TSM SERIES OWNERS HANDBOOK

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scanned and assembled by
Waltzing Bear Audio

The T.S.M. is the first multi-track recording console to employ a fully modular, removable patchbay. As every studio engineer knows, the console patchbay is potentially the largest single source of possible malfunction due, if nothing else, to pure wear and tear and is usually very inaccessible.

All jack sockets in the T.S.M. console are individual, fully professional bantam jacks employing cross point contacts mounted in a dust prohibiting enclosure with a snap on cover for cleaning or contact re-setting purposes. These jacks in turn are mounted on vertical printed circuit cards which connect via gold plated contacts into a card frame that constitutes the patch-bay area of the console. Consequently, jackfield servicing is literally a matter of minutes and not hours or days. The removal of 6 screws gains access to the printed circuit boards which can then be withdrawn without the need for special tools. Individual jack sockets can be cleaned or even replaced with the absolute minimum of studio down-time.

The plug-in patchbay cards also make it possible to 're-programme' the patchbay interconnections. By the addition or removal of simple wire links it is possible to change 'half-normalled' connections to 'fully-normalled' and vice-versa. On a conventionally wired patchbay this would be a virtually impossible task.

Another important aid to servicing is the module format employed. For example: rather than using one module to control all input processing and routing functions (as is common in many of todays consoles), three separate modules have been used that logically divide the input processing functions. One module therefore contains the entire equaliser section, another the signal routing to main output groups and the third contains all other signal processing. In the event of an equaliser malfunction, the module can be replaced with a servicing card containing no electronics, whilst the remaining functions – microphone amplifier, echo, panning etc – can be used completely intact.

The very latest bi-fet, plug-in operational amplifiers, constructed to our own specifications and unique to Trident Audio Developments, have been used in the electronics design of the T.S.M. console. As a result, not only are distortion figures extremely low but the sonic quality and transient response exhibited by the console is of a very high order.

All relay functions in the T.S.M. are carried out electronically thereby eliminating mechanical wear and other problems caused by conventional relays.

Wherever possible, front panel controls are mounted directly onto the printed circuit board thereby eliminating many wiring looms and the possibility of errors. The module layout consequently remains uncluttered and each individual circuit block is labelled clearly and shown within dotted lines with every component identified on the printed circuit board. Modules locate in the mainframe via card guides and are secured by a unique screwless latching system.

The module front panels are finished in black brushed aluminium with wear resistant anodised lettering and all control knobs are manufactured from solid aluminium to our own specifications.

The console mainframe is constructed of aluminium sheet profile sections rigidly held together by three rectangular, box section steel tubes, spanning the entire width. Specially designed aluminium extrusions space the profiles and act as module mounting rails. All of these combine the complete unit into a structure which exhibits high torsional rigidity and light weight.

Connections to and from the console are via gold plated, zero insertion force, ITT D.L. connectors located below the patchbay area. Cabling, therefore, can be made unobtrusive yet very accessible.

Wood trim on the T.S.M. is solid, not veneered, in a standard finish of Canadian Pine stained an attractive 'nearly black' colour. However, other woods – oak, ash etc. – can be supplied to order.

Upper Console Functions

Input Equaliser Type TM09
This module is a completely self contained equaliser that can, if required, be purchased as a separate outboard or rack mounting unit. It consists of four, independent, graphic parametric sections with an overall bypass switch and LED plus swept high and low pass filters with separate bypass switch and LED. Each parametric section has boost or cut continuously variable by up to ±15dB by a linear fader with centre detent, and a "Q" switch providing a choice of 6 or 13dB per octave. Frequency ranges covered are: 40Hz-500Hz, 180Hz-1.8kHz, 700Hz-7.5kHz and 1.4kHz-14kHz. The swept high and low pass filters provide a slope of 12dB per octave and cover the ranges 10Hz-400Hz and 1kHz-25kHz.

Echo Return Module Type TM02
There are two echo return modules each containing two identical sections providing four echo return channels in every T.S.M. console. The following facilities are provided:– rotary fader level control, 'Mute', 'Auto-Mute' whereby any channels selected to this system will mute simultaneously once a master button (located in the Oscillator Module type TM05) is depressed, 'A.F.L./P.F.L.' selector switch, 'Solo' which mutes all other echo returns and input modules (unless their solo buttons are depressed), quad pan pot normally routed to the remix busses, but which can be selected to monitor echo return to monitor only ('phantom' echo), equalisation at 50Hz and 10kHz ±15dB with by-pass switch and finally a level control and pan-pot so that echo return signals can be fed to auxiliary sends 5 and 6 (normally used as stereo headphone feeds).

Auxiliary Master Send Module Type TM03
Like the echo return modules, there are two auxiliary send modules fitted to every T.S.M. console and these each contain 3 identical sections for master control of 3 of the 6 auxiliary send busses. Each section provides the following facilities:– a rotary fader to control the overall send level, there is 10dB of gain available at this point to match signal levels into any external echo devices, headphone amplifiers etc; High and Low Pass filters with by-pass switch, which are identical to the filters provided in the equaliser module type TM09 and provide accurate frequency roll-off over the audio band; finally, a precision 5 LED P.P.M. level indicator which constantly meters via a push-button switch, the send or return levels of the equipment connected to each auxiliary send.

Monitor Module Type TM01
According to frame size, each T.S.M. console may contain up to either 24 or 32 monitor modules and the following facilities are provided: Auxiliary sends 1-2 and 5-6 – these intermix with the corresponding auxiliary busses found on the input Mic/Line module and allow a portion of the signal to be fed to either musicians headphones (in stereo using aux sends 5-6) or to an echo device. The auxiliary sends are also selectable pre or post the monitor fader. Overdub - this is linked to the master 'Mixer', 'Tape', 'Overdub' switches mounted in the Oscillator and Console Mode module type TM05 which control the overall multi-track monitoring status of the console. When the 'mixer' button is depressed all monitor modules are selected to monitor their appropriate console group outputs and this situation cannot be individually overridden. In the 'Tape' mode all monitor modules are selected to monitor the appropriate tape machine replay lines which likewise cannot be individually overridden. In the 'Overdub' mode however the monitor modules monitor the appropriate tape machine replay lines but this can be

Upper Console Functions

overridden locally on each monitor module enabling quick and easy multi-track overdubbing. An LED indicates when overdub has been selected on each monitor module. The auxiliary sends follow this switching logic so that musicians headphone feeds switch automatically with the console monitor mode. Equalisation – this provides ±15dB boost or cut at shelving frequencies of 50Hz and 10kHz. A push-button and LED provide by-pass and indication of when the equaliser is in circuit. This function is particularly useful during multi-track playback since monitor equalisation provides a quick and simple rough monitor mix without reverting to a near re-mix mode. 'Meter/Tape' switch. this allows each associated multi-track V.U. meter situated above the monitor section of the console to read either the console output or tape machine replay line. Associated with this is a 'Meter Couple' switch located in the Oscillator and Console Mode module type TM05. This disconnects the local meter switching and each meter automatically reads whatever signal the particular module is monitoring. 'Pan to Quad Bass'– this features is unique to the T.S.M. system and is normally used when the Quad/Stereo buss is used for mixdown. In this mode the entire monitor section is normally redundant but depressing the 'Pan to Quad Buss' button inserts the monitor module output into the quad remix buss thereby giving up to 32 more available input modules. each with echo send. muting. panning etc. This facility also allows the use of up to 24 sub-groups in the Quad/Stereo mix. 'Pan pot'– this routes the module output either into the control room speakers or into the Quad/Stereo buss as described. Solo button and LED indicator – this mutes all other monitor modules for fast track identification. 'Linear fader'– this controls the level through the monitor module. 'Fader Reverse'– this reverses the function of the short throw linear fader in the module and the conductive plastic long throw group fader situated below. This means that monitor levels can be more finely balanced on the Penny and Giles long throw faders during recording and the group faders (which are not normally adjusted) become the short throw linear faders housed in the module. 'Mute button'– when depressed this kills the output of the monitor module and an LED indicates the mute condition.

Multi-Track Assignment Module Type TM10
This routes the output signal either in a quad or totally independent mode to each main group output of the console. A maximum of 24 group outputs is available on the T.S.M. console but channel direct outputs permit direct connection of input modules to extra track inputs such as for a 32 track recorder. Assignment is accomplished by means of 24 push-buttons and LED's which illuminate when the appropriate group output is selected. Each assignment module contains a group mixing amplifier and depending on its position in the mainframe becomes the mixing amplifier for that particular output group. i.e. the assignment module located in position 15 of the console input section contains the mixing amplifier for output group 15. This keeps all low level buss wiring to an absolute minimum and avoids the problems of stray capacitance pick-up etc.

Quad/Stereo Buss V.U. Meters
These four large illuminated bell spec. V.U. meters primarily read the separate Quad/Stereo buss outputs when that mode is selected via the monitor command module type TM06. However, in the multi-track monitor mode during 'live' multi-track recording these meters read the control room speaker feeds. When the Quad/Stereo mode of monitoring is selected. they can also read any pre-selected source, as pre-determined by the appropriate push-button, located in the Monitor Command module type TM06.

Lower Console Functions

Mic/Line Module Type TM08
This module processes and distributes the incoming microphone or line input signals to the console and contains the following functions:— Microphone Gain — this is a continously variable control over the amplification range of 0 to 70dB and the circuitry is designed to give optimum distortion/ signal to noise performance at any setting. 48 volt phantom power is provided as standard. 'Line Gain' — this allows the electronically balanced line input amplifier to be varied by ±12dB. 'Phase' (Ø) — this reverses the phase of both the microphone and line inputs. 'Mic/Line' push-button — this selects either a microphone or tape machine replay line as the input to the module. A red LED indicates line selection and a green LED indicates mic. 'Insert In/Out' — this switches in or out of circuit the patchbay limiter/ compressor or signal processing device insertion points providing a very useful bypass facility. Associated with this facility is the 'insert Pre-Post' push-button. This selects the patchpoint for the signal processing device either before or after the equaliser in the signal chain. Pan- Pot — this can be switched in or out of circuit by a push-button and associated LED which illuminates when the pan-pot is operational. The pan-pot normally controls the placement of signals across the multi-track busses but can also route the module output to the monitor busses or directly onto the Quad/Stereo remix busses. 'Overdub' — a master 'Inputs To Remix' push-button situated in the Oscillator And Console Mode module TM05 selects all inputs to line simultaneously and renders the individual 'Mic/Line' switches inoperative. Depression of the 'Overdub' push-button allows local operation of the Mic/Line switch once again. This facility is useful during mixdown if an overdub is required. 'Auxiliary Sends' — six auxiliary send busses are available each having individual level control and pre or post fader selection. Sends 1 and 2 are via linear faders whilst 3 and 4 are rotary. Sends 5 and 6 are a stereo pair controlled by a single level control and pan-pot. 'Solo' — this mutes all other Mic/Line modules leaving Quad/Stereo image placement intact. 'AFL/PFL' — operation of this toggle switch allows the output of the Mic/Line module to be monitored in mono alone on the control room monitor speakers either pre (PFL) or post (AFL) the channel fader without interrupting the normal signal flow. 'Mute' — this kills the output signal from the Mic/Line module and an LED indicates this function. 'Auto-Mute' — modules can be pre-selected to mute simultaneously by means of the local 'Auto-Mute' push-buttons and a master illuminated push-button housed in the Oscillator-And Console Mode module TM05. When the 'Master Auto-Mute' push-button is depressed. the mute LED's indicate on the appropriate modules selected to this function. Below each Mic/Line module is a Penny & Giles conductive plastic fader designed for long life and precise level control.

Communications Module Type TM04
This module is mostly concerned with studio communications and provides the following facilities:— a high quality microphone for announcement purposes. 'Auxiliary Select' push-buttons and 'Communication Level Control' These select the auxiliary buss(es) into which an announcement is to be made and its level. The original auxiliary programme feed is only attenuated and not muted thereby maintaining continuity. 'Studio Level' — this controls the amount of studio talkback level relayed through the studio playback speakers. 'Auxiliary Talk' and 'Studio Talk' are controlled by a master illuminated push-button situated below the module and operation of this button attenuates the control room monitors by a pre-set amount. 'Slate Level' and select push-buttons — these make it possible to make an announcement directly onto

Lower Console Functions

the main console outputs or Quad/Stereo busses. A 30Hz slate tone is combined with the signal and a master 'Slate' illuminated push-button situated next to the master 'Aux/Studio' push-button initiates the slate system and attenuates the control room monitor speakers. 'Monitor Compatibility'—this combines the control room speakers to either a stereo or mono signal making it possible to check Quad-Stereo or Stereo-Mono signal compatability.

Oscillator And Console Mode Module Type TM05
This module contains the following controls:— A low distortion constant amplitude alignment oscillator continuously variable from 20Hz to 20kHz with a maximum output of +10dBm. The oscillator constantly appears at the patchbay and can also be routed to the multi-track and Quad/Stereo busses. 'Alternate Control Room Speaker Systems'—apart from the normal control room speaker system two other alternate systems may be initiated by the use of these two illuminated push-buttons. Electrical interlock disallows more than one system at a time from being used. 'Meter Couple'. 'Inputs To Remix'. 'Auto-Mute' and 'Multi-Track Monitor Mode'—these illuminated push-buttons are the master controls for functions located and described in the Mic/Line (TM08) and Monitor (TM01) modules.

Monitor Command Module Type TM06
This module mainly controls the control room speaker source and contains the following functions:— 'Monitor To Aux 5-6'—this interrupts the normal programme feed to auxiliary sends 5 and 6 and inserts a stereo mix of the control room monitor system via a level control onto the busses. An LED indicates when this function has been selected. 'PFL master'—this controls the overall level of the AFL/PFL system. The seven push-buttons and associated LED's select which source is either monitored on the control room speakers (in conjunction with the 'Quad/Stereo Play' push-button) or metered on the four large Quad/Stereo Buss meters (via the 'Quad Stereo Metering' push-button). 'Monitor Mode buttons'—these four illuminated buttons have the following functions:— 'Quad Buss'—disconnects the multi-track monitor section from the control room speakers and replaces it with the output of the quad buss. 'Stereo Buss'—is identical in function to that of the Quad Buss mode except that multi-track monitoring is replaced by the stereo buss output. When either the Quad or Stereo button is depressed, the Quad/Stereo V.U. meters read the appropriate Quad/Stereo buss levels instead of the control room monitor feeds. 'Dim'—this attenuates the monitor signal by 20dB. 'Mute'—this kills the monitor signal entirely.

Studio Playback Module Type TM07
This module controls the studio playback system (which is stereo) and has the following controls:- 'Studio Playback Select'-these eleven push-buttons and associated LED's designate the source to the studio playback speakers. The buttons are connected in series so that only one source is selected at a time. When a four track feed is selected, it is summed to stereo via combining amplifiers giving correct stereo perspective. 'Mute'-this kills the studio playback signal. 'Studio Playback Level'-this controls the amount of signal to the studio playback speakers.

Monitor Module Type TM01
Since the monitor section is 'double-banked' for compactness, this is an identical module to the one located directly above it.

Technical Specifications/Performance

Impedances	
Mic Input	1·2k ohm transformer (Jensen) balanced.
Line Inputs	Greater than 20k ohms electronically balanced.
Group Outputs	Less than 200 ohms transformer (Jensen) balanced.
All Other Outputs	Less than 50 ohms unbalanced.
Maximum Levels	
Mic Input	+ 5dBv @ 50Hz.
	+20dBv @ 1kHz.
Line Inputs	+24dBv at all frequencies.
Group Output	+30dBv at all frequencies into loads greater than 1k ohm.
	+24dBm at all frequencies into 600 ohms.
Distortion	
Mic Input	0.2% @ + 10dBm 40Hz.
	0.02% @ + 20dBm 1kHz.
	0.015% @ + 20dBm 10kHz.
Line Input	0.01% @ + 20dBm 40Hz.
	0.008% @ + 20dBm 1kHz.
	0.015% @ + 20dBm 10kHz.
Group Output	0.05% @ + 20dBm 40Hz.
	0.01% @ + 20dBm 1kHz.
	0.01% @ + 20dBm 10kHz.
Noise	
Mic Input	−125dBm 'A' weighted ref 600 ohm output.
Group Output	−75dBm 'A' weighted line input routed to one output group with faders set for unity.
Frequency Response	0.5dB 20Hz to 20kHz any input to output.

MIC/LINE MODULE TM 08

ROUTING MODULE TM 10

MONITOR MODULE TM 01

OSC & CONSOLE MODE MODULE TM 05

MONITOR COMMAND MODULE TM 06

STUDIO PLAY MODULE TM 07

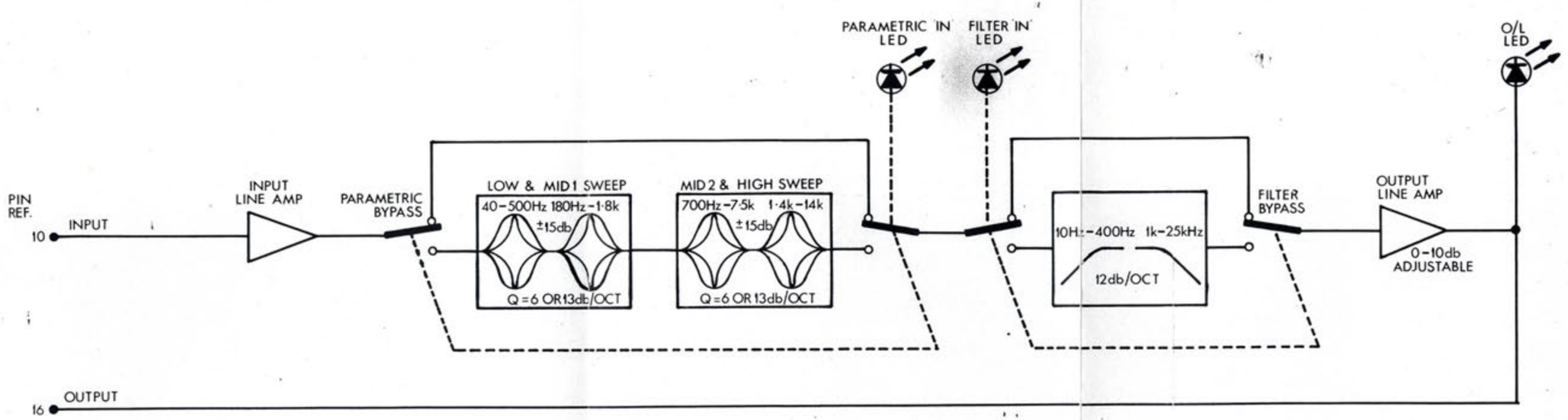
TM 04 COMMUNICATIONS MODULE

TM 03 AUX. MASTER MODULE 1

TM 03 AUX. MASTER MODULE 2

TM 02 ECHO RETURN MODULE (1 OF 4 CIRCUITS)

TITLE: T.S.M. MASTER FLOW DIAGRAM.	DRAWN BY: GARRY ROBSON DATE: 1st DECEMBER '78	CHECKED BY:	TRIDENT AUDIO DEVELOPMENTS LTD. Shepperton Studios, Shepperton, Middlesex.	DRAWING NO. EB 3834



INPUT EQUALISER TM09
SYSTEM FLOW

ED 3121

CASE EARTH (24)

CHASSIS

INPUT (15)

INPUT EARTH (18,17)

LED +ve (22)

LED EARTH (20)

OUTPUT (9)

OUTPUT EARTH (7)

+20v (13)

-20v (11)

INPUT LINE AMP

MOUNTED ON FADER

LOW FREQUENCY SWEEP

MID 1 SWEEP

MID 2 SWEEP

HIGH FREQUENCY SWEEP

HIGH PASS

LOW PASS

OUTPUT LINE AMP

LINK

IN

OUT

TYPICAL IC PIN DESIGNATION

COMPONENTS MARKED THUS * ARE MOUNTED ON SUB BOARD

IC - 11, 12

C - 33, 1, 15, 12

MOD No	MOD BY	DATE	HOLE	DESCRIPTION	No OFF	HOLE	DESCRIPTION	No OFF

MATERIAL	SCALE	DRAWN	
FINISH	PROJECTION	CHK'D BY	
TOLERANCES: All imperial dimensions ±0.01" All metric dimensions ±0.25mm. All angles ±0.50° Unless otherwise stated		ISSUE 1	DATE 18-8-78

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX.
Telephone: Chertsey 09328: 60241 Telex: 27782

TITLE: CIRCUIT DIAGRAM FOR INPUT EQUALISER MODULE T.S.M SERIES

DRAWING NUMBER: ED 3121

COMPONENT SCHEDULE

MODULE TSM EQUALISER TM09

SHEET 1 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 1	220K Resistor	Res-ox 220K ½W2
R 2	22K "	" 22K "
R 3	15K "	" 15K "
R 4	220 ohm "	" 220 "
R 5	150K "	" 150K "
R 6	6K8 "	" 6K8 "
R 7	10K "	" 10K "
R 8	220K "	" 220K "
R 9	22K "	" 22K "
R10	15K "	" 15K "
R11	22K "	" 22K "
R12	22K "	" 22K "
R13	470 ohm "	" 470 "
R14	220 ohm "	" 220 "
R15	150K "	" 150K "
R16	6K8 "	" 6K8 "
R17	220 ohm "	" 220 "
R18	10K "	" 10K "
R19	4K7 "	" 4K7 "
R20	10K "	" 10K "
R21	6K2 "	" 6K2 "
R22	6K2 "	" 6K2 "
R23	220K "	" 220K "
R24	220K "	" 220K "
R25	47K "	" 47K "
R26	12K "	" 12K "
R27	12K "	" 12K "
R28	10K "	" 10K "
R29	10K "	" 10K "
R30	4K7 "	" 4K7 "
R31	6K8 "	" 6K8 "
R32	150K "	" 150K "
R33	220 ohm "	" 220 "
R34	220 ohm "	" 220 "
R35	22K "	" 22K "
R36	470 ohm "	" 470 "

COMPONENT SCHEDULE

MODULE TSM EQUALISER TM09

SHEET 2 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R37	15K Resistor	Res-ox 15K ½W2
R38	22K "	" 22K "
R39	22K "	" 22K "
R40	22K "	" 22K "
R41	4K7 "	" 4K7 "
R42	10K "	" 10K "
R43	10K "	" 10K "
R44	220 ohm "	" 220 "
R45	6K8 "	" 6K8 "
R46	150K "	" 150K "
R47	220 ohm "	" 220 "
R48	470 ohm "	" "
R49	22K "	" 22K "
R50	10K "	" 10K "
R51	4K7 "	" 4K7 "
R52	220 ohm "	" 220 "
R53	470 ohm "	" 470 "
R54	22K "	" 22K "
R55	22K "	" 22K "
R56	220K "	" 220K "
R57	15K "	" 15K "
R58	22K "	" 22K "
R59	22K "	" 22K "
R60	270 ohm "	" 270 "
R61	270 ohm "	" 270 "
R64	18K "	" 18K "
R66	6K8 "	" 6K8 "
R67	220K "	" 220K "
R68	2K7 "	" 2K7 "
R69	220K "	" 220K "
R70	10 ohm "	" 10 "
R71	10 ohm "	" 10 "
R72	12K "	" 12K "
R73	7K5 "	" 7K5 "
R74	12K "	" 12K "
R75	47 ohm "	" 47 "

COMPONENT SCHEDULE

MODULE TSM EQUALISER TM09

SHEET 3 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R76	12K Resistor	Res-ox 12K ½W2
R77	12K "	" 12K "
R78	4K7 "	" 4K7 "
R79	220 ohm "	" 220 "
R80	220 ohm "	" 220 "
R81	220 ohm "	" 220 "
R82	220 ohm "	" 220 "
C 1	22/25v Capacitor	Cap 22M/25v Tant
C 2	100/25v " A	" 100M/25v Elec.
C 3	1500p/100v "	" 1500 Sie 5% 10m.m
C 4	.033/100v "	" .033M Sie 5% 10m.m
C 5	.033/100v "	" .033M Sie 5% 10m.m
C 6	1500p/100v "	" 1500 Sie 5% 10m.m
C 7	47p/100v "	" 47p Suflex
C 8	2200p/100v "	" 2200 Sie 5% 10m.m
C 9	2200p/100v "	" 2200 Sie 5% 10m.m
C10	0.1/100v "	" 0.1M Sie 5% 10m.m
C11	0.1/100v "	" 0.1M Sie 5% 10m.m
C12	22/25v "	" 22M/25v Tant
C13	820p/100v "	" 820p Ceramic 10m.m
C14	330p/100v "	" 330 Sie 5% 7.5m.m
C15	22/25v "	" 22M/25v Tant
C16	100/25v " A	" 100M/25v Elec.
C17	220p/100v	" 220 Sie 5% 10m.m
C18	100/25v " A	" 100M/25v Elec.
C19	1000p/100v "	" 1000 Sie 5% 10m.m
C20	1000p/100v "	" 1000 Sie 5% 10m.m
C21	47p/100v "	" 47p Suflex
C22	100/25v " A	" 100M/25v Elec.
C23	1500p/100v "	" 1500 Sie 5% 10m.m
C26	8.2nf/100v "	" 8n2 Sie 5% 7.5m.m
C27	8.2nf/100v "	" 8n2 Sie 5% 7.5m.m
C28	47p/100v "	" 47p Suflex
C29	100/25v " A	" 100/25v Elec.

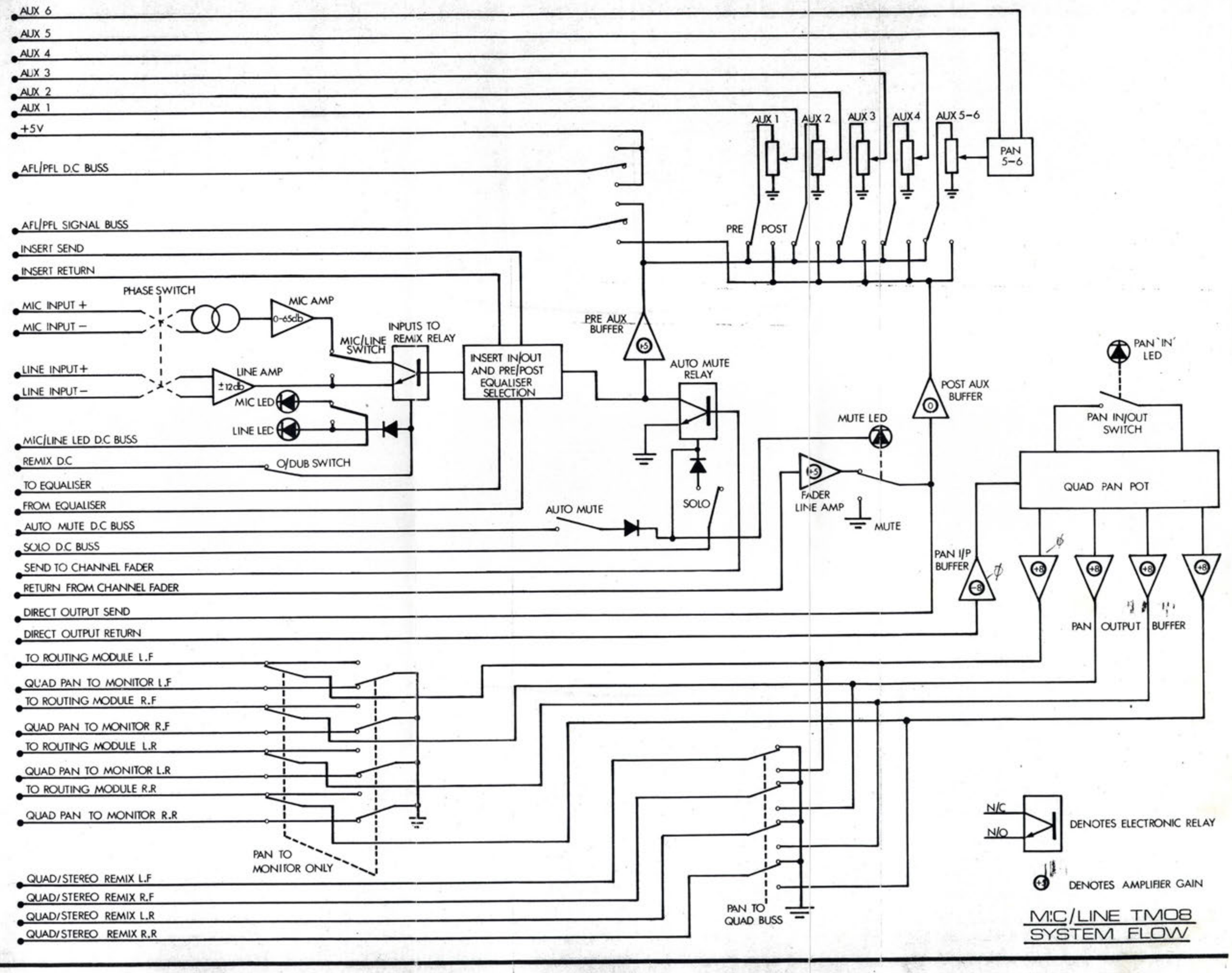
COMPONENT SCHEDULE

MODULE TSM EQUALISER TM09

SHEET 4 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
C30	1500p/100v Capacitor	Cap 1500 Sie 5% 10m.m
C31	— 22/25v "	" 22M/25v Tant
C32	— 22/25v "	" 22M/25v Tant
C33	— 22/25v "	" 22M/25v Tant
C34	0 470/25v "	" 470M/25v Elec.
C35	0 470/25v "	" 470M/25v Elec.
C36	47p/100v "	" 47p Suflex
C37	0.1/100v "	" 0.1M Sie 5% 10m.m
C38	0.1/100v "	" 0.1M Sie 5% 10m.m
C24	100/25 ■ A	Axial
C25	100/25 A	
D1-D2	1N4148	Dio 1N4148
D3-D6	1N4002	Dio 1N4002
TR1	40362	Trn 40362
TR2	40361	Trn 40361
IC1-IC11	TA 7810 or TA7814	INC TA7810 or INC TA7814
IC-12	NE5534 2/11/86 Doc	
SW1-SW2	Pushbutton Switch	SWT SCH F4UEE


AUX 6
AUX 5
AUX 4
AUX 3
AUX 2
AUX 1
+5V
AFL/PFL D.C BUSS
AFL/PFL SIGNAL BUSS
INSERT SEND
INSERT RETURN
PHASE SWITCH
MIC INPUT +
MIC INPUT −
MIC AMP
0-65db
MIC/LINE SWITCH
INPUTS TO REMIX RELAY
LINE INPUT+
LINE INPUT−
LINE AMP
±12db
MIC LED
LINE LED
MIC/LINE LED D.C BUSS
REMIX D.C
O/DUB SWITCH
TO EQUALISER
FROM EQUALISER
AUTO MUTE D.C BUSS
SOLO D.C BUSS
SEND TO CHANNEL FADER
RETURN FROM CHANNEL FADER
DIRECT OUTPUT SEND
DIRECT OUTPUT RETURN
TO ROUTING MODULE L.F
QUAD PAN TO MONITOR L.F
TO ROUTING MODULE R.F
QUAD PAN TO MONITOR R.F
TO ROUTING MODULE L.R
QUAD PAN TO MONITOR L.R
TO ROUTING MODULE R.R
QUAD PAN TO MONITOR R.R
PAN TO MONITOR ONLY
QUAD/STEREO REMIX L.F
QUAD/STEREO REMIX R.F
QUAD/STEREO REMIX L.R
QUAD/STEREO REMIX R.R
INSERT IN/OUT AND PRE/POST EQUALISER SELECTION
PRE AUX BUFFER
AUTO MUTE
AUTO MUTE RELAY
SOLO
AUX 1
AUX 2
AUX 3
AUX 4
AUX 5-6
PAN 5-6
PRE
POST
POST AUX BUFFER
MUTE LED
FADER LINE AMP
MUTE
PAN I/P BUFFER
PAN 'IN' LED
PAN IN/OUT SWITCH
QUAD PAN POT
PAN OUTPUT BUFFER
PAN TO QUAD BUSS
N/C
N/O
DENOTES ELECTRONIC RELAY
DENOTES AMPLIFIER GAIN
MIC/LINE TM08
SYSTEM FLOW

TYPICAL I.C PIN CONNECTIONS

CHASSIS EARTH (60)
-VE (59)
+VE (58) } LINE
EARTH (57)
EARTH (56)
+VE (55) } MIC
-VE (54)
+45V (52)
FADER TOP (51)
O/P OF EQ (50)
I/P OF EQ (49)
REMIX +5V (48)
INSERT SEND (45)
INSERT RET (45)
LED PEAK +5V (48)
EARTH (43)
DIRECT O/P RET (42)
DIRECT O/P SEND (40)
QUAD RMX BUSS 4 (39)
QUAD RMX BUSS 3 (38)
QUAD RMX BUSS 2 (37)
QUAD RMX BUSS 1 (36)
PAN TO MON 4 (35)
PAN TO MON 3 (34)
PAN TO MON 2 (33)
PAN TO MON 1 (32)
ROUTING MODULE 4 (31)
ROUTING MODULE 3 (30)
ROUTING MODULE 2 (29)
ROUTING MODULE 1 (28)
A.F.L/P.F.L SIGNAL BUSS (26)
AUTOMUTE D.C BUSS (23)
A.F.L/P.F.L D.C BUSS (21)
AUX BUSS 6 (19)
AUX BUSS 5 (18)
AUX BUSS 4 (17)
AUX BUSS 3 (16)
AUX BUSS 2 (15)
AUX BUSS 1 (14)
SOLO DC BUSS (12)
+20V (10)
-20V (8)
FADER WIPER (6)
L.E.D EARTH (4)
+5V (2)

NOTES

COMPONENTS MARKED THUS * ARE NOT IDENTED ON ISSUE Nº5

COMPONENT MARKED THUS ● IS WRONGLY IDENTED AS R58 ON ISS 6

MIC AMP
LINE I/P AMP
PHASE REVERSE
INSERT RETURN BUFFER
INSERT I/N OUT
INSERT PRE/POST EQ
MIC/LINE SELECT RELAY
AUTOMUTE
SOLO
AUTOMUTE/SOLO RELAY
DIRECT O/P
FADER LINE AMP
FADER WIPER
PAN I/P BUFFER
PAN IN/OUT
PAN O/P LINE AMPS
PAN TO QUAD BUSS
PAN TO MONITOR BUSS
POST FADER AUX BUFFER
PRE FADER AUX BUFFER
AUX PRE POST
10K LOG/ANTI-LOG PAN 5-6
AUX GAIN

BOARD ISSUE Nº5 ONWARDS

MOD Nº	MOD BY	DATE	HOLE	DESCRIPTION	Nº OFF	HOLE	DESCRIPTION	Nº OFF
1104	STW	4-6-79						

MATERIAL
FINISH
TOLERANCES All dimensions ±0.01. All metric dimensions ±0.25mm All angles ±0.50° Unless otherwise stated

SCALE
PROJECTION

DRAWN S.T.W
CHK'D BY
ISSUE 2
DATE 4-6-79

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone Cranleigh (09328) 60241 Telex 27782

TITLE TSM SERIES
MIC/LINE MODULE CIRCUIT DIAGRAM

DRAWING NUMBER ED 3123

COMPONENT SCHEDULE

MODULE TSM MIC/LINE MODULE TM08

SHEET 1 OF 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R1	120 ohm Resistor	Res-ox 120 ½W2
R2	270 ohm "	" " 270 "
R3	120 ohm "	" " 120 "
R4	LINK	
R5	6K2 "	" " 6K2 "
R6	4.7 ohm " TCW LINK	" " 4.7 "
R7	8K2 "	" " 8K2 "
R8	270 ohm "	" " 270 "
R9	47K "	" " 47K "
R10	220K "	" " 220K "
R11		
R12	47K "	" " 47K "
R13	220K "	" " 220K "
R14	100K "	" " 100K "
R15	1K2 "	" " 1K2 "
R16	15K "	" " 15K "
R17	10K "	" " 10K "
R18	47K "	" " 47K "
R19	7K5 "	" " 7K5 "
R20	7K5 "	" " 7K5 "
R21	7K5 "	" " 7K5 "
R22	7K5 "	" " 7K5 "
R23	7K5 "	" " 7K5 "
R24	220K "	" " 220K "
R25	3K6 "	" " 3K6 "
R26	4K7 "	" " 4K7 "
R27	220K "	" " 220K "
R28	TCW LINK	
R29		
R30		
R31		
R32	√	
R33	470K "	" " 470K "
R34	2K2 "	" " 2K2 "
R35	18K "	" " 18K "
R36	470K "	" " 470K "

COMPONENT SCHEDULE

MODULE TSM MIC/LINE TM08

SHEET 2 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R37		
R38		
R39	470K Resistor	Res-ox 470K ½W2
R40		
R41	470K "	" " 470K "
R42	680 ohm "	" " 680 "
R43	7K5 " 6K8	" " 7K5 "
R44	7K5 " 6K8	" " 7K5 "
R45	30K " 33K	" " 30K "
R46	30K "	" " 30K "
R47	47K "	" " 47K "
R48	4K7 " 47K	" " 4K7 "
R49	TCW	
R50	6K8 "	" " 6K8 "
R51	6K8 "	" " 6K8 "
R52	56K "	" " 56K "
R53	220K "	" " 220K "
R54	AOT	
R55	5K6 "	" " 5K6 "
R56	5K6 "	" " 5K6 "
R57	5K6 "	" " 5K6 "
R58	5K6 "	" " 5K6 "
R59	15K "	" " 15K "
R60	15K " 75K	" " 15K "
R61	150K "	" " 150K "
R62	12K "	" " 12K "
R63	220K "	" " 220K "
R64	2K7 "	" " 2K7 "
R65	AOT	
R66	AOT	
R67	12K "	" " 12K "
R68	12K "	" " 12K "
R69	12K "	" " 12K "
R70	12K "	" " 12K "
R71	12K "	" " 12K "
R72	12K "	" " 12K "

COMPONENT SCHEDULE

MODULE TSM MIC/LINE TM08

SHEET 3 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R73	12K Resistor	Res-ox 12K ½W2
R74	12K "	" " 12K "
R75	12K "	" " 12K "
R76	12K "	" " 12K "
R77	12K "	" " 12K "
R78	12K "	" " 12K "
R79	12K "	" " 12K "
R80	12K "	" " 12K "
R81	12K "	" " 12K "
R82	560 ohm "	" " 560 "
R83	7K5 " 6K2	" " 7K5 "
R84	7K5 " 16K 2	" " 7K5 "
R85	220K "	" " 220K "
R86	220K "	" " 220K "
R87	220K "	" " 220K "
R88	56K "	" " 56K "
C1	— 22/25V Capacitor NOT FITTED	Cap 22M 25V Tant
C2		
C3	— 22/25V "	" 22M 25V "
C4	V	
C5	— 22/25V " 100@10	" 22M 25V "
C6		
C7	— 22/25V " 100@10	" 22M 25V "
C8	— 22/25V "	" 22M 25V "
C9	— 22/25V "	" 22M 25V "
C10	— 22/25V "	" 22M 25V "
C11	— 22/25V "	" 22M 25V "
C12	470M 25V "	" 470M 25V Elec
C13	470M 25V "	" 470M 25V "
C14	470M 6V "	" 470M 6V "
C15	— 22/25V "	" 22M 25V Tant
C16	47M 16V " 100@10	" 47M 16V "
C17		
C18	—2/25V "	" 22M 25V "

COMPONENT SCHEDULE

MODULE TSM MIC/LINE TM08

SHEET 4 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
C19	22/25V Capacitor 100@10	Cap 22M 25V Tant
C20	22/25V " 100@10	" 22M 25V "
C21	22/25V "	" 22M 25V "
C22		
C23	22/25V "	" 22M 25V "
C24	22/25V " 100@10	" 22M 25V "
C25	22/25V " 100@10	" 22M 25V "
C26	22/25V "	" 22M 25V "
C27		
C28	22/25V " 100@10	" 22M 25V "
C29	470M 6V "	" 470M 6V Elec
C30	22/25V "	" 22M 25V Tant
C31	22/25V "	" 22M 25V "
C32	22/25V "	" 22M 25V "
C33	22/25V "	" 22M 25V "
C34	22/25V " 100@10	" 22M 25V "
C35	22/25V "	" 22M 25V "
C36	22/25V "	" 22M 25V "
C37	22/25V "	" 22M 25V "
C38		
C39	15PF CER 100V "	" 15PF CER 100V
C40	10NF 250V "	" 10NF 250V SIE
C41	100PF 68V Ceramic	" 100PF 68V Ceramic
C42	100PF " "	" 100PF 68V "
C43	10/35V Capacitor 100N CER S14	" 10M 35V Tant
C44	10/35V "	" 10M 35V "
D-1,2,3,11,	IN4002	DIO IN4002
D12,	IN4002	DIO IN4002
D-6,9,10	IN4148	DIO IN4148
Q1 to 7	BC109C BC413	TRN BC109C

COMPONENT SCHEDULE

MODULE TSM MIC/LINE TM08

SHEET 5 OF 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
IC 1 to 13	TA7810 OR TA7814 TL071	INC TA7810 OR INC TA7814
IC 14	NE538N	INC 538N
~~IC 15~~	NE5534 2/11/86 Doc	
IC 425		
IC4	604 AG BB	

UNLESS OTHERWISE STATED ALL DIMS IN

REMOVE ALL BURRS AND SHARP EDGES

ANGLE PROJECTION

DRAWING NUMBER ED3124

CHASSIS EARTH(60)

LED EARTH (57)

AUX BUSS 6 (51)
AUX BUSS 5 (50)
AUX BUSS 2 (49)
AUX BUSS 1 (48)

QUAD BUSS 4 (45)
QUAD BUSS 3 (44)
QUAD BUSS 2 (43)
QUAD BUSS 1 (42)

OVERDUB DC BUSS (40)

-20V (38)

+20V (36)

METER FEED (34)

METER COUPLE +VE (32)

GROUP BUFFER +VE (30)

GROUP BUFFER -VE (29)

MONITOR RETURN +VE (27)

MONITOR RETURN -VE (26)

TAPE DC BUSS (24)

MONITOR BUSS 4 (22)
MONITOR BUSS 3 (21)
MONITOR BUSS 2 (20)
MONITOR BUSS 1 (19)

SOLO BUSS DC (17)

+5V (LED) (15)

GROUP OUTPUT +VE (13)

GROUP OUTPUT -VE (11)

EARTH (10) (9) (8)

GROUP FADER WIPER (6)

GROUP INSERT RETURN -VE (4)

GROUP INSERT RETURN +VE (3)

GROUP FADER TOP (2)

COMPONENTS MARKED THUS * ARE NOT IDENTED ON ISSUE 4

TYPICAL IC PIN CONNECTIONS

BOARD ISS.4 ONWARDS

AUXILIARY PRE-POST

AUX SEND 1

POST FADE AUX SEND BUFFER

PAN TO QUAD BUSS IN/OUT

PAN O/P LINE AMPS

QUAD PAN POT

METER COUPLE RELAY

METER

GROUP MONITOR BUFFER

TAPE BUFFER

MIXER TAPE RELAY

HF/LF EQUALISER

EQ IN/OUT

PRE-FADE AUX SEND BUFFER

FADER REV

GROUP INSERT RETURN BUFFER

MONITOR FADER

GROUP O/P LINE AMP

MONITOR LINE AMP

SOLO SW4

MONITOR MUTE SW.1

SOLO BUSS DC

MOD NO	MOD BY	DATE	HOLE	DESCRIPTION	NO OFF	HOLE	DESCRIPTION	NO OFF
1061	SMO	8-5-79						

MATERIAL

FINISH

SCALE

PROJECTION

TOLERANCES
All imperial dimensions ±0.01" All metric dimensions ±0.25mm
All angles ±0.50° Unless otherwise stated

DRAWN STW

CHK'D BY

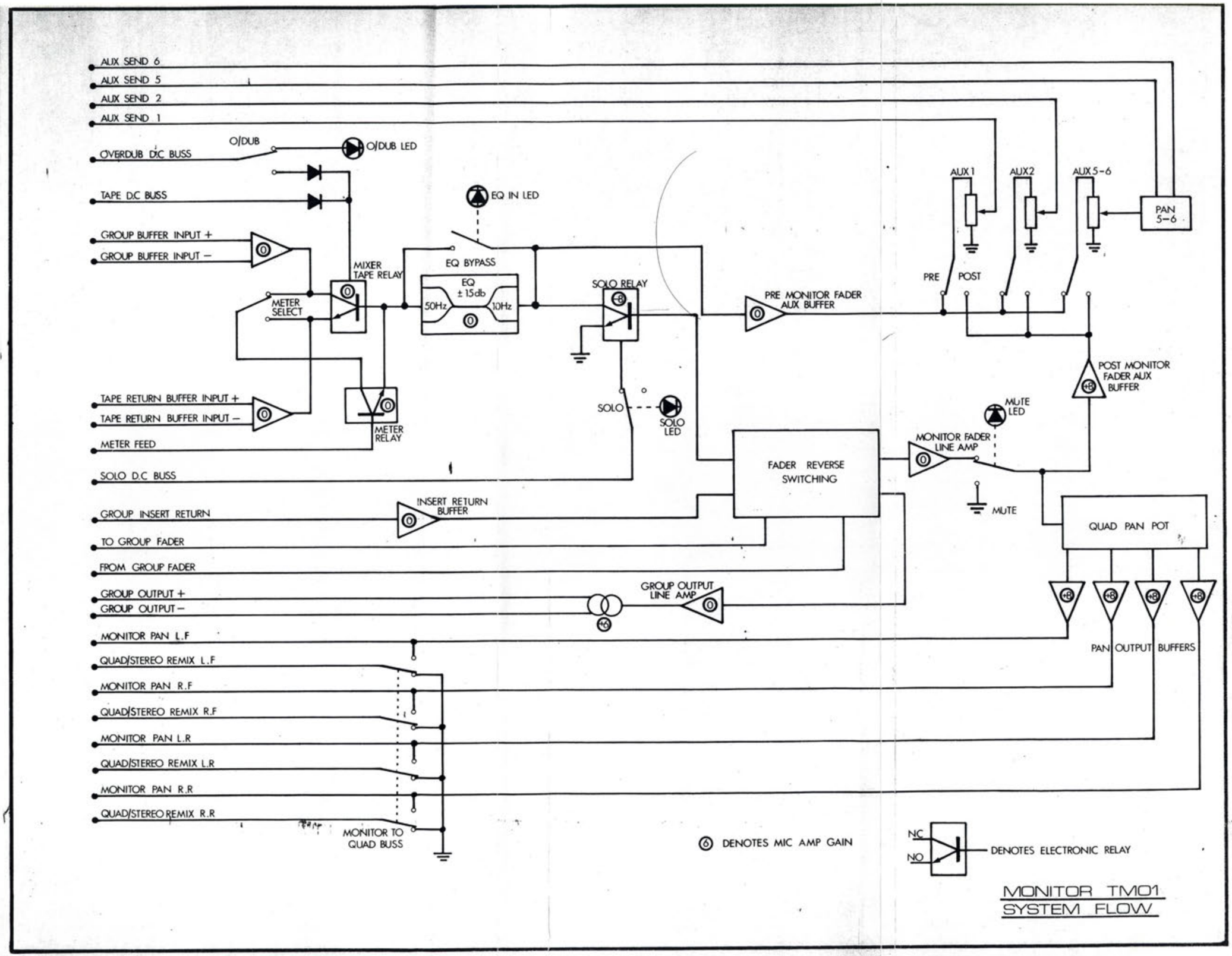
ISSUE 2

DATE 4-5-79

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone Chertsey (09328) 60241 Telex 27782

TITLE TSM SERIES MONITOR MODULE

DRAWING NUMBER ED3124



MONITOR TM01 SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM MONITOR MODULE TM0I

SHEET 1 **OF** 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R1	270 ohm Resistor	Res-ox 27 ½W2
R2	1K2 "	" " 1K2
R3	220 ohm "	" " 220 "
R4	220K "	" " 220K "
R5	220K "	" " 220K "
R6	47K "	" " 47K "
R7		
R8	180 ohm "	" " 180 "
R9	220K "	" " 220K "
R10	100K "	" " 100K "
R11	100 ohm "	" " 100 "
R12	47K "	" " 47K "
R13	15K "	" " 15K "
R14		
R15	220K "	" " 220K "
R16	47K "	" " 47K "
R17		
R18	470 ohm "	" " 470 "
R19	7K5 "	" " 7K5 "
R20	7K5 "	" " 7K5 "
R21	15K "	" " 15K "
R22	15K "	" " 15K "
R23	47 ohm "	" " 47 "
R24	7K5 "	" " 7K5 "
R25	12K "	" " 12K "
R26	470K "	" " 470K "
R27		
R28		
R29	27 ohm "	" " 27 "
R30	270 ohm "	" " 270 "
R31	220K "	" " 220K "
R32	12K "	" " 12K "
R33	12K "	" " 12K "
R34	12K "	" " 12K "
R35	220K "	" " 220K "
	"	" " 220K "

COMPONENT SCHEDULE

MODULE TSM MONITOR TM01
SHEET 2 OF 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R37	12K Resistor	Res-ox 12K ½W2
R38	470K "	" " 470K "
R39		
R40		
R41	470K "	" " 470K "
R42		
R43		
R44	470K "	" " 470K "
R45		
R46		
R47	220K "	" " 220K "
R48	220K "	" " 220K "
R49	4K7 "	" " 4K7 "
R50	12K "	" " 12K "
R51	150K "	" " 150K "
R52	12K "	" " 12K "
R53	1K "	" " 1K "
R54	1K "	" " 1K "
R55	150K "	" " 150K "
R56	1k5 "	" " 1K5 "
R57	1K5 "	" " 1K5 "
R58	470K "	" " 470K "
R59	2K2 "	" " 2K2 "
R60	4K7 "	" " 4K7 "
R61	300 ohm "	" " 300 "
R62	680 ohm "	" " 680 "
R63	300 ohm "	" " 300 "
R64	10K "	" " 10K "
R65	2K2 "	" " 2K2 "
R66	680 ohm "	" " 680 "
R67	18K "	" " 18K "
R68	12K "	" " 12K "
R69	12K "	" " 12K "
R70	12K "	" " 12K "
R71	12K "	" " 12K "
R72	12K "	" " 12K "

COMPONENT SCHEDULE

MODULE TSM MONITOR TMOI

SHEET 3 **OF** 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R73	12K Resistor	Res-ox 12K ½W2
R74	12K "	" " 12K "
R75	12K "	" " 12K "
R76	12K "	" " 12K "
R77	220K "	" " 220K "
R78	220K "	" " 220K "
R79	220K "	" " 220K "
R80	220K "	" " 220K "
R81	12K "	" " 12K "
R82	12K "	" " 12K "
R83	12K "	" " 12K "
R84	12K "	" " 12K "
R85	12K "	" " 12K "
R86	"	" " "
R87		
R88	12K "	" " 12K "
R89	12K "	" " 12K "
R90	12K "	" " 12K "
R91	12K "	" " 12K "
R92	680 ohm "	" " 680 "
R93	18K "	" " 18K "
R94	2K2 "	" " 2K2 "
R95	10K "	" " 10K "
R96	30K "	" " 30K "
R97	680 ohm "	" " 680 "
R98	15K "	" " 15K "
R99	2K2 "	" " 2K2 "
R100	15K "	" " 15K "
R101	15K "	" " 15K "
R102		
R103	15K "	" " 15K "
R104	47K "	" " 47K
R105		
R106		
R107	47K "	" " 47K

COMPONENT SCHEDULE

MODULE TSM MONITOR TM01

SHEET 4 OF 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R109	270 ohm Resistor	Res-ox 270 ½W2
R110	2K2 "	" " 2K 2 "
R111	2K2 "	" " 2K2 "
R112	7K5 "	" " 7K5 "
R113	270 ohm "	" " 270 "
R114	120 ohm "	" " 120 "
R115	220K "	" " 220K "
C1	22/25V Capacitor	Cap 22M 25V Tant
C2	22/25V "	" 22M 25V "
C3		
C4	22/25V "	" 22M 25V "
C5	10N/100V "	" 10NF 100V SIE
C6	22/25V "	" 22M 25V Tant
C7		
C8		
C9	22/25V "	" 22M 25V "
C10	22/25V "	" 22M 25V "
C11	22/25V "	" 22M 25V "
C12	22/25V "	" 22M 25V "
C13	22/25V "	" 22M 25V "
C14		
C15	22/25V "	" 22M 25V "
C16		
C17	22/25V "	" 22M 25V "
C18	22/25V "	" 22M 25V "
C19	22/25V "	" 22M 25V "
C20	22/25V "	" 22M 25V "
C21		
C22	22/25V "	" 22M 25V "
C23	22/25V "	" 22M 25V "
C24		
C25	22/25V "	" 22M 25V "
C26	22/25V "	" 22M 25V "
		" 22M 25V "

COMPONENT SCHEDULE

MODULE TSM MONITOR TM01

TRIDENT

P.C.B No	DESCRIPTION	PART No
C28		
C29	22/25V Capacitor	Cap 22M 25V Tant
C30	470/6V "	" 470M 6V Elec
C31	22/25V "	" 22M 25V Tant
C32	22/25V "	" 22M 25V "
C33	22/25V "	" 22M 25V "
C34	100/25V "	" 100M 25V Elec
C35		
C36		
C37	470/100V "	" 470M 100V SIE
C38	.47/100V "	" .47M 100V "
C39	22/25V "	" 22M 25V Tant
C40	22/25V "	" 22M 25V "
C41		
C42	22/25V "	" 22M 25V "
C43		
C44		
C45		
C46	22/25V "	" 22M 25V "
C47	22/25V "	" 22M 25V "
C48		
C49		
C50	470/25V "	" 470M 25V Elec
C51	22/25V "	" 22M 25V Tant
C52	22/25V "	" 22M 25V "
C53	22/25V "	" 22M 25V "
C54	22/25V "	" 22M 25V "
C55	22/25V "	" 22M 25V "
C56		
C57		
C58	22/25V "	" 22M 25V "
C59	22/25V "	" 22M 25V "
C60		
C 61	22/25V "	" 22M 25V "
C62		
	470/25V "	" 470M 25V Elec

COMPONENT SCHEDULE

MODULE TSM MONITOR TM01

SHEET 6 OF 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
D1	IN4002	DIO IN4002
D2		
D3		
D4	IN4148	" IN4148
D5	IN4148	" IN4148
D6	IN4148	" IN4148
D7	IN4002	" IN4002
D8	IN4002	" IN4002
Q1	BC109C	TRN BC109C
Q2	40362 OR BD 520	"40362 OR BD520
Q3	40361 OR BD 519	" 40361 OR BD519
Q4	BC109C	" BC109C
Q5	BC109C	" BC109C
Q6	BC109C	" BC109C
Q7	BC109C	" BC109C
Q8	BC109C	" BC109C
Q9	BC109C	" BC109C
Q10	BC109C	" BC109C
Q11	BC109C	" BC109C
Q12	BC109C	" BC109C
IC-9,[redacted],[redacted]	NE538	IC NE538
IC-1,2,3,4,13+14	TA7810 OR TA7814	IC TA7810 OR TA7814
IC-5,6,7,8,9,	TA7810 OR TA7814	IC TA7810 OR TA7814
IC-10,11,12,	TA7810 OR TA7814	IC TA7810 OR TA7814
IC-15,16,17	TA7810 OR TA7814	IC TA7810 OR TA7814

UNLESS OTHERWISE STATED ALL DIMS IN —— REMOVE ALL BURRS AND SHARP EDGES —— ANGLE PROJECTION

DRAWING NUMBER ED.3139

THERMAL I.C CONNECTIONS

MAIN PCB (CB9135)

SUB PCB (CB9136)

CHASSIS EARTH (40)
ELECTRONICS EARTH (39)
GROUP MIX AMP OUTPUT (35)
GROUP MIX AMP INPUT (33)
-20V (32)
+20V (31)
R/R (30)
ASSIGMENT SWITCHING INPUTS L/R (29)
R/F (28)
L/F (27)
L.E.D EARTH (26)
+5D.C (25)
(24)
(23)
(22)
(21)
(20)
(19)
(18)
(17)
(16)
(15)
(14)
(13)
(12)
(11)
(10)
(9)
(8)
(7)
(6)
(5)
(4)
(3)
(2)
(1)
GROUP BUSSES
STEREO LINK
STEREO LINK

MOD NO	MOD BY	DATE	MODE	DESCRIPTION	NO OFF	HOLE	DESCRIPTION	NO OFF

MATERIAL —— SCALE —— DRAWN G. ROBSON

FINISH —— PROJECTION —— CHK'D BY

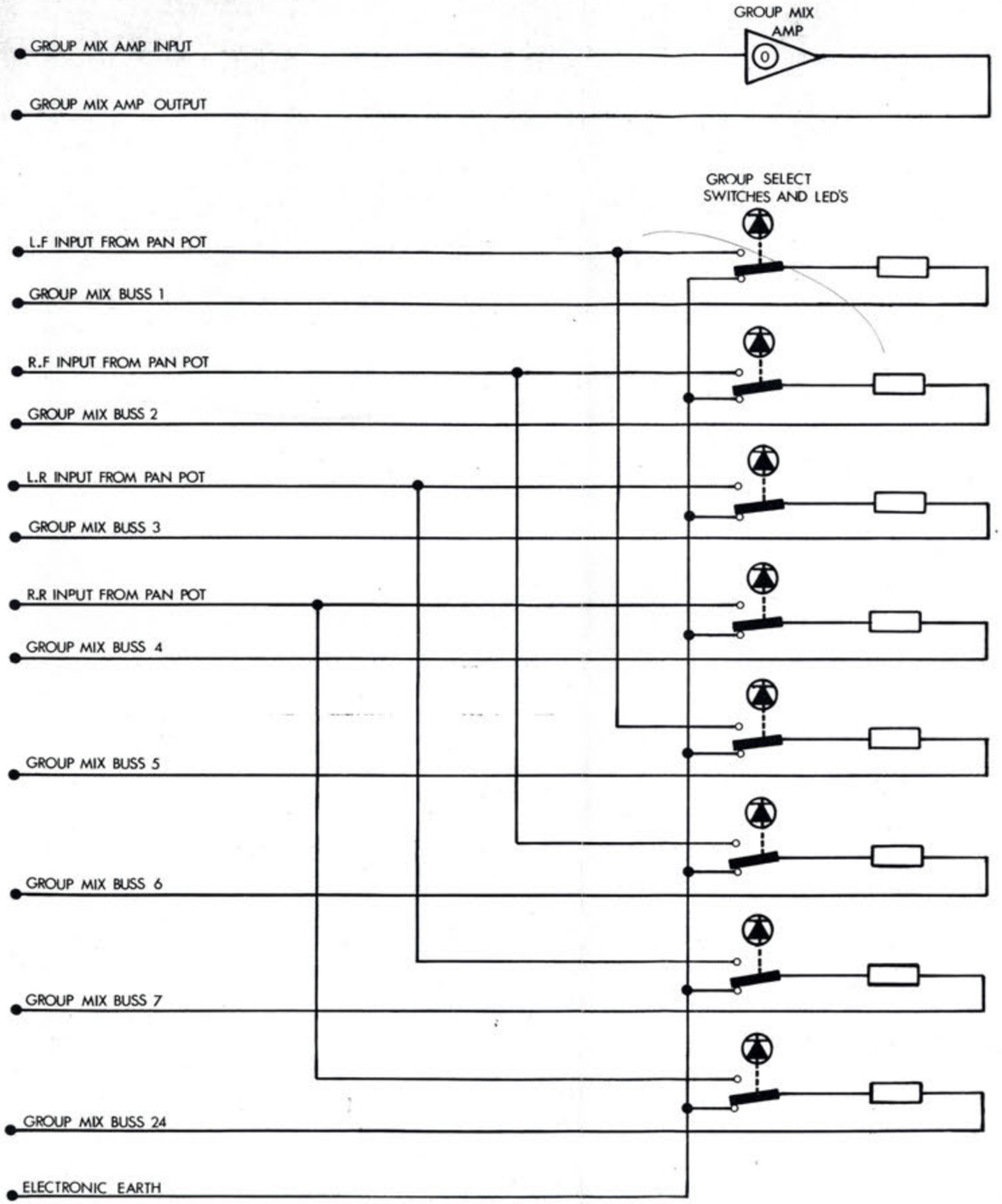
TOLERANCES
All imperial dimensions ±0·01" All metric dimensions ±0·25mm
All angles ±0·50° Unless otherwise stated

ISSUE 1 DATE 9-JAN-79

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone: Chertsey 109328 60241 Telex 27782

TITLE
T.S.M. SERIES
ROUTING MODULE
CIRCUIT DIAGRAM

DRAWING NUMBER ED.3139



(0) DENOTES AMPLIFIER GAIN

ROUTING TM10
SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM ROUTING MODULE TM10

SHEET 1 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 1	12K Resistor	Res-ox 12K ½W2
R 2	27 ohm "	" " 27 "
R 3	12K "	" " 12K "
R 4	27 ohm "	" " 27 "
R 5	12K "	" " 12K "
R 6	27 ohm "	" " 27 "
R 7	12K "	" " 12K "
R 8	27 ohm "	" " 27 "
R 9	12K "	" " 12K "
R10	27 ohm "	" " 27 "
R11	12K "	" " 12K "
R12	27 ohm "	" " 27 "
R13	12K "	" " 12K "
R14	27 ohm "	" " 27 "
R15	12K "	" " 12K "
R16	27 ohm "	" " 27 "
R17	12K "	" " 12K "
R18	27 ohm "	" " 27 "
R19	12K "	" " 12K "
R20	27 ohm "	" " 27 "
R21	12K "	" " 12K "
R22	27 ohm "	" " 27 "
R23	12K "	" " 12K "
R24	27 ohm "	" " 27 "
R25	220 " "	" " 220 "
R26	220 " "	" " 220 "
R27	220 " "	" " 220 "
R28	220 " "	" " 220 "
R29	220 " "	" " 220 "
R30	220 " "	" " 220 "
R31	220 " "	" " 220 "
R32	220 " "	" " 220 "
R33	220 " "	" " 220 "
R34	220 " "	" " 220 "
R35	220 " "	" " 220 "
R36	220 " "	" " 220 "

COMPONENT SCHEDULE

MODULE TSM ROUTING MODULE TM10

SHEET 2 OF 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R37	220 ohm Resistor	Res-ox 220 ½W2
R38	220 " "	" " 220 "
R39	220 " "	" " 220 "
R40	220 " "	" " 220 "
R41	220 " "	" " 220 "
R42	220 " "	" " 220 "
R43	220 " "	" " 220 "
R44	220 " "	" " 220 "
R45	220 " "	" " 220 "
R46	220 " "	" " 220 "
R47	220 " "	" " 220 "
R48	220 " "	" " 220 "
R49	27 " "	" " 27 "
R50	12K "	" " 12K "
R51	27 ohm "	" " 27 "
R52	12K "	" " 12K "
R53	27 ohm "	" " 27 "
R54	12K "	" " 12K "
R55	27 ohm "	" " 27 "
R56	12K "	" " 12K "
R57	27 ohm "	" " 27 "
R58	12K "	" " 12K "
R59	27 ohm "	" " 27 "
R60	12K "	" " 12K "
R61	27 ohm "	" " 27 "
R62	12K "	" " 12K "
R63	27 ohm "	" " 27 "
R64	12K "	" " 12K "
R65	27 ohm "	" " 27 "
R66	12K "	" " 12K "
R67	27 ohm "	" " 27 "
R68	12K "	" " 12K "
R69	27 ohm "	" " 27 "
R70	12K "	" " 12K "
R71	27 ohm "	" " 27 "
R72	12K "	" " 12K "

COMPONENT SCHEDULE

MODULE TSM ROUTING MODULE TM10

SHEET 3 OF 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R73	33K Resistor 12K	Res-ox 33K ½W2
R74	10 ohm "	" " 10 "
R75	10 " "	" " 10 "
R76	7K5 "	" " 7K5 "
R77	12K "	" " 12K "
R78	12K " 4K7	" " 12K "
R79	4K7 "	" " 4K7 "
R80	220K	" " 220K "
C 1	22/25V Capacitor	Cap 22M/25V Tant
C 2	22/25V "	" 22M/25V "
C 3	22/25V "	" 22M/25V "
C 4	22/25V "	" 22M/25V "
C 5	22/25V "	" 22M/25V "
C 6	22/25V "	" 22M/25V "
C 7	22/25V "	" 22M/25V "
C 8	22/25V "	" 22M/25V "
C 9	22/25V "	" 22M/25V "
C10	22/25V "	" 22M/25V "
C11	22/25V "	" 22M/25V "
C12	22/25V "	" 22M/25V "
C13	22/25V "	" 22M/25V "
C14	22/25V "	" 22M/25V "
C15	22/25V "	" 22M/25V "
C16	22/25V "	" 22M/25V "
C17	22/25V "	" 22M/25V "
C18	22/25V "	" 22M/25V "
C19	22/25V "	" 22M/25V "
C20	22/25V "	" 22M/25V "
C21	22/25V "	" 22M/25V "
C22	22/25V "	" 22M/25V "
C23	22/25V "	" 22M/25V "
C24	22/25V "	" 22M/25V "
C25	22/25V "	" 22M/25V "
C26	100/25V "	" 100M 25V Tant

COMPONENT SCHEDULE

MODULE TSM ROUTING MODULE TM10

SHEET 4 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
C27	22/25V Capacitor	Cap 22M/25V Tant
C28	330pf/400V "	" 330pf/400V 5%
D1-D2	IN4148	DIO IN4148
Q1	40362	TRN40362
Q2	40361	" 40361
IC 1-2	TA7810 or 7814	Inc7810 or Inc7814
IC-2	NE 5534 2/4/84 Doc	
SW1 - 24	Push-Button	SWT SCH F2UEE

UNLESS OTHERWISE STATED ALL DIMS IN | REMOVE ALL BURRS AND SHARP EDGES | ANGLE PROJECTION | DRAWING NUMBER ED3136

PIN NUMBERS SHOWN THUS (23)

TYPICAL IC. PIN CONNECTIONS

ELECTRONICS EARTH(60)
L.E.D EARTH(57)
AUX BUSS 6 (51)
AUX BUSS 5(50)
QUAD/STEREO BUSS R/R(45)
QUAD/STEREO BUSS L/R(44)
QUAD/STEREO BUSS R/F(43)
QUAD/STEREO BUSS L/F(42)
-20V(38)
+20V(36)
ECHO RTN SIGNAL 10R2+(28)
ECHO RTN SIGNAL 10R2-(26)
MONITOR BUSS R/R(22)
MONITOR BUSS L/R(21)
MONITOR BUSS R/F(20)
MONITOR BUSS L/F(19)
+5V(17)
SOLO D.C BUSS(12)
A.F.L/P.F.L SIGNAL BUSS(10)
A.F.L/P.F.L D.C BUSS(8)
AUTO MUTE D.C BUSS(5)
ECHO RTN SIGNAL 30R4-(4)
ECHO RTN SIGNAL 30R4+(2)
ELECTRONICS EARTH(1)

BALANCED I/P BUFFER
PRE-FADE BUFFER
AUX 5/6 LEVEL
AUX 5/6 PAN
ECHO RET. LEVEL
EQ I/P BUFFER
EQ. IN/OUT
EQ. AMP
SOLO/AUTO-MUTE RELAY
MUTE
AUTO MUTE
SOLO
QUAD PAN POT
PAN O/P LINE AMP L.F.
PAN O/P LINE AMP R.F.
PAN O/P LINE AMP L.R.
PAN O/P LINE AMP R.R.
PAN TO MONITOR

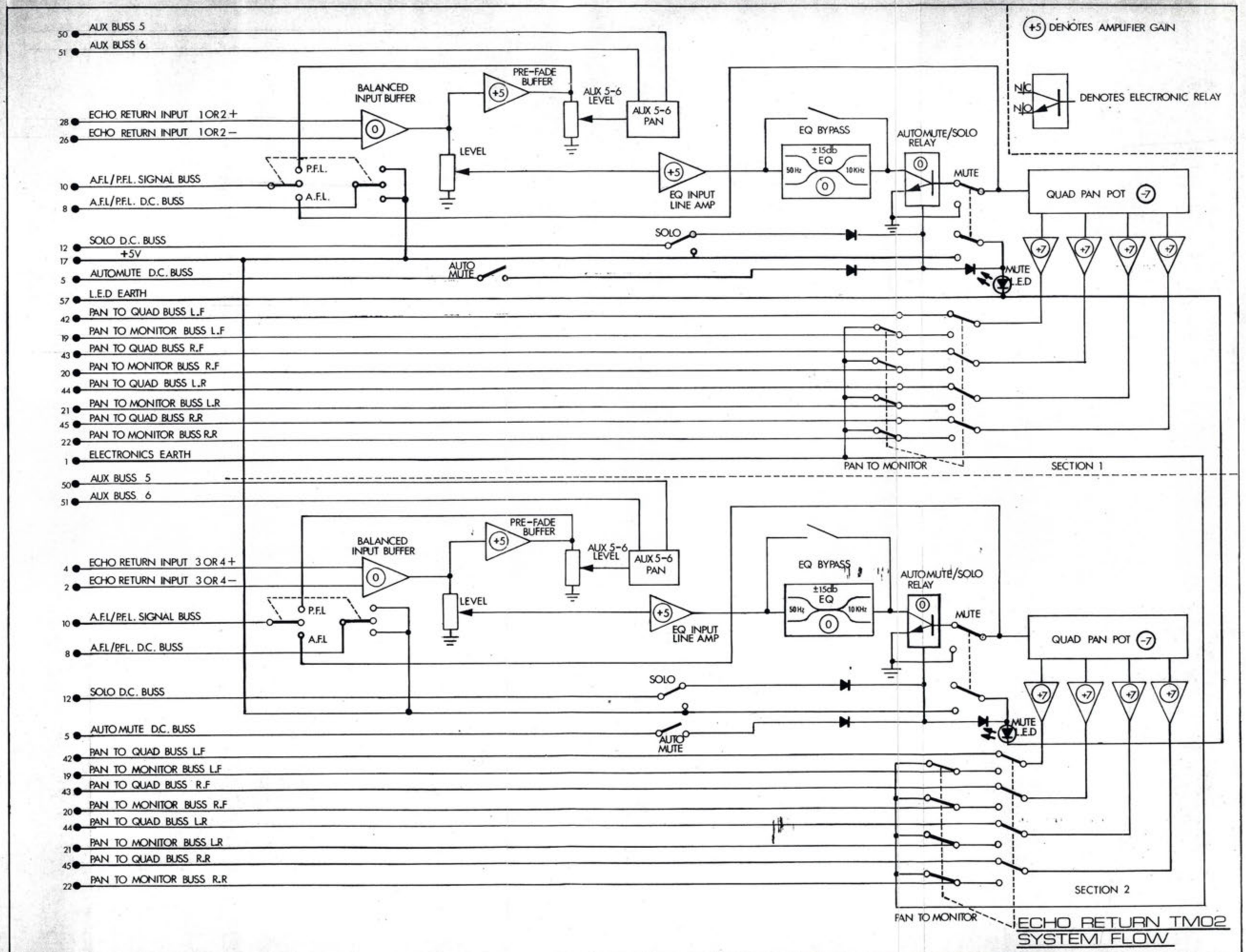
COMPONENTS MARKED THUS * ARE UNMARKED ON P.C.B.

COMPONENTS MARKED THUS • MOUNTED ON UNDERSIDE OF P.C.B.

MOD Nº	MOD BY	DATE	HOLE	DESCRIPTION	Nº OFF	HOLE	DESCRIPTION	Nº OFF

MATERIAL	SCALE	DRAWN STW	TITLE T.S.M SERIES ECHO RETURN MODULE CIRCUIT DIAGRAM
FINISH	PROJECTION	CHK'D BY	
TOLERANCES All imperial dimensions ±0.01" All metric dimensions ±0.25mm All angles ±0.50° Unless otherwise stated		ISSUE 1 / DATE 8-1-79	DRAWING NUMBER ED3136

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
telephone Chertsey (09328) 60241 telex 27782



ECHO RETURN TM02
SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM ECHO RETURN TM02

SHEET 1 OF 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 1	15K Resistor	Res-ox 15K ½W2
R 2	12K "	" " 12K "
R 3	47K "	" " 47K "
R 4	15K "	" " 15K "
R 5	12K "	" " 12K "
R 6	47K "	" " 47K "
R 7	15K "	" " 15K "
R 8	12K "	" " 12K "
R 9	47K "	" " 47K "
R10	15K "	" " 15K "
R11	12K "	" " 12K "
R12	47K "	" " 47K "
R13	18K "	" " 18K "
R15	18K "	" " 18K "
R16	47K "	" " 47K "
R17	47K "	" " 47K "
R18	47K "	" " 47K "
R20	100K "	" " 100K "
R21	1K "	" " 1K "
R22	12K "	" " 12K "
R23	12K "	" " 12K "
R24	12K "	" " 12K "
R25	12K "	" " 12K "
R26	47K "	" " 47K "
R27	8K2 "	" " 8K2 "
R28	1K3 "	" " 1K3 "
R29	100K "	" " 100K "
R30	100K "	" " 100K "
R31	150K "	" " 150K "
R32	150K "	" " 150K "
R33	5K6 "	" " 5K6 "
R34	1K "	" " 1K "
R35	10K "	" " 10K "
R36	1K "	" " 1K "
R37	1K5 "	" " 1K5 "
R38	12K "	" " 12K "

COMPONENT SCHEDULE

MODULE TSM ECHO RETURN TM02

SHEET 2 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R39	12K Resistor	Res-ox 12K ½W2
R40	4K7 "	" " 4K7 "
R41	1K5 "	" " 1K5 "
R42	270 ohm "	" " 270 "
R43	12K "	" " 12K "
R44	12K "	" " 12K "
R45	12K "	" " 12K "
R46	12K "	" " 12K "
R47	12K "	" " 12K "
R48	12K "	" " 12K "
R49	12K "	" " 12K "
R50	12K "	" " 12K "
R51	12K "	" " 12K "
R52	12K "	" " 12K "
R53	47K "	" " 47K "
R54	12K "	" " 12K "
R55	15K "	" " 15K "
R56	47K "	" " 47K "
R57	12K "	" " 12K "
R58	15K "	" " 15K "
R59	47K "	" " 47K "
R60	12K "	" " 12K "
R61	15K "	" " 15K "
R62	47K "	" " 47K "
R63	12K "	" " 12K "
R64	15K "	" " 15K "
R65	18K "	" " 18K "
R67	18K "	" " 18K "
R68	47K "	" " 47K "
R69	47K "	" " 47K "
R70	47K "	" " 47K "
R72	100K "	" " 100K "
R73	1K "	" " 1K "
R74	270 ohm "	" " 270 "
R75	12K "	" " 12K "
R76	12K "	" " 12K "

COMPONENT SCHEDULE

MODULE TSM ECHO RETURN TM02

SHEET 3 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R77	12K Resistor	Res-ox 12K ½W2
R78	12K "	" " 12K "
R79	47K "	" " 47K "
R80	8K2 "	" " 8K2 "
R81	100K "	" " 100K "
R83	12K "	" " 12K "
R84	12K "	" " 12K "
R85	12K "	" " 12K "
R86	12K "	" " 12K "
R87	12K "	" " 12K "
R88	12K "	" " 12K "
R89	12K "	" " 12K "
R90	12K "	" " 12K "
R91	12K "	" " 12K "
R92	12K "	" " 12K "
R93	12K "	" " 12K "
R94	12K "	" " 12K "
R95	100K "	" " 100K "
R96	150K "	" " 150K "
R97	150K "	" " 150K "
R98	5K6 "	" " 5K6 "
R99	10K "	" " 10K "
R100	1K "	" " 1K "
R101	1K5 "	" " 1K5 "
R102	4K7 "	" " 4K7 "
R103	12K "	" " 12K "
R104	1K5 "	" " 1K5 "
R105	1K "	" " 1K "
R106	12K "	" " 12K "
R107	620 ohm "	" " 620 "
R108	620 " "	" " 620 "
C 1	22/25V Capacitor	Cap 22M 25V Tant
C 2	22p/100V "	" 22p Polyester
C 3	22/25V "	" 22M 25V Tant

COMPONENT SCHEDULE

MODULE TSM ECHO RETURN TM02

SHEET 4 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
C 4	22p/100V Capacitor	Cap 22p Polyester
C 5	22/25V "	" 22M 25V Tant
C 6	22p/100V "	" 22p Polyester
C 7	22/25V "	" 22M 25V Tant
C 8	22p/100V "	" 22p Polyester
C 9	22/25V "	" 22M 25V Tant
C10	22/25V "	" 22M 25V "
C11	22/25V "	" 22M 25V "
C12	22/25V "	" 22M 25V "
C14	100/3V "	" 100M 3V "
C15	22/25V "	" 22M 25V "
C18	22/25V "	" 22M 25V "
C19	22/25V "	" 22M 25V "
C20	22/25V "	" 22M 25V "
C21	22/25V "	" 22M 25V "
C23	22/25V "	" 22M 25V "
C27	22/25V "	" 22M 25V "
C28	22/25V "	" 22M 25V "
C29	0.47/100V "	" 0.47 100V Sie 5% 7.5m.m.
C30	22/25V "	" 22M 25V Tant
C31	470p/400V "	" 470p 400V Wima 10% 10m.m.
C32	22p/100V "	" 22p Polyester
C33	22/25V "	" 22M 25V Tant
C34	22p/100V "	" 22p Polyester
C35	22/25V "	" 22M 25V Tant
C36	22p/100V "	" 22p Polyester
C37	22/25V "	" 22/25V Tant
C38	22/25V "	" 22p Polyester
C39	22/25V "	" 22M 25V Tant
C40	22/25V "	" 22M 25V "
C41	22/25V "	" 22M 25V "
C42	22/25V "	" 22M 25V "
C43	22/25V "	" 22M 25V "
C45	100/3V "	" 100M 3V "
C46	22/25V "	" 22M 25V "
C48	22/25V "	" 22M 25V "

COMPONENT SCHEDULE

MODULE TSM ECHO RETURN TM02

SHEET 5 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
C50	22/25V Capacitor	Cap 22M 25V Tant
C51	22/25V "	" 22M 25V "
C52	22/25V "	" 22M 25V "
C53	22/25V "	" 22M 25V "
C57	22/25V "	" 22M 25V "
C58	22/25V "	" 22M 25V "
C59	0.47/100V "	" 0.47M 100V Sie 5% 7.5m.m.
C60	470p/400V "	" 470p 400V Wima 10% 10m.m.
C61	22/25V "	" 22M 25V Tant
D1 - D6	IN4002	Dio IN4002
Q1 - Q2	BC413	TRN BC413
IC1-IC6	TA 7810 or TA 7814	INC TA 7810 or INC TA 7814
IC 7	~~NE 538~~ TL071 2/11/86 Doc	INC538
IC 8-IC13	TA 7810 or TA 7814	INC TA 7810 or INC TA 7814
IC14	~~NE 538~~ TL071 2/11/86 Doc	INC 538
IC15-IC18	TA 7810 or TA 7814	INC TA 7810 or INC TA 7814
SW 1	Push-Button	SWT SCH F4UEE
SW 2 - 3	Push-Button	SWT SCH F2UEE
SW 4	Push-Button	SWT SCH F8UEE
SW 5	Push-Button	SWT SCH F2UEE
SW 6	Push-Button	SWT SCH F4UEE
SW 7 - 8	Push-Button	SWT SCH F2UEE
SW 9	Push-Button	SWT SCH F8UEE
SW10	Push-Button	SWT SCH F2UEE

UNLESS OTHERWISE STATED ALL DIMS IN — REMOVE ALL BURRS AND SHARP EDGES — ANGLE PROJECTION

DRAWING NUMBER ED.3131

CHASSIS EARTH (60)
L.E.D. EARTH (57)
X (56)
X (55)
AUX BUSS — 1OR2 MIX AMP I/P (53)
X (52)
ELECTRONICS EARTH (49)
(48)
(47)
(46)
(45)
AUXILLARY SEND 1OR2 (43)
X (42)
X (41)
X (40)
X (38)
-20V (38)
+20V (36)
ECHO DEV O/P 1OR2 + (34)
ECHO DEV O/P 1OR2 - (32)
ELECTRONICS EARTH (30)
AUX BUSS — 3OR4 MIX AMP I/P (28)
ELECTRONICS EARTH (27)
AUXILLARY SEND 3OR4 (24)
X (23)
ELECTRONICS EARTH (22)
X (21)
AUXILLARY SEND 5OR6 (20)
X (19)
X (18)
+5V (17)
ECHO DEV O/P 3OR4 + (15)
ECHO DEV O/P 3OR4 - (13)
P.F.L. SIGNAL (10)
P.F.L. D.C. (8)
ECHO DEV O/P 5OR6 + (6)
ECHO DEV O/P 5OR6 - (5)
ELECTRONICS EARTH (4)
AUX BUSS — 5OR6 MIX AMP I/P (2)

MIX AMP
EQ. IN/OUT
HP FILTER
SECTION 1OR2
LP FILTER
O/P LINE AMP
METER SELECT
METER DRIVER
BALANCED I/P BUFFER
SOLO
MIX AMP
EQ. IN/OUT
HP FILTER
SECTION 3OR4
LP FILTER
O/P LINE AMP
METER SELECT
METER DRIVER
BALANCED I/P BUFFER
SOLO
MIX AMP
EQ. IN/OUT
HP FILTER
SECTION 5OR6
LP FILTER
VOLTAGE REGULATOR
BALANCED I/P BUFFER
METER SELECT
METER DRIVER
SOLO
O/P LINE AMP

COMPONENTS MARKED THUS • ARE MOUNTED ON UNDERSIDE OF P.C.B.
EDGE CONNECTOR TAGS MARKED THUS 'X' HAVE NO INTERNAL MODULE CONNECTIONS BUT HAVE TRACK CONNECTIONS ON MOTHER-BOARD.

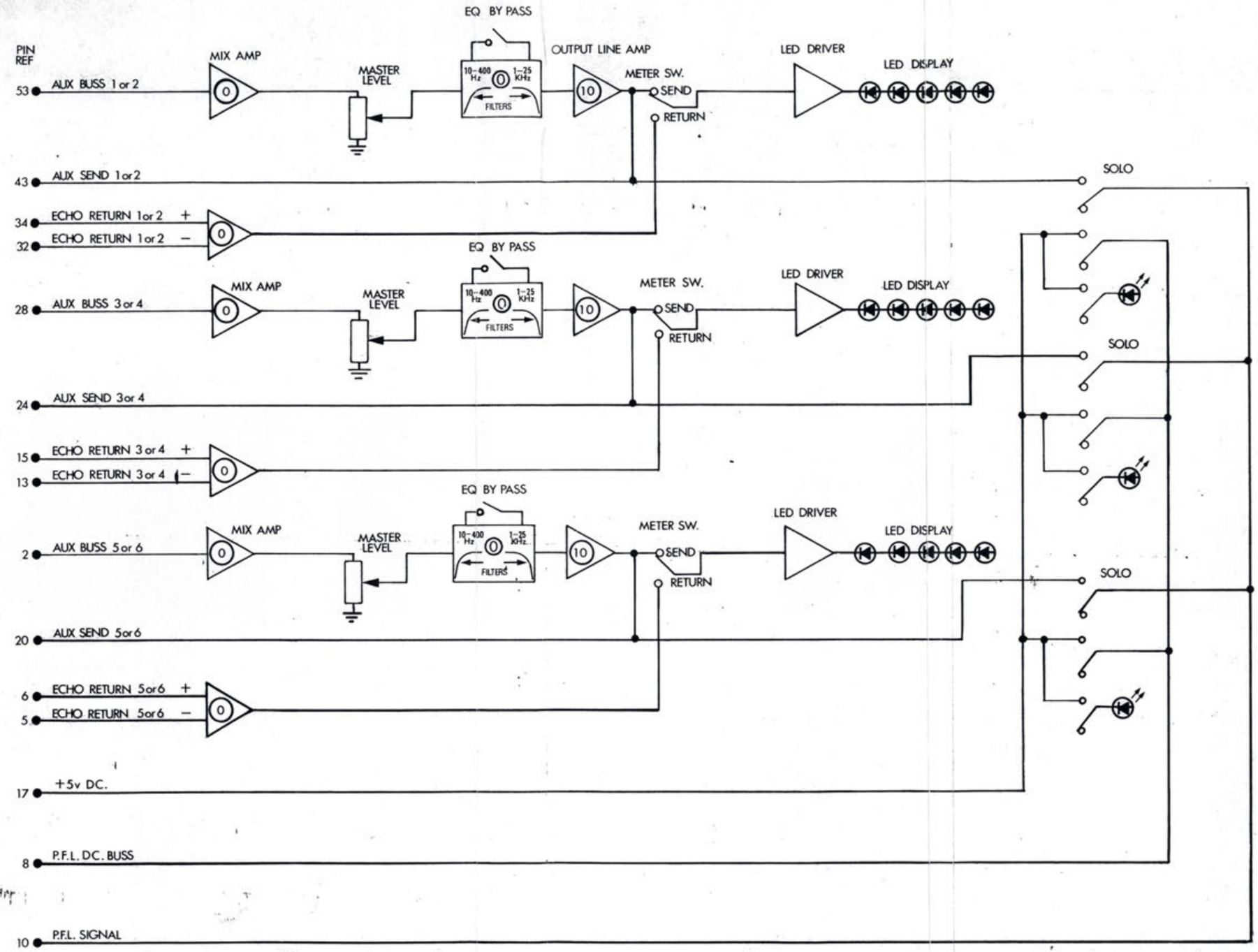
MOD NO	MOD BY	DATE	HOLE	DESCRIPTION	NO OFF	HOLE	DESCRIPTION	NO OFF

MATERIAL — SCALE — DRAWN G.ROBSON
FINISH — PROJECTION — CHK'D BY
TOLERANCES All imperial dimensions ±0.01" All metric dimensions ±0.25mm All angles ±0.50° Unless otherwise stated
ISSUE 1 DATE 12-JAN-79

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone Chertsey (09328) 60241 Telex 27782

TITLE
T.S.M. SERIES
AUX. MASTER SEND MODULE
CIRCUIT DIAGRAM.

DRAWING NUMBER ED.3131



(10) DENOTES AMPLIFIER GAIN

AUX. MASTER SEND TM03
SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM AUX MASTER SEND MODULE TM03

SHEET 1 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 1	270 ohm Resister	Res-ox 270 ½W2
R 2	270 " "	" " 270 "
R 3	270 " "	" " 270 "
R 4	270 " "	" " 270 "
R 5	270 " "	" " 270 "
R 6	6K2 "	" " 6K2 "
R 7	6K2 "	" " 6K2 "
R 8	47K "	" " 47K "
R 9	12K "	" " 12K "
R10	12K "	" " 12K "
R11	47K "	" " 47K "
R12	1K2 "	" " 1K2 "
R13	1K5 "	" " 1K5 "
R14	47 ohm "	" " 47 "
R15	7K5 "	" " 7K5 "
R16	10 ohm "	" " 10 "
R17	10 " "	" " 10 "
R18	12K "	" " 12K "
R19	12K "	" " 12K "
R20	12K "	" " 12K "
R21	12K "	" " 12K "
R22	12K "	" " 12K "
R23	12K "	" " 12K "
R24	4K7 "	" " 4K7 "
R25	4K7 "	" " 4K7 "
R26	270 ohm "	" " 270 "
R27	270 " "	" " 270 "
R28	270 " "	" " 270 "
R29	270 " "	" " 270 "
R30	270 " "	" " 270 "
R31	6K2 "	" " 6K2 "
R32	6K2 "	" " 6K2 "
R33	47K "	" " 47K "
R34	12K "	" " 12K "
R35	12K "	" " 12K "
R36	47K "	" " 47K "

COMPONENT SCHEDULE

MODULE TSM AUX MASTER SEND MODULE TM03

SHEET 2 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R37	1K2 Resister	Res-ox 1K2 ½W2
R38	1K5 "	" " 1K5 "
R39	47 ohm "	" " 47 "
R40	7K5 "	" " 7K5 "
R41	10 ohm "	" " 10 "
R42	10 " "	" " 10 "
R43	12K "	" " 12K "
R44	12K "	" " 12K "
R45	12K "	" " 12K "
R46	12K "	" " 12K "
R47	12K "	" " 12K "
R48	12K "	" " 12K "
R49	12K "	" " 12K "
R50	12K "	" " 12K "
R51	12K "	" " 12K "
R52	4K7 "	" " 4K7 "
R53	4K7 "	" " 4K7 "
R54	270 ohm "	" " 270 "
R55	270 " "	" " 270 "
R56	270 " "	" " 270 "
R57	270 " "	" " 270 "
R58	270 " "	" " 270 "
R59	6K2 "	" " 6K2 "
R60	6K2 "	" " 6K2 "
R61	47K "	" " 47K "
R62	12K "	" " 12K "
R63	12K "	" " 12K "
R64	47K "	" " 47K "
R65	1K2 "	" " 1K2 "
R66	1K5 "	" " 1K5 "
R67	47 ohm "	" " 47 "
R68	7K5 "	" " 7K5 "
R69	10 ohm "	" " 10 "
R70	10 " "	" " 10 "
R71	12K "	" " 12K "
R72	12K "	" " 12K "

COMPONENT SCHEDULE

MODULE TSM AUX MASTER SEND MODULE TM03
SHEET 3 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R73	12K Resister	Res-ox 12K ½W2
R74	12K "	" " 12K "
R75	12K "	" " 12K "
R76	12K "	" " 12K "
R77	4K7 "	" " 4K7 "
R78	4K7 "	" " 4K7 "
C 1	0.22/100V Capacitor	Cap 0.22M 100V Sie 5% 10m.m.
C 2	22/25V "	" 22M 25V Tant
C 3	0.1/250V "	" 0.1M 250V Sie 5% 10m.m.
C 4	0.1/250V "	" 0.1M 250V Sie 5% 10m.m.
C 5	22/25V "	" 22M 25V Tant
C 6	820p/100V "	" 820p Polyester
C 7	330p/100V "	" 330p Polyester
C 8	22/25V "	" 22M 25V Tant
C 9	470/25V "	" 470M 25V Elec
C10	22/25V "	" 22m 25V Tant
C11	10p/100V "	" 10p Ceramic
C12	100/40V "	" 100M 40V Elec
C13	470/25V "	" 470M 25V "
C14	22/25V "	" 22M 25V Tant
C15	22/25V "	" 22M 25V "
C16	22/25V "	" 22M 25V "
C17	100/40V "	" 100M 40V Elec
C18	22/25V "	" 22M 25V Tant
C19	22/25V "	" 22M 25V "
C20	470/6V "	" 470M 6V Elec
C21	0.22/100V "	" 0.22M 100V Sie 5% 10m.m.
C22	22/25V "	" 22M 25V Tant
C23	0.1/250V "	" 0.1M 250V Sie 5% 10m.m.
C24	0.1/250V "	" 0.1M 250V Sie 5% 10m.m.
C25	22/25V "	" 22M 25V Tant
C26	820p/100V "	" 820p Polyester
C27	330p/100V "	" 330p "
C28	22/25V "	" 22M 25V Tant

COMPONENT SCHEDULE

MODULE TSM AUX MASTER SEND MODULE TM03

SHEET 4 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
C29	22/25V Capacitor	Cap 22M 25V Tant
C30	10p/100V "	" 10p Ceramic
C31	100/40V "	" 100M 40V Elec
C32	22/25V "	" 22M 25V Tant
C33	22/25V "	" 22M 25V "
C34	22/25V "	" 22M 25V "
C35	100/40V "	" 100M 40V Elec
C36	22/25V "	" 22M 25V Tant
C37	22/25V "	" 22M 25V "
C38	470/6V "	" 470M 6V Elec
C39	0.22/100V "	" 0.22M 100V Sie 5% 10m.m.
C40	22/25V "	" 22M 25V Tant
C41	0.1/250V "	" 0.1M 250V Sie 5% 10m.m.
C42	0.1/250V "	" 0.1M 250V Sie 5% 10m.m.
C43	22/25V "	" 22M 25V Tant
C44	820p/100V "	" 820p Polyester
C45	330p/100V "	" 330p Polyester
C46	22/25V "	" 22M 25V Tant
C47	22/25V "	" 22M 25V "
C48	10p/100V "	" 10p Ceramic
C49	100/40V "	" 100M 40V Elec
C50	22/25V "	" 22M 25V Tant
C51	22/25V "	" 22M 25V "
C52	22/25V "	" 22M 25V "
C53	100/40V "	" 100M 40V Elec
C54	22/25V "	" 22M 25V Tant
C55	22/25V "	" 22M 25V "
C56	470/6V "	" 470M 6V Elec
C57	0.22/100V "	" 0.22M 100V Sie 5% 10m.m.
C58	22/25V "	" 22M 25V Tant
C59	0.47/100V "	" 0.47M 100V Sie 5% 10m.m.
C60	22/25V "	" 22M 25V Tant
D1 - D6	IN4148	DIO IN4148

COMPONENT SCHEDULE

MODULE TSM AUX MASTER SEND MODULE TM03
SHEET 5 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
Q 1	40362 or BD520	TRN 40362 or TRN BD520
Q 2	40361 " BD519	" 40361 " " BD519
Q 3	40362 " BD520	" 40362 " " BD520
Q 4	40361 " BD519	" 40361 " " BD519
Q 5	40362 " BD520	" 40362 " " BD520
Q 6	40361 " BD519	" 40361 " " BD519
Q 7	7815	" 7815
IC 1	SN1688ON	INC SN1688ON
IC 2 - 6	TA 7810 or TA 7814	" TA7810 or INC TA7814
IC 8	SN1688ON	" SN1688ON
IC 9 - 13	TA 7810 or TA 7814	" TA7810 or INC TA7814
IC 15	SN1688ON	" SN1688ON
IC 16 -20	TA 7810 or TA 7814	" TA7810 or INC TA7814
IC 7,14,21	NE5534 2/11/86 Doc	
RV1-RV3	PRE-SET POT 470K	HORIZ. PRE-SET 470K
SW1 - 9	Push-Button	SWT SCH F2UEE

UNLESS OTHERWISE STATED ALL DIMS IN | REMOVE ALL BURRS AND SHARP EDGES | ANGLE PROJECTION | DRAWING NUMBER ED 3137

1 - + MIC
4 - - MIC

TYPICAL I.C. CONNECTIONS

TB DC 15 (STUDIO)

SLATE TO MULTI-TRACK | SLATE TO QUAD/STEREO | AUX 1 | AUX 2 | AUX 3 | AUX 4 | AUX 5-6 | TALKBACK MIC

TALK TO AUX LEVEL | TALK TO AUX LINE AMP | TALK TO SLATE LEVEL | SLATE LINE AMP | TALKBACK LEVEL | STUDIO TALK LINE AMP

TALK TO AUX RELAY 1 | TALK TO AUX RELAY 2 | TALK TO AUX RELAY 3 | TALK TO AUX RELAY 4 | TALK TO AUX RELAY 5 | TALK TO AUX RELAY 6

STEREO MIX AMP LEFT | STEREO MIX AMP RIGHT | MONO MIX AMP | STEREO COMPATABILITY | MONO COMPATABILITY

CHASSIS EARTH (60)
AUX 1 (FROM AUX MAS MOD) (58)
D.C FROM T.B. P'BTN (57)
AUX 1 OUTPUT (56)
SLATE SIGNAL TO QUAD/ST. (55)
AUX 2 OUTPUT (54)
SLATE SIGNAL FROM MAS P.B. (53)
AUX 2 (FROM AUX MAS MOD) (52)
SLATE SIGNAL TO MULTI TK (51)
AUX 3 OUTPUT (50)
SLATE SIGNAL TO MAS P.B. (49)
X (48)
AUX 3 (FROM AUX MAS MOD) (47)
STUD TB SIGNAL TO MAS P.B. (46)
AUX 4 OUTPUT (45)
X (44)
AUX 4 (FROM AUX MAS MOD) (43)
AUX 5 OUTPUT (41)
ELECTRONICS EARTH (40)
X (39)
X (38)
X (37)
AUX 5 (FROM MON COMM MOD) (36)
X (35)
X (34)
X (33)
X (32)
AUX 6 OUTPUT (31)
ELECTRONICS EARTH (29)
L.E.D EARTH (27)
X (26)
AUX 6 (FROM MON COMM MOD) (24)
X (23)
TO TOP OF MON FADER R/R (22)
X (21)
TO TOP OF MON FADER L/R (20)
mon insert
X (18)
X (16)
TO TOP OF MON FADER R.F (14)
TO TOP OF MON FADER L.F (12)
SPKR FEED — +20V (10)
— FROM MON COMM MOD R/R (9)
-20V (8)
SPKR FEED — (6)
— FROM MON COMM MOD L/R (5)
SPKR FEED — (3)
— FROM MON COMM MOD R/F
SPKR FEED — (2)
— FROM MON COMM MOD L/F
+5V D.C (1)

COMPONENTS MARKED THUS * MOUNTED ON UNDERSIDE OF P.C.B.
EDGE CONNECTIONS MARKED THUS 'X' ARE NOT USED INSIDE THE MODULE BUT ARE USED ON THE MOTHERBOARD.

N.B. ON MODULES FITTED WITH A FOSTER MICROPHONE, R125, R11 AND R5 ARE REPLACED BY WIRE LINKS

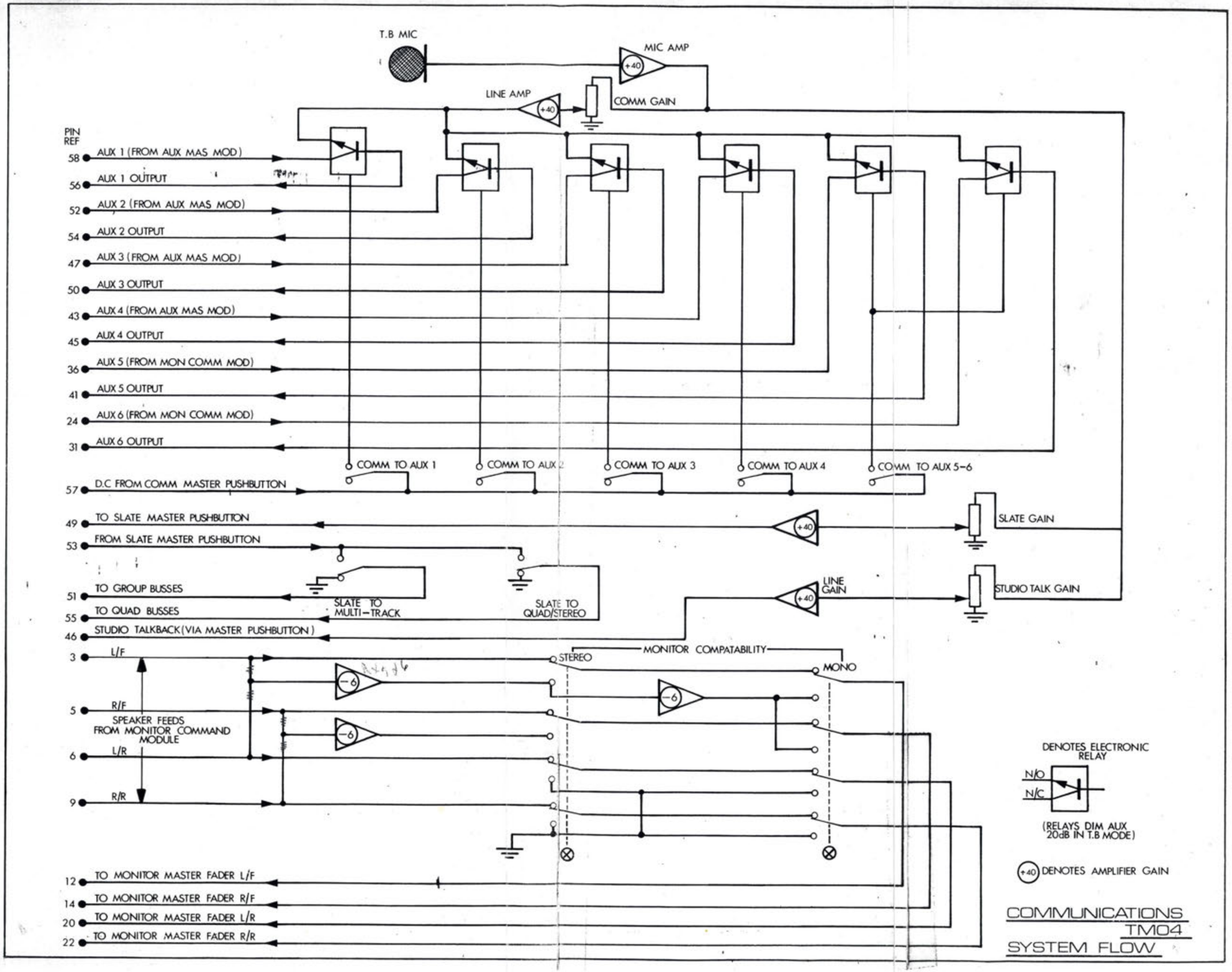
MOD No	MOD BY	DATE	HOLE	DESCRIPTION	No OFF	HOLE	DESCRIPTION	No OFF

MATERIAL	SCALE	DRAWN STW	TRIDENT AUDIO DEVELOPMENTS LIMITED, SHEPPERTON STUDIOS, SHEPPERTON, MIDDLESEX. Telephone Chertsey (09328) 60241 Telex 27782
FINISH	PROJECTION	CHK'D BY	
TOLERANCES: All imperial dimensions ±0.01" All metric dimensions ±0.25mm. All angles ±0.50° Unless otherwise stated		ISSUE 1 / DATE 15-1-79	

TITLE TSM SERIES COMMUNICATIONS MODULE TM04

DRAWING NUMBER ED3137

519 = NPN 520 = PNP


T.B MIC
MIC AMP
+40
LINE AMP
+40
COMM GAIN
PIN REF
58 AUX 1 (FROM AUX MAS MOD)
56 AUX 1 OUTPUT
52 AUX 2 (FROM AUX MAS MOD)
54 AUX 2 OUTPUT
47 AUX 3 (FROM AUX MAS MOD)
50 AUX 3 OUTPUT
43 AUX 4 (FROM AUX MAS MOD)
45 AUX 4 OUTPUT
36 AUX 5 (FROM MON COMM MOD)
41 AUX 5 OUTPUT
24 AUX 6 (FROM MON COMM MOD)
31 AUX 6 OUTPUT
COMM TO AUX 1
COMM TO AUX 2
COMM TO AUX 3
COMM TO AUX 4
COMM TO AUX 5-6
57 D.C FROM COMM MASTER PUSHBUTTON
49 TO SLATE MASTER PUSHBUTTON
+40
SLATE GAIN
53 FROM SLATE MASTER PUSHBUTTON
51 TO GROUP BUSSES
55 TO QUAD BUSSES
SLATE TO MULTI-TRACK
SLATE TO QUAD/STEREO
LINE GAIN
+40
STUDIO TALK GAIN
46 STUDIO TALKBACK (VIA MASTER PUSHBUTTON)
MONITOR COMPATABILITY
STEREO
MONO
3 L/F
5 R/F
SPEAKER FEEDS FROM MONITOR COMMAND MODULE
6 L/R
9 R/F
-6
-6
-6
-6
12 TO MONITOR MASTER FADER L/F
14 TO MONITOR MASTER FADER R/F
20 TO MONITOR MASTER FADER L/R
22 TO MONITOR MASTER FADER R/R
DENOTES ELECTRONIC RELAY
N/O
N/C
(RELAYS DIM AUX 20dB IN T.B MODE)
+40 DENOTES AMPLIFIER GAIN
COMMUNICATIONS
TM04
SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM COMMUNICATION MODULE TM04

SHEET 1 **OF** 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 1	27 ohm Resistor	Res-ox 27 ½W2
R 2	27 " "	" " 27 "
R 4	4K7 "	" " 4K7 "
R 5	470K "	" " 470K "
R 6	47K "	" " 47K "
R11	470K "	" " 470K "
R12	4K7 "	" " 4K7 "
R13	47K "	" " 47K "
R14	47K "	" " 47K "
R15	15K "	" " 15K "
R16	15K "	" " 15K "
R17	4K7 "	" " 4K7 "
R18	4K7 "	" " 4K7 "
R19	7K5 "	" " 7K5 "
R20	7K5 "	" " 7K5 "
R21	10 ohm "	" " 10 "
R22	10 " "	" " 10 "
R23	10 " "	" " 10 "
R24	10 " "	" " 10 "
R25	12K "	" " 12K "
R26	12K "	" " 12K "
R27	12K "	" " 12K "
R28	4K7 "	" " 4K7 "
R29	4K7 "	" " 4K7 "
R30	10 ohm "	" " 10 "
R31	10 " "	" " 10 "
R33	7K5 "	" " 7K5 "
R34	12K "	" " 12K "
R35	4K7 "	" " 4K7 "
R36	4K7 "	" " 4K7 "
R37	12K "	" " 12K "
R38	12K "	" " 12K "
R39	12K "	" " 12K "
R40	12K "	" " 12K "
R41	4K7 "	" " 4K7 "
R42	1K2 "	" " 1K2 "

COMPONENT SCHEDULE

MODULE TSM COMMUNICATION MODULE TM04

SHEET 2 OF 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R43	7K5 Resistor	Res-ox 7K5 ½W2
R45	240K "	" " 240K "
R46	8K2 "	" " 8K2 "
R48	15K "	" " 15K "
R49	15K "	" " 15K "
R50	30K "	" " 30K "
R51	12K "	" " 12K "
R52	12K "	" " 12K "
R53	12K "	" " 12K "
R54	7K5 "	" " 7K5 "
R55	10 ohm "	" " 10 "
R56	10 " "	" " 10 "
R57	4K7 "	" " 4K7 "
R58	1K2 "	" " 1K2 "
R59	7K5 "	" " 7K5 "
R60	15K "	" " 15K "
R61	8K2 "	" " 8K2 "
R63	15K "	" " 15K "
R64	15K "	" " 15K "
R65	30K "	" " 30K "
R66	240K "	" " 240K "
R67	12K "	" " 12K "
R68	12K "	" " 12K "
R69	12K "	" " 12K "
R70	7K5 "	" " 7K5 "
R71	10 ohm "	" " 10 "
R72	10 " "	" " 10 "
R73	4K7 "	" " 4K7 "
R74	1K2 "	" " 1K2 "
R75	7K5 "	" " 7K5 "
R76	15K "	" " 15K "
R77	8K2 "	" " 8K2 "
R79	15K "	" " 15K "
R80	15K "	" " 15K "
R81	30K "	" " 30K "
R82	240K "	" " 240K "

COMPONENT SCHEDULE

MODULE TSM COMMUNICATION MODULE TM04

SHEET 3 **OF** 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R83	12K Resistor	Res-ox 12K ½W2
R84	12K "	" " 12K "
R85	7K5 "	" " 7K5 "
R86	12K "	" " 12K "
R87	10 ohm "	" " 10 "
R88	10 " "	" " 10 "
R89	4K7 "	" " 4K7 "
R90	1K2 "	" " 1K2 "
R91	7K5 "	" " 7K5 "
R92	15K "	" " 15K "
R93	8K2 "	" " 8K2 "
R95	15K "	" " 15K "
R96	15K "	" " 15K "
R97	30K "	" " 30K "
R98	240K "	" " 240K "
R99	12K "	" " 12K "
R100	12K "	" " 12K "
R101	7K5 "	" " 7K5 "
R102	12K "	" " 12K "
R103	10 ohm "	" " 10 "
R104	10 " "	" " 10 "
R105	4K7 "	" " 4K7 "
R106	1K2 "	" " 1K2 "
R107	7K5 "	" " 7K5 "
R108	15K "	" " 15K "
R109	8K2 "	" " 8K2 "
R111	15K "	" " 15K "
R112	15K "	" " 15K "
R113	30K "	" " 30K "
R114	240K "	" " 240K "
R115	12K "	" " 12K "
R116	7K5 "	" " 7K5 "
R117	12K "	" " 12K "
R118	12K "	" " 12K "
R119	10 ohm "	" " 10 "
R120	10 " "	" " 10 "

COMPONENT SCHEDULE

MODULE TSM COMMUNICATION MODULE TM04

SHEET 4 **OF** 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
R122	4K7 Resistor	Res-ox 4K7 ½W2
R123	4K7 "	" " 4K7 "
R124	47K "	" " 47K "
R125	470K "	" " 470K "
R126	4K7 "	" " 4K7 "
R127	7K5 "	" " 7K5 "
R128	15K "	" " 15K "
R130	15K "	" " 15K "
R131	15K "	" " 15K "
R132	30K "	" " 30K "
R133	8K2 "	" " 8K2 "
R134	240K "	" " 240K "
R135	1K "	" " 1K "
R136	12K "	" " 12K "
R137	7K5 "	" " 7K5 "
R138	12K "	" " 12K "
R139	12K "	" " 12K "
R140	10 ohm "	" " 10 "
R141	10 " "	" " 10 "
C 1	22/25V Capacitor	Cap 22M 25V Tant
C 2	22/25V "	" 22M 25V "
C 3	22/25V "	" 22M 25V "
C 7	22/25V "	" 22M 25V "
C10	22/25V "	" 22M 25V "
C11	100/25V "	" 100M 25V Elec
C12	100/25V "	" 100M 25V "
C13	100/25V "	" 100M 25V "
C14	100/25V "	" 100M 25V "
C15	100/25V "	" 100M 25V "
C16	22/25V "	" 22M 25V Tant
C17	100/25V "	" 100M 25V Elec
C19	22/25V "	" 22M 25V Tant
C22	22/25V "	" 22M 25V "
C23	22/25V "	" 22M 25V "

COMPONENT SCHEDULE

MODULE TSM COMMUNICATION MODULE TM04

SHEET 5 OF 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
C24	470/6V Capacitor	Cap 470M 6V Elec
C26	22/25V "	" 22M 25V Tant
C29	22/25V "	" 22M 25V "
C31	470/6V "	" 470M 6V Elec
C33	22/25V "	" 22M 25V Tant
C36	22/25V "	" 22M 25V "
C37	22/25V "	" 22M 25V "
C38	470/6V "	" 470M 6V Elec
C40	22/25V "	" 22M 25V Tant
C43	22/25V "	" 22M 25V "
C44	22/25V "	" 22M 25V "
C45	470/6V "	" 470M 6V Elec
C47	22/25V "	" 22M 25V Tant
C50	22/25V "	" 22M 25V "
C51	22/25V "	" 22M 25V "
C52	470/6V "	" 470M 6V Elec
C54	22/25V "	" 22M 25V Tant
C55	22/25V "	" 22M 25V "
C58	22/25V "	" 22M 25V "
C62	22/25V "	" 22M 25V "
C63	22/25V "	" 22M 25V "
C64	470/6V "	" 470M 6V Elec
D 1- 6	IN4148	DIO IN4148
D 9-20	IN4148	DIO IN4148
Q 2	40362 or BD520	TRN 40362 or TRN BD520
Q 3	40361 " BD519	" 40361 " " BD519
Q 4	40362 " BD520	" 40362 " " BD520
Q 5	40361 " BD519	" 40361 " " BD519
Q 6	40362 " BD520	" 40362 " " BD520
Q 7	40361 " BD519	" 40361 " " BD519
Q 8	BC413	" BC413
Q 9	BC416 " 2N5086	" BC416 " " 2N5086
Q10	40362 " BD520	" 40362 " " BD520

COMPONENT SCHEDULE

MODULE TSM COMMUNICATION MODULE TM04

SHEET 6 OF 6

TRIDENT

P.C.B No	DESCRIPTION	PART No
Q11	40361 or BD519	TRN 40361 or TRN BD519
Q12	BC413	" BC413
Q13	BC416 " 2N5086	" BC416 " " 2N5086
Q14	40362 " BD520	" 40362 " " BD520
Q15	40361 " BD519	" 40361 " " BD519
Q16	BC413	" BC413
Q17	BC416 " 2N5086	" BC416 " " 2N5086
Q18	40362 " BD520	" 40362 " " BD520
Q19	40361 " BD519	" 40361 " " BD519
Q20	BC413	" BC413
Q21	BC416 " 2N5086	" BC416 " " 2N5086
Q22	40362 " BD520	" 40362 " " BD520
Q23	40361 " BD519	" 40361 " " BD519
Q24	BC413	" BC413
Q25	BC416 " 2N5086	" BC416 " " 2N5086
Q26	40362 " BD520	" 40362 " " BD520
Q27	40361 " BD519	" 40361 " " BD519
Q28	BC413	" BC413
Q29	BC416 " 2N5086	" BC416 " " 2N5086
Q30	40362 " BD520	" 40362 " " BD520
Q31	40361 " BD519	" 40361 " " BD519
IC 1-22	TA 7810 or TA 7814	INC TA 7810 or INC TA7814
IC-8,6,3	NE 5534 2/4/86 DOC	
SW1 - 2	Push-Button	SWT SCH F6UEE
SW3 - 9	Push-Button	SWT SCH F2UEE

UNLESS OTHERWISE STATED ALL DIMS IN | REMOVE ALL BURRS AND SHARP EDGES | ANGLE PROJECTION | DRAWING NUMBER ED 3126

CHASSIS EARTH (60)
OSC & SLATE (59)
OSC OUTPUT (58)
SPKR SEND 4 (57)
SPKR SEND 3 (56)
ALTERNATIVE SPEAKER SYSTEM B2 (55)
INPUT TO SPEAKER SWITCHING 2 (54)
ALTERNATIVE SPEAKER SYSTEM B3 (53)
INPUT TO SPEAKER SWITCHING 3 (52)
ELECTRONICS EARTH (51)
ALTERNATIVE SPEAKER SYSTEM A3 (50)
SPKR SEND 2 (49)
MIC/LINE L.E.D +5V (48)
ALTERNATIVE SPEAKER SYSTEM A2 (47)
ALTERNATIVE SPEAKER SYSTEM A4 (46)

REMIX D.C (44)
ALTERNATIVE SPEAKER SYSTEM A1 (43)

SPKR SEND1 (41)
OVERDUB D.C (40)
INPUT TO SPEAKER SWITCHING 4 (39)

INPUT TO SPEAKER SWITCHING 1 (36)
MONITOR MIX AMP I/P 4 (35)
MONITOR MIX AMP I/P 3 (34)
MONITOR MIX AMP I/P 2 (33)
MONITOR MIX AMP I/P 1 (32)
METER COUPLE D.C (31)
ELECTRONICS EARTH (30)
ALTERNATIVE SYSTEM B1 (29)
L.E.D EARTH (28)
ALTERNATIVE SPEAKER SYSTEM B4 (27)
A.F.L/PFL MIX AMP INPUT (26)
MONITOR MIX AMP O/P 1 (25)
TAPE D.C (24)
AUTOMUTE D.C (23)
MONITOR MIX AMP O/P 2 (22)
X (21)

MONITOR MIX AMP O/P 3 (18)
MON TO AUX MIX AMP I/P L (16)
MONITOR MIX AMP O/P 4 (14)
A.F.L/PFL SIGNAL (12)
+20V (10)
X (9)
-20V (8)
MON TO AUX MIX AMP O/P L (6)
MON TO AUX MIX AMP O/P R (5)
ELECTRONICS EARTH (4)
MON TO AUX MIX AMP I/P R (3)
+5V (2)

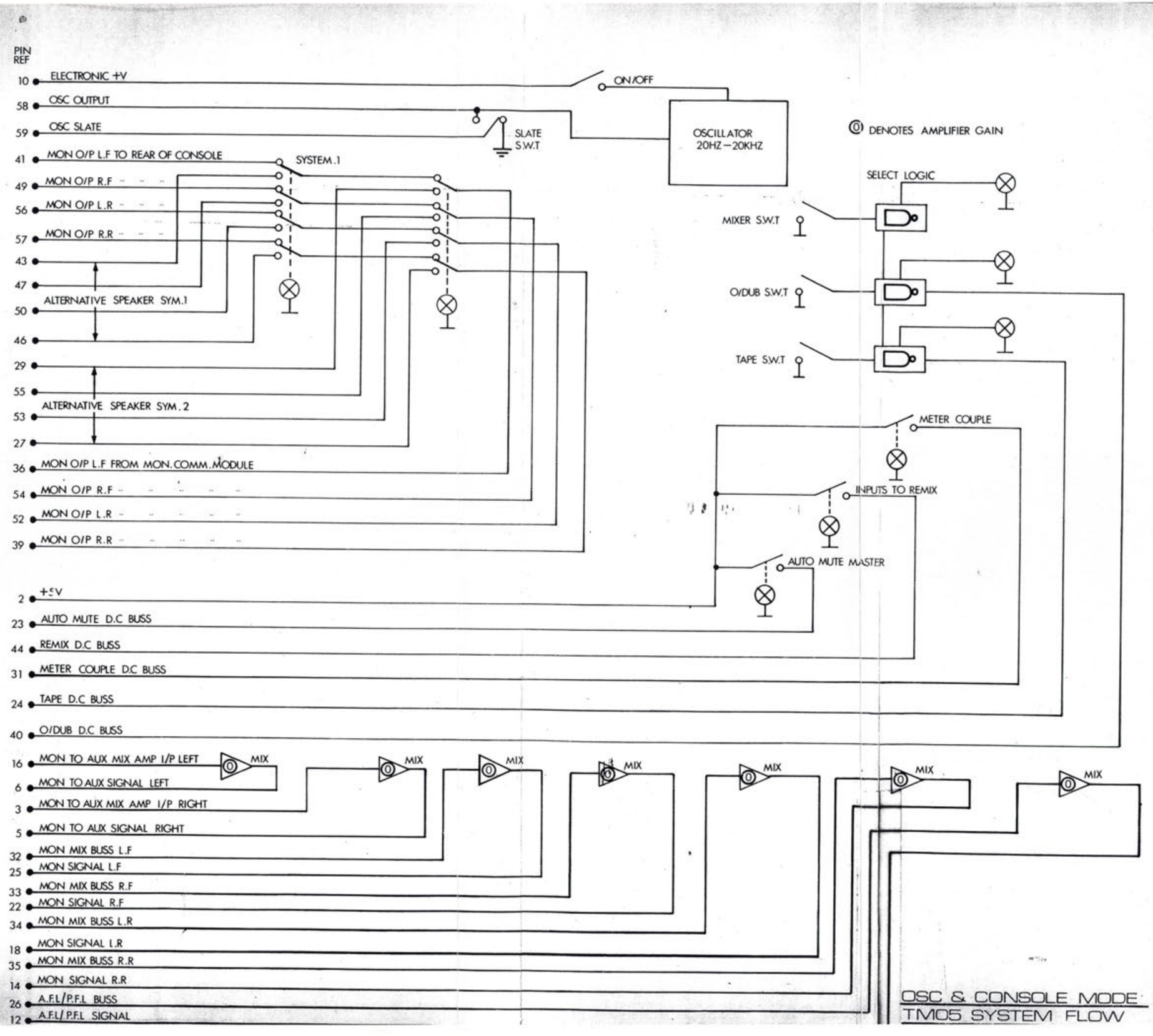
COMPONENTS MARKED THUS * ARE MOUNTED ON UNDERSIDE OF PCB.
EDGE CON. PINS MARKED THUS 'X' HAVE NO INTERNAL MODULE CONNECTIONS BUT HAVE TRACK CONNECTIONS ON MOTHERBOARD.

ALT SPK SYSTEM 1
ALT SPK SYSTEM 2
ON/OFF
X 100
X10
X1
SLATE
FREQ. SWEEP
METER COUPLE
INPUTS TO REMIX
AUTO-MUTE MASTER
MIXER
OVERDUB
TAPE
TAPE CURRENT DRIVE STAGE
OVDUB CURRENT DRIVE STAGE
MONITOR MIX AMP 1
MONITOR MIX AMP 2
MONITOR MIX AMP 3
MONITOR MIX AMP 4
MONITOR TO AUX/STUDIO PLAY MIX AMP RIGHT
MONITOR TO AUX/STUDIO PLAY MIX AMP LEFT
AFL/PFL MIX AMP

MOD Nº	MOD BY	DATE	HOLE	DESCRIPTION	Nº OFF	HOLE	DESCRIPTION	Nº OFF

MATERIAL	SCALE	DRAWN STW	TITLE TSM SERIES OSCILLATOR & CONSOLE MODE MODULE CIRCUIT DIAGRAM TM05
FINISH	PROJECTION	CHK'D BY	
TOLERANCES All imperial dimensions ±0·01" All metric dimensions ±0·25mm All angles ±0·50° Unless otherwise stated		ISSUE 1 DATE 11·1·79	DRAWING NUMBER ED3126

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone Chertsey (09328) 60241 Telex 27782



OSC & CONSOLE MODE
TM05 SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM OSC. & MODE MODULE TM05

SHEET 1 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 1	12K Resistor	Res-ox 12K ½W2
R 2	4K7 "	" " 4K7 "
R 3	4K7 "	" " 4K7 "
R 4	12K "	" " 12K "
R 5	4K7 "	" " 4K7 "
R 6	4K7 "	" " 4K7 "
R 7	12K "	" " 12K "
R 8	4K7 "	" " 4K7 "
R 9	4K7 "	" " 4K7 "
R11	3K9 "	" " 3K9 "
R15	3K9 "	" " 3K9 "
R16	3K9 "	" " 3K9 "
R17	1K5 "	" " 1K5 "
R18	1K5 "	" " 1K5 "
R19	1K5 "	" " 1K5 "
R20	27 ohm "	" " 27 "
R21	27 " "	" " 27 "
R22	27 " "	" " 27 "
R23	27 " "	" " 27 "
R24	27 " "	" " 27 "
R25	4K7 "	" " 4K7 "
R26	4K7 "	" " 4K7 "
R27	12K "	" " 12K "
R28	4K7 "	" " 4K7 "
R29	4K7 "	" " 4K7 "
R30	12K "	" " 12K "
R31	4K7 "	" " 4K7 "
R32	4K7 "	" " 4K7 "
R33	12K "	" " 12K "
R34	4K7 "	" " 4K7 "
R35	4K7 "	" " 4K7 "
R36	12K "	" " 12K "
R37	5K6 "	" " 5K6 "
R38	1K2 "	" " 1K2 "
R39	1M "	" " 1M "
R40	8K2 "	" " 8K2 "

COMPONENT SCHEDULE

MODULE TSM OSC. & MODE MODULE TM05

SHEET 2 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R41	330K Resistor	Res-ox 330K ½W2
R42	330K "	" " 330K "
R43	8K2 "	" " 8K2 "
R44	82 ohm "	" " 82 "
R47	22K "	" " 22K "
R48	22K "	" " 22K "
R49	4K7 "	" " 4K7 "
R50	4K7 "	" " 4K7 "
C 1	100/40V Capacitor	Cap 100M 40V Elec
C 2	22/25V "	" 22M 25V Tant
C 3	22/25V "	" 22M 25V "
C 4	470/6V "	" 470M 6V Elec
C 5	100/40V "	" 100M 40V "
C 6	22/25V "	" 22M 25V Tant
C 7	22/25V "	" 22M 25V "
C 8	470/6V "	" 470M 6V Elec
C 9	100/40V "	" 100M 40V "
C10	22/25V "	" 22M 25V Tant
C11	22/25V "	" 22M 25V "
C12	470/6V "	" 470M 6V Elec
C16	22/25V "	" 22M 25V Tant
C17	22/25V "	" 22M 25V "
C18	22/25V "	" 22M 25V "
C19	22/25V "	" 22M 25V "
C20	22/25V "	" 22M 25V "
C21	470/6V "	" 470M 6V Elec Vert
C22	22/25V "	" 22M 25V Tant
C23	22/25V "	" 22M 25V "
C24	100/40V "	" 100M 40V Elec Vert
C25	470/6V "	" 460M 6V " "
C26	22/25V "	" 22M 25V Tant
C27	22/25V "	" 22M 25V "
C28	100/40V "	" 100M 40V Elec Vert
C29	470/6V "	" 470M 6V " "

COMPONENT SCHEDULE

MODULE TSM OSC. & MODE MODULE TM05

SHEET 3 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
C30	22/25V Capacitor	Cap 22M 25V Tant
C31	22/25V "	" 22M 25V "
C32	100/40V "	" 100M 40V Elec Vert
C33	470/6V "	" 470M 6V " "
C34	22/25V "	" 22M 25V Tant
C35	22/25V "	" 22M 25V "
C36	100/40V "	" 100M 40V Elec Vert
C37	820pf/100V"	" 820p 100V Sie 5% 7.5m.m.
C38	820pf/100V"	" 820p 100V Sie 5% 7.5m.m.
C39	8N2/100V "	" 8N2 100V Sie 5% 7.5m.m.
C40	8N2/100V "	" 8N2 100V Sie 5% 7.5m.m.
C41	82N/100V "	" 82N 100V Sie 5% 7.5m.m.
C42	82N/100V "	" 82N 100V Sie 5% 7.5m.m.
C43	22/25V "	" 22M 25V Tant
C44	470/25V "	" 470M 25V Elec
C45	470/25V "	" 470M 25V "
C47	22/25V "	" 22M 25V Tant
C50	22/25V "	" 22M 25V "
Q 1	BD 180	TRN BD 180
Q 2	BC 413	" BC 413
Q 3 - Q 5	BC 109	" BC 109
Q 6	BC 413	" BC 413
Q 7	BD 180	" BD 180
IC 1 - 6	TA 7810 or TA 7814	INC TA 7810 or INC TA 7814
IC 7 - 8	4025B (C-MOS)	INC 4025B
IC 9	4049B (C-MOS)	INC 4049B
IC10 - 19	TA 7810 or TA 7814	INC TA7810 or INC TA7814
IC-10,12,14,16	NE5534 2/11/86 Doc	
TH 1	R53	RS 151-114
SW 1 - 3	Push-Button	SWT SCH F2UEE

COMPONENT SCHEDULE

MODULE TSM OSC. & MODE MODULE TM05

SHEET 4 OF 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
SW 4 - 5	Push-Button	SWT SCH F6UEE
SW 6 - 10	Push-Button	SWT SCH F2UEE

UNLESS OTHERWISE STATED ALL DIMS IN — REMOVE ALL BURRS AND SHARP EDGES — ANGLE PROJECTION

DRAWING NUMBER ED 3135

ALL SWITCHES TO BE LATCH / UNLATCH.

TYPICAL IC PIN CONNECTIONS.

COMPONENTS MARKED THUS *, MOUNTED ON UNDERSIDE OF P.C.B.

MOD NO	MOD BY	DATE	HOLE	DESCRIPTION	NO OFF	HOLE	DESCRIPTION	NO OFF

MATERIAL ——	SCALE ——	DRAWN G.ROBSON	TRIDENT AUDIO DEVELOPMENTS LIMITED SHEPPERTON STUDIOS SHEPPERTON MIDDLESEX Telephone Chertsey (09328) 60241 Telex 27782
FINISH ——	PROJECTION ——	CHK'D BY	
TOLERANCES All imperial timensions ±0·01" All metric dimensions ±0·25mm All angles ±)·50° Unless otherwise stated		ISSUE 1	DATE 18-JAN-78

TITLE
T.S.M. SERIES
MONITOR COMMAND MODULE
CIRCUIT DIAGRAM TM06

DRAWING NUMBER ED 3135

PIN REF

33 TALKBACK DIM D.C.
21 P.F.L. D.C.
12 P.F.L. SIGNAL
19 FROM MASTER MONITOR FADER L/F
1 TO MONO/ST. SWITCHING (COMM.MODULE) L/F
25 MONITOR SIGNAL L/F
11 QUAD SIGNAL L/F
29 STEREO SIGNAL L/F.
31 METER FEED L/F
5 SPEAKER FEED L/F
23 FROM MASTER MONITOR FADER R/F
4 TO MONO/ST. SWITCHING (COMM MODULE) R/F
22 MONITOR SIGNAL R/F
13 QUAD SIGNAL R/F
30 STEREO SIGNAL R/F
32 METER FEED R/F
28 SPEAKER FEED R/F
26 FROM MASTER MONITOR FADER L/R
3 TO MONO/ST. SWITCHING (COMM.MODULE) L/R
18 MONITOR SIGNAL L/R
15 QUAD SIGNAL L/R
47 METER FEED L/R
27 SPEAKER FEED L/R
20 FROM MASTER MONITOR FADER R/R
9 TO MONO/ST. SWITCHING (COMM.MODULE) R/R
14 MONITOR SIGNAL R/R
16 QUAD SIGNAL R/R
46 METER FEED R/R
6 SPEAKER FEED R/R
33 MONITOR DIM D.C.
59 MONITOR TO AUX FEED LEFT
48 MONITOR TO AUX FEED RIGHT
49 AUX SEND O/P 6 IN
56 AUX SEND O/P 6 OUT
58 AUX SEND O/P 5 IN
57 AUX SEND O/P 5 OUT
45 44 43 4 TRACK 1 OUTPUTS
42 41 40 4TRACK 2 OUTPUTS
51 50 38 2 TRACK 1 OUTPUTS
39 36 2 TRACK 2 OUTPUTS
37 34 2TRACK 3 OUTPUTS
35 54 L 55 R STUDIO PLAYBACK
35 OSCILLATOR

BUFF
QUAD BUSS TO MONITOR SELECT
STEREO BUSS TO MONITOR SELECT
QUAD / STEREO PLAYBACK SELECT
METER SELECT
A.F.L/P.F.L. MASTER FADER
A.F.L/P.F.L RELAYS
TALKBACK DIM RELAYS
MONITOR DIM
MONITOR MUTE
DENOTES ELECTRONIC RELAY.
MONITOR TO AUX S-6
4.TK.1
4.TK.2
2.TK.1
2.TK.2
2.TK.3
STUDIO PLAYBACK
OSCILLATOR

MONITOR COMMAND TM06 SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM MONITOR COMMAND MODULE TM06

SHEET 1 OF 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 2	47K Resistor	Res-ox 47K ½W2
R 5	47K "	" " 47K "
R 8	47K "	" " 47K "
R11	47K "	" " 47K "
R14	10 ohm "	" " 10 "
R15	10 " "	" " 10 "
R16	7K5 "	" " 7K5 "
R18	12K "	" " 12K "
R19	47K "	" " 47K "
R20	12K "	" " 12K "
R21	220K "	" " 220K "
R24	12K "	" " 12K "
R26	3K3 "	" " 3K3 "
R27	10 ohm "	" " 10 "
R28	10 " "	" " 10 "
R29	7K5 "	" " 7K5 "
R31	12K "	" " 12K "
R32	47K "	" " 47K "
R33	12K "	" " 12K "
R34	220K "	" " 220K "
R37	12K "	" " 12K "
R39	3K3 "	" " 3K3 "
R40	10 ohm "	" " 10 "
R41	10 " "	" " 10 "
R42	7K5 "	" " 7K5 "
R44	12K "	" " 12K "
R45	47K "	" " 47K "
R46	12K "	" " 12K "
R47	220K "	" " 220K "
R50	12K "	" " 12K "
R52	3K3 "	" " 3K3 "
R53	10 ohm "	" " 10 "
R54	10 " "	" " 10 "
R55	7K5 "	" " 7K5 "
R57	12K "	" " 12K "
R58	47K "	" " 47K "

COMPONENT SCHEDULE

MODULE TSM MONITOR COMMAND MODULE TM06

SHEET 2 OF 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
R59	12K Resistor	Res-ox 12K ½W2
R60	220K "	" " 220K "
R63	12K "	" " 12K "
R65	3K3 "	" " 3K3 "
R66	8K2 "	" " 8K2 "
R67	24K "	" " 24K "
R68	12K "	" " 12K "
R69	12K "	" " 12K "
R70	1K2 "	" " 1K2 "
R71	12K "	" " 12K "
R72	12K "	" " 12K "
R75	24K "	" " 24K "
R76	12K "	" " 12K "
R77	12K "	" " 12K "
R78	1K2 "	" " 1K2 "
R79	12K "	" " 12K "
R81	12K "	" " 12K "
R82	8K2 "	" " 8K2 "
R83	24K "	" " 24K "
R84	12K "	" " 12K "
R85	12K "	" " 12K "
R86	1K2 "	" " 1K2 "
R88	12K "	" " 12K "
R89	12K "	" " 12K "
R90	12K "	" " 12K "
R91	24K "	" " 24K "
R92	12K "	" " 12K "
R93	12K "	" " 12K "
R94	1K2 "	" " 1K2 "
R95	12K "	" " 12K "
R97	47K "	" " 47K "
R105	39K "	" " 39K "
R107	39K "	" " 39K "
R109	39K "	" " 39K "
R111	39K "	" " 39K "

COMPONENT SCHEDULE

MODULE TSM MONITOR COMMAND MODULE TM06

SHEET 3 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
C 1	22/25V Capacitor	Cap 22M 25V Tant
C 2	22/25V "	" 22M 25V "
C 4	22/25V "	" 22M 25V "
C 5	22/25V "	" 22M 25V "
C 7	22/25V "	" 22M 25V "
C 8	22/25V "	" 22M 25V "
C10	22/25V "	" 22M 25V "
C12	22/25V "	" 22M 25V "
C13	470/6V "	" 470M 6V Elec
C17	22/25V "	" 22M 25V Tant
C18	470/6V "	" 470M 6V Elec
C22	22/25V "	" 22M 25V Tant
C23	470/6V "	" 470M 6V Elec
C27	22/25V "	" 22M 25V Tant
C28	470/6V "	" 470M 6V Elec
C32	22/25V "	" 22M 25V Tant
C33	22/25V "	" 22M 25V "
C36	22/25V "	" 22M 25V "
C39	22/25V "	" 22M 25V "
C42	22/25V "	" 22M 25V "
C45	22/25V "	" 22M 25V "
C46	22/25V "	" 22M 25V "
C47	22/25V "	" 22M 25V "
C48	22/25V "	" 22M 25V "
C50	22/25V "	" 22M 25V "
D1 - D8	IN4148	DIO IN4148
Q 1	40362 or BD520	TRN 40362 or BD520
Q 2	40361 " BD519	" 40361 " BD519
Q 4	BC413	" BC413
Q 5	40362 " BD520	" 40362 " BD520
Q 6	40361 " BD519	" 40361 " BD519
Q 8	BC413	" BC413

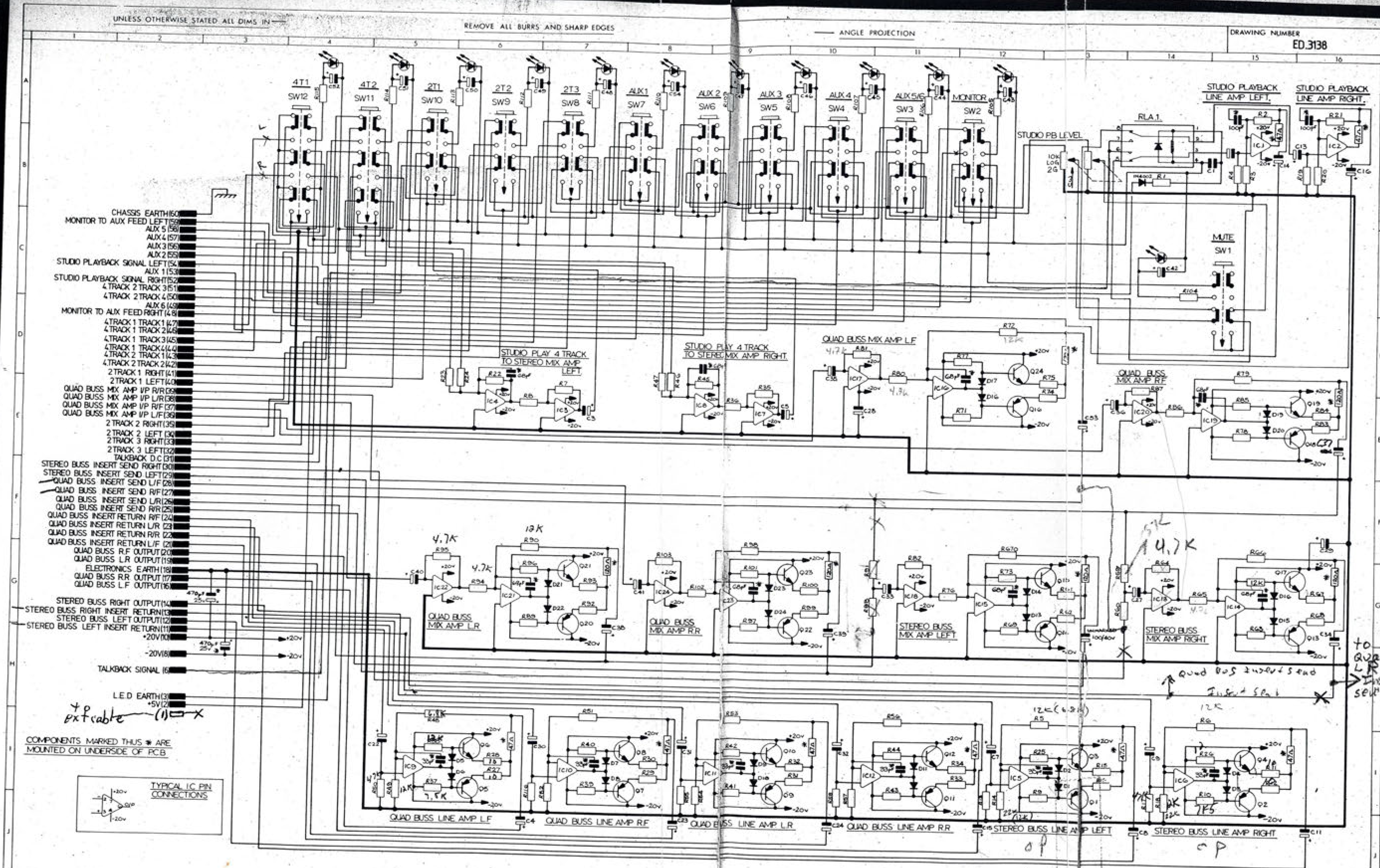
COMPONENT SCHEDULE

MODULE TSM MONITOR COMMAND MODULE TM06

SHEET 4 **OF** 4

TRIDENT

P.C.B No	DESCRIPTION	PART No
Q 9	40362 or BD520	TRN 40362 or BD520
Q10	40361 " BD519	" 40361 " BD519
Q12	BC413	" BC413
Q13	40362 " BD520	" 40362 " BD520
Q14	40361 " BD519	" 40361 " BD519
Q16	BC413	" BC413
Q17	BC416 " 2N5086	" BC416 " TRN 2N5086
Q18	BC413	" BC413
Q19	BC416 " 2N5086	" BC416 " TRN 2N5086
Q20	BC413	" BC413
Q21	BC416 " 2N5086	" BC416 " TRN 2N5086
Q22	BC413	" BC413
Q23	BC416 " 2N5086	" BC416 " TRN 2N5086
Q24	BC413	" BC413
IC1 - 12	TA7810 or TA7814	INC TA7810 or INC TA7814
SW1 - 2	Push-Button	SWT SCH 8 FUEE
SW3 - 4	Push-Button	SWT SCH 10FUEE
SW5 - 6	Push-Button	SWT SCH 8 FUEE
SW7 - 13	Push-Button	SWT SCH 6 FUEE
SW14	Push-Button	SWT SCH 4 FUEE


UNLESS OTHERWISE STATED ALL DIMS IN
REMOVE ALL BURRS AND SHARP EDGES
ANGLE PROJECTION
4T1 SW12
4T2 SW11
2T1 SW10
2T2 SW9
2T3 SW8
AUX1 SW7
AUX 2 SW6
AUX 3 SW5
AUX 4 SW4
AUX 5/6 SW3
MONITOR SW2
STUDIO PLAYBACK LINE AMP LEFT
STUDIO PLAYBACK LINE AMP RIGHT
RLA 1
STUDIO PB LEVEL
MUTE SW1
CHASSIS EARTH(60)
MONITOR TO AUX FEED LEFT(59)
AUX 5(58)
AUX 4(57)
AUX 3(56)
AUX 2(55)
STUDIO PLAYBACK SIGNAL LEFT(54)
AUX 1(53)
STUDIO PLAYBACK SIGNAL RIGHT(52)
4TRACK 2 TRACK 3(51)
4TRACK 2 TRACK 4(50)
AUX 6(49)
MONITOR TO AUX FEED RIGHT(48)
4TRACK 1 TRACK 1(47)
4TRACK 1 TRACK 2(46)
4TRACK 1 TRACK 3(45)
4TRACK 1 TRACK 4(44)
4TRACK 2 TRACK 1(43)
4TRACK 2 TRACK 2(42)
2TRACK 1 RIGHT(41)
2TRACK 1 LEFT(40)
QUAD BUSS MIX AMP I/P R/R(39)
QUAD BUSS MIX AMP I/P L/R(38)
QUAD BUSS MIX AMP I/P R/F(37)
QUAD BUSS MIX AMP I/P L/F(36)
2TRACK 2 RIGHT(35)
2TRACK 2 LEFT(34)
2TRACK 3 RIGHT(33)
2TRACK 3 LEFT(32)
TALKBACK D.C.(31)
STEREO BUSS INSERT SEND RIGHT(30)
STEREO BUSS INSERT SEND LEFT(29)
QUAD BUSS INSERT SEND L/F(28)
QUAD BUSS INSERT SEND R/F(27)
QUAD BUSS INSERT SEND L/R(26)
QUAD BUSS INSERT SEND R/R(25)
QUAD BUSS INSERT RETURN R/F(24)
QUAD BUSS INSERT RETURN L/R(23)
QUAD BUSS INSERT RETURN R/R(22)
QUAD BUSS INSERT RETURN L/F(21)
QUAD BUSS R.F OUTPUT(20)
QUAD BUSS L.R OUTPUT(19)
ELECTRONICS EARTH(18)
QUAD BUSS R.R OUTPUT(17)
QUAD BUSS L.F OUTPUT(16)
STEREO BUSS RIGHT OUTPUT(14)
STEREO BUSS RIGHT INSERT RETURN(13)
STEREO BUSS LEFT OUTPUT(12)
STEREO BUSS LEFT INSERT RETURN(11)
+20V(10)
-20V(8)
TALKBACK SIGNAL(6)
L.E.D. EARTH(3)
+5V(2)
(1)
ext cable
STUDIO PLAY 4 TRACK TO STEREO MIX AMP LEFT
STUDIO PLAY 4 TRACK TO STEREO MIX AMP RIGHT
QUAD BUSS MIX AMP L.F
QUAD BUSS MIX AMP R.F
QUAD BUSS MIX AMP L.R
QUAD BUSS MIX AMP R.R
STEREO BUSS MIX AMP LEFT
STEREO BUSS MIX AMP RIGHT
QUAD BUSS LINE AMP L.F
QUAD BUSS LINE AMP R.F
QUAD BUSS LINE AMP L.R
QUAD BUSS LINE AMP R.R
STEREO BUSS LINE AMP LEFT
STEREO BUSS LINE AMP RIGHT
COMPONENTS MARKED THUS * ARE MOUNTED ON UNDERSIDE OF PCB
TYPICAL I.C PIN CONNECTIONS
Quad Bus Insert Send
Insert Send
to Quad L/R Insert send
4.7K
12K
o/p

MOD No	MOD BY	DATE	HOLE	DESCRIPTION	No OFF	HOLE	DESCRIPTION	No OFF

MATERIAL
FINISH
SCALE
PROJECTION
DRAWN G. ROBSON
CHK'D BY
TOLERANCES All imperial dimensions ±0·01" All metric dimensions ±0·25mm All angles ±0·50° Unless otherwise stated
ISSUE 1
DATE 16-JAN-79

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone: Chertsey (09328) 60241 Telex 27782

TITLE T.S.M. SERIES STUDIO PLAYBACK MODULE CIRCUIT DIAGRAM TMO7

DRAWING NUMBER ED.3138

PIN REF

36 QUAD BUSS L/F
28 QUAD BUSS L/F INS SEND
21 QUAD BUSS L/F INS RET
16 QUAD BUSS L/F OUTPUT
29 STEREO BUSS L. INS SEND
11 STEREO BUSS L. INS RET
12 STEREO BUSS L. OUTPUT
37 QUAD BUSS R/F
27 QUAD BUSS R/F INS SEND
24 QUAD BUSS R/F INS RET
20 QUAD BUSS R/F OUTPUT
30 STEREO BUSS R. INS SEND
13 STEREO BUSS R. INS RET
14 STEREO BUSS R. OUTPUT
38 QUAD BUSS L/R
26 QUAD BUSS L/R INS SEND
23 QUAD BUSS L/R INS RET
19 QUAD BUSS L/R OUTPUT
39 QUAD BUSS R/R
25 QUAD BUSS R/R INS SEND
22 QUAD BUSS R/R INS RET
17 QUAD BUSS R/R OUTPUT

MIX (0) — LINE (+5)

47 46 45 44 — 4 TK 1
43 42 51 50 — 4 TK 2
ST1 ST2 ST3
40 – 34 – 32
41 – 35 – 33 — ST. 1–3
53, 55, 56, 57 — AUX 1–
59 LEFT
MONITOR SIGNAL (PARALLEL OUTPUT FROM MONITOR TO AUX 5–6 MIXING AMPLIFIERS.)
48 RIGHT
6 TALKBACK SIGNAL
52 STUDIO PLAY RIGHT
54 STUDIO PLAY LEFT
31 TALKBACK D.C.
58 AUX 5
49 AUX 6

MIX → ST. 1–3 → AUX 1–4 → AUX 5–6 → MONITOR → STUDIO P.B LEVEL → MUTE → LINE

TALKBACK LEVEL

(+5) DENOTES AMPLIFIER GAIN

R90
120
93
92

STUDIO PLAYBACK TM07 SYSTEM FLOW

COMPONENT SCHEDULE

MODULE TSM STUDIO PLAYBACK TM07

SHEET 1 OF 5.

TRIDENT

P.C.B No	DESCRIPTION	PART No
R 1	22 ohm Resistor	Res-ox 220 ½W2
R 2	4K7 "	" " 4K7 "
R 3	12K "	" " 12K "
R 4	47K "	" " 47K "
R 5	6K8 "	" " 6K8 "
R 6	6K8 "	" " 6K8 "
R 7	12K "	" " 12K "
R 8	4K7 "	" " 4K7 "
R 9	7K5 "	" " 7K5 "
R10	7K5 "	" " 7K5 "
R11	10 ohm "	" " 10 "
R12	10 " "	" " 10 "
R13	47K "	" " 47K "
R14	12K "	" " 12K "
R15	10 ohm "	" " 10 "
R16	10 " "	" " 10 "
R17	47K "	" " 47K "
R18	12K "	" " 12K "
R19	47K "	" " 47K "
R20	12K "	" " 12K "
R21	4K7 "	" " 4K7 "
R22	4K7 "	" " 4K7 "
R23	12K "	" " 12K "
R24	12K "	" " 12K "
R25	12K "	" " 12K "
R26	12K "	" " 12K "
R27	10 ohm "	" " 10 "
R28	10 " "	" " 10 "
R29	10 " "	" " 10 "
R30	10 " "	" " 10 "
R31	10 " "	" " 10 "
R32	10 " "	" " 10 "
R33	10 " "	" " 10 "
R34	10 " "	" " 10 "
R35	12K "	" " 12K "
R36	4K7 "	" " 4K7 "

COMPONENT SCHEDULE

MODULE TSM STUDIO PLAYBACK TM07

SHEET 2 OF 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R37	7K5 Resistor	Res-ox 7K5 ½W2
R38	12K "	" " 12K "
R39	7K5 "	" " 7K5 "
R40	12K "	" " 12K "
R41	7K5 "	" " 7K5 "
R42	12K "	" " 12K "
R43	7K5 "	" " 7K5 "
R44	12K "	" " 12K "
R45	4K7 "	" " 4K7 "
R46	12K "	" " 12K "
R47	12K "	" " 12K "
R48	6K8 "	" " 6K8 "
R49	12K "	" " 12K "
R50	47K "	" " 47K "
R51	6K8 "	" " 6K8 "
R52	12K "	" " 12K "
R53	6K8 "	" " 6K8 "
R54	12K "	" " 12K "
R55	47K "	" " 47K "
R56	6K8 "	" " 6K8 "
R57	12K "	" " 12K "
R58	47K "	" " 47K "
R59	24K "	" " 24K "
R60	24K "	" " 24K "
R61	10 ohm "	" " 10 "
R62	10 " "	" " 10 "
R63	7K5 "	" " 7K5 "
R64	4K7 "	" " 4K7 "
R65	4K7 "	" " 4K7 "
R66	12K "	" " 12K "
R67	10 ohm "	" " 10 "
R68	10 " "	" " 10 "
R69	7K5 "	" " 7K5 "
R71	7K5 "	" " 7K5 "
R72	12K "	" " 12K "
R73	12K "	" " 12K "

COMPONENT SCHEDULE

MODULE TSM STUDIO PLAYBACK TM07

SHEET 3 **OF** 5

TRIDENT

P.C.B No	DESCRIPTION	PART No
R74	10 ohm Resistor	Res-ox 10 ½W2
R75	10 " "	" " 10 "
R76	4K7 "	" " 4K7 "
R77	12K "	" " 12K "
R78	7K5 "	" " 7K5 "
R79	12K "	" " 12K "
R80	4K7 "	" " 4K7 "
R81	4K7 "	" " 4K7 "
R82	4K7 "	" " 4K7 "
R83	10 ohm "	" " 10 "
R84	10 " "	" " 10 "
R85	12K "	" " 12K "
R86	4K7 "	" " 4K7 "
R87	4K7 "	" " 4K7 "
R88	24K "	" " 24K "
R89	7K5 "	" " 7K5 "
R90	12K "	" " 12K "
R91	24K "	" " 24K "
R92	10 ohm "	" " 10 "
R93	10 " "	" " 10 "
R94	4K7 "	" " 4K7 "
R95	4K7 "	" " 4K7 "
R96	12K "	" " 12K "
R97	7K5 "	" " 7K5 "
R98	12K "	" " 12K "
R99	10 ohm "	" " 10 "
R100	10 " "	" " 10 "
R101	12K "	" " 12K "
R102	4K7 "	" " 4K7 "
R103	4K7 "	" " 4K7 "
R670	12K "	" " 12K "
C 1	0.1/250V Capacitor	Cap Sie 0.1M 250V 5% 10MM
C 3	22/25V "	" 22M 25V Tant
C 4	470/6V "	" 470M 6V Elec Vert

COMPONENT SCHEDULE

MODULE TSM STUDIO PLAYBACK TM07

SHEET 4 OF 5

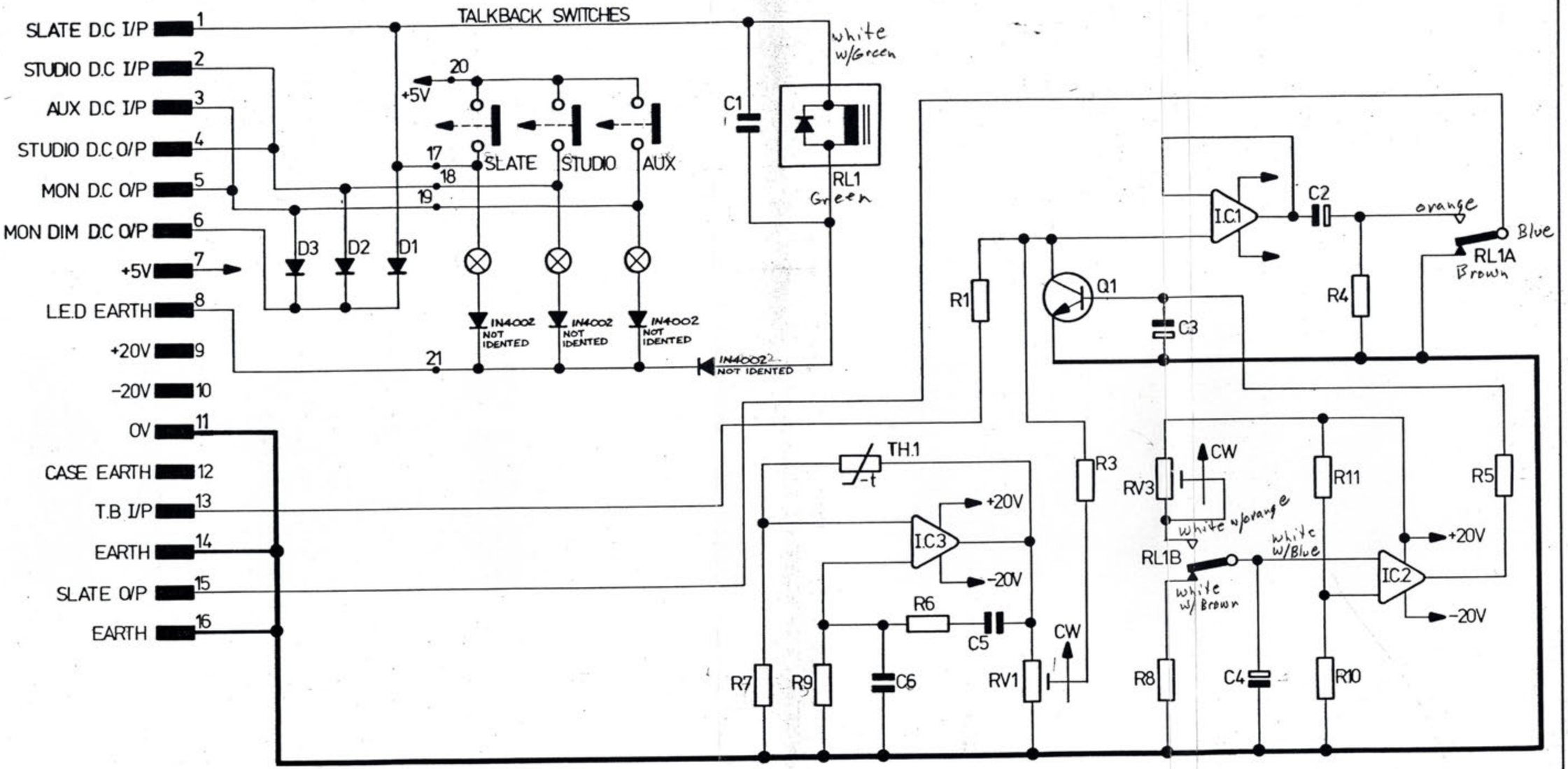
TRIDENT

P.C.B No	DESCRIPTION	PART No
C 5	22/25V Capacitor	Cap 22M 25V Tant
C 7	22/25V "	" 22M 25V "
C 8	470/6 "	" 470M 6V Elec Vert
C 9	22/25V "	" 22M 25V Tant
C11	470/6 "	" 470M 6V Elec Vert
C12	22/25V "	" 22M 25V Tant
C13	22/25V "	" 22M 25V "
C14	470/6V "	" 470M 6V Elec
C15	470/6V "	" 470M 6V Elec Vert
C17	470/6V "	" 470M 6V " "
C22	22/25V "	" 22M 25V Tant
C23	470/6V "	" 470 6V Elec Vert
C24	470/6V "	" 470M 6V " "
C27	470/6V "	" 470M 6V " "
C28	22/25V "	" 22M 25V Tant
C29	22/25V "	" 22M 25V "
C30	22/25V "	" 22M 25V "
C31	22/25V "	" 22M 25V "
C32	22/25V "	" 22M 25V "
C33	470/6V "	" 470M 6V Elec Vert
C34	470/6V "	" 470M 6V " "
C35	470/6V "	" 470M 6V " "
C36	470/6V "	" 470M 6V " "
C37	100/40V "	" 100M 40V " "
C38	100/40V "	" 100M 40V " "
C39	100/40V "	" 100M 40V " "
C40	470/6V "	" 470M 6V " "
C41	470/6V "	" 470M 6V " "
C53	100/40V "	" 100M 40V " "
D1-24	IN4148	DIO IN4148
Q1-Q2	40362 or BD520	Trn 40362 or Trn BD520
Q3-Q4	40361 or BD519	" 40361 " " BD519

UNLESS OTHERWISE STATED ALL DIMENSIONS IN

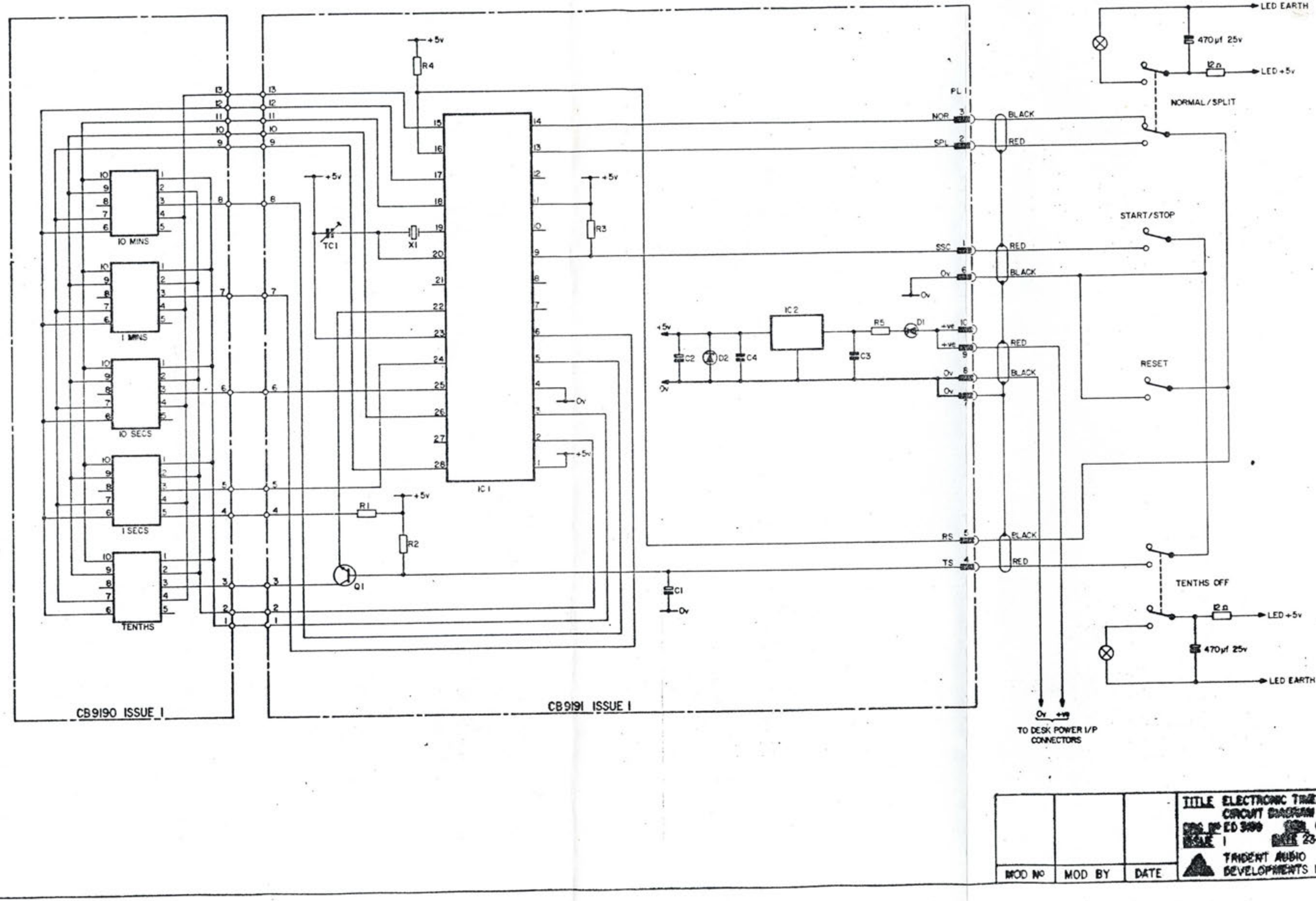
REMOVE ALL BURRS & SHARP EDGES

ANGLE PROJECTION



	MATERIAL	SCALE	DRAWN SW	TRIDENT AUDIO DEVELOPMENTS LIMITED SHEPPERTON STUDIOS SHEPPERTON MIDDLESEX Telephone:Chertsey (09328) 60241 Telex: 27782	TITLE TSM SERIES SLATE TONE BOARD CIRCUIT DIAGRAM
			CHK'D		
	FINISH	PROJECTION	ISSUE 2 / DATE 6-6-79		DRAWING NUMBER ED3117
1108 SW 6-6-79 MOD Nº / MOD BY. / DATE	TOLERANCES All imperial dimensions ±0·01" All metric dimensions ±0·25mm All angles ±0·50° Unless otherwise stated				

ADMEL P.2.278



MOD No	MOD BY	DATE

TITLE ELECTRONIC TIMER CIRCUIT DIAGRAM

DRG No ED 3190 C.S.T.

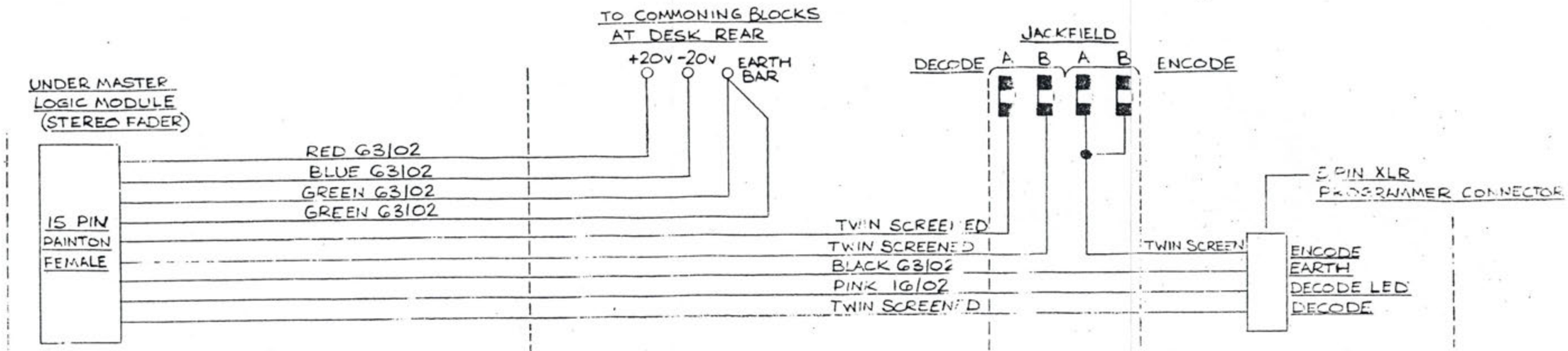
ISSUE 1 DATE 23-4-8

TRIDENT AUDIO DEVELOPMENTS LTD.

UNLESS OTHERWISE STATED ALL DIMENSIONS IN

REMOVE ALL BURRS & SHARP EDGES

ANGLE PROJECTION



PINS	
1-3-5-7-9+11	LINKED WITH 22SWG T/C WIRE 2x GREEN 32/02, 1x BLACK 32/02 } MAIN FADEX EARTH
12	DECODE A+
6	DECODE A- } TWIN SCREEN EARTH ON T/C WIRE LINK
8	DECODE B+
4	DECODE B- } TWIN SCREEN EARTH ON T/C WIRE LINK.
10	DECODE – PROGRAMMER TWIN SCREEN EARTH ON T/C WIRE LINK. (BLACK NOT USED)
2	DECODE LED PINK 16/02
13	BLUE G3/02 TO -VE COMMONING BLOCK
14	RED G3/02 TO +VE COMMONING BLOCK

PAINTON PLUG WIRING

NOTE - ON RIBBON CABLE LOOM. MALE PAINTON PLUG IS WIRED AS FOLLOWS-

MAIN BUSS RIBBON CABLE WIRE Nº		PAINTON PLUG PIN Nº
1	—	1
2	—	2
3	—	3
4	—	4
5	—	5
6	—	6
7	—	7
8	—	8
9	—	9
10	—	10
11	—	11
12	—	12
13	—	13
14	—	13
15	—	14
16	—	14

CONNECTIONS UNDER JACKFIELD ALL JACKS

T - RED
R - BLACK
S - SCREEN

PIN CONNECTIONS OF FADEX PROGRAMMER DSM

PINS
1. EARTH/BLACK G3/02
2. DECODE LED / PINK 16/02
3. ENCODE +VE } TWIN SCREEN SCREEN ON PIN 1.
4. ENCODE -VE
5. DECODE +VE / TWIN SCREEN

(BLACK & SCREEN - N.C)

MOD Nº	MOD BY.	DATE
1314	STD	3-1-80
1287	STD	14-12-79

ADMEL P/3496

MATERIAL	SCALE	DRAWN STD	
		CHK'D	
FINISH	PROJECTION	ISSUE 3	DATE 3-1-80

TOLERANCES
All imperial dimensions ±0·01" All metric dimensions ±0·25mm
All angles ±0·50° Unless otherwise stated

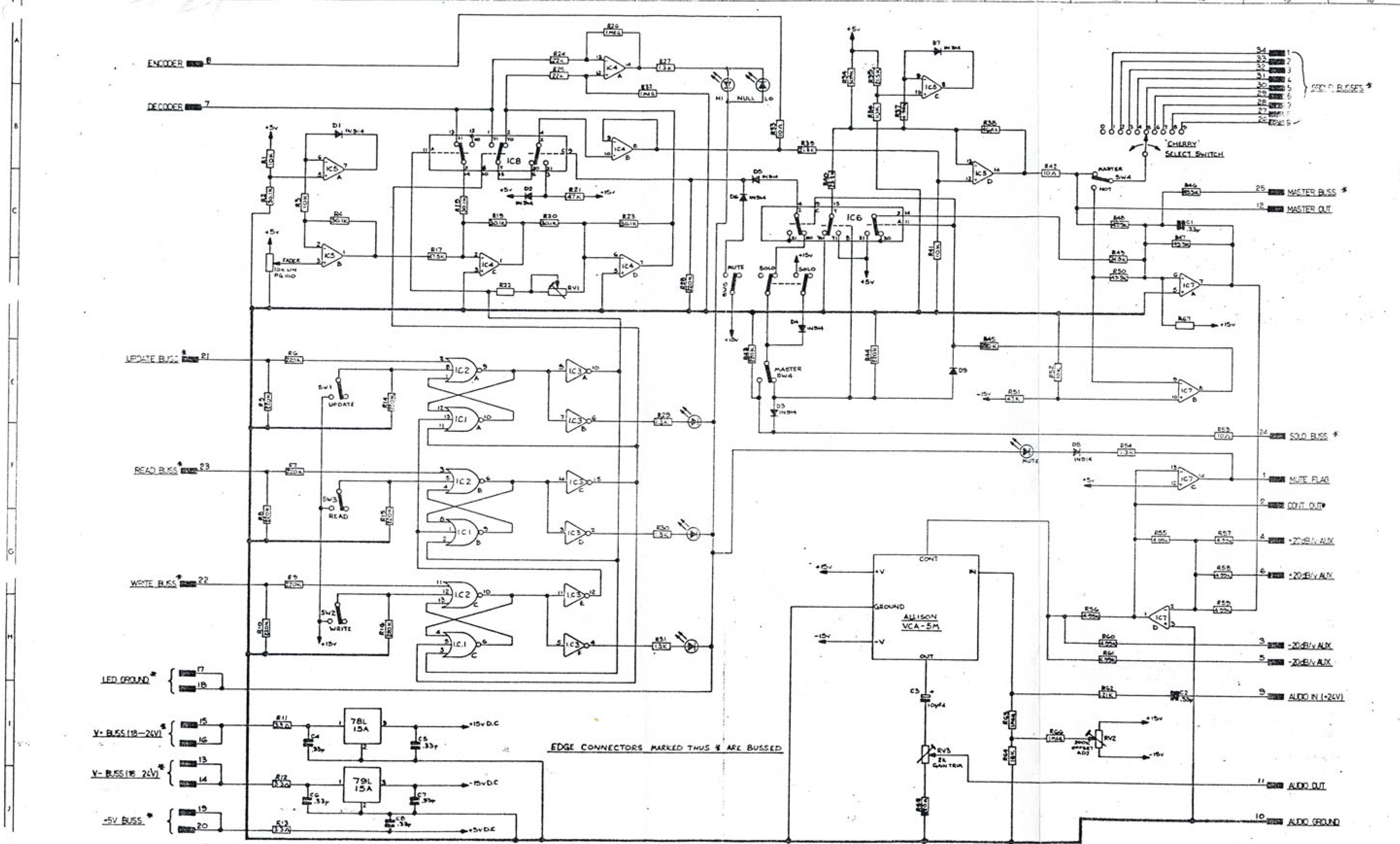
TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone: Chertsey (09328) 602411 Telex: 8813982

TITLE TSM SERIES/SERIES 80

FADEX WIRING DIAGRAM

DRAWING NUMBER ED3165

UNLESS OTHERWISE STATED ALL DIMS IN | REMOVE ALL BURRS AND SHARP EDGES | ANGLE PROJECTION | DRAWING NUMBER ED3164



ENCODER
DECODER
UPDATE BUSS
READ BUSS
WRITE BUSS
LED GROUND
V+ BUSS (18–24V)
V- BUSS (18–24V)
+5V BUSS
78L 15A
79L 15A
+15v D.C
-15v D.C
+5v D.C
EDGE CONNECTORS MARKED THUS * ARE BUSSED
'CHERRY' SELECT SWITCH
GROUP BUSSES
MASTER BUSS
MASTER OUT
SOLO BUSS
MUTE FLAG
CONT. OUT
+20dB/v AUX
-20dB/v AUX
AUDIO IN (+24V)
AUDIO OUT
AUDIO GROUND
ALLISON VCA-5M
CONT
GROUND
OUT
UPDATE
READ
WRITE
MUTE
SOLO
MASTER SW4
NULL
GAIN TRIM

IC PIN CONNECTIONS

IC 1+2	PIN 14 = +15V, PIN 7 = 0V	IC5	PINS 7+8 = 0V, PIN 16 = +15V
IC3	PIN 8 = 0V, PINS 1+15 = +15V	IC8	PINS 6,7,8 = 0V, PIN 16 = +15V
IC's 4,5,7	PIN 4 = +15V, PIN 11 = -15V		

MOD No | MOD BY | DATE | HOLE | DESCRIPTION | No OFF

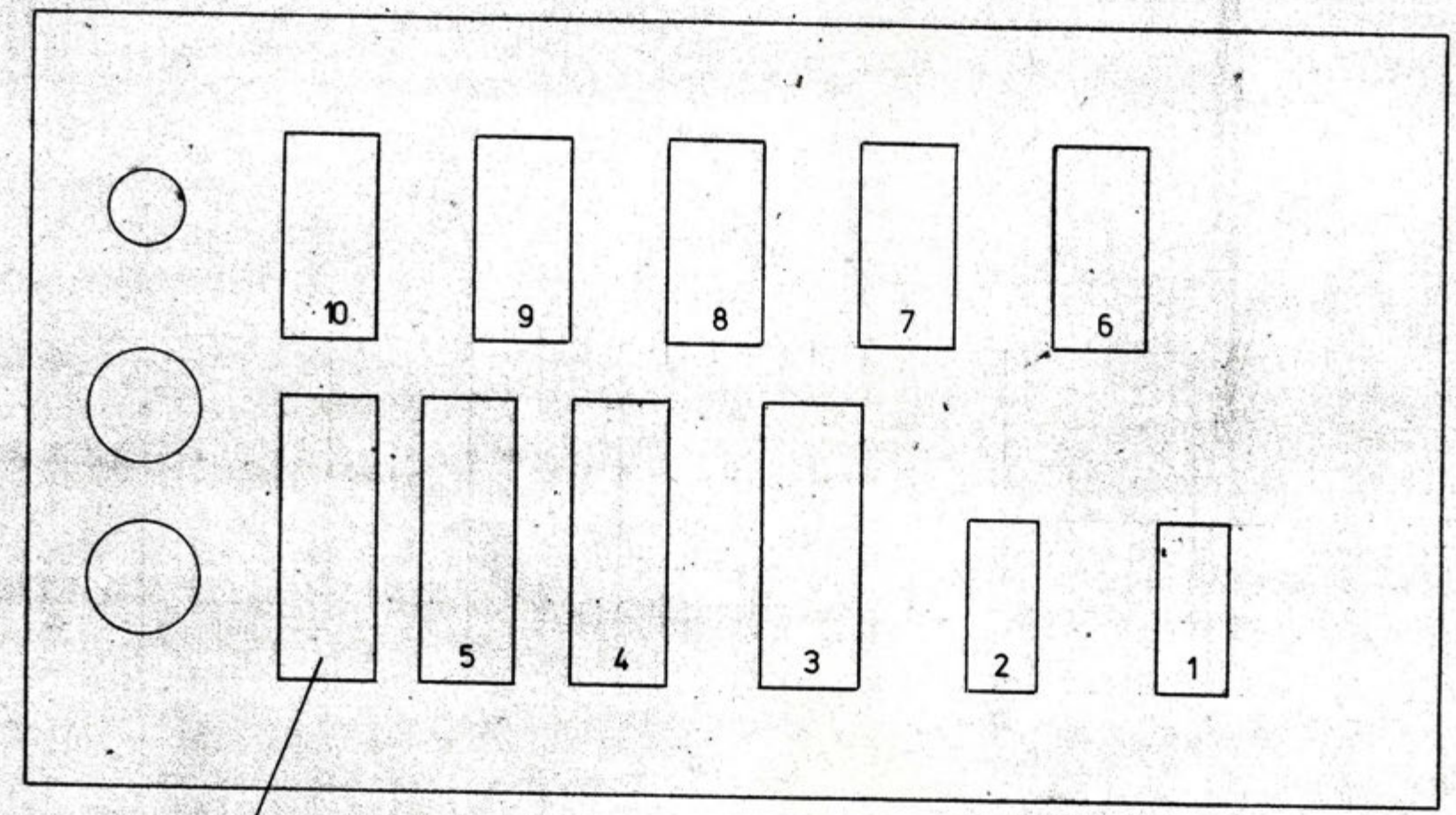
MATERIAL | SCALE | DRAWN
FINISH | PROJECTION | CHK'D BY SW
TOLERANCES | ISSUE 1 | DATE 5-4-79

TRIDENT AUDIO DEVELOPMENTS LIMITED

TITLE: FADEX MODULE CIRCUIT DIAGRAM

DRAWING NUMBER ED3164

DL CONNECTOR LAYOUT
FOR STANDARD 40-32 T.S.Ms



SPARE

DL CONNECTORS 1, 2, 60 WAY.

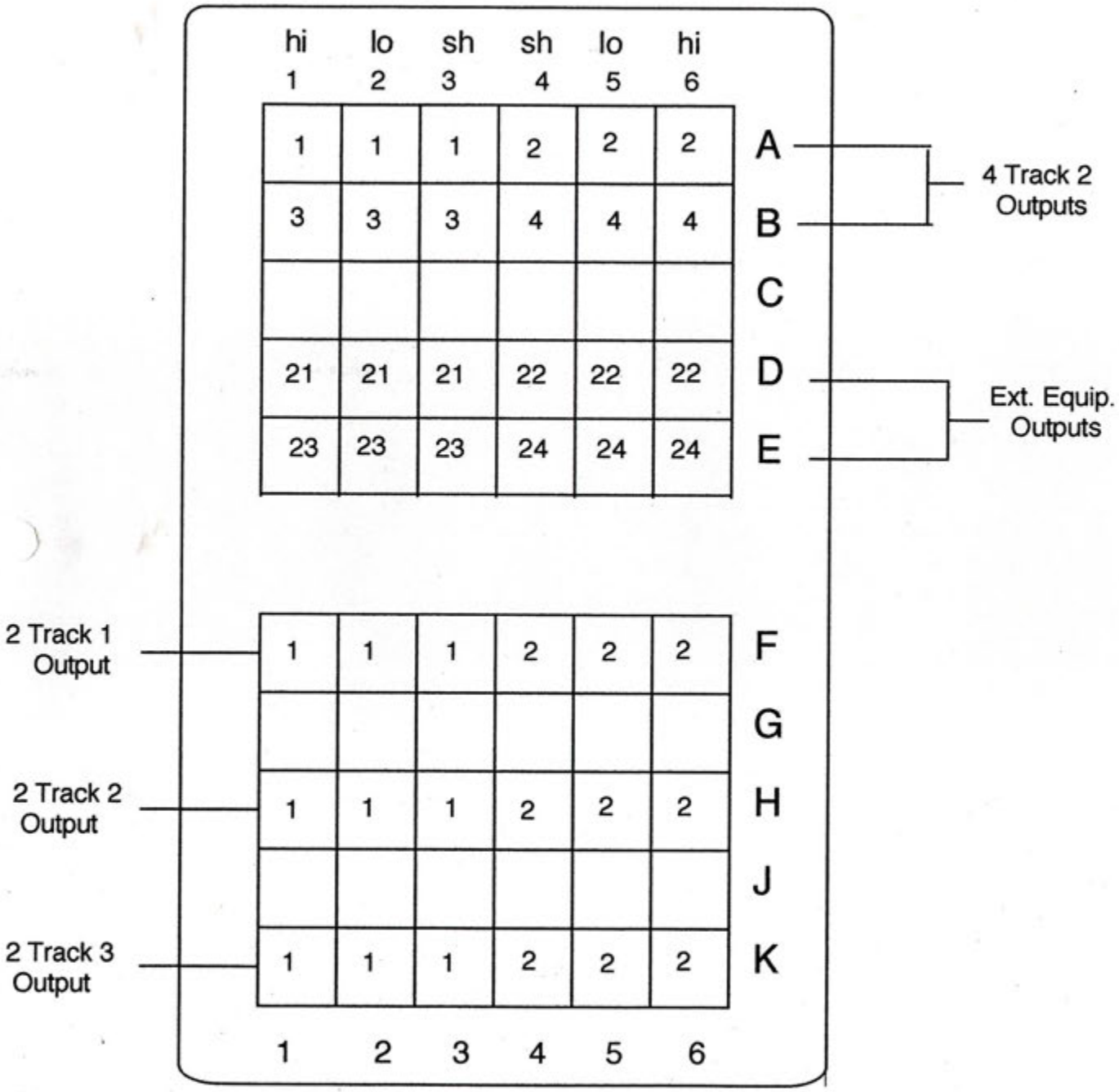
DL CONNECTORS 3, 4, 5, 156 WAY.

DL CONNECTORS 6-10, 96 WAY.

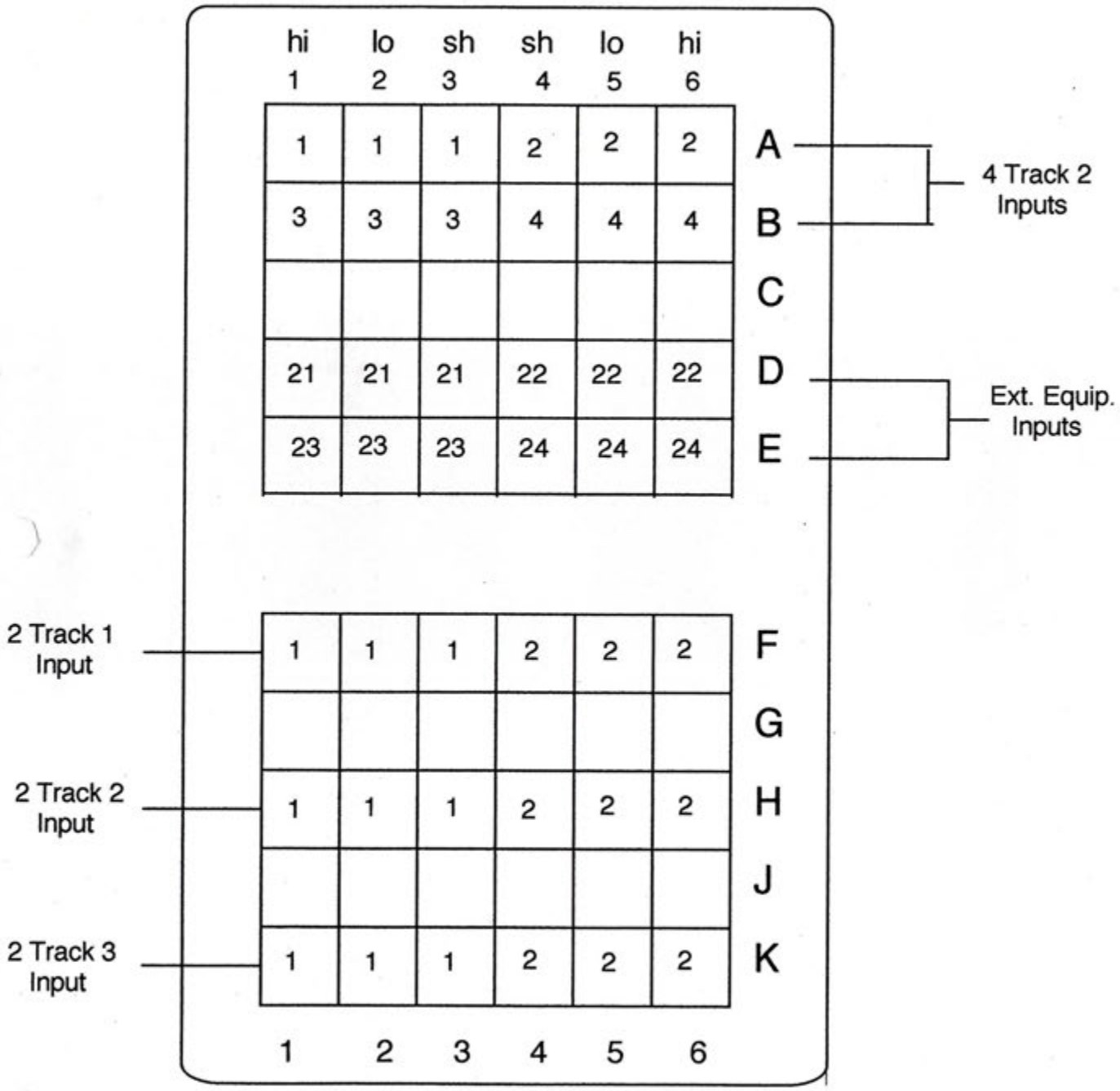
1. STEREO O/P
2. STEREO I/P
3. MIC LINES
4. TIE LINES 1-40
5. TIE LINES 41-80
6. EXT EQUIP O/P
7. EXT EQUIP I/P
8. MULTI TRACK O/P
9. MULTI TRACK I/P
10. AUX SENDS & POWER AMP I/

TRIDENT AUDIO DEVELOPMENTS LTD.
SHEPPERTON STUDIOS,
SHEPPERTON,
MIDDLESEX,
ENGLAND.

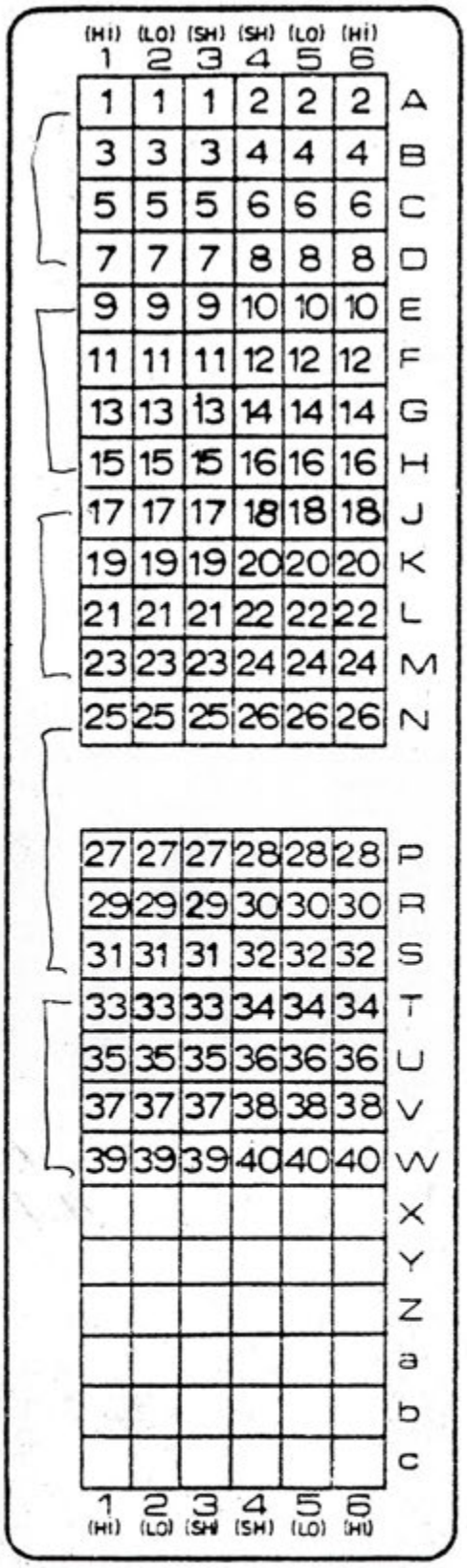
DL #1


hi 1
lo 2
sh 3
sh 4
lo 5
hi 6
1 1 1 2 2 2 A
3 3 3 4 4 4 B
C
21 21 21 22 22 22 D
23 23 23 24 24 24 E
4 Track 2 Outputs
Ext. Equip. Outputs
2 Track 1 Output
2 Track 2 Output
2 Track 3 Output
1 1 1 2 2 2 F
G
1 1 1 2 2 2 H
J
1 1 1 2 2 2 K
1 2 3 4 5 6

DL #2


hi 1
lo 2
sh 3
sh 4
lo 5
hi 6
1 1 1 2 2 2 A
3 3 3 4 4 4 B
C
21 21 21 22 22 22 D
23 23 23 24 24 24 E
4 Track 2 Inputs
Ext. Equip. Inputs
2 Track 1 Input
2 Track 2 Input
2 Track 3 Input
1 1 1 2 2 2 F
G
1 1 1 2 2 2 H
J
1 1 1 2 2 2 K
1 2 3 4 5 6

MIC LINES 1-40



OK 4/18/00 Doc

	HI	LOW	
37	BRN	WHT	
38	ORG	WHT	
39	BRN	BLU	
40	YEL	BLU	

37-40 APPEAR AS ISO 1-4 (27 PR CABLE)

#	HI	LOW	
1	RED	BLK	
2	WHT	BLK	
3	GRN	BLK	
4	BLU	BLK	
5	YEL	BLK	
6	BRN	BLK	
7	ORG	BLK	
8	WHT	RED	
9	ORG	BLU	
10	BLU	RED	27 PR.
11	YEL	RED	
12	BRN	RED	
13	ORG	RED	
14	WHT	GRN	
15	BLU	GRN	
16	YEL	GRN	
17	BRN	GRN	
18	ORG	GRN	
19	BLU	WHT	
20	YEL	WHT	
21	BRN	BLK	BRN-WHT
22	RED	BRN	ORG-WHT
23	WHT	BLU	BRN-BLU
24	GRN	BLU	YEL-BLK
25	RED	BLU	
26	ORG	BLK	19 PR
27	RED	WHT	
28	WHT	BLK	
29	GRN	WHT	
30	RED	BLK	
31	YEL	BLK	
32	GRN	BLK	
33	RED	GRN	
34	RED	YEL	
35	BLU	BLK	
36	RED	ORG	

DL-156 N° 3

TRIDENT AUDIO DEVELOPMENTS
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX

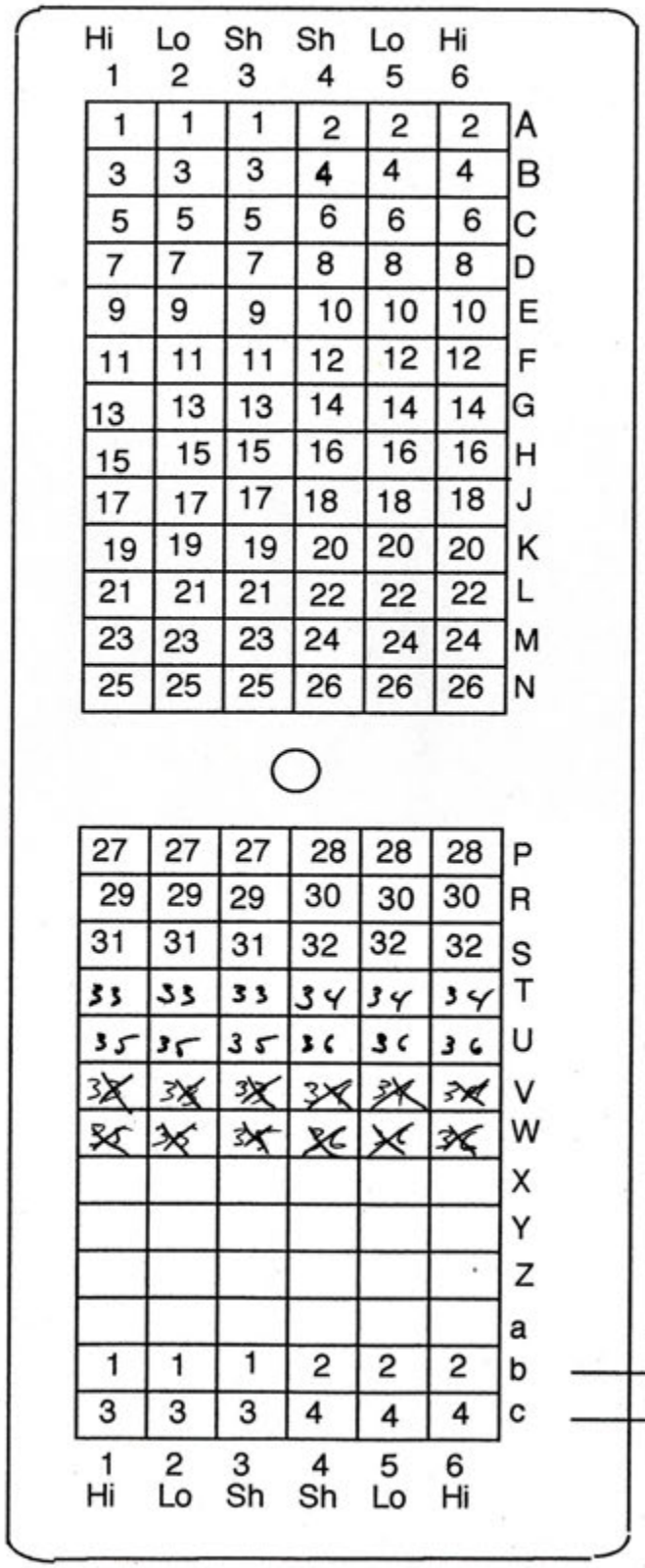
STANDARD

TSM 40-32

DL#4

Tie Lines 1-32

4/18/2000



DL#4

TSM 40/32

1	2	3	4	5	6	
33	33	33	34	34	34	A
35	35	35	36	36	36	B
37	37	37	38	38	38	C
39	39	39	40	40	40	D
41	41	41	42	42	42	E
43	43	43	44	44	44	F
45	45	45	46	46	46	G
47	47	47	48	48	48	H
49	49	49	50	50	50	J
51	51	51	52	52	52	K
53	53	53	54	54	54	L
55	55	55	56	56	56	M
57	57	57	58	58	58	N

59	59	59	60	60	60	P
61	61	61	62	62	62	R
63	63	63	64	64	64	S
						T
						U
						V
						W
						X
						Y
						Z
						a
						b
						c

1 (Hi) 2 (Lo) 3 (Sh) 4 (Sh) 5 (Lo) 6 (Hi)

TIE LINES 33-64

OK
4/18/90
Doc

DL-156 No6 (5) #5

CONNECTOR TYPE

CONNECTOR REF

TRIDENT AUDIO DEVELOPMENTS
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX

TRIAD

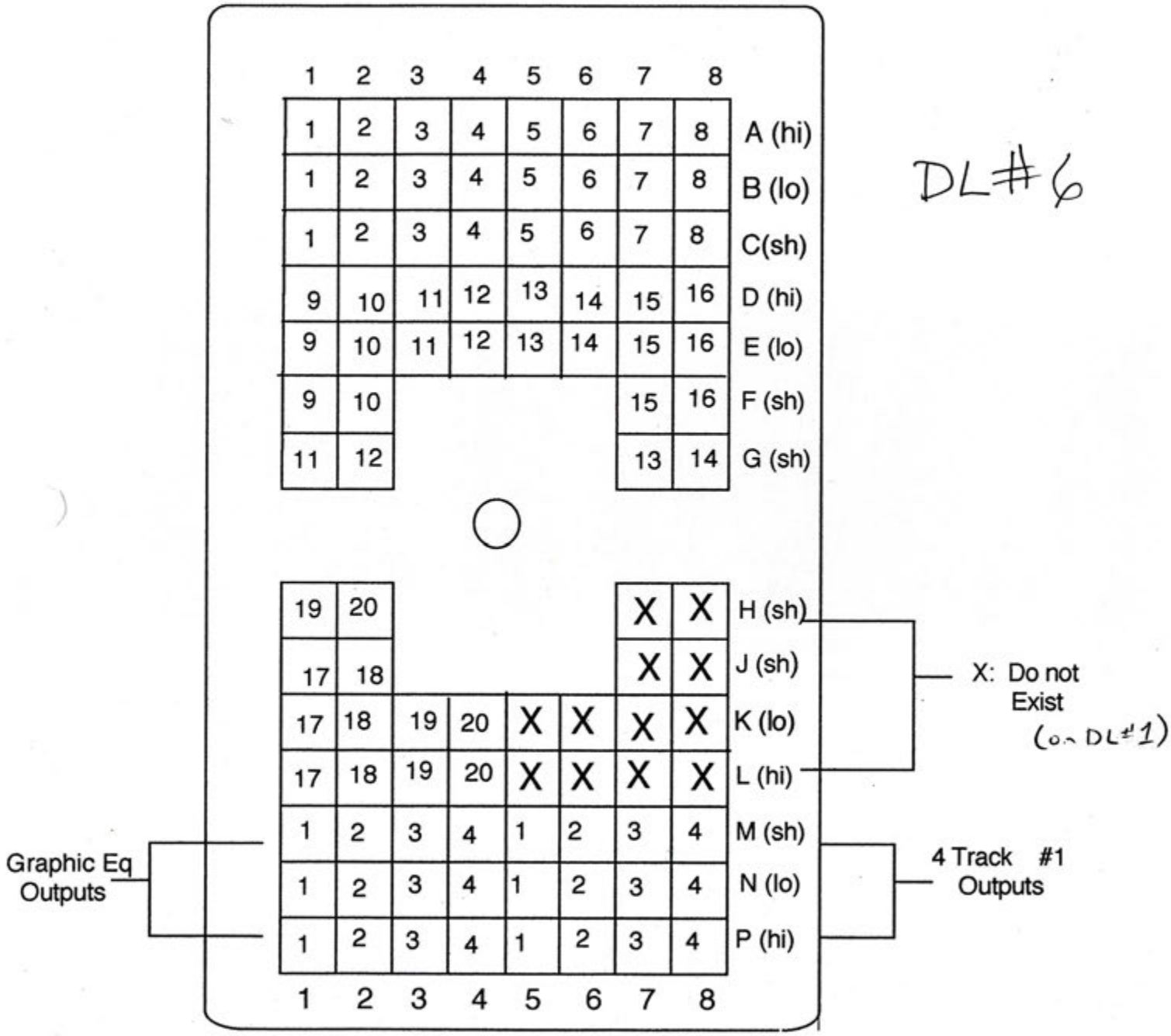
CUSTOMER A+M AND AUTOMATT STUDIOS
DESK TYPE
40-32 CONSOLE

DL#6

4/18/2000

External Equipment Outputs

Tie Lines :

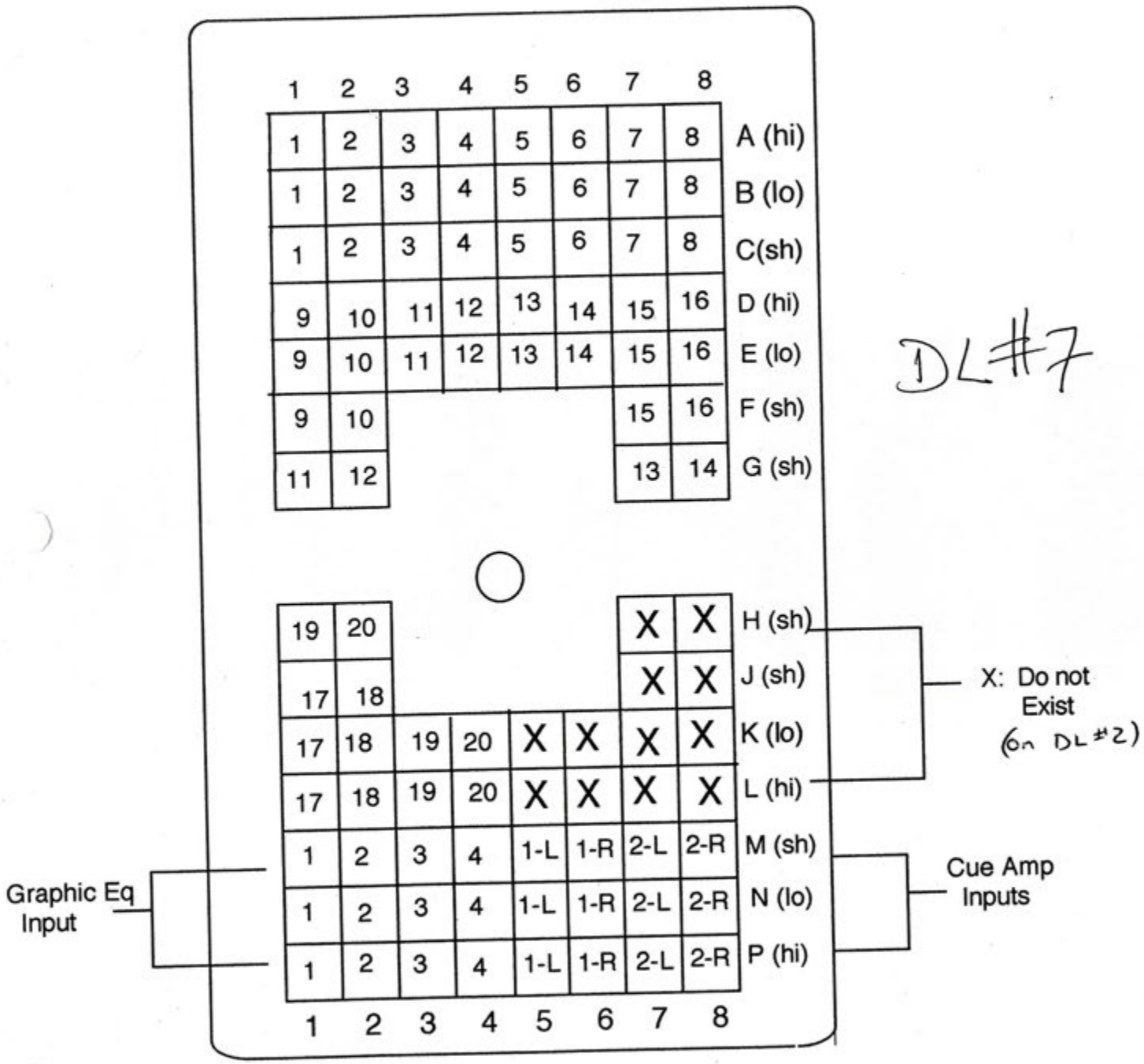


DL#6

Trident TSM 40/32

DL#7

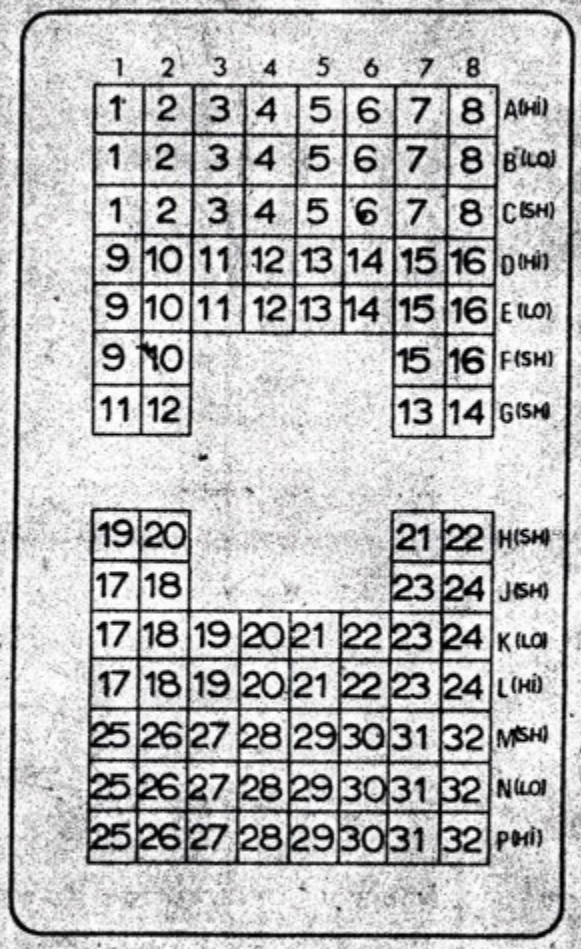
External Equipment Inputs 4/18/2000
Tie Lines:



DL#7

Trident TSM 40/32

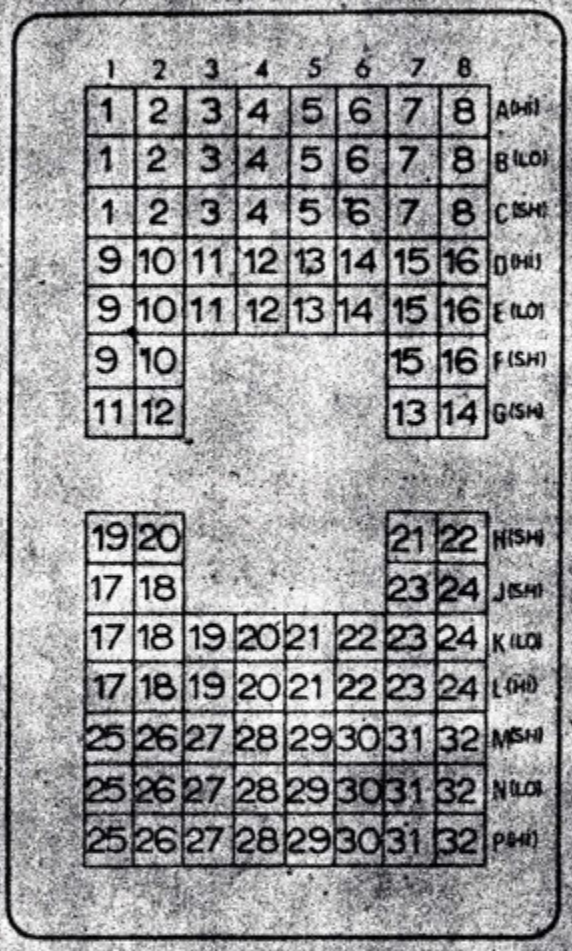
32 TRACK OUTPUTS



DL-96 N°8

CTOR TYPE DL-96 CONNECTOR REF	TRIDENT AUDIO DEVELOPMENTS SHEPPERTON STUDIOS SHEPPERTON MIDDLESEX	CUSTOMER STANDARD DESK TYPE TSM 40-32

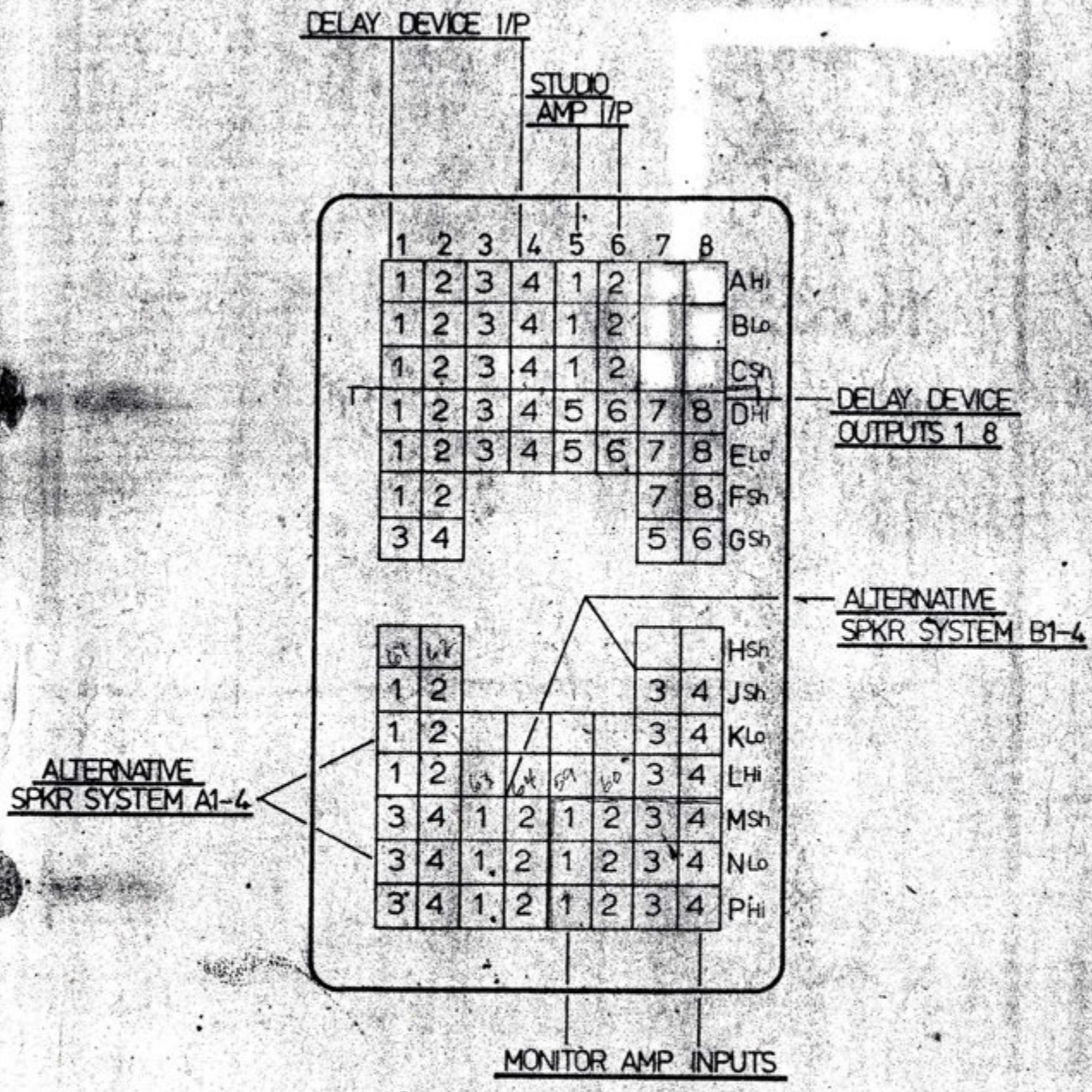
32 TRACK INPUTS



DL-96 N°9

DESIGN TYPE DL-96 CONNECTOR REF	TRIDENT AUDIO DEVELOPMENTS SHEPPERTON STUDIOS SHEPPERTON	CUSTOMER STANDARD DESK TYPE TSM 40-32

AUX SEND & POWER AMP INPUTS



DL 96 N° 10

TYPE EF	TRIDENT AUDIO DEVELOPMENTS SHEPPERTON STUDIOS SHEPPERTON MIDDX	CUSTOMER AUTOMATT DESK TYPE TSM 40-32

DL#11 External Patchbay Inputs

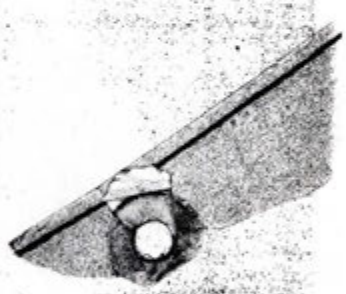
- Multitrack #2 IN (1-24)
- Iso Mic Lines 9-16 (25-32)

3 96P DL
CONN.

[redacted]

1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	A(HI)
1	2	3	4	5	6	7	8	B(LO)
1	2	3	4	5	6	7	8	C(SH)
9	10	11	12	13	14	15	16	D(HI)
9	10	11	12	13	14	15	16	E(LO)
9	10					15	16	F(SH)
11	12					13	14	G(SH)
19	20					21	22	H(SH)
17	18					23	24	J(SH)
17	18	19	20	21	22	23	24	K(LO)
17	18	19	20	21	22	23	24	L(HI)
25	26	27	28	29	30	31	32	M(SH)
25	26	27	28	29	30	31	32	N(LO)
25	26	27	28	29	30	31	32	P(HI)

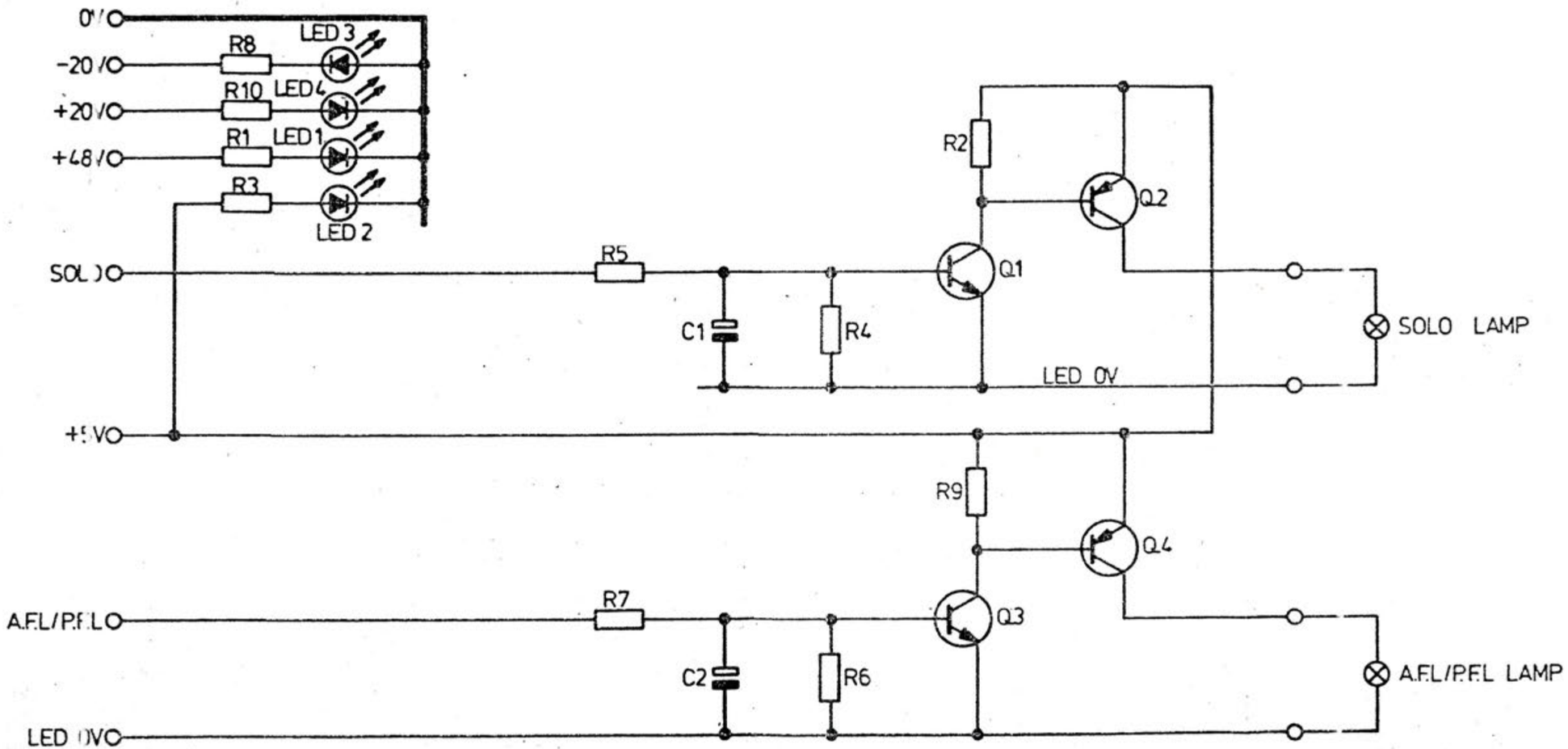
Positions 25-32 are [redacted] Iso Room Mic Lines 9-16



DL-96 [redacted] No. 11

CONSOLE TYPE		CUSTOMER
DL-96	TRIDENT AUDIO DEVELOPMENTS SHEPPERTON STUDIOS	STANDARD

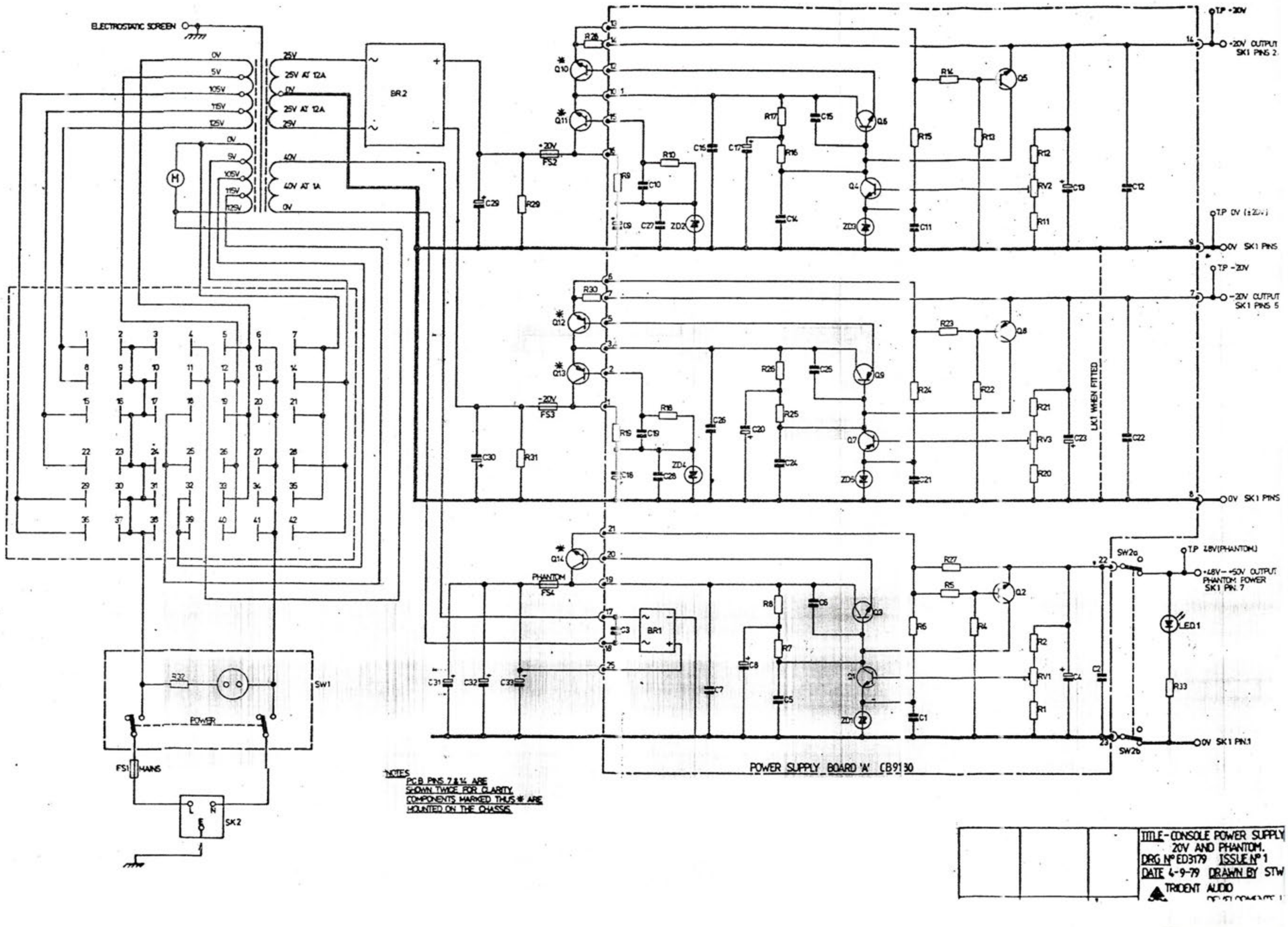
TRIDENT AUDIO DEVELOPMENTS LIMITED



CB9167 ISS. 2

1850	STW	28-8-81	

TITLE :- METER PANEL PC.B
CIRCUIT DIAGRAM
DRAWN BY STW ISSUE 2
DATE 28-8-81
DRAWING Nº ED 3194



NOTES
PCB PINS 7 & 14 ARE SHOWN TWICE FOR CLARITY
COMPONENTS MARKED THUS * ARE MOUNTED ON THE CHASSIS

TITLE - CONSOLE POWER SUPPLY 20V AND PHANTOM.
DRG N° ED3179 ISSUE N° 1
DATE 4-9-79 DRAWN BY STW
TRIDENT AUDIO

COMPONENT SCHEDULE

MODULE	CONSOLE P.S.U. 20V	
SHEET 1 OF 3	ISSUE 1	DATE 4/9/86

TRIDENT

P.C.B No	DESCRIPTION	PART No
R1	RESISTOR	2K2 ½W 2%
R2	"	2K2 ½W 2%
R3	"	3K ½W 2%
R4	"	12K ½W 2%
R5	"	1K2 ½W 2%
R6		
R7	"	560 Ω W/W 2.5W
R8	"	22 Ω ½W 2%
R9	"	1K5 ½W 2%
R10		
R11	"	2K2 ½W 2%
R12	"	2K2 ½W 2%
R13	"	12K ½W 2%
R14	"	1K2 ½W 2%
R15	"	270 Ω ½W 2%
R16	"	1K ½W 2%
R17	"	4K7 ½W 2%
R18		
R19	"	1K5 ½W 2%
R20	"	2K2 ½W 2%
R21	"	2K2 ½W 2%
R22	"	12K ½W 2%
R23	"	1K2 ½W 2%
R24	"	270Ω ½W 2%
R25	"	1K ½W 2%
R26	"	4K7 ½W 2%

COMPONENT SCHEDULE

MODULE	CONSOLE P.S.U. 20V		
SHEET 2 OF 3	ISSUE 1	DATE 4/9/86	

TRIDENT

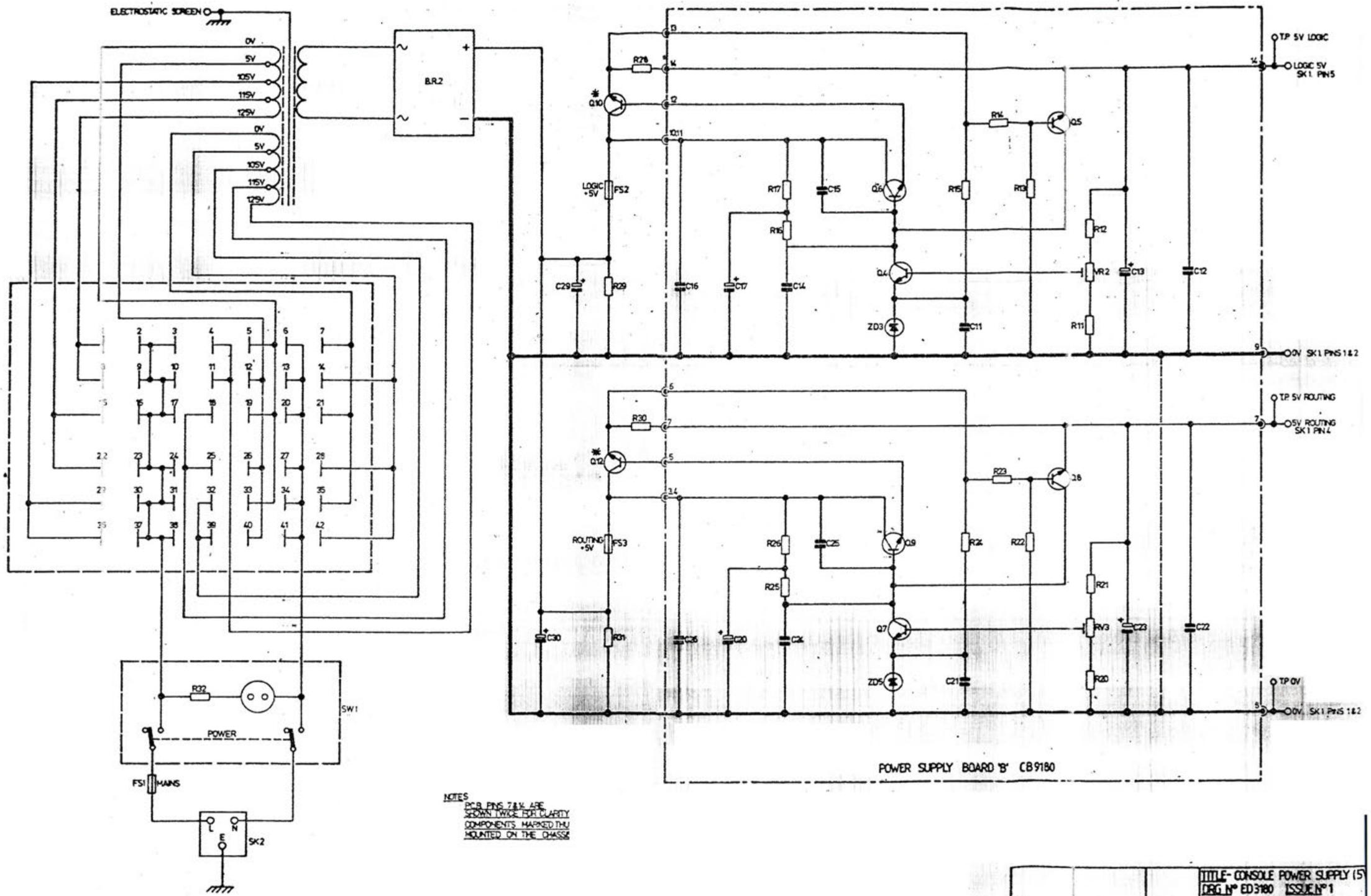
P.C.B No	DESCRIPTION	PART No		
C1	CAPACITOR	0.15µF	S.I.E.	10mm
C2	"	2.2µF	S.I.E.	15mm
C3	"	0.1µF	S.I.E.	10mm
C4	"	470µF	63V	AXIAL
C5				
C6	"	100nF	S.I.E.	C/D
C7	"	2.2µF	S.I.E.	15mm
C8	"	1000µF	63V	AXIAL
C9	"	1000µF	40V	AXIAL
C10				
C11	"	0.15µF	S.I.E.	10mm
C12	"	2.2µF	S.I.E.	15mm
C13	"	470µF	63V	AXIAL
C14				
C15	"	100nF	S.I.E.	C/D
C16	"	2.2µF	S.I.E.	15mm
C17	"	1000µF	63V	AXIAL
C18	"	1000µF	40V	AXIAL
C19				
C20	"	1000µF	63V	AXIAL
C21	"	0.15µF	S.I.E.	10mm
C22	"	2.2µF	S.I.E.	15mm
C23	"	470µF	63V	AXIAL
C24				
C25	"	100nF	S.I.E.	C/D
C26	"	2.2µF	S.I.E.	15mm
C27	"	100nF		C/D
C28	"	100nF		C/D
	RECTIFIER	RS262-113		
	RECTIFIER	RS262-315		

COMPONENT SCHEDULE

MODULE	CONSOLE P.S.U. 20V	
SHEET 3 OF 3	ISSUE 1	DATE 4/9/96

TRIDENT

P.C.B No	DESCRIPTION	PART No
V1,2,3	TRIMMER	500Ω
Z1	ZENNER	22 VOLT
Z2,4	ZENNER	30 VOLT
Z3	ZENNER	9.1 VOLT
Q1,4	TRANSISTORS	MPS A18
Q2,3,5	TRANSISTORS	BD517
Q6	TRANSISTORS	BC413
Q7,9	TRANSISTORS	BC416
Q8	TRANSISTORS	BD518
ON HEAT SINKS		MJ3001
ON HEAT SINKS		MJ2501
FACIA	LED	XC529 RED
	TRANSFORMER	ED3168
	MAINS SOCKET	BULGIN P587
	TRANSISTOR SOCKET	J03 1003
	FUSE HOLDER	L/J 19780 20mm
	SWITCH	ARCOLECTRIC 1450 NC
	SWITCH	ARCOLECTRIC 1453 NC



NOTES
PCB PINS 7&8 ARE SHOWN TWICE FOR CLARITY
COMPONENTS MARKED THU MOUNTED ON THE CHASSIS

TITLE- CONSOLE POWER SUPPLY (5'
DRG.N° ED3180 ISSUE.N° 1
DATE 21-11-79
DRAWN BY STW
TRIDENT AUDIO

COMPONENT SCHEDULE

MODULE CONSOLE P.S.U. 5V

SHEET 1 OF | ISSUE 1 | DATE 4/9/86

TRIDENT

P.C.B No	DESCRIPTION	PART No		
R11	RESISTOR	3K	½W	2%
R12	"	5K6	½W	2%
R13	"	12K	½W	2%
R14	"	3K3	½W	2%
R15	"	1K5	½W	2%
R16	"	150Ω	½W	2%
R17	"	1K5	½W	2%
R18				
R19				
R20	"	3K	½W	2%
R21	"	5K6	½W	2%
R22	"	12K	½W	2%
R23	"	3K3	½W	2%
R24	"	1K5	½W	2%
R25	"	150Ω	½W	2%
R26	"	1K5	½W	2%
		1K	½W	2%
		0.3Ω	25W	WH25
C11	CAPACITOR	100nF		C/D
C12	"	2.2µF	15mm	S.I.E.
C13	"	470µF	35V	AXIAL
C14				
C15	"	100nF	S.I.E.	C/D
C16	"	2.2µF	15mm	S.I.E.
C17	"	1000µF	25V	AXIAL
C18				
C19				
C20	"	1000µF	25V	AXIAL
C21	"	470µF	35V	AXIAL
C22	"	2.2µF	15mm	S.I.E.
C23				
C24				
C25	"	100nF		C/D
C26	"	2.2µF	15mm	S.I.E.

COMPONENT SCHEDULE

MODULE CONSOLE P.C.B. 5V

SHEET 2 OF | ISSUE 1 | DATE 4/9/86

TRIDENT

P.C.B No	DESCRIPTION	PART No
04	TRANSISTOR	MPS A18
05	"	BD517
06	"	BC413
07	"	MPS A18
08	"	BD517
09	"	BC413
	VAR RES 500	
	TRANSFORMER	ED3767
	TRANSISTOR SOCKET	J03 1003
	FUSE HOLDER	LJ 19780

P.S.U. TOWER

RED	+20V
BLUE	-20V
BLACK	OV & SIGNAL EARTH
YELLOW	LED EARTH
ORANGE	+5V LOGIC
MAUVE	+5V LAMPS
BROWN	+48V PHANTOM

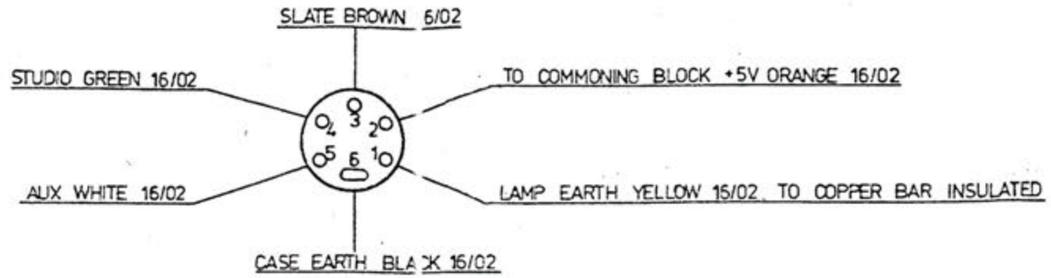
	+20V			-20V			+5V		
	COLOUR	SIZE	IDENT	COLOUR	SIZE	IDENT	COLOUR	SIZE	IDE
MIC/LINE 1-10	RED	32/02	1	BLUE	32/02	1	ORANGE	32/02	1
MIC/LINE 11-20	RED	32/02	2	BLUE	32/02	2	ORANGE	32/02	2
MIC/LINE 21-32	RED	32/02	3	BLUE	32/02	3	ORANGE	32/02	3
EQ 1-10	RED	32/02	4	BLUE	32/02	4	ORANGE	32/02	4
EQ 11-20	RED	32/02	5	BLUE	32/02	5	ORANGE	32/02	5
EQ 21-32	RED	32/02	6	BLUE	32/02	6	ORANGE	32/02	6
SPECIALS & MONITORS 1-12	RED	32/02	7	BLUE	32/02	7	ORANGE	32/02	
SPECIALS & MONITORS 13-24	RED	32/02	8	BLUE	32/02	8	ORANGE	32/02	
ROUTING 1-10	RED	32/02	9	BLUE	32/02	9	MAUVE	32/02	
ROUTING 11-20	RED	32/02	10	BLUE	32/02	10	MAUVE	32/02	
ROUTING 21-32	RED	32/02	11	BLUE	32/02	11	MAUVE	32/02	
SLATE DELAY	RED	16/02	12	BLUE	16/02	12	ORANGE	16/02	
METERS 1-8							MAUVE	32/02	
METERS 9-16							MAUVE	32/02	
METERS 16-24							MAUVE	32/02	
QUAD METERS							MAUVE	32/02	
PSU INDICATOR	RED	16/02	13	BLUE	16/02	13	ORANGE	16/02	

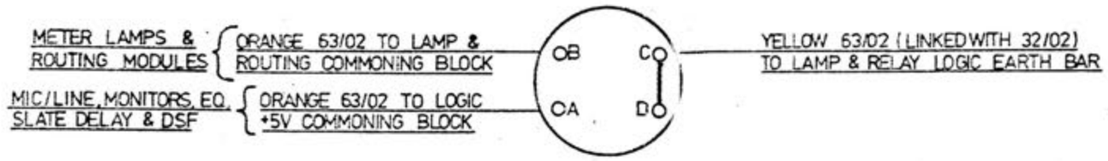
*PHANTOM	COLOUR	SIZE	IDENT
MIC/LINE 1-10	BROWN	32/02	1
MIC/LINE 11-20	BROWN	32/02	2
MIC/LINE 21-32	BROWN	32/02	3

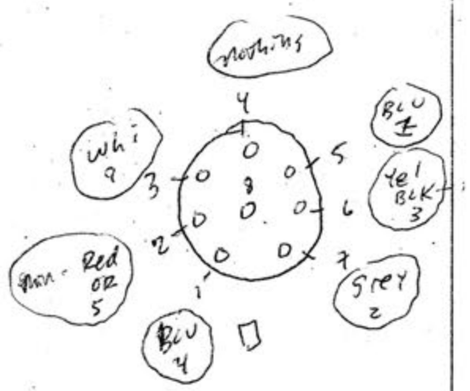
UNLESS OTHERWISE STATED ALL DIMENSIONS IN

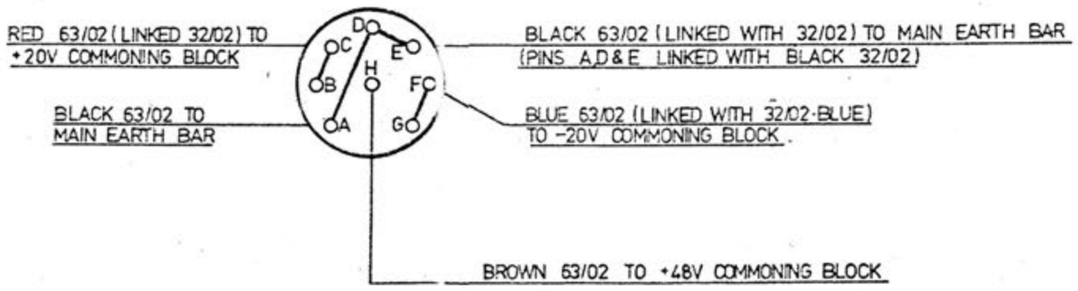
REMOVE ALL BURRS & SHARP EDGES

ANGLE PROJECTION









MOD Nº	MOD BY	DATE

MATERIAL	SCALE	DRAWN STD
		CHK'D
FINISH	PROJECTION	ISSUE 1 / DATE 24-4-80

TOLERANCES
All imperial dimensions ±0·01" All metric dimensions ±0·25mm
All angles ±0·50° Unless otherwise stated

TRIDENT AUDIO DEVELOPMENTS LIMITED
SHEPPERTON STUDIOS
SHEPPERTON
MIDDLESEX
Telephone: Chertsey (09328) 60241 Telex: 8813982

TITLE

TSM SERIES

POWER SOCKETS

(WIRING DIAGRAM)

DRAWING NUMBER ED3200

ADMEL P3/496

TSM Power Wiring 4/2000

function	wire	color into console
Tech gnd	GRN	(at middle of console)
+18V	Rd / Yl #34	Rd
-18 V	BL / YL #33	BL
0V (18V)	Wh #1 / Bk	GN (2 terminals)
+5V (2.5A max draw)	wh #2	OR/OR
0V (5V)	Wh #3	Yl / Yl
+48V	BR	BR
0V (48V)	Vio	GN (single TB)