

O.B. LINE SENDING AMPLIFIER AM7/5

General Description

Amplifier AM7/5 is an audio-frequency transistor amplifier with an output impedance of 75 ohms, a gain of 20 dB which can be varied by ± 4 dB, and a high input impedance. It is intended primarily as an output amplifier for use in outside broadcasting, and has been designed with a low output impedance to feed into low impedance circuits.

The circuit is almost identical with that of the AM7/3, with the addition of a monitoring output and a switch to alter the gain by ± 4 dB. The construction also is similar to that of the AM7/3, the same type of chassis, CH1/18C, being used.

Circuit Description (Fig. 1)

The circuit is basically the same as that of the AM7/3, but a monitoring output is provided, and the emitter load of TR1 is tapped so that the gain can be varied by plus or minus 4 dB by means of a switch SA mounted on the front panel. A second contact SA2 on the switch maintains the monitoring output level constant as the switch position is varied. The monitoring level is also constant with varying main output load.

General Data*Power Requirements*

Supply voltage 24 V d.c.
Total current 46 mA

Impedances

Input impedance 12 k Ω $\pm 10\%$ at 1 kc/s
Output impedance 75 ± 4 Ω at 1 kc/s

Gain

Normal voltage gain 20 ± 0.3 dB at 1 kc/s measured with a source impedance of 300 Ω , a load impedance of 600 Ω and at 0 dB output voltage level with the gain switch at mid position.*

Gain switch at ± 4 dB The voltage gain should be the indicated ± 4 dB about normal to within ± 0.3 dB under the same conditions.

Frequency Response

The output level under the conditions as above for measuring gain with constant input voltage should be within the following limits relative to 1 kc/s :

Between 40 c/s and 15 kc/s : +0.1 -0.3 dB.

Non-linearity

At an output voltage level of +8 dB, with source and load impedances as for measuring gain, the total harmonic distortion should not exceed

at 60 c/s 0.4%
at 1 kc/s 0.3%

Similarly, at +12 dB voltage output level, distortion should not exceed

at 60 c/s 0.5%
at 1 kc/s 0.4%

The onset of serious distortion, judged from an oscilloscope trace, should occur at a voltage output level of not less than +17.5 dB.

Noise

The total noise volume, read on a T.P.M. peaking to 6, should be not greater than -80 dB.

Monitor Output Level

With the gain switch at mid position (normal), the monitor output level should be -20 ± 0.5 dB into 10 k Ω with main output voltage level of zero into 600 Ω at 1 kc/s.*

Varying the gain switch to ± 4 dB should not alter the monitor output level by more than ± 0.3 dB. Similarly, varying the output load from 50 Ω to infinity should also not vary the monitor output level by more than ± 0.3 dB.

Typical Voltages

The following typical emitter/common positive voltages, measured on an Avometer 8, are given to assist fault-finding :

| | | | |
|-------|-------|-------|-------|
| TR1 | TR2 | TR4 | TR6 |
| 2.2 V | 8.0 V | 7.5 V | 7.5 V |

The voltages relating to TR4 and TR6 should differ by not more than 0.3 V.

* The AM7/5 as first designed had this performance with a 240 Ω load, and a higher output with 600 Ω . These earlier amplifiers should now have been modified.

from DA9992
parts list DA9993

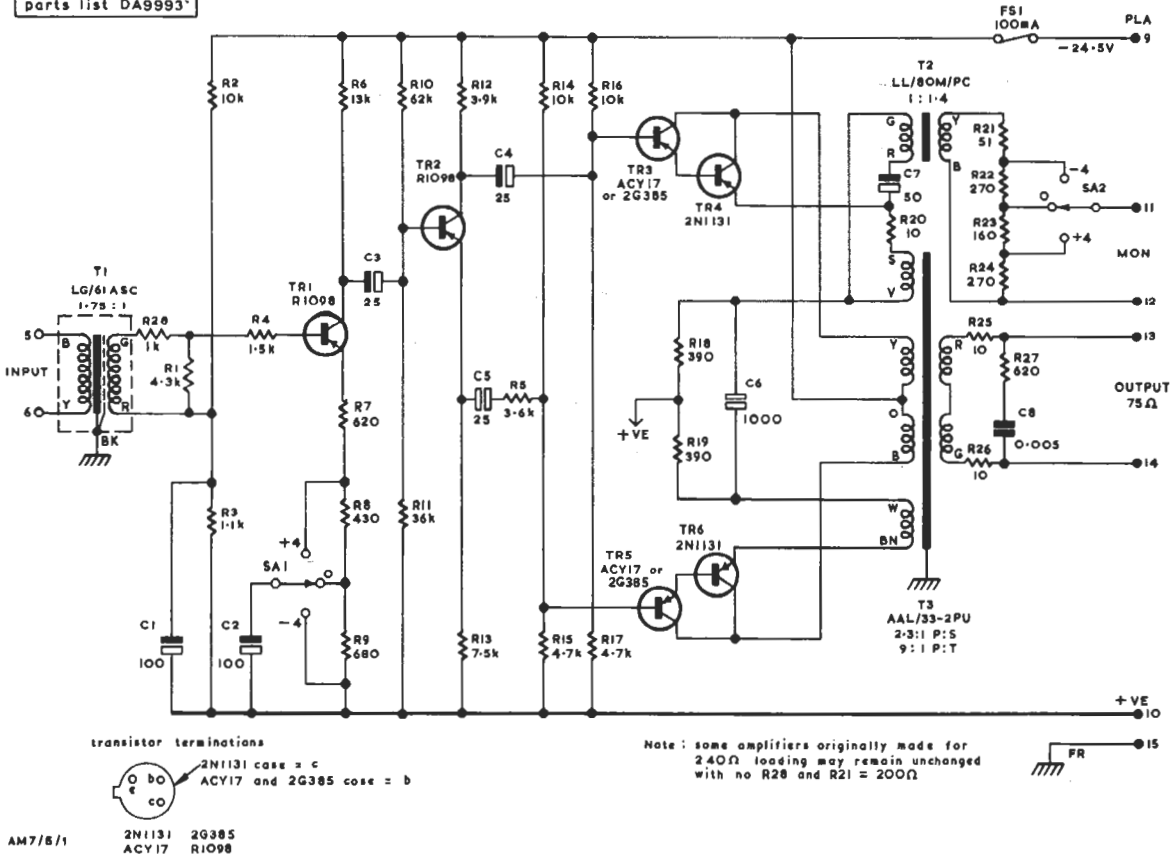
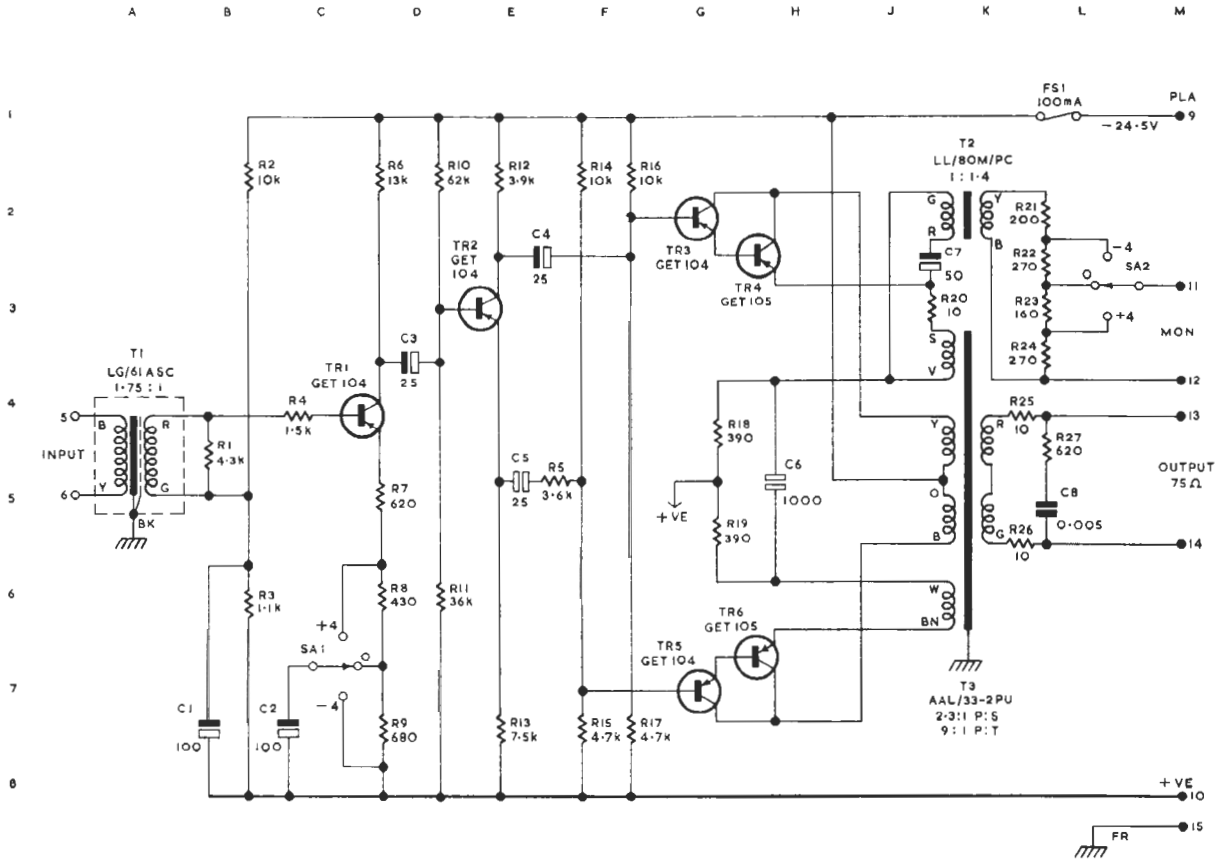


Fig. 1 Circuit of the AM7/5

COMPONENT TABLE : FIG. 5

| Comp. | Loc. | Type | Tolerance per cent | Comp. | Loc. | Type | Tolerance per cent |
|-------|------|----------------------|--------------------|-------|------|----------------|--------------------|
| C1 | B7 | U.C.C. SC541/8LS 6V | | R12 | E2 | Erie NI 0.1W | 2 |
| C2 | C7 | U.C.C. SC541/8LS 6V | | R13 | E7 | Erie NI 0.1W | 2 |
| C3 | D3 | U.C.C. SC502/8LS 25V | | R14 | F2 | Erie NI 0.1W | 2 |
| C4 | E2 | U.C.C. SC502/8LS 25V | | R15 | F7 | Erie NI 0.1W | 2 |
| C5 | E5 | Plessey CE294 12V | | R16 | F2 | Erie NI 0.1W | 2 |
| C6 | H5 | Plessey CE2087 6V | | R17 | F7 | Erie NI 0.1W | 2 |
| C7 | J2 | U.C.C. SC517/8LS 25V | | R18 | G4 | Erie 109 0.25W | 2 |
| C8 | L5 | Hunt BM20KV 500V | | R19 | G5 | Erie 109 0.25W | 2 |
| R1 | B4 | Erie NI 0.1W | 2 | R20 | K3 | Erie NI 0.1W | 2 |
| R2 | B2 | Erie NI 0.1W | 2 | R21 | L2 | Erie NI 0.1W | 1 |
| R3 | B6 | Erie NI 0.1W | 2 | R22 | L3 | Erie NI 0.1W | 1 |
| R4 | C4 | Erie NI 0.1W | 2 | R23 | L3 | Erie NI 0.1W | 1 |
| R5 | F5 | Erie NI 0.1W | 2 | R24 | L4 | Erie NI 0.1W | 1 |
| R6 | D2 | Erie NI 0.1W | 2 | R25 | K4 | Erie NI 0.1W | 2 |
| R7 | D5 | Erie NI 0.1W | 1 | R26 | K5 | Erie NI 0.1W | 2 |
| R8 | D6 | Erie NI 0.1W | 1 | R27 | L4 | Erie NI 0.1W | 2 |
| R9 | D7 | Erie NI 0.1W | 1 | T1 | A4 | LG/61ASC | |
| R10 | D2 | Erie NI 0.1W | 2 | T2 | K2 | LL/80M/PC | |
| R11 | D6 | Erie NI 0.1W | 2 | T3 | K5 | AAL/33-2PU | |

FIG 5



O.B. LINE SENDING AMPLIFIER AM7/5 : CIRCUIT

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