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SYSTEM 8: SYSTEM SCHEMATIC mk 3

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AHB

SYSTEM 8 SERVICE HANDBOOK

Mk 3

TEST DEPT.



SYSTEM 8 SERVICE HANDBOOK Issue 3 June 1986

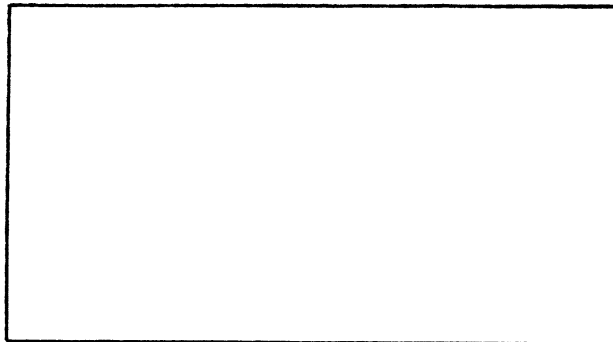
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SYSTEM 8 SERVICE HANDBOOK

Mk3

AGENT



MODEL

SERIAL NUMBER

SYSTEM 8 Mk 3 SERVICE HANDBOOK Issue 1 June 1986

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SERVICE AND GUARANTEE INFORMATION

SERVICE

There are no adjustments or alignment procedures required to maintain the performance standard of SYSTEM 8 products.

To preserve the working life of the unit and its presentation, avoid the use of chemicals, abrasives and solvents. The control panel is best cleaned with a soft brush and a damp cloth. Faders, switches and potentiometers are lubricated for life; the application of electrical lubricants to these parts is not recommended.

In the event of a failure, refer the work to your AHB Sales and Service Agent. He has the information and staff to make an effective repair, and is authorised to make repairs under Guarantee. If the equipment has to be returned to the Service Agent, always include the Power Supply and as much information as possible in writing on the nature of the fault. Always include the model number and serial number with service queries to ensure that accurate information is obtained.

GUARANTEE

SYSTEM 8 products are made in the U.K. by ALLEN & HEATH BRENELL LTD, and are guaranteed against defective parts and workmanship for a period of ONE YEAR from the date of purchase by the original owner. Other than the work specified in the OPTIONS Section of this handbook, no alterations to the original construction of the product are authorised by AHB or its agents and any such work invalidates the Guarantee.

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System block schematic			

Section 1

1986 INTRODUCTION TO SYSTEM 8 Mk 3 PRODUCT RANGE

The AHB SYSTEM 8 MARK 3 range of products has been introduced to replace the MARK 2 range and offering updated cosmetics, additional features and improved performance. The following models are available:

SYSTEM 8 Mk 3 1616, 2416, and EX8

All models have 48v phantom power as standard. The 1616 and 2416 include channel direct outputs.

The update is as follows:

1. Cosmetics change. Panel colour is now charcoal grey with grapefruit yellow and dawn grey legend. Knob colour is grey with red, grey and blue knob caps. The side cheeks are black.
2. Fader reverse switch added to each of the eight groups to exchange monitor level control with group fader.
3. Balanced output option available for the stereo and group outputs. May be retro-fitted to the mixer.
4. Microphone gain is increased by 6dB to allow a maximum overall gain of +74dB.
5. Noise performance of the stereo, group and auxilliary circuits is improved.
6. Switch type is changed providing smoother mechanical performance and improved serviceability.
7. Revised Group PCB assembly design replaces the two Group assemblies used previously.
8. General specifications and performance other than the details above are unaltered.
9. Owner Handbook Mk 3 and Service Handbook Mk 3 are now in use.

AHB Brighton

June 1986

SPECIFICATION

SYSTEM 8 MK 3 - High quality compact semimodular sound mixers for all applications.

MODEL 1616 - 16 input channels, 8 group outputs plus stereo mix, 16 track monitoring.

MODEL 2416 - 24 input channels, 8 group outputs plus stereo mix, 16 track monitoring.

MODEL EX8 - 8 input channels for expansion of above models.

POWER SUPPLY MODEL MPS8P applies to all models.

Audio circuits: $\pm 15\text{v}$ DC at 1 amp per rail

Phantom power: $+48\text{v}$ DC at 50 milliamps

May be internally wired to suit mains voltage between 100v and 240v AC.

Mains setting marked on MPS8P label.

GAIN (Input to Output)	<u>MIC</u>	<u>LINE</u>
minimum (includes mic PAD)	+4dB	-11dB
normal range	+24dB to +64dB	-11dB to +30dB
maximum (includes fader boost)	+74dB	+40dB

Normal operating level (outputs, line and tape inputs):

Selectable either $+4\text{dBv}$ (1.23v rms) or -8dBv (300mV rms = -10dBV)

Internal headroom: +18dB

Maximum output level: $+21\text{dBv}$ into 5kOhms or more. $+18\text{dBv}$ into 600 ohms.

Peak indicator warning at 3dB before clipping overload.

FREQUENCY RESPONSE Line input to output unity gain: 20Hz to 30kHz $\pm 1\text{dB}$ ref. 1kHz

Mic input to output +45dB gain: 30Hz to 30kHz $\pm 1\text{dB}$

EQUALISER CHARACTERISTIC: HF Shelving equaliser $\pm 16\text{dB}$ at 12kHz or 8kHz

LF Shelving equaliser $\pm 12\text{dB}$ at 120Hz or 80Hz

MID peak/dip Q=1.5 $\pm 12\text{dB}$ at 400Hz to 6kHz sweep

DISTORTION (Mic input to output +45dB gain): better than 0.05% THD 30Hz to 20kHz

NOISE 20kHz bandwidth rms noise ref. 0dBv (0.775v rms):	<u>1616</u>	<u>2416</u>
Stereo output (one line input routed unity gain):	-79dB	-79dB
" (all inputs routed and faders closed):	-81dB	-79dB
Group output (one line input routed unity gain):	-81dB	-81dB
" (all inputs routed and faders closed):	-78dB	-74dB
Auxilliary output (unity gain and inputs closed):	-77dB	-74dB

All figures better by 4dB ref. OVU = +4dBv

Microphone equivalent input noise: -125dB all models 200 ohm source.

CONSTRUCTION: Steel main panel and covers, hard stove-enamel paint finish with epoxy ink screenprinted legend. Covers removeable for service access. Semimodular electronic printed circuit assemblies. IC op-amp and discrete transistor audio system of transformerless design.

DIMENSIONS:

	<u>1616</u>	<u>2416</u>	<u>EX8</u>
Width	1065mm (42")	1350mm (53")	381mm (15")
Height	245mm (9 $\frac{3}{4}$ ")	245mm (9 $\frac{3}{4}$ ")	125mm (5")
Front/back	672mm (26 $\frac{1}{2}$ ")	672mm (26 $\frac{1}{2}$ ")	672mm (26 $\frac{1}{2}$ ")
Weight	47kg (103 lb)	64kg (141 lb)	17kg (37 lb)

CONNEXION DETAILS

CONNEXIONS

Connector details, all versions

Power is provided by AHB power supply, type MPS8, available with the P option of +48 volt phantom power.

Prior to use, check the marked AC voltage rating against the local AC supply. MPS8 units are connected internally for either 110v or 220v nominal AC voltage. Connexion with the mixer is with the cable and locking 5 way XLR connector provided.

AUDIO CONNEXIONS. General conventions.

CONNECTOR TYPE	BALANCED	UNBALANCED
XLR:pin 1	earth	earth
pin 2	signal -	earth
pin 3	signal +	signal +
$\frac{1}{4}$ " jack:tip (mono) case	-	signal + earth
$\frac{1}{4}$ " jack:tip (stereo) ring case	signal + signal - earth	L/odd numbers R/even numbers earth
$\frac{1}{4}$ " jack:tip (stereo) ring (insert) case	- - -	insert return (input) insert send (output) earth

0 dBv = 0.775v RMS

0 VU = +4dBv or -8dBv (0.31v) selectable

Max level = +21dBv

Fig. 1 - Back panel details

Name	Function	Connector type	Impedance in	Impedance out	Nominal level for 0VU
Mic	Balanced microphone input	XLR 3 pin Female	2k Ω		-60dBv min (0.8mv) 0dBv max (0.77v)
Line	Balanced line input	$\frac{1}{4}$ " stereo jack	47k Ω		-26dBv min (39mv) +15dBv max (4.4v)
Insert	unbalanced breakpoint pre-equaliser	$\frac{1}{4}$ " stereo jack	5k Ω	22 Ω	+4dBv (1.23v)
Outputs 1-8 and L-R	unbalanced group output	XLR 3 pin male	-	22 Ω	+4dBv (1.23v) or -8dBv (0.31v)
Insert 1-8	unbalanced breakpoint pre fader	$\frac{1}{4}$ " stereo jack	5k Ω	22 Ω	+4dBv (1.23v)
Tape ip 1-16	unbalanced line input	$\frac{1}{4}$ " mono jack	50k Ω	-	+4dBv (1.23v) or -8dBv (0.31v)
Stereo Tape ip	unbalanced line input	$\frac{1}{4}$ " stereo jack	50k Ω	-	+4dBv (1.23v) -8dBv (0.31v)
Echo Return 1 & 2	unbalanced line input	$\frac{1}{4}$ " mono jack	10k Ω	-	+4dBv (1.23v)
Monitor	unbalanced stereo output	$\frac{1}{4}$ " stereo jack	-	100 Ω	+4dBv (1.23v)
Headphone	unbalanced stereo output	$\frac{1}{4}$ " stereo jack	-	100 Ω	For 8-600 Ω headphones
Aux 1 op	unbalanced line output	$\frac{1}{4}$ " mono jack	-	22 Ω	+4dBv (1.23v)
Aux 2 op	(as Aux 1 output)				
Aux 3 op	(as Aux 1 output)				
Cue op	unbalanced stereo line output	$\frac{1}{4}$ " stereo jack	-	22 Ω	+4dBv (1.23v)
Bu'ss ip 1 & 2 3 & 4, etc.	unbalanced line inputs	$\frac{1}{4}$ " stereo jack	40k Ω	-	+4dBv (1.23v)

Name	Function	Connector type	Impedance		Nominal level for 0VU
			in	out	
Stereo in	unbalanced line inputs	$\frac{1}{4}$ " stereo jack	40k Ω	-	+4dBv (1.23v)
Stereo out	unbalanced line outputs	$\frac{1}{4}$ " stereo jack	-	22 Ω	+4dBv (1.23v)
Aux 1 & 2 in	unbalanced line inputs	$\frac{1}{4}$ " stereo jack	50k Ω	-	+4dBv (1.23v)
Aux 3 in	unbalanced line input	$\frac{1}{4}$ " mono jack	50k Ω	-	+4dBv (1.23v)
Aux 1 & 2 op	unbalanced line outputs	$\frac{1}{4}$ " stereo jack	-	22 Ω	+4dBv (1.23v)
Aux 3 op	unbalanced line output	$\frac{1}{4}$ " mono jack	-	22 Ω	+4dBv (1.23v)
PFL in	unbalanced line input and control	$\frac{1}{4}$ " stereo jack	12k Ω (tip) 100k Ω (ring)		+ 4dBv (1.23v) earth to activate relay
PFL out	unbalanced line output and control	$\frac{1}{4}$ " stereo jack	12k Ω (tip) 100k Ω (ring)		+4dBv (1.23v) earth to activate relay

Section 2: SERVICE

HOW TO GAIN ACCESS TO THE MIXER CIRCUITS

2.1. Removal of meterpod rear cover

Disconnect mixer power.

Remove the six no. 4AB screws from the top of the cover using a Pozi no. 1 screwdriver. Remove the six no. 6AB screws from the lower rear of the cover using a Pozi no. 2 screwdriver.

Hinge back the cover so that it is held by its wiring harness taking care to avoid scratching the rear of the mixer.

Access is now available to the meterpod components.

Before refitting the cover ensure that the captive nuts are firmly aligned over the screw holes. If not then remove, crimp with pliers and refit over holes.

2.2. Removal of base plate

Disconnect mixer power. Remove all connections to the mixer.

Prepare a suitable workbench to lay the mixer on. Ensure that it is flat and free of debris or obstructions which could damage or scratch the mixer.

Set mixer upside down or on end on the workbench. If on end put the output end lower and support the unit to prevent damage.

Remove all no. 6AB base plate screws using a Pozi no. 2 screwdriver and then lift off base plate.

Access is now available to the mixer circuit assemblies.

Before refitting the base plate it may be necessary to recrimp the captive nuts with pliers and reposition over the screw holes.

NOTE: Never rest the mixer on its PCB assemblies as these vary in height and could break if stressed. Always support the weight of the mixer on its metal frame.

2.3. HOW TO REPLACE A FADER

Disconnect mixer and remove base plate as Section 2.2.

Free fader earth bussbar from fader tag by desoldering and cutting the tag away from the bussbar. Do not cut the bussbar itself.

Desolder the red, black (and green) wires from the remaining tags. Lift off the fader knob.

While supporting the fader remove the two M3 front panel screws using a Pozi no. 1 screwdriver. Remove and discard the old fader.

Screw the replacement fader in place ensuring its correct orientation. Press on the fader knob.

Cut open the fader tag no. 1 and fit it over the earth bussbar. Solder this connection. Solder on the remaining wires.

Check work and remove any solder debris. Refit base plate.

NOTE: See Spares Section for details on ordering replacement fader and associated components.

2.4. HOW TO REPLACE A METER BULB

Disconnect mixer power and remove meterpod rear cover as Section 2.1.

Remove support bracket associated with the meter using an M3 nut driver. Lift out the meter and carefully peel off the tape holding the window to the meter body.

Cut away the old bulb and discard. Solder the replacement bulb to the tags being careful to avoid contact with the meter movement.

Refit the window to the meter using fresh tape if necessary.

Re-align meter in panel and refit support bracket. Make sure that all the meters are correctly seated before tightening down the bracket. Do not overtighten otherwise the movement may stick in operation.

NOTE: The bulbs are wired in series pairs which results in both bulbs of the pair not illuminating should one be faulty. Use a continuity meter to determine the faulty bulb.

See Spares Section for ordering information.

2.5. HOW TO REPLACE A POTENTIOMETER

Disconnect mixer and remove base plate as Section 2.2.

Lift off all the rotary knobs associated with the channel in question and remove all potentiometer nuts using a 14mm ring spanner.

Gently lift the PCB assembly until the faulty potentiometer threaded bush just clears the panel hole. The V-formed bussbars allow enough bend for this to occur.

Use suitable desolder braid and a fine tipped soldering iron to desolder and free the potentiometer tags. Remove and discard.

Seat the replacement potentiometer on the PCB assembly and reposition against the panel. Make sure it is flat against the PCB and solder the tags being careful to ensure good joints and avoid shorts to nearby pads and tracks.

Reform the bussbars. Refit the nuts and knobs.

Check work and remove any solder debris. Refit base plate.

NOTE: Ensure replacement potentiometer is the correct type.
See Spares Section for ordering information.

2.6. HOW TO REPLACE A SWITCH

Disconnect mixer and remove base plate as Section 2.2.

The switches may be removed and replaced with the PCB assemblies in place. Remove the pushbutton first either by lifting off with pliers or by prizing up from the rear with a small screwdriver.

Use suitable desoldering braid and a fine tipped soldering iron to completely desolder the switch tags before removal. Ensure good joints and avoid shorts to nearby pads and tracks.

Check work and remove any solder debris. Refit base plate.

NOTE: See Spares Section for ordering information.

Section 3: CUSTOMER OPTIONS

3.1. OPTION 1 - PHANTOM POWER

Standard mixers are shipped with the 'PP' link on each input PCB assembly fitted so that when switched on the power reaches all microphone input XLR terminals.

Individual microphone inputs can be isolated from the power by removal of this link as follows:

Disconnect mixer and remove base plate as section 2.2.

If access is required to input channel 1 then it is necessary to remove the left hand side plate. To do this remove the three no. 6AB screws holding the side plate to the front panel using a Pozi no. 2 screwdriver.

Link 'PP' is located immediately behind the switches PAD and MIC/LINE on each input PCB assembly. See figure.

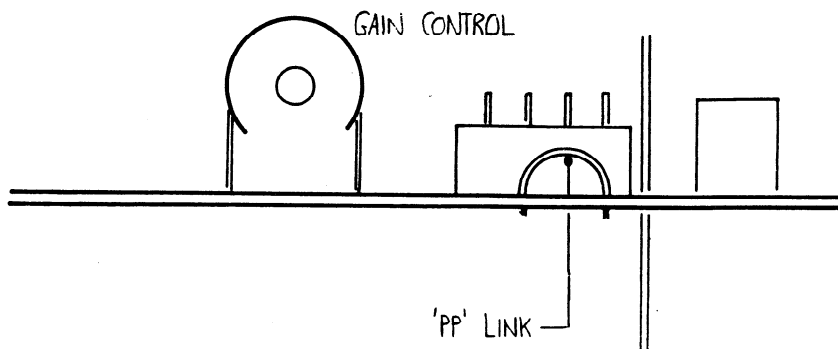
Use a suitable desoldering tool or braid and a fine tipped soldering iron to remove these links and discard them.

Check work and remove any solder bridges or debris.

Make a note of the channels isolated for later reference.

Replace side plate and base plate.

To be safe re-check your work by measuring for voltage on the XLR terminals of the channels worked on.



3.2. OPTION 2 - TAPE LEVEL MATCHING

The SYSTEM 8 mixer range may be set internally to operate at one of two standard operating levels. High level is OVU = +4dBv as required by many higher cost professional tape machines, and Low level is OVU = -8dBv to match many lower cost budget tape machines. Standard mixers are factory set to the Low level. The level setting is marked on the production label attached to the mixer.

Confusion is possible between different standards of measurement. Briefly:

dBm is a power measurement into a 600 ohm load. 0dBm = 0.775v rms

dBv is a voltage measurement with reference to 0.775v rms = 0dBv

dBV is a voltage measurement with reference to 1.0v rms = 0dBV

Low level tape OVU output level = 0.31v rms = -10dBV and -8dBv

High level tape OVU output level = 1.23v rms = +2dBV and +4dBv

To change the level matching option the procedure is as follows:

Disconnect mixer and remove base plate as Section 2.2.

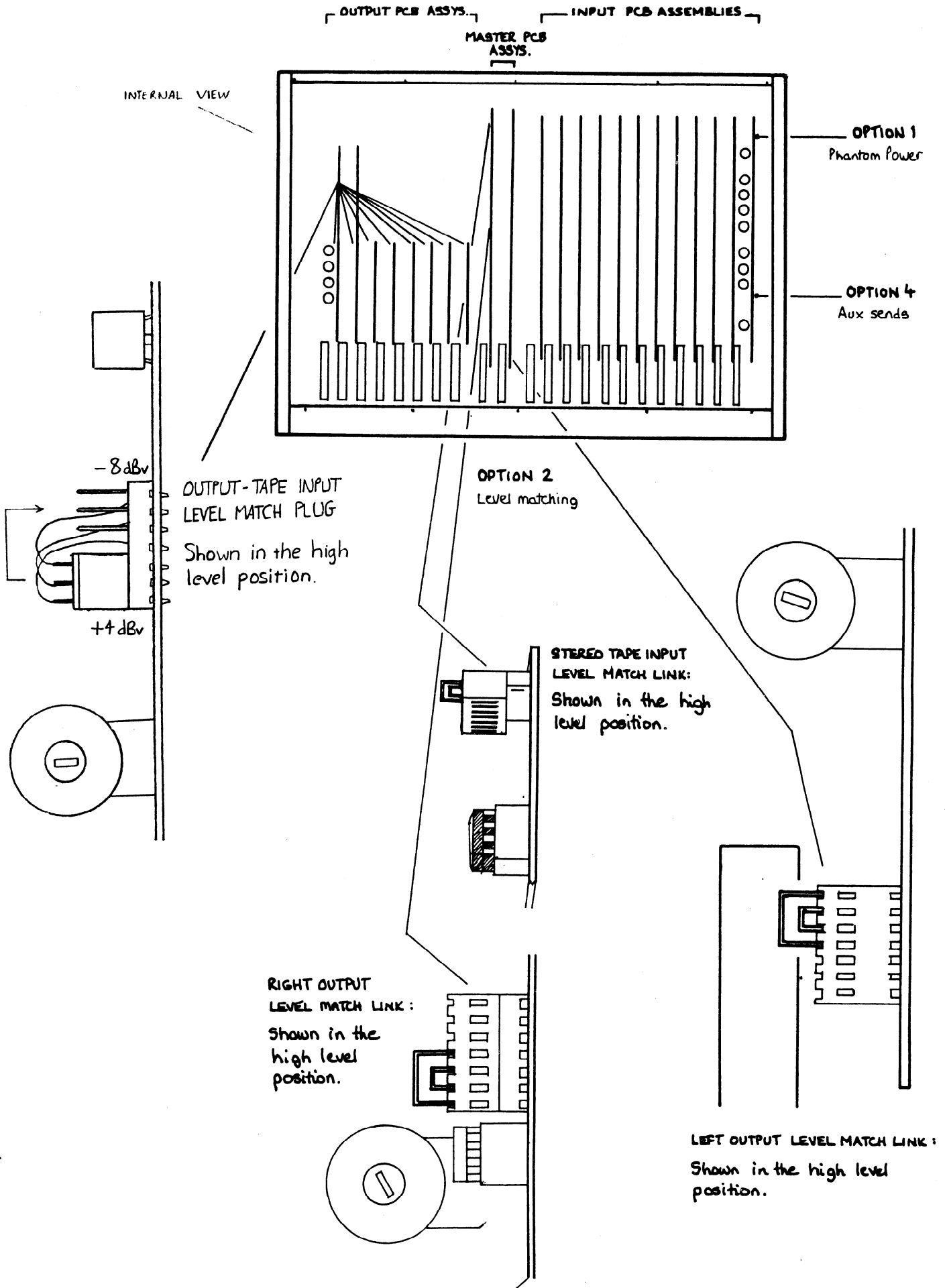
3.2(a) Multi-track level matching

Level match adapter plugs are located halfway down each output PCB assembly. Unplug adapter and replace on alternative set of pins. This resets the group output and both tape inputs associated with that group to the new level. Repeat for all eight groups. See diagram.

Check each plug for correct placement over the pins. Replace base plate.

Reconnect and check out by selecting slate 1kHz (master section), put output faders up and record a section of tone. Check replay on mixer meters (select tape 1, etc.) and adjust tape machine output level controls if necessary for OVU readings.

Tape machines operating at OVU = 0dBv will work best when the mixer is set for OVU = -8dBv operating level. Adjust tape machine record and replay level controls for mixer OVU on replay.



3.2(b) Stereo tape recorder level matching

The level matching for the stereo output and stereo tape input are independent and so can be set for any permutation of high or low level output and high or low level input.

The level matching links are located on the Master Left and Master Right PCB assemblies and are shown in the diagram.

One link P1 on each PCB sets the output level of either left or right. Lift off and replace it the other way round to change the setting.

One link P2 on the Master Right PCB assembly sets the input matching for stereo tape input left and right. Lift off and replace it the other way round to change the setting.

Check the replaced links for correct placement over the pins.

Check out the change using the mixer 1kHz slate oscillator with the stereo recorder:

Switch slate on and route group output to stereo left and right outputs through the monitor level and pan controls. Check that left and right VU meters both read OVU.

On the tape recorder check that the meters read OVU. Adjust the record level controls if necessary.

Record a section of tone. Replay tape and select monitor source TAPE.

Check that mixer left and right meters both read OVU. Adjust recorder replay level controls if necessary.

This completes the check out.

3.3. OPTION 3 - ELECTRONICALLY BALANCED OUTPUTS

The standard SYSTEM 8 group and stereo outputs are wired to 3-pin male XLR connectors on the rear panel of the mixer. These are unbalanced with pin 3 = signal and pins 1 and 2 = earth.

These outputs may be electronically balanced by the addition of one small PCB assembly and wiring harness per output. This option may be specified at the time of order or is available in kit form to be retro-fitted to the mixer.

The balanced outputs are wired to the same XLR connectors with pin 3 = signal + , pin 2 = signal - and pin 1 = earth.

To specify the option order as follows:

SYSTEM 8 Balanced Group Output Option x qty (qty = 1 to 8)

SYSTEM 8 Balanced Stereo Output Option x 1 (1 = a pair)

3.3(a) Balanced Group Output Option

The kit for each output includes the following:

PCB assembly type EBOS-OPTION
connector wiring harness assembly
mounting kit - pillar and M3 screws

Tools required to install the option are as follows:

screwdriver - POZI no. 2
screwdriver - POZI no. 1
small pliers and cutters
fine tipped soldering iron

Installation procedure is as follows:

Disconnect mixer and remove base plate as Section 2.2.

Starting from output PCB assembly 1 fit the pillar to the track side of the PCB using an M3 screw and POZI no. 1 screwdriver. Repeat for outputs 2 to 8. Ensure the screws are tight.

Locate the output XLR connector for each group and cut away the bare wire linking pins 1 and 2. Ensure green wire on pin 1.

Remove the red wire from pin 3 of each XLR connector using the soldering iron.

For each output position the option wiring harness and solder on the twisted pair violet wire to XLR pin 2, and the pink wire to pin 3.

Locate the +, -, and OV solder pads on the output PCB assembly. These are on the track side upper edge behind the AUX 1 potentiometer. Solder on the green wire to OV, the red wire to +, and the black wire to -.

Now fit the EBOS-OPTION PCB assemblies to the pillars starting from output 8. Use M3 screws and gently bend the output PCB assemblies apart to provide access for the POZI no. 1 screwdriver. It is advisable to secure the screws in place with suitable screw locking compound or nail varnish. Refer to the diagrams for correct positioning of the EBOS assemblies.

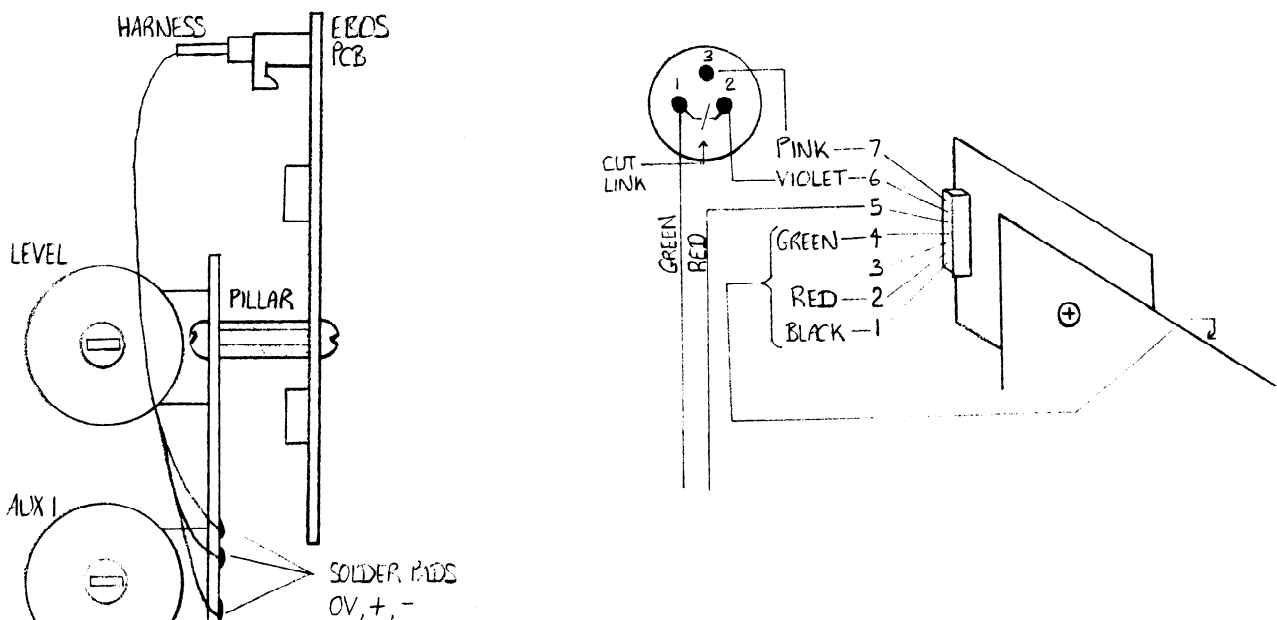
Plug the harness connector into the EBOS PCB connector observing the correct polarity.

Bend back the red XLR wire and solder on to pin 5 of the EBOS harness connector.

The installation is now complete. Check your work and refit the base plate.

NOTE: Do not adjust the preset on the EBOS PCB assembly.

This matches the output balance and is preset during manufacture.



3.3(b) Balanced Stereo Output Option

The kit for this option includes the following:

PCB assembly type EBOS-OPTION x2
connector wiring harness assembly with cable ties
mounting kit - pillars and screws

Tools required are as Section 3.3(a) including an M3 nut driver.

Installation procedure is as follows:

Disconnect mixer and remove meterpod rear cover as Section 2.1.

The two EBOS PCB assemblies are to be mounted one either side of the stereo Right VU meter using the meter support strap studs and with the connectors facing downwards (see diagram).

To do this remove the two stud nuts using an M3 nut driver and screw on the two M3 tapped pillars. Do not overtighten as this could buckle the strap causing the meter movements to stick.

It is advisable to secure the pillars using screw locking compound or nail varnish.

Position the two EBOS PCB assemblies over the pillars and screw in place using M3 screws. Secure screws as above.

Plug in the EBOS wiring harness observing polarity as shown and feed the harness into the mixer chassis through the nearest panel hole.

Check work so far and then refit meterpod cover.

Remove mixer base plate. Work may now proceed to connect the harness to the mixer:

Locate the stereo output XLR connectors and cut away the bare wire links between pins 1 and 2. Ensure green wire is on pins 1.

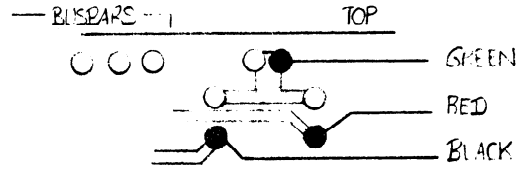
Remove the red and black wires from the two pin 3's.

Solder on the twisted wire pairs to the XLR connectors as follows:

Left XLR - pin 2 = violet
 pin 3 = pink
Right XLR - pin 2 = grey
 pin 3 = white

Solder on the power feed wires to track-side pads near the busbars on the Master Left PCB assembly. Refer to the diagram:

- black wire = C19 -ve
- red wire = C18 +ve
- green wire = OV



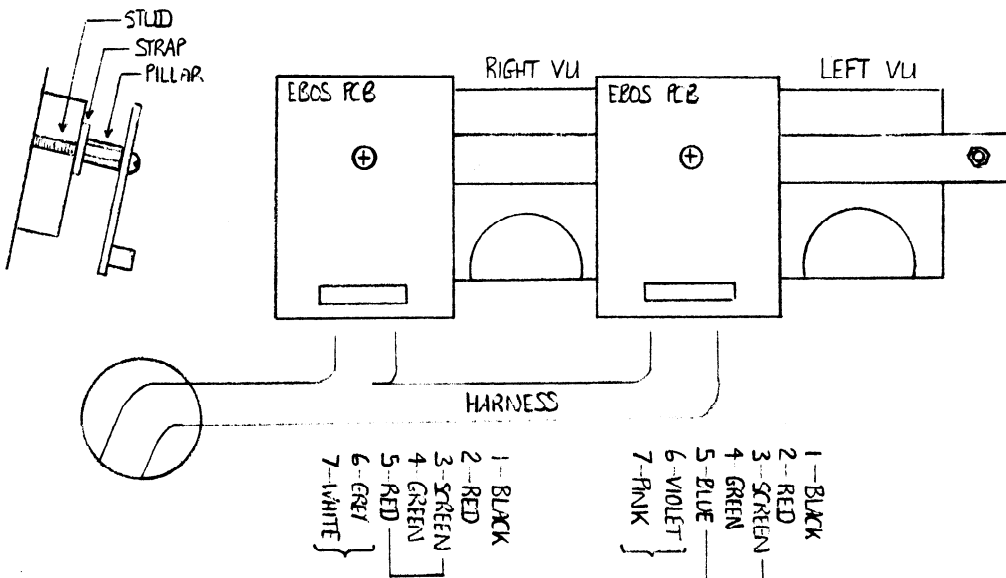
Remove the original black XLR wire by desoldering the pad marked 'LG' on the fader end of the Master Left PCB assembly. Solder on the harness screened blue wire to this pad on the track side. Solder the screen of this wire to the earth pad marked ' ' just below this.

Remove the original red XLR wire by desoldering the pad marked 'RG' near the level matching plug halfway down the Master Right PCB assembly. Route the screened red wire down the component side of this PCB and solder into the 'RG' pad. Solder the screen of this wire into the earth pad marked ' ' nearby.

Form and cable tie the harness in position as shown in the diagram.

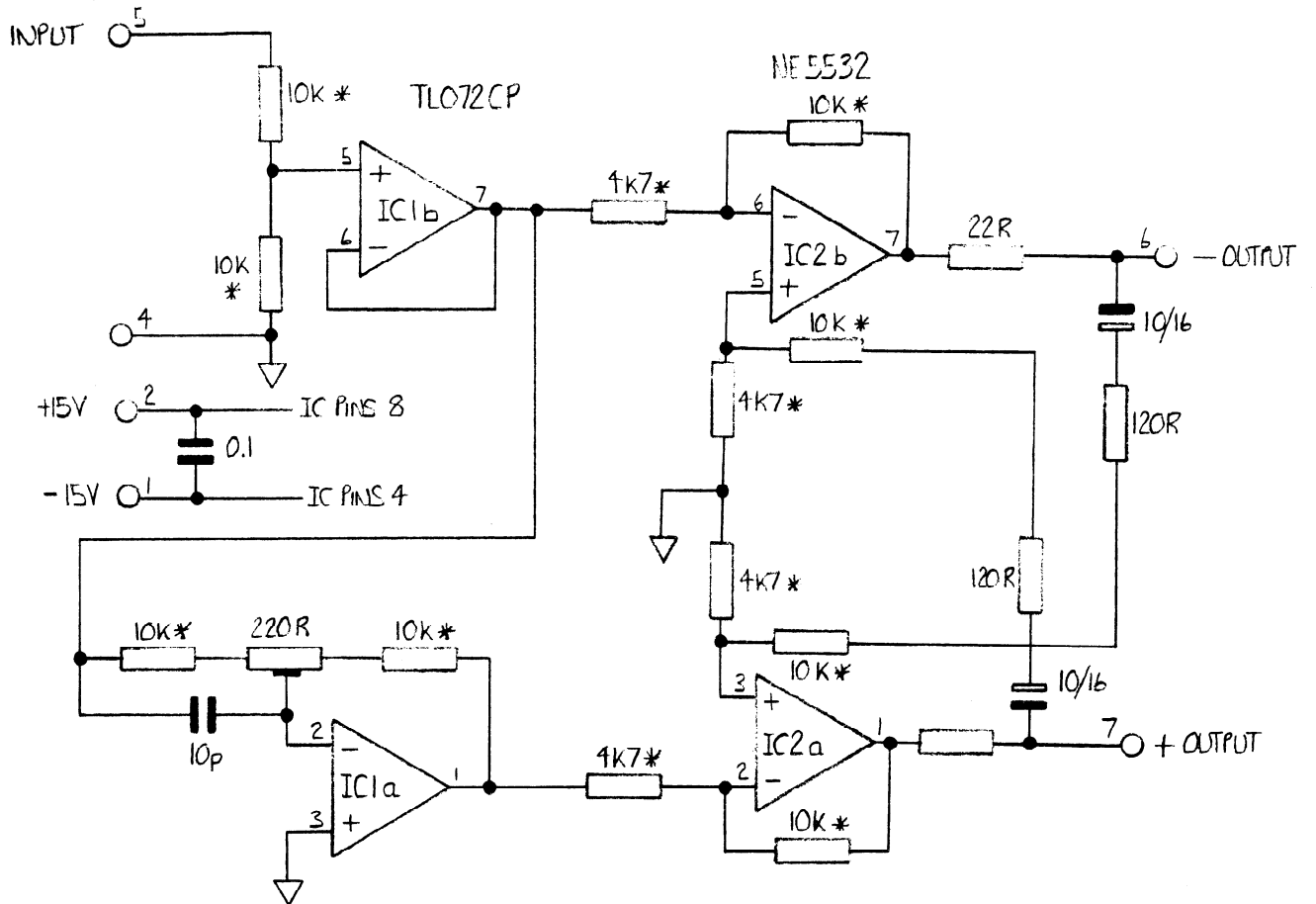
The installation is now complete. Check your work and then refit the base plate.

NOTE: Do not adjust the preset on the EBOS PCB assembly. This is preset and tested in manufacture.

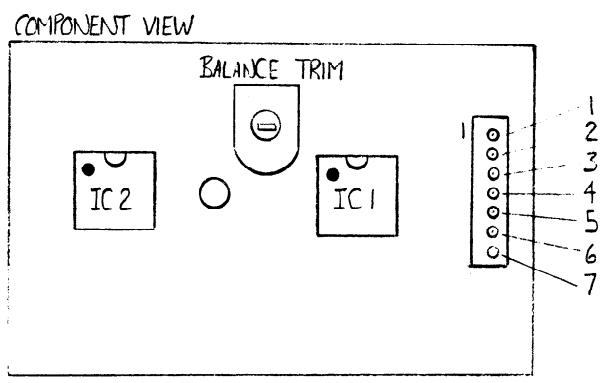


SYSTEM 8 -- EBOS-OPTION BALANCED OUTPUT CIRCUIT

CD16-6-86



* = 1% RESISTOR



3.4. OPTION 4 - AUXILIARY SEND CONFIGURATION

Input channel auxiliary Send controls are wired at time of manufacture to receive equalised signal from the input preamp. Certain P.A. applications call for the auxiliary mix to be equalised independently of the treatment given to input channels. This requires the Auxiliary Sends to receive un-equalised signal.

On each input PCB assembly a link is provided for the pre-fader Auxiliary Sends 1 and 2 to be reconnected pre-equaliser.

The procedure is as follows:

Disconnect mixer and remove base plate as Section 2.2.

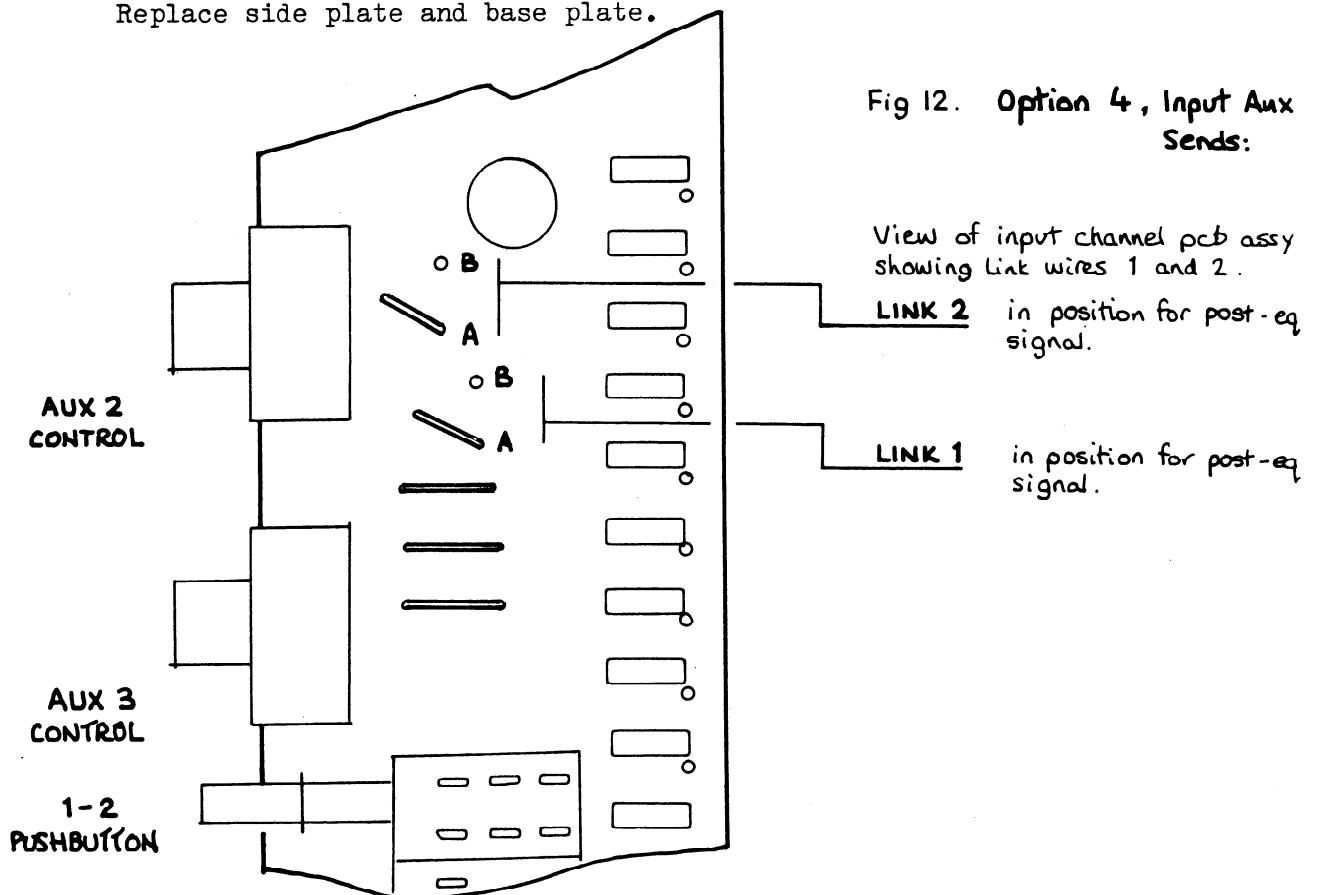
If input channel 1 is to be modified then remove the left hand side plate.

Link 1 (Aux Send 1) and Link 2 (Aux Send 2) are bare wire loops behind the Auxiliary 2 control. See diagram.

Use a fine tipped soldering iron to melt the joint at pad 'A' on one end of each unit. Bend the link across to pad 'B' and resolder in this position.

Check each modified joint and clear any solder debris.

Replace side plate and base plate.



Section 4

AHB PARTS DESCRIPTION : SYSTEM 8 MARK 3

SPRING 1986

To order spare parts for service replacement specify the items as follows:

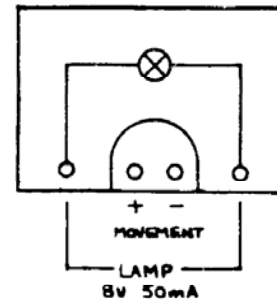
FUNCTION	ITEM	AHB STOCK NUMBER
Fader	100mm 10k Alps	AI0091
Fader knob	Black Alps	AJ0048
Fader screw	M3 CSK 5mm	AB0070
Meter	SQ10	AD0011
Meter bulb	8v 50mA SQ10	AD0013
Knob	6mm grey	AJ0050
Knob cap	Red	AJ0045
	Grey	AJ0092
	Blue	AJ0052
Pushbutton cap	4748 black	AJ0028
Base screw	6AB x $\frac{3}{8}$ PAN	AB0062
Base captive nut	SNU2945	AB0111
Input Pot Gain	10KC metric bkt	AI0049
H.F.	100KA metric	AI0047
L.F.	100KA metric	AI0047
Mid	100KA metric	AI0047
Mid freq	100KC x 2 metric	AI0048
Aux 1, 2, 3	47KB metric	AI0050
Pan	10KA metric bkt	AI0046
Output Pot Level	10KB metric	AI0043
Aux 1, 2/3	47KB metric	AI0050
Pan	10KA metric bkt	AI0046
Master Pot Aux 1	47KB metric bkt	AI0045
Aux 2, 3	47KB metric	AI0050
Cue	10KB x 2 metric	AI0044
Level	47KB metric	AI0050
Aux 1, 2	47KB metric	AI0050
Pan	10KA metric bkt	AI0046
Talkback level	47KB metric bkt	AI0045
Headphone level	10KB x 2 metric	AI0044
Monitor level	10KB x 2 metric	AI0044
Switch	Single Alps 2PC0	AL0162
Switch Talkback	Alps momentary 4PC0	AL0340
Switch Fader Reverse	Alps latching 4PC0	AL0333
IC op-amp	TLO72CP	AE0046
IC op-amp	NE5534N	AE00
Input transistor	BC214C	AE0031
Red LED	T1 Red	AE0086
Relay PFL	NF2-12	AM0208
Jack socket Insert	S2BBB	AL0080

AHB PARTS DESCRIPTION : MPS8P POWER SUPPLY

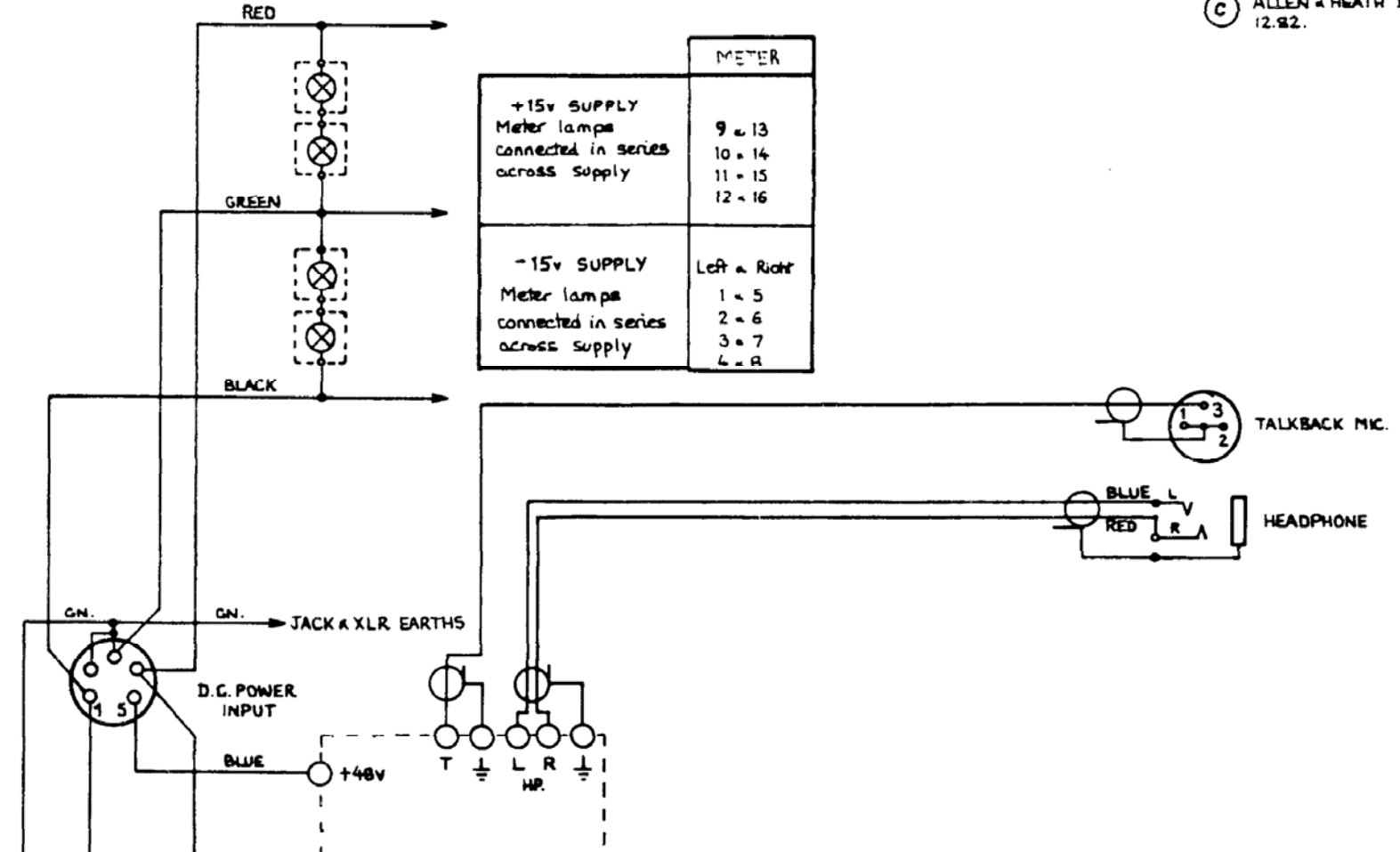
SPRING 1986

To order spare parts for service replacement specify the items as follows:

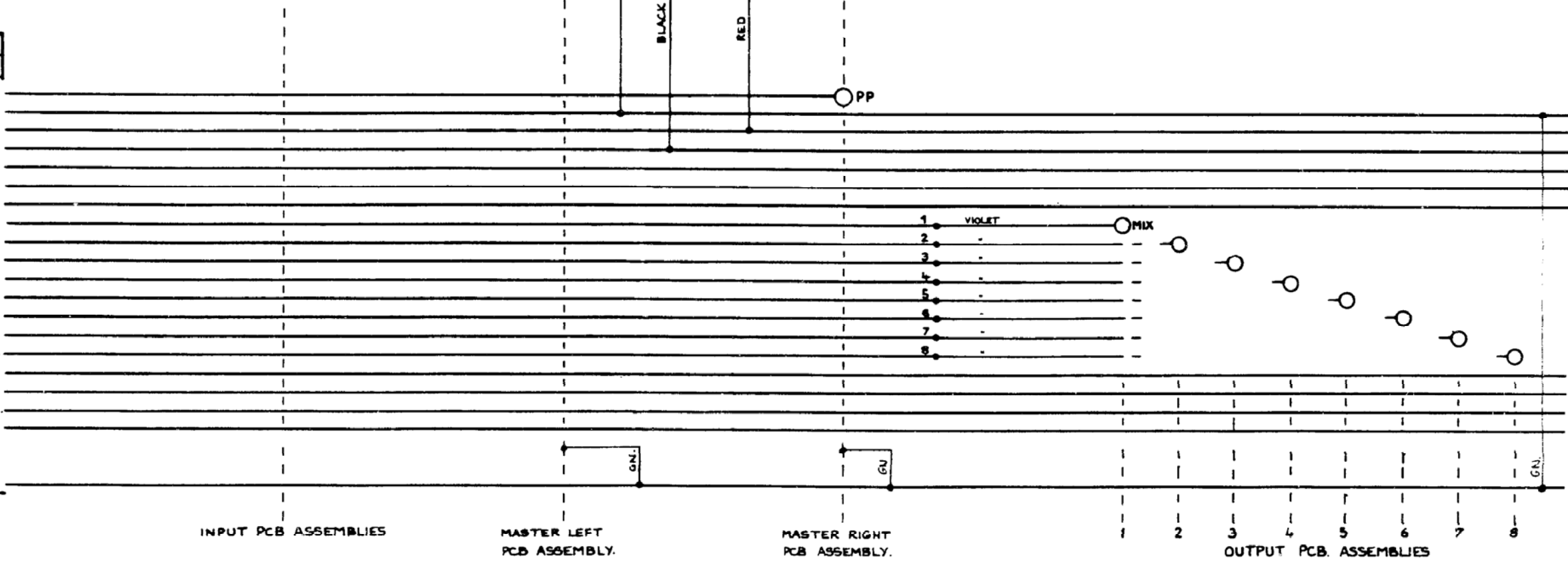
FUNCTION	ITEM	AHB STOCK NUMBER
Fuse	500mAT 20mm	AL0304
Fuse (USA and Japan)	1 AT 1 $\frac{1}{4}$ "	AL0315
Transformer	P1025	AM0021
Bridge rectifier	2A 200V	AE0090
Bridge rectifier	1A 200V	AE0089
IC regulator +	7815	AE0047
IC regulator -	7915	AE0048
Transistor	TIP 31B	AE0073
Zener diode	47V BZX61	AE0008
IC insulating kit	mica washer + bush	AA0560



METER TYPE SQ10



COMMON BUSBARS	
FUNCTION	CODE
PHANTOM POWER SUPPLY +48V.	P.
ELECTRONIC SUPPLY 0V.	OV.
" +15v.	+15v.
" -15v.	-15v.
AUXILIARY MIX 1	A1.
" 2	A2.
" 3	A3.
OUTPUT MIX 1	1.
" 2	2.
" 3	3.
" 4	4.
" 5	5.
" 6	6.
" 7	7.
" 8	8.
STEREO MIX LEFT	L.
" RIGHT	R.
PRE-FADE LISTEN MIX	PFL MIX.
" D.C.	PFL D.C.
FADER EARTH	-



No.	DESCRIPTION	CHKD	APPD	DATE
1	ISS2 UPDATE TO MK3	CP		30.6.86
REVISIONS				

SYSTEM 8 Mk. 3

ALLEN & HEATH BRENNELL LTD.

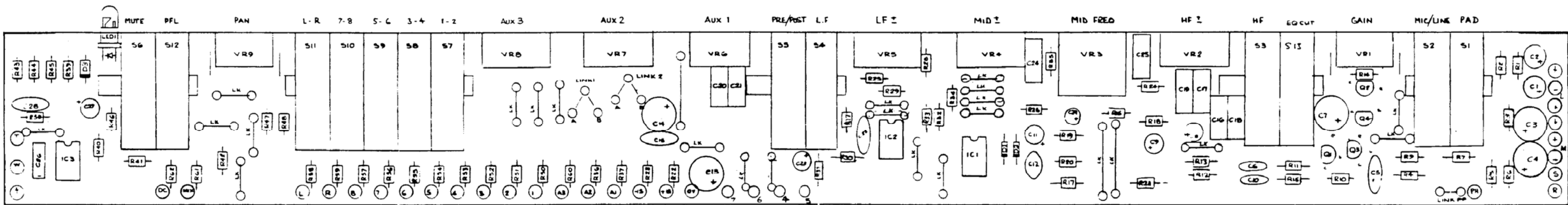
© 1982

METERPOD * BUSBAR CONNECTIONS

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
R		R	R	2.84	

DRAWING No. 282 issue 2

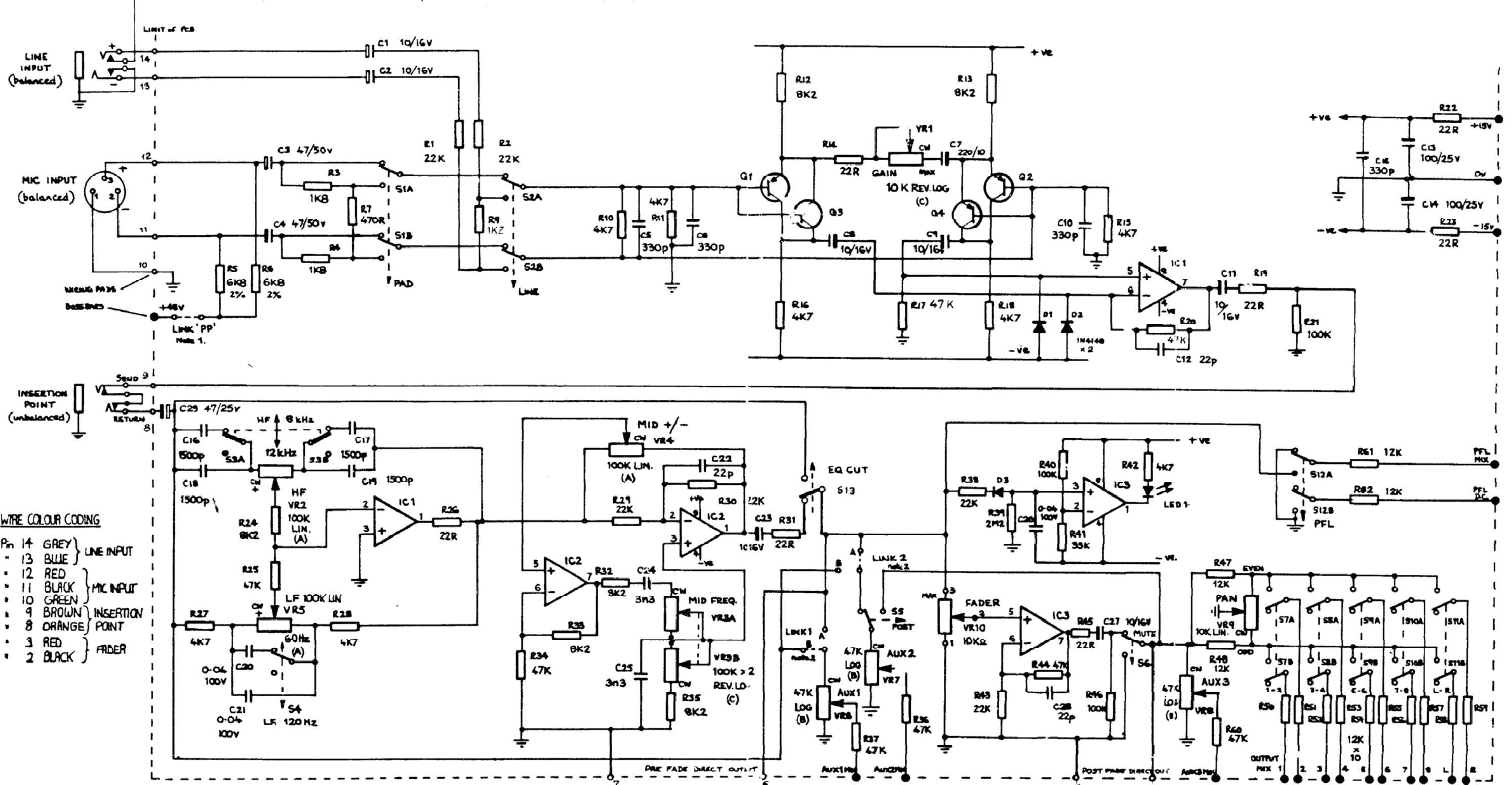
INPUT PCB



PRE FIDE DIRECT OUT
POST FIDE DIRECT OUT

PCB ASSEMBLY DIAGRAM: INPUT PCB TYPE A60060 ISSUE 2 NOV 83 AHB Ltd.

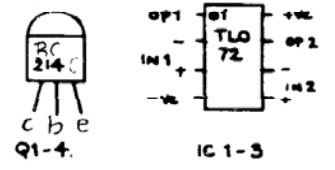
FROM TAPE I/P cct. (channels connected correspond to the number of the tape input)



- WIRE COLOUR CODING**
- Pin 14 GREY } LINE INPUT
 - Pin 13 BLUE } LINE INPUT
 - Pin 12 RED } MIC INPUT
 - Pin 11 BLACK } MIC INPUT
 - Pin 10 GREEN } MIC INPUT
 - Pin 9 BROWN } INSERTION POINT
 - Pin 8 ORANGE } INSERTION POINT
 - Pin 3 RED } FADER
 - Pin 2 BLACK } FADER

- NOTES:**
- Link 'PP' is fitted at time of manufacture and may be removed by cutting to disconnect +48volt phantom power from the mic input.
 - Link 1 is fitted at time of manufacture in position A (AUX1 POST-EQ) and may be changed by soldering to position B (AUX1 PRE-EQ). Link 2 position A (AUX2 POST-EQ) to position B (AUX2 PRE-EQ).
 - Switches are shown in the OUT position.
 - R8, C28 not fitted.
 - Resistors 1/4W 5% unless specified.

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SYSTEM 8 : INPUT CHANNEL CIRCUIT
DWG 277 iss 4 PCB TYPE AG0060 iss.2 NOV 1983

No.	DESCRIPTION	CHKD	APPD	DATE
ISS 4	UPDATE TO MK3 INCREASED MIC GAIN	CP	CP	6.88
ISS 3	CORRECTIONS AND EQ CUT SWITCH ADDED	Q.M.R.	Q.M.R.	11.83
ISS 2	CORRECTIONS	✓	✓	1.93.

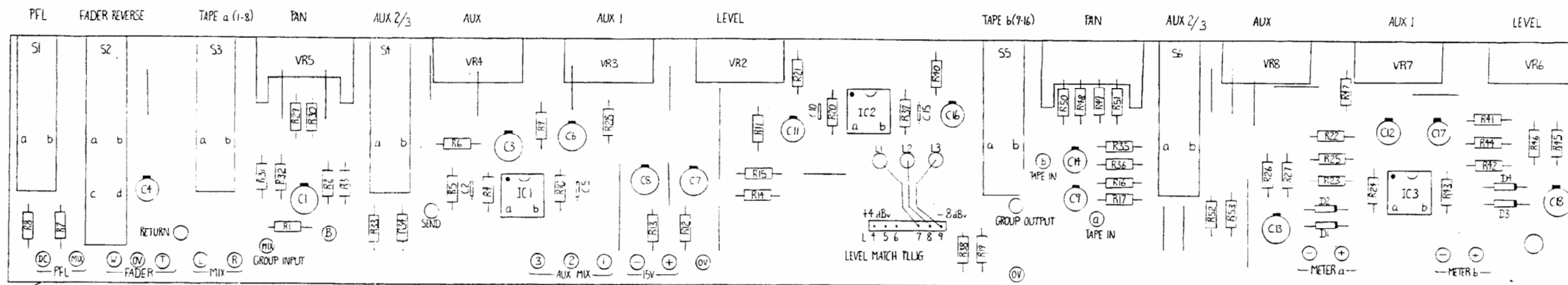
ALLEN & HEATH SYSTEM 8 Mk II

CIRCUIT DIAGRAM : INPUT PCB AG0060 ISS 2.

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
R	R	R	R	2.84	-

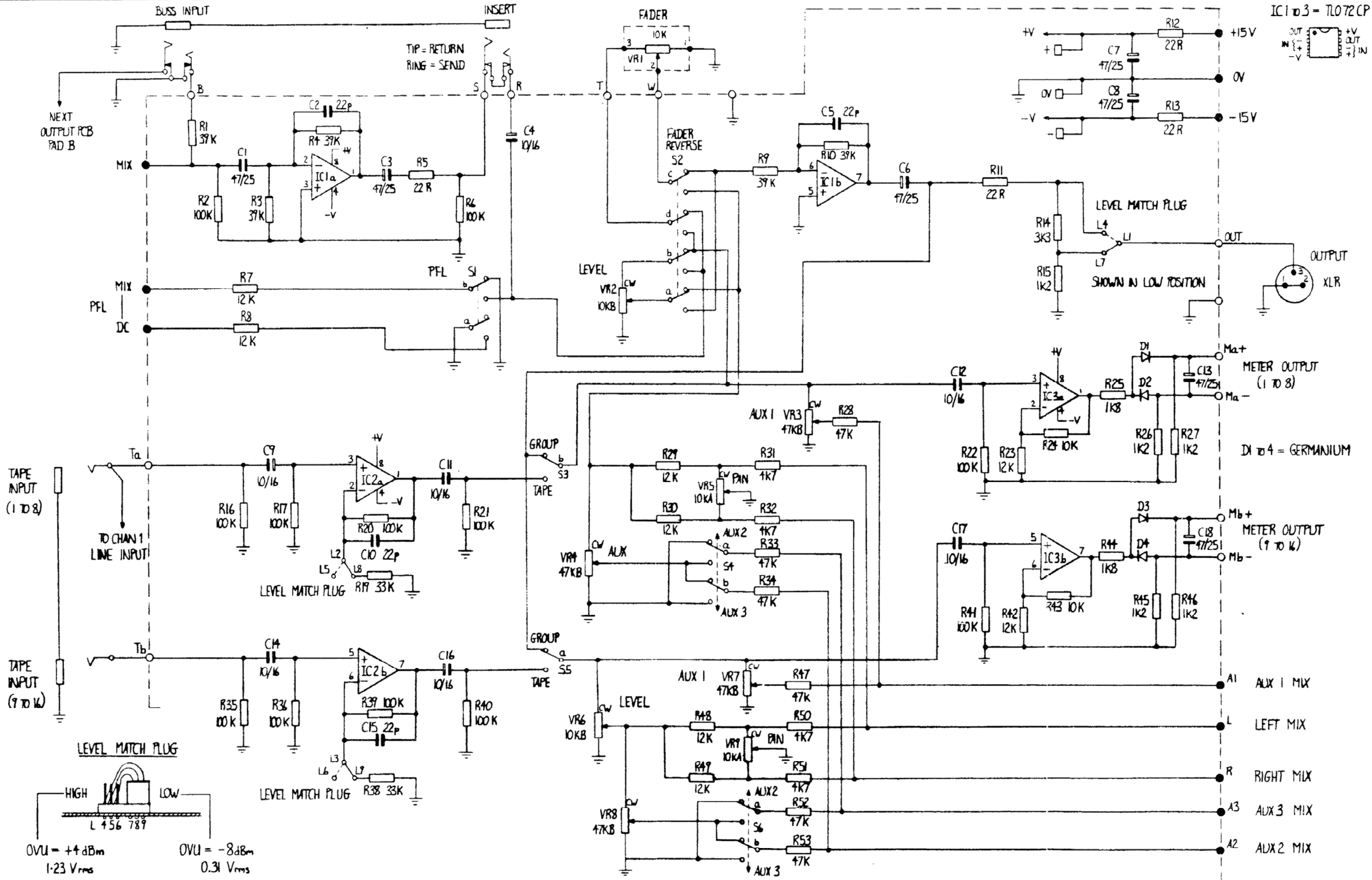
DRAWING No. 277. iss. 4

OUTPUT PCB



AHB SYSTEM 8 82 OUTPUT-3 PCB AG0155 iss 1

COMPONENT OVERLAY 21 BW191 iss 1 DRAWN BY CD 1-4-86



IC1 to 3 = TL072CP



DI to 4 = GERMANIUM

OVU = +4 dBm
1.23 V_{rms}

OVU = -8 dBm
0.31 V_{rms}

STANDARD NOTES
ALL DIMENSIONS IN mm
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION
REMOVE ALL BURRS & SHARP EDGES

MATERIAL

TOLERANCES
GENERAL ±0.25 mm
HOLE CENTRES ±0.15 mm
HOLE SIZES ±0.10 mm

FINISH

NOTES

UNIT TITLE
SYSTEM 8 MK3

DRAWING TITLE
CIRCUIT DETAIL - OUTPUT PCB

AHB ALLEN & HEATH BIRNELL LTD.
PROFESSIONAL AUDIO EQUIPMENT MANUFACTURERS

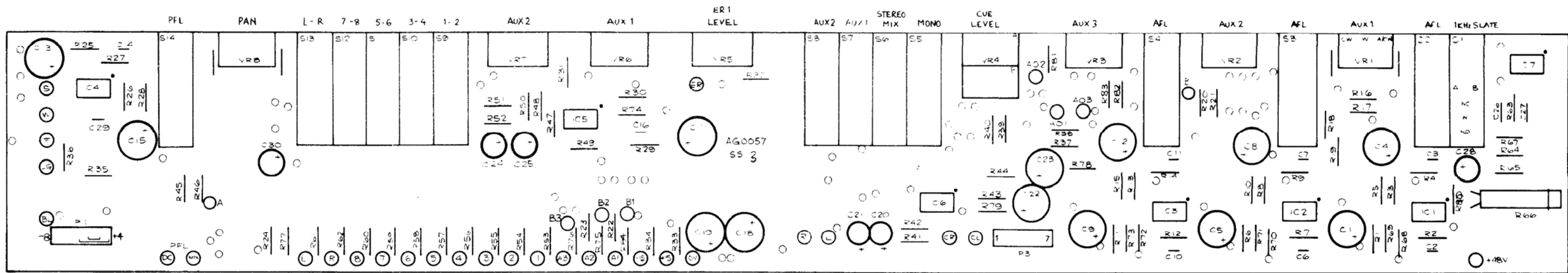
DESIGN DEPT. 80 SHIP STREET, BIRMINGHAM B5 4AE
FACTORY: HERBERT ROAD, EAST PERCYVALE, COVENTRY CV3 9EF

284 15.1
ISSUE 1

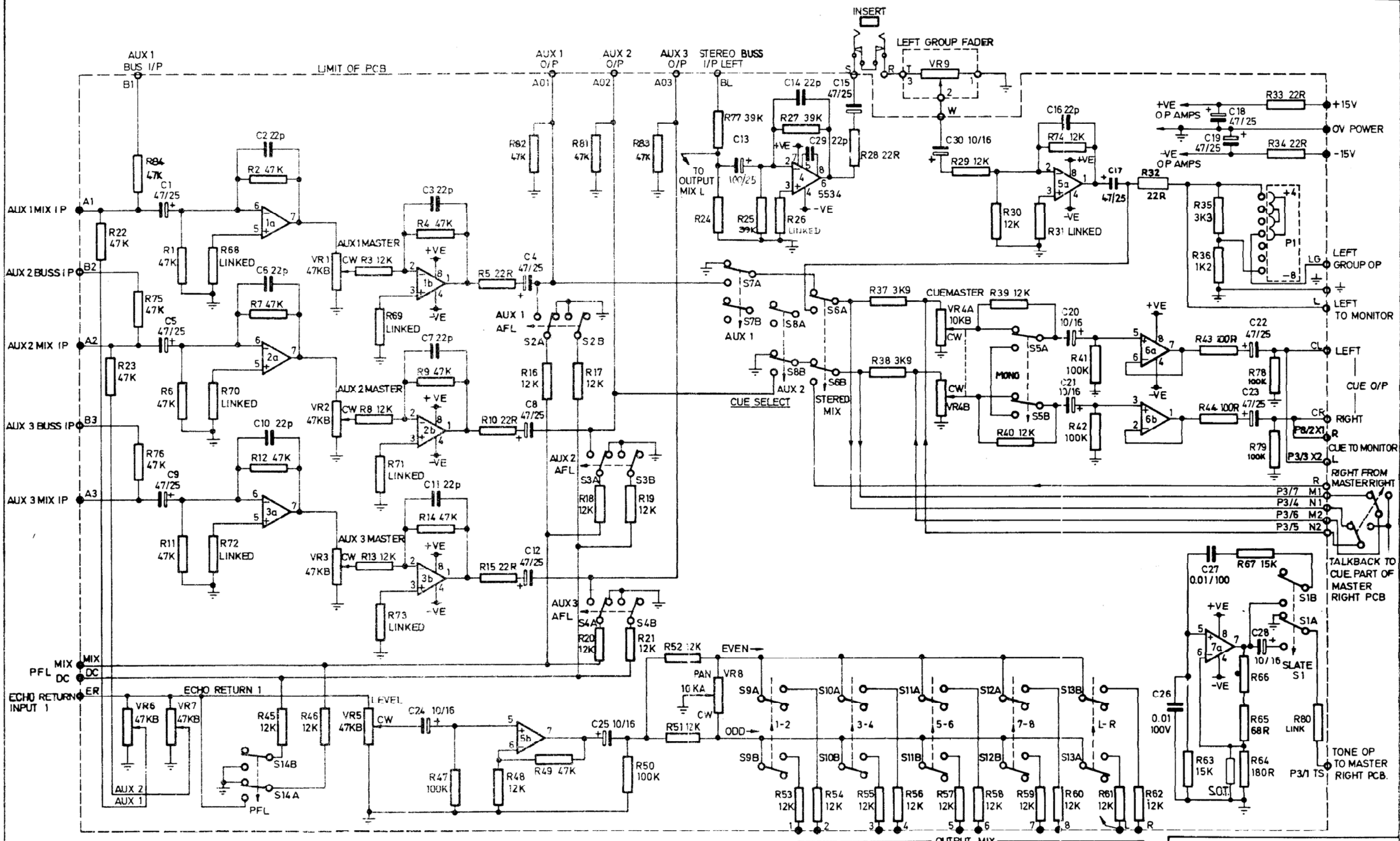
CP	ORIGIN	30-4-82
DRAWN	REVISION	DATE CHECKED

UNLESS STATED OTHERWISE

MASTER LEFT PCB



PCB ASSEMBLY DIAGRAM: MASTER LEFT PCB TYPE AG0057 ISSUE 3 NOV. 1984 AHB LTD.



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○ WIRING PAD
 ● BUS BAR
 Switches shown in OUT position.
 Resistors 1/4W 5% unless specified.
 P1 fitted - 8 position in manual.

ICs 1,2,3,5,6,7. TL072CP
 IC 4 NE5534.
 Capacitors C3,7,11,29 not fitted.
 Resistor R24 not fitted.

WIRE COLOUR CODING
 Pin 1 ORANGE }
 Pin 2 BROWN } AUX O/P
 Pin 3 VIOLET }
 ECHO RETURN - BLUE
 STEREO BUSS I/P LEFT - VIOLET
 INSERT SEND - BROWN
 " RETURN - ORANGE

FADER TOP - ORANGE
 " WIPER - BLACK
 LEFT O/P - BLACK
 LEFT TO MON - GREY
 CUE O/P LEFT - BLACK
 " RIGHT - RED

ALLEN AND HEATH BRENNELL LTD			
NEXT	R 85	C 31	FINISH
DRN	RAG	WDS	DATE 6-86
CHKD		CP	ISSUE 4
TITLE SYSTEM 8 PCB TYPE MASTER			
LEFT. AG0057 Iss 3. MK. 3			
SCALE	ORG N° 279	ISS 4	

MASTER RIGHT PCB

PCB ASSEMBLY DIAGRAM: MASTER RIGHT PCB TYPE AG0058 ISSUE 3

1984 AHB LTD.

MONITOR

HEADPHONE

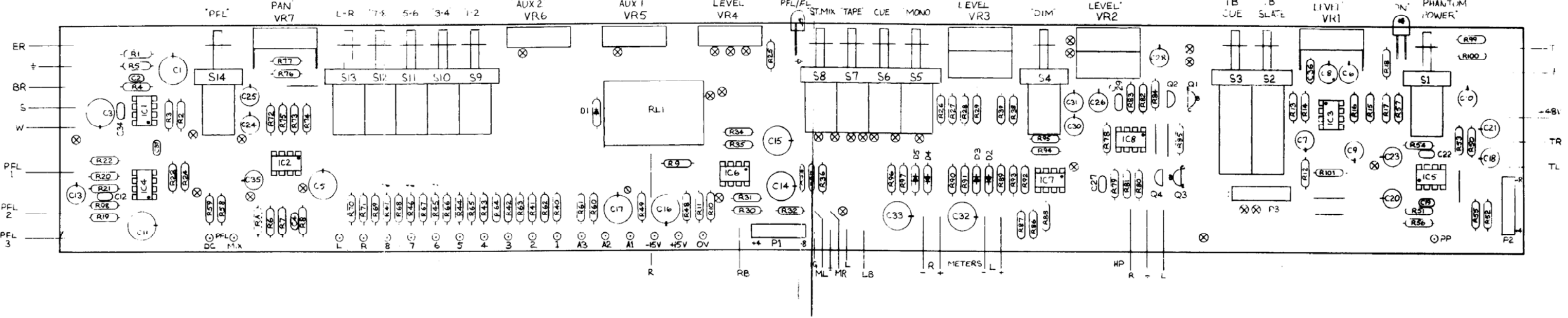
TB CUE

TB SLATE

TB LEVEL

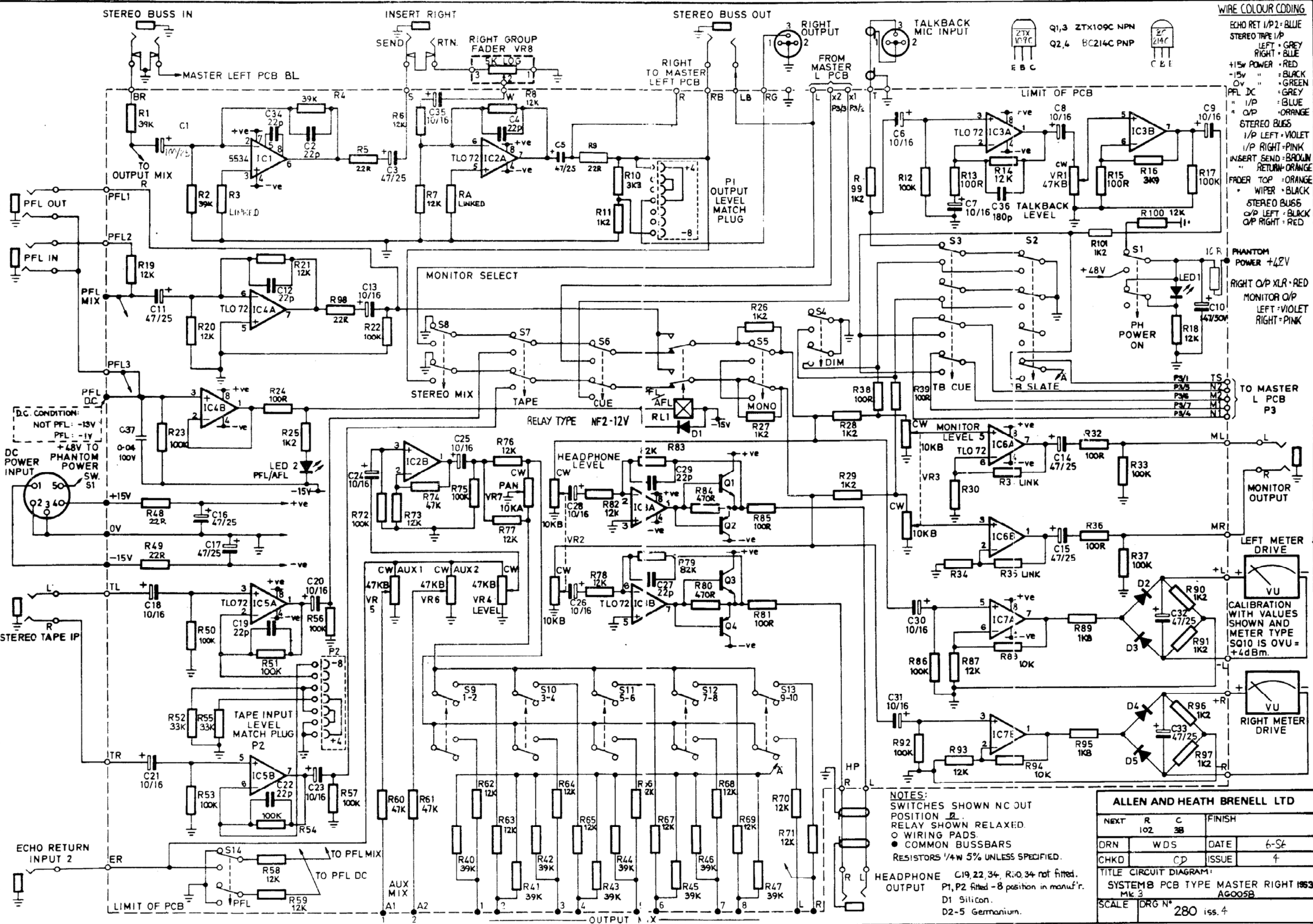
VR1

PHANTOM POWER



WIRE COLOUR CODING

- ECHO RET I/P 2: BLUE
- STEREO TAPE I/P
 - LEFT: GREY
 - RIGHT: BLUE
- +15v POWER: RED
- 15v " : BLACK
- 0v " : GREEN
- PFL DC: GREY
- I/P: BLUE
- O/P: ORANGE
- STEREO BUSS
 - I/P LEFT: VIOLET
 - I/P RIGHT: PINK
 - INSERT SEND: BROWN
 - RETURN: ORANGE
 - FADER TOP: ORANGE
 - WIPER: BLACK
 - STEREO BUSS
 - O/P LEFT: BLACK
 - O/P RIGHT: RED
- PHANTOM POWER +42V
- RIGHT O/P XLR: RED
- MONITOR O/P: PINK
- LEFT: VIOLET
- RIGHT: PINK

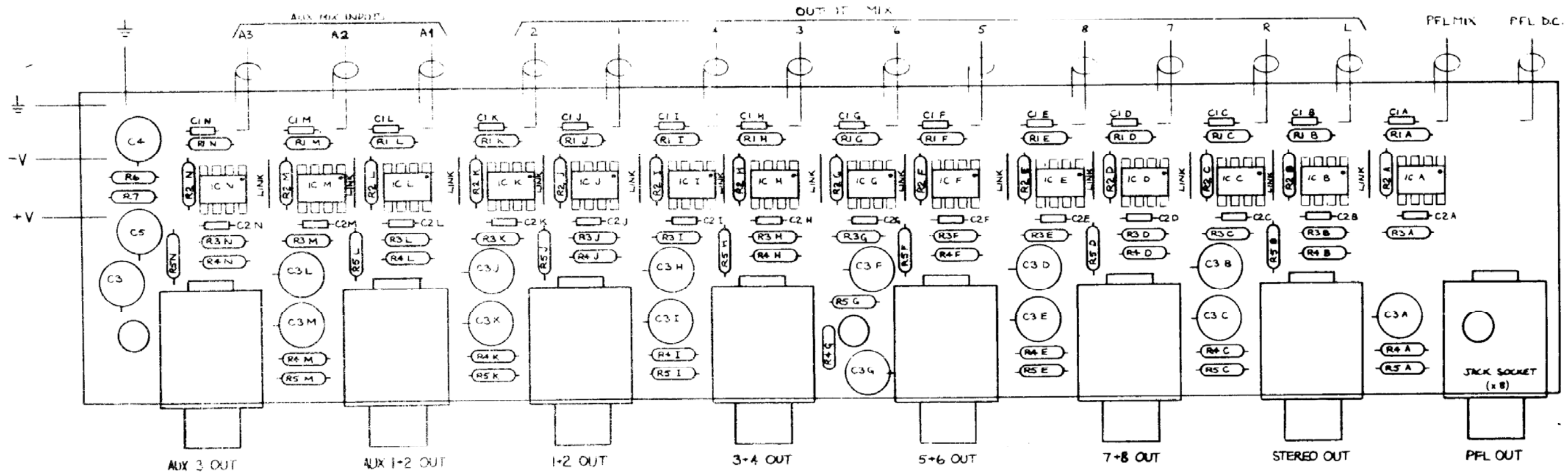


DC CONDITION:
 NOT PFL: -13V
 PFL: -1V
 +48V TO PHANTOM POWER SW. S1

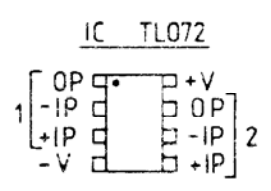
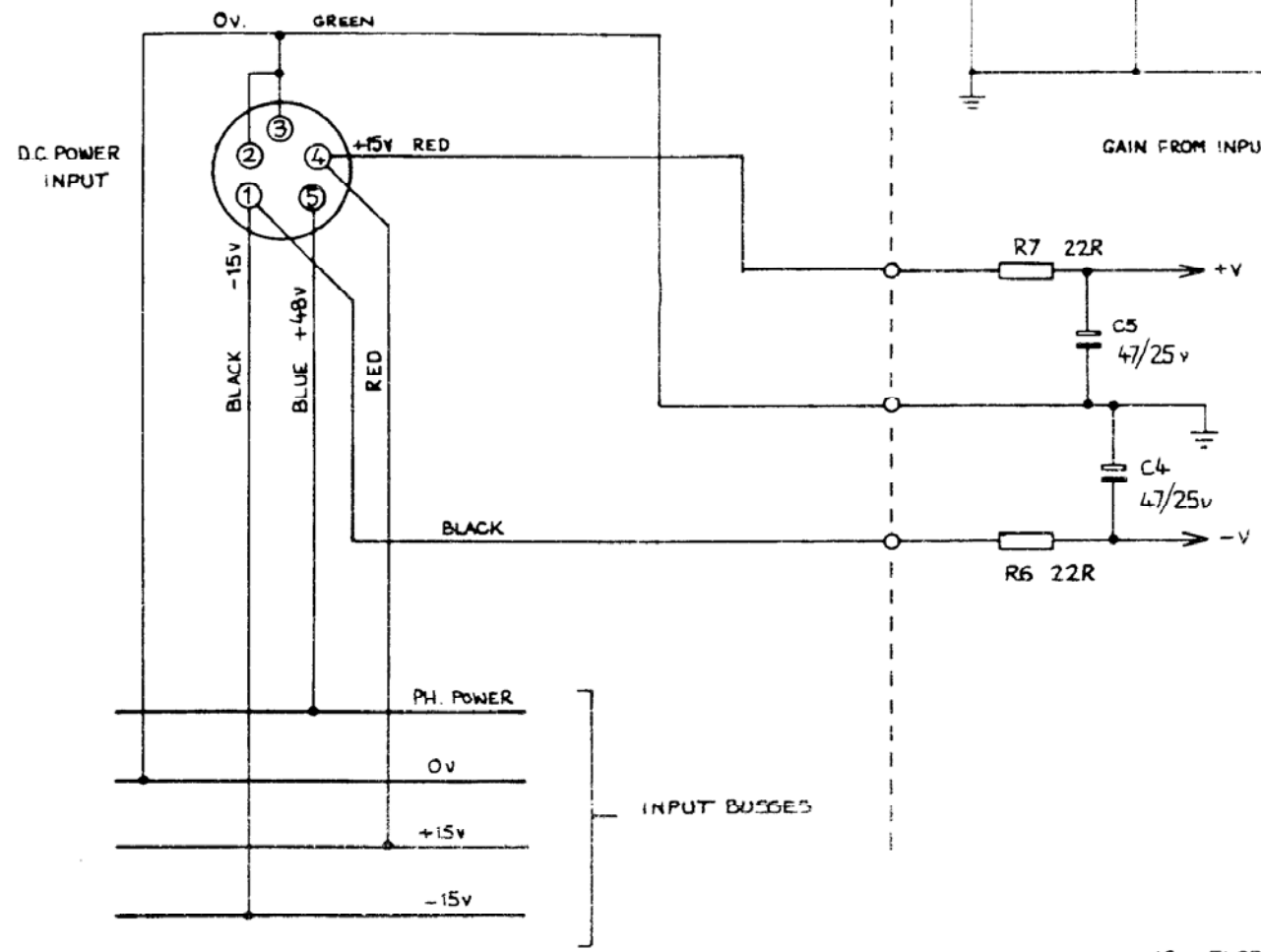
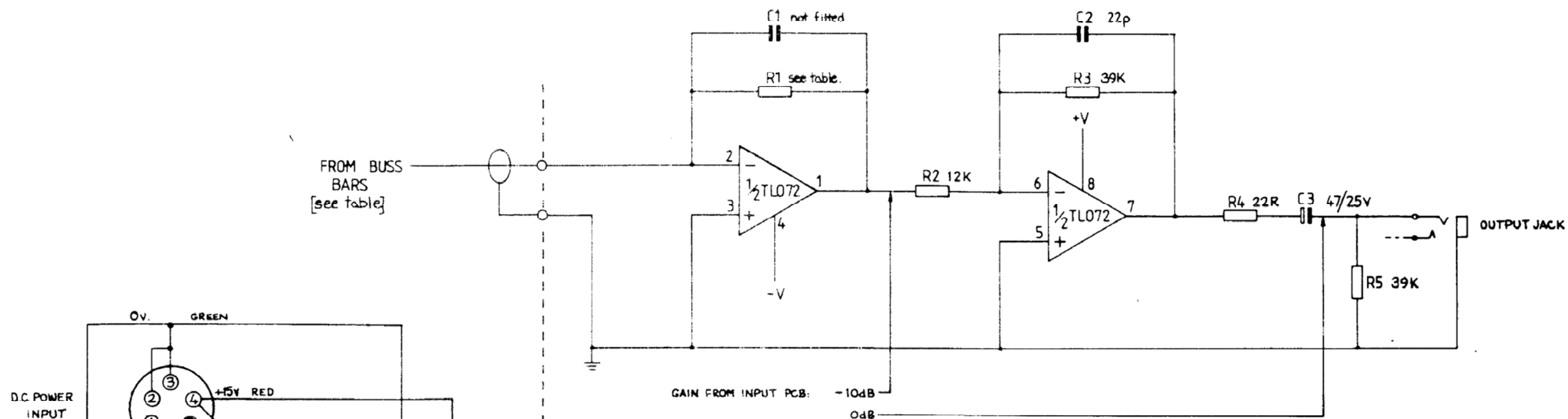
NOTES:
 SWITCHES SHOWN NC OUT POSITION $\frac{1}{2}$.
 RELAY SHOWN RELAXED.
 ○ WIRING PADS.
 ● COMMON BUSSBARS
 RESISTORS 1/4W 5% UNLESS SPECIFIED.
 HEADPHONE OUTPUT C19, 22, 34, R10, 34 not fitted.
 P1, P2 fitted -8 position in manuf.
 D1 Silicon.
 D2-5 Germanium.

ALLEN AND HEATH BRENNELL LTD			
NEXT	R	C	FINISH
DRN	WDS	DATE	6-54
CHKD	CP	ISSUE	4
TITLE CIRCUIT DIAGRAM: SYSTEM B PCB TYPE MASTER RIGHT 1953 ME 3 AGO05B			
SCALE	DRG N°	280 iss. 4	

EX 8 PCB



PCB ASSEMBLY DIAGRAM: PCB TYPE EX 8 AG0059 iss1 ANB Ltd NOV 1982.



MIXER BUSS BAR	WIRE	CIRCUIT SUFFIX	JACK SOCKET	R1
PFL SENSE	G-Y	-	PFL OUT Ring	-
PFL (AUDIO)	BL	A	" Tip	3K9
GROUP BUSS LEFT	BK	B	STEREO OUT T	12K
" RIGHT	RED	C	" R	12K
" 7	BN	D	7+8 OUT T	12K
" 8	OR	E	" R	12K
" 5	VID	F	5+6 OUT T	12K
" 6	PK	G	" R	12K
" 3	VID	H	3+4 OUT T	12K
" 4	PK	I	" R	12K
" 1	BN	J	1+2 OUT T	12K
" 2	OR	K	" R	12K
AUX 1	BL	L	AUX 1+2 OUT T	15K
AUX 2	GY	M	" R	15K
AUX 3	BK	N	AUX 3 OUT T	15K

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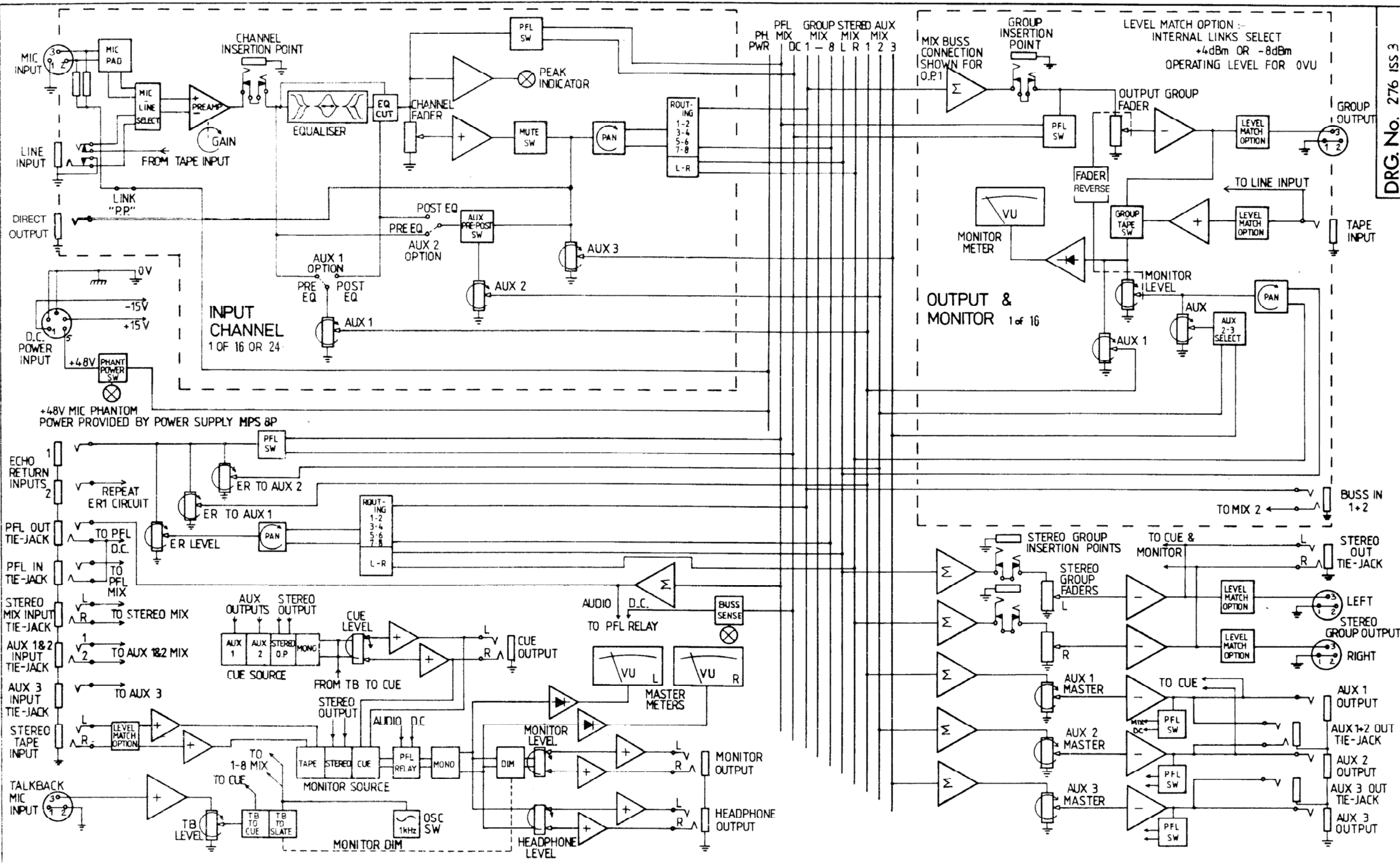
SYSTEM 8 : CIRCUIT DIAGRAM PCB TYPE EX8 AG0059 iss1. DWG. 281 iss.2. DEC. 1982.

No	DESCRIPTION	CHKD	APPD	DATE
REVISIONS				

CIRCUIT DIAGRAM: PCB TYPE AG0059 EX8 iss1.
 ALLEN & HEATH SYSTEM 8
 AHB LTD. DEC. 1982.

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
MA.		R	R	2.84	

DRAWING No. 281 issue 2



REV.	DESCRIPTION	CHKD.	APPD.	DATE
1	ISS 2 MK3 - FEED REVERSE, DIRECTING			6-86
2				

REVISIONS

SYSTEM 8: SYSTEM SCHEMATIC mk 3

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
R	MA	R	R		

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DRAWING No. 276 ISS 3