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AA-293, AA-294

10x1 STEREO AUDIO SWITCHERS

802601/802610

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DESIGNED AND MANUFACTURED
IN AUSTRALIA

AA-293, AA-294
10x1 STEREO AUDIO SWITCHERS
INSTRUCTION BOOK

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W A R N I N G

OPERATION OF ELECTRONIC EQUIPMENT INVOLVES THE USE OF VOLTAGES AND CURRENTS WHICH MAY BE DANGEROUS TO HUMAN LIFE. OPERATING PERSONNEL SHOULD OBSERVE ALL SAFETY REGULATIONS. DO NOT CHANGE COMPONENTS OR MAKE ADJUSTMENTS INSIDE THE EQUIPMENT WITH POWER ON UNLESS PROPER PRECAUTIONS ARE OBSERVED. NOTE THAT UNDER CERTAIN CONDITIONS DANGEROUS POTENTIALS MAY EXIST IN SOME CIRCUITS EVEN THOUGH POWER CONTROLS ARE IN THE OFF POSITION.

GENERAL DESCRIPTION

The IRT AA-293 and AA-294 Audio Switchers are self-contained 10x1 STEREO Audio Switchers designed for program and monitoring switching of Stereo Broadcast Audio circuits. The AA-293 is a stand-alone unit with integral control panel and the AA-294 is a slave unit designed to work with a VA-400 Video Switcher as a Audio follow Video switcher or as a remotely controlled switcher with a VA-291A remote control panel.

The input circuit of the AA-293 and AA-294 is designed to bridge across a balanced 600 ohm circuit. The output circuit will drive two 600 ohm balanced circuits, from a low impedance (44 ohm) source to a maximum level of +24dBm.

The IRT AA-293 and AA-294 Audio switchers are housed in a IRT one rack unit (44mm high) 483mm (19 inch) rack mounting metal chassis. The Input and Output circuit connections are by means of plug in terminals to sockets mounted on the edge of the printed circuit boards, accessible from the rear panel of the unit.

Control/Tally connections to the switch data buss are made to a parallel pair of 25 pin "D" connectors mounted on the rear panel. An internal 240 volt AC powered regulated power supply provides the operating voltages for the switcher circuitry.

TECHNICAL DATA

Inputs: Ten Pair balanced circuit
Bridging (20 Kohms) input impedance

Outputs: Two balanced circuit (44 ohms)
low impedance drive per channel

Gain: Unity (Adjustable by internal preset
control to +/- 3dB)

Maximum Signal level: +24 dBm
[Clipping level +26dBm]

Frequency Response: +/- 0.15 dB in the range 20Hz to 20KHz.
(Referenced to 1KHz)

Harmonic Distortion: Less than 0.01% in the range 20Hz to
20KHz at an Audio level of +16dBm.

Noise at the Output: With input terminated by 600 ohms:-
Less than -100dB below an output level
of +20dBm. (Bandwidth 20Hz to 20KHz)

Crosstalk: Between inputs: Less than -90dB at
20KHz. (Input of measured channel
terminated)

Stereo Separation: Between channels: Less than -90dB at
20KHz. (Input of measured channel
terminated)

Control: AA-293 Front panel mounted momentary
contact push-buttons with LED tally
indication.

AA-294 4 bit TTL level signal
Compatible with IRT VA-400 Video
Switcher tally output circuit and
IRT VA-291A remote control panel

Power Requirements: 240V AC 50Hz 10VA

Dimensions: 44mm x 480mm x 230mm

CIRCUIT DESCRIPTION

The AA-293/294 audio switchers main circuit boards consist of two 10x1 single channel audio switcher boards one mounted above the other, and a front panel mounted 10x1 control panel for the AA-293 only. Both audio switcher boards contain identical audio circuitry with identical component numbering and similar layout to facilitate alignment and maintenance.

The lower audio switcher board PCB802602 differs from the upper board PCB802603 in that it contains the +/-15 volts power supply circuitry which is wired to the upper board on assembly to supply operating voltages to that board.

Audio input signals to the AA-293/294 switcher boards are switched by relays RL1 to RL10 to the input circuitry of U1 which is configured as a balanced input amplifier. The circuit exhibits high input level capability and common mode signal rejection. Adjustment of the common mode signal rejection is made by potentiometer RV1. Following the input amplifier U1 the signal is coupled to U2 via master gain control RV2 which allows gain adjustment of +/-3dB from unity. Amplifiers U2 and U3 together with the complementary output transistor pairs included in the feedback circuit, form a balanced circuit output amplifier with a low output impedance essentially set by building out resistors R58, R59 and R67, R68.

The control circuit of the AA-293 consists of a VA-291 active switch panel with ten push-buttons which is mounted on the front panel of the switcher and logic circuit on the main board which energises the appropriate audio cross-point relay. On the switch panel U1 and part of U2 are wired as a 10 input priority encoder circuit with the data bits A,B,C and D appearing at U2/3 U1/7 U1/6 and U2/4 respectively. The data on these four lines is then applied to the data latch U4 via the OR gates of U3. Actuation of any one of the input switches produces a key STROBE signal at U2/11 which is then applied to the enable input of the LATCH U4 via one part of U2. RC networks consisting of 22K ohm resistors and 1nF capacitors on the data input circuits of U4 hold the data there for a short time after the strobe pulse enables the latch to ensure that the correct data is latched. The data thus stored in U4 is wired to the main board to actuate the required audio cross-point relay and is also decoded by U5 to light a TALLY LED mounted in the switch as a visual indication of the selected input.

Power to operate the switch control panel is derived from the +15 volt supply line of the main board and regulated to +5 volts by U5.

On the main circuit board the 4 bit BCD signal is decoded by decimal decoder U6, the output of which is used to turn on the appropriate relay drive transistor to energise a audio cross-point relay. The outputs of the decoder are wired to the relay drive transistors Q1 to Q10.

CIRCUIT DESCRIPTION

Note the 10K ohm, 1uF RC network in the base circuit of each BC107 relay driver transistor. This interfaces the 5 volt logic to the base circuit of the transistor, and also acts to give a faster TURN-OFF than TURN-ON switching action to the transistor. This gives a break before make action to the switcher action.

The power supply consists of two bridge rectifier circuits and three terminal integrated circuit regulators to provide +/- 15 volts to operate the audio amplifiers. In addition U4 and U5 100mA +12v and +5v regulator circuits are used on each audio switcher board to power the relay and logic circuits.

INSTALLATION

The AA-293/4 is mounted in a 483mm (19 inch) rack mounting chassis one rack unit (44mm) high.

Signal Connections are by means of compression screw terminal strips, which plug into sockets mounted on the rear of the printed circuit board and protruding through the rear panel of the chassis. The Input and Output connection sets consist of groups of three terminals vis. Active+; Active-; Ground. Input 1 is to the left of the chassis looking at the rear.

The master gain of each channel is set for unity during factory alignment and normally will not require adjustment. If the gain needs to be reset this can be done by adjustment of the preset potentiometers RV2 on each switcher channel.

Control Tally Connections are made to J1/J2 a pair of 25 pin "D" sockets on the rear panel.

Note: The 25 pin connectors are wired in parallel to eliminate the need for wiring different cable sets to the same plug if other equipment is connected to the control bus.

To connect the data lines from a audio switcher to a second audio switcher or a controlling video switcher the following cable is required.

25 PIN "D" (male)		to	25 PIN "D" (male)	
	PIN	to	PIN	
"GND"	17	to	17	"GND"
"D"	18	to	18	"D"
"C"	19	to	19	"C"
"B"	20	to	20	"B"
"A"	21	to	21	"A"

To connect a VA-291A remote control panel to a audio switcher the following cable is required.

25 PIN "D" (male)		to	15 PIN "D" (female)	
	PIN	to	PIN	
"U/L"	25	to	7	"ST"
"ST"	24	to	8	"U/L"
"GND"	23	to	6	"GND"
"A"	21	to	15	"A"
"B"	20	to	14	"B"
"C"	19	to	13	"C"
"D"	18	to	12	"D"
"GND"	17	to	11	"GND"
"GND"	15	to	10	"GND"
" +V"	14	to	9	" +V"

NOTE: If parallel operation using two control panels is not required the first three connections from 25-23 are not required.

INSTALLATION

The connections to control connectors J1/2 are:

Pin	21	Bit	A	(TTL Level)
"	20	"	B	" "
"	19	"	C	" "
"	18	"	D	" "
"	17	SIGNAL GROUND		
"	15	POWER GROUND		
"	14	+12 volts for remote control panel		
"	25	UNLATCH IN	[ON]	(TTL Level)
"	24	STROBE OUT	[AA-293]	" "
"	23	SIGNAL GROUND	[ONLY]	

20x1 OPERATION OF THE AA-294 AUDIO SWITCHER

On each AA-294 switch circuit board there is a audio output point from the input amplifier and a audio input point to the output amplifier together with a ground point, connected to circuit pads. These are located on the edge of the board near RV3 on the top board and between RV2 and RV3 on the lower board. WIRE THESE TOGETHER POINT TO POINT. The sequence on the lower board is OUT-IN-GND and on the top board is IN-OUT-GND.

Thus the OUT of one board is wired to the IN of the other board.

This will common the audio circuits so that any input selected on the two switching boards will be routed to both boards' output circuits.

To separate the control circuit remove the wiring of the control lines A,B,C,D & GND from the lower to the top board.

WIRE the control lines (A,B,C,D & GND) from the top board to the PCB on the rear panel for the control in/out connectors.

A to 8
B to 7
C to 6
D to 5
GND to 4

The AA-294 is now a 20x1 one channel switcher with the LOWER BOARD used for inputs 1-10, the control wiring to pins 21 to 18. The UPPER BOARD being used for inputs 11-20, and the control wiring to pins 4 to 8 of the control connectors J1 and J2. This procedure will turn a AA-294 audio switcher into a AA-296 20X1 audio switcher.

To connect the control circuits of a 20X1 audio switcher to a VA-292 remote control panel the following cable is required.

CABLE from the control panel J1 to switcher J1.

VA-292	[15 pin 'D' fem]	to	AA-295	[25 pin 'D' male]
Pin 9	+V IN	to	Pin 14	+V OUT
Pin 10	GND	to	Pin 15	GND
Pin 11	GND I/P's 1-10	to	Pin 17	GND
Pin 12	'D' " "	to	Pin 18	'D'
Pin 13	'C' " "	to	Pin 19	'C'
Pin 14	'B' " "	to	Pin 20	'B'
Pin 15	'A' " "	to	Pin 21	'A'
Pin 1	GND I/P's 11-20	to	Pin 4	GND
Pin 5	'D' " "	to	Pin 5	'D'
Pin 4	'C' " "	to	Pin 6	'C'
Pin 3	'B' " "	to	Pin 7	'B'
Pin 2	'A' " "	to	Pin 8	'A'

20x1 OPERATION OF THE AA-294 AUDIO SWITCHER

To connect the control circuits of a 20x1 audio switcher to a VA-415 video switcher for audio follow video operation the following cable is required.

CABLE from J4 on the VA-415 to J1 on the 20x1 switcher.

VA-415 [25 pin 'D' male] to AA-296 [25 pin 'D' male]

Pin 17	GND	I/P's 1-10	to	Pin 17	GND
Pin 18	'D'	" "	to	Pin 18	'D'
Pin 19	'C'	" "	to	Pin 19	'C'
Pin 20	'B'	" "	to	Pin 20	'B'
Pin 21	'A'	" "	to	Pin 21	'A'

Pin 4	GND	I/P's 11-20	to	Pin 4	GND
Pin 5	'D'	" "	to	Pin 5	'D'
Pin 6	'C'	" "	to	Pin 6	'C'
Pin 7	'B'	" "	to	Pin 7	'B'
Pin 8	'A'	" "	to	Pin 8	'A'

Further information on the interconnection of a 20X1 audio switcher can be obtained from the AA-295,AA-296 instruction book.

MAINTENANCE

The AA-293/294 audio switchers are aligned and tested in the factory and set for unity gain operation when wired to 600 ohm balanced circuits.

Power Supply Voltages

+/- 15v is supplied to both boards and can be most easily measured on the collectors of the line amplifier output transistors.

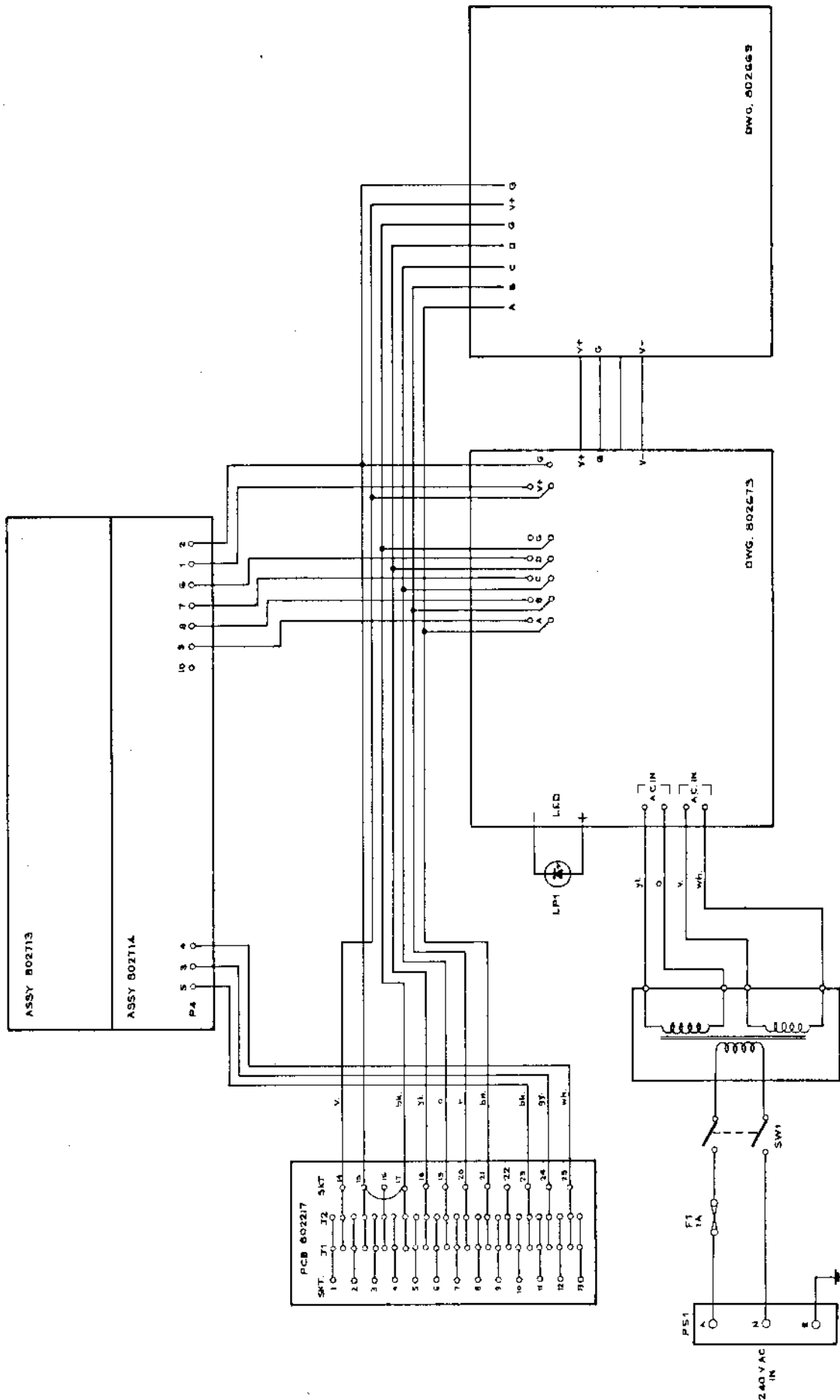
+5v for the logic circuit and +12v for the relays is supplied from TO-92 regulators on each board. Check the +5v on pin 16 of the 4028 IC and the +12v on the collector of a relay driver transistor which is not energised.

Amplifier Adjustments

RV1 adjusts the input amplifier common mode signal rejection.

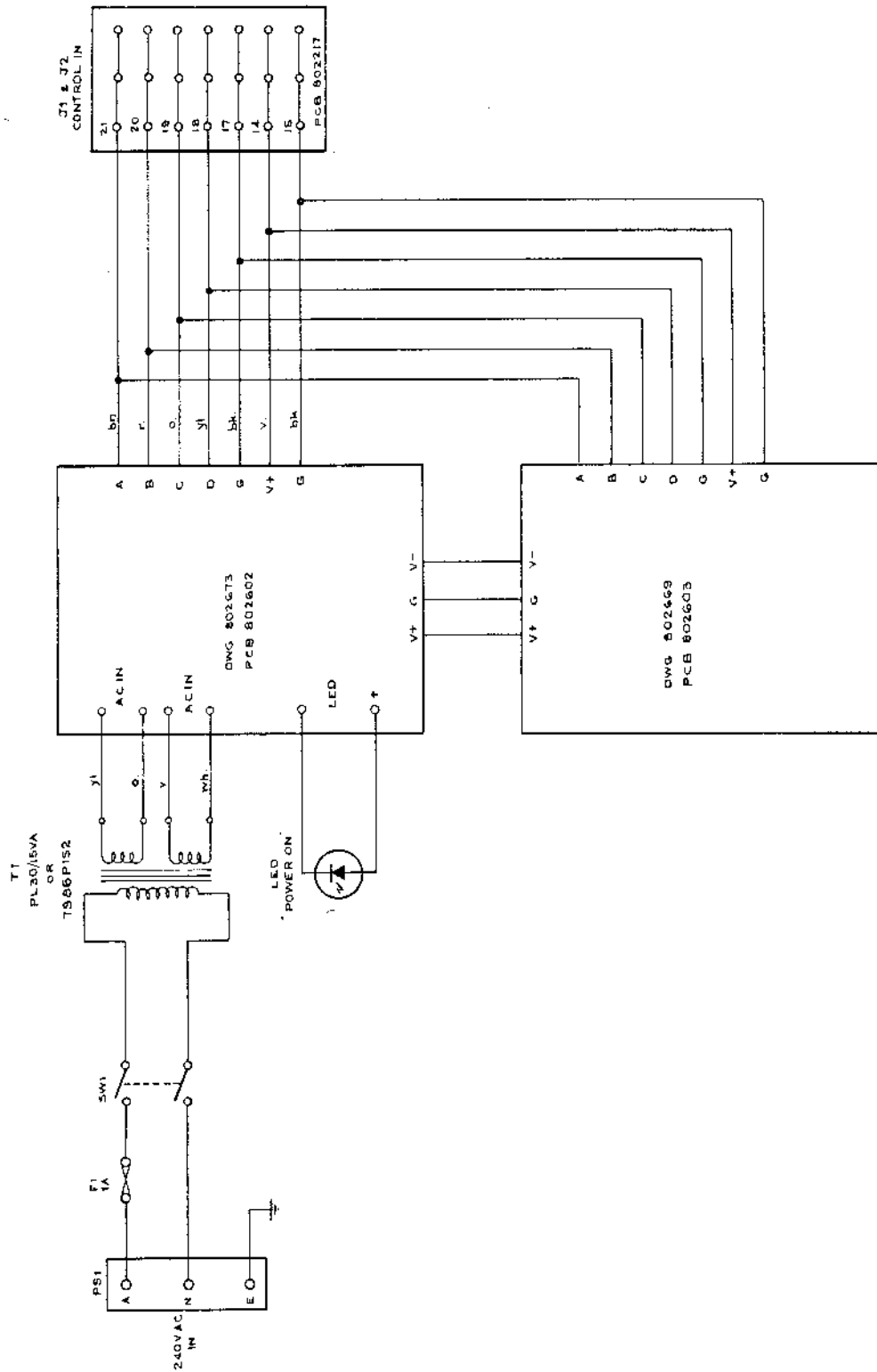
RV2 sets the master gain of the audio circuit.

RV3 sets the DC at the output amplifiers, typically less than +/- 20mV.



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AA-284

STEREO AUDIO

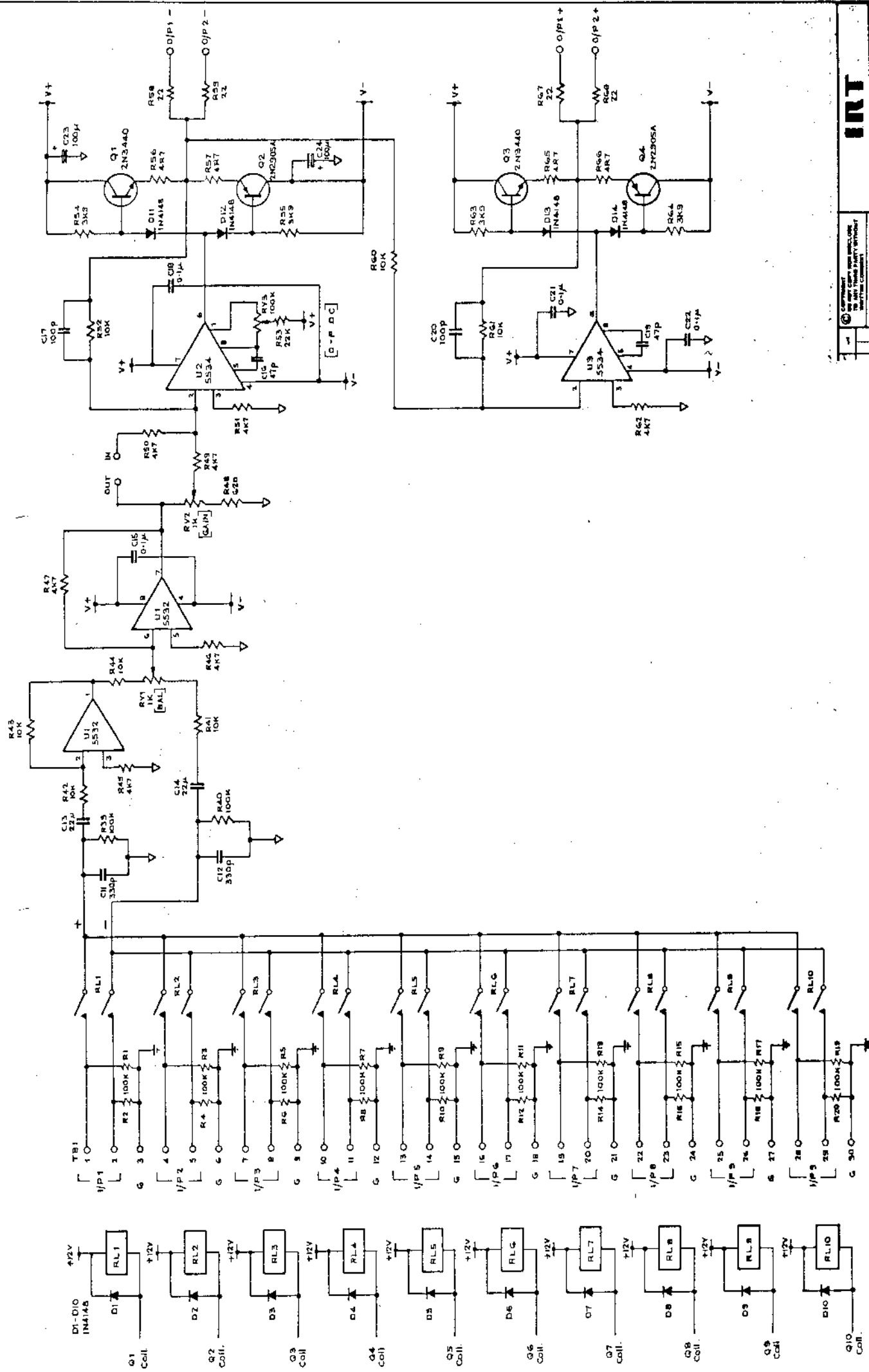
SWITCHER

WIRING DIAGRAM

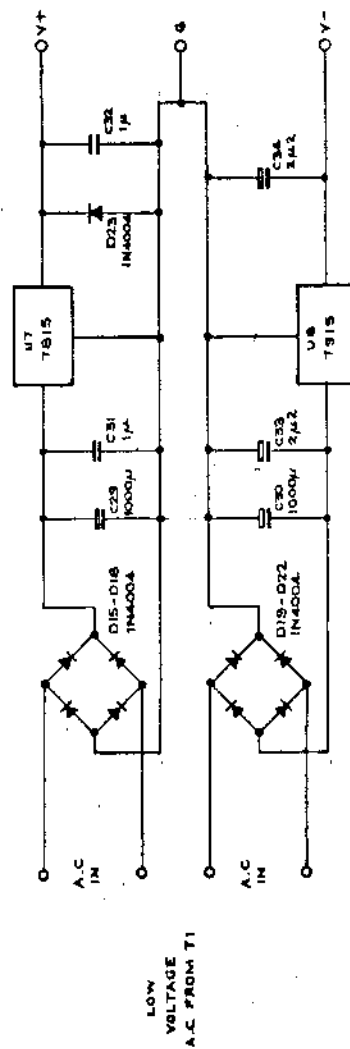
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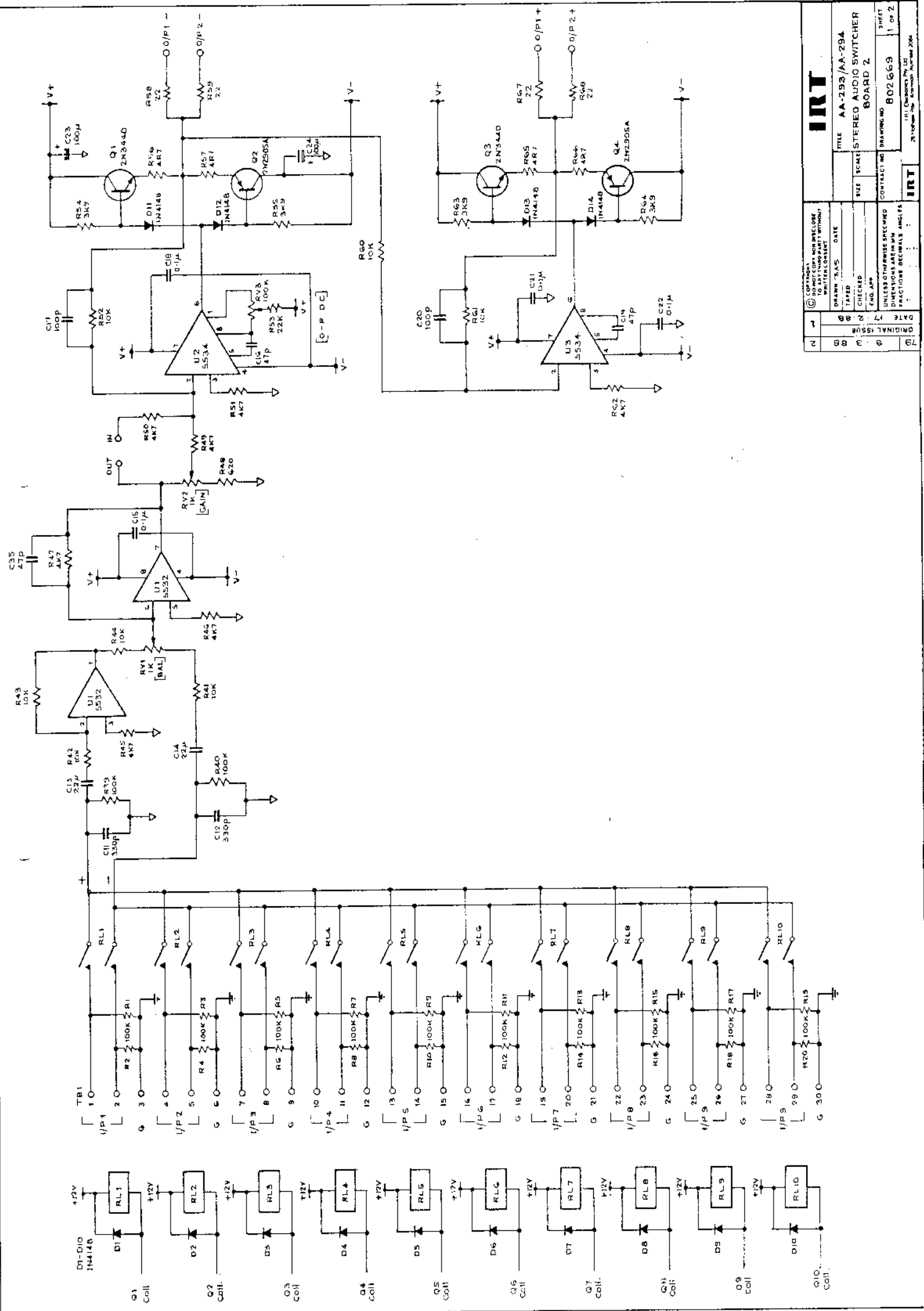
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CHECKED BY		J. R. B. / J. R. B.			
APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
DESIGNED BY		J. R. B. / J. R. B.			
CHECKED BY		J. R. B. / J. R. B.			
APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
DESIGNED BY		J. R. B. / J. R. B.			
CHECKED BY		J. R. B. / J. R. B.			
APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
DESIGNED BY		J. R. B. / J. R. B.			
CHECKED BY		J. R. B. / J. R. B.			
APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
DESIGNED BY		J. R. B. / J. R. B.			
CHECKED BY		J. R. B. / J. R. B.			
APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
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CHECKED BY		J. R. B. / J. R. B.			
APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
DESIGNED BY		J. R. B. / J. R. B.			
CHECKED BY		J. R. B. / J. R. B.			
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CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
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REVISION		1			
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APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
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CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
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APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
REVISION		1			
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APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
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TITLE		STEREO AUDIO SWITCHER BOARD 1			
DRAWING NO.		AA-233/AA-234			
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APPROVED BY		J. R. B. / J. R. B.			
CONTRACT NO.		802673			
TITLE		STEREO AUDIO SWITCHER BOARD 1			

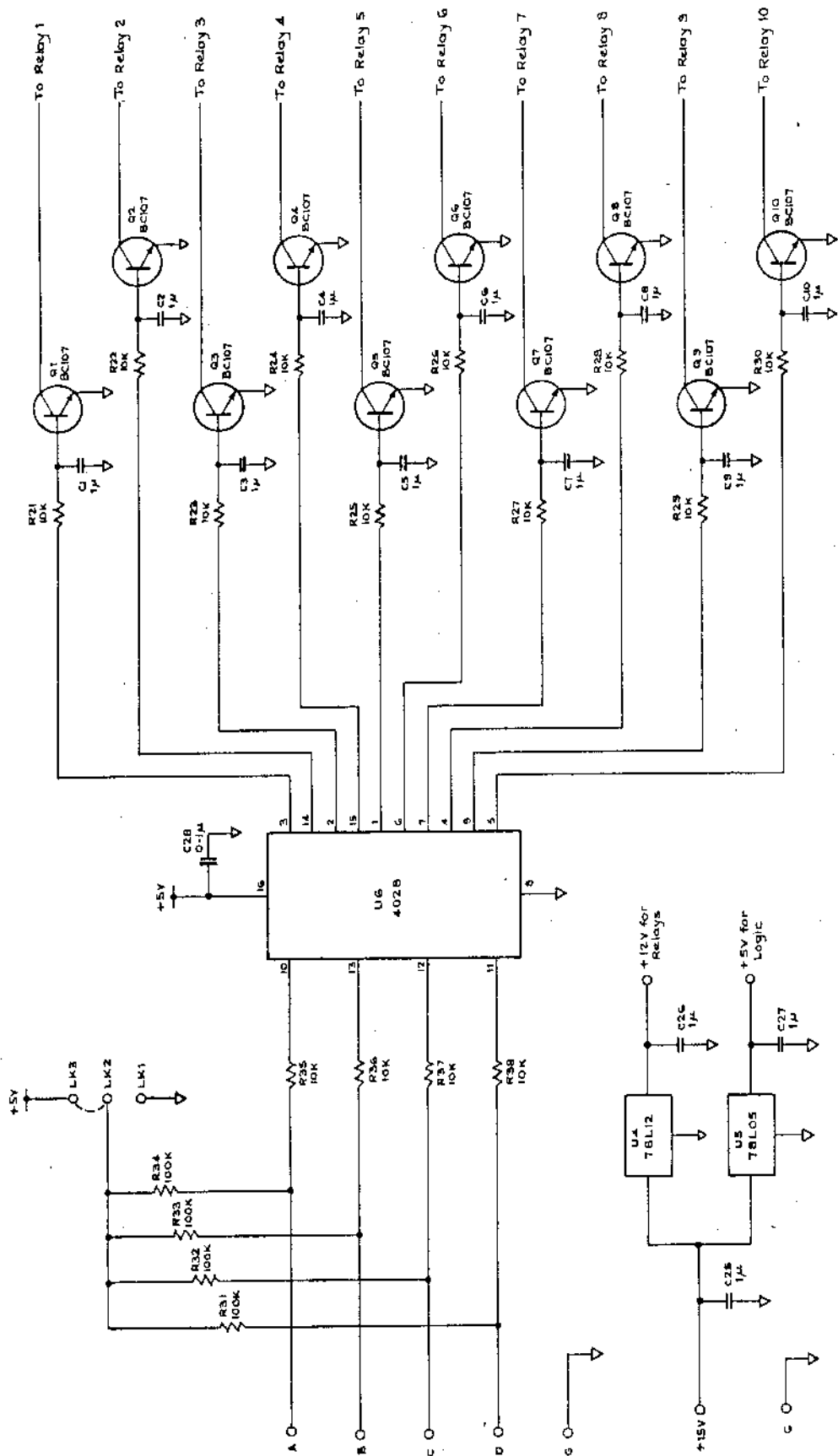


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DATE	ORIGINAL ISSUE	CONTRACT NO.	DRAWING NO.
7/79	8	802 669	802 669
DRAWN	DATE	SCALE	SIZE
8	8	8	8
CHECKED	DATE	SCALE	SIZE
8	8	8	8
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. FRACTIONS DECIMALS AND INCHES.			
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1 of 2			

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TITLE: AA-293/AA-294			
SUBTITLE: STEREO AUDIO SWITCHER BOARD 2			
DRAWN: 8			
CHECKED: 8			
DATE: 7/79			
ORIGINAL ISSUE: 8			
CONTRACT NO.: 802 669			
DRAWING NO.: 802 669			
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. FRACTIONS DECIMALS AND INCHES.			
IRT, Inc., 10000 1st Avenue, Suite 200, Los Angeles, CA 90024			
1 of 2			



1		DATE 17 2 88		ORIGINAL ISSUE	
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TAPED					
CHECKED					
FILED					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM FRACTIONS DECIMALS AND LINES					
TITLE		DRAWING NO		SHEET	
AA-293/AA-294		802669		2 OF 2	
STEREO AUDIO SWITCHER BOARD 2					
IRI		IRI		IRI Engineering Pk. Ltd 20 Hudson Pk. Astoria, Oregon 97103	

NOTE : See Instruction Book for
Links 2 to 6 options

I . R . T . E L E C T R O N I C S P T Y . L T D .

Replacement Parts List 802601 AUDIO SWITCHER AA-293 Page 1 of 1

Part No.	Description.	Qty.	Cat Ref.	Sup.
802673	PCB ASSEMBLY BOARD 1	1		1
802669	PCB ASSEMBLY BOARD 2	1		1
802713	VA-291 BOARD 1 SUB-ASSY	1		1
802714	VA-291 BOARD 2 SUB-ASSY	1		1
8021-P2S2	POWER TRANSFORMER 240/17/17	1	T1	39
CQY94	LED 5mm GREEN	1	LP1	81
SL48	LED MOUNT	1	LP1	20
7201-P3	SWITCH DPST	1	SW1	29
L2728	FIXED APPLIANCE INLET (IEC 320)	1	PS1	94
20X5 1A	FUSE 20x5mm 1A	2	F1	43
DN25SY	SOCKET 25 PIN D (PCB)	2	J1,2	61
TB25	THREADED BLOCK	2	J1,2	61
SNU/0520/17/4	'U' NUTS 6BA	25		70
25.610.0353	PLUG 3 PIN 8112/3	24		61
PC802217	PCB FOR 'D' CONNECTORS	1		120
802605	FRONT PANEL AA-293	1		1
802806	REAR PANEL AA-293/294 SCREENED	1		1
802156	BASE PLATE AUDIO SWITCHER	1		26
801333	SIDE PANEL 1 R/U	2		26
801426B	RACK CHASSIS MOUNTING BRACKETS	2		26
801335	CHASSIS COVER	2		26

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Replacement Parts List 802610 AUDIO SWITCHER AA-294

Page 1 of 1

Part No.	Description	Qty	Get Ref.	Supl
802673	PCB ASSEMBLY BOARD 1	1		1
802669	PCB ASSEMBLY BOARD 2	1		1
8021-P2S2	POWER TRANSFORMER 240/17/17	1	T1	39
CQY94	LED 5mm GREEN	1	LP1	81
SL48	LED MOUNT	1	LP1	20
7201-P3	SWITCH DPST	1	SW1	29
L2728	FIXED APPLIANCE INLET (IEC 320)	1	PS1	94
20X5 1A	FUSE 20x5mm 1A	2	F1	43
DN25SY	SOCKET 25 PIN D (PCB)	2	J1,2	61
TE25	THREADED BLOCK	2	J1,2	61
SNU/0520/17/4	'U' NUTS 6BA	25		70
25.610.0353	PLUG 3 PIN 8112/3	24		61
PC802217	PCB FOR 'D' CONNECTORS	1		120
802612	FRONT PANEL AA-294	1		1
802806	REAR PANEL AA-293/294 SCREENED	1		1
802156	BASE PLATE AUDIO SWITCHER	1		26
801333	SIDE PANEL 1 R/U	2		26
801426B	RACK CHASSIS MOUNTING BRACKETS	2		26
801335	CHASSIS COVER	2		26

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Page 1 of 2

Replacement Parts List 802673 AUDIO SWITCHER BOARD 1 PCB ASSEMBLY

Part No.	Description.	Qty	Cet Ref.	Supl
: RMF255-4R7	: RESISTOR METAL FILM .25W 5%	: 4	: R56, 57, 65, 66	: 58:
: RMF255-22R	: RESISTOR METAL FILM .25W 5%	: 4	: R58, 59, 67, 68	: 58:
: RMF255-620R	: RESISTOR METAL FILM .25W 5%	: 1	: R48	: 58:
: RMF255-1K2	: RESISTOR METAL FILM .25W 5%	: 1	: R69	: 58:
: RMF255-3K9	: RESISTOR METAL FILM .25W 5%	: 4	: R54, 55, 63, 64	: 58:
: RMF255-4K7	: RESISTOR METAL FILM .25W 5%	: 7	: R45-47, 49-51, 62	: 58:
: RMF255-10K	: RESISTOR METAL FILM .25W 5%	: 19	: R21-30, 35-38, 41-44, 52	: 58:
: RMF255-22K	: RESISTOR METAL FILM .25W 5%	: 1	: R53	: 58:
: RMF255-100K	: RESISTOR METAL FILM .25W 5%	: 26	: R1-20, 31-34, 39, 40	: 58:
: RSM251-10K	: RESISTOR SPACE MISCER .25W 1%	: 2	: R60, 61	: 49:
: 63P102	: RESISTOR VARIABLE 1K	: 2	: RV1, 2	: 69:
: 63P104	: RESISTOR VARIABLE 100K	: 1	: RV3	: 69:
: CC47P	: CAPACITOR CERAMIC 47pF	: 3	: C16, 19, 35	: 58:
: CC100P	: CAPACITOR CERAMIC 100pF	: 2	: C17, 20	: 58:
: CC330P	: CAPACITOR CERAMIC 330pF	: 2	: C11, 12	: 58:
: CC100N	: CAPACITOR CERAMIC 25U104/50	: 4	: C15, 18, 21, 22	: 92:
: CC1M	: CAPACITOR CERAMIC 25U105/50	: 14	: C1-10, 26, 27, 31, 32	: 92:
: TT2.2/35	: CAPACITOR TAG TANT 2.2uF 35V	: 2	: C33, 34	: 69:
: RT22/63	: CAPACITOR ELECTRO 22uF 63V	: 2	: C13, 14	: 43:
: RT100/25	: CAPACITOR ELECTRO 100uF 25V	: 2	: C23, 24	: 43:
: RT1000/25	: CAPACITOR ELECTRO 1000uF 25V	: 2	: C29, 30	: 43:
: 1N4004	: DIODE POWER 1A	: 9	: D15-23	: 97:
: 1N4148	: DIODE 75V 100mA	: 14	: D1-14	: 97:
: BZY79C15	: DIODE ZENER	: 1	: D24	: 43:
: BC107	: AUDIO TRANS TO-18 NPN	: 10	: Q1-10	: 81:
: 2N2905A	: HF TRANS TO-39 NPN	: 2	: Q12, 14	: 81:
: 2N3440	: POWER TRANS TO-39 NPN	: 2	: Q11, 13	: 81:
: NE5532	: DUAL OP AMP	: 1	: U1	: 81:

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Replacement Parts List AUDIO SWITCHER BOARD 1 PCB ASSEMBLY 802673 Page 2 of 2

Part No.	Description.	Qty.	Cct Ref.	Sup.
NE5534	OP AMP	2	U2,3	81:
4028	BCD TO DECIMAL DECODER	1	U6	81:
7815	IC REGULATOR 15V 1A	1	U7	97:
7915	IC REGULATOR -15V 1A	1	U8	97:
78L05	IC REGULATOR 5V 100mA	1	U5	97:
78L12	IC REGULATOR 12V 100mA	1	U4	97:
TV-4	HEAT SINK	2	U7,8	54:
W3116T	IC SOCKET 16 PIN	1	U6	99:
V23100W1112A104	RELAY 2C/O 9-14V	10	RL1-10	69:
H2072Z01	PCB PINS	2		54:
M3X10	3mm THREADED SPACES	4		
PC802602	PCB AUDIO SWITCHER BOARD 1	1		120:
Z5.598.6353.0	3 PIN SOCKET 8112/3	2		61:
Z5.598.6653.0	6 PIN SOCKET 8112/6	1		61:
Z5.598.7253.0	12 PIN SOCKET 8112/12	2		61:

I . R . T . E L E C T R O N I C S P T Y . L T D .

Replacement Parts List AUDIO SWITCHER BOARD 2 PCB ASSEMBLY 802669 Page 1 of 2

Part No.	Description.	Qty:	Cct Ref.	Sup:
RMF255-4R7	RESISTOR METAL FILM .25W 5%	4	R56, 57, 65, 66	92:
RMF255-22R	RESISTOR METAL FILM .25W 5%	4	R58, 59, 67, 68	92:
RMF255-620R	RESISTOR METAL FILM .25W 5%	1	R48	92:
RMF255-3K9	RESISTOR METAL FILM .25W 5%	4	R54, 55, 63, 64	92:
RMF255-4K7	RESISTOR METAL FILM .25W 5%	7	R45-47, 49-51, 62	92:
RMF255-10K	RESISTOR METAL FILM .25W 5%	19	R21-30, 35-38, 41-44, 52	92:
RMF255-22K	RESISTOR METAL FILM .25W 5%	1	R53	92:
RMF255-100K	RESISTOR METAL FILM .25W 5%	26	R1-20, 31-34, 39, 40	92:
RSM251-10K	RESISTOR SPACE MISER .25W 1%	2	R60, 61	92:
63P102	RESISTOR VARIABLE	2	RV1, 2	69:
63P104	RESISTOR VARIABLE	1	RV3	69:
CC47P	CAPACITOR CERAMIC 47pF	2	C16, 19	43:
CC100P	CAPACITOR CERAMIC 100pF	2	C17, 20	43:
CC330P	CAPACITOR CERAMIC 330pF	2	C11, 12	43:
CC100N	CAPACITOR CERAMIC 0.1uF	5	C15, 18, 21, 22, 28	92:
CC1M	CAPACITOR CERAMIC 1uF	13	C1-10, 25-27	92:
RB22/63	CAPACITOR ELECTRO 22uF 63V	2	C13, 14	43:
RB100/25	CAPACITOR ELECTRO 100uF 25V	2	C23, 24	43:
1N4148	DIODE 75V 100mA	14	D1-14	97:
BC107	AUDIO TRANS TO-18 NPN	10	Q1-10	81:
2N2905A	HF TRANS TO-39 NPN	2	Q12, 14	81:
2N3440	POWER TRANS TO-39 NPN	2	Q11, 13	81:
NE5532	DUAL OP AMP	1	U1	81:
NE5534	OP AMP	2	U2, 3	81:
4028	BCD TO DECIMAL DECODER	1	U6	81:
78L05	IC REGULATOR 5V 100mA	1	U5	97:
78L12	IC REGULATOR 12V 100mA	1	U4	97:
W3116T	IC SOCKET 16 PIN	1	U6	99:

I . R . T . E L E C T R O N I C S P T Y . L T D .

Replacement Parts List AUDIO SWITCHER BOARD 2 PCB ASSEMBLY 802669 Page 2 of 2

Part No.	Description.	Qty:	Cct Ref.	Sup:
V23100W1112A104:	RELAY 2C/O 9-14V	10:	RL1-10	69:
PC802603	PCB AUDIO SWITCHER BOARD 2	1:		120:
Z5.598.6353.0	3 PIN SOCKET 8112/3	2:		61:
Z5.598.6653.0	6 PIN SOCKET 8112/6	1:		61:
Z5.598.7253.0	12 PIN SOCKET 8112/12	2:		61:

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Replacement Parts List 802713 SUB ASSEMBLY BOARD 1 VA-291A Page 1 of 1

Part No.	Description.	Qty	Cct Ref.	Supl
: RMF255-470R	: RESISTOR METAL FILM .25W 5%	: 2	: R1,2	: 92:
: CC100N	: CAPACITOR CERAMIC 100nF (.2 Spacing)	: 1	: C1	: 43:
: 74HC42	: IC 1/10 DECODER	: 1	: U1	: 97:
: W3116T	: IC SOCKET 16 PIN	: 1		: 99:
: 6432-0011	: SWITCH PCB C/W LED RED	: 10	: SW1-10	: 49:
: 237-000-141	: SWITCH INSERT WHITE	: 10	: SW1-10	: 49:
: 1100-1-125-03	: .1 SPACING PIN STRIP	: 1	: P2,3	: 99:
: PC802715	: PCB VA-291A BOARD 1	: 1		: 120:

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Replacement Parts List 802714 SUB ASSEMBLY BOARD 2 VA-291A Page 1 of 1

Part No.	Description.	Qty.	Cct. Ref.	Supl.
PC802716	PCB VA-291A BOARD 2	1		: 120:
RMF255-4K7	RESISTOR METAL FILM .25W 5%	1	R3	: 92:
RMF255-10K	RESISTOR METAL FILM .25W 5%	15	R4-13,15,19-22	: 92:
RMF255-22K	RESISTOR METAL FILM .25W 5%	4	R14,16-18	: 92:
109-4K7	RESISTOR NETWORK 9x4K7	1	RN1	: 29:
804-22K	RESISTOR NETWORK 4x22K	1	RN2	: 29:
CC1N	CAPACITOR CERAMIC 1nF (.1 Spacing)	4	C16-19	: 43:
CC2N2	CAPACITOR CERAMIC 2.2nF (.2 Spacing)	1	C21	: 43:
CC10N	CAPACITOR CERAMIC 10nF (.2 Spacing)	10	C2-11	: 43:
CC100N	CAPACITOR CERAMIC 100nF (.2 Spacing)	4	C12-15	: 43:
RB10/25	CAPACITOR ELECTRO 10uF 25V	2	C22,23	: 81:
RB22/25	CAPACITOR ELECTRO 22uF 25V	1	C20	: 81:
1N4148	DIODE 75V 100mA	1	D1	: 81:
74HC02	IC QUAD NOR	1	U6	: 97:
74HC30	IC 8 I/P NAND	1	U3	: 97:
74HC75	IC QUAD LATCH	1	U4	: 97:
74HC147	IC 10 I/P ENCODER	1	U2	: 97:
74HC241	IC DUAL QUAD BUFFER	1	U5	: 97:
W3114T	IC SOCKET 14 PIN	2		: 99:
W3116T	IC SOCKET 16 PIN	2		: 99:
W3120T	IC SOCKET 20 PIN	1		: 99:
78L05	IC REGULATOR 5V 100mA	1	U7	: 97:
1000-208-2105	PLUG .1 PIN STRIP 8 PINS	1	J3	: 99:
1000-211-2105	PLUG .1 PIN STRIP 11 PINS	1	J2	: 99:
TWS136-08-TS	PIN STRIP .1 SPACING	1		: 61:
DM20B	SHORTING LINK	5	LK2-6	: 99: