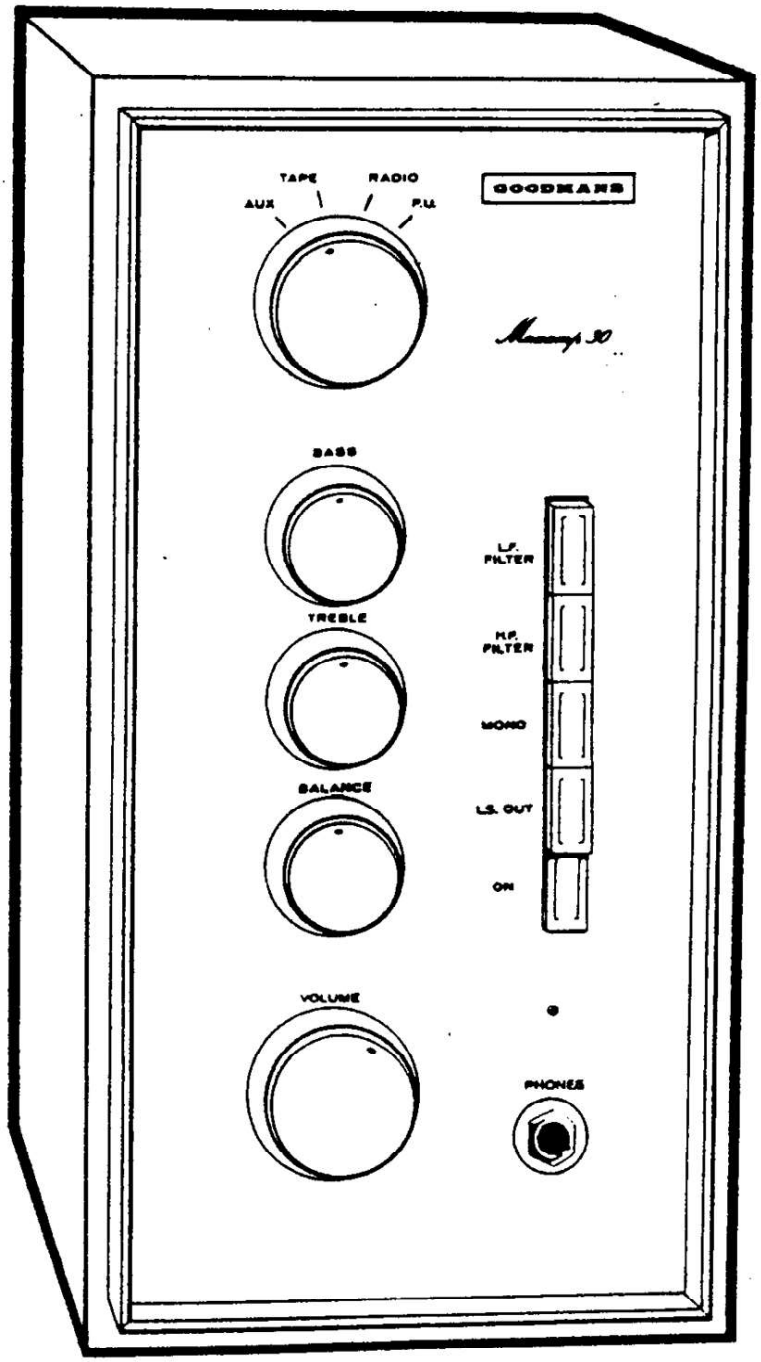
GOODMANS

MAXAMP 30



SERVICE DATA

GOODMAN MAXAMP 30

HIGH FIDELITY TRANSISTORISED STEREO AMPLIFIER

GENERAL SPECIFICATION

Mains Supply

100–250 Volts A.C., 40–60 c/s.

The Mains selector plug allows for the following nominal mains input voltages:–

105, 120, 200, 220, 240.

Fuses

Mains fuse situated beneath protective cover adjacent to mains outlet socket.
1 Ampere Antisurge on 200–240 volt mains.
2 Ampere Antisurge on 105–120 volt mains.
H.T. fuses 2 x 1 Ampere.

Neon Indicator Lamp

Shows presence of primary voltage in Mains Transformer.

Max. Power Consumption

100 Watts on continuous sinewave operation at full output.

Power Output per Channel

15 watts r.m.s. into an 8 ohm load.
10 watts r.m.s. into a 4 or 15 ohm load.

Harmonic Distortion

With Both channels operating into 8 ohm resistive loads:–

15 watts output: Not more than 0.4% distortion at 100 c/s, 1 Kcs and 10 Kcs. Not more than 0.8% distortion at 20 Kcs.

10 watts output: Not more than 0.8% distortion at 20 c/s.

With both channels operating into 4 ohm resistive loads:–

10 watts output: Not more than 0.4% distortion at 1 Kcs.

With both channels operating into 15 ohm resistive loads:–

10 watts output: Not more than 0.4% distortion at 1 Kcs.

Frequency Response

20 c/s to 20 Kc/s ± ½ dB.

Input Sensitivities

For 15 watts at 1,000 c/s into an 8 ohm load:–

Pickup (with R.I.A.A. characteristic)
(a) 3.5 mV, input impedance 47,000 ohms.
(b) 50 mV, input impedance 100,000 ohms.

Radio (flat characteristic)
100 mV, input impedance 100,000 ohms.

Tape (flat characteristic)
150 mV, input impedance 100,000 ohms.

Aux. (flat characteristic)
3 mV, input impedance 50,000 ohms.

Hum and Noise

Overall: With no signal input: 55db down on 15 watts into 8 ohms.
Main Amplifier: With volume at minimum: 80db down on 5 watts into 8 ohms.

Crosstalk

With input selector in any position, and the unused channel open circuit, better than –40 dB with reference to 10 watts into 8 ohms on the active channel.

Pre-amplifier Radio Input Overload

Pre-amplifier to handle 26db overload on radio input without exceeding 0.8% distortion.

Outputs

Loudspeakers: 4 – 8 – 15 ohms.

Socket Facilities

The sockets that are duplicated for the channels are all at the back of the amplifier and are listed below:

Output Sockets

Description: 8–15 ohm speaker connections of screw terminals type.
4 ohm speaker connections of screw terminals type.
Tape output connections of phono socket type.

The tape output socket is for use when making a recording from the pre-amplifier output. The output at this point is independent of the volume control setting.

Input Sockets

The following input sockets are of the phono type. Sensitivity figures taken at 1 Kc with reference to 15 watts into an 8 ohm load with volume set at maximum and both channels operating simultaneously.

	Sensitivity	*Impedance*
1. Pick up, magnetic	3.5 mV	47K
2. Pick up, ceramic	50 mV	100K
3. Radio	100 mV	100K
4. Tape	150 mV	100K
5. Aux.	3 mV	47K

The auxiliary position may be used for low output microphones, tape heads, etc.

Additional Sockets

Phone socket: A standard insulated stereo jack socket is provided for private listening.

Mains Output Socket: For auxiliary equipment an unfused output socket is provided to supply the mains input voltage when the amplifier is switched on.

Controls

All controls are mounted on the front panel.

These consist of five rotary controls and five independent push buttons. All controls except ON, BALANCE and MONO operate on both channels simultaneously.

The amplifier is switched on by pressing the "ON" push button, a visual indication being given by the small lamp immediately below this button.

The required input is selected by the upper large knob whilst the volume may be adjusted to a suitable level by the lower large knob.

Bass Control

This control enables continuously variable boost or cut. (From + 12dB to – 12dB at 50 c/s).

Treble Control

This control enables continuously variable boost or cut. (From +12dB to –12dB at 10 Kc/s). A 'flat' response is obtained when both BASS and TREBLE are set with the spot uppermost.

Balance Control

The BALANCE control allows any difference in the overall sensitivity of the system to be corrected. At extremes of rotation each channel is silenced.

If loudspeakers of different sensitivities are used an approximate setting of this control can be found by pressing the MONO button and adjusting the BALANCE until the sound appears to come from midway between the loudspeakers.

Filters

The L.F. FILTER button introduces a high-pass filter giving a cut of 10dB at 20 c/s, with an ultimate slope of 12dB/octave and should be used to remove turntable rumble.

The H.F. FILTER button introduces a low pass filter with an 8 Kc/s turnover and ultimate slope of 12 dB/octave, for use with old gramophone recordings and other programme materials with high hiss content.

Mono

Pressing the MONO button allows the signal on the left hand input to be fed to both loudspeakers giving a monophonic output of up to 30 watts r.m.s.

L.S. Out

This button may be used to mute the loudspeakers during head-phone listening.

Cabinet Dimensions

5½" wide 7¼" deep 10½" high

These are the same measurements as Goodmans Maxim Speaker Assemblies.

Removal of Chassis from Cabinet

1. Disconnect mains supply and all rear connections
2. Remove the two 2 BA bolts at the back of the amplifier and take out the top and bottom fixing plates.
3. Gently push the chassis forward from the back until it slides out freely from the front.

MECHANICAL DETAILS

The amplifier chassis consists of a tray formed into a U section which is fixed to a diecast front plate bearing the amplifier controls and covered by a metal facia panel. To prevent the facia panel vibrating when the speakers are in close proximity to the amplifier, it is glued to the front of the diecast front plate. For almost all the work required in servicing it is not necessary to remove the diecast front plate from the chassis.

For access to both the PA7 output panels removal of the six Spire speed screws fixing the side panels to the main chassis will allow them to drop down for easy servicing.

To service the PA6 pre-amplifier panel assembly adopt the following procedure:–

1. Remove the three screws from the top of the chassis which fix the pre-amplifier and input selector switch assembly to the main chassis.
2. Turn the chassis upside-down i.e. the input selector switch at the bottom.
3. After removal of the side screws (as described above for access to the PA7 output panels) carefully swing the side panels out and upwards until they come together above the chassis; these can be held in this position by tying or the use of a 6BA nut and bolt.
4. Remove the four Spire speed screws holding the input socket panel to the back of the chassis.
5. Loosen the two grub screws at the selector switch end of the extension spindle coupler and slide the coupler off the switch shaft.
6. The pre-amplifier panel with switch assembly and the input socket panel will come out together and just clear the chassis.

N.B.: As this operation removes the chassis from the circuit earth, the hum level will be found to increase. A short earth lead to the chassis will reduce it to a reasonable level for servicing.

The reverse side of the printed panels may be inspected by depressing the spring clips and pulling the panels away from their mounting slots. For complete accessibility to the underside of the PA6 pre-amplifier panel, remove the screening plate by detaching it from the switch assembly.

Due to the compact design the magnetic field of the mains transformer induces hum nto the input leads if they are not dressed as close as possible to the chassis when the input panel is refitted.

ELECTRICAL DETAILS

General Information

The Maxamp 30 uses silicon transistors, mostly of the N.P.N. construction and has a positive H.T. rail with the chassis at earth potential.

The two channels are designated L.H. (left hand) R.H. (right hand) and the printed panels input sockets and output connections are situated at the corresponding sides of the chassis when viewed from the control panel.

The ganged controls for Volume, Balance, Treble and Bass and the Input Selector Switch have their front sections corresponding to L.H. channel and the rear section correspond ng to the R.H. channel, again when the amplifier is viewed from the front.

Both L.H. and R.H. channels are electrically identical and each comprises a pre-amplifier having three transistor stages driving a six transistor Class B power amplifier.

Two identical printed panels provide the L.H. and R.H. power amplifiers and are mounted on the chassis side panels which provide heat sinks for the output transistors. These printed panels are interchangeable but the two preset potentiometers would require re-adjustment. (See (Power Amp D.C. cond. setting up procedure.)

N.B.: Due to the use of common side panel piercing the output transistors appear to have their emitter-base connections reversed when comparing L.H. with R.H.

The pre-amplifier printed panel PA6 is common to both L.H. and R.H. but some degree of symmetry is retained by keeping L.H. and R.H. amplifiers to their respective sides of the chassis.

The panel takes up almost the full depth of the chassis and is situated above the Input Selector Switch which is part of the same assembly.

NOTES ON SERVICING

Setting up Procedure of the Power Amp

Before servicing the power amp. the quiescent current and the D.C. voltage on the collectors of TR16 (L.H.) and TR18 (R.H.) should be checked.

1. These should be checked with the volume at minimum and after the amplifier has been switched off for a little while allowing the output transistors to cool.
   Check the H.T. voltage to the fuse, this should be 50–58 volts. The preset potentiometers R80 (L.H.) and R85 (R.H.) should be adjusted to cause a current of 30 mA to flow through the H.T. fuse.
2. The D.C. Voltage on the collectors of TR16 (L.H.) and TR18 (R.H.) should be adjusted by the preset potentiometers R66 and R69 respectively. This voltage on the collectors should be set at half the measured H.T. voltage plus 2 volts.
   i.e. For nominal H.T. of 54 volts the correct voltage setting is 29 volts.

If an oscilloscope is available to monitor the output on a 1 Kc input signal the waveform should just clip symmetrically as the overload point is reached.

If necessary R66 and R69 can now be adjusted to obtain this symmetrical clipping of the output waveform.

In the event of a short circuit of H.T. to chassis on the rectifier side of the fuse, resistors R89 (L.H.) and R91 (R.H.) will overheat and may need replacement.

The resistor networks R3, R9 (L.H.), R4, R10 (R.H.) provide correct matching for a ceramic pick up, producing the same input to TR1 and TR2 as a dynamic pick up.

If a fault condition causes the 1 amp H.T. fuse to the power amp. panel to blow, then it may be replaced by a 4 watt 270 ohm resistor. This protects the output transistors until the fault is diagnosed and will only slightly affect the D.C conditions provided that the current is readjusted to 30 mA by R80 and R85.

The 270 ohm resistor must be replaced by the fuse after clearing the fault and the current re-set to 30 mA as before.

CIRCUIT DESCRIPTION

The following circuit description is with reference to the L.H. channel, the R.H. channel being the functional equivalent.

TR1 and TR3 provide the major part of the gain of the preamplifier. The high input impedance is achieved through overall negative feedback of the series fed voltage type. This provides an improvement in signal to noise ratio, reduces distortion and minimises the effect of

changes in transistor parameters. The stage is capacity coupled, the D.C. base current for TR1 is taken from TR3 emitter via R13 to reduce hum and noise derived from the HT rail. The auxiliary input has a flat response, with reduced negative feedback via R22 to give 3mV sensitivity.

The gain of the input pair in the Auxiliary position is 34 dB at 1000 c/s allowing 450 mV peak to peak of drive to the tone control circuit at full output.

The tape input to the preamplifier has a flat response, with 150 mV sensitivity, the reduction in gain is achieved by the potential divider network R1 and R7 which provides the high impedance and input level required. Similar requirements are met by R2 and R8 on radio input and the negative feedback is increased via R23 for both these inputs. The sensitivity on radio is approx. 100mV.

The last position of the input selector switch provides a dynamic filter to give the RIAA equalisation play-back characteristic for ceramic and dynamic pick-ups. For the ceramic pick-up input R3 and R9 reduce the sensitivity to 50mV. The sensitivity on dynamic pick-up is 3mV.

C1 is included in shunt with TR1 collector to limit the H.F. response above 20 Kc/s.

TR5 is the dynamic element of the Baxandall type tone control circuit. When the controls are flat this circuit has little more than unity gain.

The tone controls have a frequency selective action on the overall negative feedback of this stage, providing roll off and boost at base and treble.

The treble control gives approx. 12 dB boost or cut at 10 Kc/s.

The bass control gives 12 dB boost or cut at 50 c/s.

On the preamplifier panel certain resistors are close tolerance high stability types and these are required to control circuit characteristics and in some cases to improve the signal to noise ratio. These components must in event of failure be replaced by equivalent types.

The power supply to the preamplifier is stabilized at 27 volts with a Zener diode. This is to reduce LF crosstalk between channels and prevent transient effects through the power supply, particularly evident on loud passages of music when the amplifier is running at full output.

The Scratch and Rumble Filters are passive filters put in circuit between the output of the preamplifier and the input to the balance and volume controls.

The scratch or HF filter comprises a ½ section low pass filter which is allowed to resonate at 7 Kc/s, damped by R58 to give a rise of 1dB at this frequency and a rapid fall off approaching 18 dB per octave.

The Rumble or LF filtering is achieved by the use of a low value coupling capacitor C37 giving 14 dB attenuation at 20 c/s.

R60 is the balance control which has a logarithmic track and is ganged to R61 on the RH channel which has an antilog track matched to R60.

The volume control R62 is a logarithmic type ganged to R63 and matched.

The output is coupled from the volume control through C41 into the base of TR7. The base current to this transistor is controlled by adjustment of R66 and the collector is directly coupled to the base of TR9.

TR9 provides direct drive to the bases of TR11 and TR12.

TR12 is the only PNP transistor in the amplifier and with TR11 forms a complimentary phase splitter to drive the output transistors.

Thermal stability of the output transistors is achieved by the function of diodes X1 and X2 and this system allows the use of low values of emitter resistors R98 and R99, effecting a more efficient output stage.

Under no signal conditions the complimentary drivers TR11, TR12 being directly coupled to the output stage result in the quiescent current of the output transistors being dependent upon the potential difference between the bases of TR11 and TR12.

This potential can be varied in three ways, by the manual adjustment of R80, by changes in forward resistance of diodes X1 and X2 or by changes in the collector current of TR9. However, due to the total resistance of X1, X2 and R88 being small compared with R79, changes in collector current of TR9 produce a shift in this potential with respect to the HT supply voltage, rather than a change in voltage between the bases of TR11 and TR12. This shift in the mean potential will cause unbalance in the output transistors.

As the mean potential at the bases of the complimentary pair moves towards the power supply voltage through a drop in collector current of TR9, the current in TR11 and TR15 will rise, while the current in TR12 and TR16 will fall. The adjustment of R66 changes the collector current of TR9 and is the adjustment to balance the current in the output transistors. Adjustment of R80 affects the magnitude of current taken by the output transistors, but will have little effect upon the balance.

Diodes X1 and X2 are strapped directly on to the heat sink of the output transistors, their resistance versus temperature characteristic is similar to the base emitter characteristics of the output transistors. A drop in the forward resistance of the diodes with increase in temperature will reduce the potential difference between the bases of the complimentary pair thus reducing the collector current in the output transistors, as it tends to increase with rise in temperature thereby achieving thermal stability.

Due to the DC coupling of the power amplifier good overall thermal stability is achieved by DC feedback through R88.

Overall AC feedback through R82 gives a high input impedance to the power amplifier and produces low noise level and distortion.

The HT feed to the collector of TR9 is boot strapped to the output via C47 to increase the available voltage swing beyond the HT power supply voltage.

C48 provides negative feedback above 20Kc/s to give controlled roll off at high frequencies.

C50 and R100 corrects the phase of the feedback at high frequencies to compensate for the inductive load of the loud speaker.

The loud speaker is coupled via C55. R107 provides matching to give 10 watts into a 4 ohm speaker.

R105 limits the current supplied to the stereo headphones.

R89 is included in the earth circuit of the output stage to isolate the output transistor earth currents.

The power supply to the power amplifier is a full wave bridge circuit giving 54 volts output to each channel.

WORKING VOLTAGES

The following are typical voltage measurements, with respect to chassis, and under no signal conditions, measured on Avo 8 meter (20K ohms per volt). The 2.5 volt range has been avoided to reduce the current drain taken by the meter on some high impedance points in the circuit:-

Transistor	*Emitter*	*Base*	*Collector*
TR1	+1	+1.6	+4
TR3	+1.8	+2.4	+12
TR5	+1.9	+2.5	+9.5
TR7	+1	+1.5	+2.5
TR9	+2	+2.5	+28
TR11	+30	+31	+54
TR12	+29	+30	+0.5
TR15	+29	+30	+54
TR16	+0.1	+0.5	+29

Across C58	54 volts
Across C57	31 volts
Across Z1	27 volts
Across C32	23 volts
Across C20	21 volts
Across C4	5 volts

COMPONENTS PARTS LIST

Circuit Ref.	Part Number	Description
		CONDENSERS
C1	CN1804	180 pf ± 20% Erie N4700/AP Capacitor
or	CN1806	180 pf ± 20% SRC. N4700/38P
C2	CN1804	180 pf ± 20% Erie N4700/AP Capacitor
or	CN1806	180 pf ± 20% SRC. N4700/38P Capacitor
C3	CN1243	0.64 Mfd 64V Mullard C426 AS/HO .64 Electrolytic
C4	CN1246	16 Mfd 10V Mullard C426AR/D16 Electrolytic
C5	CN1243	0.64 Mfd 64V Mullard C426 AS/HO .64 Electrolytic
C6	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C7	CN1249	125 Mfd 4V Mullard C426AR/B125 Electrolytic
C8	CN1249	125 Mfd 4V Mullard C426AR/B122 Electrolytic
C9	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C10	CN4931	0.015 Mfd 10% 250 V.DC Hunts M310 Capacitor
C11	CN4931	0.015 Mfd 10% 250 V.DC Hunts M310 Capacitor
C12	CN4932	0.0047 Mfd 10% 250 V.DC Hunts M310 Capacitor
C13	CN4932	0.0047 Mfd 10% 250 V.DC Hunts M310 Capacitor
C14	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C15	CN1250	500 Mfd 2.5V Mullard C426AR/A500 Electrolytic
C16	CN1250	500 Mfd 2.5V Mullard C426AR/A500 Electrolytic
C17	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C18	CN1244	1 Mfd 40V Mullard C426AS/G.1 Electrolytic
C19	CN1244	1 Mfd 40V Mullard C426AS/G.1 Electrolytic
C20	CN1248	80 Mfd 25V Mullard C426AR/F80 Electrolytic
C21	CN4924	0.1 Mfd 10% 250V Mullard C281AB/A100K Capacitor
C22	CN4924	0.1 Mfd 10% 250V Mullard C281AB/A100K Capacitor
C23	CN4930	0.01 Mfd 10% 250V Hunts M310 Capacitor
C24	CN4930	0.01 Mfd 10% 250V Hunts M310 Capacitor
C25	CN4924	0.1 Mfd 10% 250V Mullard C281AB/A100K Capacitor
C26	CN1805	390 pf ± 20% Erie K120051/AP Capacitor
or	CN1807	390 pf ± 20% SRC N4700/38P Capacitor
C27	CN1250	600 Mfd 2.5V Mullard C426AR/A500 Electrolytic
C28	CN1250	500 Mfd 2.5V Mullard C426AR/A500 Electrolytic
C29	CN1805	390 pf ± 20% Erie K120051/AP Capacitor
or	CN1807	390 pf ± 20% SRC N4700/38P Capacitor
C30	CN4924	0.1 Mfd 10% 250V Mullard C281AB/A100K Capacitor
C31	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C32	CN1248	80 Mfd 25V Mullard C426AR/F80 Electrolytic
C33	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C34	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C35	CN1247	32 Mfd 40V Mullard C426AR/G32 Electrolytic
C36	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C37	CN4933	0.22 Mfd 10% 250V DC Mullard C281AB/A220K Capacitor
C38	CN4933	0.22 Mfd 10% 250V DC Mullard C281AB/A220K Capacitor
C39	CN4928	0.047 Mfd 10% 250V DC Mullard C281AB/A47K Capacitor
C40	CN4928	0.047 Mfd 10% 250V DC Mullard C281AB/A47K Capacitor
C41	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C42	CN1245	10 Mfd 16V Mullard C426AR/E10 Electrolytic
C43	CN1251	50 Mfd 25V Mullard C426AR/F50 Electrolytic
C44	CN1251	50 Mfd 25V Mullard C426AR/F50 Electrolytic
C45	CN1250	500 Mfd 2.5V Mullard C426AR/A500 Electrolytic
C46	CN1250	500 Mfd 2.5V Mullard C426AR/A500 Electrolytic
C47	CN1247	32 Mfd 40V Mullard C426AR/G32 Electrolytic
C48	CN1808	1000 pf ± 20% Erie K170051/811 Disc Capacitor
C49	CN1228	200 Mfd 6.4V Mullard C426AR/C200 Electrolytic
C50	CN4854	0.047 Mfd 10% 160V DC Mullard C296AA/A47K Capacitor
C51	CN1247	32 Mfd 40V Mullard C426AR/G32 Electrolytic
C52	CN1808	1000 pf ± 20% Erie K170051/811 Disc Capacitor
C53	CN1228	200 Mfd 6.4V Mullard C426AR/C200 Electrolytic
C54	CN4854	0.047 Mfd 10% 160V DC Mullard C296AA/A47K Capacitor
C55	CN1242	1000 Mfd 30V TCC CE-46-CA Electrolytic
C56	CN1242	1000 Mfd 30V TCC CE-46-CA Electrolytic
C57	CN1254	160 Mfd 40V Mullard C437AR/G160 Electrolytic
or	CN1253	64 Mfd 40V Mullard C426AM/G64 Electrolytic
C58	CN1252	2500 Mfd 64V Mullard C431BR/H2500 Electrolytic
C59	CN4843	1800 pf + 50% - 20% 450V AC Erie CD9/K400 Disc (BS 415)
		RESISTORS
R1	RHS7104	100K 10% Erie 7 AD Resistor
R2	RHS7104	100K 10% Erie 7 AD Resistor
R3	RHS7104	100K 10% Erie 7 AD Resistor
R4	RHS7104	100K 10% Erie 7 AD Resistor
R5	RHS7104	100K 10% Erie 7 AD Reisstor
R6	RHS7104	100K 10% Erie 7 AD Resistor
R7	RHS7392	3.9K 10% Erie 7 AD Resistor
R8	RHS7682	6.8K 10% Erie 7 AD Resistor
R9	RE5038	6.8K 5% Erie E.M.2 Resistor
R10	RE5038	6.8K 5% Erie E.M.2 Resistor

Circuit Ref.	Part Number	Description
		RESISTORS (contd.)
R11	RHS7682	6.8K 10% Erie 7 AD Resistor
R12	RHS7392	3.9K 10% Erie 7 AD Resistor
R13	RE5027	56K 5% Erie E.M.2 Resistor
R14	RE5027	56K 5% Erie E.M.2 Resistor
R15	RE5026	10K 5% Erie E.M.2 Resistor
R16	RAS1103	10K 10% Erie 9AP Resistor
R17	RE5037	330 ohm 5% Erie E.M.2 Resistor
R18	RE5037	330 ohm 5% Erie E.M.2 Resistor
R19	RAS1103	10K 10% Erie 9AP Resistor
R20	RE5026	10K 5% Erie E.M.2 Resistor
R21	RAS1683	68K 10% Erie 9AP Resistor
R22	RE5034	22 K 5% Erie E.M.2 Resistor
R23	RE5026	10K 5% Erie E.M.2 Resistor
R24	RE5033	15K 5% Erie E.M.2 Resistor
R25	RE5035	180K 5% Erie E.M.2 Resistor
R26	RE5019	82K 10% Erie 9AP2 Resistor
R27	RAS1123	12K 10% Erie 9AP Resistor
R28	RAS1123	12K 10% Erie 9AP Resistor
R29	RE5019	82K 10% Erie 9AP2 Resistor
R30	RE5035	180K 5% Erie E.M.2 Resistor
R31	RE5033	15K 5% Erie E.M.2 Resistor
R32	RE5026	10K 5% Erie E.M.2 Resistor
R33	RE5034	22K 5% Erie E.M.2 Resistor
R34	RHS1272	2.7K 10% Erie 8AP Resistor
R35	RE5022	470 ohm 10% Erie 9APV Resistor
R36	RE5022	470 ohm 10% Erie 9APV Resistor
R37	RHS1272	2.7K 10% Erie 8AP Resistor
R38	RE5025	8.2K 5% Erie E.M.2 Resistor
R39	RE5025	8.2K 5% Erie E.M.2 Resistor
R40	VR1074	50K Lin 20% A.B. D47 Dual Pot (Bass)
R41	VR1074	50K Lin 20% A.B. D47 Dual Pot (Treble)
R42	RE5021	220 ohm 10% Erie 9APV Resistor
R43	VR1074	50K Lin 20% A.B. D47 Dual Pot (Treble)
R44	VR1074	50K Lin 20% A.B. D47 Dual Pot (Bass)
R45	RE5019	82K 10% Erie 9AP2 Resistor
R46	RHS1123	12K 10% Erie 8AP Resistor
R47	RHS1123	12K 10% Erie 8AP Resistor
R48	RE5019	82K 10% Erie 9AP2 Resistor
R49	RE5018	1.8K 10% Erie 9AP2 Resistor
R50	RAS1182	1.5K 10% Erie 9AP Resistor
R51	RAS1471	470 ohm 10% Erie 9AP Resistor
R52	RAS1471	470 ohm 10% Erie 9AP Resistor
R53	RAS1182	1.5K 10% Erie 9AP Resistor
R54	RE5018	1.8K 10% Erie 9AP2 Resistor
R55	RE5024	5.6K 5% Erie E.M.2 Resistor
R56	RE5024	5.6K 5% Erie E.M.2 Resistor
R57	RAS1271	270 ohm 10% Erie 9AP Resistor
R58	RHS7331	330 ohm 2% Erie E.M.1 Resistor
R59	RHS7331	330 ohm 2% Erie E.M.1 Resistor
R60	VR1075	25K Log 20% A.B. D47 Dual Pot Balance
R61	VR1075	25K Anti Log 20% A.B. D47 Dual Pot Balance (Rear Pot)
R62	VR1076	25K Log 20% A.B. D37 Dual Pot (Low Hopon) Volume
R63	VR1076	25K Log 20% A.B. D37 Dual Pot (Low Hopon) Volume
R64	RAS1863	56K 10% Erie 9AP Resistor
R65	RAS1292	3.9K 10% Erie 9AP Resistor
R66	VR1084	4.7K
or	VR1078	22K 20% Lin Morganite 62H Pre Set Pot.
R67	RAS1863	56K 10% Erie 9AP Resistor
R68	RAS1392	3.9K 10% Erie 9AP Resistor
R69	VR1084	4.7K
or	VR1078	22K 20% Lin Morganite 62H Pre Set Pot.
R70	RAS1183	18K 10% Erie 9AP Resistor
R71	RE5025	8.2K 5% Erie E.M.2 Resistor
R72	RAS1101	100 ohm 10% Erie 9AP Resistor
R73	RE5028	12 ohm 5% Erie E.M.2 Resistor
R74	RAS1183	18K 10% Erie 9AP Resistor
R75	RE5025	8.2K 5% Erie E.M.2 Resistor
R76	RAS1101	100 ohm 10% Erie 9AP Resistor
R77	RE5028	12 ohm 5% Erie E.M.2 Resistor
R78	RAS1102	1K 10% Erie 9AP Resistor
R79	RAS1472	4.7K 10% Erie 9AP Resistor
R80	VR1077	220 ohm 20% Lin Morganite 62H Pre Set Pot.
R81	RAS1171	470 ohm 10% Erie 9AP Resistor
R82	RE5029	2.2K 5% Erie E.M.2 Resistor
R83	RAS1102	1K 10% Erie 9AP Resistor
R84	RAS1472	4.7K 10% Erie 9AP Resistor
R85	VR1077	220 ohm 20% Lin Morganite 62H Pre Set Pot.
R86	RAS1471	470 ohm 10% Erie 9AP Resistor
R87	RE5029	2.2K 5% Erie E.M.2 Resistor
R88	RE5030	3.9K 5% Erie E.M.2 Resistor
R89	RAS1100	10 ohm 10% Erie 9AP Resistor
R90	RE5030	3.9K 5% Erie E.M.2 Resistor
R91	RAS1100	10 ohm 10% Erie 9AP Resistor
R92	RE5036	150 ohm 10% Erie 9AP2 Resistor
R93	RAS1100	10 ohm 10% Erie 9AP Resistor
R94	RAS1151	150 ohm 10% Erie 9AP Resistor
R95	RE5036	150 ohm 10% Erie 9AP2 Resistor
R96	RAS1100	10 ohm 10% Erie 9AP Resistor

Circuit Ref.	Part Number	Description
		RESISTORS (contd.)
R97	RAS1151	150 ohm 10% Erie 9AP Resistor
R98	RE5032	0.75 ohm 20% Erie Y1 Resistor
R99	RE5032	0.75 ohm 20% Erie Y1 Resistor
R100	RAS1270	27 ohm 10% Erie 9AP Resistor
R101	RE5032	0.75 ohm 20% Erie Y1 Resistor
R102	RE5032	0.75 ohm 20% Erie Y1 Resistor
R103	RAS1270	27 ohm 10% Erie 9AP Resistor
R104	RHS7101	100 ohm 10% Erie 7AD Resistor
R105	RHS7101	100 ohm 10% Erie 7AD Resistor
R106	RHS7101	100 ohm 10% Erie 7AD Resistor
or	RHS7561	560 ohm 10% Erie 7AD Resistor
R107	RE4741	2 ohm ± 0.5 ohm Erie Type R Resistor
R108	RE5045	750 ohm 5% Metox F75 Welwyn
or	RBS 4122	1.2K 10% Erie Type 8 Resistor
R109	RHS 7154	150K 10% Erie Type 7AD Resistor
R110	RE4741	2 ohm ± 0.5 ohm Erie Type R Resistor
		DIODES/RECTIFIER
X1		Diode IN3754 – R.C.A.
X2		Diode IN3754 – R.C.A.
X3		Diode IN3754 – R.C.A.
X4		Diode IN3754 – R.C.A.
X5	GR4328	Rectifier FST 3/1 – 1B1 – S.T.C.
Z1	GR4329	Zener Diode Z3B 270CF S.T.C.
		FILTERS
L1	CL1423	HF Filter Coil Assembly – Spec. MPT/295
L2	CL1423	HF Filter Coil Assembly – Spec. MPT/295
		TRANSFORMER
T1	TR1218	Mains Transformer – Spec. MPT/278
		TRANSISTORS
TR1		Transistor Type 40233 – R.C.A.
TR2		Transistor Type 40233 – R.C.A.
TR3		Transistor Type 2N3241 – R.C.A.
TR4		Transistor Type 2N3241 – R.C.A.
TR5		Transistor Type 2N3241 – R.C.A.
TR6		Transistor Type 2N3241 – R.C.A.
TR7		Transistor Type 40231 – R.C.A.
TR8		Transistor Type 40231 – R.C.A.
TR9		Transistor Type 40361 – R.C.A.
TR10		Transistor Type 40361 – R.C.A.
TR11		Transistor Type 37287 – R.C.A.
TR12		Transistor Type 37288 – R.C.A.
TR13		Transistor Type 37287 – R.C.A.
TR14		Transistor Type 37288 – R.C.A.
TR15		Transistor Type 40363 – R.C.A.
TR16		Transistor Type 40363 – R.C.A.
TR17		Transistor Type 40363 – R.C.A.
TR18		Transistor Type 40363 – R.C.A.
		SUNDRY COMPONENTS
	CG1063	Klam Bush Type KB1 – Insuloid
	CV4592	Extension Spindle Drg. No. 4443/1165/2
	CV4593	Shaft Coupler Drg. No. 4444/1165/2
	DL1008	Neon Indicator Lamp – Hivac 34H
	FU1003	1 Amp Anti Surge Fuse (Used on 250V)
	FU1004	2 Amp Anti Surge Fuse (Used on 120V)
	GT1016	Grommet Type 708 – 346 – S.I.C.
	KN1126	Knob – Pedoka Art: No.12180 White V1/200 with Danish Silver Insert - Blk Dot Drg. No.4313/665
	KN1128	Small Control Knob Assy – White (Drg. No.4415/1065/4)
	PN1357	2 way Phono Socket – Drg. No. 4420/1065 – Ariel Pressing
	PN1358	5 way Phono Socket – Drg. No.4419/1065 – Ariel Pressing
	PN1373	6 way Terminal Block – 79/762/303M, with Washers T82/331 – Carr Fastener
	SK1016	Jack Socket J/301/3 – F2 Chrome/White (Rendar)
	SK1017	2 Way Mains Socket 54A 12844(203 – 41 – 02 – 013 – Carr Fastener)
	SP1386	Moulded Voltage Selector – 81/118 Black Engraved 105–120–200–220–240 in White Drg. No. 4472/1165/2 – Carr Fastener
	SW1591	5 Way Push Button Switch Drg. No. 4384/965/5 and 4415/1065/4 – A.B. Metals
	SW1592	Selector Switch Assembly Drg. No. 447/1165

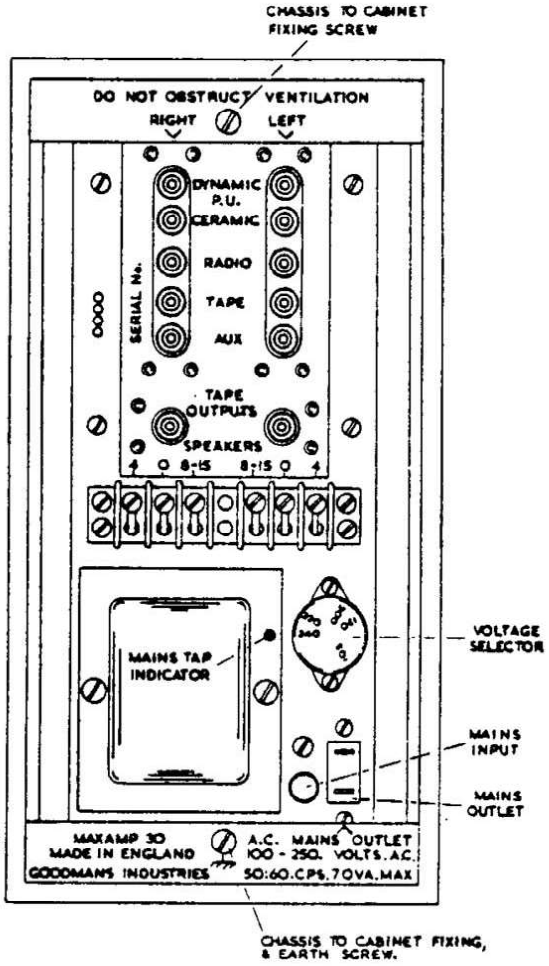


FIG. 1

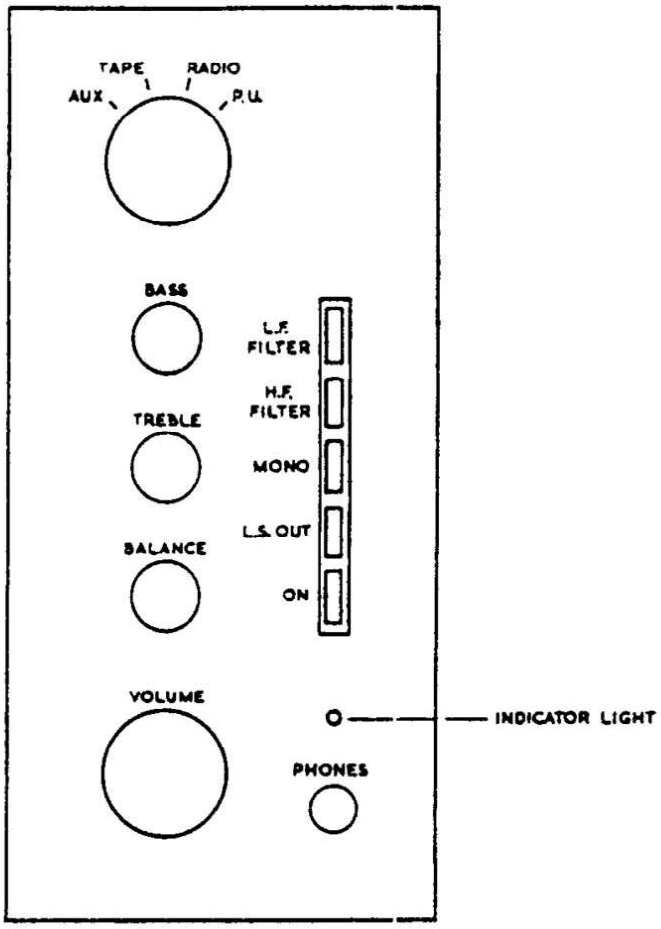


FIG. 2

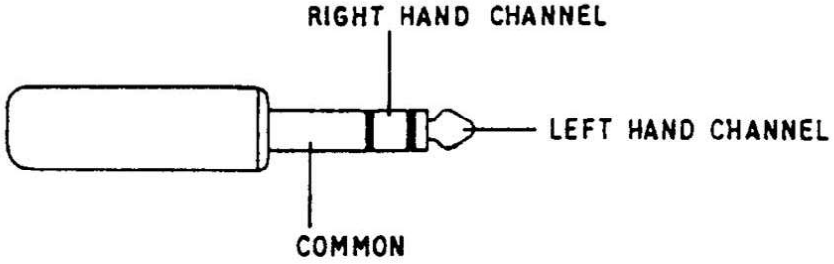
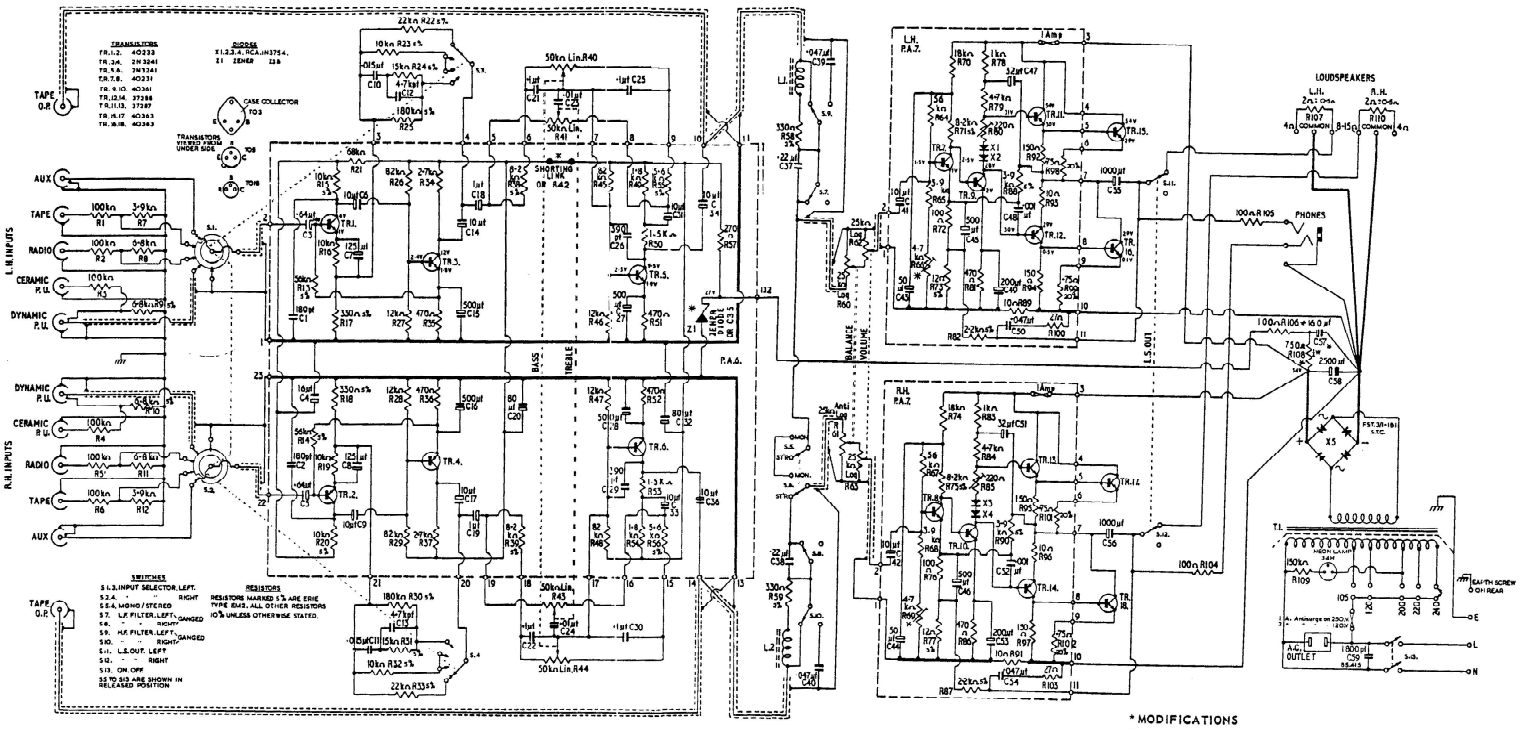


FIG. 3

MAXAMP 30 STEREO AMPLIFIER CIRCUIT DIAGRAM



ALL VOLTAGES MEASURED ON AVO MODEL 8 (NOT USING 2.5V RANGE) ARE POSITIVE WITH RESPECT TO CHASSIS AND UNDER NO SIGNAL CONDITIONS.

VOLTAGES SHOWN FOR THE LEFT HAND CHANNEL APPLY EQUALLY TO THE RIGHT HAND CHANNEL

*** MODIFICATIONS**

COMPONENTS MARKED WITH A * HAVE THE FOLLOWING ALTERNATIVE VALUES OR ALTERATIONS ON SOME EARLY PRODUCTION AMPLIFIERS:–

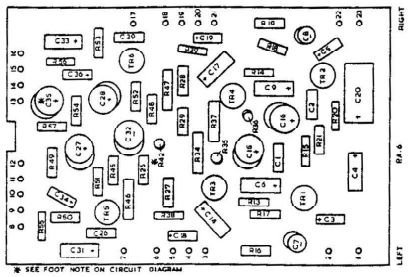
R42	220 OHM RESISTOR IN PLACE OF SHORTING-LINK
R66	22 K
R69	22 K
R106	560 OHM
R108	1.2 K
C35	32 mfd. CONDENSER IN PLACE OF ZENER DIODE Z1
C57	64 mfd.

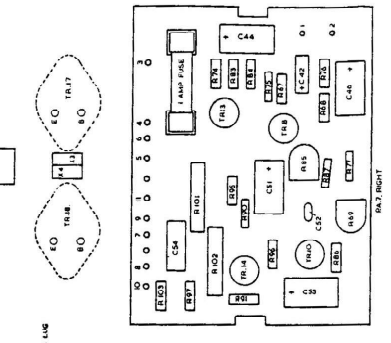
MAXAMP 30 STEREO AMPLIFIER LAYOUT DIAGRAM

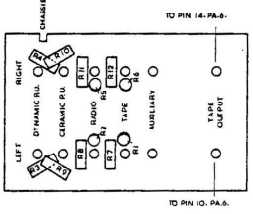
P.A.6. RIGHT

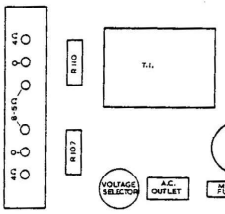
PIN. 13 TO OUTER OF SCREENED LEAD TO L2
PIN. 14 TO TAPE O/P & L2. ON PUSH BUTTON SWITCH S10
PIN. 15 TO C30. R44. BASS CONTROL
PIN. 16 } TO R43. TREBLE CONTROL
PIN. 19 }
PIN. 17 TO C30. C24. C22. R44. BASS CONTROL
PIN. 18 TO C22. R44. BASS CONTROL
PIN. 20 TO S4 ROTOR. SELECTOR SWITCH. REAR
PIN. 21 TO R30. C11. R32. R33.

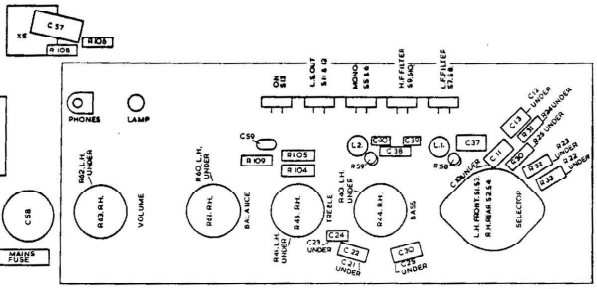
PIN. 22 TO S2. ROTOR. SELECTOR SWITCH. REAR.
PIN. 23 TO OUTER OF SCREENED LEAD TO S2 ROTOR











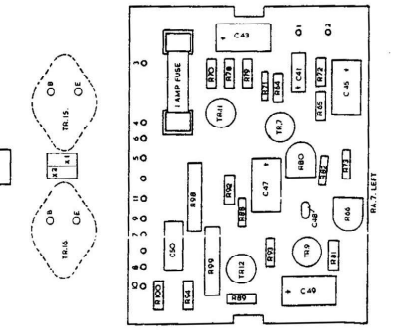
P.A.7. RIGHT

PIN. 1 TO OUTER OF SCREENED LEAD TO VOLUME CONTROL
PIN. 2 TO R63. WIPER. VOLUME CONTROL
PIN. 3 TO C58 POSITIVE
PIN. 4 TO TR.17. COLLECTOR.*(CASE)
PIN. 5 TO TR.17 BASE
PIN. 6 TO TR.17. EMITTER
PIN. 7 C56 ON R.H. SIDE PANEL. TR.18. COLLECTOR (CASE)
PIN. 8 TO TR.18. BASE
PIN. 9 TO TR.18. EMITTER
PIN. 10 TO C58 NEGATIVE
PIN. 11 TO C56. NEGATIVE

P.A.6. LEFT

PIN. 1 TO OUTER OF SCREENED LEAD TO S1 ROTOR
PIN. 2 TO S1. ROTOR. SELECTOR SWITCH. FRONT.
PIN. 3 TO R22. R23. R25. C10.

PIN. 4 TO S3 ROTOR. SELECTOR SWITCH. FRONT.
PIN. 5 } TO R41. TREBLE CONTROL
PIN. 8 }
PIN. 6 TO C21. R40. BASS CONTROL
PIN. 7 TO C25. C23. C21. R40. BASS CONTROL
PIN. 9 TO C25. R40. BASS CONTROL
PIN. 10 TO TAPE O/P. & L1. ON PUSH BUTTON SWITCH. S9.
PIN. 11. TO OUTER OF SCREENED LEAD TO L1.
PIN. 12 TO R106. ADJACENT TO RECTIFIER. X5.



P.A.7. LEFT

PIN. 1 TO OUTER OF SCREENED LEAD TO VOLUME CONTROL
PIN. 2 TO R62. WIPER. VOLUME CONTROL
PIN. 3 TO C58 POSITIVE
PIN. 4 TO TR.15. COLLECTOR (CASE)
PIN. 5 TO TR.15. BASE
PIN. 6 TO TR.15. EMITTER
PIN. 7 TO C55 ON L.H. SIDE PANEL. TR.16. COLLECTOR (CASE)
PIN. 8 TO TR.16. BASE
PIN. 9 TO TR.16. EMITTER
PIN. 10 TO C58 NEGATIVE
PIN. 11 TO C55. NEGATIVE