Neve

Technical Manual

5315/12/P STANDARD BROADCAST CONSOLE

A9365

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CONTENTS LIST

specification

ref: 5315\A

STANDARD CONSOLE - 5315\A

Input Channels

Mic and line inputs, selected by sensitivity switches on channel amplifiers.

Channel amplifiers - 33114, 33115 or 33117, depending on complexity of equalisation required.

Horizontal P.& G. faders.

Switching to 4 groups via stereo pan pot, and to 2 main outputs.

Switching to 4 auxiliary groups via individual level controls and pre/off/post switches.

8-TR #1-4

8-TR #5-8

Cut button with l.e.d. (red when cut).
Solo button with l.e.d. (green when routed to solo bus).

Pre fader insertions, between channel amplifier and 33726A switching unit.

Groups

4-Off with P.& G. faders, having a solo feed on the overpress switch.

Post-fade insertions.

2T Mixdown

Switched two-track reduction from groups or 4T tape via individual level controls.

2-Off P.& G. faders control the level from the output busses.

Post-fade insertions.

Meters

2-Off meters switchable 2T output, groups 1/2, tape 1/2, patch.

2-Off meters switchable 2T output, groups, tape, auxiliary groups, solo.

1-Off mono meter (optional) from mono output post-fade.

Talkback

Microphone, amplifier + 4 keys:

1. Groups/Aux 1-4.
2. Aux 1 / Aux 2.
3. Aux 3 / Aux 4.
4. Ext.1 / Ext.2.

Solo

Simple solo group fed from switching units (post-fade, pre-cut) and from fader overpress (pre-fade).

Console loudspeaker for monitoring of solo group via rotary fader and pre-fade insertion.

Console loudspeaker is muted during talkback conditions.

Oscillator

5 Switched frequencies, with switching to groups, 2T outputs, or patch.

Input Selectors

These enable any channel line input to be selected from 4 sources. Available in pairs, with spare for source designation.

Transmit-Rehearse Key

Red and green l.e.d. indication of transmit or rehearse status of console, as selected by keyswitch.

In "transmit" mode, oscillator to groups, oscillator to 2T outputs, talkback to groups, tape to 2T outputs, and S.L.S. operation are not permitted.

One pole of the key is brought out on a rear multi-pin connector.

5315 LEVEL SETTING PROCEDURES

CHANNEL AND OUTPUT AMPLIFIER LEVEL SETTING PROCEDURE

1. Set all channel faders to the "O" position.
   Set the group and main output faders to the "O" position.
   Turn the master auxilliary level controls fully on in the clockwise direction.
   Set all the channel input selectors to LINE input and set the gain controls to the "O" position.

   (N.B. DO NOT TOUCH ANY OF THESE FADERS OR CONTROLS AGAIN DURING LEVEL SETTING).

   In all level setting procedures a low distortion 1KHz sine wave is used.

2. Insert an input level of OdBu into the line input of channel 1.

3. Measure the "FEED ON" level to the main o/p1 bus bar from chan. 1 (the feed on level is measured either at the output pins of the chan. switching module or where the white cable from the switching module socket is connected to the bus feed on resistor). Adjust the preset potentiometer in chan. 1 switching module until the feed on level corresponds to the level shown by the chart on the wiring diagram. Also check that the main o/p1 "BUS LEVEL" corresponds to the level shown by the chart. (The bus level can be measured at the red pins connected to the bus bars). Deselect chan.1 to main o/p1.

4. Route chan.1 to each output INDIVIDUALLY by selecting the appropriate switch on chan.1 switching module and ensure that the feed on and bus levels are correct for each output respectively.

5. Measure the signal level at MAIN 1 output. Reselect chan.1 to main o/p1 and adjust the pre-set resistor in the MAIN o/p1 Bus Amplifier (accessible from the front of the module) until the output signal is OdBu.
   Deselect chan.1 to main o/p1 switch

6. Repeat procedure (5) for main o/p2, groups 1-4, aux 1-4 and solo outputs by selecting each o/p individually and measuring the signal at the respective o/p.

   (NOTE:- The solo signal level is measured at the SOLO INSERTION POSITION).

7. Insert an input level of OdBu into channel 2 line input. Route chan.2 to main o/p1. Measure the signal level at the output of main o/p1.
   Adjust the pre-set level control in chan.2 switching module until main o/p1 level is OdBu.
   Deselect chan 2 to main o/p1 switch.

8. Repeat procedure (7) for the remaining channels selecting each in turn to main o/p 1.

Cont.....

OSCILLATOR LEVEL SETTING PROCEDURE

9. Measure the signal level at the oscillator output (marked "OSC" on the jackfield).
Ensure the oscillator to output switch is in the osc to patch position.
Select the osc frequency control to 1KHz and turn the osc level until a signal level of OdBu is obtained at the osc output.

10. Measure the signal at the main 1 o/p and select the osc to output switch to the main position.
Adjust the oscillator to main preset potentiometer (situated at the rear of the console) until an output level of OdBu is measured at the main 1 o/p.

11. Measure the signal at the group 1 output.
Select the oscillator to output switch to the group position.
Adjust the oscillator to group (osc to 4T) preset potentiometer (situated at the rear of the console) until an output level of OdBu is measured at the group 1 output.

Select the osc to output switch to the centre of 'osc to patch' position. Turn the osc level control fully anti-clockwise to its minimum level position and select the osc frequency control to the off position.

MONITOR DIM LEVEL SETTING PROCEDURE

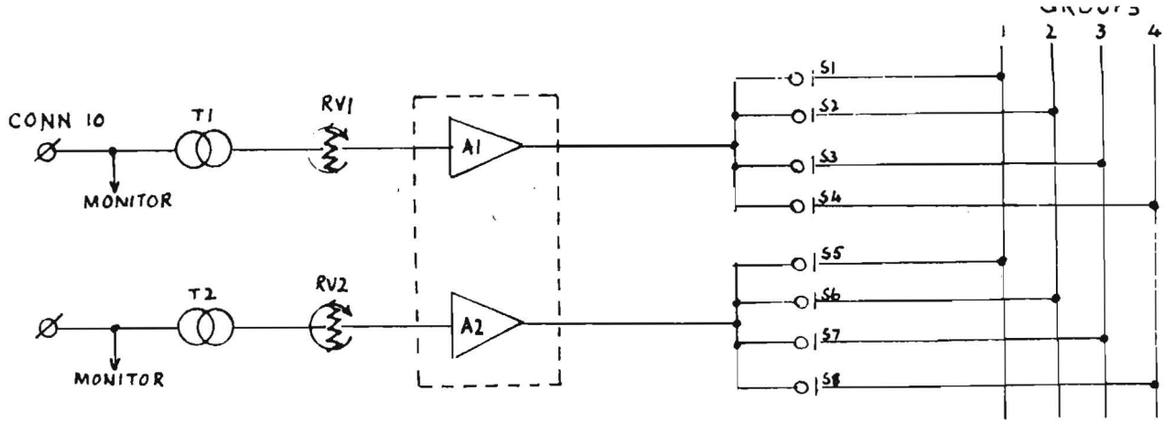
12. Select the monitor loudspeaker selection switches such that the monitor outputs are switched to measure the 4T tape replay signals (Select the switch marked Tape on the monitor selection switch panel).

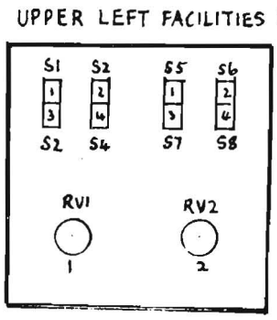
13. Insert an input level of OdBu into tape replay 1 input.
Measure the output signal level at the monitor 1 loudspeaker output.
(note this is the normal monitor signal level).
Select the monitor Dim switch.
Adjust the monitor 1 dim preset potentiometer (situated at the rear of the console) until the signal level is 20dBu lower than the normal monitor working level.
Deselect the monitor dim switch.

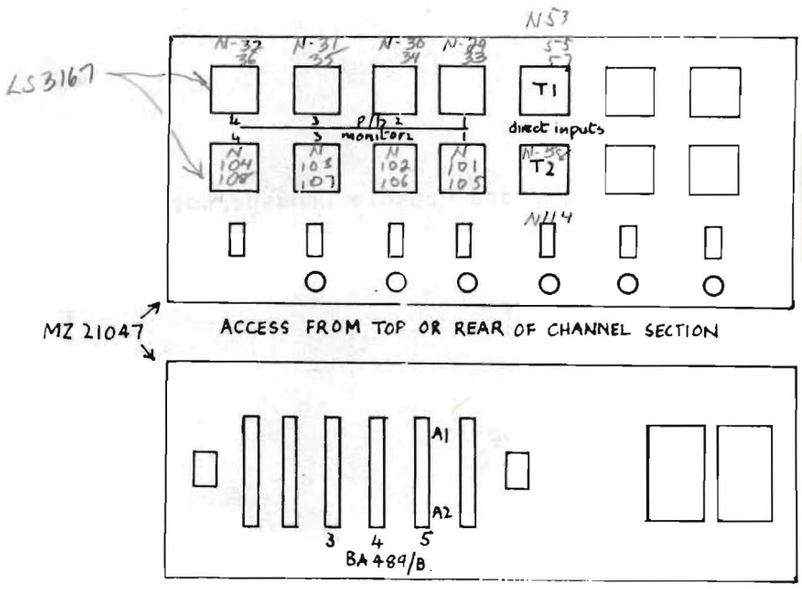
14. Repeat procedure (13) for monitor o/p's 2,3 and 4 using the respective tape relay inputs and monitor dim preset potentiometers.

N.B. The monitor dim control level is set during manufacture to 20dBu below normal working level. This can be adjusted to suit customer requirements.

GENERAL DESCRIPTION OF CONSOLE FACILITIES

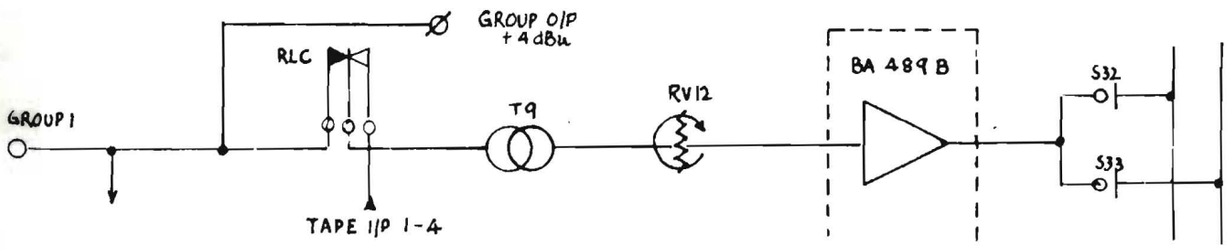




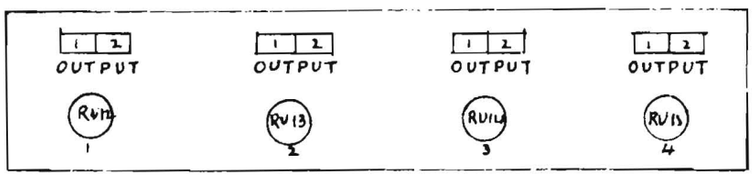


The two direct inputs enter via connector 10 on the rear panel. Input 1 is on cable N53 and input 2 on cable N54 as shown on the tabulated cable information on EC10499, sheet 2. The 2 input transformers are mounted on a panel accessible from the rear of the channel section nearest the monitor, or by removal of the top-wood. A similar panel in the monitor section carries the plug-in amplifiers A1 and A2. The unbalanced signals at the secondaries of the transformers T1 and T2 are taken via the level control potentiometer RV1 and RV2 to the inputs of the plug-in amplifier. Each amplifier output is then selected to the four group bus bars by the groups of four pushbuttons S1-S4 and S5-S8.

GROUP OUTPUTS



GROUP OUTPUTS 2-4 SIMILAR

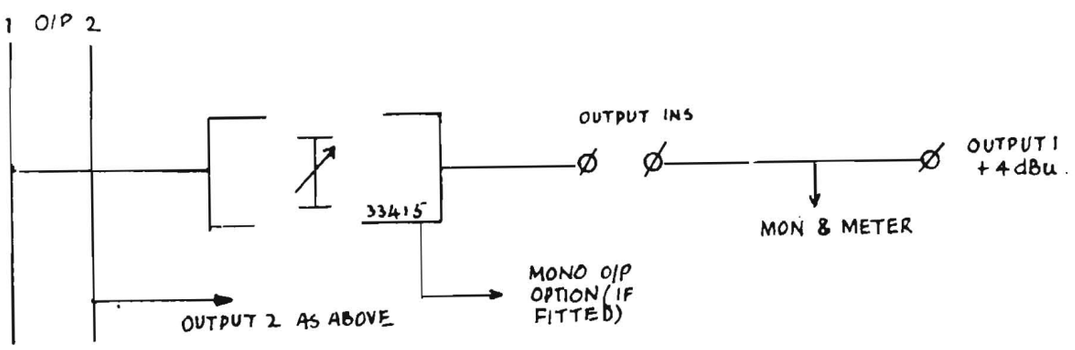


LOWER LEFT-HAND SECTION OF FACILITIES PANEL

The four group output amplifiers are located on two BA489/B boards. The boards (Nos 3 & 4) are located on the panel in the channel section (accessible at rear of console on removing the second panel from the left). The group signal from patch is taken to monitoring and meter selection before passing to the output amplifier forming part of the BA489 board. Each output is provided with a level control R12-15 mounted in a group in the lower left hand corner of the facilities panel. Above each level control is a pair of pushbutton switches S32-S33 etc for distributing the outputs between the two groups (OP1 and 2). Relay RLC in each of the four outputs routes the signal through in the de-energised state. When relay C is engergised on pressing the 4T tape button on the meter control panel, the tape outputs 1-4 are substituted for the group outputs.

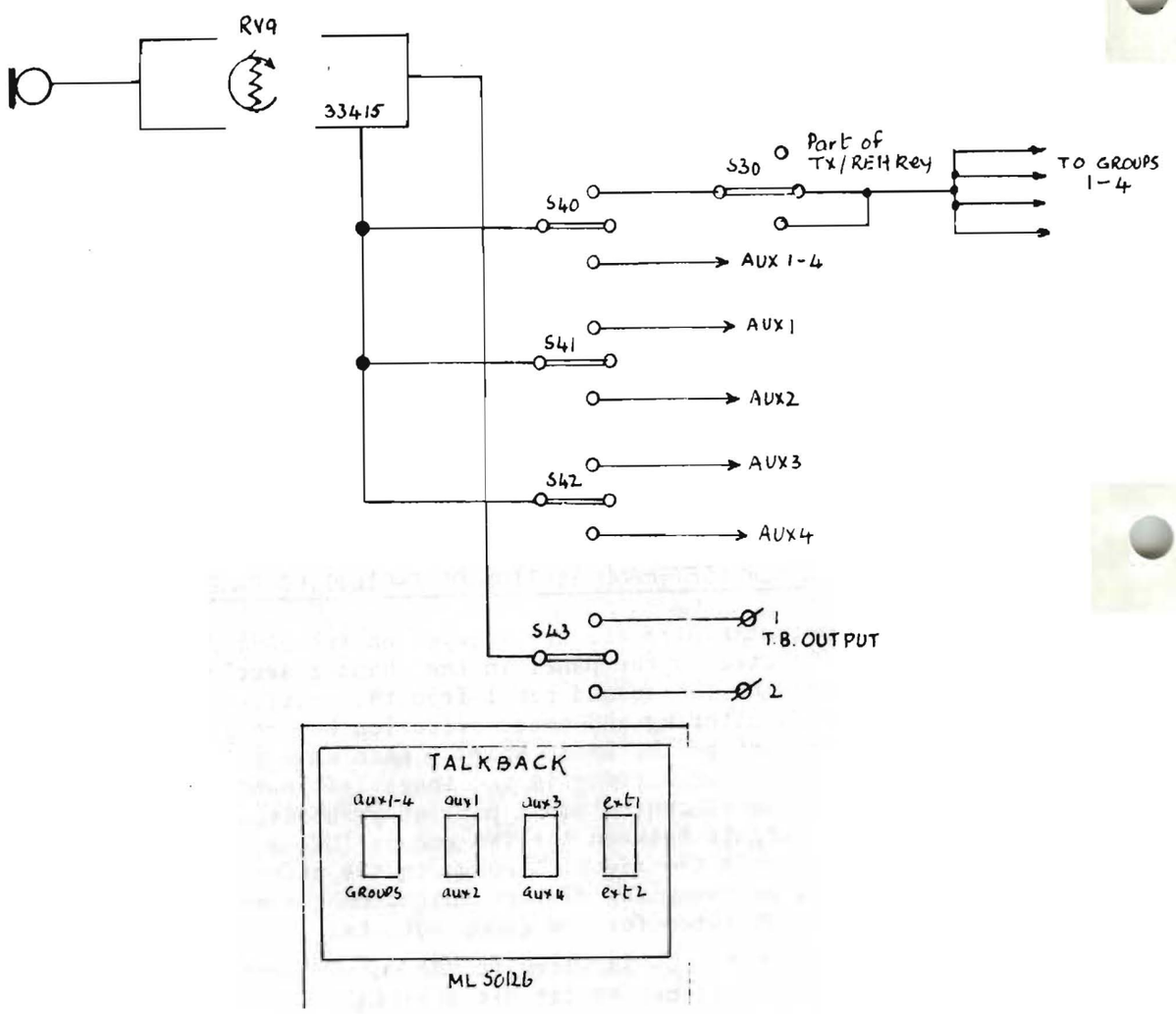
A separate group output only is wired to the output connector via the jackfield insertion shown in detail on the circuit diagram.

OUTPUT TERMINATIONS



The group and main outputs are fitted with internal terminating resistors (620 ohms on Group Insertion and 680 ohms on Main Outputs) at the Painton output connector. It is desired to operate the Console into an external 620 ohm load, the internal terminations should be removed.

TALKBACK

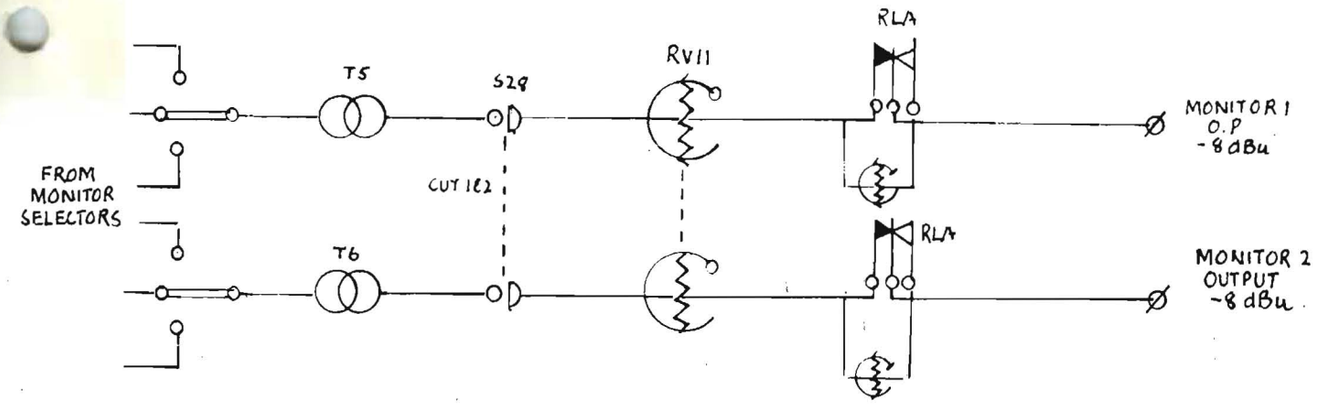


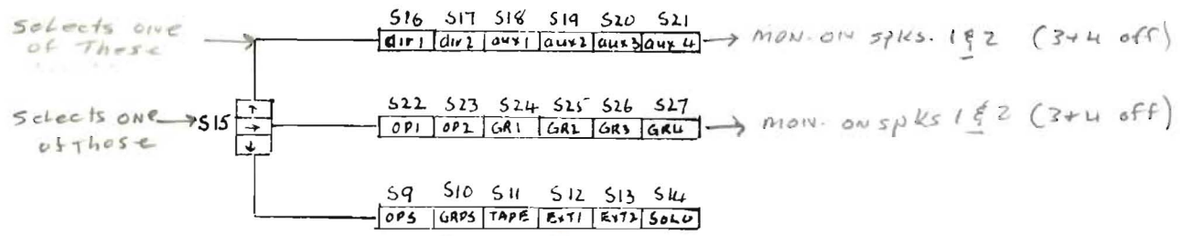
All talkback keys dim monitor via RLA, and mute CLS via RLB.

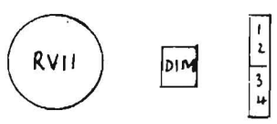
The talkback amplifier 33415 is mounted in the row of modules above the monitor and facilities panel. The associated level control RV9 is mounted below the microphone and adjacent to the Direct Inputs Control. Two outputs from the amplifier (balanced and unbalanced) are routed to four keyswitches S40-S43, mounted adjacent to the output faders. The 'Groups' key position is taken via the transmit/rehearse switch S30 so that the talkback signal can only reach the group outputs when the key is in the rehearse or standby modes. Other keys enable the signal to be routed to the auxiliary busses at any time.

When talkback key S43 is operated, the talkback signal is routed to either of two external circuits via socket 2, pins 14, 18 and 22, or 15, 19 and 23. D.C control wires on pins 28 and 29, or pins 30 and 31, are shorted under these conditions, and may be used for remote talkback routing.

MONITORING







Monitoring of all outputs is carried out via the keyswitch S15 and the 3 rows of interlocking pushbuttons S16 - S21, S22 - S27, and S9 - S14. The upper position of the keyswitch selects one of the two direct inputs or the four auxiliary outputs for monitoring via monitor outputs 1 and 2.

With the key centred, outputs 1 and 2 take any one selected source from the centre pushbutton row i.e:

Output 1
Output 2
Groups 1, 2, 3, or 4

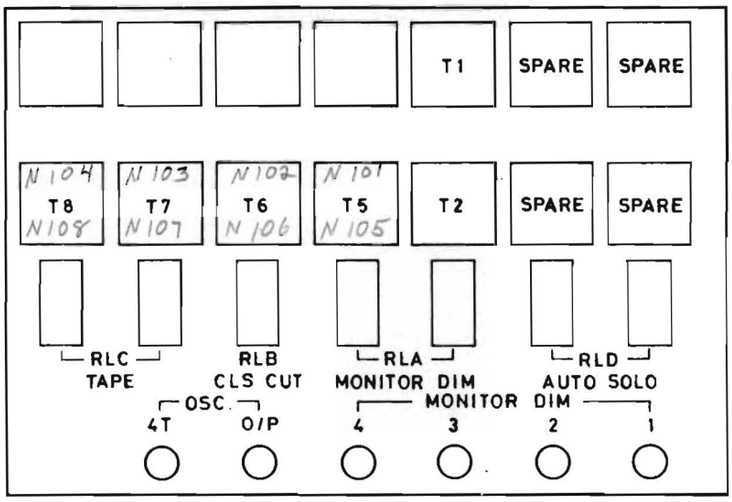
Monitor Outputs 3 & 4 are terminated both in the upper and centre positions of the keyswitch.

When the key is down, selections are as follows:-

Output 1 and 2	to	Monitor outputs 1 and 2
Groups 1,2,3, and 4	to	Monitor outputs 1, 2, 3 and 4
Tape 1,2,3, and 4	to	Monitor outputs 1, 2, 3 and 4
Ext 1 input	to	Monitor outputs 1 & 2
Ext 2 input	to	Monitor outputs 1 & 2
Ext I/Ps 1 and 2*	to	Monitor outputs 1 and 2
Solo output	to	Monitor outputs 1 & 2

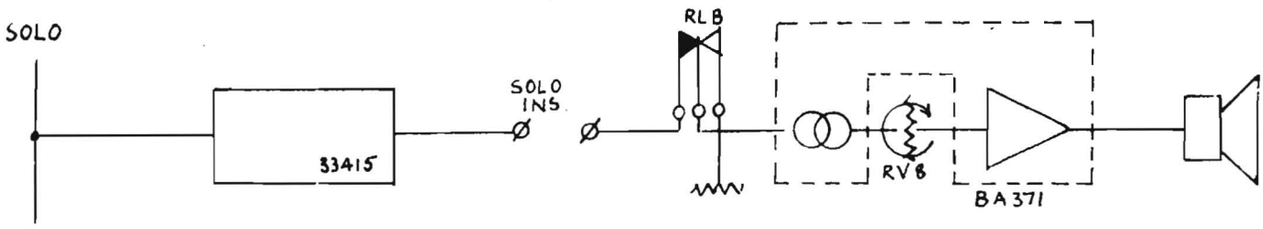
*With both buttons depressed together, the external inputs form a stereo pair.

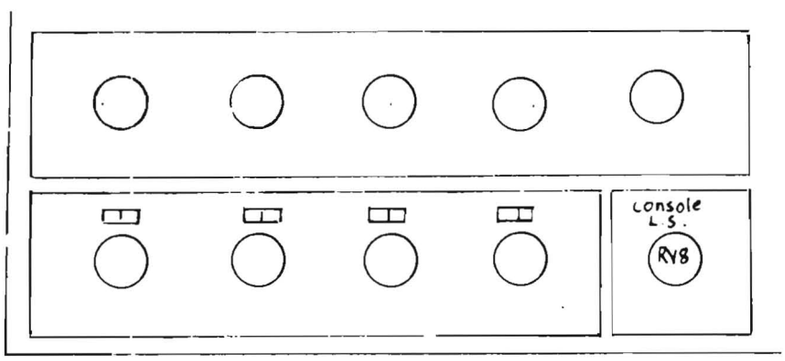
The level of all selected outputs is controlled by the rotary switched control RV11. Two cut buttons are provided to cut the monitor outputs in pairs. A single button DIM effects a 20 dB reduction of level at each monitor output. Note that the monitor outputs are also 'dimmed' by operation of any of the four Talkback keys.



Transformers T5 - T8 are mounted on the panel at the rear of the monitor section. The monitor dim relays are also on this panel.

SOLO AMPLIFIER AND CONSOLE LOUDSPEAKER



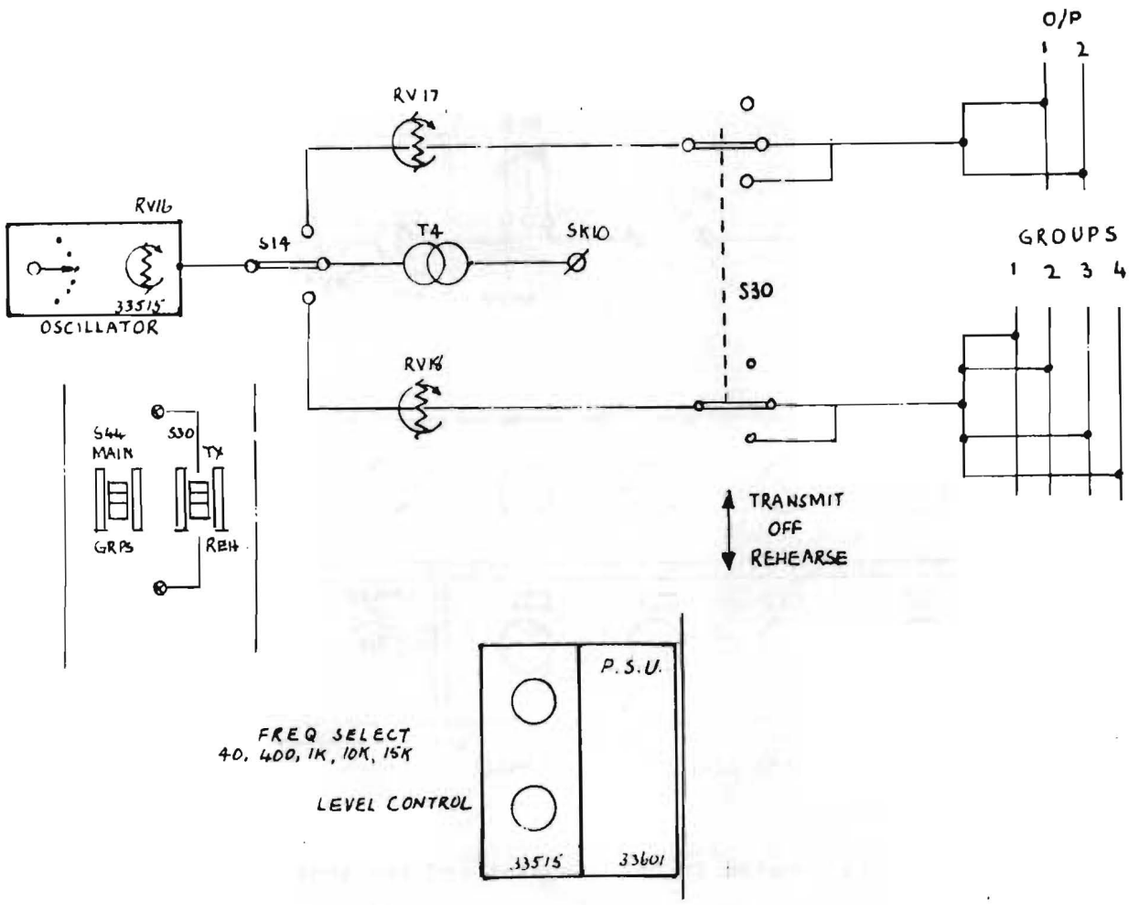


LOWER LEFT FACILITIES PANEL

The solo amplifier is located in the group of modules above the monitor and facilities panel.

The level of the output from the solo amplifier to the loudspeaker amplifier is controlled by the potentiometer RV8 located on the monitor and facilities panel. The output from the solo amplifier is taken to monitoring and metering and then to the solo insertion connector (SK4) from which it returns via the contacts of RLB to the input of the BA371 amplifier. Relay RLB is energised via the contacts of the talkback keys which mute the console loudspeaker when operated.

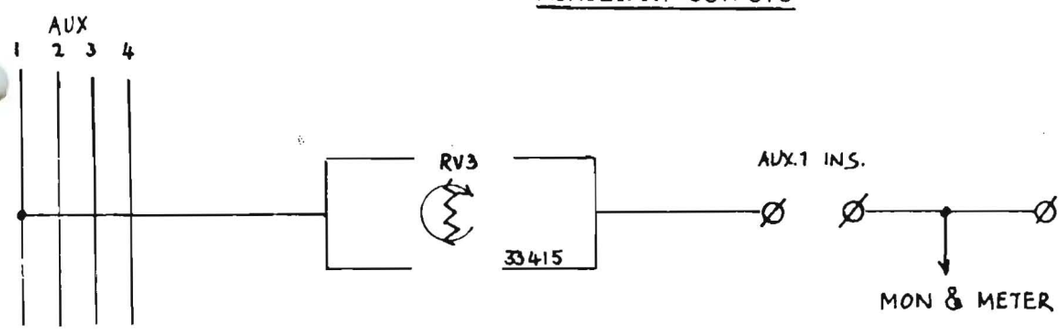
OSCILLATOR



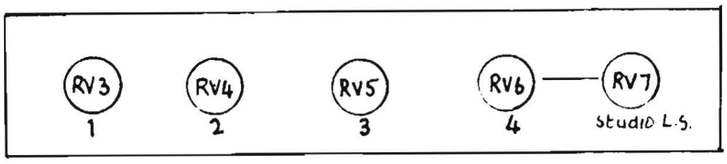
The oscillator module is mounted second from the right end of the row of modules above the facilities panel. The frequency selection switch and the oscillator output level control RV16 are mounted on the front panel of the unit. The output of the oscillator is taken to the keyswitch S44 mounted to the left of the meter switch banks on the facilities panel. By means of this switch the signal may be switched to either the two main output groups or to the four groups. In the centre position the key routes the signal to the output transformer T4 mounted on the panel accessible on removing the second panel from the left at the rear of the console. Cable P19 routes the signal to the output connector socket 10 as shown on sheet 2 of EC10499. The two pre-set potentiometers RV17 and RV18 are located on the panel behind the monitor section. These presets are factory adjusted and should not require further attention.

The transmit/rehearse key S30 located to the right of the main/groups key prevents the routing of tone through to the outputs when on transmission. Part only of the functions of S30 are shown.

AUXILIARY OUTPUTS



Aux 2-3 Similar

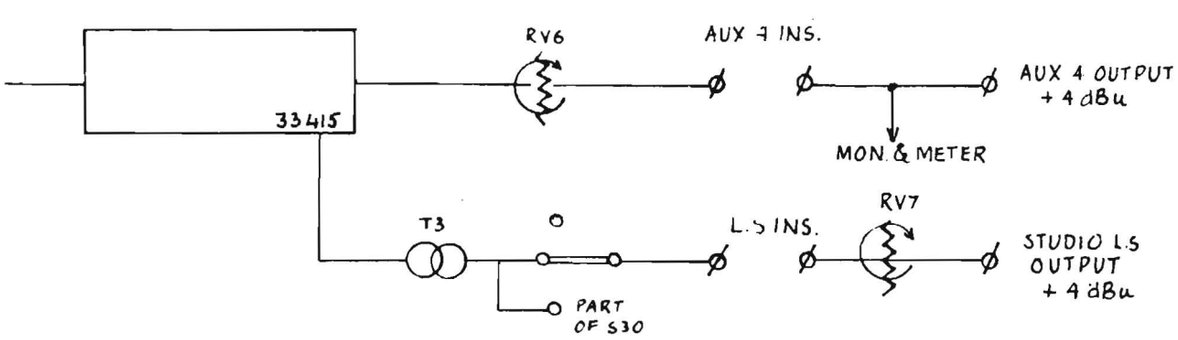


MID LEFT FACILITIES PANEL

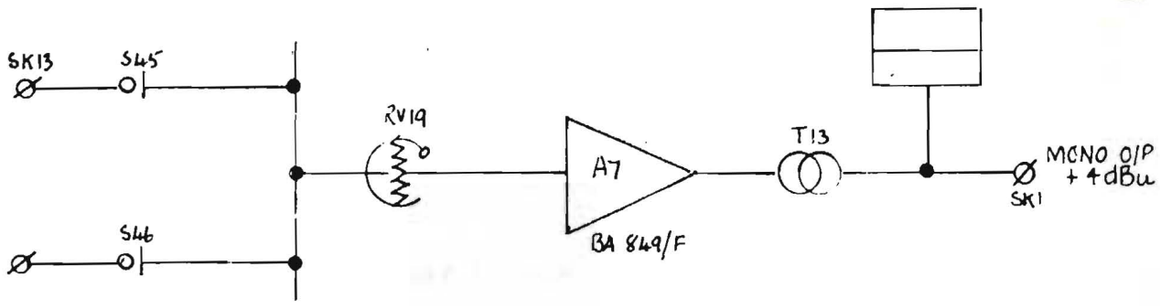
Provision is made for routing out four Auxiliary outputs derived from busbars to which all switching units are connected. Potentiometers RV3 - RV6 control the level of the auxiliary signals, which are routed via jackfield insertions to the auxiliary outputs using the connectors and pin numbers as shown on the circuit diagram.

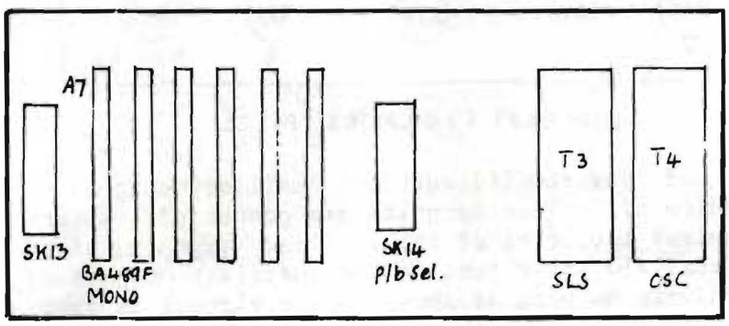
The signal from the Aux 4 amplifier may also be used to feed the studio loudspeaker output via T3, S30 and RV7.

The studio loudspeaker insertion allows for other signals to be fed to the output, still under the control of RV7.



MONO OUTPUT



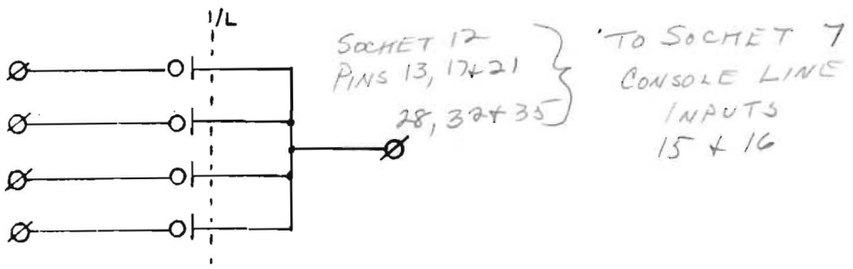


This provides a simultaneous mono output from the stereo main outputs (see under"Output Termination"). The option is located in the meter section, and is plugged into socket 13 on the panel at the rear of the channel section nearest to the monitor.

Signals from the main output 33415 amplifiers are switched by S45 and S46 on the mono output panel to amplifier A7 via RV19, the mono output level control. The output from the BA489F amplifier is fed through transformer T13 (mounted on the back of the mono output panel) to the mono output, which appears on socket 1 pins 27, 31 and 35.

The mono meter, if fitted, is also wired from transformer T13.

INPUT SELECTOR OPTION



The input selector enables one of four balanced inputs to be selected to any of the console line inputs. Two selectors are provided per panel. All of the connectors appear on one 35-way socket (sk12). The outputs pins (13, 17 and 21, or 28, 32 and 35) must be linked across to the desired pins of socket 7 or 17, the console line inputs.

PLAYBACK SELECTOR OPTION

This is similar in function to the input selector, but allows use of different tape machines with the tape inputs. The inputs to the selector are available on a 35-way socket (sk19), but the outputs appear on the 15-way socket PL20, which must be interchanged with plug 14 in socket 14 (mounted on the panel at the rear of the channel section nearest to the monitor), in order to route them to the console tape inputs. Note that the tape playback insertions are not then useable on the jackfield.

SECTION 4

LIST OF MODULES

STANDARD BROADCAST CONSOLE 5315

CHANNEL AMPLIFIER	33114:* N/A
CHANNEL AMPLIFIER	33115:* WE HAVE THIS
CHANNEL AMPLIFIER	33117:* N/A
CHANNEL SWITCHING UNIT	33726/A
LINE AMPLIFIER (REAR CONNECTOR)	33415
OSCILLATOR (PANEL LAYOUT)	33515
PHANTOM POWER SUPPLY	33601:*
POWER SUPPLY UNIT	33605

:* AS APPLICABLE

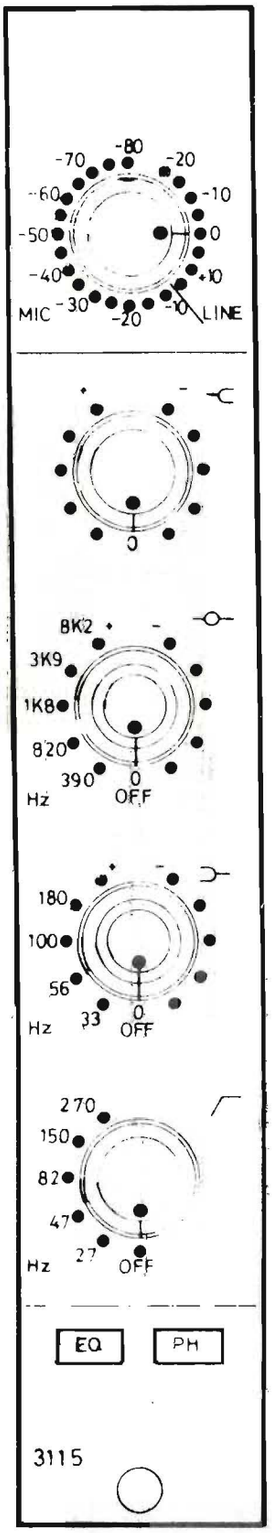
NOTE !

Please Note: BA438 and BA440 have now been replaced by BA638 and BA640 these boards however are interchangeable. For further information see section 4.

NOTE !

CHANNEL AMPLIFIER 3115/33115/33115A

CONTENTS LIST



Controls

Sensitivity Switch

Two balanced inputs as follows:

Microphone input: Sensitivity adjustable in 5 dB steps between -80 and -10 dB for 0 dBm output. Input impedance 1200 ohms. 300 ohms can be supplied as an alternative if required.

Line input: Sensitivity adjustable in 5 dB steps between -20 dB and +15 dB for 0 dBm output. Input impedance 10000 ohms.

Treble Control - Shelving

Variable to a maximum of ±20 ±1.5 dB.

Presence Control - Peaking

Variable to a maximum of ±18 ±1.5 dB. Switched boost and cut frequencies peaking at 8K2, 3K9, 1K8, 820, 390 Hertz.

Bass Control - Shelving

Variable to a maximum of ±20 dB ±1.5 dB. Switched boost and cut frequencies 330, 180, 100, 56 and 33 Hertz all ±10%.

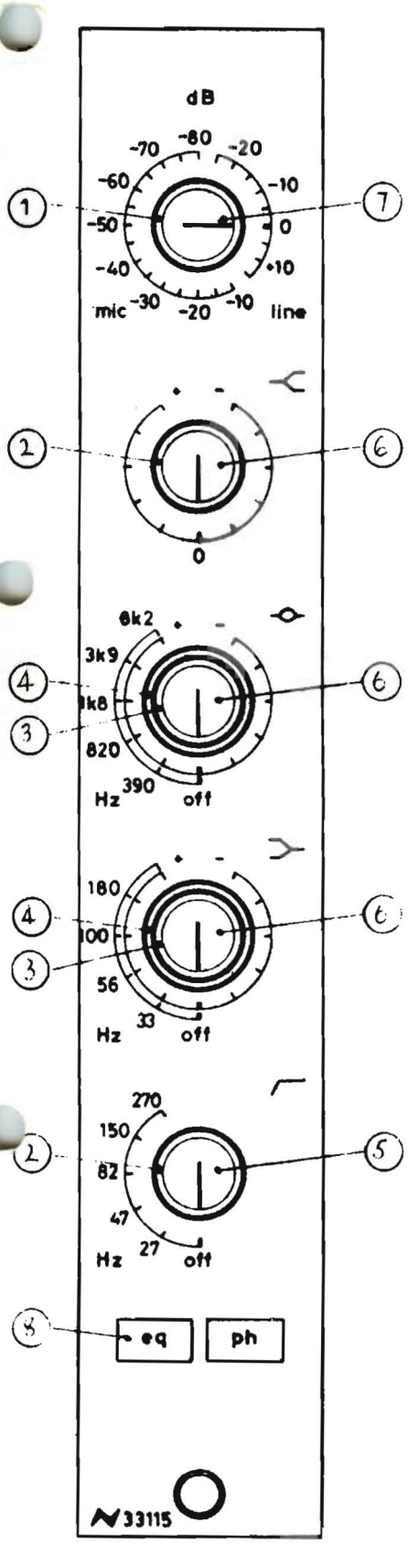
High Pass Filter

Five switched frequencies with -3 dB points at 27, 47, 82, 150 and 270 Hertz all ±10%. Slope 12 dB/octave.

Pushbuttons

EQ in/out
Phase reversal (balanced output only).

CHANNEL AMPLIFIER 3115/33115



This is a Series 3000 module.

The channel amplifier raises the level of the incoming signal from separate microphone or line input transformers to 0 dBm for feeding into a 600 ohm or bridging load.

The following frequency response correction circuits are incorporated.

1. Treble
2. Presence
3. Bass
4. High Pass Filter

They are used in conjunction with the operational amplifiers BA406 and BA438 described under the "Printed Circuit Board Assembly" section.

The output amplifier uses a BA440 also described under the "Printed Circuit Board Assembly" section.

Except for the front panel controls all the components including the operational amplifiers are contained on a motherboard assembly.

3115 is an extruded metalwork version and uses a motherboard assembly BA362.

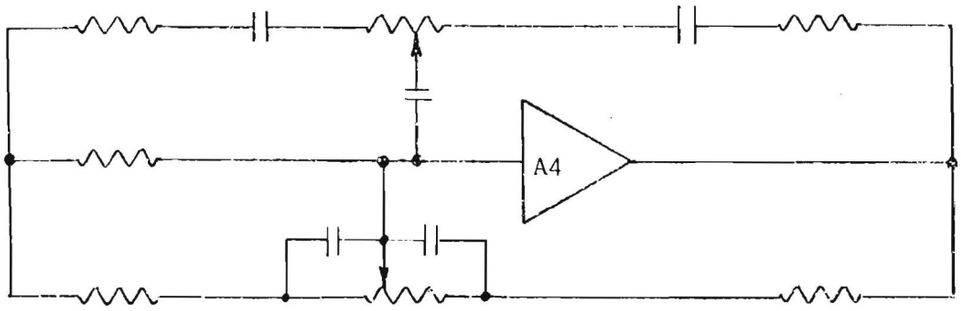
33115 is similar but has a changed front panel design.

Dimensions:

Height	219 mm (8.62 ins)
Width	35 mm (1.38 ins)
Depth	163 mm (6.5 ins)

Treble and Bass Controls (EK20151)

These controls operate in conjunction with amplifier A4. To avoid interaction between the lowest treble turn over frequency and the highest bass turn over frequency, each control has its own amplifier used in a simple Baxandall circuit arrangement. A simplified block diagram is shown below:



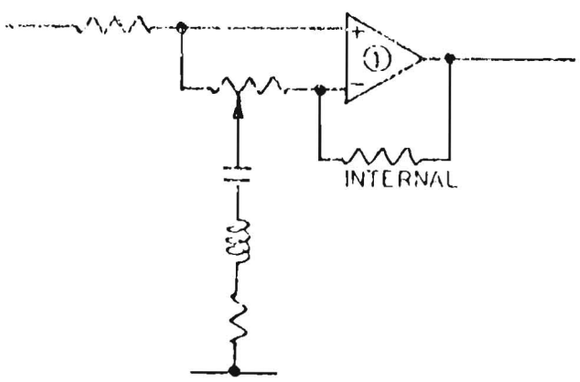
TREBLE AND BASS CONTROL (SIMPLIFIED)

Presence Controls (EK20152)

There are five switched positions giving boost and cut frequencies of 8K2, 3K9, 1K8, 820, and 390 Hertz. An off position is provided. A smooth variable control gives a maximum ±18 dB boost and cut.

The presence circuit follows standard practice using a tapped inductor to minimise variation of Q cross the frequency band. The Q of the circuit is approximately 1.5.

A simplified circuit is shown below:



PRESENCE CONTROL (SIMPLIFIED)

SPECIFICATION

Frequency Response

$\pm\frac{1}{2}$ dB from 20 Hz to 20 kHz, relative to the level at 1 kHz.

Distortion

Measured with EQ in and all frequency controls flat, Line input sensitivity set to -20 dBm.

At 100 Hz 0.02%
At 1 kHz 0.01%
At 10 kHz 0.07%

With microphone input sensitivity at -60 dBm.

At 100 Hz 0.05%
At 1 kHz 0.02%
At 10 kHz 0.05%

Noise

Measured with line input terminated in 600 ohms
Measured with microphone input terminated in 200 ohms
Sensitivity switch to -80 .. .. .. -43 dBm
Sensitivity switch to -60 .. .. .. -63 dBm
Sensitivity switch to 0 .. .. .. -90 dBm
With EQ IN at 0 . .. . -79 dBm

Square Wave Performance

Less than 5% with EQ set flat, line input at 0 dBm, 1 kHz injected, output at 0 dBm.

Sensitivity Switch Gain Deviation

Does not exceed $\pm$0.5 dBm in any position.

Maximum Output

Equal to or better than +27 dBm under the following conditions:

Output loaded 600 ohms
Input to line, sensitivity switch at -20
Frequency of signal 1 kHz
Input signal increased until output just clips.
(Clipping is where T.H.P. reaches 0.5%)

Phase

Both line and microphone inputs are in phase with the output.

Frequency Correction

Maximum +16 dB
Minimum -16 dB
High frequency control measured under the following conditions:
0 dBm, Line input selected
Input frequency 1 kHz
Output level measured at 10 kHz
with maximum gain boost.
Tolerance ±1 dB.

Presence, measured maximum boost and cut at 1.8 kHz

Boost	+18 dB
Cut	-18 dB
Tolerance	±1 dB

Peaking frequencies tolerance ±10%.

Low frequency Control

Measured 0 dBm line input, 100 Hz,

Output at each bass frequency with maximum and minimum boost

Frequency	180	100	56	33
Max. Boost	+15.5	+14	+10.5	+7.5
Max. cut	-15.5	-14	-10.5	-7.5

Tolerance ±1 dB.

High Pass Filter

For each switch position, the -3 dB points occur at the designated frequencies selected and the -15 dB points occur at 150 Hz, 80 Hz, 45 Hz, 27 Hz and 15 Hz, respectively. The tolerance is within ±10%.

Power Consumption

85 mA ±9 mA at 24 v. d.c. (quiescent).

Sensitivity Control (EK20046)

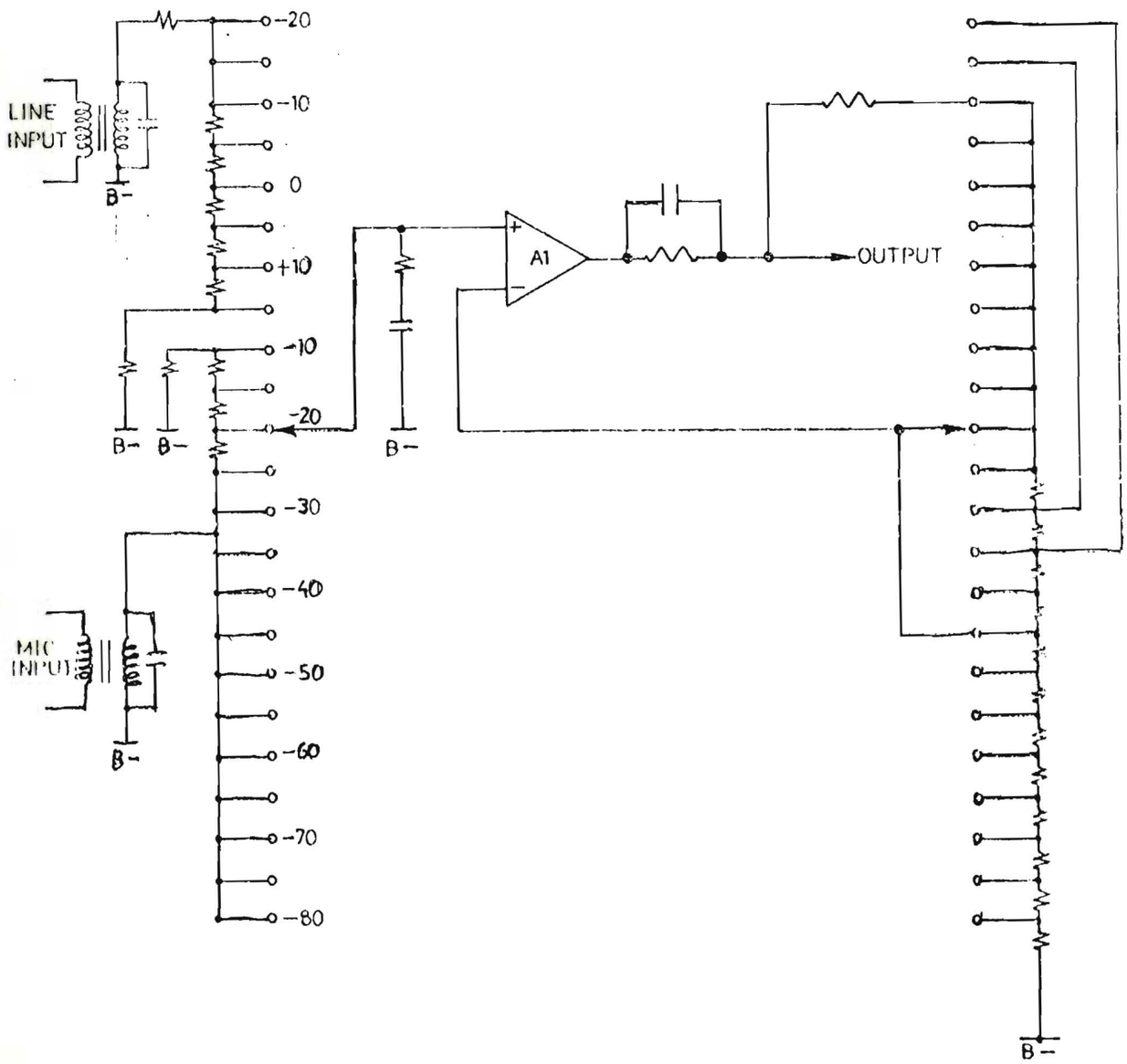
This control is used in conjunction with amplifier A1. It allows selection of either the microphone or the line input, and allows the gain to be adjusted in 5 dB steps.

The MICROPHONE input transformer T1, with an input impedance of 1200 or 300 ohms accepts signal levels between -80 dBm and -20 dBm for 0 dBm output.

The LINE input transformer T2, with an input impedance of 10K ohms accepts signal levels between -20 dBm and +10 dBm for 0 dBm output.

The switch is provided with a shorting wafer to reduce break-through from the LINE input when the MICROPHONE input is selected.

A simplified circuit is shown below:



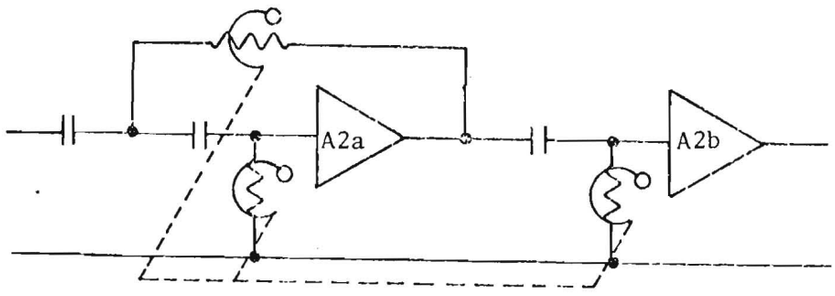
SENSITIVITY CONTROL (SIMPLIFIED)

High Pass Filter (EK20150)

The high pass filter has five switched frequencies of 27, 47, 82, 150 and 270 Hertz. An off position is provided. A third order Butterworth filter circuit arrangement is used in conjunction with A2 to give an attenuation rate of 18 dB octave.

The cut off frequencies are defined by fixed capacitors and switched banks of resistors which readily enables different cut-off frequencies to be selected.

A simplified circuit is shown below:



HIGH PASS FILTER (SIMPLIFIED)

Push Button Switches

Two non illuminated push button switches are provided having the following functions:

EQ The equalisation circuits are inserted into the signal path when the switch S1 is operated.

PH Phase reversal of the balanced output signal occurs when the switch S3 is operated.

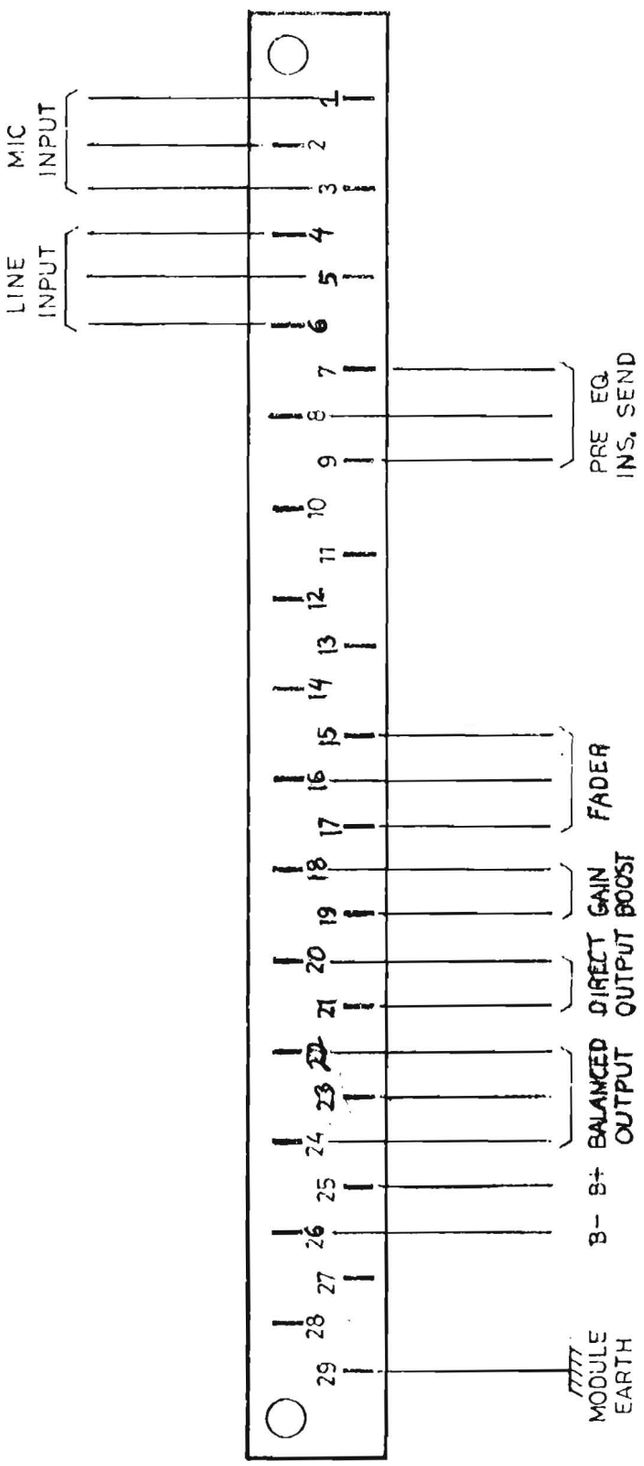
Output Stage

This stage, working in conjunction with A5 (BA440 described separate under the "Printed Circuit Board Assemblies" section) provides a balanced output via T3 and the phase reversal switch to pins 22 and 23 on the rear connector.

The balanced output provides a nominal level of 0 dBm and a maximum of +26 dBm into 600 ohms. The output impedance is 75 ohms.

The unbalanced output level of -8 dBm is available on pin 20 of the rear connector.

REAR CONNECTOR LAYOUT



PARTS LIST 3115

Qty	Description	Part No.
2	Switch push button 1B 2P	SO341
1	" " " Cap engraved "EQ"	MG63214/B
1	" " " " " "PH"	MG63215/B
1	Connector 29 way plug	CO369
1	Switch Assembly Sensitivity	EK20046
1	" " Presence	EK20152
1	" " Bass	EK20151
1	" " Filter	EK20150
1	Motherboard Assembly (used on 3115)	BA362
1	Potentiometer 10K Lin	PO101

PARTS LIST 33115

Ref.	Qty.	Description	Part No.
RV1		Potentiometer, Linear 10K	PO015
S1,2		Switch, Isostat 1B 2P	SO341
		Isostat Caps, engraved	
	1	Isostat Cap, 10 mm, engraved	MG65396/B
	1	Isostat Cap, 10 mm, engraved	MG65397/B
	2	Knob 12 mm dia 6.35 mm bore	MG21479/1
	1	Knob 12 mm dia 6 mm bore	MG21479/2
	2	Knob 12 mm dia 3 mm bore	MG21480/4
	2	Knob 15.5 mm dia 6.35 mm bore	MG21481/1
	1	Cap, light blue	MZ20828/1
	3	Cap, med. blue	MZ20828/2
	1	Cap, dark blue	MZ20828/3
A1,3,4		Printed Circuit Board Assembly	BA438
A2		Printed Circuit Board Assembly	BA406
A5		Printed Circuit Board Assembly	BA440
		Sub Assemblies	
	1	Sensitivity Switch	EK20046
	1	H.P. Filter Switch Assembly	EK20150
	1	Bass Switch Assembly	EK20151
	1	Presence Switch Assembly	EK20152

FRONT PANEL LAYOUT 33115

(SEE PREVIOUS PAGE)

Item	Detail	Part No.
1	12 dia Knob - 6 mm Bore	MG21479/2
2	12 dia Knob - 6.35 mm Bore	MG21479/1
3	12 dia Knob - 3 mm Bore	MG21480/4
4	15.5 dia Knob - 6.35 mm Bore	MG21481/1
5	Cap - Light Blue	MG21482/1
6	Cap - Med. Blue	MG21482/2
7	Cap - Dark Blue	MG21482/3
8	(Isostat) 10 mm PB Grey filled black	

EK 20046 SENSITIVITY SWITCH ASSEMBLY

Ref	Qty	Description	Part No.
		Switch rotary 3 x 23W Elma 01	SO 120
	1	Resistor 24 TR4 2%	R4 24
	1	" 27 " "	R4 27
	1	" 30 " "	R4 30
	1	" 33 " "	R4 33
	2	" 43 " "	R4 43
	1	" 75 " "	R4 75
	1	" 82 " "	R4 82
	1	" 100 " "	R4 100
	1	" 110 " "	R4 110
	1	" 130 " "	R4 130
	1	" 150 " "	R4 150
	1	" 200 " "	R4 200
	1	" 240 " "	R4 240
	1	" 300 " "	R4 300
	1	" 390 " "	R4 390
	1	" 560 " "	R4 560
	1	" 620 " "	R4 620
	1	" 750 " "	R4 750
	1	" 820 " "	R4 820
	1	" 1K2 " "	R4 1K2
	1	" 1K3 " "	R4 1K3
	1	" 2K0 " "	R4 2K0
	1	" 2K2 " "	R4 2K2
	1	" 2K4 " "	R4 2K4
	1	" 3K9 " "	R4 3K9
	1	" 7K5 " "	R4 7K5
	1	" 13K " "	R4 13K

EK20151 BASS SWITCH ASSEMBLY

Qty	Description	Part No.
1	Switch Rotary 2P 5W N/S	SO584
1	Potentiometer 50K Lin	PO020
2	Resistor T15 4M7	T15 4M7

EK20152 PRESENCE SWITCH ASSEMBLY

Qty	Description	Part No.
1	Switch Rotary 1P 6W N/S	SO583
1	Potentiometer 10K Lin	PO016
1	Resistor T15 4M7	T15 4M7

EK20150 Filter Switch Assembly

Qty	Description	Part No.
1	Switch Rotary 3P 6W	SO532
1	Potentiometer 10K Lin	PO016

EK20150/1 Filter Switch Assembly

Qty	Description	Part No.
1	Switch Rotary 3P 6W	S.O.
1	Potentiometer 10K Lin	PO016

EK20150/2 Filter Switch Assembly

Qty	Description	Part No.
1	Switch Rotary 3P 6W	SO532
1	Stepped pot 10K Lin	EK20076

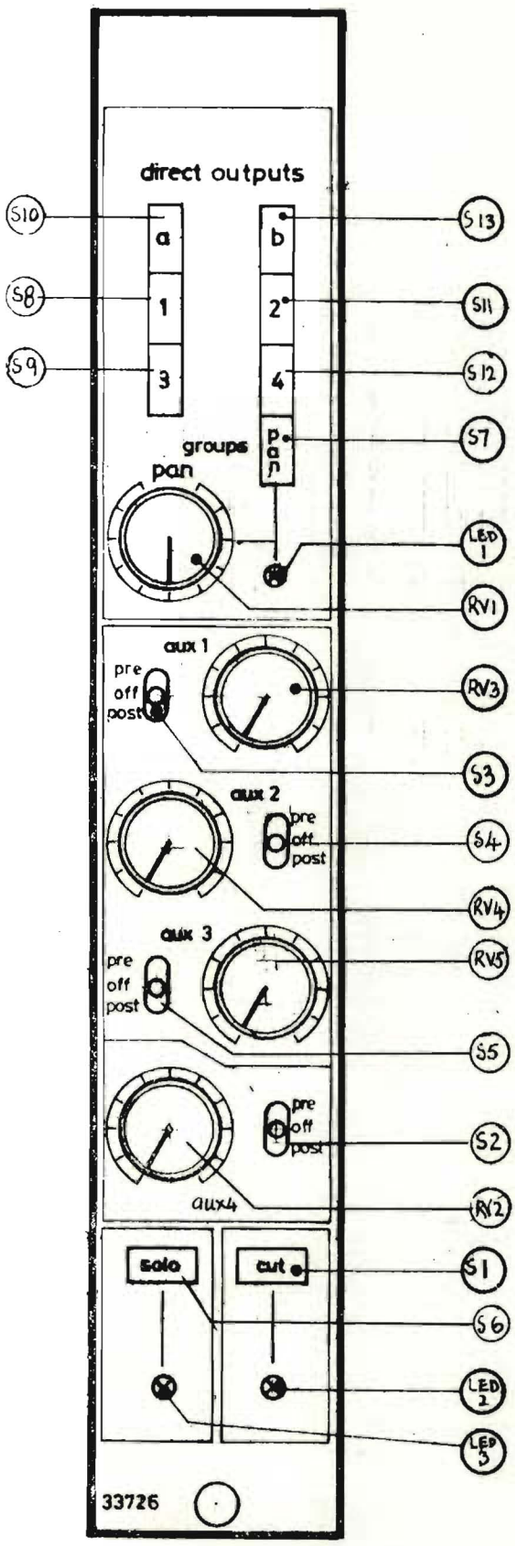
PARTS LIST BA362

Ref	Description	Part No.
R1	Resistor TR4, 5% 680 ohms	RA680RO
R2,7,14,28	Resistor " " 47 ohms	RA047RO
R3,5	Resistor " " 2KO ohms	RA002KO
R4,11,16,30	Resistor " " 10K ohms	RA010KO
R6	Resistor " " 7K5 ohms	RA007K5
R8	Resistor " " 4K3 ohms	RA004K3
R9	Resistor CR25 L Meg	RA001MO
R10,12,15	Resistor TR4 5% 47K ohms	RA047KO
R38,39	Resistor " " 47K ohms	RA047KO
R13	Resistor " " 15K ohms	RA015KO
R17,40	Resistor " " 1K2 ohms	RA001K2
R18,20,22	Resistor T15 4M7	RH004M7
R32-R37	Resistor " 4M7	RH004M7
R44	Resistor " 4M7	RH004M7
R19	Resistor TR4 5% 1K3 ohms	RA001K3
R21,23	Resistor " " 1K5 ohms	RA001K5
R24,43	Resistor " " 1K6 ohms	RA001K6
R25,29	Resistor " " 620 ohms	RA620RO
R26,31	Resistor " " 6K8 ohms	RA006K8
R27	Resistor " " 12K ohms	RA012KO
R41	Resistor " " 10 ohms	RA010RO
R42	Resistor " " 100 ohms	RA100RO
C1	Capacitor Suflex 180 pF	CA11800
C2	Capacitor Suflex 330 pF	CA13300
C3,5	Capacitor Electro. 470 µF, 25V	CA64701
C4,6,13	Capacitor Electro. 150 µF, 16V	CA61501
C20,27,29	Capacitor Electro. 150 µF, 16V	CA61501
C7,8,9	Capacitor Polycarb. 150 nF	CA21502
C10,12	Capacitor Polycarb. 150 nF	CA21502
C14	Capacitor Polycarb. 120 nF	CA21200
C15,31,36,	Capacitor Polycarb. 56 nF	CA20560
C16	Capacitor Polycarb. 27 nF	CA20270
C17	Capacitor Polycarb. 12 nF	CA20120
C18	Capacitor Suflex 5n6	CA20050
C19,25,38	Capacitor TAG, 22 µF, 16V	CA60223
C39	Capacitor TAG 22 µF, 16V	CA60223
C11,21,28	Capacitor Electro. 25V	CA61002
C22,26,32	Capacitor Polycarb. 22nF	CA20222
C35	Capacitor Polycarb. 22 nF	CA20222
C30,37	Capacitor Polycarb. 100 nF	CA21003
C24	Capacitor Polycarb. 15 nF	CA20152
C43	Capacitor Electro. 1000 µF, 25V	CA71004
C33,34	Capacitor Suflex 6n8	CA20060
C23	Capacitor Suflex 1n	CA20010
C40	Capacitor Polycarb 680 nF	CA26802
C41,42,44	Capacitor Electro. 470 µF, 16V	CA64704
C45	Capacitor Suflex	CA20020
L1	Inductor Tol26	IN12018
T1	Transformer 10468/S	TF10003
T2	Transformer 31267/S	TF10005
T3	Transformer T1751	TF12012
	Connector 29 way plug Varelco	CN10581
	Printed Circuit Board	EV10362

CHANNEL SWITCHING UNIT 33726A

CONTENTS LIST

CHANNEL SWITCH UNIT 33726A



The Channel Switch Unit employs two stages of amplification A1 and A2 using similar printed circuit board amplifiers BA440. The second amplifier A2 has provision for the use of a pre-set gain boosting potentiometer (see BA619/A board circuit EX10619/A) 2 and 8. (see Circuit Diagram ES10189). Provision is made for the connection of a flat fader between the two stages of amplification pre and post fade signals are then divided to provide the following facilities:-

1. A solo output (unbalanced) taken from the output of A2 and switched in or out of circuit by a pushbutton S6 which lights the associated yellow LED when ON.

2. A cut switch S1 when operated earths the signal outputs from A1 and A2 and lights a red warning LED.

3. The output from A2 is taken via S1 to the pan-pot RV1a,b and associated switch S7 which lights the green LED 3 via the d.c. contacts S7c when operated. The two signal contacts S7a and S7b each feed three pushbuttons, S8, 9, 10 and S11, 12, 13 respectively. With the PAN switch not selected, direct outputs from A2 are available at pushbuttons S8 - S13. Selecting S7 distributes the pan pot outputs between S8 - 10 and S11 - 13.

4. Pre and post-fade signals are taken to the four key switches S2 - S5 which provide pre and post outputs and a central OFF position for distribution to the associated level controls RV2 - 5. The signals are taken to the auxiliary outputs AUX 1 · 4.

SPECIFICATION

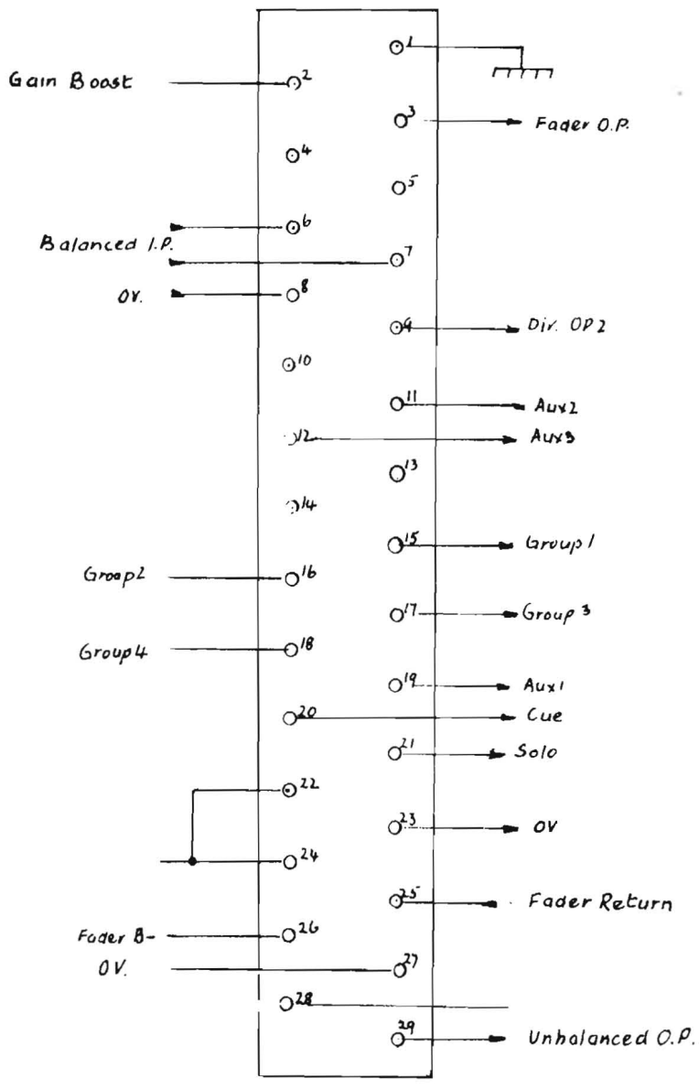
Input:	+4 dBu. (RV1 is adjusted to give a level of -6 dBu at the Group Output).
Maximum Output:	Greater than 16 dBu at unbalanced output.
Frequency Response:	20 Hz to 20 kHz within 0.5 dB measured at the unbalanced output relative to 0 dBu at 1 kHz.
Distortion:	At an output level of +10 dBu the distortion is:- Less than 0.02% at 100 Hz Less than 0.01% at 1 kHz Less than 0.02% at 10 kHz
Crosstalk:	For an output level of +10 dBu at 1 kHz at the group output, the crosstalk present on another group output is less than -100 dBu with this output de-selected and all other outputs selected.
Square Wave Response:	Less than 3% overshoot on a 0.5 V amplitude square wave at 3 kHz at the unbalanced output.
Noise:	With the input short circuit, the noise present at the group output through a 20 Hz - 20 kHz filter is less than -90 dBu.
Clicks and Thumps:	The amplitude of clicks and thumps due to the operation of any switch and measured using a 40 dB amplifier and PPM is less than -60 dBu.

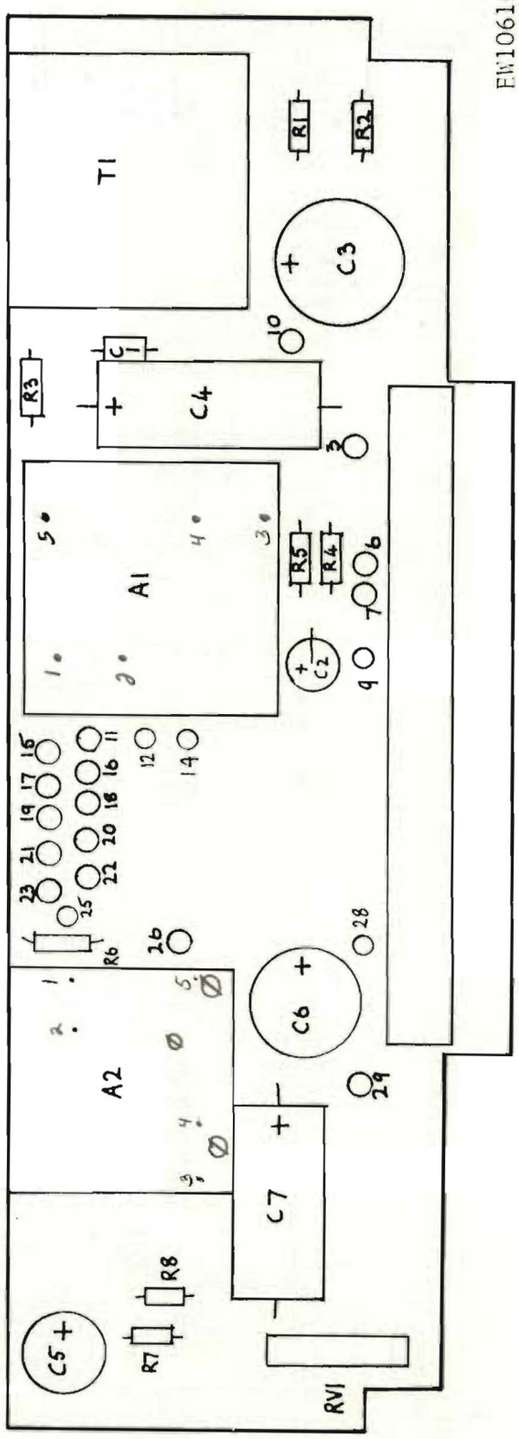
33726A CHANNEL SWITCHING UNIT

PARTS LIST

Ref	Description	Part No.
R1,4	Resistor, TR6, 2% 620 ohms	RC620RO
R2,3	Resistor, TR4, " 1K5 ohms	RA001K5
R5-8	Resistor " " 9K1 ohms	RA009K1
R9,10	Resistor " " 10K ohms	RA010KO
RV1a,b	Potentiometer 10K + 10K Linear	PT45008
RV2-5	Potentiometer 10K Linear	PT15017
LED 1	Red	LA13002
LED 2	Yellow	LA13001
LED 3	Green	LA13000
	LED Mounting Kit	LA13200
S1,7	Switch Isostat 1B 4P	SW20001
S2-5	Switch Toggle MST 3-way	SW10205
S6	Switch Isostat 1B 2P	SW20000
S8-10	Switch Isostat 3B 2P	SW20040
S11-13	Switch Isostat 4B 2P	SW20060
R11	Resistor TR4 2% 150 ohms	RA150RO
Qty	Knobs and Inserts	
5	Knobs	MG21479/4
4	Insert light blue	MZ20828/1
1	Insert medium blue	MZ20828/2
	Engraved Isostat Caps	
1	White eng. 1	MG53331/B
1	Black eng.	MG54485/W
1	Black eng.	MG54486/W
1	Grey eng. 1	MG55001/B
1	Grey eng. 2	MG55002/B
1	Grey eng. 3	MG55003/B
1	Grey eng. 4	MG55004/B
1	Grey eng.	MG65332/B
1	Grey eng.	MG65333/B
2	Printed Circuit Board BA440	PL10440

REAR PANEL CONNECTOR 33726A





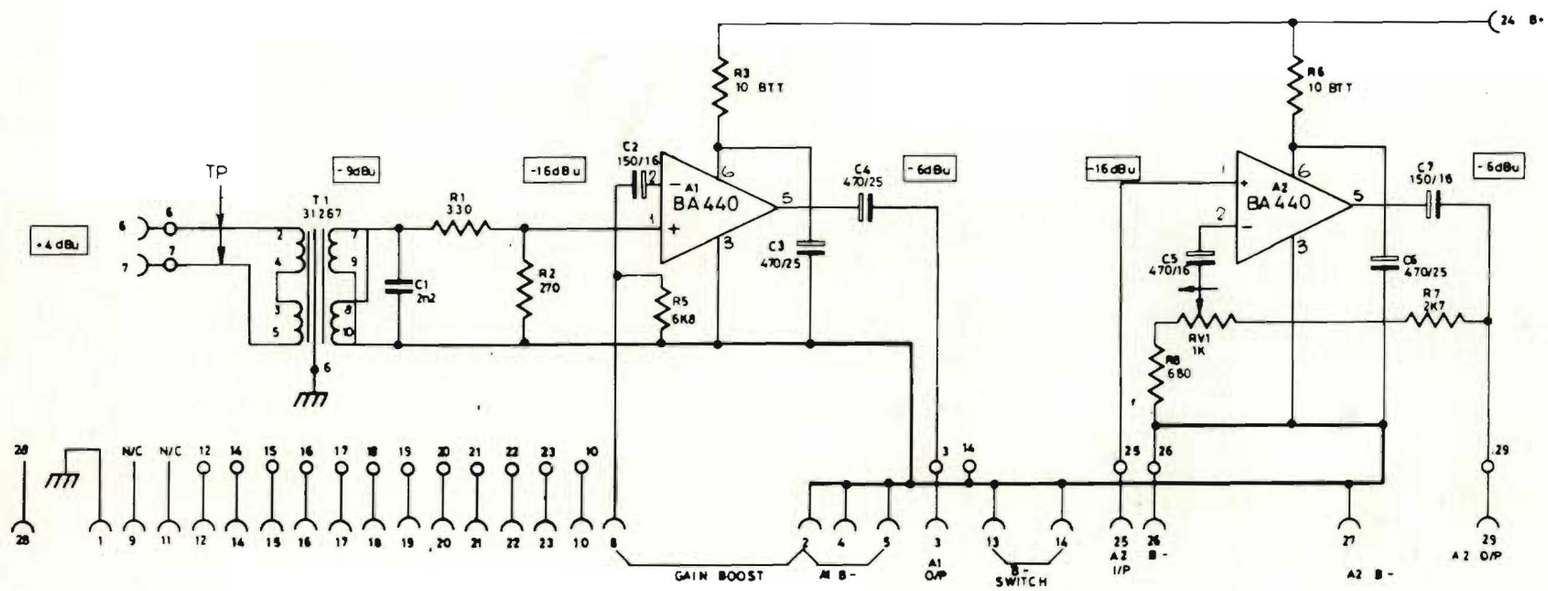
BA619 COMPONENT LAYOUT

PARTS LIST BA619/A

Ref	Description	Part No.
R1	Resistor TR4, 2% 330 ohms	RA330RO
R2	Resistor " " 270 ohms	RA270RO
R3,6	Resistor RBTT " 10 ohms	RD010RO
R5	Resistor TR4 " 6K8 ohms	RA006K8
R7	Resistor " " 2K7 ohms	RA002K7
R8	Resistor " " 680 ohms	RA680RO
RV1	Potentiometer multi-turn 1K, Linear	PT11008
C1	Capacitor, Suflex 2n2	CA20021
C2,7	Capacitor, Electro. 150 µF, 16V	CA61501
C3,6	Capacitor, Electro. 470 µF, 25V	CA64703
C4	Capacitor, Electro. 470 µF, 25V	CA64701
C5	Capacitor, Electro. 470 µF, 16V	CA64704
T1	Transformer 31267S	TF10005
	Connector, 29-way plug	CN10581
A1,A2	Printed Circuit Board Amplifier BA440	PL10440

DRAWING No.

EX 10619A

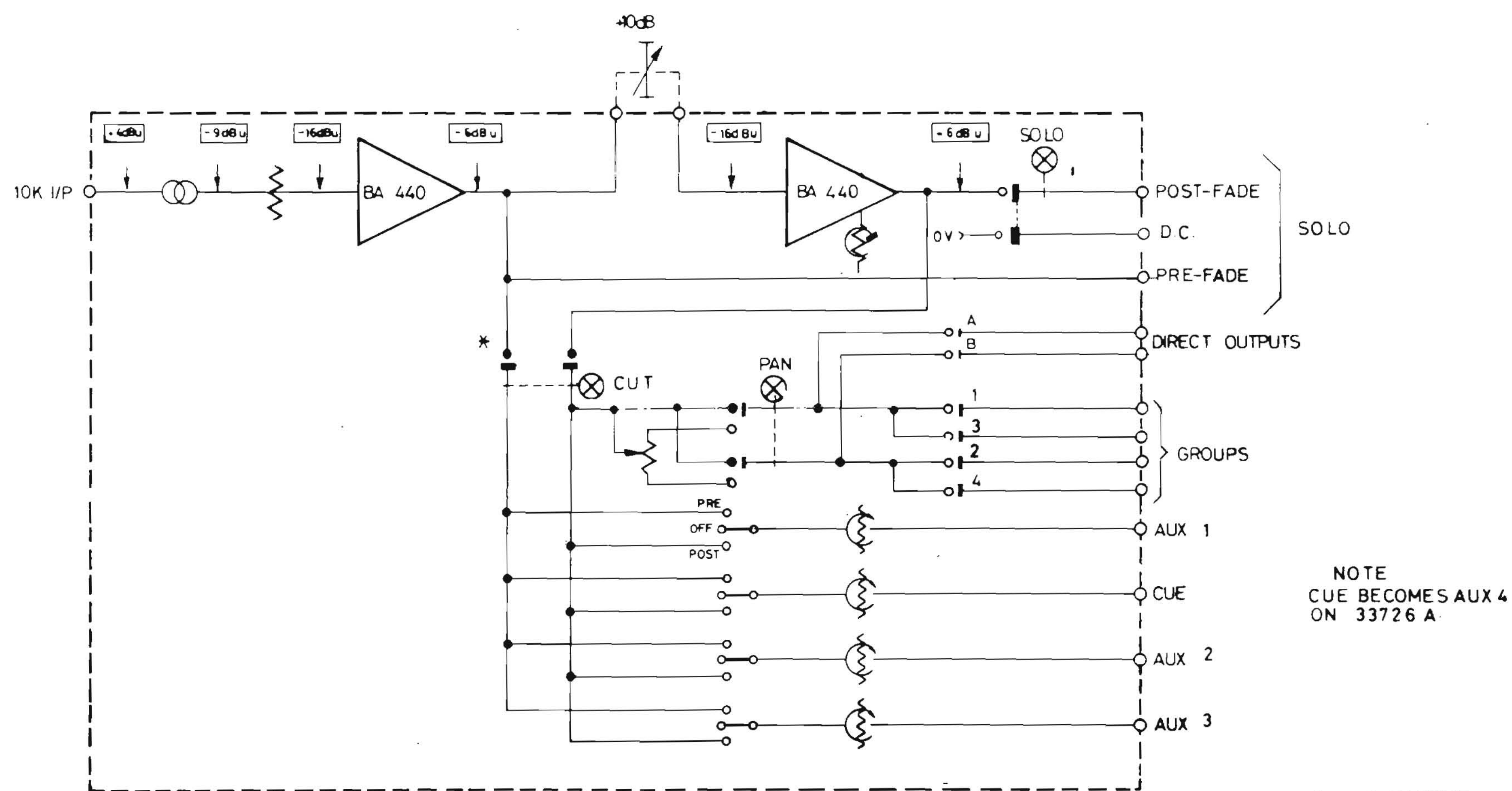


2	1	ISSUE	FIRST USED ON A4236 33726 SW UNIT	MATL.	TOL. UNLESS OTHERWISE STATED LINEAR ±	ANGULAR HOLES +0.13 -0
11-7-77	24.3.77	DATE	DRN. A.J.G.	FINISH	3rd ANGLE PROJ.	DIMS. IN SCALE
		CHANGE NOTE No.	TRACED J.D.C.	TITLE BA 619/A MOTHERBOARD	DRG. No. EX 10619 /A	
		CHECKED	CHECKED	Rupert Neve & Company Ltd.	1977	A3

COPY ALSO IN NUMERICAL SCHEMATICS & DRAWINGS

1	2	3	4	5	6

DRAWING No.
EB 20261



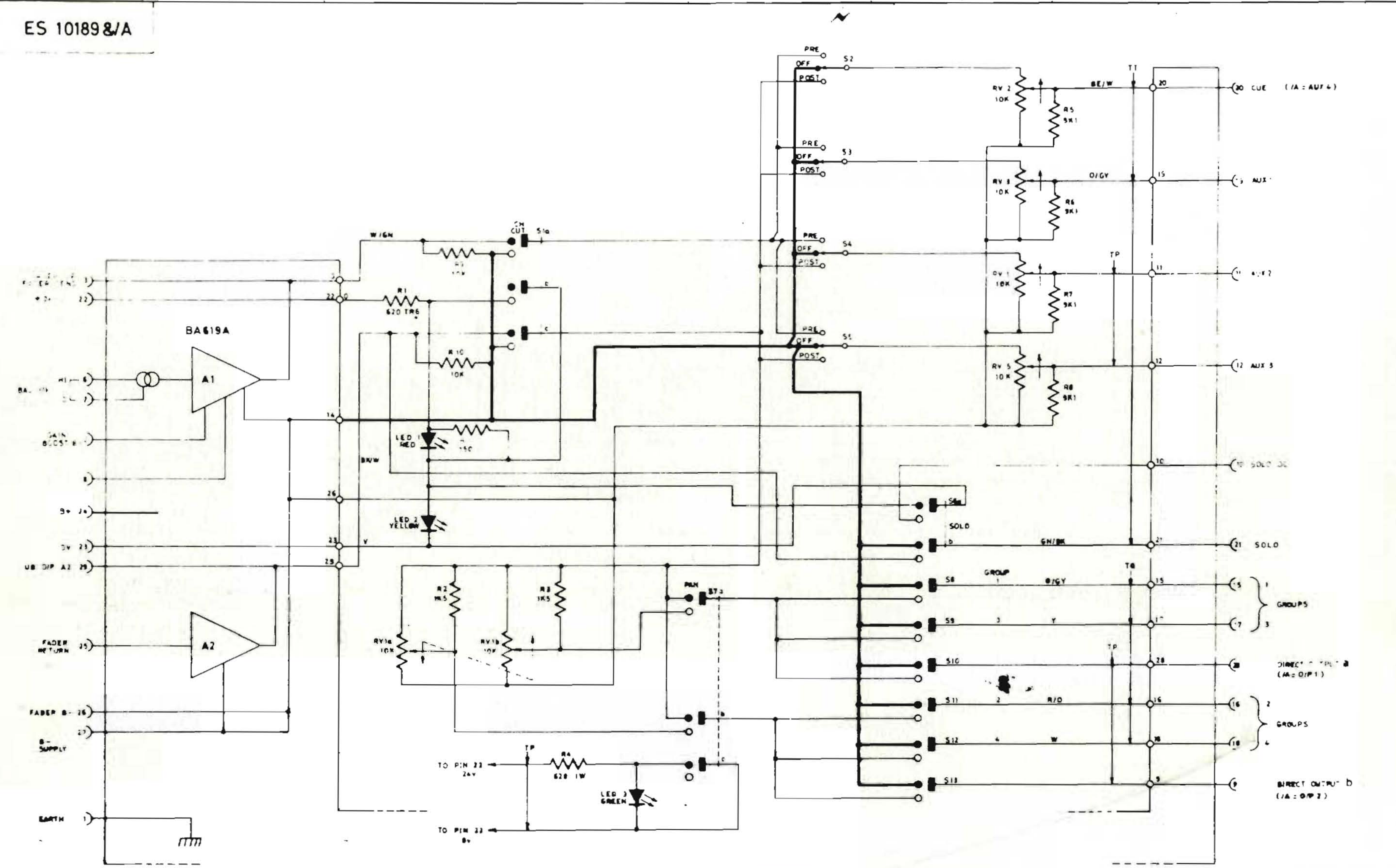
NOTE
CUE BECOMES AUX 4
ON 33726 A

FRONT PANEL LAYOUT ML33726

3	2	1	ISSUE	FIRST USED ON A4236	MATL.	TOL. UNLESS OTHERWISE STATED: LINEAR ± / ANGULAR / HOLES +0.13 −0
26·AUG·77	2 MARCH 77	9 DEC 76	DATE	DRN. JH	FINISH	3rd ANGLE PROJ. / DIMS. IN / SCALE
			CHANGE NOTE Nº	TRACED NN	TITLE 33726 & 33726 A SWITCHING UNIT	DRG. No. EB 20261
	A.F.?	JM	CHECKED		Rupert Neve & Company Ltd.	1976 © A2

Extra Copy

ES 10189&/A



6	5	4	3	2	1	ISSUE	FIRST USED ON A 4238	MAT'L	TOL UNLESS OTHERWISE STATED LINEAR / ANGULAR / HOLES
13-6-78	20-9-77	18-5-77	20-6-77	5.4.77	7-2-77	DATE	DRN A.J.G.	FINISH	DIMS IN / SCALE
DIRECT O/P 2 WAS 3 ... ADDED	CN6030	[illegible]	B- SUPPLY PIN 26 NOW 0A1	S11 ADDED		CHANGE NOTE No	TRACED A.L.Q. / CHECKED.	TITLE 32726 & 32726/A CHANNEL SWITCHING UNIT	DRG No ES 10189 &/A
FCB	EL.	FCB	FCB	FCB		CHECKED	Rupert Neve & Company Ltd.		1977 / A2

LINE AMPLIFIER 33415/33415A

CONTENTS LIST

LINE AMPLIFIER 33415

This is a Series 3000 module.

It consists of two stages of amplification. The input stage uses a BA438 (A1) amplifier. The output stage uses a BA440 (A2) amplifier. These are described under the "Printed Circuit Board Assemblies" section.

The components including the amplifiers A1 and A2 are mounted on a BA366 motherboard.

The primary function of this amplifier is for use on console mixing buses to return the output bus level to the standard console set-up level (0 dBm or +4 dBm).

The output level of console mixing buses tends to be between -50 dBm and -60 dBm depending upon size and loading.

The amplifier also has an internal insertion point suitable for the insertion of a "group fader" or other device such as a 3310 limiter.

Dimensions:

Height:	85 mm (3.375 ins)
Width:	35 mm (1.38 ins)
Depth:	160 mm (6.6 ins)

GENERAL CIRCUIT DESCRIPTION

The balanced and earth free input signal is applied to the primary of the input transformer T1.

A choice of input impedances are available. For an input impedance of 1K2 ohms, the input signal is applied directly to T1 via pins 1 and 5 on the rear connector. For an input impedance of 10K ohms the input is applied via a balanced resistive pad between pins 2 and 4 on the rear connector, with a 470 ohm resistor between pins 1 and 5.

The amplifier A1 normally has a gain of 17 dB, but this may be increased by external gain boosting resistors applied between pins 6 and 11, on the rear connector. Calculation of these resistors should included the effect of R5 and R6 in parallel with 15K ohms internal resistor.

The unbalanced output from A1 is taken via the front panel pre set potentiometer RV1 to pin 7 on the rear connector. If a level control is required it must be mounted remote from the amplifier. It is connected between pins 7 and 8 on the rear connector and should have an impedance greater than 1K ohms.

The amplifier A2 may also be gain boosted. If the external level control is an horizontal fader requiring 10 dB gain in hand, the gain of A2 must be suitably adjusted.

The circuit gives an overall gain of 30 dB when using the 1K2 ohm input, or 0 dB when using the 10K ohm input. External gain boost resistors may be used to increase the overall gain to a maximum of 70 dB.

For an overall gain of greater than 40 dB the gain boost resistors should be evenly distributed between A1 and A2.

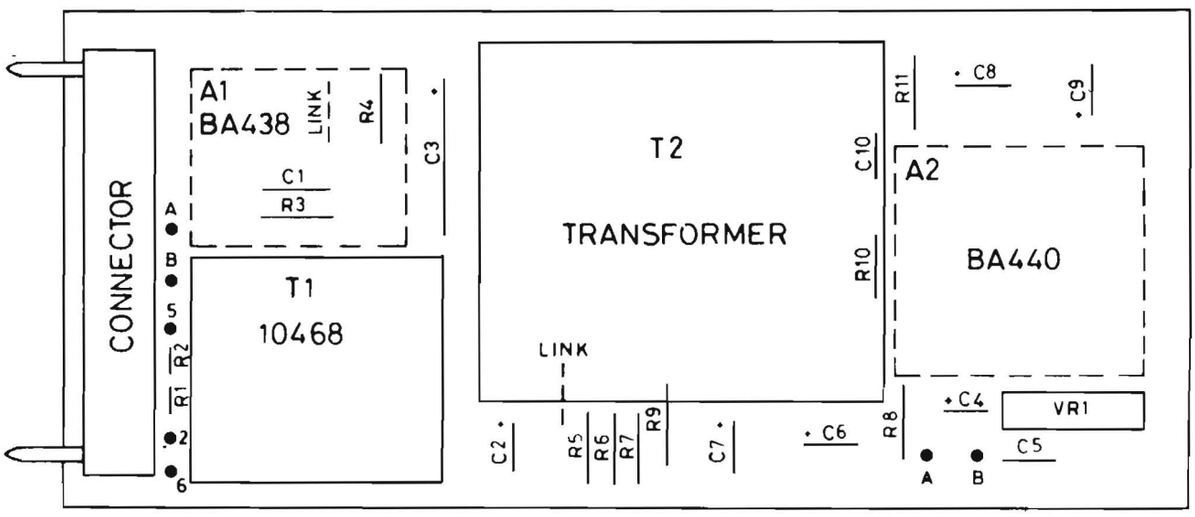
From the 24v dc supply, the quiescent current is 41 mA rising to a maximum of 255 mA when driving +18 dBm into a 15 ohm load.

PERFORMANCE

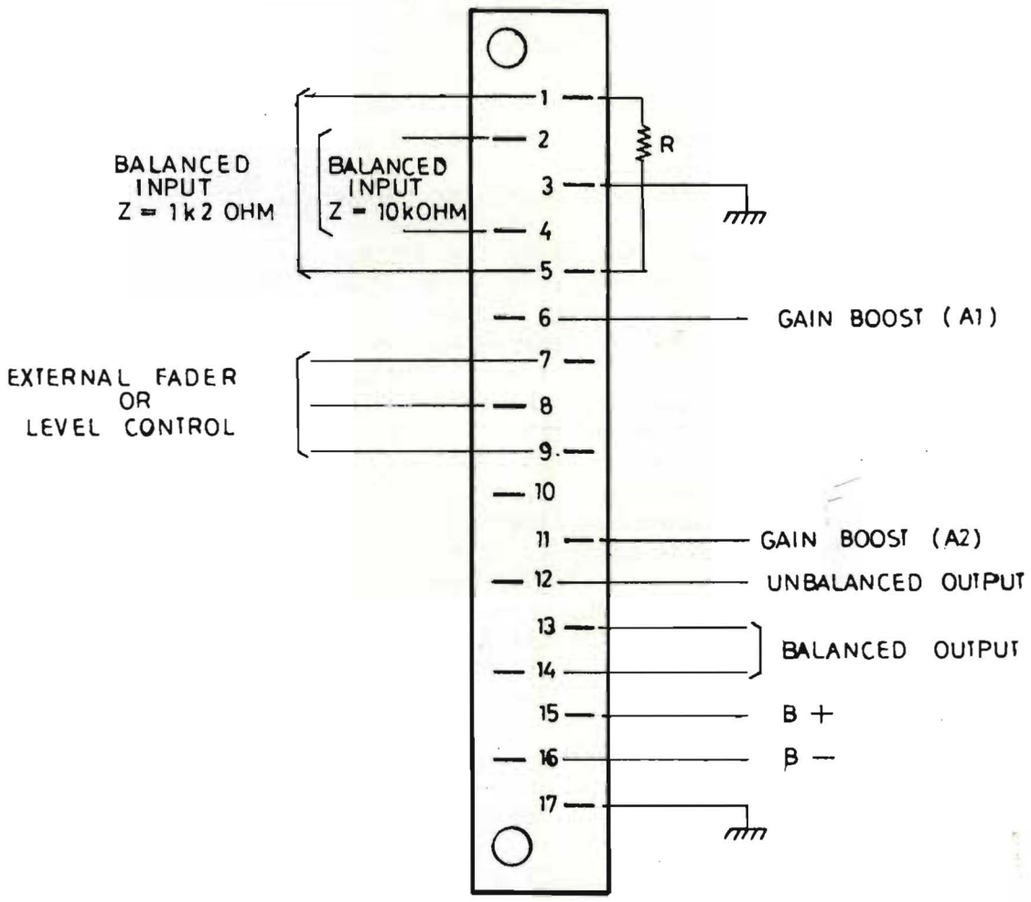
Input	Balanced and earth free. Impedance 1K2 ohms and 10K ohms.
Output	A) Balanced and earth free. Maximum level +26 dBm into a 600 ohm load. B) Unbalanced. Maximum level +18 dBm in a 100 ohm load.
Gain	A) 30 dB when using 1K2 ohm input. B) 0 dB when using 10K ohm input.
Frequency Response	±0.5 dB from 20 to 20K Hertz.
Distortion	Does not exceed 0.01% at 1K Hertz or 0.02% at 100 and 10K Hertz. Measured at the balanced output at +20 dBm (output loaded 600 ohm).
Noise	A) Better than -95 dBm with fader down. B) Better than -86 dBm, with fader up using the 1K2 ohm input terminated 200 ohms. C) Better than -86 dBm with fader up using the 10K ohm input, unterminated.
Maximum Output	A) +26 dBm balanced into 600 ohm. B) +18 dBm unbalanced into 100 ohm.
Square Wave Performance	Less than 7% overshoot using 10K Hertz square wave.

PARTS LIST MOTHERBOARD ASSEMBLY BA366 (3415)

Ref	Description	Part No.
R1,2,8	Resistor TR4 5% 1K2 ohms	RA001K2
R3	Resistor " " 4K7 ohms	RA004K7
R4	Resistor " " 47 ohms	RA047R0
R5	Resistor " " 510 ohms	RA510R0
R6	Resistor " " 3K9 ohms	RA003K9
R7	Resistor " " 2K4 ohms	RA002K4
R9	Resistor " " 1K6 ohms	RA001K6
R10	Resistor " " 100 ohms	RA100R0
R11	Resistor " " 10 ohms	RA010R0
RV1	Potentiometer 10K Lin (Rect)	PT15022
C1	Capacitor, Suflex 470 pF	CA14700
C2,6,7,9	Capacitor, Electro. 470 µF, 16V	CA64704
C3	Capacitor, Electro. 100 µF, 25V	CA61002
C4	Capacitor, TAG 22 µF, 16V	CA60223
C5	Capacitor, TAG 33 µF	CA60030
C8	Capacitor, Electro. 470 µF, 25V	CA64703
T1	Transformer 10468S	TF10003
T2	Transformer T1751	TF12012
	Connector ELCO 17-way plug	CN10342
BA366	Printed Circuit Board	EV10366
A1	Printed Circuit Board BA438	PL10438
A2	Printed Circuit Board BA440	PL10440
C10	Capacitor, Suflex	CA 20020
	BA366 (3415X)	
T2	Transformer T1799 (150 ohms)	XX13717
	(Remainder of Parts List as 3415 version)	



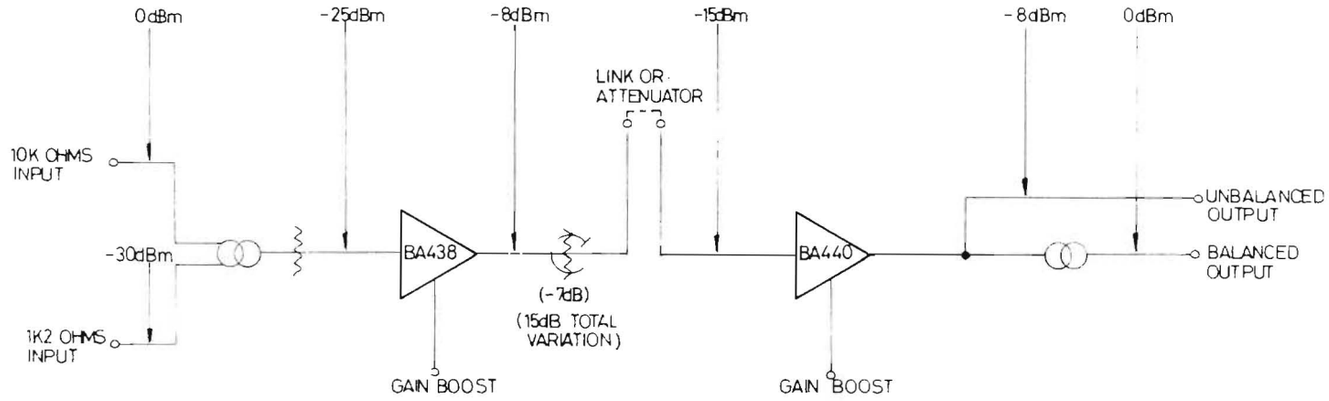
REAR CONNECTOR LAYOUT



NOTE: FOR 10kOHM INPUT ONLY
ADD A 470 RESISTOR AS SHOWN

DRAWING Nº

EB 20121



BOOST	RESISTOR
3	1K0
6	430
9	240
12	150
15	91
18	62

BOOST	RESISTOR
3	1K5
6	620
9	360
12	220
15	120
18	91

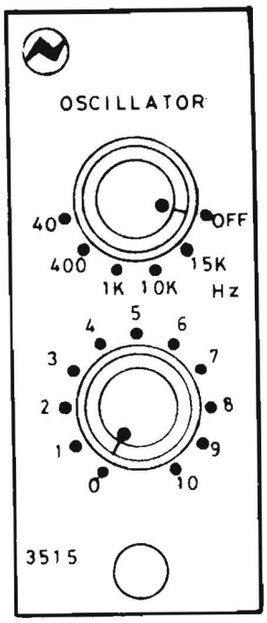
	1	ISSUE	FIRST USED ON STANDARD	MAT'	UNLESS OTHERWISE STATED: LINEAR	ANGULAR	HOLES
	24 APR 74	DATE	DRN. AHL	FINISH	1st ANGLE PROJ	DIMS IN	SCALE
		CHANGE NOTE Nº	TRACED JM				
		CHECKED	CHECKED	TITLE 3415 LINE AMPLIFIER	DRG Nº EB 20121		
		CHECKED	Rupert Neve & Company Ltd.		1974 ©	A3	

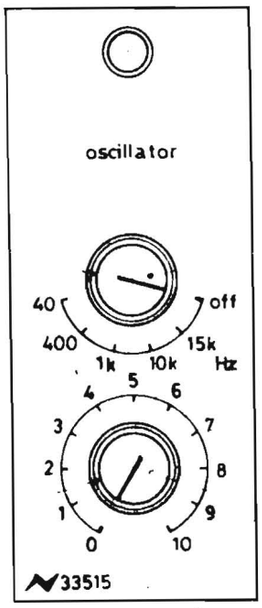
EB 20121
EXTRA COPY

EB 20121

OSCILLATOR 3515/33515

CONTENTS LIST





General Description

This unit consists of a basic phase shift oscillator and power amplifier.

All components except those on the front panel and an external transformer if required, are contained on a motherboard assembly BA446B (described separately).

The standard frequencies are as indicated on the front panel layout, other frequencies can be supplied to special order.

Performance

Frequency Tolerance:	±10%
Distortion:	Total Harmonic content not greater than 0.2%.
Output level:	+12 dBm maximum (adjustable) into 600 ohms.
Output:	20 ohm source impedance, with external output transformer.
Settling Down Time:	5-6 Sec.
Power Requirements:	24V D.C. (negative earth) at 80 mA.

Dimensions:

Height	86 mm	(3.38 ins)
Width	35 mm	(1.37 ins)
Depth	160 mm	(6.6 ins)

The transistors TR1, TR2 and TR3 form a phase shift oscillator in conjunction with the capacitors C1 - C10 and the resistor R1. The capacitors are selected by an external switch S1a, S1b.

The amplitude of the oscillator is stabilised by the thermistor TH1. Bias is obtained on the base of TR1 via R5 from the junction of R7 and R8 in the emmiter circuit of TR2.

Gain control is provided by the external potentiometer RV1 on the front panel.

The transistors TR4 and TR5 form a power stage combination the gain of which is determined by an external link between pins 1 and 10. An unbalanced output is provided at pin 12. This output may be fed via an external transformer if a balanced output is required.

MOTHERBOARD ASSEMBLY BA446B

PARTS LIST

Ref	Description	Part No.
C1	Capacitor 1800p Suflex	CA20013
C2	Capacitor 1800p Suflex	CA20013
C3	Capacitor 3n Suflex	CA20030
C4	Capacitor 3n Suflex	CA20030
C5	Capacitor 27n Polycarbonate	CA20270
C6	Capacitor 27n Polycarbonate	CA20270
C7	Capacitor 68n Polycarbonate	CA20682
C8	Capacitor 68n Polycarbonate	CA20682
C9	Capacitor 580n Polycarbonate	CA26802
C10	Capacitor 680n Polycarbonate	CA26802
C11	Capacitor 470 µ 25V Electrolytic	CA64703
C12	Capacitor 150 µ 16V Electrolytic	CA61501
C13	Capacitor 150 µ 16V Electrolytic	CA61501
C14	Capacitor 150 µ 16V Electrolytic	CA61501
C15	Capacitor 22 µ 16V Tant. Tag	CA60223
C16	Capacitor 22 µ 16V Tant. Tag	CA60223
C17	Capacitor 150 µ 16V Electrolytic	CA61501
C18	Capacitor 1000 µ 25V	CA71004
C19	Capacitor 1n Suflex	CA20010
C20	Capacitor 330n Suflex	CA13300
C21	Capacitor 470 µ 16V Electrolytic	CA64704
R1	Resistor 5K6 TR4 5%	RA005K6
R2	Resistor 1K5 " "	RA001K5
R3	Resistor 12KO " "	RA012KO
R4	Resistor 68KO " "	RA068KO
R5	Resistor 5K6 " "	RA005K6
R6	Resistor 5K1 " "	RA005K1
R7	Resistor 1KO " "	RA001KO
R8	Resistor 2K2 " "	RA002K2
R9	Resistor 2K7 " "	RA002K7
R10	Resistor 39KO " "	RA039KO
R11	Resistor 6K8 " "	RA006K8
R12	Resistor 33KO " "	RA033KO
R13	Resistor 33KO " "	RA033KO
R14	Resistor 270 " "	RA270RO
R15	Resistor 100 " "	RA100RO
R16	Resistor 330 " "	RA330RO
R17	Resistor 12 " "	RA012RO
TH1	Thermistor R54	TH10000
TR1-TR4	Transistor BC184	TR16401
TR5	Transistor BC441	TR16201
Qty 4	Transistor Pad Small EPX 002	SA10400
Qty 1	Transistor Pad Large TO5001	SA10200
Qty 1	Heatsink	SA14202
Qty 1	Connector 17 way plug	CN10342
Qty 18	Solder pin long	WA17001
Qty 1	Printed Circuit Board (unassembled)	EV10446

OSCILLATOR 3351S

PARTS LIST

Ref	Qty	Description	Part No.
RV1		Potentiometer 10K Lin	PT15009
S1		Rotary Switch 2P 6W	SR14300
	1	Knob Aluminium 3 mm bore	MG21479/4
	2	Knob Aluminium 4 mm bore	MG21479/3
	2	Knob Insert blue	MZ20828/2
	1	Printed Circuit Board Assembly	BA446B

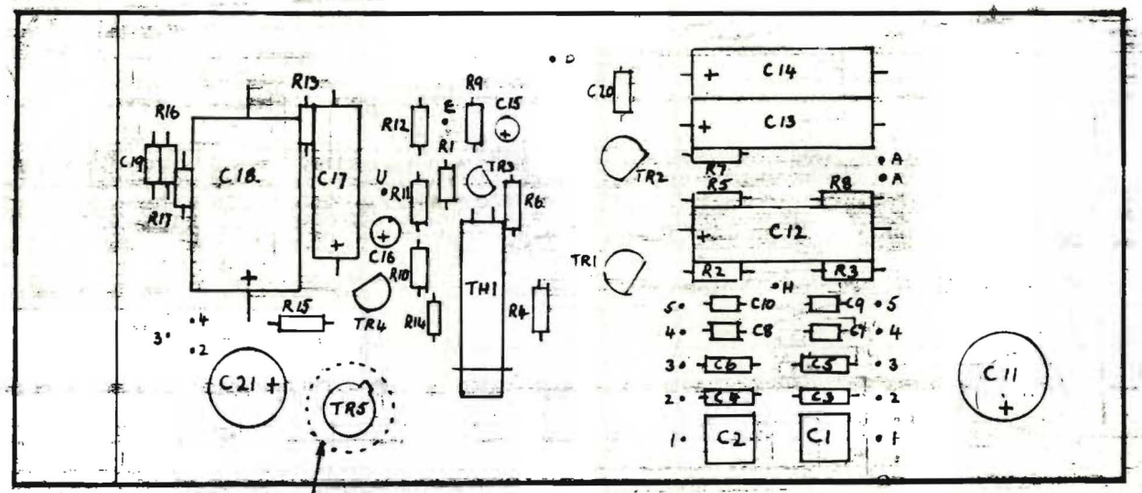
OSCILLATOR 3515

PARTS LIST

Ref	Qty	Description	Part No.
RV1	1	Potentiometer, 10K, Lin	PT15009
S1	1	Rotary Switch 2P 6W	SR14300
	1	Aluminum Knob, 3 mm bore	MU20145/1
	2	Aluminum Knob, 4 mm bore	MU20145/3
	2	Knob insert grey	MU20911/1/G
	1	Printed Circuit Board Assembled	BA446B

BA 446 COMPONENT LAYOUT

AS USED IN 3515



EW 10446/B Is 2

DRAWING No.

EO 10027

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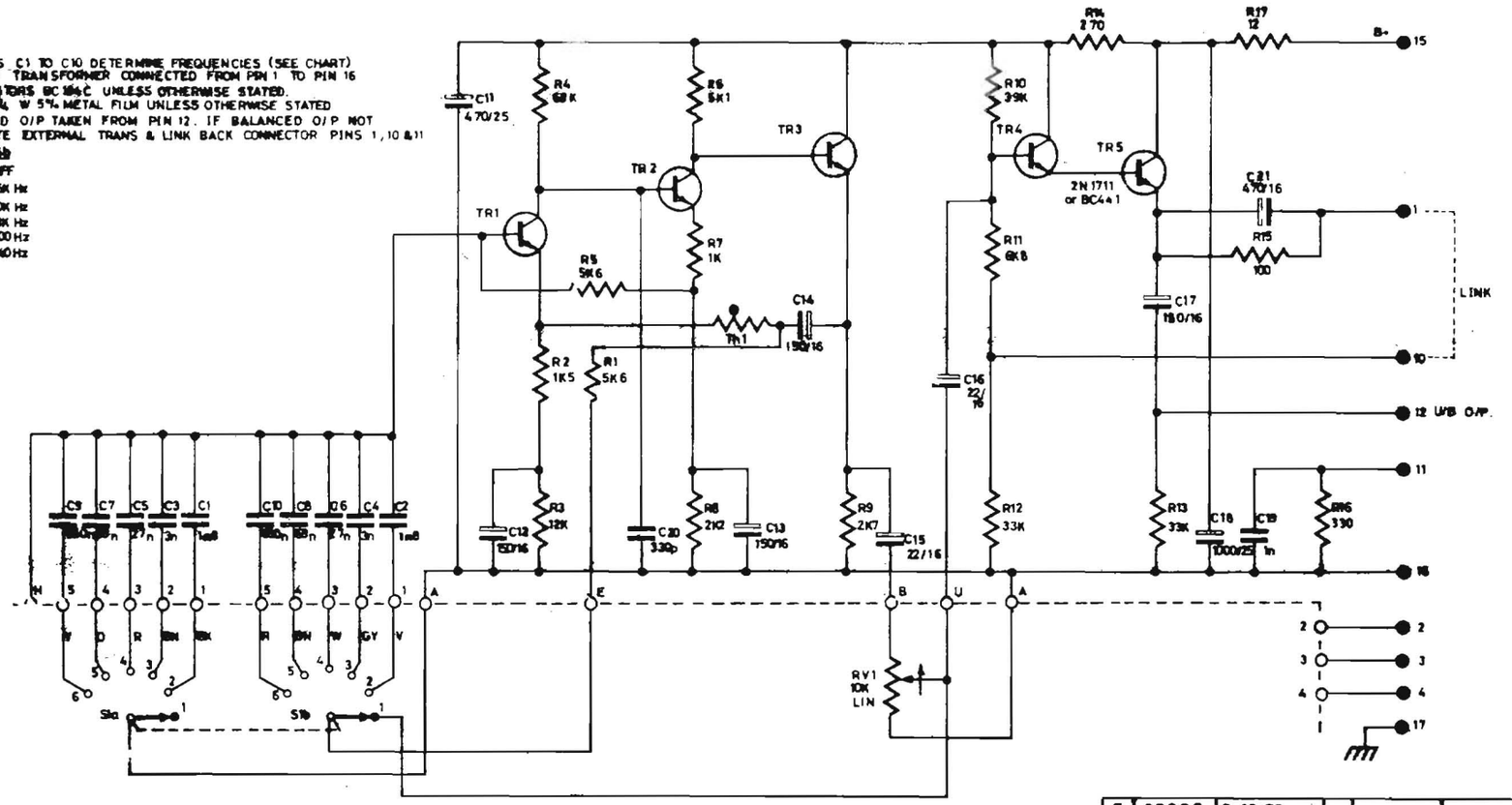
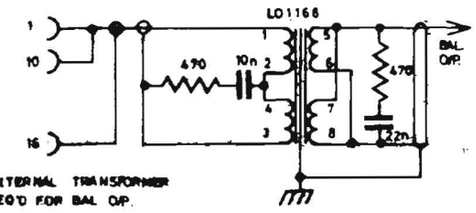
NOTES

1 COMPONENTS C1 TO C10 DETERMINE FREQUENCIES (SEE CHART)
2 LO1166 O/P TRANSFORMER CONNECTED FROM PIN 1 TO PIN 16
3 ALL TRANSISTORS BC184C UNLESS OTHERWISE STATED.
4 RESISTORS ¼ W 5% METAL FILM UNLESS OTHERWISE STATED
5 UNBALANCED O/P TAKEN FROM PIN 12. IF BALANCED O/P NOT REQ, DELETE EXTERNAL TRANS & LINK BACK CONNECTOR PINS 1, 10 & 11

S1a S1b

POSITION 1 = OFF
2 = 15K Hz
3 = 10K Hz
4 = 1K Hz
5 = 400 Hz
6 = 40 Hz





EXTERNAL TRANSFORMER REQ'D FOR BAL O/P.

5	20000	6-12-76			
3	11330	19-9-75	4	11263	24-9-75

2	1	ISSUE	FIRST USED ON	MATL.	TOL. UNLESS OTHERWISE STATED: LINEAR ± ; ANGULAR ± ; HOLES +0.13 −0
21-4-75	14-3-75	DATE	DRN. TJS	FINISH	3rd ANGLE PROJ. ; DIMS. IN ; SCALE
11172		CHANGE NOTE No.	TRACED JDC	TITLE 3515 OSCILLATOR (INC BA446 MOTHERBOARD)	DRG. No. EO 10027
HBB.		CHECKED	CHECKED	Rupert Neve & Company Ltd.	1975 © A3

POWER SUPPLY UNIT 3360I

CONTENTS LIST

POWER SUPPLY UNIT 3360I

CONTENTS LIST

3360I 24/48 V DC CONVERTER

The converter is designed to provide 48 V dc suitable for the phantom powering of condenser microphones utilising the standard 24 V dc input supply. The unit will deliver a maximum of 100 mA at a nominal 48 V and the output voltage is floating. The output current is sufficient to power 40 to 100 condenser microphones depending on manufacturer and type.

The diodes D2, D3 provide protection in the event of a temporary short circuit. A long duration short circuit will cause overheating and eventual component failure.

T1 is a saturating ferrite core transformer energised by pulses at supersonic frequency switched by TR1 and TR2.

L1 and L2 ensure that unwanted ripple does not appear on the 24 V B+ or 48 V dc output.

Specification

Input Power

24 V dc at 90 mA quiescent and 300 mA maximum currents.

Output Power

46 to 54 V dc (depending on load) at 0 - 100 mA, floating.

Line Regulation

±5% output voltage change for 4% input voltage change.

Load Regulation

15% output voltage change from no load to full load.

Ripple and Noise

Better than -85 dBm at maximum rated output, measured 20 Hertz to 20k Hertz.

Operating Temperature Range

-10°C to +50°C.

PHANTOM POWER UNIT - SWITCHING

Provision has been made for the use of a Phantom Power Supply Unit feeding all microphone input XLR's (see EC10513, Ref 12J).

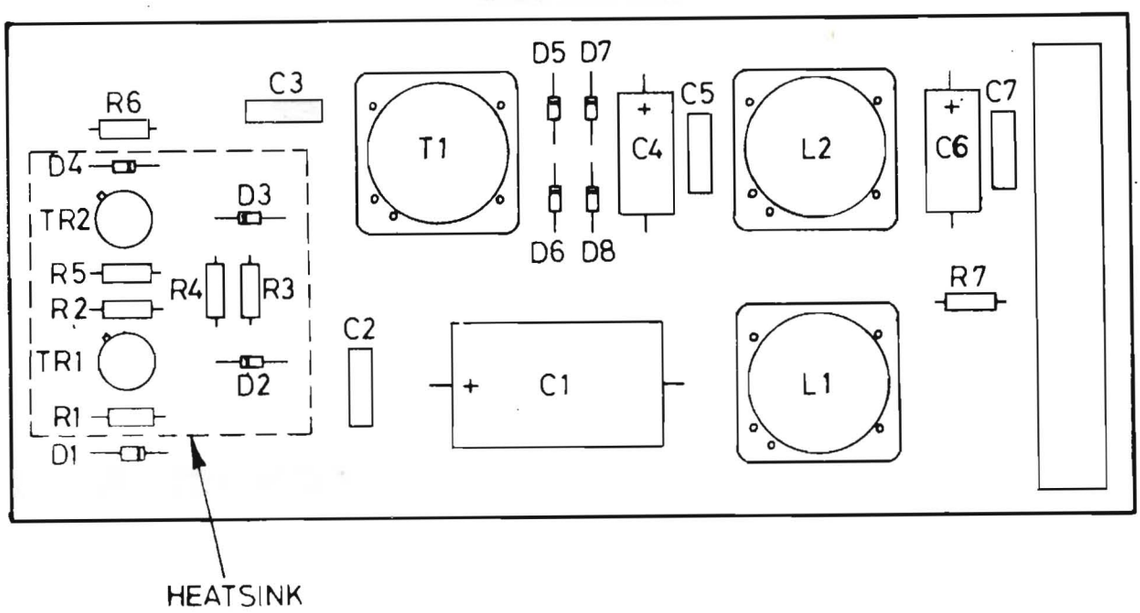
Where a Phantom Power Supply Unit has not been provided, it is important that the ON/OFF switch located on the adjacent panel is not closed while the desk is in operation. Closing the switch while the desk is in use causes a degradation in Crosstalk breakthrough between all microphones through the inclusion of the d.c. distribution resistive network.

PARTS LIST BA398

Ref	Description	Part No.
R1,6	Resistor TR4 5% 10K ohms	RA010K0
R2,5	Resistor " " 10 ohms	RA010R0
R3,4	Resistor " " 13K ohms	RA013K0
R7	Resistor " " 15K ohms	RA015K0
C1	Capacitor Electro. 1000 µF, 25V	CA71004
C2,3,5,7	Capacitor C280AE/P47K 47 pF	CA20470
C4,6	Capacitor Electro. 22 µF, 63V	CA60221
D1-8	Diode BAX 16	DD10001
TR1,2	Transistor BC441-6	TR16201
	Transistor pad, large	SA10200
L1,L2	Inductor T0139	IN10303
T1	Transformer T0140	TF16000
	Printed Circuit Board BA398	EV10398

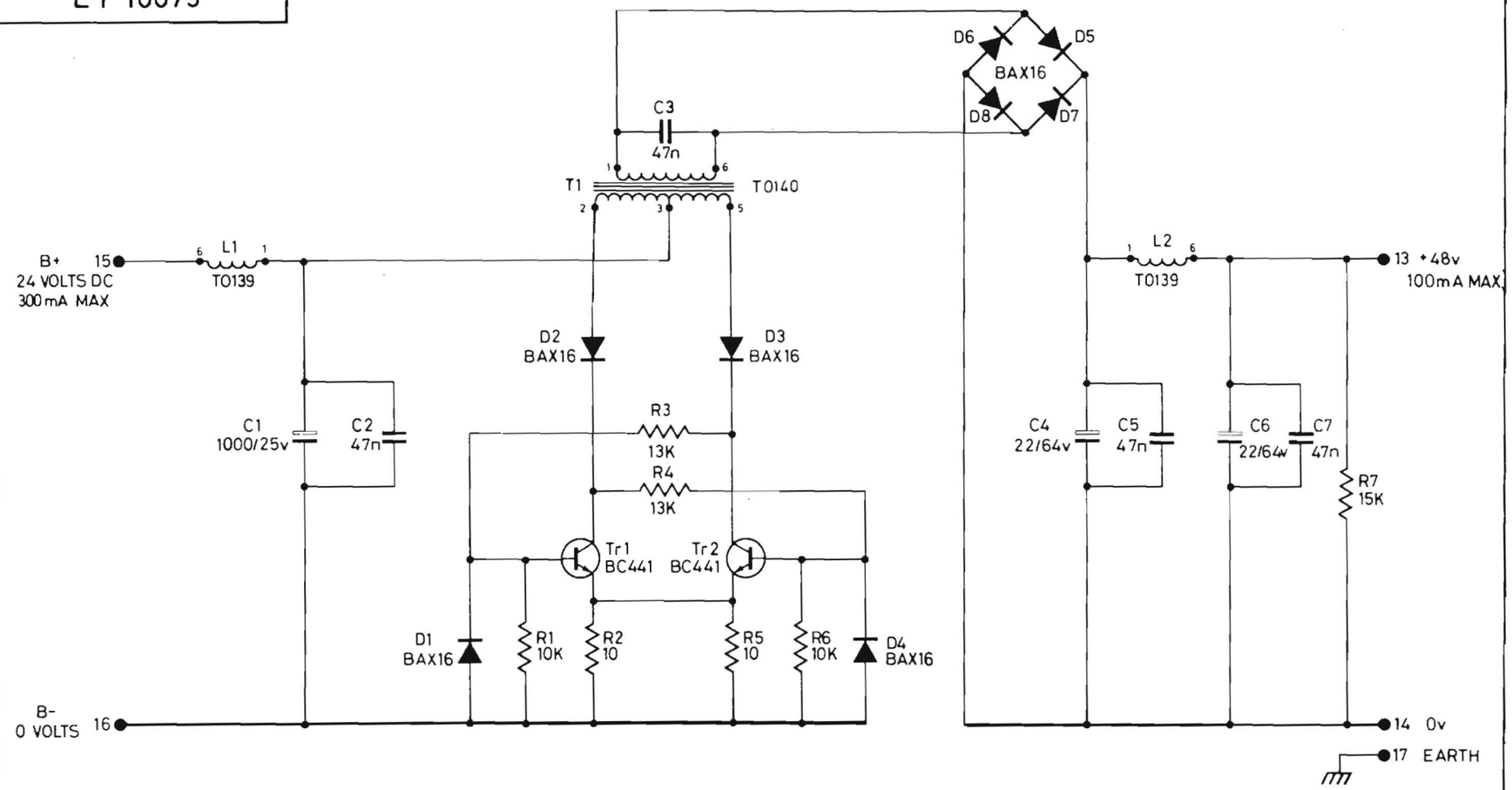
COMPONENT LAYOUT

EXTRA COPY



DRAWING Nº

ET 10075



NOTE

1. B+ AND B- LEADS SHOULD BE RETURNED INDIVIDUALLY TO THE POWER SUPPLY'S DISTRIBUTION POINT AND NOT BE LOOMED WITH ANY LOW SIGNAL LEVEL AUDIO WIRING.

	1	ISSUE	FIRST USED ON	MATL	TOL UNLESS OTHERWISE STATED
	17.9.74.	DATE	DRN. DJS	FINISH	LINEAR ± / ANGULAR / HOLES +0.13 −0
		CHANGE NOTE Nº	TRACED C.K.		3RD ANGLE PRJ. / DIMS IN / SCALE
		CHECKED	CHECKED	TITLE 3601 24v/48v d.c. CONVERTER INCORPORATING BA398	DRG. Nº ET 10075

Rupert Neve & Company Ltd. 1974. © A3

ET 10075

POWER SUPPLY UNIT 3605/33605

CONTENTS LIST

POWER SUPPLY UNIT 3605

General Description

The front and rear panels of the unit are partially covered by extruded aluminium heat sinks and the remaining four sides are enclosed by a perforated steel cover. Front panel controls are:-

1) A locking a.c. power ON/OFF switch

2) a.c. fuse

3) d.c. fuse

4) Indicator lamp

The unit is fitted with both overcurrent and overvoltage protection and will switch on into a combination of resistive, capacitive and lamp loads. The a.c. power transformer is constructed from gain orientated silicon iron laminations using 'E' and 'I' pieces and is designed to operate at a maximum flux density of 0.7 Webers per square meter. The saturation density of silicon iron is 1.6 Webers per square meter. Magnetic leakage fields are thus minimal.

Uses:

The unit has been designed for use as a single module, or used rack-mounted in a frame accommodating up to three modules. The depth measurement includes the space required at the rear for cable connections. The high reliability of the power supply and its convenient availability in 5A units renders suitable for powering a wide range of control consoles requiring a 24V d.c. supply.

Specification

Input Connector:		XLR-LNE
Output Connector:		EP-5-17S (d.c. output)
A.C. Input:	i.	100 - 130V a.c.
	ii.	198 - 260V a.c.
		50 - 60 Hz single phase
A.C. Input Protection:		2 Amp anti-surge fuse
Output:		20.0V, + 1V, -0V rated at 5 amps*
		*Note: When utilising these supplies in various Neve Consoles, it is good engineering practice to load a supply up to 80% of its maximum capacity (i.e. 5 amp. supplies should normally be loaded to 4 amps).
Overload Protection:	1.	Circuit. Folds back to 1-2 amps if output reaches 115% or rated maximum.
	2.	Voltage. 'Crowbar' circuit operates at 125% of rated output voltage, bringing output to ground in 1 µS after a delay of 50 mS.

Specification continued

Short Circuit Protection:	The supply is protected against long term short circuits. The short circuit current is 1-2 amps depending on the a.c. input voltage. The unit will switch on into a combination of resistive, capacitive and lamp loads.
Line Regulation:	0.02% output voltage change for a 10% a.c. input voltage change.
Load Regulation:	0.02% output voltage change, no load to full load.
Transient Response:	20 µS recovery time after maximum resistive load changes.
Output Impedance:	Less than 0.5 milliohm at 100 Hz Less than 2 milliohm at 1 kHz Less than 20 milliohm at 10 kHz Less than 40 milliohm at 20 kHz Less than 100 milliohm at 50 kHz Less than 250 milliohm at 100 kHz
Ripple and Noise:	Better than -85 dBm at maximum rated output current, measured 20 Hz - 20 kHz.
Magnetic Hum:	Does not exceed 1.0 Gauss around the steel outer cover, and does not exceed 0.1 Gauss, 4" away from the module.
Dimensions:	Height ... ... 5" (127 mm) Width ... ... 5.5" (142 mm) Depth ... ... 15.5" (394 mm)

24 Volt 5 Ampere Regulator Board BA358

Circuit Description

The BA358 has been designed as the main block of a fixed voltage, series regulated power supply - the 3600 and 3605 modules - and includes external sensing, overload protection and over voltage protection.

The voltage applied at the external load is sensed by wires at pins 12 and 14 and a proporation of this output voltage is compared against a fixed reference voltage, generated by the zener diode D2 and fed from the regulated supply via resistors R13 and R14. Any error signal is amplified by the long-tailed pair Tr6 and Tr7 and is used to control the driver transistor Tr4 which in turn feeds the four series output transistors mounted remotely from the board on the module's front and rear heat sinks.

Overload and Short Circuit Protection

Both of these facilities are provided by the single transistor Tr1. The value of the external resistor connected between pins 3 and 4 determines the maximum current that can be taken from the supply. Under normal conditions Tr1 is non-conducting, since the voltage drop across the external resistor and R1 is less than the base-to-emitter voltage of Tr1. However, on overload Tr1 is brought into conduction which turns off the current source Tr2 and Tr3 and hence the drive current to the series pass transistors. Alternatively in the event of a short circuit at the output, a fixed current flows through R1, R3 and D1. The voltage drop across R1 turns Tr1 on and the output current is limited to a safe level until the short circuit is removed.

Over-Voltage Protection

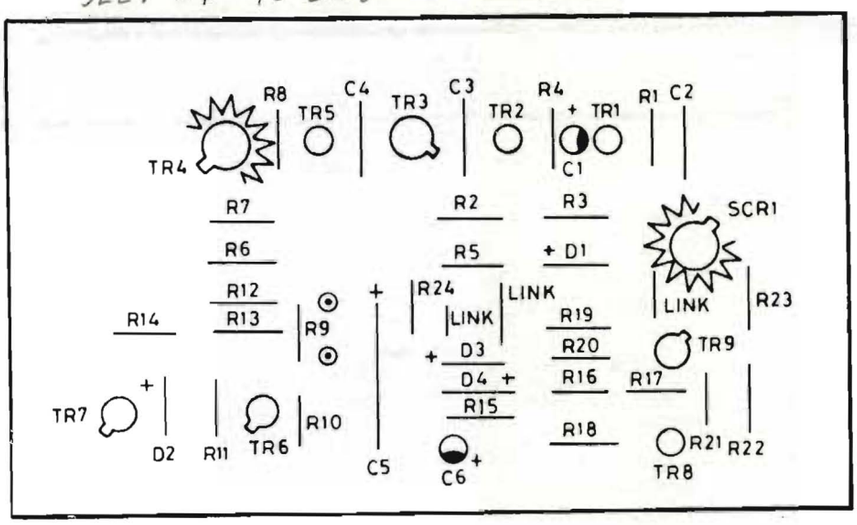
The over-voltage circuitry protects the external equipment from damage due to excess voltage. With the supply within the specified limits of 24-30 volts, the SCR is non-conducting. If the voltage at the output exceeds 30 volts, the zener diodes D3 and D4 conduct and charge the capacitor C6 at a rate determined by the time constant C6 R15. Transistors Tr8 and Tr9 form a high speed switch which turns the SCR ON. In the event of a serious failure in the regulator the SCR is turned ON and will blow the 5 ampere d.c. output fuse.

PARTS LIST 3605

Ref	Description	Part No.
R1	Resistor TR4 5% 4K3 ohms	RA004K3
R2-R8	Resistor W.W 0.33 ohms	RJ00R33
C1	Capacitor, Mullard 330 nF	CA23300
C2	Capacitor, Electro. 15,000 µF, 40V	CA70800
S1	Switch Painton, Toggle	SW10100
LP1	Lampholder LS9, Red	LH10614
	Lamp 28V LS9	LA11100
FS1	Fuse, 2 Amps Anti-surge	FU10002
FS2	Fuse, 5 Amps Quick-Blow	FU12004
	Fuse-Holder	FU18001
TR1-4	Transistor 2N3055	TR16000
	Insulation kit for diode 6F20	SA10000
D1-4	Diode 6F20	DD10401
T1	Transformer T1804	TF14009
	Transistor insulating cover (for 2N3055)	SA10001
	Terminal strip, Harwin	WA17404
	Connector 17-way socket	CN20341
	Connector socket EP5-17S	CN20103
	Plug XLR LNE 11C	CN10071

REGULATOR BA358

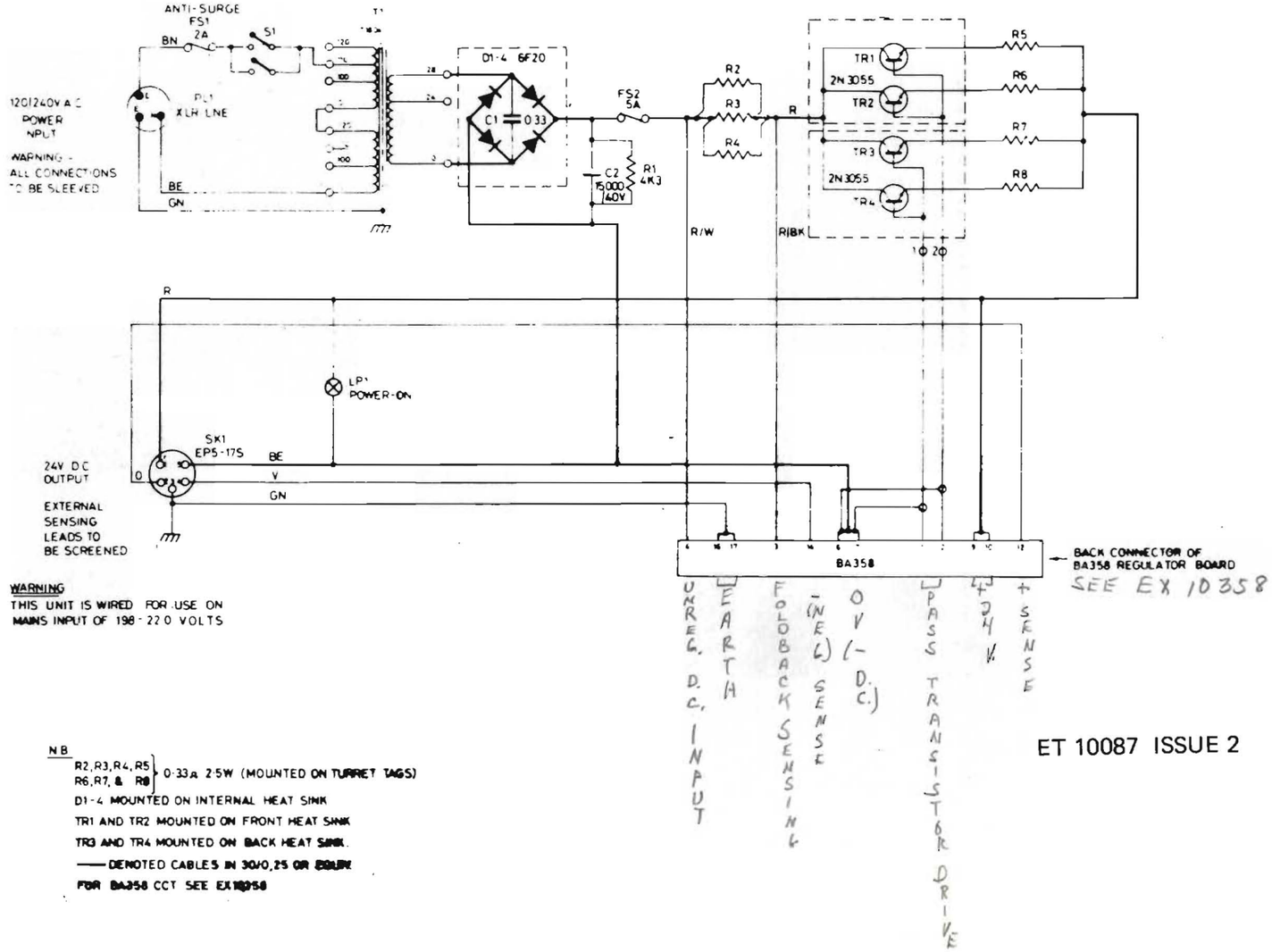
SEE: EX 10358



PARTS LIST

Ref	Description	Part No.
R1	Resistor 100 TR4 2%	RA100RO
R2	" 20K " "	RA020KO
R3	" 5K1 " "	RA005K1
R4	" 100 " "	RA100RO
R5	" 2K4 " "	RA002K4
R6	" 150 " "	RA150RO
R7	" 10K " "	RA010KO
R8	" 560 " "	RA560RO
R9	" 4K7 " "	RA004K7
R10	" 1K5 " "	RA001K5
R11	" 3KO " "	RA003KO
R12	" 10K " "	RA010KO
R13,14	" 430 " "	RA430RO
R15	" 6K8 " "	RA006K8
R16	" 10K " "	RA010KO
R17	" 1M CR25	RF001MO
R18	" 10K TR4 2%	RA010KO
R19	" 2K4 " "	RA002K4
R20	" 10K " "	RA010KO
R21,22	" 1K " "	RA001KO
R23,24	" 100 " "	RA100RO
C1	Capacitor 10 µF, 25V TAG	CA60100
C2	" 100 nF, C280AE/P100K	CA21000
C3,4,	" 15 nF, C280AE/P15K	CA20150
C5	" 100 µF, 25V	CA61002
C6	" 22 µF, 16V TAG	CA60223

Ref	Description	Part No.
D1	Zener ZF12	DD17600
D2	Zener IN 5234B	DD16900
D3,4	Zener ZF15	DD17800
SCR1	SCR ATES 40654	DD14000
TR1,2,5	BC 214C	TR12402
TR3	BC 461-6	TR12201
TR4	BC 441-6	TR16201
TR6,7	BC 107B	TR16400
TR8	BC 184C	TR16401
TR9	BC 461-6	TR12201
Qty 1	Connector 17 way plug AMP 3-582152-1	CN10342
Qty 1	Printed Circuit Board (Unassembled)	EV10358
Qty 7	Transistor mtg pad - small	SA10400
Qty 3	Transistor mtg pad - large	SA10200
Qty 2	Heat Sink	SA14202



WARNING
THIS UNIT IS WIRED FOR USE ON MAINS INPUT OF 198 - 220 VOLTS

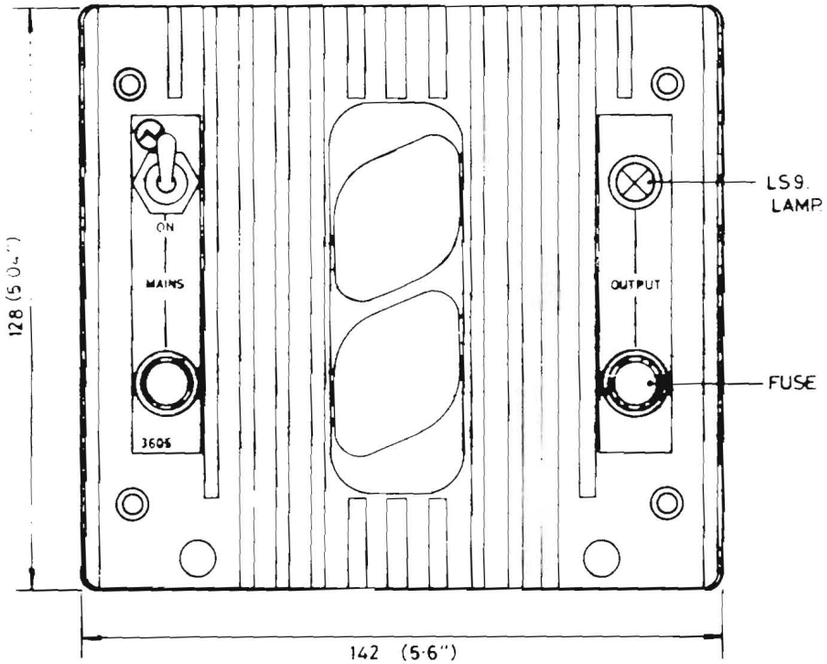
N.B
R2, R3, R4, R5, R6, R7, & R8 } 0·33Ω 2·5W (MOUNTED ON TURRET TAGS)
D1-4 MOUNTED ON INTERNAL HEAT SINK
TR1 AND TR2 MOUNTED ON FRONT HEAT SINK
TR3 AND TR4 MOUNTED ON BACK HEAT SINK.
—— DENOTED CABLES IN 30/0,25 OR EQUIV.
FOR BA358 CCT SEE EX10358

ET 10087 ISSUE 2

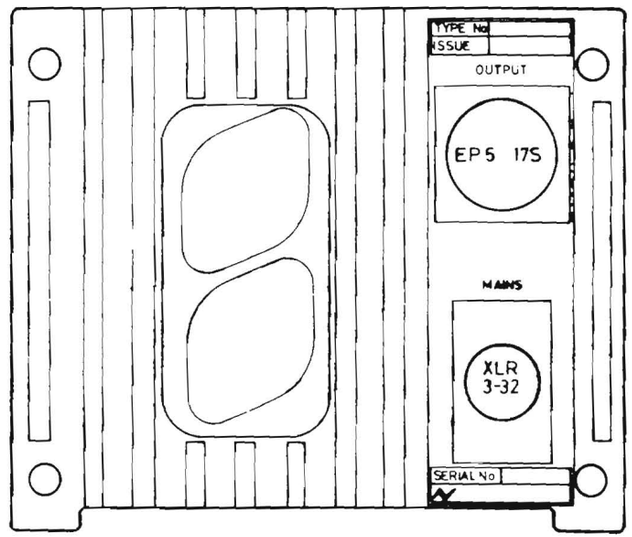
1	2	3	4	5	6

DRAWING No.

ML61439



FRONT VIEW



REAR VIEW

NOTES:- 1) UNIT SUPPLIED STRAPPED FOR 110/220 V — TAPS AVAILABLE FOR 220/230/240 V A.C.

2) THIS PSU IS SUITABLE FOR USE FREE STANDING OR FOR 19" RACK MOUNTING IN A 5·25" HIGH RACK FRAME ASSEMBLY WHICH SUPPORTS 3 SIMILAR PSU MODULES

3) HEAT SINK PROTRUDES 29 mm (1·14") FORWARD FROM FRONT & REAR PANELS

4) TOTAL DEPTH 398mm (15·67")

	1	ISSUE	FIRST USED ON A3707	MATL.	TOL. UNLESS OTHERWISE STATED: LINEAR ± / ANGULAR / HOLES +0.13 −0
	2-4-76	DATE	DRN. SCL	FINISH	3rd ANGLE PRJ. / DIMS. IN / SCALE 1:1
		CHANGE NOTE No	TRACED		
			CHECKED PML	TITLE: POWER SUPPLY 3605	DRG. No. ML 61439
		CHECKED	Rupert Neve & Company Ltd.		1976 © A3

STANDARD BROADCAST CONSOLE 5315

PRINTED CIRCUIT BOARD ASSEMBLIES

BA371	Description Component Layout and Parts List Circuit Diagram	EX10371
BA374	(If applicable) Description Component Layout and Parts List Circuit Diagram	EX10374 SEE BA 374
BA406	Description Component Layout and Parts List Circuit Diagram	EX10406
BA438	Description Component Layout and Parts List Circuit Diagram	EX10438
BA440A/B	Description Component Layout and Parts List Circuit Diagram	EX10440
BA441	Description Component Layout and Parts List Circuit Diagram	EX10441
BA489	Description Component Layout and Parts List Circuit Diagram	EX10489
BA630	If applicable Description Component Layout and Parts List Circuit Diagram	EX10630

LOUDSPEAKER AMPLIFIER ASSEMBLY BA37I & BA37I/A

CONTENTS LIST

LOUDSPEAKER AMPLIFIER ASSEMBLY BA371 AND BA371/A

General Description

This amplifier may be mounted to the rear of the console loudspeaker.
The input is transformer coupled, bridging and floating.
The amplifier is capable of driving a 4, 8, or 16 ohm loudspeaker with an output level of 8 Watts maximum.
There are two sizes of printed circuit board:-

4 inches square board known as BA371
3 inches square board known as BA371/A

Specification

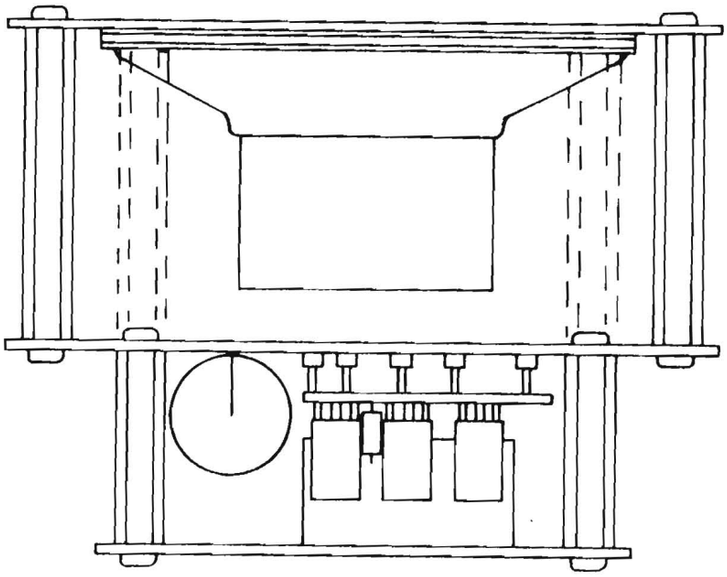
Quiescent Current:	85 mA ±5 mA
Amplitude/Frequency Response:	-1.5 dB ±0.5 dB at 100 Hertz -0.5 dB ±0.5 dB at 20k Hertz Referred to an output level at +9 dBm at 1k Hertz into 8 ohms.
Total Harmonic Distortion:	0.04% at 100 Hertz 0.2% at 10k Hertz For an amplifier output of +9 dBm into 8 ohms.
Headroom:	+18.5 dBm at 100 Hertz +18.0 dBm at 10k Hertz Measured at point when output begins to clip on the oscilloscope
Noise:	Wide Band ..... -65 dBm 20 Hertz - 20k Hertz -73 dBm
Conditions:	Pins 1 and 2 on BA371 board linked with a 470 ohm resistor. Input between pins 5 and 4. Load, 8 ohms, between pins 9 (positive) and 8 (negative).

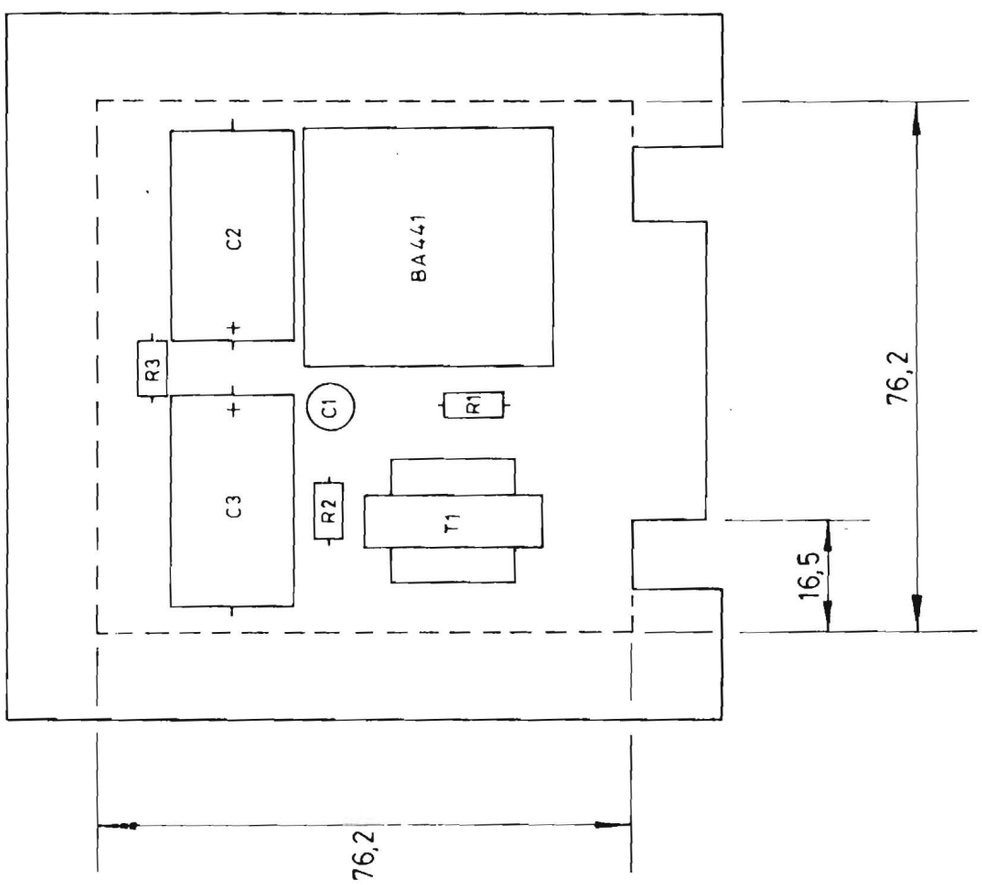
PARTS LIST

Ref	*Description*	*Part No.*
R1	*Resistor 620 TR4 2%*	*RA620RO*
R2	*Resistor 2K2 " "*	*RA002K2*
R3	*Resistor 10K " "*	*RA010KO*
C1	*Capacitor 22 µ 16V*	*CA60223*
C2	*Capacitor 1000 µ 25V*	*CA71004*
C3	*Capacitor 1000 µ 25V*	*CA71004*
Qty 5	*Connector Socket Cambion 450-3704-1-03*	*CN20001*
Qty 2	*Connector solder pin Cambion 120-1370-2-04*	*WA17001*
T1	*Transformer VT 22867*	*TF10009*
Qty 1	*Printed Circuit Board Assembly (BA441)*	*PL10441*
Qty 1	*Printed Circuit Board (Unassembled) (BA371A)*	*PL10371*

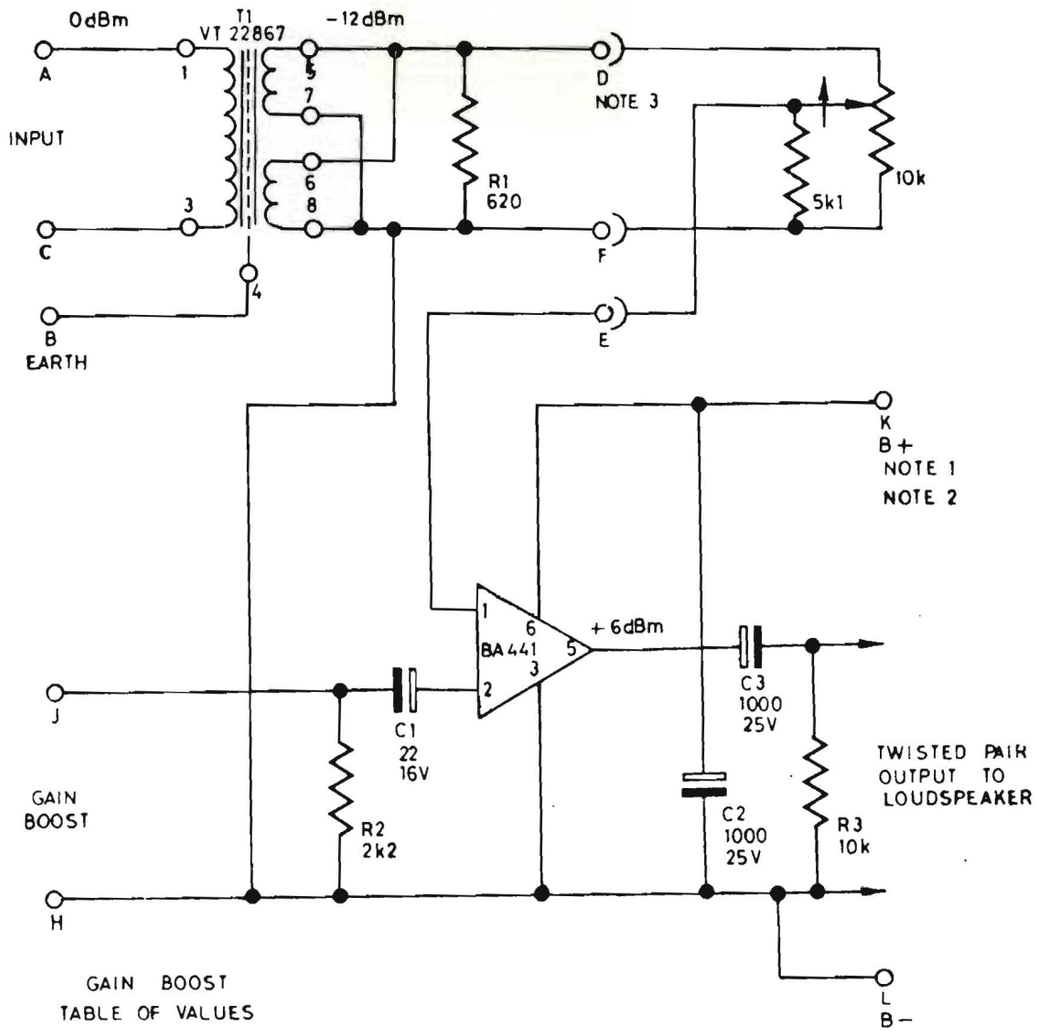
LOUDSPEAKER AMPLIFIER ASSEMBLY BA371 & BA371/A

COMPONENT LAYOUT





NOTE: BOARD TO BE CUT TO DOTTED PROFILE DIMS. WHEN USED ON 3" SPEAKER.



GAIN BOOST
TABLE OF VALUES

BOOST	RESISTOR
0	∞
4	3k0
8	1k2
12	620
16	360
20	200
24	130
28	75

NOTES :-

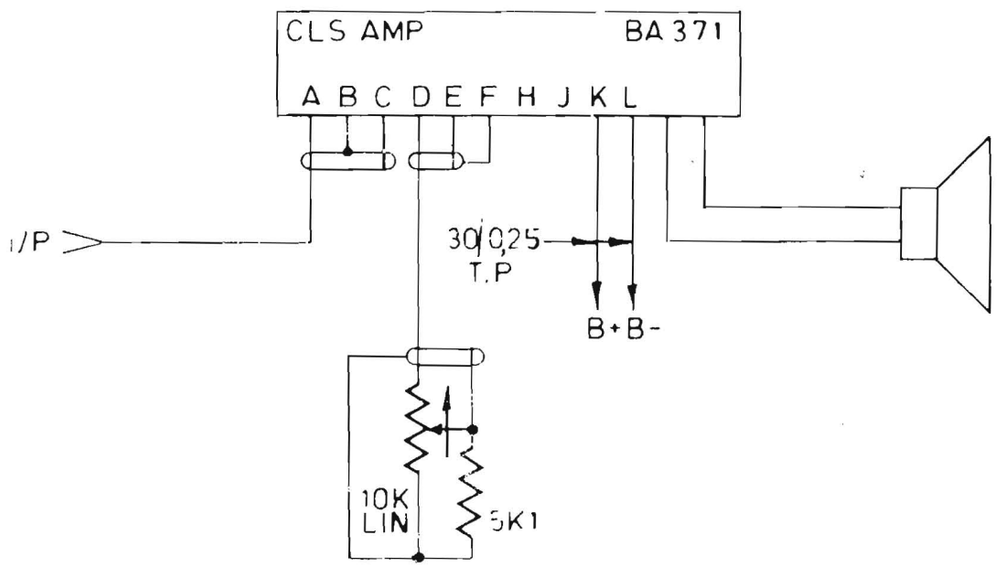
1 SUPPLY :- 24V DC, 85mA QUIESCENT, 700mA MAX

2 B+ & B- TO BE RETURNED INDEPENDENTLY TO P.S.U. DISTRIBUTION POINT

3 STRAP D TO E IF NO EXTERNAL FADER OR POTENTIOMETER IS REQUIRED

RE DRAWN FOR THB BY CM	1	ISSUE	FIRST USED ON A 3175	MATL.	TOL. UNLESS OTHERWISE STATED		
					LINEAR ±	ANGULAR	HOLES +0.13 −0
3 MAY 76	1 JULY 74	DATE	DRN. DJS	FINISH	3RD ANGLE PRJ.	DIMS IN	SCALE
		CHANGE NOTE Nº	TRACED CK				
			CHECKED	TITLE CUE SPEAKER AMPLIFIER BA 371	DRG. Nº EX 10371		
		CHECKED	Rupert Neve & Company Ltd.		1974 ©		A4

NM



	1	ISSUE	FIRST USED ON A 3820	MATL.	TOL. UNLESS OTHERWISE STATED		
					LINEAR ±	ANGULAR	HOLES +0.13 −0
	9-12-75	DATE	DRN. GT	FINISH	3RD ANGLE PRJ.	DIMS IN	SCALE
		CHANGE NOTE Nº	TRACED GT				
			CHECKED GT	TITLE BA 371 Loudspeaker Amp	DRG. Nº ET 20149		
	G.T	CHECKED	Rupert Neve & Company Ltd.		1975 ©		A4

NM

LOUDSPEAKER AMPLIFIER ASSEMBLY BA371/B

General Description

This amplifier may be mounted to the rear of the console loudspeaker.
The input is transformer coupled, bridging and floating.
The amplifier is capable of driving a 4, 8, or 16 ohm loudspeaker with an output level of 8 Watts maximum.
The size of the printed circuit board is 3 inches square.

Specification

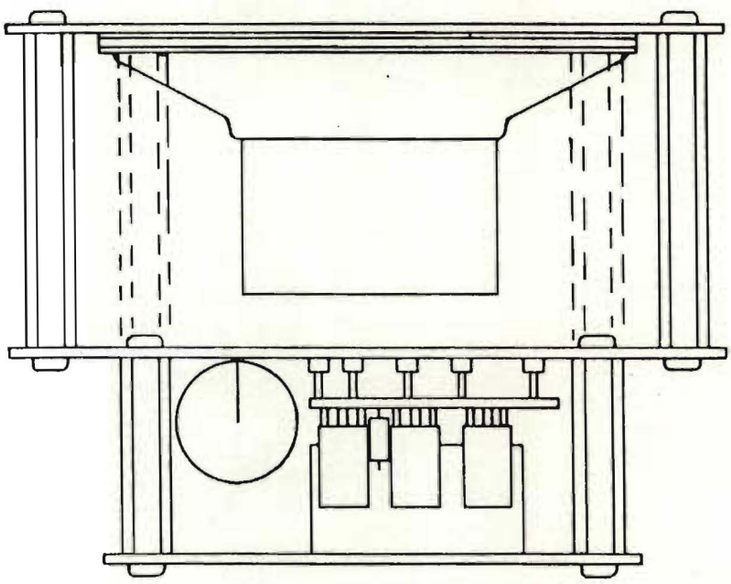
Quiescent Current:	85 mA ±5 mA
Amplitude/Frequency Response:	-1.5 dB ±0.5 dB at 100 Hertz -0.5 dB ±0.5 dB at 20k Hertz Referred to an output level at +9 dBm at 1k Hertz into 8 ohms.
Total Harmonic Distortion:	0.04% at 100 Hertz 0.2% at 10k Hertz For an amplifier output of +9 dBm into 8 ohms.
Headroom:	+18.5 dBm at 100 Hertz +18.0 dBm at 10k Hertz Measured at point when output begins to clip on the oscilloscope
Noise:	Wide Band -65 dBm 20 Hertz - 20k Hertz -73 dBm
Conditions:	Pins 1 and 2 on BA371 board linked with a 470 ohm resistor. Input between pins 5 and 4. Load, 8 ohms, between pins 9 (positive) and 8 (negative).

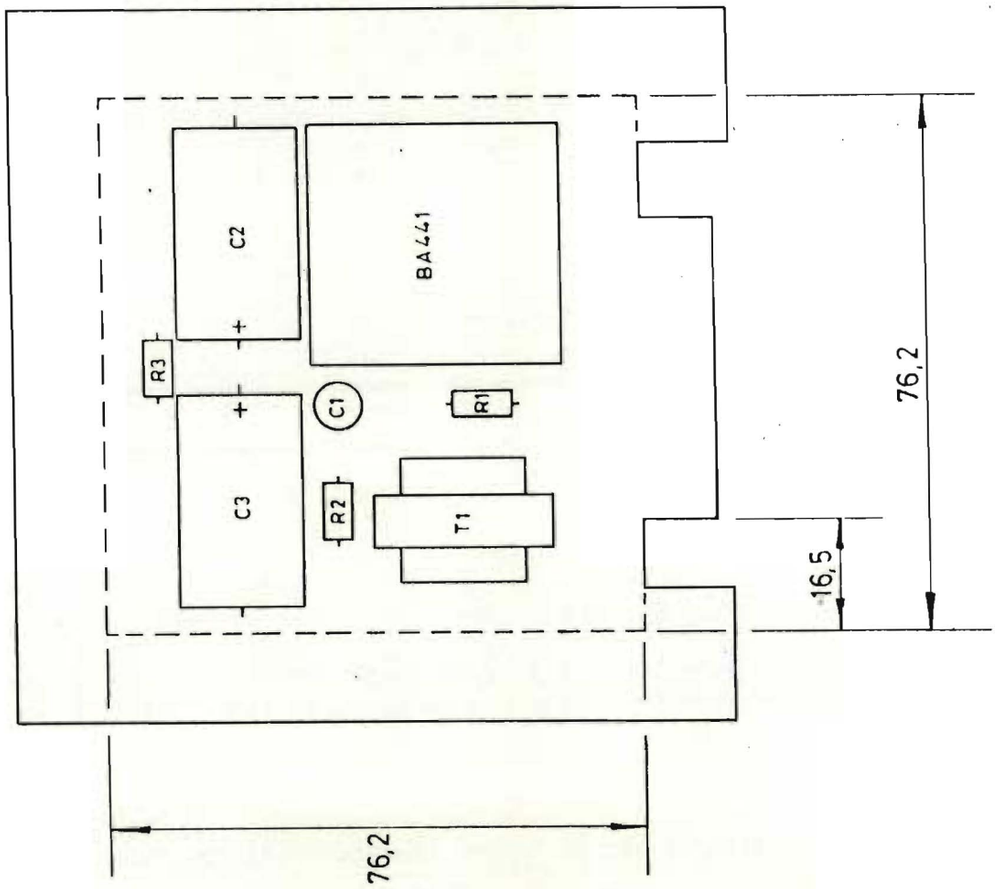
PARTS LIST

Ref	*Description*	*Part No.*
R1	*Resistor TR4, 2% 620*	*RA620R0*
R2	*Resistor " " 2K2*	*RA002K2*
R3	*Resistor " " 10K*	*RA010K0*
C1	*Capacitor 22 µ 16V*	*CA60223*
C2	*Capacitor 1000 µ 25V*	*CA71004*
C3	*Capacitor 1000 µ 25V*	*CA71004*
Qty		
5	*Connector Socket Cambion 450-3704-1-03*	*CN20001*
2	*Connector Solder Pin Cambion 120-1370-2-04*	*WA17001*
Ref		
T1	*Transformer VT22867*	*TF10009*
Qty		
1	*Printed Circuit Board Assembly (BA441)*	*PL10441*
1	*Printed Circuit Board (Unassembled) (BA371A)*	*PL10371*

LOUDSPEAKER AMPLIFIER ASSEMBLY BA371 /B

COMPONENT LAYOUT





NOTE: BOARD TO BE CUT TO DOTTED PROFILE DIMS. WHEN USED ON 3" SPEAKER

PRINTED CIRCUIT BOARD ASSEMBLY BA374 ✓

P.P. METER DRIVER

CONTENTS LIST

BA374 P.P.M. DRIVER

General Description

The BA374 P.P.M Drive Amplifier is contained on a double-sided printed circuit board measuring 3 inches by 2.4 inches (7.5cm x 6cm) fitted with an integral 15- way edge connector. Holes provide for an alternative method of mounting directly on the terminals of the associated P.P.M meters (Sifam 22F, R32F and R42F) with which it is designed to operate. Using the R32F meter, the assembly meets requirements of BS4298 : 1968.

Facilities are provided for operating from balance lines at 0 dBm or -20 dBm, the input impedances being respectively 49K and 8.3K. Up to five slave meters may be driven using individual series and shunt resistors.

Power supply requirements are 30mA at 24V. The P.P.M assembly is interchangeable with the BA286 V.U. meter assembly of the same size and uses the same connections (except for slave meters). Integrated circuits are used throughout, to ensure good stability and adjustments are provided for scale marks '2' and '6'.

Accidental reversing of the P.C.B. edge connector will not damage the circuit.

Two pre-set potentiometers are mounted on the P.C.B. one for automatically maintaining the logarithmic character of the meter reading at low input readings. The second control gives a means of correction for higher meter readings.

Variations in meter sensitivity can be provided for, by changing an identified resistor on the printed circuit board.

BA374 TECHNICAL DESCRIPTION

Circuit EX10374

With 24V applied between S and R the resistor R12 in series with the Zener diodes DZ1, DZ2 provide a regulated 12V reference voltage.

At the input, R1, R2 and R3 form a balanced 20 dB pad in which the value of R2 takes into account the input impedance of T1, R4 defines the input impedance of T1 and in conjunction with C1 provides the specified bass roll-off.

IC1 and IC2 and associated components form a precision full wave rectifier, the operation of which is as follows:-

For positive half-cycles, diode D1 conducts, IC1 acts as an inverting amplifier with a gain of 26.5 dB and IC2 acts as non-inverting amplifier with a gain of 1.1/2 times. The output charges C2 via D4 and R10, the voltage on which is buffered by IC3. The decay time constant is defined by R11, C2. D3 is included to ground the output of IC2 when C2 is discharging. At IC1, R33 and R34 are fitted so as to null-out any offset present in IC1 and are adjusted during factory adjustment.

IC4 is the output amplifier to which progressive feedback is applied to generate the correct quasi-logarithmic transfer characteristic. For small readings (meter reading less than '1') the gain is defined by [R15 // (R16 + R17)]/ (R13 // R14). As the input is increased, Q1 conducts and clamps the feedback via R16, R17, increasing the gain to R15 / (R13 // R14) for the portion of the scale 1 to 2. The exact point at which this occurs is set by VR1 (SET 2). Q2 acts as a temperature - controlled 0.8V reference. As the input is increased still further, the emitter of Q3 goes negative with respect to the emitter of Q4, biasing the latter into conduction. An additional feedback current defined by R22 is provided by the collector of Q4 which results in the correct gain for the portion of the scale 3 to 4.

For higher meter readings, additional feedback is successively provided in a similar manner by Q6, Q7 and Q8. The break points are defined by the resistor chain R23, 24, 25 and 26, adjustment being provided by VR2 (SET 6). Resistors R31 and R32 (factory adjusted on test) allow adjustment for variations in meter sensitivity.

BA374 P.P.M. DRIVER-ALIGNMENT

Procedure

1. With the meter(s) disconnected, connect a 24V supply to S (B+) and measure the current drain. This should be 30mA ± 5mA.

2. Set VR1 and VR2 located on the P.C.B. to mid-position. Connect a voltmeter between J (Slave +) and N (Slave -). If the output is greater than 0.2 volts, minimise the offset by a suitable choice of R33 or R34 (I.C.1). About 1K is nominal.

3. Set the mechanical zero on the meter (or meters) and fit to the P.C.B., or connect via 9K1 resistors as required (R32). Connect C to D and E to F and apply 1 kHz tone to B and H, adjusting the level to give 10V ± 0.05V between J and N. Select R31 and slave meter shunts to give full scale deflection (18K nominal).

4. Adjust oscillator output to give +20 dBm.

5. Set the attenuator to 28 dB and adjust VR1 for a reading of '2'.

6. Set the attenuator to 12 dB and adjust VR2 for a reading of '6'.

7. Set the attenuator to 20 dB and adjust oscillator O/P for a reading of '4'.

8. Repeat 3.5 to 3.7 as necessary.

9. Measure oscillator output and select R14 as follows:-

Level (dBm)	0	+0.1	+0.2	+0.3	+0.4	+0.5	+0.6	+0.7
R14	infin	820K	430K	300K	220K	160K	130K	120K

Level dBm	+0.8	+0.9	+1.0	+1.1	+1.2	+1.3	+1.4	+1.5
	100K	91K	82K	75K	68K	62K	56K	51K

10. The frequency response should lie within the following limits with respect to the sensitivity at 1 kHz.

12 Hz		-1.5 to 2.0 dB
40 Hz	±	0.3 dB
15 kHz	±	0.3 dB
40 Hz		-4 to -6 dB

(It may be necessary to connect a 1nF capacitor and a 20K resistor in series across R4 to achieve the specified H.F. response).

11. Apply bursts of 5 kHz tone at +8 dBm and check that the readings fall within the following limits:

100 mS	6 ± 1/8
10 mS	5.1/4 to 5.1/2
5 mS	4.3/4 to 5.1/4
1.5 mS	3.1/2 to 4

The attack time is defined by R10, which should be decreased for higher readings and vice versa.

12. Apply an input at +12 dBm and suddenly interrupt it. The meter reading should fall to '1' in 2.5 to 3.2 seconds. The fall-back time is proportional to the value of R11 which should be changed if necessary.

P.P.M. BA374 PLUG-IN VERSION

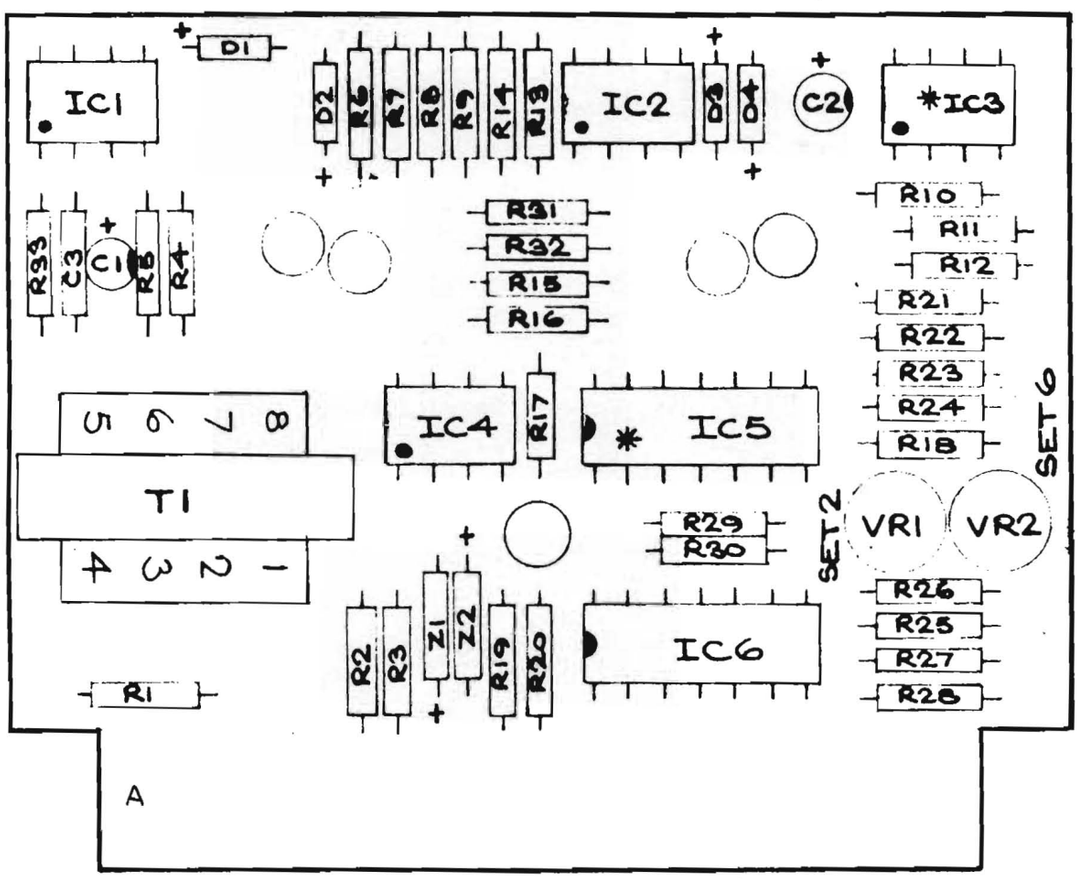
Ref	Description	Part No.
R1,3	Resistor TR4 5% 22K ohms	RA022KO
R2*,30,32	Resistor " " 9K1 ohms	RA009KO
R4	Resistor " " 7K5 ohms	RA007K5
R5-9	Resistor " " 51K ohms	RA051KO
R10	Resistor " " 220 ohms	RA220RO
R11	Resistor " " 180K ohms	RA180KO
R12	Resistor " " 560 ohms	RA560RO
R13	Resistor " " 5K1 ohms	RA005K1
R14	Resistor " " 7K5 ohms	RA007K5
R15	Resistor " " 91K ohms	RA091KO
R16,17	Resistor " " 15K ohms	RA015KO
R18	Resistor " " 12K ohms	RA012KO
R19,20	Resistor " " 5K1 ohms	RA005K1
R21,22	Resistor " " 36K ohms	RA036KO
R23	Resistor " " 1K6 ohms	RA001K6
R24	Resistor " " 1K5 ohms	RA001K5
R25	Resistor " " 750 ohms	RA750RO
R26	Resistor " " 680 ohms	RA680RO
R27	Resistor " " 3KO ohms	RA003KO
R28	Resistor " " 20K ohms	RA020KO
R29	Resistor " " 11K ohms	RA011KO
R31	(Selected on Test)	-
R33	Resistor TR4 5% 39K ohms	RA039KO
C1	Capacitor TAG 10 µF, 25V	CA60100
C2	Capacitor TAG 4.7 µF, 25V	XX10415
C3	Capacitor Suflex 1nF	CA20010
VR1,VR2	Potentiometer Trimpot 10K Linear	PT15015
IC1-4	Integrated Circuit 741-OPA	IC20002
D1-4	Diode BAX 13	DD10002
D21,D22	Zener Diode IN5234B	DD16900
IC5-6	Transistor Array NPN CA3086	IC21000
T1	Transformer VT 22687	TF10009
M1	Meter (BA374T only)	XX11622
	*Value of R2 varies according to meter scale refer to table below.	

Scale	100% Mod at	At 100% Mod Meter Reads	R2	Notes
A	+6 dBm	Mark 0	16K	Europe only
B	+8 dBm	Mark 6	9K1	B.B.C
C		Mark 8	9K1	

Versions

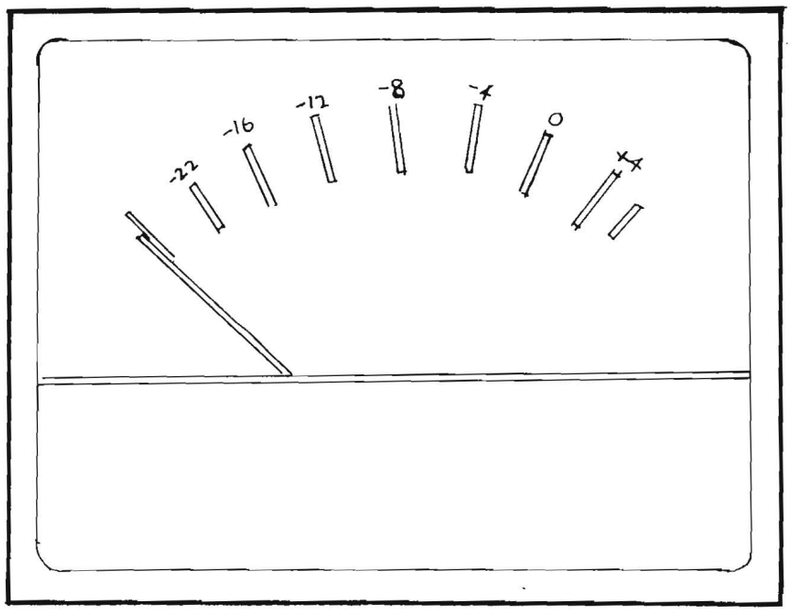
BA374/A	PPM amplifier printed circuit board assembly (plug in version) fitted with R32F meter with 'B' scale (Z0011)
BA374/B	PPM amplifier printed circuit board assembly (plug in version) fitted with R22F meter with 'B' scale, (Z0011)
BA374/C	PPM printed circuit board assembly (plug in version) fitted with R32F meter with 'A' scale (Z0291)
BA374/D	PPM printed circuit board assembly (plug in version) fitted with R22F meter with 'A' scale.
BA374/E	PPM amplifier printed circuit board assembly fitted with R32F meter with 'F' scale (Z0293)
BA374/F	PPM amplifier printed circuit board assembly (plug in version) fitted with 'E ' scale and Sifam meter (Zo294)
BA374/S	PPM printed circuit board assembly (plug in version) S.A.B.C only. Meter scale to MZ20545 Issue 2. (XX11622)
BA374/X	PPM amplifier printed circuit board assembly (plug in version). Meter scale to special order.
BA374/T	Special Order. Meters only. Scale to MZ20916 Iss. 1. (Meter Part No: XX11640).

BA374 COMPONENT LAYOUT

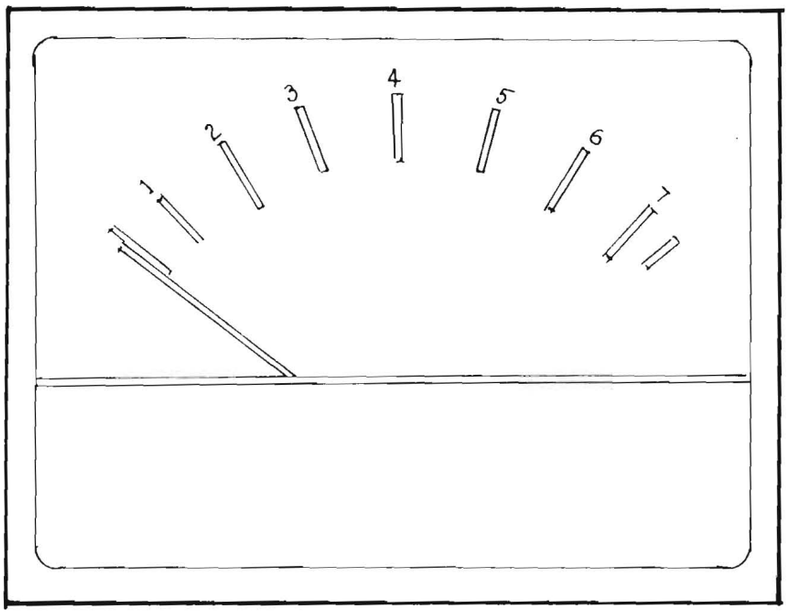


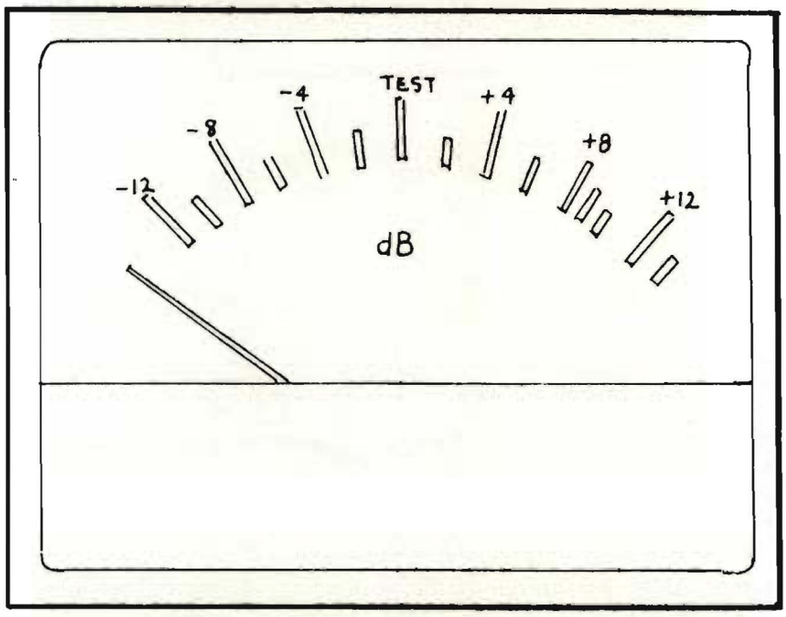
Note: *R33 and C3 values adjusted on test.*
R31 Meter sensitivity - adjusted on test.
R10 Attack time (A.O.T.)
R11 Fallback time (A.O.T.)

SCALE A -22 dB to +4 dB. White radial lines (representing 4 dB intervals on a matt black background.



SCALE B '1' to '7' to B.B.C Standards. White radial lines on a matt black background.





Scale E -12 dB to +12 dB to European Broadcasting standards

PPM AND METER VARIATIONS

Suffix letters A - F are used to signify the meter size and the scale. A letter X suffix indicates when a PPM meter is the subject of a special order.

Meter and its driving amplifier are matched during factory testing and should not be separated.

Stock/Special	Sifam Meter	Scale
Stock	A R32F	B
Stock	B R22F	B
Special Order	C R32F	A
	D R22F	A
	E R32F	E
	F R22F	E

PRINTED CIRCUIT BOARD ASSEMBLY BA406

CONTENTS LIST

ILLUSTRATIONS

BA406 Issue 1
January 1979

PRINTED CIRCUIT BOARD ASSEMBLY BA441

CONTENTS LIST

AMPLIFIER BA441

The BA441 is a plug in quasi-operational amplifier. There are two inputs, a non inverting input at pin 1 and an inverting input at pin 2.

The signal is applied to the non-inverting input at pin 1 and then passes from the isolating capacitor C2 to the base of TR1 which has an input impedance of 47K ohm defined by R3.

The resistor chain R1 and R2 forms a potential divider setting the bias voltage on TR1 base.

The signal is applied to the base of TR2 which is in a common emitter configuration. R4 in parallel with TR2 forms the collector load of TR1.

C4 is an rf suppression capacitor.

TR2 drives TR3 with R5 forming the collector load of TR2.

TR3 drives TR4 such that the TR3 and TR4 configuration has a gain of 4 times as defined by R8 and R9 feeding the unbalanced output at pin 5.

The diode D1 protects TR4 from overloading by removing its base drive just before saturation.

The capacitor C5 stabilies the TR3 and TR4 feedback loop.

Feeding TR4 is a constant current source consisting of TR6, R12, R13 and R15 which contributes to low overall distortion.

TR5 provides base bias for the output pair TR6 and TR7 and being thermally coupled to them, stabilies the quiescent current.

TR6 is also thermally compensated by D2.

C5 is a decoupling capacitor across the supply line.

The gain of the amplifier may be increased by decreasing the feedback voltage to the emitter of TR1. This voltage is decreased by connecting an external resistor between the inverting input at pin 2 and B- at pin 3, thus forming a potential divider with the internal feedback resistor R6.

The output stage consists of a pair of complementary transistors TR7 and TR8 connected as emitter followers in push pull.

The bias voltage and thus the quiescent current of TR7 and TR8 is derived from TR5 and is set by the adjust on test resistor R11.

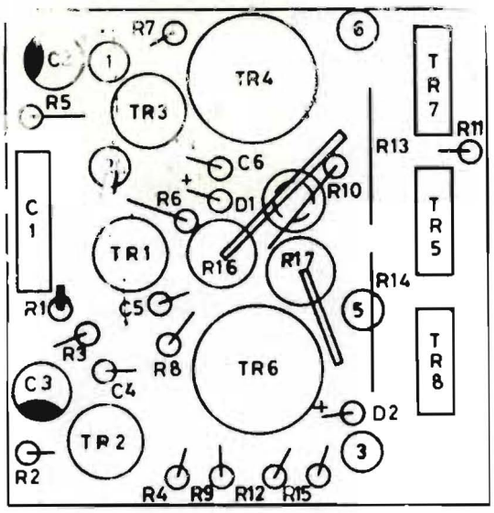
The inverting input at pin 2 presents a very low input impedance, but is not dc isolated. Consequently an external isolating capacitor must be used. This input may be used for mixing different signal sources via suitable resistors in series with the input capacitor.

The BA441 has been designed to be electrically and mechanically interchangeable with the BA440 amplifier, but has a higher output power capability for Distribution and Loudspeaker amplifier applications.

SPECIFICATION BA441

Pin	1.	Non inverting input
	2.	Inverting input
	3.	B-
	5.	Output
	6.	B+
Supply Requirement	a) Quiescent	24V dc at 200 mA maximum.
	b) Maximum	24V dc at 1 A maximum.
Distortion		Does not exceed 0.02% measured between 20 Hertz and 20K Hertz at 18 dBm output level.
Noise		Does not exceed -96 dBm over bandwidth 20 Hertz to 20K Hertz, with input short circuited and gain at 20 dB.
Frequency Response		Within ±0.1 dB from 20 Hertz to 20K Hertz, measured at 20 dB gain.
Maximum Output		+18 dBm into 4 ohms load.
Supply Mode Rejection		40 dB at 1K Hertz.
Slew Rate		7.3 volts per microsecond.

COMPONENT LAYOUT BA441



PARTS LIST BA441

Ref.	Description	Part No.
R1	Resistor 36K TR4 2%	R4 36K
R2	" 18K " "	R4 18K
R3	" 47K " "	R4 47K
R4	" 2K7 " "	R4 2K7
R5	" 47K " "	R4 47K
R6	" 15K " "	R4 15K
R7	" 560 " "	R4 560
R8	" 2K2 " "	R4 2K2
R9	" 560 " "	R4 560
R10	" 200 " "	R4 200
R11	" 10K " "	R4 10K
R12	" 27 " "	R4 27
R13	" 2K4 " "	R4 2K4
R14	" 2K4 " "	R4 2K4
R15	" 220 " "	R4 220
R16	" 0.33 W.W 2.5W	WW 0.33
R17	" " " "	WW 0.33
C1	Capacitor	CO198
C2	" 10 µ 25V	CO207
C3	" 22 µ 16V	CO199
C4	" 100 p 63V	CO039
C5	" 100 p 63V	CO039
C6	" 33 p 63V Suflex HS	CO037
D1	Diode AA 144	TO046
D2	" BAX 13	TO044
D3	" AA 144	TO076
TR1	Transistor BC214 KC	TO095
TR2	" BC184C	TO043
TR3	" BC184C	TO043
TR4	" BC461-6	TO062
TR5	" MJE 521	TO135
TR6	" BC441-6	TO052
TR7	" MJE 521	TO135
TR8	" MJE 371	TO134
	Connector	CO379

PRINTED CIRCUIT BOARD ASSEMBLY

SERIES BA489

MOTHERBOARD ASSEMBLIES

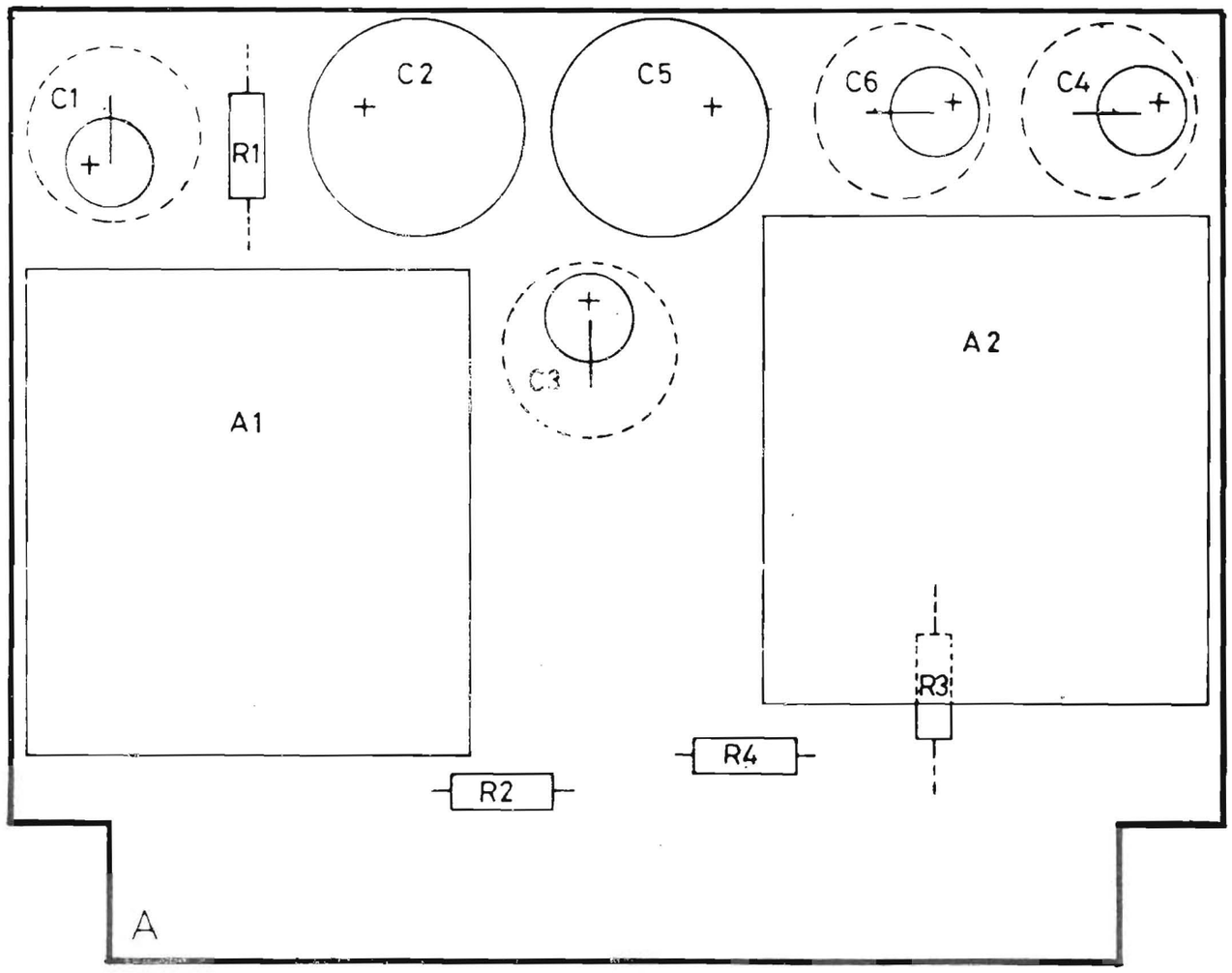
SERIES BA489

The variants of the basic motherboard are made up according to the tabulated information on Drawing number EX10489. Included also is a table giving the values of gain boost resistor for given dBs of boost. The 10k resistors are retained to avoid switching clicks. The part numbers for the range of components used in the version are given below.

PARTS LIST PL10489

Ref	Description	Part No.
See Table on EX10489	Capacitor 100 µF, 40V	XX10507
	Capacitor 150 µF, 16V	CA61501
	Capacitor 470 µF, 16V	CA64704
	Capacitor 470 µF, 25V	CA64703
	Capacitor 470 µF, 40V	XX10530
	Capacitor 1000 µF, 16V	XX10577
	Resistor 47 ohms TR4 5%	RA047R0
	Resistor 10K ohms " "	RA010K0
	Resistor 10 ohms BTT	RD010R0
	Printed Circuit Board Assembly (BA437)	PL10437
	Printed Circuit Board Assembly (BA438)	PL10438
	Printed Circuit Board Assembly (BA440)	PL10440
	Cambion Socket	CN20002

BA489 COMPONENT LAYOUT



MOTHERBOARD ASSEMBLY

BA489N

The basic motherboard is made up according to the tabulated information on Drawing Number EX10489. Included also is a table giving the values of gain boost resistor for given dBs of boost. The 10k resistors are retained to avoid switching clicks. The part numbers for the range of components used are given below. The BA489N is similar to the BA489C, except that the capacitors C5, C6 are changed from 470/16V to 470/25V.

Ref	*Description*	*Part No.*
See	*Capacitors 470 µF, 25V Electrolytic (Mullard)*	*CA64701*
Table	*Capacitors 470 µF, 16V Electrolytic (ITT)*	*CA64704*
"	*Resistor 10 ohms RBTT*	*RD010RO*
"	*Resistor 10K TR4 5%*	*RA010KO*
Amplifier	*BA440*	-

	N
A1	BA440
A2	BA440
C1	470/16
C2	470/25
C3	470/25
C4	470/16
C5	470/25
C6	470/25
R1	10
R2	10K
R3	10
R4	10K

COMPONENT VALUES TO BE USED ON BA 488A etc

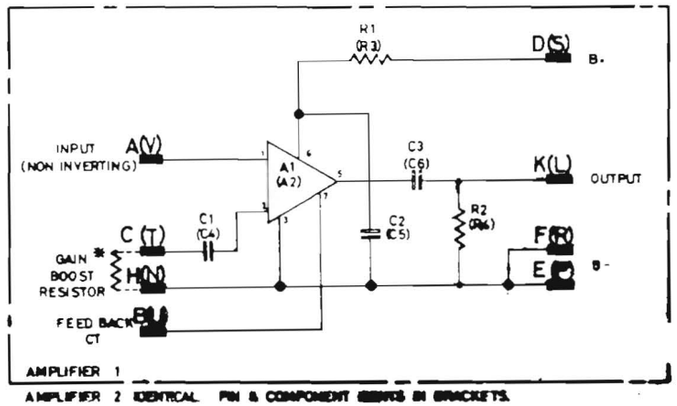
	BA 489/A	BA 486/B	BA 489/C	BA 489/D	BA 489/E	BA 489/F	BA 489/G	BA 489/H	BA 489/J	BA 489/K	BA 489/L	BA 489/M	BA 489/N	BA 489/P	BA 489/Q	BA 489/R
A1	BA 437	BA 438	BA 440	BA 437	BA 438	BA 440	BA 437	BA 438	BA 437	BA 438	BA 440/B	BA 438	BA 440	BA 440B	BA 512	BA441
A2	BA 437	BA 438	BA 440	not used	not used	not used	BA 438	BA 440	BA 440	BA 440B	BA 440/B	BA 438	BA 440		BA 512	BA441
C1	150/16	150/16	470/16	150/16	150/16	470/16	150/16	150/16	150/16	470/16	470/16	470/16	470/16	470/16	470/16	150/16
C2	470/25	470/25	470/25	470/25	470/25	470/25	470/25	470/25	470/25	100/40	470/40	100/40	470/25	470/40	470/25	470/25
C3	470/16	150/16	470/16	150/16	150/16	470/16	470/25	150/16	150/16	150/16	470/40	150/16	470/25	470/40	470/16	LINK
C4	150/16	150/16	470/16	not used	not used	not used	150/16	470/16	470/16	470/16	470/16	470/16	470/16		470/16	150/16
C5	470/25	470/25	470/25	- - -	- - -	- - -	470/25	470/25	470/25	470/40	470/40	100/40	470/25		470/25	470/25
C6	470/16	150/16	470/16	- - -	- - -		470/16	470/16	470/16	470/40	470/40	150/16	470/25		470/16	LINK
R1	47	47	10	47	47	10	47	47	47	47	10	47	10	10	10	LINK
R2	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10 K	10K	10 K	10K	10K
R3	47	47	10	not used	not used	not used	47	10	10	10	10	47	10		10	LINK
R4	10K	10K	10K	- - -	- - -	- - -	10K	10K	10K	10K	10K	10 K	10K		10K	10K

VARIANT 'N' IS NOT SUITABLE FOR MODULES &
CAN ONLY BE USED IN CONSOLE APPLICATIONS

GAIN BOOST RESISTOR VALUES
(WHEN USING NON-INVERTING INPUT)

dB	Ohms
10	6K8
12	5K1
14	3K6
16	2K7
18	2K2
20	1K6
22	1K3
24	1K0
26	820
28	620
30	510
32	390
34	300
36	240
38	200
40	150
42	120
44	91

MINIMUM GAIN BOOST 10 dB
MAXIMUM GAIN BOOST 45dB



AMPLIFIER 2 IDENTICAL PIN & COMPONENT [illegible] IN BRACKETS.

DUAL AMP MOTHERBOARD FOR BA 437-440 SERIES
EX 10488 ISSUE 8

PRINTED CIRCUIT BOARD ASSEMBLY BA630

CONTENTS LIST

BA630 OVERLOAD INDICATOR

The p.c.b. is fitted with four overload indicators each similar to the arrangement shown on drawing EX10630.

The audio input is applied at Contact A. During initial setting-up with RV1 fully clockwise a 1kHz sine wave at a level of -30dBu is applied to Contact A and the input to pin 9 of A1 is slowly increased until the green LED connected externally to contact B just comes on (-20dBu).

The signal level is then further increased until the red LED just comes on (0dBu).

The potentiometer RV11 is then turned fully anti-clockwise and the above procedures are repeated to bring the green LED on at greater than 0dBu and the red LED on at greater than +20dBu.

This procedure is repeated for the other three channels at inputs E,K, and P.

Characteristics

Attack time 5mS
Delay time 250mS

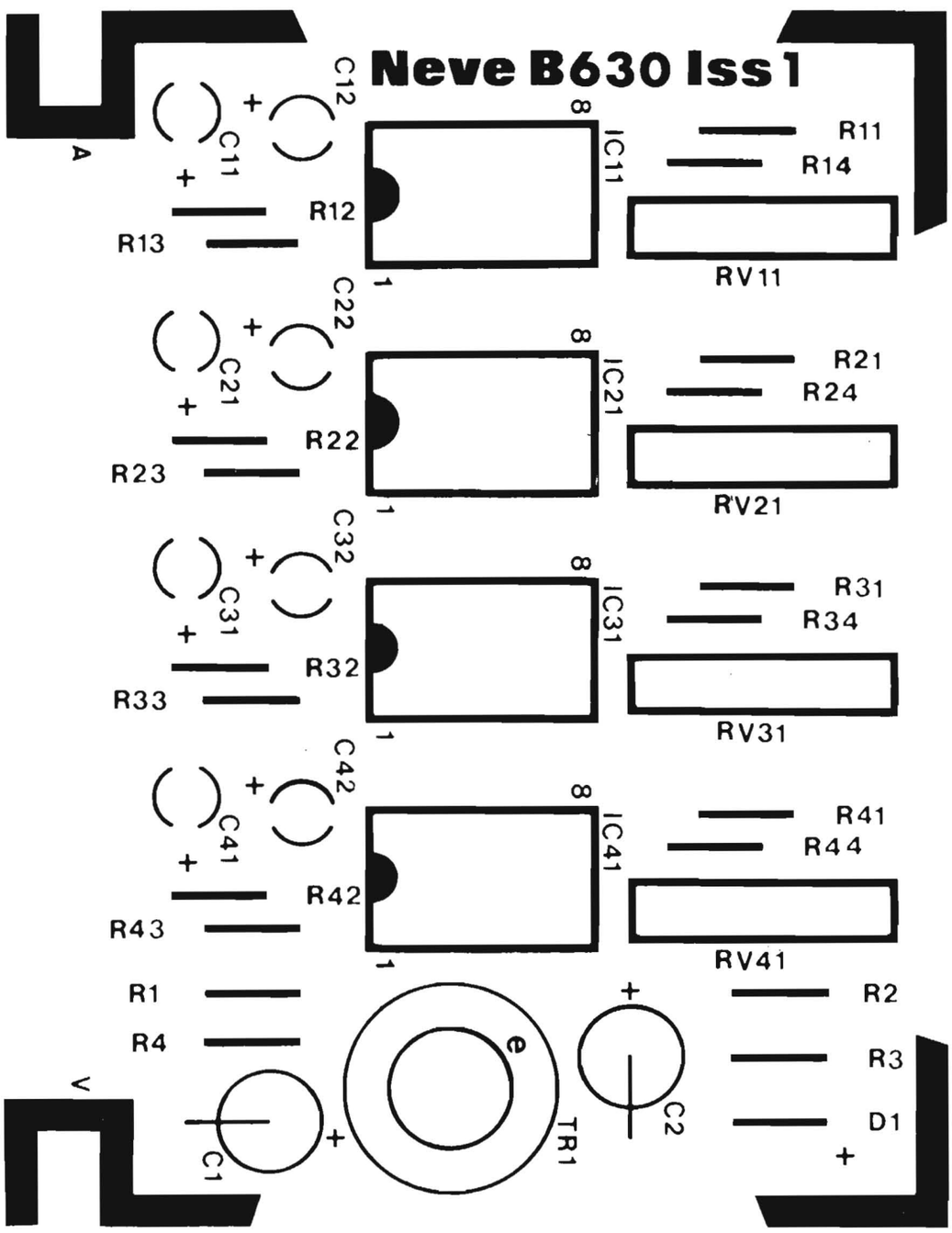
Power Consumption

60 mA ±20% at 24V d.c. (quiescent)

PARTS LIST BA630

Ref/Qty	*Description*	*Part No.*
R1	*Resistor, TR4, 2% 82 ohms*	*RA082R0*
R2	*" " " 12K "*	*RA012K0*
R3	*" " " 200 "*	*RA200R0*
R4	*" " " 1K8 "*	*RA001K8*
R11,(4)	*" " " 4K3 "*	*RA004K3*
R12,(4)	*" " " 1K5 "*	*RA001K5*
R13(4)	*" " " 1K5 "*	*RA001K5*
R14,(4)	*" " " 1K0 "*	*RA001K0*
RV1,(4)	*Potentiometer, multitum 100K*	*PT20003*
C11 (4)	*Capacitor TAG 10µF, 25V*	*CA60101*
C12 (4)	*" " 10µF, 25V*	*CA60101*
D1	*Diode, Zener BZY88C12Y*	*DD17600*
C1,C2	*Capacitor, Mullard, 150µF, 16V*	*CA20282*
TR1	*Transistor BC441-6*	*TR16201*
	Transistor mounting pad	*SA10200*
A1 (4)	*Integrated Circuit SN16880N*	*IC23000*

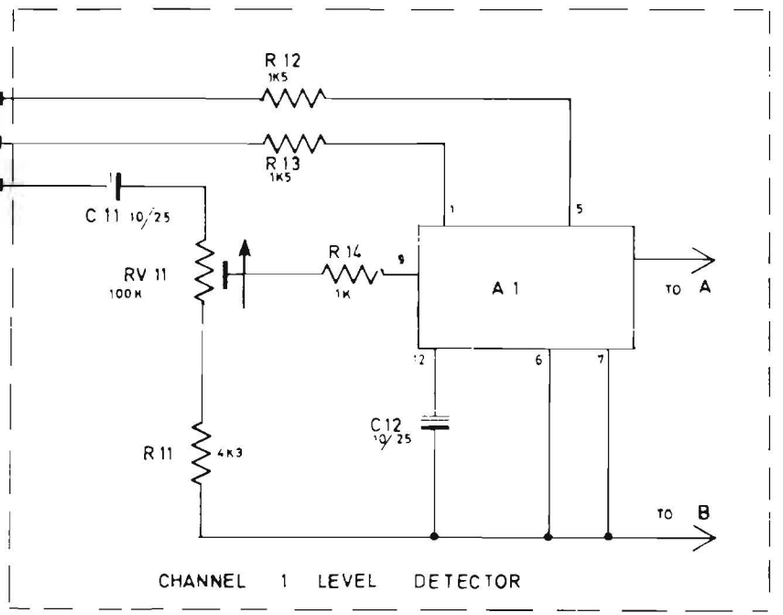
COMPONENT LAYOUT



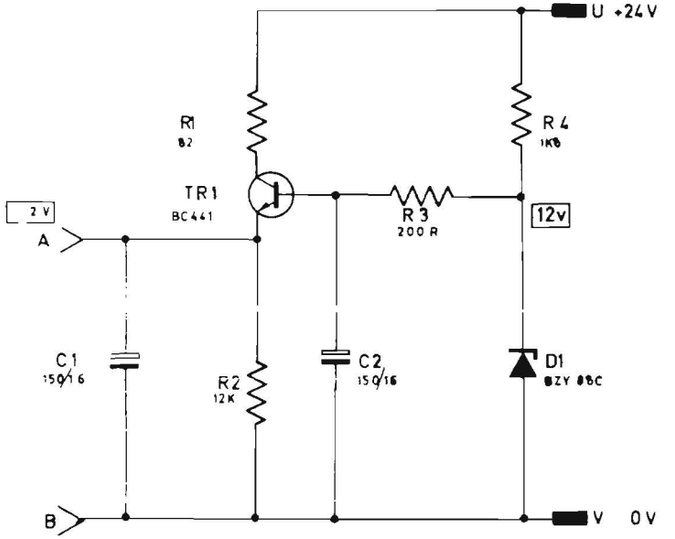
DRAWING No.

EX 10630

CH No	1	2	3	4
LO O/P	B	F	L	R
HI O/P	C	H	M	S
AUDIO I/P	A	E	K	P



CH 2-4 IDENTICAL ; COMPONENTS PREFIXED BY CH No



NOTES

1) ALL RESISTORS ¼ W 5% MO
2) TR 1 FITTED WITH HEATCLIP
3) KEYWAY ON D
4) SPARE WAYS ON J, N, T,
5) (a) FOR I/P LEVELS OF -20dBu TO 0dBu USE LO DRIVE O/P's
   (b) FOR I/P LEVELS OF 0dBu TO +20dBu USE HI DRIVE O/P s
6) (a) ATTACK TIME ta = 5 mS
   (b) DECAY TIME td = 250 mS

	1	ISSUE	FIRST USED ON A4238	MATL.	TOL UNLESS OTHERWISE STATED: LINEAR ± / ANGULAR / HOLES +0.13 −0
		DATE	DRN. JB	FINISH	3rd ANGLE PRJ / DIMS. IN / SCALE
		CHANGE NOTE No	TRACED MF	TITLE BA 630 QUAD OVERLOAD INDICATOR	DRG. No. EX 10630
		CHECKED	CHECKED	Rupert Neve & Company Ltd.	1977 © A3

MY 54663R

PRINTED CIRCUIT BOARD ASSEMBLY BA638

TECHNICAL DESCRIPTION

CONTENTS

DRAWINGS

Circuit Diagram	EX10638
Component Layout	EW10638

PRINTED CIRCUIT BOARD ASSEMBLY BA638

TECHNICAL DESCRIPTION

1. GENERAL

The BA638 pcb is a small signal amplifier designed as a plug-in unit on a larger motherboard. The gain of the pcb is adjustable by selection of the value of an external gain-boost resistor.

2. CIRCUIT DESCRIPTION
(Drawing EX10638)

The pcb operates from a nominal +24V supply, which may be decoupled and smoothed by components on the motherboard. IC1 is a TD1034B audio amplifier; inverting and non-inverting inputs are both accessible. The gain boost resistor is connected externally to the pcb between pins 2 and 3, and will normally be included in the parts list for the motherboard.

3. SPECIFICATION

All measurements are taken with a gain boost resistor value 1.6kΩ (≡+20dB gain), and output terminated in 620Ω.

3.1 Quiescent Operation
(a) Input Current 8 mA from +24v supply
(b) Standing output voltage (pin 6) +12V ±1V

3.2 Gain
With 1kHz sine wave input at -10dBu, the output signal should be +10dBu ±0.5dB.

3.3 Maximum Output
Not less than +18dBu, at onset of clipping.

3.4 Distortion
At +17dBu output, the distortion must be as follows:

100Hz - less than 0.008%
1kHz - less than 0.005%
10kHz - Less than 0.01%

3.5 Noise
With input short-circuited, the output noise level must be less than -96dBu over a bandwidth of 20Hz to 20kHz.

4. PARTS LIST

Circuit Reference	Component/Value	Part No.
C1	Capacitor 10µ	CA60100
C2	" 22µ	CA60224
C3	" 22p	CA10220
C4	Not fitted	-

Circuit Reference	Component/Value	Part No.
C5	Capacitor 22n	CA20223
C6	" 68p	CA10681
IC1	Integrated Circuit TDA1034B	IC20007
R1-3	Resistor 47k	RA047KO
R4,5	Resistor 7.5k	RA007K5

PRINTED CIRCUIT BOARD ASSEMBLY BA640 USED IN THE 3115/33115 LINE/MIC INPUT MODULE

TECHNICAL DESCRIPTION

CONTENTS LIST

DRAWINGS

Circuit Diagram	EX10640
Component Layout	EW10640

PRINTED CIRCUIT BOARD ASSEMBLY BA640

TECHNICAL DESCRIPTION

1. GENERAL

The BA640 is a line amplifier pcb with a low impedance output, suitable for use as a distribution amplifier. It is designed as a plug-in unit to be incorporated in a larger motherboard. The gain of the pcb is determined by the value of an external gain boost resistor.

2. CIRCUIT DESCRIPTION
(Drawing EX10640)

The pcb is driven by a nominal +24v supply; decoupling and smoothing components will normally be mounted on the motherboard.

Inverting and non-inverting inputs are both accessible on IC1; a gain boost resistor can be fitted between the pcb inverting input (pin 2) and 0V.

The IC is followed by a low impedance output stage (TR1,TR2) which also incorporates overload protection.

3. SPECIFICATION

3.1 Quiescent conditions
With a gain boost resistor of 1.6kΩ (≡+20dB gain) and output terminated in 620Ω the static current should be between 20mA and 30mA; the standing output voltage (pin 6) should be +12V±1V.

3.2 Gain
With 1kHz sine wave input at -10dBu the output level should be +10dBu ±0.5dB.

3.3 Maximum Output
With an output load of 50Ω and the 1kHz input level increased until the output signal is just clipping the output level should be greater than +18dBu.

3.4 Distortion
At 1kHz input adjusted to give +17dB output into 50Ω the distortion should be as follows:

100Hz	-	less than 0.008%
1kHz	-	less than 0.004%
10kHz	-	less than 0.02%

3.5 Noise
With the input short circuited the output noise level must be less than -96 dBu over the bandwidth 20Hz to 20kHz.

4. PARTS LIST

Circuit Reference	Component/Value	Part No
C1	Capacitor 10µ/25V	CA60100
C2	" 22µ/16V	CA60224
C3	" 22p	CA10220
C4	" 10p	CA10101
		or CA10100
C5	Capacitor 47µ/16V	CA60471
C6	" 22n	CA20223
D1-4	Diode IN914	DD10002
IC1	Integrated Circuit TDA1034B	IC20007
R1,2,3	Resistor 47k	RA047KO
R4	15k	RA015KO
R5	3.9k	RA003K9
R6	1k	RA001KO
R7,8	3.3	RF003R3
TR1	Transistor BC441	TR16201
TR2	" BC461	TR12201
-	Mounting pad	SA10200

STANDARD BROADCAST CONSOLE (SPEC 5315)

GENERAL PARTS LIST

PN50052

Qty	Description	Part No.
12	Channel Amplifier (if applicable)	PN33114
12	Channel Amplifier (if applicable)	PN33115
12	Channel Amplifier (if applicable)	PN33117
12	Channel Switching Unit	PN33726A
12	Line Amplifier	PN33415
1	Oscillator	PN33515
1	Phantom Power Convertor (if applicable)	PN33601
1	P.S.U. 24V 5A	PN40008
1	P.S.U. Mounting Frame 19" (if applicable)	PN70154
1	Printed Circuit Board Loudspeaker Amplifier	PL10371
3	Printed Circuit Board Amplifier	PL10489/B
1	Printed Circuit Board Amplifier (Mono Output) (if applicable)	PL10489/F
4	P.P.M. Amplifier (if applicable)	PL10374/B
1	P.P.M. Amplifier (Mono Meter) (if applicable)	PL10374/B
1	L.E.D. Driver (Overload Indicator) (if applicable)	PL10630
18	Fader 5K chms	FD10004
18	Fader Top Plate	MG21130
12	Silver 'B' scale	ML61148
6	Silver 'C' Scale	ML61151
12	Fader Knob Black	KA11000
4	Fader Knob Red	KA11001
2	Fader Knob Green	KA11003
36	10BA Fader Screw	FA11030
18	15-way Painton Plug	CN10302
24	Varelco 29-way fixed socket	CN20581
14	Varelco 17-way fixed socket	CN20341
76	Screw M3 x 20 Pan Pozidrive Head	FM11626
76	Self-lock nut M3	FM20031
38	Terry Clip Size 000	FG10401
38	Screw M2 x 8 Ch. Hd	FM10502
38	Nut M2	FM20010
38	Washer M2	FM21010
5	Amphenol 18-way fixed socket	CN20360
1	Amphenol 10-way fixed socket	CN20200
9	Painton 35-way Fixed Socket with retainers	CN20701
1	15 way Painton free plug	CN10302
2	15 way Painton Fixed socket	CN20301
1	EP5 fixed plug	CN10102
1	EP5 Free plug	CN10101
1	L.N.E. Free socket	CN20069
1	EP5 Free socket	CN20101
1	18 way Klippon Connector Block	CN34101

Qty	Description	Part No.
1	Capacitor, 4700 µF, 40V	CA74701
1	Capacitor, Clamp	FG14030
1	Number Plate	MG20448
1	Technical Earth Plate	MG20542
1	Chrome Washer	FA16100
16	Foot Black Rubber	FE10002
4	MH1 1K ohm Preset	PT11002
42	Veroboard Busbar strips	WA18005
220	PTFE Bushing	WA17305
45	Red Feedthrough	WA17301
170	Put-On Resistor	RA008K2
24	Phantom Power Resistor	RE018K0
10	Transformer 31267	TF10005
1	Transformer LO1173	TF12011
1	Transformer LO1173	TF12011
1	Transformer LO1166	TF12000
4	V.U. Meter 22F 'A' scale	IM10002
4	Bezel Mounting Kit for R22F	IM19003
4	Illumination Kit	IM19000
4	Component Mounting Board	M10787
2	Resistor 5W	RK050R0
1	Resistor 5W	RK100R0
4	L.E.D Red	LA13002
4	PPM 22F, with Bezel Mounting Kit	PL10374B or D
4	Illumination Kit	IM19000
4	15 way Amphenol Connector	CN20300
2	Resistor 5W	RK050R0
1	Loudspeaker with Grille	TD13003
5	Relay	RL10300
5	Relay Base	RL19000
5	Relay Clip	RL19001
5	Diode BAX16	DD10001
5	Capacitor 0.01 µF	CA20100
5	Resistor	RD047R0
1	LOD4	DD10000
48	Jack Socket (for each jackstrip required)	CN35000
4	Painton 35-way fixed skt,with retainers (for each jackstrip required)	CN20701
11	Plessey M1 10 K ohm Lin Pot	PT15007
2	Plessey M1 1K ohm Lin Pot	PT11003
1	Plessey M1 1K ohm Lin Pot	PT11003
1	Painton Winkler 1K ohm Log, 4 Bank	EK20084/4
2	TJ Switch 1B 2P	SW21000
2	TJ Switch 1B 6P	SW21002
4	TJ Lampholder	SW29000
4	TJ Lamp 24V	LA11300
4	TJ Switch Mounting Bracket	SW29010
8	Isostat 2B 2P Push-Push CD10	SW20020
1	Isostat 4B 4P Interlock CD15	SW20067
1	Isostat 2B 2P Push-Push CD15	SW20021
2	Isostat 4B 2P Interlock CD15	SW20062
1	Isostat 8B 4P Interlock CD15	SW20142
2	Isostat 6B 4P Interlock CD15	SW20101
1	Isostat 6B Interlock CD15 Special	SW20103
1	Isostat 4B 8P Interlock CD15	SW20068
13	Knob 14 mm Dia	MG21479/1
4	Light Blue Insert	MZ20828/1

Qty	Description	Part No.
5	Medium Blue insert	MZ20828/2
4	Dark Blue Insert	MZ20828/3
2	Keyswitch 8CL/8CL	SW40144
1	Keyswitch 4CL/4CL	SW40064
1	Keyswitch Cap Grey/White	KA14013
1	Keyswitch Cap Red	KA14004
1	Keyswitch Cap Grey/Red	KA14015
1	Knob 30 mm dia.	MG21483/1
1	Knob insert, medium blue	MZ20826/2
1	Microphone D58E	TD10001
1	Microphone socket	CN20065
1	L.E.D. Green	LA13000
1	L.E.D. Red	LA13002
2	L.E.D. Mounting Kit	LA13200
4	Keyswitch 4 CNL/4 CNL	SW40062
1	Keyswitch Cap Grey/Green	KA14008
1	Keyswitch Cap Ivory/Red	KA14011
2	Keyswitch Cap Ivory	KA14006
1	15 way Painton Free plug	CN10302
1	15 way Painton Free plug	CN10302
1	Painton 35-way Fixed Skt, with retainers	CN20701
1	Painton 35-way fixed skt, with retainers	CN20701
2	NTP 117-800 (option)	XX11637
5	Lamp 28V 1.1W (option)	LA10000
5	Licon, Momentary contact (option)	SW22002
5	Resistor 100 ohm (option)	RD100R0
1	Painton 35-way Fixed skt, with retainers (option)	CN20701
1	TJ Cap engrave '4t tape'	MG20273/160
1	T.J. Cap engrave 'dim'	MG75412/138
1	T.J. Cap engrave '1 & 2'	MG75422/139
1	T.J. Cap engrave '3 & 4'	MG75422/140
1	Isostat Cap 10 mm Grey/Black engrave '1'	MG55001/B
2	Isostat Cap 10 mm Grey/Black engrave '2'	MG55002/B
2	Isostat Cap 10 mm Grey/Black engrave '3'	MG55003/B
2	Isostat Cap 10 mm Grey/Black engrave '4'	MG55004/B
7	Isostat Cap 15 mm Grey/Red engrave '1-2'	MG62378/R
3	Isostat Cap 15 mm Grey/Red engrave '3-4'	MG62379/R
1	Isostat Cap 15 mm Grey/Red engrave 'patch'	MG62367/R
2	Isostat Cap 15 mm Grey/Red engrave 'solo'	MG62332/R
1	Isostat Cap 15 mm Grey/Red engrave 'groups'	MG62380/R
1	Isostat Cap 15 mm Grey/Red engrave 'tape'	MG62377/R
1	Isostat Cap 15 mm Grey/Red engrave 'op 1 & 2'	MG62376/R
1	Isostat Cap 15 mm Grey/Red engrave 'di 1'	MG62479/R
1	Isostat Cap 15 mm Grey/Red engrave 'di 2'	MG62480/R
1	Isostat Cap 15 mm Grey/Red engrave 'aux 1'	MG62381/R
1	Isostat Cap 15 mm Grey/Red engrave 'aux 2'	MG62382/R
1	Isostat Cap 15 mm Grey/Red engrave 'aux 3'	MG62383/R
1	Isostat Cap 15 mm Grey/Red engrave 'aux 4'	MG62384/R
1	Isostat Cap 15 mm Grey/Red engrave 'op 1'	MG62370/R
1	Isostat Cap 15 mm Grey/Red engrave 'op 2'	MG62371/R

Qty	Description	Part No.
1	Isostat 15 mm Grey/Red engrave 'ext 1'	MG62515/R
1	Isostat 15 mm Grey/Red engrave 'ext 2'	MG62516/R
1	Isostat 15 mm Grey/Red engrave 'gr 1'	MG62372/R
1	Isostat 15 mm Grey/Red engrave 'gr 2'	MG62373/R
1	Isostat 15 mm Grey/Red engrave 'gr 3'	MG62374/R
1	Isostat 15 mm Grey/Red engrave 'gr 4'	MG62375/R
1	Isostat Cap 15 mm Black/White engrave 'op 1'	MG61370/W
1	Isostat Cap 15 mm Black/White engrave 'op 2'	MG61371/W
1	Isostat Cap 10 mm Grey/Red engrave 'monc'	MG52413/R
1	Isostat Cap 10 mm Grey/Red engrave '2t1'	MG52545/R
1	Isostat Cap 10 mm Grey/Red engrave '2t2'	MG52546/R
1	Isostat Cap 10 mm Grey/Red engrave '4t'	MG52547/R
8	Isostat Cap, White	KA10009
1	Tape Remote option engrave 'stop'	MG70121/194
1	Tape Remote option engrave 'play'	MG70121/195
1	Tape Remote option engrave 'rec'	MG70222/197
2	Tape Remote option engrave '▷'	MG70121/198
6	Painton 35-way Free Plug	CN10700
9	Cable Assembly	EK20191
2	Cable Assembly (not required with jackfield)	
1	Painton 35-way Free Plug	CN10700
1	Painton 35-way Free Plug	CN10700
1	Painton 35-way Free Plug	CN10700
1	Painton 35-way Free Plug	CN10700

STANDARD BROADCAST CONSOLE (SPEC 5315)

24 CHANNEL VERSION

PARTS LIST

Qty	Description	Part No.
	For Basic Console see PN50052	
12	Channel Amplifier (if applicable)	PN33114
12	Channel Amplifier (if applicable)	PN33115
12	Channel Amplifier (if applicable)	PN33117
1	Power Supply 24V 5A 33605	PN40008
12	Fader 5K ohm	FD10004
12	Fader Top Plate	MG21130
12	Silver 'B' scale	ML61149
12	Fader Knob Black	KA11000
24	10BA Fader Screw	FA10030
12	15-way Painton Plug	CN10302
24	Varelco 29-way Fixed Skt	CN20581
48	Screw M3 x 20 Pain Pozidrive	FM11626
48	Self-lock nut M3	FM20031
24	Terry Clip size 000	FG10401
24	Screw M2 x 8 Ch. Hd.	FM10502
24	Nut M2	FM20010
24	Washer M2	FM21010
4	Painton 35-way Fixed skt, with retainers	CN20701
1	Painton 35-way Fixed skt, with retainers	CN20701
1	EP5 Fixed Plug	CN10102
1	EP5 Free Plug	CN10101
1	L.N.E. Free socket	CN20069
1	EP5 Free Socket	CN20101
1	Capacitor 4700 µF, 40V	CA74701
1	Capacitor Clamp	FG14030
16	Foot Black Rubber	FE10002
16	Veroboard Busbar strips	WA18005
	P.T.F.E. Bushing	WA17305
14	Red Feedthrough	WA17301
	Put-On Resistor	RA008K2
24	Painton Power Resistor	RE018K0
2	Painton 35-way free plug	CN10700
4	Cable Assembly	EK20191
2	Cable Assembly	
1	Painton 35-way free plug	CN10700
1	Painton 35-way free plug	CN10700

SPARES KIT (5315)

Qty	Description	Part No.
2	Printed Circuit Board Amplifiers	PL10406
4	Printed Circuit Board Amplifiers	PL10438
3	Printed Circuit Board Amplifiers	PL10440
1	Tool Box	TS10701
1	Serial No. Plate	FE12002
1	17-Way Extension Lead	EK20143
1	29-Way Extension Lead	EK20145
1	Screw Kit	PL61018
1	Anti-Static Duster	TS10601
1	Meter Illumination Kit	IM19001
1	L.E.D. Green	LA13000
2	L.E.D. Yellow	LA13001
2	L.E.D. Red	LA13002
1	P.C.B. Extractor Tool	MG20697
1	T.J. Lamp Extractor Tool	MZ20373
1	T.J. Lamp	LA11300
1	Relay	RL10300
1	Relay Clip	RL19001
1	Fuse 1A Anti-surge	FU10001
1	Fuse 5A Quick-Blow	FU12004

SPARES KIT

24 CHANNEL VERSION

Qty	Description	Part No.
1	29-way Extension Unit	EK20145
2	L.E.D. Yellow	LA13001
2	L.E.D. Red	LA13002
2	Printed Circuit Board Assembly	PL10406
2	Printed Circuit Board Assembly	PL10438
1	Printed Circuit Board Assembly	PL10440

TITLE: STANDARD 5315/A :- MASTER LIST	PART LIST No. PN 50310 SHT. 1. OF 2.
	FIRST USED ON: D371

ITEM No.	N.E.L. PART No.	DESCRIPTION
1	PN 50052	BASIC 12-CHANNEL CONSOLE [ELECTRICAL]
2	PN 50053	12-CHANNEL ADD-ON UNIT [ELECTRICAL]
3	PN 5031.1	BASIC 12-CHANNEL CONSOLE [MECHANICAL]
4	PN 5031.2	12-CHANNEL ADD-ON UNIT [MECHANICAL]
5	PN 5031.3	PATCH-SECTION ADD-ON. [ELECT & MECH.]
6		
7	PN 50294	FINISHING KIT FOR 12-CH./4GRP. CONSOLE. [INC. 'B' FRAME]
8	PN 50296	——— " ——— 12CH./4GRP. CONSOLE WITH PATCH. [INC. 'C' FRAME]
9	PN 50295	——— " ——— 24CH./4GRP. CONSOLE [INC. 'C' FRAME]
10	PN 50297	——— " ——— 24CH./4GRP. CONSOLE WITH PATCH. [INC. 'D' FRAME]
11	PN 50298	——— " ——— PATCH. FREE STANDING.
12		
13	OPTIONS:-	
14	PN 70035	MONO OUT-PUT SELECT [ELECT. & MECH.]
15	PN 70036	PLAY-BACK SELECT ——— " ———
16	PN 70037	INPUT SELECT ——— " ———
17	PN 70038	N.T.P. VU METER ——— " ———
18	PN 70045	TAPE REMOTES PANEL ——— " ———
19		
20		

DRAWN:	ISSUE	1	2	PART LIST No: PN 50310
CHECKED:	DATE		18·12·80	SHT. 1. OF 2.
	C/N No.		30591	

ADMEL P/2/047

ITEM No.	N.E.L. PART No.	DESCRIPTION
21	PN 50299	FINISHING KIT FOR 12CH./4GRP CONSOLE + TABLE TOP [INC. 'C' FRAME]
22	PN 50300	〃 〃 12CH./4GRP. CONSOLE WITH PATCH + TABLE TOP [INC. 'D' FRAME]
23	PN 50301	〃 〃 12CH./4GRP. CONSOLE + 2 Nº TABLE TOPS [INC. 'D' FRAME]
24	PN 50302	〃 〃 24CH./4GRP. CONSOLE + TABLE TOP [INC. 'D' FRAME]
25	PN 50309	〃 〃 12CH. ADD-ON FREE STANDING.
26	PN 50304	〃 〃 12CH./4GRP. CONSOLE. TABLE MOUNTED.
27	PN 50303	〃 〃 12CH./4GRP. CONSOLE + PATCH TABLE MOUNTED
28	PN 50305	〃 〃 24CH./4GRP. CONSOLE TABLE MOUNTED
29	PN 50306	〃 〃 24CH./4GRP. CONSOLE + PATCH TABLE MOUNTED
30	PN 50308	〃 〃 PATCH. TABLE MOUNTED.
31	PN 50307	〃 〃 12CH. ADD-ON. TABLE MOUNTED.
32		
33		
34	— OPTIONS —	
(2) 35	PN 70254	SIDE TABLE LONG FREE STANDING
(2) 36	PN 70255	〃 〃 SHORT 〃 〃
37		
38	PN 50110	BASE-FRAME TYPE A
39	PN 50111	〃 〃 TYPE B
40	PN 50112	〃 〃 TYPE C
41	PN 50113	〃 〃 TYPE D.
42		
43		
44		

DRAWN:

CHECKED:

PART LIST No. PN 50310

SHT. 2 OF 2.

ADMEL P/2/048

Rupert Neve & Company Ltd.

TITLE: 5315 STANDARD : BASIC 12 CHANNEL CONSOLE.

PART LIST No. PN 50052
SHT. 1 OF 13

FIRST USED ON: D271

ITEM No.	N.E.L. PART Nº.	DESCRIPTION	No. OFF	
1	MANUFACTURING INFORMATION			
2	EB 10944	BLOCK DIAGRAM (2 SHTS)	A1	& A3
3	EC 10499	CIRCUIT DIAGRAM (2 SHTS)	A0	
4	EE 10016	SYSTEM DIAGRAM	A1	
(13) 5	EZ 50021	TEST SPEC	A4	
6				
7	ML 40026	CONSOLE GENERAL ASSY	A1	(2 SHTS)
8	ML 50054	MONITOR & FACILITIES LAYOUT	A2	
9	ML 50126	TALKBACK PANEL LAYOUT	A4	
10				
11				
12				
13	MZ 21047	INTERNAL LAYOUTS	A2	
14				
15	PN 50082	MECHANICAL PARTS LIST	A4	
16				
17				
18				
19				
20				

13 - 3
18.8.81
61330

	17	16	15	14	13	12	11
	10.4.81	26.3.81	29.1.81	20.8.80	14.7.80	27.6.80	12.5.80
	61214	50565	20355	30407	30485	60900	60751

DRAWN: P. SOLANKI	ISSUE	3	4	5	6	7	8	9	10
CHECKED:	DATE	18-7-78	16-10-78	18-10-78	24-1-79	26-1-79	16/3/79	31-7-79	3 MAY 81
	C/N No.	60254	50206	50211	11484	60346	60360	20213	60751

P.S

PART LIST No: PN 50052
SHT. 1 OF 13

ADMEL P/2/047

ITEM No.	PAGE Nº	DESCRIPTION	No. OFF	INDEX
21	3	MODULES & P.C.B'S		
22	4	MODULE CONNECTORS & BUS-BAR		COMPONENTS
23	5	MISCELLANEOUS ITEMS		
24	6	FADERS & ACCESSORIES		
25	7	METER, L.S. & TALKBACK PANELS		
26	8 & 9	MONITOR & FACILITIES PANEL		
27	10 & 11	INTERNAL & REAR PANELS		
28	12 & 13	ENGRAVING INFORMATION.		
29				
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31				
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DRAWN:

CHECKED:

PART LIST No. PN 50052

SHT. 2 OF 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	MODULES & PCB'S
45	PN 33114	CHANNEL AMPLIFIER	12	ONLY ONE TYPE USED
46	PN 33115	——— " ———	12	SEE WORKS ORDER FOR
47	PN 33117	——— " ———	12	CHOICE OF CH AMP.
48	PN 33415	LINE AMPLIFIER	12	
49	PN 33515	OSCILLATOR	1	
50	PN 33726A	CHANNEL SWITCHING UNIT	12	
51	PN 40008	33605 P.S.U. 24V. 5A.	1	
52				
53				
54				
55	PL 10371	LOUDSPEAKER AMPLIFIER	1	
④ 56	PL 10489/B	DUAL 438 AMP BOARD	2	
④ 57	PL 10489/N	DUAL 440 BOARD	1	
58				
59				
60				
61	OPTIONS			
62	PL 10374/B	P.P.M. AMPLIFIER	4	
63	PL 10630	L.E.D. DRIVER BOARD	1	
64				
65	PN 33601	PHANTOM POWER CONVERTOR	1	
66	PN 70164	P.S.U. MTG. FRAME 19"	1	
67				
68				

DRAWN:

CHECKED:

PART LIST No. PN 50052

SHT. 3 OF 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	NO OFF	MODULE CONNECTORS & BUS-BAR COMPONENTS
69	CN 20341	VARELCO FIXED SKT 17-WAY	14	
70	CN 20581	——— " ——— 29-WAY	24	
71	FM 11626	SCREW M3×20 PAN POZI HD	76F	
72	FM 20031	SELF-LOCK NUT M3	76F	
73				
(10) 74	FC 10401	TERRY CLIP	38	
75	FM 10502	SCREW M2×8 CH HD	38F	
76	FM 20010	NUT M2	38F	
77	FM 21010	WASHER M2	38F	
78				
79				
80	CN 10342	VARELCO PLUG 17-WAY	1	BLANKING PLUG REQ IF 33601 NOT FITTED
81	CN 10581	——— " ——— 29-WAY		——— " ——— REQ IF CH.AMS OR 33726A NOT FITTED
82				
83				
84				
85	RA 008K2	RESISTOR TRA 8K2 OHMS	178F	PUT-ON RESISTORS.
86	RE 018K0	——— " ——— C5 18K ——— " ———	24	PHANTOM POWER RESISTORS.
87				
(11) 88	WA 17301	FEEDTHROUGS PTFE. RED	102F	
(11) 89	WA 17305	——— " ——— WHITE	184F	
90	WA 18005	VERO BUS-BAR STRIPS	26	
91				
92				

DRAWN:

CHECKED:

PN 50052

4 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	MISCELLANEOUS ITEMS
93	FA 16100	CHROME WASHER 1/4"I/D x 1/2"O/D	1 F	
94				
⑦ 95				
96	MG 20542	TECHNICAL EARTH PLATE	1.	
97				
98				
99				
⑯ 100	AW 70055	DESIGNATION ARTWORK	1	
⑯ 101	AW 70011	DESIGNATION ARTWORK	1	
102				
103				
104				
105				
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114				
115				
116				

DRAWN:

CHECKED:

PART LIST No. PN 50052

SHT. 5 OF 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	FADERS & ACCESSORIES
117	CN 10302	PAINTON PLUG 15-WAY	18	
118				
(18) 119	FD 10005	FADER P&G 1520A/C100 5K	18.	
120				
121	MG 21130	FADER TOP PLATE 35 mm	18.	
122				
123	ML 61149	FADER 'B' SCALE SILVER 35 mm	12.	
124	ML 61151	FADER 'C' SCALE	6.	
125				
126	FA 11031	FADER SCREWS 10BA x 1/8" RSD CSK	36 F	
(18) 127	FA 12701	N°4 x 5/16" POZI DRIV CSK HD SCREW	36 F	
128	KA 11000	FADER KNOB WIDE BLACK	12	
129	KA 11001	——— " ——— RED	4	
130	KA 11003	——— " ——— GREEN	2	
131				
132				
133				
134				
135				
136				
137				
138				
139				
140				

DRAWN:		PART LIST No. PN 50052
CHECKED:		SHT. 6 OF 13.

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	METER, L.S. & TALKBACK PANELS
141	CN 20300	AMPHENOL FIXED SKT. 15-WAY	4.	} REQUIRED FOR
142	ALREADY CALLED UP WITH PL10374/B	PPM. METER R22F	4.	} P.P.M. OPTION.
143				
144	IM 10002	V.U. METER R22F. 'A' SCALE	4	} REQUIRED FOR
145	M 10787	COMPONENT MTG BOARD	4.	} V.U. OPTION.
146				
147	IM 19000	METER ILLUMINATION KIT 22F.	4.	} REQUIRED IF VU OR PPM OPTION.
148	IM 19003	—" — BEZEL 22F.	4.	
(17)(14) 149	RK051R0	RESISTOR W.W. 5W. 51 OHMS	2	
(14) 150				
(14) 151	PN 70038	BARGRAPH METERS	1	REQUIRED FOR BARGRAPH OPTION.
(14) 152				
(14) 153	LA 13002	L.E.D. RED	4	
(14) 154	LA 13200	L.E.D. MTG. KIT	4	
(14) 155	MG21396	L.E.D. SPACER	4	
(14) 156				
(14) 157	TD 13003	LOUDSPEAKER LS90D-8 10Ω	1	} L.S. PANEL
(14) 158	CN 20200	AMPHENOL FIXED SKT. 10-WAY	1	
159				
160	SW 40062	KEY-SWITCH 4CNL/4CNL	4	} TALKBACK PANEL
161	KA 14006	KEY-SWITCH CAP IVORY	2F	
162	KA 14008	—" — GREY/GREEN	1	
163	KA 14011	—" — IVORY/RED	1.	
164				

DRAWN:		PART LIST No. PN 50052
CHECKED:		SHT. 7 OF 13

	ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	MONITOR & FACILITIES PANEL
	165	CN 20075	NEUTRIC FIXED SKT 3-WAY	1.	
	166				
	167	LA 11300	T.J. SW. LAMP 24V	4.	
④	168	LA 13000	L.E.D GREEN	7	
	169	LA 13002	L.E.D. RED	1	
④	170	LA 13200	L.E.D MTG KIT	8	
④	171	MG 21396	L.E.D SPACER	8	
	172	PL 20084/4	P. WINKLER 1K LOG STEPPED CONT.	1.	EK 20084/4
	173				
	174	PT 11012	POT SFER P11 1K LIN.	2.	
	175	PT 15028	—— " —— 10K LIN.	11	
④	176	MG 20284	POT SPACER	19	
④	177	PT 45014	POT SFER P11 10K+10K LIN	6	
④	178	SW 20025	ISOSTAT SW 2B 4P P/P CD10	4	
	179	SW 20067	—— " —— 4B.4P 1/L CD15	1.	
	180	SW 20101	—— " —— 6B.4P 1/L CD15	2.	
	181	SW 20103	—— " —— 6B.4P.2x8P.2x4P.2P. 1/L	1.	CD15
	182	SW 20142	—— " —— 8B 4P 1/L CD15	1.	
	183				
	184	SW 21000	T.J. SW. 1B 2P	2.	
	185	SW 21002	— " — 1B 6P	2	
	186	SW 29000	T.J. LAMPHOLDER	4.	
	187	SW 29010	T.J. SW. MTG. BRACKET 1-WAY	2	
	188	SW 29011	———— " ———— 2-WAY	1.	

DRAWN:

CHECKED:

PART LIST No. PN 50052

SHT. 8 OF 13

	ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	MONITOR & FACILITIES PNL. CONT.
	189	SW 40064	KEY-SWITCH 4CL/4CL	1.	
	190	SW 40144	—— " —— 8CL/8CL	2.	
(4)	191	SW 20040	ISOSTAT SW 3B 2P P/P CD10	2	
(4)	192	SW 20060	—— " —— 4B 2P P/P CD10	2	
	193	TD 10001	MICROPHONE DS8E/200	1.	
	194				
	195				
	196				
	197				
	198	KNOBS & CAPS			
	199	KA 14004	KEY-SWITCH CAP RED	1 F	
	200	KA 14013	—— " —— GREY/WHITE	1.	
	201	KA 14015	—— " —— GREY/RED	1.	
	202				
(15)	203	MG 21479/4	14 ø ALI KNOB INSERT 3mm	19	
	204	MG 21483/1	32ø ALI KNOB 1/4"mm	1.	
	205	MZ 20826/2	32ø KNOB CAP MED BLUE	1.	
	206	MZ 20828/1	14ø KNOB CAP LIGHT BLUE	4	
(4)	207	MZ 20828/2	—— " —— MED BLUE	9	
(4)	208	MZ 20828/3	—— " —— DARK BLUE	6	
	209				
	210				
	211				
	212				

DRAWN:

CHECKED:

PART LIST No. PN 50052

SHT. 9 OF 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	INTERNAL & REAR PANELS.
213	D.C. DISTRIBUTION, TRANSFORMER, RELAY & PRESET PANEL MX 20664.			
214	CA 74701	CAPACITOR 4700µF 40V	1.	
215	CN 34101	KLIPPON CONN. BLOCK 18-WAY	1	
216	FG 14030	CAPACITOR CLAMP	1 F	
217				
218				
219	PT 11002	PRESET POT PLESSEY M'1K.LIN	6	
(6) 220	PV 85000	POT LOCK NUT	6 F	
(6) 221	PV 85002	POT LOCK CAP	6 F	
222				
223				
(10) 224	CA 20100	CAPACITOR MULLARD 10nF	5	
225	DD 10000	DIODE 10D4	2.	
(10) 226	DD 10001	—"— IN914.	5	
227	RD 100R0	RESISTOR BTT 100 OHMS	5	
228	RL 10300	SIEMENS RELAY	5	
229	RL 19000	RELAY BASE	5	
230	RL 19001	—"— CLIP	5	
231				
232				
233	TF 10005	TRANSFORMER 31267	10	
234				
235				
236				

DRAWN:		PART LIST No. PN 50052
CHECKED:		SHT. 10 OF 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	INTERNAL & REAR PANELS CONT.
237	TRANSFORMER & PCB PANEL MT 20671			
238	CN 20301	PAINTON FIXED SKT 15-WAY	2.	
239	CN 20360	AMPHENOL —— " —— 18-WAY	6.	
240				
241	TF 12000	TRANSFORMER LO 1166	1.	
242	TF 12011	—— " —— LO 1173	1.	
243				
244				
245				
246	MULTI-PIN CONNECTOR PANEL MX 20665			
(5) 247	CN 10103	CANNON FIXED PLUG EPS-14S	1.	
248	CN 20701	PAINTON —"— SKT 35-WAY	10.	
249				
250	CN 20701	PAINTON FIXED SKT 35-WAY	1.	FADER REMOTES OPTION ONLY.
(9) 251	CN20069	XLR LNE SOCKET 3 WAY	1	
(9) 252	CN10101	EPS 12 IC PLUS 5 WAY	1	
(9) 253	CN20101	EPS 11 IC SOCKET 5 WAY	1	
254				
255				
256				
257				
258				
259				
260				

DRAWN:

CHECKED:

PART LIST No. PN50052

SHT. 11 OF 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	ENGRAVING INFORMATION.	
261	MONITOR & FACILITIES PANEL				
262	MG55001/B	ISOSTAT CAP 10mm GREY	2.	'1'	BLANK KA10018
263	MG55002/B	—— " —— —— " ——	2.	'2'	
264	MG55003/B	—— " —— —— " ——	2.	'3'	
265	MG55004/B	—— " —— —— " ——	2.	'4'	
266	MG61370/R	—— " —— 15mm BLACK	1.	'op 1'	BLANK KA10000
267	MG61371/R	—— " —— —— " ——	1.	'op 2'	
268	MG61376/R	—— " —— —— " ——	1.	'op 1&2'	
269	MG61378/R	—— " —— —— " ——	2.	'1-2'	
270	MG62332/R	—— " —— 15mm GREY	2.	'solo'	BLANK KA10008
271	MG62367/R	—— " —— —— " ——	1.	'patch'	
272	MG62372/R	—— " —— —— " ——	1.	'gr 1'	
273	MG62373/R	—— " —— —— " ——	1.	'gr 2'	
274	MG62374/R	—— " —— —— " ——	1.	'gr 3'	
275	MG62375/R	—— " —— —— " ——	1.	'gr 4'	
276	MG62377/R	—— " —— —— " ——	1.	'tape'	
277	MG62378/R	—— " —— —— " ——	5	'1-2'	
278	MG62379/R	—— " —— —— " ——	3	'3-4'	
279	MG62380/R	—— " —— —— " ——	1.	'groups'	
280	MG62381/R	—— " —— —— " ——	1.	'aux 1'	
281	MG62382/R	—— " —— —— " ——	1.	'aux 2'	
282	MG62383/R	—— " —— —— " ——	1.	'aux 3'	
283	MG62384/R	—— " —— —— " ——	1.	'aux 4'	
284	MG62479/R	—— " —— —— " ——	1.	'di 1'	

DRAWN:

CHECKED:

PART LIST No. PN50052

SHT. 12 OF 13

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	ENGRAVING INFORMATION CONT.
285	MG 62480/R	ISOSTAT CAP 15mm GREY	1.	'dl 2'
286	MG 62515/R	—— " —— —— " ——	1.	'ext 1' BLANK KA 10008
287	MG 62516/R	—— " —— —— " ——	1.	'ext 2'
④ 288	MG 64001/W	—— " —— 10mm BLACK	6	'1' BLANK KA 10010
④ 289	MG 64002/W	—— " —— ——" ——	6	'2'
④ 290	MG 53569/B	—— " —— ——" ——	2	'P&N'
291				
292	MG 20273/160	T.J. SW. CAP 12,5 SQ WHITE	1.	'At tape' BLANK KA 13000
293	MG 75412/138	—— " —— RED	1.	'dim'
294	MG 75422/139	—— " —— —" —	1.	'1&2' BLANK KA 13003
295	MG 75422/140	—— " —— —" —	1.	'3&4'
296				
297				
298				
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306				
307				
308				

DRAWN:

CHECKED:

PART LIST No PN 50052

SHT 13 OF 13

TITLE: 5315 12 CHANNEL ADD-ON UNIT

PART LIST No. PN50053
SHT. 1. OF 4

FIRST USED ON: D271.

ITEM No.	N.E.L. PART Nº.	DESCRIPTION	No. OFF
1	MANUFACTURING INFORMATION		
2	EB 10944	BLOCK DIAGRAM SHT 1	A1.
3	EC 10499	CIRCUIT DIAGRAM	
4	EE 10016	SYSTEM DIAGRAM	A1.
5			
6	ML 40026	MECHANICAL LAYOUT 2SHTS	A1.
7	MZ 21047	INTERNAL LAYOUTS	A2
8			
9			
10	PN 50083	MECHANICAL PARTS LIST	A4.
11			
12			
13			
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15			
16			
17			
18			
19			
20			

	ISSUE	2	3	4	5	6	7	8
DRAWN: P. SOLANKI	DATE	18-7-78	21-11-78	13/3/79	6/3/79	31-7-79	11-11-80	18-8-81
CHECKED:	C/N No.	60254	60324	60377	60360	20213	60900	61330

P.S.

PART LIST No: PN 50053
SHT. 1. OF 4

ADMEL P/2/047

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	MODULES, FADERS & ACCESS
21	PN33114	CHANNEL AMPLIFIER	12	} ONLY ONE TYPE USED
22	PN33115	——— " ———	12	} SEE WORKS ORDER FOR
23	PN33117	——— " ———	12	} CHOICE OF CH AMP.
24	PN33726/A	CHANNEL SWITCHING UNIT	12.	
25				
26	PN40008	33605 P.S.U. 24V 5A	1.	
27				
28				
29				
30				
31				
32				
33	CN10302	PAINTON PLUG 15-WAY	12	
(3) 34	FA11031	FADER SCREWS 10BA×⅛" RSD CSK	24F	
(8) 35	FD10005	FADER P&G 5K	12	
36	MG21130	FADER TOP PLATE 35mm	12	
37	ML61149	FADER 'B' SCALE SILVER 35mm	12	
38	KA11000	FADER KNOB WIDE BLACK	12	
(8) 39	FA12701	N°4×5/16" POZI DRIVE CSK HD SCREW	24F	
40				
41				
42				
43				
44				

DRAWN:

CHECKED:

PN50053

2. 1

MODULE CONNECTORS & BUS-BAR COMPONENTS

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	
45	CN 20581	VARELCO FIXED SKT 29-WAY	24	
46	FM 11626	SCREW M3×20 PAN POZI HD	48 F	
47	FM 20031	SELF-LOCK NUT M3	48 F	
48				
49	FG 10401	TERRY CLIP	24	
50	FM 10502	SCREW M2×8 CH. HD	24 F	
51	FM 20010	FULL NUT M2	24 F	
52	FM 21010	WASHER M2	24 F	
53				
54				
55	CN 10581	VARELCO PLUG 29-WAY		BLANKING PLUG FOR USE WHEN CH. AMPS OR 33726 A NOT FITTED.
56				
57				
58				
59				
60	RA 008K2	RESISTOR TR4 8K2 OHMS	12 F	PUT-ON RESISTOR
61	RE 018K0	— " — CS 18K — " —	24	PHANTOM POWER RESISTOR
62				
63	WA 17301	FEEDTHROUGH PTFE RED	62 F	
64	WA 17305	——— " ——— WHITE	12 F	
65	WA 18005	VERO BUS-BAR STRIPS	16	
66				
67				
68				

DRAWN:

CHECKED:

PART LIST

PN 50053

3 4

REAR & INTERNAL PANELS

ITEM No.	N.E.L. PART No.	DESCRIPTION	NO OFF	
69				
(4) 70	CN10103	CANNON FIXED PLUG EP5-14S	1.	} CONNECTOR PANEL MX 20665
71	CN20701	PAINTON — " — SKT 35-WAY	4	
72	CN20701	——— " ———	1.	FADER REMOTES OPTION ONLY
73				
74	CA74701	CAPACITOR · 4700 µF 40V.	1	
75	FC14030	CAPACITOR CLIP	1	
(5) 76	CN20069	XLR LNE SKT 3 WAY	1	
(6) 77	CN10101	EP5 12 IC PLUG 5 WAY	1	
(6) 78	CN20101	EP5 11 IC SKT 5 WAY	1	
79				
80				
81				
82				
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85				
86				
87				
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DRAWN:

CHECKED:

PART LIST

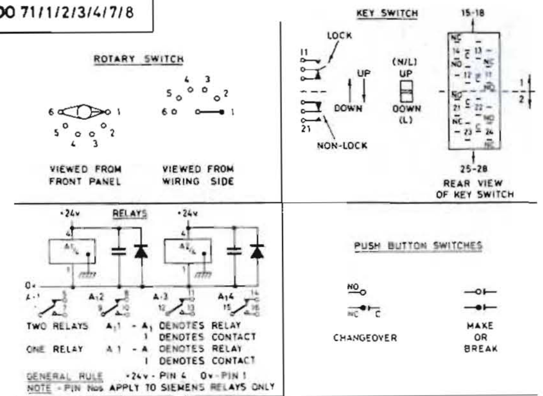
PN 50053

SHT 4 OF 4

ELECTRICAL STANDARDS EDO 71

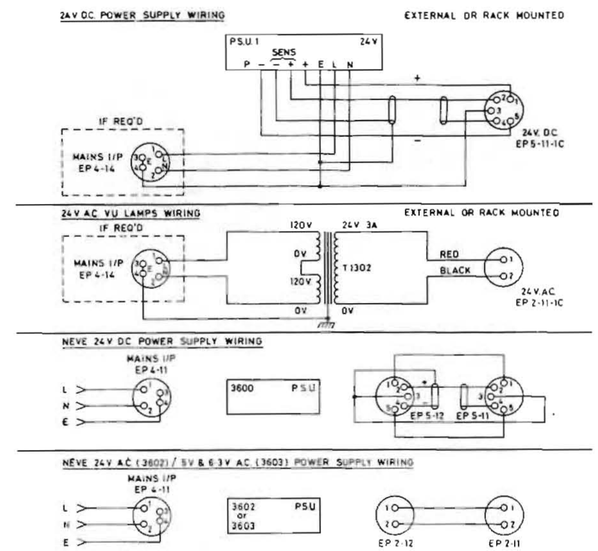
Contents

EDO 71/1/2/3/4/7/8



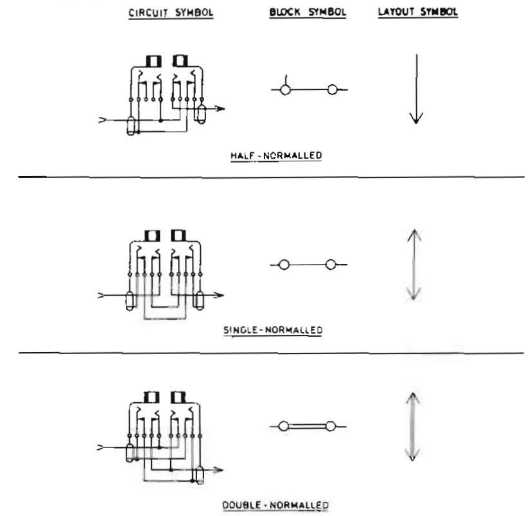
SWITCHES

EDO 71/1 ISSUE 3 6-9-72



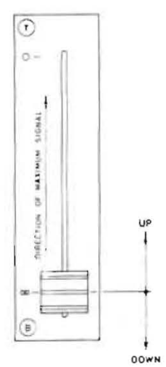
POWER SUPPLY UNIT WIRING

EDO 71/2 ISSUE 4 8-11-74



STANDARD JACK SOCKET CONNECTIONS

EDO 71/3 ISSUE 3 27-3-79



FADER
UP ⟵ ⟶ DOWN
NOTES 2&3

TYPE	FUNCTION	↑	B	W	N/C	C	N/O
MONO	TRK 1	3	5	1			
	SW 1				13	9	11
	SW 2				10	8	7
	OVER-PRESS				2	6	4
2T	TRK 1	3	5&7	1			
	TRK 2	10	12&14	8			
	SW 1				13	9	11
	OVER-PRESS				2	6	4
4T	TRK 1	3	5	1			
	TRK 2	10	12	8			
	TRK 3	4	6	2			
	TRK 4	9	11	7			
	SW 1				13	14	
8T	TRK 1	5	31	3			
	TRK 2	9	29	7			
	TRK 3	13	27	11			
	TRK 4	4	30	2			
	TRK 5	8	28	6			
	TRK 6	12	26	10			
	TRK 7	16	24	14			
	TRK 8	20	22	18			
	SW 1				17	19	15

NOTE - 1 MONO, 2T & 4T FADERS PIN 15 AND 8T FADERS PIN 1 WIRE TO EARTH

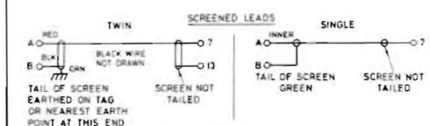
2 SWITCH CHANGEOVER OCCURS ABOUT THE INFINITY POINT ∞

3 N/C, C & N/O REFER TO CONTACT IDENTIFICATION ON FADER MICROSWITCHES & NOT TO SWITCH OPERATION

* NOTE SEE WIRING OF FADERS

PENNY & GILES FADER CONNECTIONS

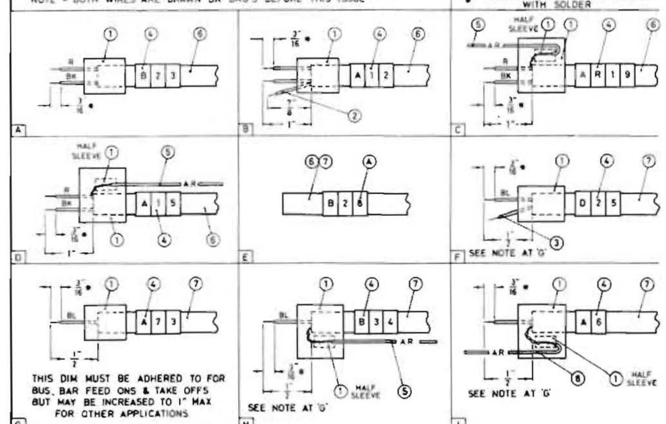
EDO 71/4 ISSUE 7 1-9-78



RULE - RED WIRE WILL ALWAYS BE SHOWN
BLACK WIRE WILL END AT SCREEN SYMBOLS

NOTE - BOTH WIRES ARE DRAWN ON DRG'S BEFORE THIS ISSUE

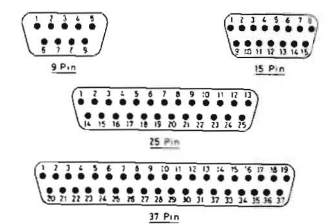
ITEM No.	DESCRIPTION	PART No.
1	HELSYN SLEEVE H20	W0073
2	PTFE G SLEEVING 1mm	W0102
3	PTFE G SLEEVING 1.5mm	
4	CABLE MARKERS	Z0004 Z0005
5	PVC FLEX 7/0.19 G	W0076 W0109
6	T/S CABLE	W0051
7	S/S CABLE	W0056
8	PVL FLEX 16/0.19 G	W0020
•	STRIPPED TWISTED AND TINNED WITH SOLDER	



SCREEN CABLE

EDO 71/7 Sheets 1 & 2

Sht. 1 ISSUE 8 4-12-75
Sht. 2 ISSUE 3 5-1-77



NOTE CONTACT ARRANGEMENT MATING FACE OF PIN INSERT

CONNECTOR PIN ALLOCATION (CANNON 'D')

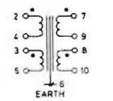
EDO 71/8 ISSUE 4 14-9-79

ISSUE	FIRST USED ON	MAT'L	TOL UNLESS OTHERWISE STATED
DATE	DRN	FINISH	DIMS IN / SCALE N.T.S.
CHANGE NOTE No	TRACED S.C.S. / CHECKED	TITLE ELECTRICAL STANDARDS	DRG No EDO 71/1/2/3/4/7/8
CHECKED		Rupert Neve & Company Ltd.	1979 © A1

DRAWING No
EDO 71/13,14,15,19,23

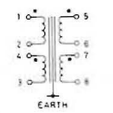
NOTE
* DOTS INDICATE IN PHASE POINTS

31267, 10368 & 10468



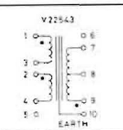
TYPE	TRANSFORMERS PRIMARY SERIES	PRIMARY PARALLEL	SECONDARY SERIES	SECONDARY PARALLEL	dB
31267 VT 22671 T1452	10K 10K		2K4	600	-6 -13
		2K4	2K4		0
		2K4		600	-6
10368 T1453	5K 5K		2K4	600	-3 -9
		1K2	2K4		+3
		1K2		600	-3
10468 VT 22670 T1454	1K2 1K2		4K8	1K2	-6 0
		300	4K8		+12
		300		1K2	+6

LO 2567, LI 1166, LI 1366



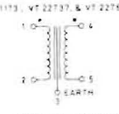
LO 2567 UNGAPPED NO DC	200 200		600	150	+4 -2
		50	600		+10
		50		150	+4
LI 1166 GAPPED	200 200		600	150	+4 -2
		50	600		+10
		50		150	+4
LI 1366	600		600		0

VT 22543



	600	150	SECONDARY CENTRE TAPPED LOADED 600 600	-1 +5

LO 1173, VT 22737, & VT 22761



T1684 = PCB MOUNTING
T1686 = CHASSIS MOUNTING
VT 22737 = PCB MOUNTING
VT 22761 = CHASSIS MOUNTING

LO 1173 VT 22737 VT 22761 T1684 T1686	70 ohms		600 ohms	+8

VT 22667

PCB MOUNTING
NO METAL CAN

VT 22667	10K 10K		2K4	600	-6 -12

TRANSFORMER WINDINGS

EDO 71/13 Sheets 1 & 2

Sheet 1 ISSUE 6 27-8-76
Sheet 2 ISSUE 1 8-11-73

1. AUDIO

			INPUT XLR 3-31	OUTPUT XLR 3-32
PIN	1	SCREEN		
	2	RED		
	3	BLACK		
MATING CONNECTORS: INPUT		XLR 3-12 C		
OUTPUT		XLR 3-11 C		

2. 24 V DC

			INPUT EP 5-14	OUTPUT EP 5-13
PIN	1	24V + (B+)		
	2	+24 V SENSING N.B. SENSING LEADS SHOULD BE SCREENED		
	3	EARTH		
	4	0V SENSING		
	5	0V (B-)		
MATING CONNECTORS	INPUT	EP 5-11		
	OUTPUT	EP 5-12		

3. 24 V AC

			INPUT EP 2-14	OUTPUT EP 2-13
PIN	1 2	24 V A.C		
MATING CONNECTORS	INPUT	EP 2-11		
	OUTPUT	EP 2-12		

4. 48 V DC

			INPUT EP 3-14	OUTPUT EP 3-13
PIN	1	48V+		
	2	EARTH		
	3	0V		
MATING CONNECTORS	INPUT	EP 3-11		
	OUTPUT	EP 3-12		

5. 110 V A.C / 250 V A.C A.C. POWER

			INPUT EP 4-14	OUTPUT EP 4-13
PIN	1	LIVE		
	2	NEUTRAL		
	3 4	EARTH		
MATING CONNECTORS	INPUT	EP 4-11		
	OUTPUT	EP 4-12		

6. 15 V & 10 V SUPPLIES

POWER		SENSE		INPUT EP 15-14	OUTPUT EP 15-13
PIN	1 +15V	PIN	14 +VE		
	2 0 V		9 +VE		
	4 +15 V		10 +VE		
	5 0 V		11 -VE		
	6 +10V		12 CHASSIS		
	7 0 V				
	6 -10V				

ALL PIN ARRANGEMENTS SHOWN LOOKING ON MATING FACE

CONNECTOR PIN ALLOCATION (CANNON XLR & EP)

EDO 71/14 Sheets 1 & 2

Sheet 1 ISSUE 1 19-1-72
Sheet 2 ISSUE 1 21-7-77

LA 10000

28V 1.1W 6mm EDISON SCREW
(USED IN LICON SWITCHES)

LA 11100

28V 40mA 6mm CLIP-IN END FLANGE
(USED IN LS9 LAMPS)

LA 11000

28V 24mA 4mm CLIP-IN END FLANGE
(USED IN LS7 LAMPS)

LA 11300

28V 35mA 5·5mm PUSH-IN TYPE
(USED IN TJ SWITCHES)

LA 11500

12V 3W 36mm x 8mm FESTOON BULB
(USED FOR METER ILLUMINATION)

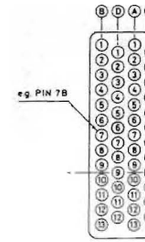
LA 13000 GREEN
LA 13001 AMBER
LA 13002 RED
} LIGHT EMITTING DIODE

RED = 20mA CONTINUOUS CURRENT
AMBER } 40mA CONTINUOUS CURRENT
GREEN }
PEAK INVERSE VOLTAGE = 3V

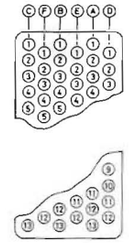
INDICATOR LAMPS

EDO 71/23

ISSUE 2 12-5-78



34 & 50 WAY



75 WAY

SOCKETS SHOWN VIEWED FROM WIRING SIDE

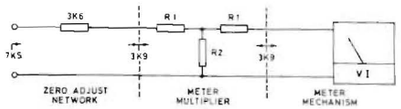
NOTE - 1 MOULDED DESIGNATIONS IGNORED (DUE TO POOR LEGIBILITY)
2 ONLY USED WHERE CALLED FOR IN GENERAL NOTES

34, 50, & 75 WAY UNITOR CONNECTORS

EDO 71/15

ISSUE 2 5-11-75

SCALE COLOUR IS BUFF — 2·93Y ON MUNSELL SCALE



METER MULTIPLIER VALUES

O VU CALIBRATION	MULTIPLIER ATTENUATION	SERIES R1	SHUNT R2
+4 dBm	0 dB	SHORT	OPEN
+6 dBm	2 dB	447 Ω	18 789 Ω
+8 dBm	4 dB	883 Ω	8 177 Ω
+10 dBm	6 dB	1 296 Ω	5 221 Ω
+12 dBm	8 dB	1 675 Ω	3 690 Ω
+14 dBm	10 dB	2026 Ω	2 741 Ω
+16 dBm	12 dB	2 334 Ω	2 091 Ω
+18 dBm	14 dB	2 603 Ω	1 621 Ω
+20 dBm	16 dB	2 833 Ω	1 268 Ω

THE STANDARD VOLUME INDICATOR

EDO 71/19

ISSUE 1 30-11-73

		ISSUE	FIRST USED ON	MAT'L	TOL UNLESS OTHERWISE STATED LINEAR ANGULAR
		DATE	DRN	FINISH	DIMENSIONS IN SCALE
		CHANGE NOTE No	TRACED S.C.S.	TITLE	MTS
		CHECKED	CHECKED	ELECTRICAL STANDARDS	DRG No EDO 71/ 13,14,15,19 & 23
				Neve Electronics International Ltd.	1979 © A1

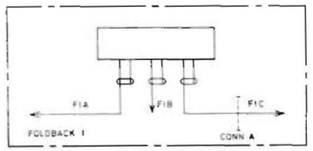
EDO 71 / 31,32 & 33

1 TO FACILITATE LOCATION OF SIGNAL SOURCE (BACK REFERENCE) CONSOLE CABLE CODING IS ARRANGED TO PROVIDE DIRECT READING (SYSTEM, SUB SYSTEM AND WIRE) IDENTIFICATION. THE SYSTEM OF ORIGIN CODE IS RETAINED TO ITS DESTINATION. IF THIS IS A MIXING BUS OR SWITCHING MATRIX THE CABLE CODE THEN CHANGES TO SUIT ITS OUTPUT CONFIGURATION OR FUNCTION. FOR EXAMPLE :-

G = GROUP
M = MONITORING
X = METERING
O = 4 TRACK
S = STEREO

2 THE CODE IS BUILT UP AS FOLLOWS :-
a ELEMENT 1 IS A LETTER IDENTIFYING THE PARENT SYSTEM (SEE TABLE 1)
b ELEMENT 2 IS A NUMBER OR NUMBERS IDENTIFYING THE SUB-SYSTEM
c ELEMENT 3 IS A LETTER IDENTIFYING THE INDIVIDUAL WIRE

FOR EXAMPLE. ASSUMING THE PARENT SYSTEM TO BE FOLDBACK
ELEMENT 1 = F
ELEMENT 2 = 1
ELEMENT 3 = STARTS AT 'A' AND PROGRESSES THROUGH THE ALPHABET, OMITTING 'I' AND 'O'



FOLDBACK 2 TO 4 IDENTICAL

CABLE CODES FOR SUB-SYSTEMS 2 TO 4 =
F2A TO F4A . F2B TO F4B . F2C TO F4C

NOTE WIRE CODE DOES NOT CHANGE THROUGH PLUG BREAK

3 ADDITIONAL INFORMATION MAY BE GIVEN BY A NUMBER PREFIX OR SUFFIX FOR EXAMPLE -

MULTIPLE TAPE INPUTS (CONSOLE OUTPUTS) AND TAPE OUTPUTS (REPLAY) THUS -

4 TRACK = Q	TAPE OUTPUT FROM M/C 2 = 2
TRACK No = 2	4 TRACK = Q
WIRE = C	TRACK No = 2
TAPE INPUT TO M/C No = 2	WIRE = C

4 THE LETTER Z (MISCELLANEOUS) MAY BE USED FOR VARIOUS UNCLASSIFIED SYSTEMS WHICH WILL BEAR A NUMBER PREFIX WHICH MAY VARY FROM CONSOLE TO CONSOLE

5 A TABLE SHOWING ALL SYSTEM LETTERS USED, WITH RELATED SYSTEM AND DRAWING SHEET NUMBER OF ORIGIN, WILL BE INCLUDED ON SHEET 1 OF ALL CONSOLE WIRING DIAGRAMS

TABLE 1 SYSTEM LETTER IDENTIFICATION KEY

A = AUX	N = MIXDOWN
B	P
C = CHANNEL	Q = QUAD (4 TRACK)
D = DIRECT INPUT	R = REV (ECHO)
E = EXTERNAL	S = STEREO (2 TRACK)
F = FOLDBACK	T = TALKBACK
G = GROUP	U = MONO
H	V
I = JACK INPUTS	W = OSCILLATOR
J	X = METER
K = LISTEN (SOLO ETC)	Y = CONSOLE LOUDSPEAKER
M = MONITOR	Z = MISCELLANEOUS

THIS EDO CANCELS & REPLACES EDO 71 / 6

CABLE CODING STANDARD

EDO 71 / 31 Sheets 1 | ISSUE 1

DRAWING PRESENTATION OF MULTIPLE PUSH BUTTON SWITCHES

THESE SWITCHES ARE USUALLY WIRED SO AS TO PROVIDE AN ELECTRICAL INTERLOCK TO AUGMENT THE EASILY DEFEATED MECHANICAL INTERLOCK.
A TYPICAL SWITCH IS DRAWN, SHOWING ALL WIRED CONTACTS, WITH SPECIFIC WIRING INFORMATION FOR INDIVIDUAL SWITCHES GIVEN IN WIRING TABLES, WHICH ARE ARRANGED TO REPRESENT A WIREMANS VIEW OF THE PANEL IE REVERSED LEFT TO RIGHT

1 EXAMPLE OF TYPICAL SWITCH PRESENTATION

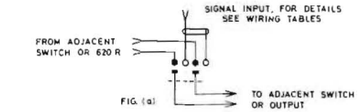


FIG. (a)

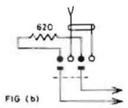


FIG (b)

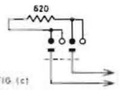


FIG (c)

THE FIRST SWITCH HAS A TERMINATING RESISTOR FITTED AS FIG (b) UNLESS IT IS AN OFF SWITCH WHICH IS AS FIG (c) INTERMEDIATE SWITCHES ARE AS FIG (a) WITH THE LAST SWITCH FEEDING THE METER OR AMPLIFIER ETC

2 WIRING TABLE EXAMPLES

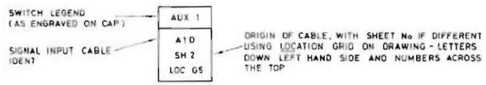


FIG (d)

WHEN A SIGNAL IS PARALLELED TO A SECOND SWITCH, USUALLY THROUGH A TWISTED PAIR, THIS IS ADDED TO THE TYPICAL SWITCH WITH THE WIRING TABLES INDICATING AFFECTED SWITCHES AS FOLLOWS -

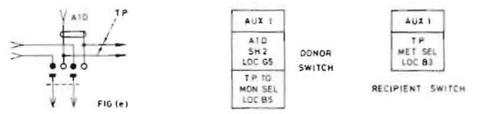


FIG (e)

WHEN A MONO SIGNAL OCCURS IN A STEREO MATRIX IT MAY BE LINKED TO THE SECOND CHANNEL OR THE SECOND CHANNEL MAY BE TERMINATED WITH A 620 OHM RESISTOR SHOWN THUS -

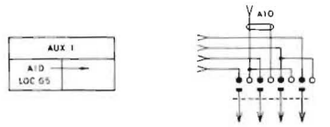


FIG (f)

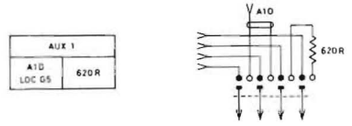
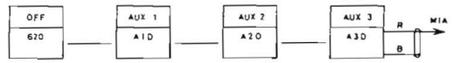


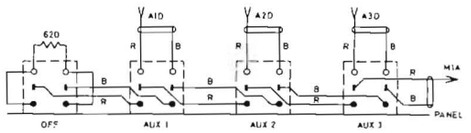
FIG (g)

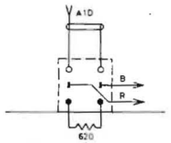
SWITCH PRESENTATION

EDO 71 / 32 Sheets 1 & 2 of 3 | ISSUE 1



SCHEMATIC PRESENTATION





ALTERNATIVE ARRANGEMENT WITHOUT OFF SWITCH

PICTORIAL PRESENTATION

SWITCH PRESENTATION

EDO 71 / 32 Sheet 3 of 3 | 28-3-79 ISSUE 1

CONTACT ARRANGEMENT

MATING FACE OF PLUG (PIN INSERTS) PIN 1 IS INDICATED BY A TRIANGULAR DEVICE ON SIDE OF CONNECTOR

ITT / CANNON GOB SPEEDY CONNECTOR MARKINGS SHOULD BE IGNORED AND THIS STANDARD APPLIED

FOR CANNON D COMPATIBLE CONNECTORS SEE EDO 71/8

RIBBON CABLE CONNECTOR PIN NUMBERING

EDO 71 / 33 | 13-9-79 ISSUE 1

ISSUE	FIRST USED ON	MATL	TOL UNLESS OTHERWISE STATED LINEAR	ANGULAR
DATE	DRN	FINISH	DIMS IN	SCALE N.T.S.
CHANGE NOTE No	TRACED S.C.S.	TITLE ELECTRICAL STANDARDS	DRG No EDO 71/31,32 & 33	
	CHECKED			
	CHECKED	Neve Electronics International Ltd.	1979	©A1

WIRING OF FADERS

To avoid an undesirable rise in frequency response at low attenuator settings caused by the core to core capacity of twin-screened cable, signal wiring to and from faders should be in single screened cable.

This should be satisfactory for cable runs up to one metre in length, but longer runs may cause an excessive high frequency drop.

In such cases, for an important signal path, use a lower value fader if possible, or a unity gain buffer, such as BA406, may be used at the wiper end of the wire.

For subsidiary systems, e.g. talkback, the high frequency loss may be unimportant in which case single screened wiring will be acceptable.

In the case of 4 Track faders, the cable entry will not accept the required number of single screened cables and they will continue to be wired with twin screened cables.

The Neve Group of Companies.					
TITLE	PENNY & GILES FADER CONECTIONS				
DRAWN	F.C.B.	DATE 6-9-76	ISSUE 1		
			DATE 6-9-76		
TRACED		TOLS. ± UNLESS STATED	DRAWING NUMBER	EDO 71/4	SH. 2 OF. 2
CHECKED		SCALE			

ADMEL 2943

SWITCH CONTACTS

The design of modules employing switches is such that trouble through the ingress of dust and moisture should not normally arise. This means that any routine cleaning treatment is both unnecessary and a possible cause of trouble.

In the event of a switch causing excessive electrical noise a universal electrical contact cleaner Electrolube 2X should be used sparingly where required. This fluid is compatible with plastics used in the manufacture of switches and contains no silicones or hydrocarbons. It is also anti-static and will not attract dust.

NOTE Electrolube 2X is available in Aerosol cans as Electrolube 2A-X.

WARNING

The following Electrolube products contain solvents which have a softening effect on polystyrene and certain other thermo-plastics likely to be found in switches and should NOT be used.

Electrolube	No. 1 Green
Electrolube	No. 2 Red
Electrolube	2G

Note the majority of other switch solvents are in this category and cannot safely be used.

The recommended cleaner should be applied sparingly and directed according to the manufacturers instructions.

Electrolube No. 1 may be used for cleaning the edge contacts of Printed Circuit Boards only.

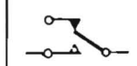
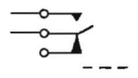
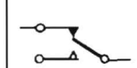
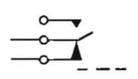
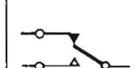
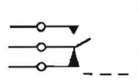
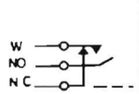
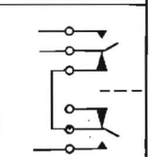
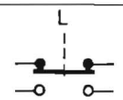
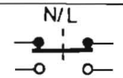
	1	ISSUE	FIRST USED ON	MATL.	TOL. UNLESS OTHERWISE STATED		
					LINEAR ±	ANGULAR	HOLES +.005 −.000
	25-7-72	DATE	DRN. P.F.T.	FINISH	3RD ANGLE PRJ.	DIMS IN	SCALE
		CHANGE NOTE Nº	TRACED				
			CHECKED	TITLE CONTACT CLEANER STANDARD	DRG. Nº EY 10,000		
		CHECKED					

NM7828

	MULTIPIN CONNECTOR		MICROPHONE		PUSHBUTTON ILLUMINATED, CHANGEOVER		POTENTIOMETER, ROTARY
	SOLDER TAG TERMINATION		LOUDSPEAKER		PUSHBUTTON NON-ILLUMINATED, MECH. ACTIVATED COLOUR CHANGE		POTENTIOMETER, ROTARY STEPPED
	TUCHEL CONNECTOR WITH OPEN CONTACTS		HEADPHONES		ROTARY SWITCH (SHOWN IN ANTI-CLOCKWISE POSITION CONTACT FUNCTION TO BE DESIGNATED)		POTENTIOMETER, PAN POT
	TUCHEL CONNECTOR WITH JUMP CONTRACTS		P C BOARD (TYPE TO BE STATED)		RELAY CONTACTS		POTENTIOMETER, QUAD PAN POT
	XLR CONNECTOR INPUT NORMALLY XLR 3-31		CHOKE		RELAY COIL		FADER, CALIBRATED, LINEAR, (LEVEL IN HAND TO BE STATED)
	XLR CONNECTOR OUTPUT NORMALLY XLR 3-32		SIGNAL LAMP (VOLTAGE & COLOUR TO BE STATED)		SWITCHER CROSSPOINT		FADER, CALIBRATED, WITH END STOP SWITCH (MAX OF 3)
	JACK SOCKET, SINGLE		KEYSWITCH, SINGLE (FRONT PANEL FUNCTION DESIGNATED BY ARROW, MECHANICAL ACTION TO BE STATED)		LIMITER		MODULE GENERAL SYMBOL (FUNCTION & TYPE NUMBER TO BE STATED)
	JACK SOCKET, HALF NORMALLED PAIR (SEND ON UPPER ROW, RETURN ON LOWER ROW)		KEYSWITCH, TWO WAY (NOTES AS ABOVE)		METER (TYPE TO BE STATED)		MODULE WITH FRONT PANEL MOUNTING COMPONENT
	JACK SOCKET, SINGLE NORMALLED PAIR		TOGGLE SWITCH		METER, LIGHT BEAM, MONO		MODULE WITH EXTERNAL MOUNTING COMPONENT
	JACK SOCKET, DOUBLE NORMALLED PAIR		PUSHBUTTON, NON-ILLUMINATED		METER, LIGHT BEAM, STEREO		POT/PUSHBUTTON COMBINED INTO ONE COMPONENT (i.e CENTRALAB.)
	TRANSFORMER		PUSHBUTTON, NON ILLUMINATED WITH LAMP INDICATION, (COLOUR TO BE STATED)		TERMINATION RESISTOR (VALUE TO BE STATED) ATTENUATION RESISTOR (ATTEN. IN dB TO BE STATED)		
	HYBRID TRANSFORMER		PUSHBUTTON, ILLUMINATED		POTENTIOMETER, ROTARY PRE-SET		

	4 REDRAWN	ISSUE	FIRST USED ON	MATL	TOL UNLESS OTHERWISE STATED: LINEAR ± ; ANGULAR ± ; HOLES +0.1 -0
	9 OCT. '78	DATE	DRN.	FINISH	3rd ANGLE PROJ. ; DIMS IN ; SCALE
		CHANGE NOTE No	TRACED ADL	TITLE BLOCK DIAGRAM SYMBOLS	DRG. No B 10001
	PJV	CHECKED	CHECKED	Neve Electronics International Ltd.	1978 © A2

MY #5-652 4

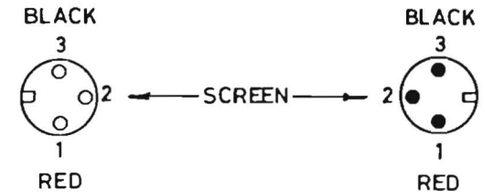
FORM	CONTACTS	ISOSTATS T.J. etc.	LICON BRITIC etc.	RELAY	KEY SWITCH
A	SPST-NO		—		
B	SPST-NC		—		
C	SPDT BREAK BEFORE MAKE		—		
D	SPDT MAKE BEFORE BREAK		—		
K	SPDT-NO	—	—	—	
W	SPDT-NC-NO (DB-DM)	—		—	—
X	SPST-NO (DM)	—		—	—
Y	SPST-NC (DB)	—		—	—
Z	SPDT-NC-NO (DB-DM)	—		—	—

DEFINITIONS OF CONTACT FORMS

EDO 71/29 ISSUE 1 1-4-76

DIN AND XLR MICROPHONE PIN CONNECTIONS ARE NOT COMPATIBLE AND CARE SHOULD BE TAKEN WHEN WIRING MATING CONNECTORS.

WIRE DIN CONNECTORS AS FOLLOWS :-



SOCKET PLUG

WIREMANS VIEW.

WIRE XLR'S TO EDO 71/14.

MICROPHONE INPUT CONNECTIONS

EDO 71/30 ISSUE 1 2-9-76

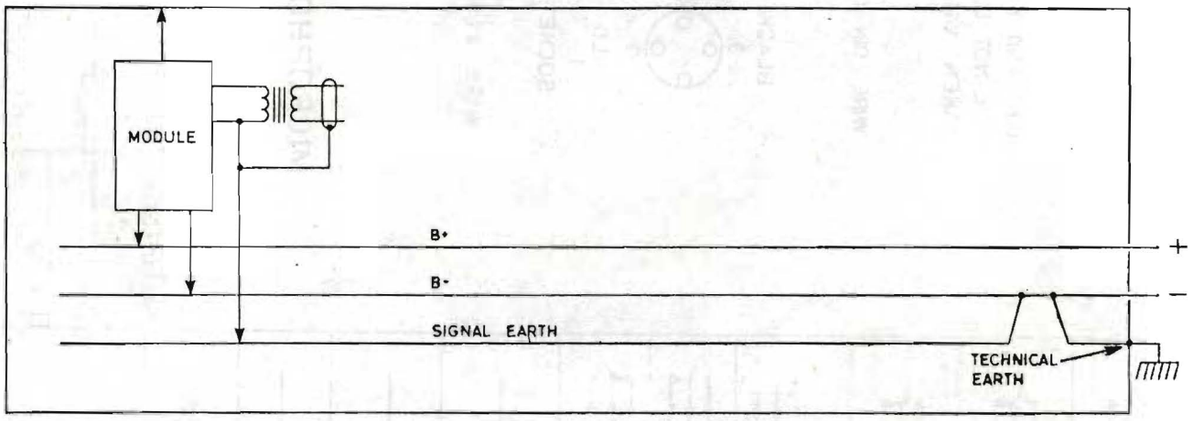
FIRST USED ON	MATL.	TOL. UNLESS OTHERWISE STATED LINEAR ±	ANGULAR HOLES +0.13 -0
DRN.	FINISH	3rd ANGLE PRJ.	DIM&.IN SCALE
TRACED			
CHECKED	TITLE ELECTRICAL STANDARDS	DRG. No. EDO 71/29 & 30	
Neve Electronics International Ltd.		1979 ©	A3

MY A55653 2

TECHNICAL EARTH

The very low hum and noise achieved in all Neve sound mixing equipment can be marred by the use of a poor earthing system. A good earthing system (technical earth) is generally available in professional recording studios and in broadcast installations. The earthing wire provided at the a.c. power input should not be relied upon for the best results.

To avoid the accidental creation of hum loops within the desk, the B— and signal negative rails are separate and are linked together at one point close to the technical earth connection (see diagram). Earthing wires are taken to the connectors of all modules ensuring that the module chassis are earthed on plugging into their positions in the desk.



The desk framework is provided with an earthing connection which should be made to a good technical earth before power is applied to the equipment. Note that the earthing is at one point and that the conductor used should be a heavy duty copper cable or copper braid ensuring the lowest possible resistance.

Earthing at more than one point on the desk, or on ancillary equipment connected to the desk circuits should be avoided, as circulating currents will produce a 'hum loop' giving unacceptably high hum content in the output signal from the desk. Particular care should be taken when remote ancillary equipment such as microphones, echo plates, gramophone turntables or tape machines are used. If a good technical earth is available at the ancillary equipment, this may be used, provided that the earth return via the screens of the audio cables is disconnected.

When a technical earth is not available at a location where ancillary equipment is used, the screens of the audio cables cannot be relied upon to ensure connection to the technical earth at the mixing desk. This is particularly true where tape machines are used. The currents induced by the motors of the tape machine must not be allowed to find earth at the desk via the audio cable screens. Instead, a heavy cable connected directly to the motor casing should be run to the desk and connected as close as possible to the technical earth connection. The earthing between the ancillary equipment and the desk should remain connected at all times.

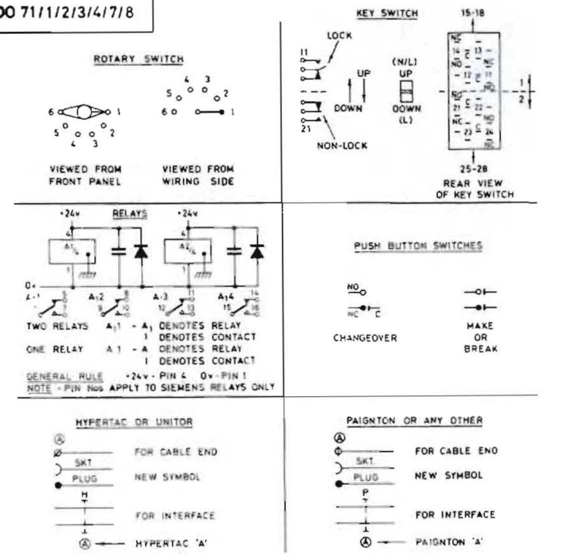
When the installation of a mixing console has been completed, a final check is made to verify the absence of a hum loop, the effect of which might not immediately be apparent. The test can be carried out by disconnecting the technical earth and connecting an Avometer (switched to ohms), between the technical earth and the earthing point on the chassis. A small resistance will indicate the presence of a second earth connection—possibly due to a mains earth—which should be located and removed.

Independent earthing to the mains earth wire should not be used as a technical earth.

ELECTRICAL STANDARDS EDO 71

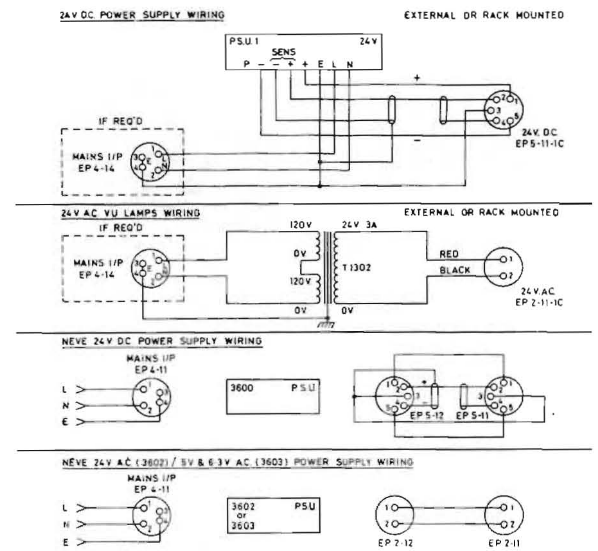
Contents

EDO 71/1/2/3/4/7/8



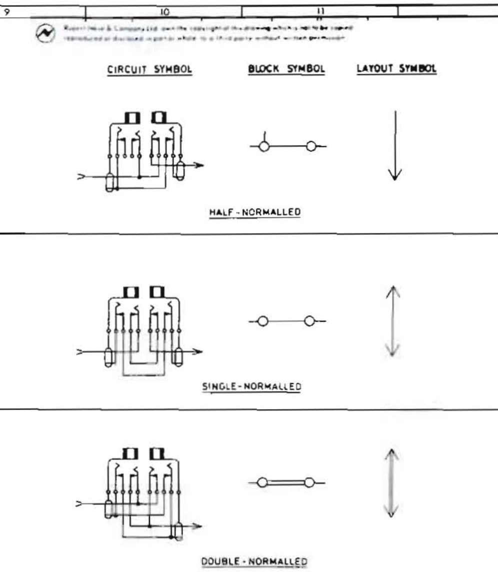
SWITCHES

EDO 71/1 ISSUE 3 6-9-72



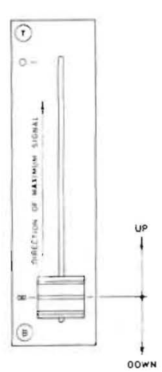
POWER SUPPLY UNIT WIRING

EDO 71/2 ISSUE 4 8-11-74



STANDARD JACK SOCKET CONNECTIONS

EDO 71/3 ISSUE 3 27-3-79



FADER: UP ⟵ ⟶ DOWN, NOTES 2&3

TYPE	FUNCTION	↑	B	W	N/C	C	N/O
MONO	TRK 1	3	5	1			
	SW 1				13	9	11
	SW 2				10	8	7
	OVER-PRESS				2	6	4
2T	TRK 1	3	5&7	1			
	TRK 2	10	12&14	8			
	SW 1				13	9	11
	OVER-PRESS				2	6	4
4T	TRK 1	3	5	1			
	TRK 2	10	12	8			
	TRK 3	4	6	2			
	TRK 4	9	11	7			
	SW 1				13	14	
8T	TRK 1	5	31	3			
	TRK 2	9	29	7			
	TRK 3	13	27	11			
	TRK 4	4	30	2			
	TRK 5	8	28	6			
	TRK 6	12	26	10			
	TRK 7	16	24	14			
	TRK 8	20	22	18			
	SW 1				17	19	15

NOTE - 1 MONO, 2T & 4T FADERS PIN 15 AND 8T FADERS PIN 1 WIRE TO EARTH

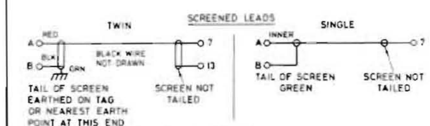
2 SWITCH CHANGEOVER OCCURS ABOUT THE INFINITY POINT ∞

3 N/C, C & N/O REFER TO CONTACT IDENTIFICATION ON FADER MICROSWITCHES & NOT TO SWITCH OPERATION

• NOTE SEE WIRING OF FADERS

PENNY & GILES FADER CONNECTIONS

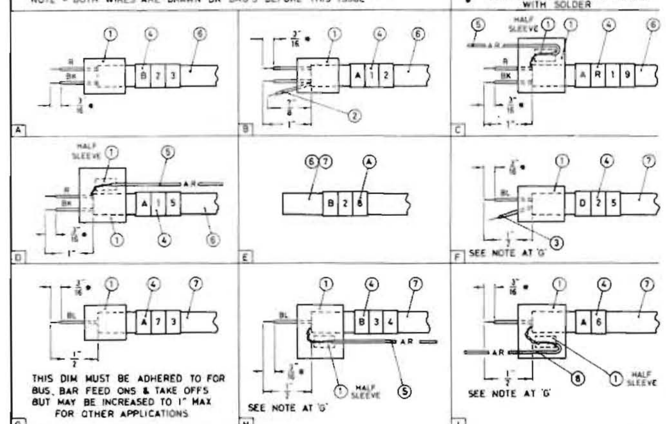
EDO 71/4 ISSUE 7 1-9-78



RULE - RED WIRE WILL ALWAYS BE SHOWN
BLACK WIRE WILL END AT SCREEN SYMBOLS

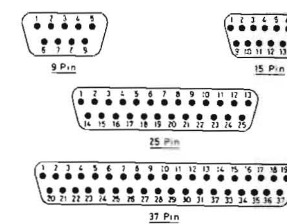
NOTE - BOTH WIRES ARE DRAWN ON DRG'S BEFORE THIS ISSUE

ITEM No	DESCRIPTION	PART No
1	HELSYN SLEEVE H20	W0073
2	PTFE G SLEEVING 1mm	W0102
3	PTFE G SLEEVING 1.5mm	
4	CABLE MARKERS A-Z 0-9	Z0004 Z0005
5	PVC FLEX 7/0.19 G	W0076 W0109
6	T/S CABLE	W0051
7	S/S CABLE	W0056
8	PVL FLEX 16/0.19 G	W0020
•	STRIPPED TWISTED AND TINNED WITH SOLDER	



SCREEN CABLE

EDO 71/7 Sheets 1 & 2 Sht. 1 ISSUE 8 4-12-75
Sht. 2 ISSUE 3 5-1-77



NOTE CONTACT ARRANGEMENT MATING FACE OF PIN INSERT

CONNECTOR PIN ALLOCATION (CANNON 'D')

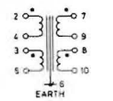
EDO 71/8 ISSUE 4 14-9-79

ISSUE.	FIRST USED ON	MAT'L	TOL UNLESS OTHERWISE STATED: LINEAR / ANGULAR / C.E.
DATE	DRN	FINISH	ANGLE / DIMS IN / SCALE NTS
CHANGE NOTE No	TRACED S.C.S.	TITLE ELECTRICAL STANDARDS	DRG No EDO 71/1/2/3/4/7/8
CHECKED	CHECKED	Rupert Neve & Company Ltd.	1979 © A1

DRAWING No
EDO 71/13,14,15,19,23

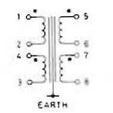
NOTE
* DOTS INDICATE IN PHASE POINTS

31267, 10368 & 10468



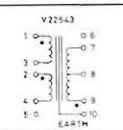
TYPE	TRANSFORMERS PRIMARY SERIES	PRIMARY PARALLEL	SECONDARY SERIES	SECONDARY PARALLEL	dB
31267 VT 22671 T1452	10K 10K		2K4	600	-6 -13
		2K4	2K4		0
		2K4		600	-6
10368 T1453	5K 5K		2K4	600	-3 -9
		1K2	2K4		+3
		1K2		600	-3
10468 VT 22670 T1454	1K2 1K2		4K8	1K2	-6 0
		300	4K8		+12
		300		1K2	+6

LO 2567, LI 1166, LI 1366



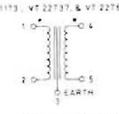
LO 2567 UNGAPPED NO DC	200 200		600	150	+4 -2
		50	600		+10
		50		150	+4
LI 1166 GAPPED	200 200		600	150	+4 -2
		50	600		+10
		50		150	+4
LI 1366	600		600		0

VT 22543



	600	150	SECONDARY CENTRE TAPPED LOADED 600 600	-1 +5

LO 1173, VT 22737, & VT 22761



T1684 = PCB MOUNTING
T1686 = CHASSIS MOUNTING
VT 22737 = PCB MOUNTING
VT 22761 = CHASSIS MOUNTING

LO 1173 VT 22737 VT 22761 T1684 T1686	70 ohms		600 ohms	+8

VT 22667

PCB MOUNTING
NO METAL CAN

VT 22667	10K 10K		2K4	600	-6 -12

TRANSFORMER WINDINGS

EDO 71/13 Sheets 1 & 2

Sheet 1 ISSUE 6 27-8-76
Sheet 2 ISSUE 1 8-11-73

1. AUDIO

			INPUT XLR 3-31	OUTPUT XLR 3-32
PIN	1	SCREEN		
	2	RED		
	3	BLACK		
MATING CONNECTORS: INPUT		XLR 3-12 C		
OUTPUT		XLR 3-11 C		

2. 24 V DC

			INPUT EP 5-14	OUTPUT EP 5-13
PIN	1	24V + (B+)		
	2	+24 V SENSING N.B. SENSING LEADS SHOULD BE SCREENED		
	3	EARTH		
	4	0V SENSING		
	5	0V (B-)		
MATING CONNECTORS	INPUT	EP 5-11		
	OUTPUT	EP 5-12		

3. 24 V AC

			INPUT EP 2-14	OUTPUT EP 2-13
PIN	1 2	24 V A.C		
MATING CONNECTORS	INPUT	EP 2-11		
	OUTPUT	EP 2-12		

4. 48 V DC

			INPUT EP 3-14	OUTPUT EP 3-13
PIN	1	48V+		
	2	EARTH		
	3	0V		
MATING CONNECTORS	INPUT	EP 3-11		
	OUTPUT	EP 3-12		

5. 110 V A.C / 250 V A.C A.C. POWER

			INPUT EP 4-14	OUTPUT EP 4-13
PIN	1	LIVE		
	2	NEUTRAL		
	3 4	EARTH		
MATING CONNECTORS	INPUT	EP 4-11		
	OUTPUT	EP 4-12		

6. 15 V & 10 V SUPPLIES

POWER		SENSE		INPUT EP 15-14	OUTPUT EP 15-13
PIN	1 +15V	PIN	14 +VE		
	2 0 V		9 +VE		
	4 +15 V		10 +VE		
	5 0 V		11 -VE		
	6 +10V		12 CHASSIS		
	7 0 V				
	6 -10V				

ALL PIN ARRANGEMENTS SHOWN LOOKING ON MATING FACE

CONNECTOR PIN ALLOCATION (CANNON XLR & EP)

EDO 71/14 Sheets 1 & 2

Sheet 1 ISSUE 1 19-1-72
Sheet 2 ISSUE 1 21-7-77

LA 10000

28V 1.1W 6mm EDISON SCREW
(USED IN LICON SWITCHES)

LA 11100

28V 40mA 6mm CLIP-IN END FLANGE
(USED IN LS9 LAMPS)

LA 11000

28V 24mA 4mm CLIP-IN END FLANGE
(USED IN LS7 LAMPS)

LA 11300

28V 35mA 5·5mm PUSH-IN TYPE
(USED IN TJ SWITCHES)

LA 11500

12V 3W 36mm x 8mm FESTOON BULB
(USED FOR METER ILLUMINATION)

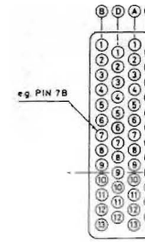
LA 13000 GREEN
LA 13001 AMBER
LA 13002 RED
} LIGHT EMITTING DIODE

RED = 20mA CONTINUOUS CURRENT
AMBER } 40mA CONTINUOUS CURRENT
GREEN }
PEAK INVERSE VOLTAGE = 3V

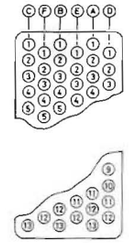
INDICATOR LAMPS

EDO 71/23

ISSUE 2 12-5-78



34 & 50 WAY



75 WAY

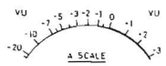
SOCKETS SHOWN VIEWED FROM WIRING SIDE

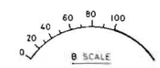
NOTE - 1 MOULDED DESIGNATIONS IGNORED (DUE TO POOR LEGIBILITY)
2 ONLY USED WHERE CALLED FOR IN GENERAL NOTES

34, 50, & 75 WAY UNITOR CONNECTORS

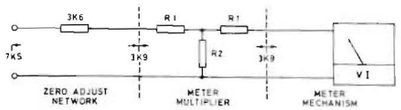
EDO 71/15

ISSUE 2 5-11-75





SCALE COLOUR IS BUFF — 2·93Y ON MUNSELL SCALE



METER MULTIPLIER VALUES

O VU CALIBRATION	MULTIPLIER ATTENUATION	SERIES R1	SHUNT R2
+4 dBm	0 dB	SHORT	OPEN
+6 dBm	2 dB	447 Ω	18 789 Ω
+8 dBm	4 dB	883 Ω	9 177 Ω
+10 dBm	6 dB	1 296 Ω	5 221 Ω
+12 dBm	8 dB	1 675 Ω	3 690 Ω
+14 dBm	10 dB	2026 Ω	2 741 Ω
+16 dBm	12 dB	2 334 Ω	2 091 Ω
+18 dBm	14 dB	2 603 Ω	1 621 Ω
+20 dBm	16 dB	2 833 Ω	1 268 Ω

THE STANDARD VOLUME INDICATOR

EDO 71/19

ISSUE 1 30-11-73

ISSUE	FIRST USED ON	MATL	TOL UNLESS OTHERWISE STATED LINEAR	ANGULAR
DATE	DRN	FINISH	DIMENSIONS IN	SCALE
CHANGE NOTE No	TRACED S.C.S.	TITLE ELECTRICAL STANDARDS		MTS
CHECKED	CHECKED		DRG No EDO 71/ 13,14,15,19 & 23	
CHECKED	Neve Electronics International Ltd.		1979 ©	A1

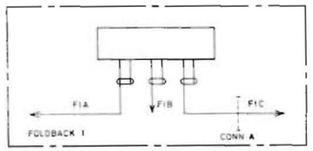
EDO 71 / 31,32 & 33

1 TO FACILITATE LOCATION OF SIGNAL SOURCE (BACK REFERENCE) CONSOLE CABLE CODING IS ARRANGED TO PROVIDE DIRECT READING (SYSTEM, SUB SYSTEM AND WIRE) IDENTIFICATION. THE SYSTEM OF ORIGIN CODE IS RETAINED TO ITS DESTINATION. IF THIS IS A MIXING BUS OR SWITCHING MATRIX THE CABLE CODE THEN CHANGES TO SUIT ITS OUTPUT CONFIGURATION OR FUNCTION. FOR EXAMPLE :-

G = GROUP
M = MONITORING
X = METERING
O = 4 TRACK
S = STEREO

2 THE CODE IS BUILT UP AS FOLLOWS :-
a ELEMENT 1 IS A LETTER IDENTIFYING THE PARENT SYSTEM (SEE TABLE 1)
b ELEMENT 2 IS A NUMBER OR NUMBERS IDENTIFYING THE SUB-SYSTEM
c ELEMENT 3 IS A LETTER IDENTIFYING THE INDIVIDUAL WIRE

FOR EXAMPLE. ASSUMING THE PARENT SYSTEM TO BE FOLDBACK
ELEMENT 1 = F
ELEMENT 2 = 1
ELEMENT 3 = STARTS AT 'A' AND PROGRESSES THROUGH THE ALPHABET, OMITTING 'I' AND 'O'



FOLDBACK 2 TO 4 IDENTICAL

CABLE CODES FOR SUB-SYSTEMS 2 TO 4 =
F2A TO F4A . F2B TO F4B . F2C TO F4C

NOTE WIRE CODE DOES NOT CHANGE THROUGH PLUG BREAK

3 ADDITIONAL INFORMATION MAY BE GIVEN BY A NUMBER PREFIX OR SUFFIX FOR EXAMPLE -

MULTIPLE TAPE INPUTS (CONSOLE OUTPUTS) AND TAPE OUTPUTS (REPLAY) THUS -

4 TRACK = Q	TAPE OUTPUT FROM M/C 2 = 2
TRACK No = 2	4 TRACK = Q
WIRE = C	TRACK No = 2
TAPE INPUT TO M/C No = 2	WIRE = C

4 THE LETTER Z (MISCELLANEOUS) MAY BE USED FOR VARIOUS UNCLASSIFIED SYSTEMS WHICH WILL BEAR A NUMBER PREFIX WHICH MAY VARY FROM CONSOLE TO CONSOLE

5 A TABLE SHOWING ALL SYSTEM LETTERS USED, WITH RELATED SYSTEM AND DRAWING SHEET NUMBER OF ORIGIN, WILL BE INCLUDED ON SHEET 1 OF ALL CONSOLE WIRING DIAGRAMS

TABLE 1 SYSTEM LETTER IDENTIFICATION KEY

A = AUX	N = MIXDOWN
B	P
C = CHANNEL	Q = QUAD (4 TRACK)
D = DIRECT INPUT	R = REV (ECHO)
E = EXTERNAL	S = STEREO (2 TRACK)
F = FOLDBACK	T = TALKBACK
G = GROUP	U = MONO
H	V
I = JACK INPUTS	W = OSCILLATOR
J	X = METER
K = LISTEN (SOLO ETC)	Y = CONSOLE LOUDSPEAKER
M = MONITOR	Z = MISCELLANEOUS

THIS EDO CANCELS & REPLACES EDO 71 / 6

CABLE CODING STANDARD

EDO 71 / 31 Sheets 1 | ISSUE 1

DRAWING PRESENTATION OF MULTIPLE PUSH BUTTON SWITCHES

THESE SWITCHES ARE USUALLY WIRED SO AS TO PROVIDE AN ELECTRICAL INTERLOCK TO AUGMENT THE EASILY DEFEATED MECHANICAL INTERLOCK.
A TYPICAL SWITCH IS DRAWN, SHOWING ALL WIRED CONTACTS, WITH SPECIFIC WIRING INFORMATION FOR INDIVIDUAL SWITCHES GIVEN IN WIRING TABLES, WHICH ARE ARRANGED TO REPRESENT A WIREMANS VIEW OF THE PANEL IE REVERSED LEFT TO RIGHT

1 EXAMPLE OF TYPICAL SWITCH PRESENTATION

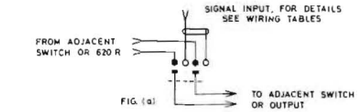


FIG. (a)

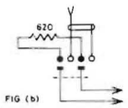


FIG (b)

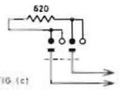


FIG (c)

THE FIRST SWITCH HAS A TERMINATING RESISTOR FITTED AS FIG (b) UNLESS IT IS AN OFF SWITCH WHICH IS AS FIG (c) INTERMEDIATE SWITCHES ARE AS FIG (a) WITH THE LAST SWITCH FEEDING THE METER OR AMPLIFIER ETC

2 WIRING TABLE EXAMPLES

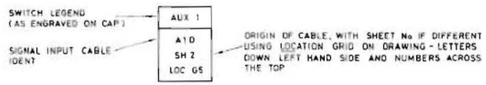


FIG (d)

WHEN A SIGNAL IS PARALLELED TO A SECOND SWITCH, USUALLY THROUGH A TWISTED PAIR, THIS IS ADDED TO THE TYPICAL SWITCH WITH THE WIRING TABLES INDICATING AFFECTED SWITCHES AS FOLLOWS -

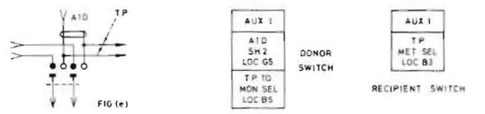


FIG (e)

WHEN A MONO SIGNAL OCCURS IN A STEREO MATRIX IT MAY BE LINKED TO THE SECOND CHANNEL OR THE SECOND CHANNEL MAY BE TERMINATED WITH A 620 OHM RESISTOR SHOWN THUS -

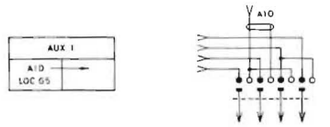


FIG (f)

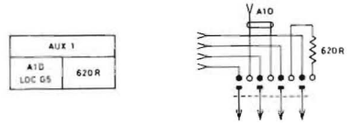
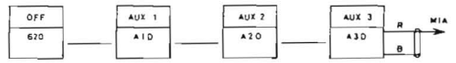


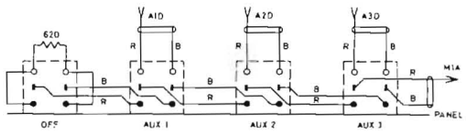
FIG (g)

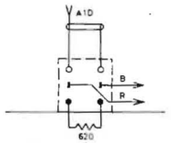
SWITCH PRESENTATION

EDO 71 / 32 Sheets 1 & 2 of 3 | ISSUE 1



SCHEMATIC PRESENTATION





ALTERNATIVE ARRANGEMENT WITHOUT OFF SWITCH

PICTORIAL PRESENTATION

SWITCH PRESENTATION

EDO 71 / 32 Sheet 3 of 3 | 28-3-79 ISSUE 1

CONTACT ARRANGEMENT

MATING FACE OF PLUG (PIN INSERTS) PIN 1 IS INDICATED BY A TRIANGULAR DEVICE ON SIDE OF CONNECTOR

ITT / CANNON GOB SPEEDY CONNECTOR MARKINGS SHOULD BE IGNORED AND THIS STANDARD APPLIED

FOR CANNON D COMPATIBLE CONNECTORS SEE EDO 71/8

RIBBON CABLE CONNECTOR PIN NUMBERING

EDO 71 / 33 | 13-9-79 ISSUE 1

ISSUE	FIRST USED ON	MATL	TOL UNLESS OTHERWISE STATED LINEAR	ANGULAR
DATE	DRN	FINISH	DIMS IN	SCALE N.T.S.
CHANGE NOTE No	TRACED S.C.S.	TITLE ELECTRICAL STANDARDS	DRG No EDO 71/31,32 & 33	
	CHECKED			
	CHECKED	Neve Electronics International Ltd.	1979	©A1

WIRING OF FADERS

To avoid an undesirable rise in frequency response at low attenuator settings caused by the core to core capacity of twin-screened cable, signal wiring to and from faders should be in single screened cable.

This should be satisfactory for cable runs up to one metre in length, but longer runs may cause an excessive high frequency drop.

In such cases, for an important signal path, use a lower value fader if possible, or a unity gain buffer, such as BA406, may be used at the wiper end of the wire.

For subsidiary systems, e.g. talkback, the high frequency loss may be unimportant in which case single screened wiring will be acceptable.

In the case of 4 Track faders, the cable entry will not accept the required number of single screened cables and they will continue to be wired with twin screened cables.

The Neve Group of Companies.					
TITLE	PENNY & GILES FADER CONECTIONS				
DRAWN	F.C.B.	DATE 6-9-76	ISSUE 1		
			DATE 6-9-76		
TRACED		TOLS. ± UNLESS STATED	DRAWING NUMBER	EDO 71/4	SH. 2 OF. 2
CHECKED		SCALE			

ADMEL 2943

SWITCH CONTACTS

The design of modules employing switches is such that trouble through the ingress of dust and moisture should not normally arise. This means that any routine cleaning treatment is both unnecessary and a possible cause of trouble.

In the event of a switch causing excessive electrical noise a universal electrical contact cleaner Electrolube 2X should be used sparingly where required. This fluid is compatible with plastics used in the manufacture of switches and contains no silicones or hydrocarbons. It is also anti-static and will not attract dust.

NOTE Electrolube 2X is available in Aerosol cans as Electrolube 2A-X.

WARNING

The following Electrolube products contain solvents which have a softening effect on polystyrene and certain other thermo-plastics likely to be found in switches and should NOT be used.

Electrolube	No. 1 Green
Electrolube	No. 2 Red
Electrolube	2G

Note the majority of other switch solvents are in this category and cannot safely be used.

The recommended cleaner should be applied sparingly and directed according to the manufacturers instructions.

Electrolube No. 1 may be used for cleaning the edge contacts of Printed Circuit Boards only.

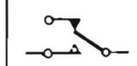
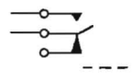
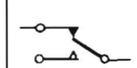
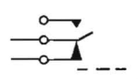
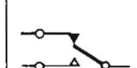
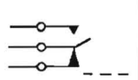
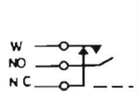
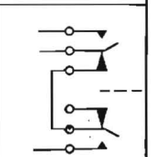
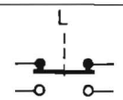
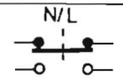
	1	ISSUE	FIRST USED ON	MATL.	TOL. UNLESS OTHERWISE STATED		
					LINEAR ±	ANGULAR	HOLES +.005 −.000
	25-7-72	DATE	DRN. P.F.T.	FINISH	3RD ANGLE PRJ.	DIMS IN	SCALE
		CHANGE NOTE Nº	TRACED				
			CHECKED	TITLE CONTACT CLEANER STANDARD	DRG. Nº EY 10,000		
		CHECKED					

NM7828

	MULTIPIN CONNECTOR		MICROPHONE		PUSHBUTTON ILLUMINATED, CHANGEOVER		POTENTIOMETER, ROTARY
	SOLDER TAG TERMINATION		LOUDSPEAKER		PUSHBUTTON NON-ILLUMINATED, MECH. ACTIVATED COLOUR CHANGE		POTENTIOMETER, ROTARY STEPPED
	TUCHEL CONNECTOR WITH OPEN CONTACTS		HEADPHONES		ROTARY SWITCH (SHOWN IN ANTI-CLOCKWISE POSITION CONTACT FUNCTION TO BE DESIGNATED)		POTENTIOMETER, PAN POT
	TUCHEL CONNECTOR WITH JUMP CONTRACTS		P C BOARD (TYPE TO BE STATED)		RELAY CONTACTS		POTENTIOMETER, QUAD PAN POT
	XLR CONNECTOR INPUT NORMALLY XLR 3-31		CHOKE		RELAY COIL		FADER, CALIBRATED, LINEAR, (LEVEL IN HAND TO BE STATED)
	XLR CONNECTOR OUTPUT NORMALLY XLR 3-32		SIGNAL LAMP (VOLTAGE & COLOUR TO BE STATED)		SWITCHER CROSSPOINT		FADER, CALIBRATED, WITH END STOP SWITCH (MAX OF 3)
	JACK SOCKET, SINGLE		KEYSWITCH, SINGLE (FRONT PANEL FUNCTION DESIGNATED BY ARROW, MECHANICAL ACTION TO BE STATED)		LIMITER		MODULE GENERAL SYMBOL (FUNCTION & TYPE NUMBER TO BE STATED)
	JACK SOCKET, HALF NORMALLED PAIR (SEND ON UPPER ROW, RETURN ON LOWER ROW)		KEYSWITCH, TWO WAY (NOTES AS ABOVE)		METER (TYPE TO BE STATED)		MODULE WITH FRONT PANEL MOUNTING COMPONENT
	JACK SOCKET, SINGLE NORMALLED PAIR		TOGGLE SWITCH		METER, LIGHT BEAM, MONO		MODULE WITH EXTERNAL MOUNTING COMPONENT
	JACK SOCKET, DOUBLE NORMALLED PAIR		PUSHBUTTON, NON-ILLUMINATED		METER, LIGHT BEAM, STEREO		POT/PUSHBUTTON COMBINED INTO ONE COMPONENT (i.e CENTRALAB.)
	TRANSFORMER		PUSHBUTTON, NON ILLUMINATED WITH LAMP INDICATION, (COLOUR TO BE STATED)		TERMINATION RESISTOR (VALUE TO BE STATED) ATTENUATION RESISTOR (ATTEN. IN dB TO BE STATED)		
	HYBRID TRANSFORMER		PUSHBUTTON, ILLUMINATED		POTENTIOMETER, ROTARY PRE-SET		

	4 REDRAWN	ISSUE	FIRST USED ON	MATL	TOL UNLESS OTHERWISE STATED: LINEAR ± ; ANGULAR ± ; HOLES +0.1 -0
	9 OCT. '78	DATE	DRN.	FINISH	3rd ANGLE PROJ. ; DIMS IN ; SCALE
		CHANGE NOTE No	TRACED ADL	TITLE BLOCK DIAGRAM SYMBOLS	DRG. No B 10001
	PJV	CHECKED	CHECKED	Neve Electronics International Ltd.	1978 © A2

MY #5-652 4

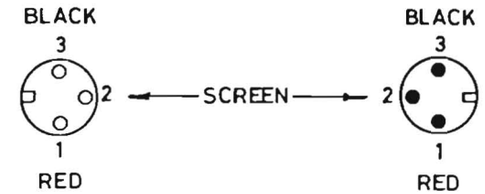
FORM	CONTACTS	ISOSTATS T.J. etc.	LICON BRITIC etc.	RELAY	KEY SWITCH
A	SPST-NO		—		
B	SPST-NC		—		
C	SPDT BREAK BEFORE MAKE		—		
D	SPDT MAKE BEFORE BREAK		—		
K	SPDT-NO	—	—	—	
W	SPDT-NC-NO (DB-DM)	—		—	—
X	SPST-NO (DM)	—		—	—
Y	SPST-NC (DB)	—		—	—
Z	SPDT-NC-NO (DB-DM)	—		—	—

DEFINITIONS OF CONTACT FORMS

EDO 71/29 ISSUE 1 1-4-76

DIN AND XLR MICROPHONE PIN CONNECTIONS ARE NOT COMPATIBLE AND CARE SHOULD BE TAKEN WHEN WIRING MATING CONNECTORS.

WIRE DIN CONNECTORS AS FOLLOWS :-



SOCKET PLUG

WIREMANS VIEW.

WIRE XLR'S TO EDO 71/14.

MICROPHONE INPUT CONNECTIONS

EDO 71/30 ISSUE 1 2-9-76

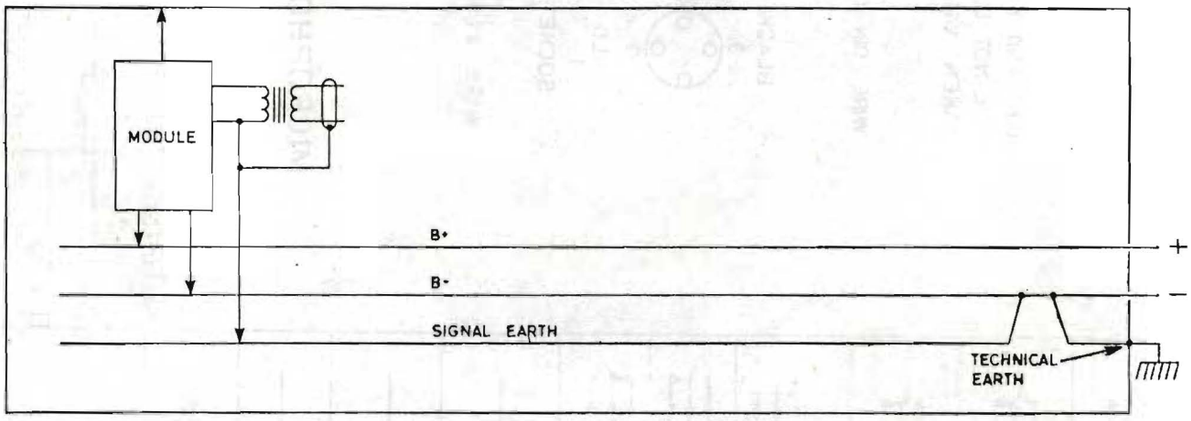
FIRST USED ON	MATL.	TOL. UNLESS OTHERWISE STATED LINEAR ±	ANGULAR HOLES +0.13 -0
DRN.	FINISH	3rd ANGLE PRJ.	DIM&.IN SCALE
TRACED			
CHECKED	TITLE ELECTRICAL STANDARDS	DRG. No. EDO 71/29 & 30	
Neve Electronics International Ltd.		1979 ©	A3

MY A55653 2

TECHNICAL EARTH

The very low hum and noise achieved in all Neve sound mixing equipment can be marred by the use of a poor earthing system. A good earthing system (technical earth) is generally available in professional recording studios and in broadcast installations. The earthing wire provided at the a.c. power input should not be relied upon for the best results.

To avoid the accidental creation of hum loops within the desk, the B— and signal negative rails are separate and are linked together at one point close to the technical earth connection (see diagram). Earthing wires are taken to the connectors of all modules ensuring that the module chassis are earthed on plugging into their positions in the desk.



The desk framework is provided with an earthing connection which should be made to a good technical earth before power is applied to the equipment. Note that the earthing is at one point and that the conductor used should be a heavy duty copper cable or copper braid ensuring the lowest possible resistance.

Earthing at more than one point on the desk, or on ancillary equipment connected to the desk circuits should be avoided, as circulating currents will produce a 'hum loop' giving unacceptably high hum content in the output signal from the desk. Particular care should be taken when remote ancillary equipment such as microphones, echo plates, gramophone turntables or tape machines are used. If a good technical earth is available at the ancillary equipment, this may be used, provided that the earth return via the screens of the audio cables is disconnected.

When a technical earth is not available at a location where ancillary equipment is used, the screens of the audio cables cannot be relied upon to ensure connection to the technical earth at the mixing desk. This is particularly true where tape machines are used. The currents induced by the motors of the tape machine must not be allowed to find earth at the desk via the audio cable screens. Instead, a heavy cable connected directly to the motor casing should be run to the desk and connected as close as possible to the technical earth connection. The earthing between the ancillary equipment and the desk should remain connected at all times.

When the installation of a mixing console has been completed, a final check is made to verify the absence of a hum loop, the effect of which might not immediately be apparent. The test can be carried out by disconnecting the technical earth and connecting an Avometer (switched to ohms), between the technical earth and the earthing point on the chassis. A small resistance will indicate the presence of a second earth connection—possibly due to a mains earth—which should be located and removed.

Independent earthing to the mains earth wire should not be used as a technical earth.

Rupert Neve & Company Limited

Cambridge House, Melbourn, Royston
Hertfordshire, SG8 6AU, England
telephone: Royston (0763) 60776
10 lines telex: 81381
cables: Neve Cambridge
Registered number: 988383 England

Date: 12th February 1982

Works Order No: A9365 (8946)

24/12 CHANNEL, 4 GROUP OUTPUT (5315)

1. GENERAL TEST CONDITIONS

1.1 Test Equipment:

Sound Technology Distortion Measuring Set. (Ser. No. K217)
Sennheiser Valve Voltmeter Type RV 55 (Ser. No. K116)
Sennheiser Filter Unit Type FO 55 (Ser. No. K53/1)
Neve 40 dB amplifier (used for noise and crosstalk measurements).
Incorporated in Neve Test Fixture NEL Jig 103 (Ser. No.

1.2 Conditions:

All outputs unloaded.

2. PERFORMANCE

2.1 Maximum Output:

Signal to line input. Channel amplifier sensitivity set to -20 dB, no equalisation. Faders set to zero, front panel level controls at maximum. Input adjusted for maximum output.

a) Line input 1 to all outputs.

Group	1	+26.5	dBu	3	+26.4	dBu
	2	+26.5	"	4	+26.4	"
Outputs(via Group 1)	1	+27.1	"	2	+27.1	"
Aux.	1	+26.1	"	3	+26.6	"
	2	+26.5	"	4	+26.2	"
Solo		+26.5	"			

b) All line inputs to group output 1.

Channel				Channel		
	1	+26.5	dBu		13	dBu
	2	+26.4	"		14	"
	3	+26.3	"		15	"
	4	+26.4	"		16	"
	5	+26.4	"		17	"
	6	+26.4	"		18	"
	7	+26.4	"		19	"
	8	+26.3	"		20	"
	9	+26.4	"		21	"
	10	+26.4	"		22	"
	11	+26.5	"		23	"
	12	+26.4	"		24	"

2.2 Distortion:

a) Signal to Mic inputs. Channel amplifier sensitivity set to -60 dB, no equalisation. Faders set to zero. Distortion measured at Group 1 output. I/P set to give +20 dBu out.

N.B. Meters switched away from outputs.

		100 Hz	1 kHz	10kHz
		%	%	%
Channel	1	0.014	0.011	0.019
	2	0.013	0.011	0.014
	3	0.012	0.010	0.011
	4	0.012	0.012	0.013
	5	0.013	0.011	0.013
	6	0.013	0.010	0.024
	7	0.013	0.013	0.020
	8	0.015	0.014	0.016
	9	0.013	0.011	0.021
	10	0.013	0.011	0.011
	11	0.012	0.011	0.023
	12	0.013	0.011	0.015
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
	24			

b) Signal to line inputs. Input level 0 dBu. Channel amplifier sensitivity set to -20 dB, no equalisation. Faders set to zero.

N.B. Meters switched away from outputs.
Distortion measured at group 1 output.

		100 Hz %	1 kHz %	10kHz %
Channel	1	0.014	0.009	0.009
	2	0.010	0.007	0.011
	3	0.013	0.008	0.009
	4	0.014	0.008	0.009
	5	0.011	0.009	0.008
	6	0.015	0.008	0.008
	7	0.013	0.009	0.009
	8	0.013	0.010	0.009
	9	0.010	0.008	0.008
	10	0.011	0.009	0.008
	11	0.010	0.007	0.008
	12	0.010	0.009	0.008
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c) Signal to line input 1. Input level 0 dBu. Channel amplifier sensitivity set to -20 dB, no equalisation. Faders set to zero, front panel level controls set to give +20 dBu out. Meters switched away from outputs.

		100 Hz %	1 kHz %	10kHz %
Group	1	0.014	0.009	0.009
	2	0.015	0.006	0.005
	3	0.015	0.005	0.005
	4	0.016	0.005	0.006
Outputs (via Gp 1)	1	0.019	0.009	0.012
	2	0.019	0.009	0.011
Aux.	1	0.014	0.005	0.005
	2	0.015	0.005	0.005
	3	0.015	0.005	0.005
	4	0.015	0.006	0.006
Solo		0.014	0.005	0.005
Monitor (measured at +8 dBu out, unloaded from 4T grp O/P)	1	0.020	0.008	0.013
	2	0.021	0.005	0.005
	3	0.021	0.005	0.005
	4	0.021	0.005	0.006

2.3 Frequency Response:

a) Signal to line input 1. Input level 0 dBu. Channel amplifier sensitivity set to 0 dB, no equalisation. Faders set to zero, front panel level controls set to give 0 dBu out. Output level 0 dBu at 1 kHz.

		20 Hz dB	20kHz dB
Group	1	-0.4	-0.7
	2	-0.4	-0.8
	3	-0.4	-0.8
	4	-0.4	-0.7
Outputs (via grp 1)	1	-0.5	-0.9
	2	-0.5	-0.8
Aux.	1	-0.5	-0.8
	2	-0.4	-0.8
	3	-0.4	-0.7
	4	-0.4	-0.6
Solo		-0.4	-0.2
Monitor (-12 dBu o/p, unloaded. 4T grp output.	1	-0.3	-0.4
	2	-0.4	-0.5
	3	-0.4	-0.5
	4	-0.4	-0.5

b) Signal to microphone inputs. Channel amplifier sensitivity set to -30 dB, no equalisation. Faders set to zero. Output level 0 dBu, at 1 kHz, from group 1.

		20 Hz dB	20kHz dB
Channel	1	-0.4	-0.7
	2	-0.3	-0.1
	3	-0.3	-0.1
	4	-0.4	-0.6
	5	-0.3	-0.4
	6	-0.4	-0.2
	7	-0.3	-0.7
	8	-0.4	-0.5
	9	-0.3	-0.4
	10	-0.4	-0.3
	11	-0.3	-0.4
	12	-0.3	-0.4
	13		
	14		
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c) Signal to line inputs. Input level 0 dBu. Channel amplifier sensitivity set to 0 dB, no equalisation. Faders set to zero. Group 1 selected. Output level 0 dBu, at 1 kHz from group 1.

		20 Hz dB	20kHz dB
Channel	1	-0.4	-0.7
	2	-0.3	-0.7
	3	-0.4	-0.6
	4	-0.3	-0.5
	5	-0.3	-0.6
	6	-0.3	-0.7
	7	-0.3	-0.5
	8	-0.3	-0.7
	9	-0.3	-0.7
	10	-0.4	-0.6
	11	-0.3	-0.6
	12	-0.3	-0.6
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2.4 Crosstalk:

a) Signal to line inputs. Input level +5 dBu. Channel amplifier sensitivity set to -20 dB, no equalisation. Faders set to zero. Signal selected to all group outputs except group 1. Crosstalk measured at group 1 output. Group output selected only on Channel strip under test.

		100 Hz dB	1 kHz dB	15kHz dB
Channel	1	-93.7	-102.1	-101.3
	2	-93.7	-103.1	-101.9
	3	-93.5	-103.2	-101.5
	4	-93.8	-103.2	-101.7
	5	-93.7	-102.9	-101.3
	6	-93.5	-102.2	- 99.0
	7	-93.6	-103.0	-101.9
	8	-94.0	-103.6	-102.4
	9	-93.0	-100.2	- 99.7
	10	-93.2	-102.8	-101.9
	11	-93.3	-102.8	-102.4
	12	-92.8	-102.9	-102.7
	13			
	14			
	15			
	16			
	17			

		100 Hz dB	1 kHz dB	15kHz dB
Channel	18			
	19			
	20			
	21			
	22			
	23			
	24			

b) Signal to line input 1. Input level +5 dBu. Channel amplifier sensitivity set to -20 dB, no equalisation. Faders set to zero. Signal selected to all group outputs except group under test. Each group output de-selected in turn and crosstalk measured on that group output.

		100 Hz dB	1 kHz dB	15kHz dB
Group	1	-93.7	-102.1	-101.3
	2	-93.9	-101.7	-100.3
	3	-93.6	-103.0	- 99.4
	4	-91.9	-103.9	- 98.2
Outputs selected; (via group 1) level control at max.	1	-90.1	-102.8	-100.3
	2	-90.3	- 97.6	- 88.3

2.5 Noise:

Measured with 20 Hz to 20 kHz bandpass filter in circuit. Inputs open circuit. (Unless otherwise stated).

a) Output stage noise, faders at infinity.

b) No group outputs selected, faders set to zero.

		(a) dBu	(b) dBu
Group	1	-105.8	-84.7
	2	-103.2	-83.8
	3	-102.2	-82.8
	4	-105.4	-84.3
Outputs	1	-105.4	-82.2
	2	-106.1	-82.6
Aux.	1	-107.3	-82.6
	2	-107.2	-81.6
	3	-106.7	-83.2
	4	------	-83.1

c) Channels selected individually to group output 1. Line input sensitivity set to 0 dB. (Inputs of each channel terminated with 600 ohms).

d) Channels selected individually to group output 1. Microphone input sensitivity set to -80 dB. (Input of each channel terminated with 200 ohms).

e) Equivalent Input Noise.

		(c) dBu	GAIN dB	(d) dBu	(e) dBu
Channel	1	-82.1	80	-45.2	-125.2
	2	-82.2	80	-45.4	-125.4
	3	-82.2	80	-45.8	-125.8
	4	-82.2	80	-44.7	-124.7
	5	-82.2	80	-45.1	-125.1
	6	-82.2	80	-45.6	-125.6
	7	-82.2	80	-44.9	-124.9
	8	-82.1	80	-45.6	-125.6
	9	-82.1	80	-45.4	-125.4
	10	-82.2	80	-45.7	-125.7
	11	-82.1	80	-45.6	-125.6
	12	-82.2	80	-45.4	-125.4
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2.6 Miscellaneous Tests:

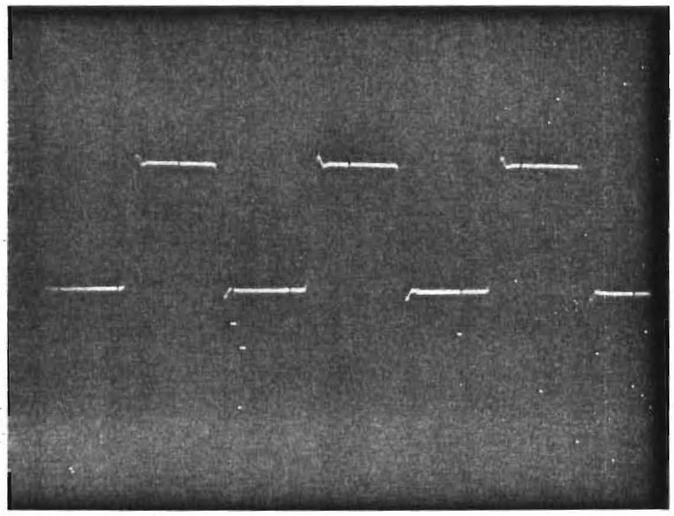
a) D.C. current consumption. Maximum quiescent current.

With maximum number of lamps, relays, modules in circuit. (all L.E.D's off) = 2.8 Amps with 23.4 Volts at Bus Bar

b) Square Wave Response:

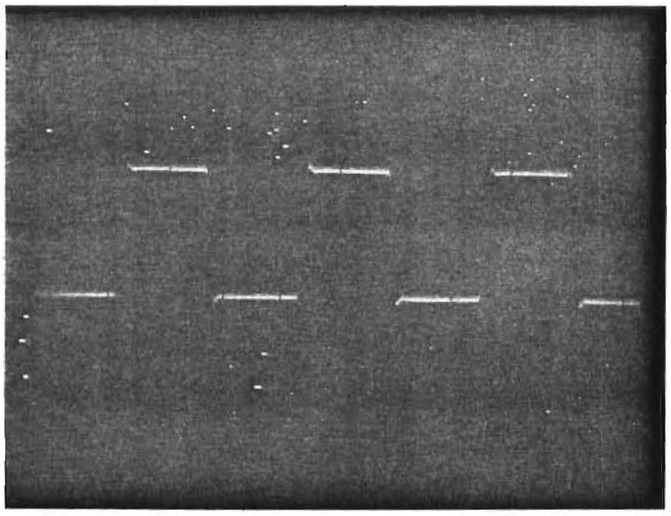
Square wave 3 kHz signal 1V peak-to-peak.

i) Channel 5 via group 2 to output 2.



0.2 v/cm
50 µs/cm

ii) Channel 12 via group 1 to output 1.



0.2 v/cm
50 µs/cm

John Dickson

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For and on behalf of Rupert Neve & Co. Ltd.

CONSOLE DRAWINGS

BLOCK DIAGRAM	(SHEET 1)	EB10944/A1 ISS. 2
BLOCK DIAGRAM	(SHEET 2) (SHEET 3)	EB10944/A3 " 1 EB10944
CIRCUIT DIAGRAM	(SHEET 1)	EC10499/A0 " 4
CIRCUIT DIAGRAM	(SHEET 2)	EC10499/A0 " 2
GENERAL LAYOUT	(SHEET 1)	ML40026/A1 " 2
CONSOLE LAYOUT	(SHEET 2)	ML40026/A1 " 1
MONITOR AND FACILITIES PANEL LAYOUT		ML50054/A2 " 2
TYPICAL JACKFIELD LAYOUT		ML70009/A2 " 3

WALLET CONTENTS 5315/A

BLOCK DIAGRAM		EB11307/A1 ISS 1
CIRCUIT DIAGRAM	SHEET 1	EC10499/A0 ISS 10
CIRCUIT DIAGRAM	SHEET 2	EC10499/A0 ISS 3
CONSOLE LAYOUT	SHEET 1	ML40269/A1 ISS 1
CONSOLE GENERAL ASSEMBLY	SHEET 2	ML40269/A2 ISS 1
MONITOR & FACILITIES PANEL LAYOUT		ML50054/A2 ISS 3
TYPICAL JACKFIELD LAYOUT 4 ROW		ML70009/A/A2 ISS 1
TYPICAL JACKFIELD LAYOUT 5 ROW		ML70009/A2 ISS 5
TALKBACK PANEL LAYOUT		ML50126/A4 ISS 1
5315/A PANEL LAYOUTS		ML50447/A3 ISS 4