	
C5	M1	U.C.C. SM655 12V	
C6	H13	Plessey CE1242/432 6V	
L1	Q1	L/100	
R1	D2	Erie 9 0·25W	10
R2	Q2	Erie 9 0·25W	10
R3	D7	Erie 9 0·25W	10
R4	Q7	Erie 9 0·25W	10
R5	F8	Erie 9 0·25W	10
R6	E3	Erie 9 0·25W	10
R7	G9	Erie 109 0·25W	2
R8	F3	Erie 109 0·25W	2
R9	F2	Erie 109 0·25W	2
R10	H7	Erie 109 0·25W	2
R11	K12	Erie 109 0·25W	2
R32	H1	Erie 109 0·25W	2
R33	J6	Erie 109 0·25W	2
R34	N1	Erie 9 0·25W	10
R45	J13	Erie 109 0·25W	2
R46	J14	Erie 109 0·25W	2
R47	G14	Erie 9 0·25W	10
R48	D13	Erie 9 0·25W	10
R49	Q13	Erie 9 0·25W	10
RV1	F2	Plessey 404/1/00282/101	
RV2	G8	Plessey 404/1/00282/101	
RV3	H1	Plessey 404/1/00282/271	
RV4	J5	Plessey 404/1/00282/271	
RV5	K11	Plessey 404/1/00282/271	
RV6	J13	Plessey 404/1/00282/101	

FIG.17

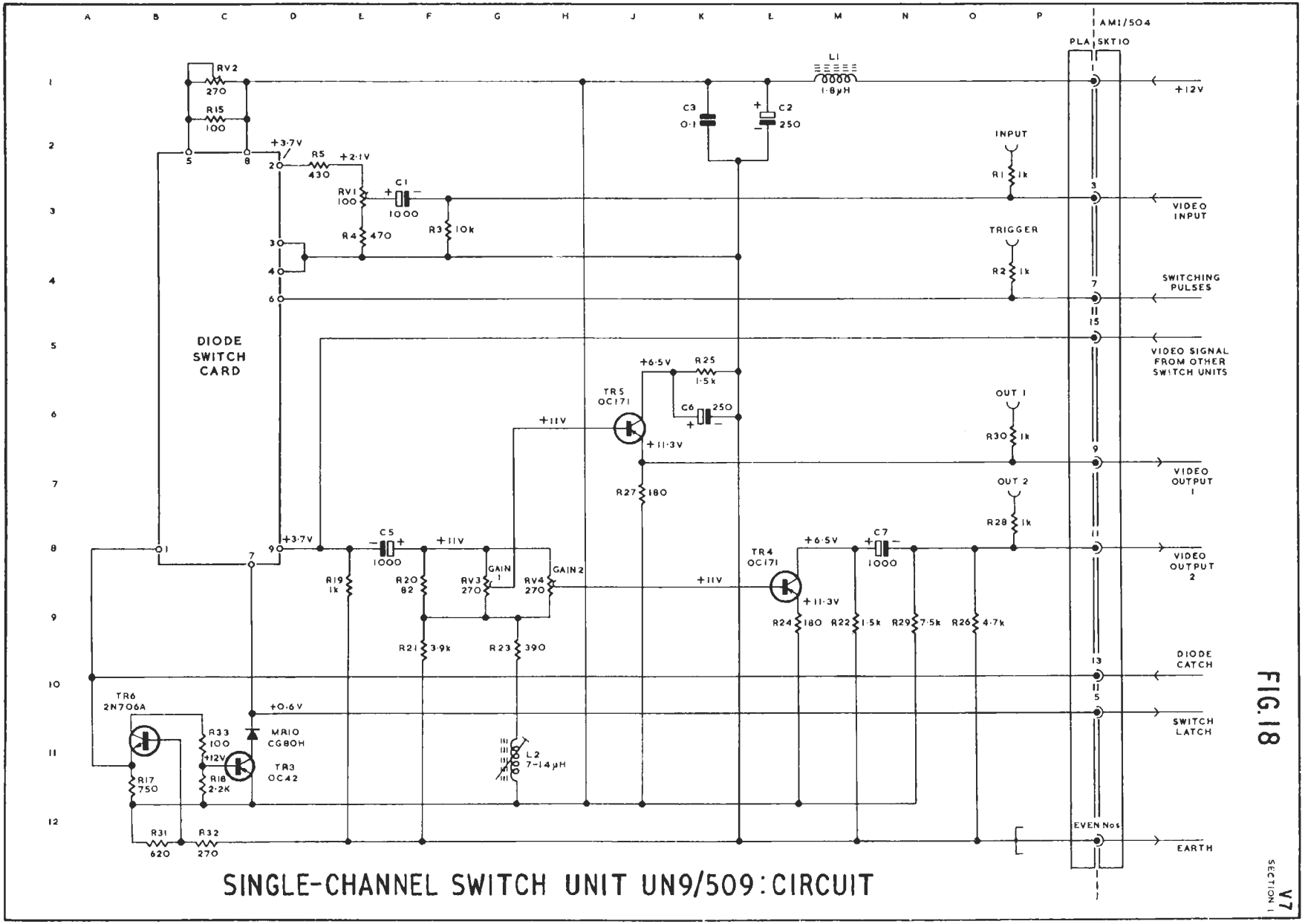


3-CHANNEL SWITCH UNIT UN9/510 : CIRCUIT

UN9/510

COMPONENT TABLE: FIG. 18

Comp.	Loc.	Type	Tolerance per cent
C1	F3	Plessey CE1242/432 6V	
C2	L2	U.C.C. SC584/6LS 12V	
C3	K2	Hunts B500K 150V	
C5	E8	U.C.C. SC603/6LS 12V	
C6	K6	U.C.C. SC584/6LS 12V	
C7	M8	Plessey CE1242/432 6V	
L1	M1	L/100	
L2	G11	EA11728	
R1	O2	Erie 9 0·25W	10
R2	O4	Erie 9 0·25W	10
R3	F3	Erie 9 0·25W	10
R4	E3	Erie 109 0·25W	2
R5	D2	Erie 109 0·25W	2
R15	C2	Erie 109 0·25W	2
R17	B11	Erie 108 0·5W	2
R18	C11	Erie 109 0·25W	2
R19	E9	Erie 109 0·25W	2
R20	F9	Erie 109 0·25W	2
R21	F10	Erie 109 0·25W	2
R22	M9	Erie 109 0·25W	2
R23	G10	Erie 109 0·25W	2
R24	L9	Erie 109 0·25W	2
R25	K5	Erie 109 0·25W	2
R26	O9	Erie 109 0·25W	2
R27	J7	Erie 109 0·25W	2
R28	O8	Erie 9 0·25W	10
R29	N9	Erie 109 0·25W	2
R30	O6	Erie 9 0·25W	10
R31	B12	Erie 109 0·25W	2
R32	C12	Erie 109 0·25W	2
R33	C11	Erie 109 0·25W	2
RV1	E3	Plessey 404/1/00282/101	
RV2	C1	Plessey 404/1/00282/271	
RV3	G9	Plessey CP161101	
RV4	H8	Plessey CP161101	



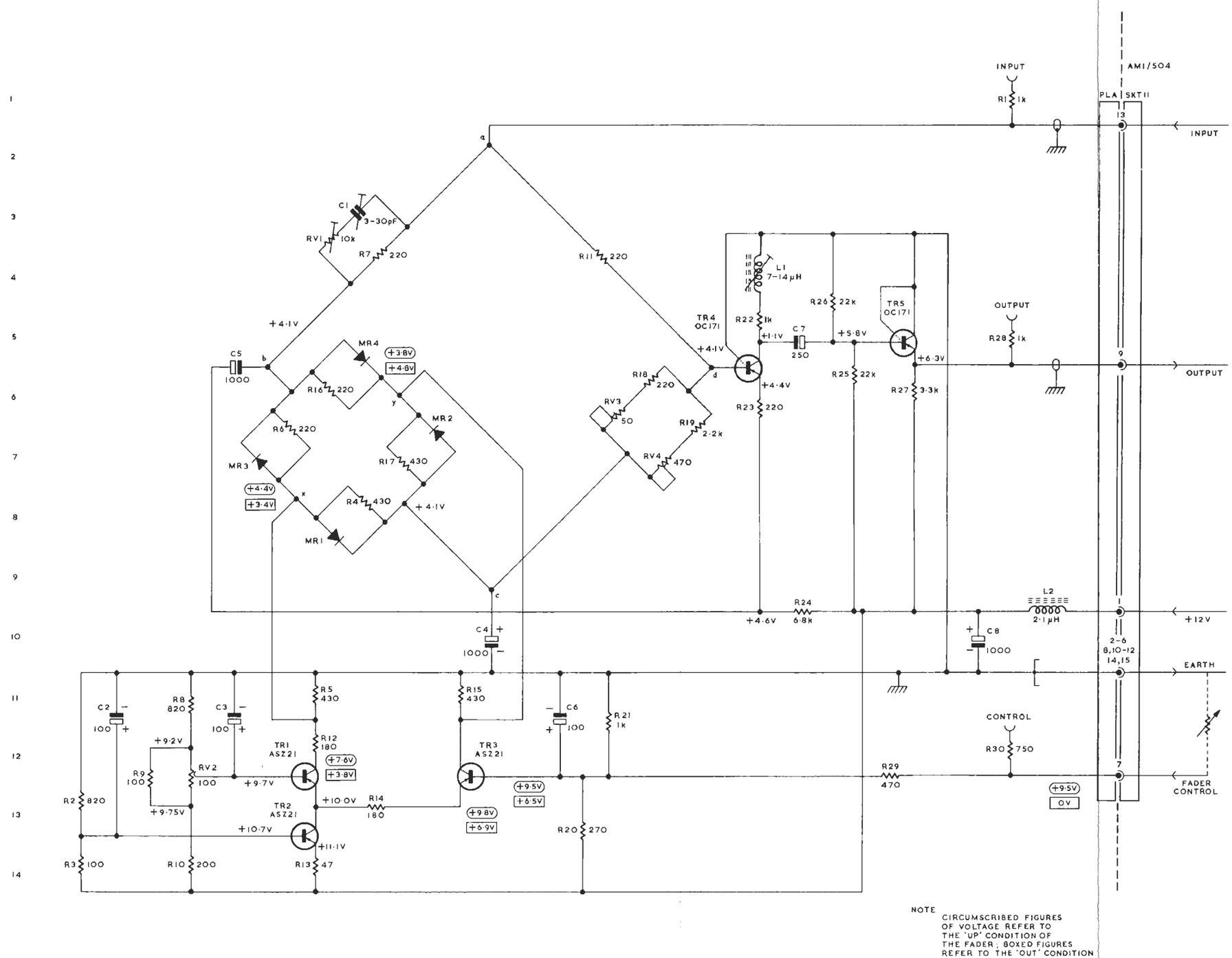
SINGLE-CHANNEL SWITCH UNIT UN9/509: CIRCUIT

FIG. 18

COMPONENT TABLE: FIG. 19

Comp.	Loc.	Type	Tolerance per cent
C1	F3	Mullard E7890	
C2	B11	Plessey CE1222/1 12V	
C3	D11	Plessey CE1222/1 12V	
C4	H10	Swindon SC555/8LS 6V	
C5	D5	Swindon SC555/8LS 6V	
C6	J11	Plessey CE1222/1 12V	
C7	N5	Swindon SC640/6LS 6V	
C8	Q10	Swindon SC603/6LS 12V	
L1	N4	DC9199 Det. 7	
L2	R10	DC9199 Det. 6	
MR1	E9	G.E.C. GEX66	
MR2	G7	G.E.C. GEX66	
MR3	D7	G.E.C. GEX66	
R4M	F5	G.E.C. GEX66	
R1	Q1	Erie 9 0·25W	10
R2	A13	Erie 109 0·25W	2
R3	A14	Erie 109 0·25W	2
R4	F8	Erie 109 0·25W	2
R5	E11	Erie 109 0·25W	2
R6	D7	Erie 109 0·25W	2
R7	F7	Erie 109 0·25W	2
R8	C11	Erie 109 0·25W	2
R9	B12	Erie 109 0·25W	2
R10	C14	Erie 109 0·25W	2
R11	K4	Erie 109 0·25W	2
R12	E12	Erie 109 0·25W	2
R13	E14	Erie 109 0·25W	2
R14	F13	Erie 109 0·25W	2
R15	H11	Erie 109 0·25W	2
R16	E6	Erie 109 0·25W	2
R17	F7	Erie 109 0·25W	2
R18	K6	Erie 109 0·25W	2
R19	L7	Erie 109 0·25W	2
R20	J13	Erie 109 0·25W	2
R21	K11	Erie 109 0·25W	2
R22	M5	Erie 109 0·25W	2
R23	M6	Erie 109 0·25W	2
R24	N9	Erie 109 0·25W	2
R25	O6	Erie 109 0·25W	2
R26	N5	Erie 109 0·25W	2
R27	P6	Erie 109 0·25W	2
R28	Q5	Erie 9 0·25W	10
R29	P12	Erie 109 0·25W	2
R30	Q12	Erie 109 0·25W	2
RV1	E3	Plessey CP161687/103/A	
RV2	C12	Plessey CP161687/101/A	
RV3	K6	Plessey CP161687/500/A	
RV4	K7	Plessey CP161687/471/A	

FIG.19



NOTE
CIRCUMSCRIBED FIGURES OF VOLTAGE REFER TO THE 'UP' CONDITION OF THE FADER; BOXED FIGURES REFER TO THE 'OUT' CONDITION

REMOTELY-CONTROLLED FADER AT3/501 : CIRCUIT

AT3/501

COMPONENT TABLE: FIG. 20

Comp.	Loc.	Type	Tolerance per cent
C1	B4	Swindon SC555/8LS 6V	
C2	C5	Swindon SC641/6LS 6V	
C3	E2	T.C.C. CSM2ON	5
C4	F2	Mullard Pre-set E7890	
C5	J2	Swindon SC641/6LS 12V	
C6	J4	Swindon SC603/8LS 6V	
C7	B9	Swindon SC555/8LS 6V	
C8	C10	Swindon SC641/6LS 6V	
C9	E8	T.C.C. CSM2ON	5
C10	F8	Mullard Pre-set E7890	
C11	J8	Swindon SC641/6LS 12V	
C12	J10	Swindon SC603/8LS 6V	
L1	J6	DC9180 Det. 5	
L2	J12	DC9180 Det. 5	
R1	L1	Erie 9 0·25W	10
R2	A2	Erie 109 0·25W	2
R3	A6	Erie 109 0·25W	2
R4	B2	Erie 109 0·25W	2
R5	B6	Erie 109 0·25W	2
R6	C6	Erie 109 0·25W	2
R7	D2	Erie 109 0·25W	2
R8	D6	Erie 109 0·25W	2
R9	E2	Erie 109 0·25W	2
R10	E5	Erie 109 0·25W	2
R11	G5	Erie 109 0·25W	2
R12	H4	Erie 109 0·25W	2
R13	H5	Erie 109 0·25W	2
R14	H6	Erie 109 0·25W	2
R15	J4	Erie 109 0·25W	2
R16	K2	Erie 9 0·25W	10
R17	L4	Erie 9 0·25W	10
R18	L12	Erie 9 0·25W	10
R19	A8	Erie 109 0·25W	2
R20	A12	Erie 109 0·25W	2
R21	B8	Erie 109 0·25W	2
R22	B12	Erie 109 0·25W	2
R23	C12	Erie 109 0·25W	2
R24	D8	Erie 109 0·25W	2
R25	D12	Erie 109 0·25W	2
R26	E8	Erie 109 0·25W	2
R27	E11	Erie 109 0·25W	2
R28	G10	Erie 109 0·25W	2
R29	H10	Erie 109 0·25W	2
R30	J10	Erie 109 0·25W	2
R31	J12	Erie 109 0·25W	2
R32	K8	Erie 109 0·25W	2
R33	K10	Erie 9 0·25W	10
R34	L9	Erie 9 0·25W	10

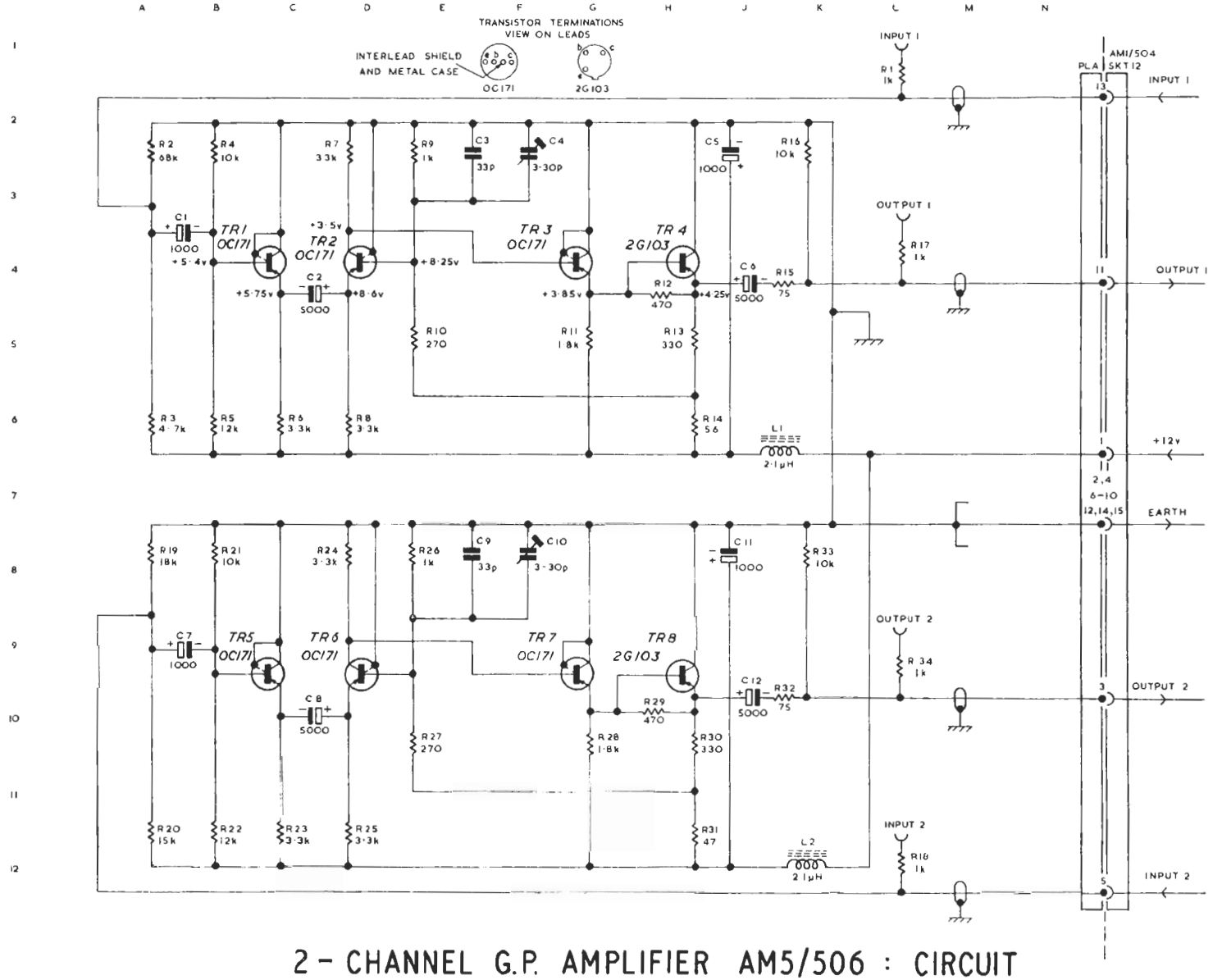


FIG. 20

2 - CHANNEL G.P. AMPLIFIER AM5/506 : CIRCUIT