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AA-342

AUDIO DISTRIBUTION AMPLIFIER

8Ø1517

Ø1-Ø6-1982

DESIGNED AND MANUFACTURED
IN AUSTRALIA

AA-342

AUDIO DISTRIBUTION AMPLIFIER

INSTRUCTION BOOK

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.

8Ø1517

GENERAL DESCRIPTION

The AA-342 Encoded Audio Distribution Amplifier is a wide bandwidth amplifier for distributing composite encoded stereo signals. The AA-342 is designed to isolate the audio ground circuit of transmitter input equipment from the transmitter ground circuit, in FM transmission systems. To fulfil this function the design of the AA-342 incorporates wide bandwidth, low distortion and input common mode rejection. Gain is adjustable by a front panel control from +3dB to -10dB.

To keep the output impedance of the AA-342 amplifier low 75 ohm resistors are used to distribute the output signal. This ensures that long cable runs will not cause a roll off in the frequency response whilst still providing short circuit protection for the amplifier.

The AA-342 is housed in an IRT single width module which mounts in a F-100D rack frame which occupies 134mm of rack space.

Input and output connections are by BNC connectors and power connection is by means of an XL-LNE power socket all mounted on the module rear assembly.

TECHNICAL DATA.

INPUT	Unbalanced input impedance 5K ohm.
OUTPUT	Three unbalanced 75 ohm source designed to be loaded by high (1K ohm or greater) impedance loads.
GAIN	Adjustable by front panel control from +3dB to -10dB.
COMMON MODE REJECTION	Adjustable by internal control. With input and output grounds isolated, better than 40dB at 50HZ.
FREQUENCY RESPONSE	$\pm$0.5dB in the range 20HZ to 100KHZ referenced to 1KHz.
HARMONIC DISTORTION	Less than 0.5% in the range 20HZ to 100KHz at an audio level of 1 volt rms at the output.
NOISE	Less than -70dB at the output bandwidth 20Hz to 15KHz referenced to an output level of 1 volt rms.
POWER REQUIREMENTS	240 volts at 2VA.
DIMENSIONS	118mm x 41mm x 326mm.

CIRCUIT DESCRIPTION

The AA-342 circuitry consists of two parts, an input amplifier comprising Q1 to Q3 and an output amplifier comprising Q4 to Q8. The input amplifier is a differential input feed back amplifier with unity gain. Adjustment of the common-mode hum rejection is made by VR2 the balance control. Inductors L1,L2 and capacitors C19 to C22 comprise an RF filter in the input circuit. The output amplifier is a complementary symmetry emitter follower feedback amplifier with a gain of two. For correct operation the DC voltage at the output as measured at the junction of R17, R18 is set at +0.25 volts by adjustment of VR3 the O/P DC control. Overall gain of the AA-342 is set by a front panel mounted potentiometer VR1. To keep the output impedance of the AA-342 amplifier low 75 ohm resistors are used to distribute the output signal. This ensures that long cable runs will not cause a roll off in the frequency response whilst still providing short circuit protection for the amplifier.

Operating voltages of $\pm$13 volts are supplied by the power supply comprising transformer T1 and a half wave bridge rectifier D3 to D6 and C1, C2.

MAINTENANCE

If adjustment of the common-mode hum rejection is required short the inner and outer connections of the input BNC connector and apply a 50Hz signal source between these and case ground. Adjust the balance control VR2 for minimum hum signal at the output. The DC voltage at the output amplifier as measured at the junction of R17, R18 should be set at +0.25 volts by adjustment of the O/P control VR3.

VOLTAGE MEASUREMENTS

	EMITTER	BASE	COLLECTOR
Q1	+ 0.6V	OV	-12.3V
Q2	+ 0.6V	OV	-13 V
Q3	- 13 V	-12.3V	OV
Q4	- 12.7V	OV	+ 0.6V
Q5	-13.4V	-12.7V	- 1.2V
Q6	- 0.5V	- 1.2V	-13.4V
Q7	+ 0.2V	- 0.47V	-13.4V
Q8	+ 0.3V	+ 0.96V	+13.4V

All measurements made with a high input impedance voltmeter.

INSTALLATION

The AA-342 module is supplied with a slide tray, RB-53 rear assembly and associated hardward for mounting in an F-100D frame.

Slide Tray

The slide is a shallow tray which supports the module in the frame. It is mounted on the front and rear cross members of the frame and is fixed in place with the steel clips (speed nut type) provided.

Rear Assembly

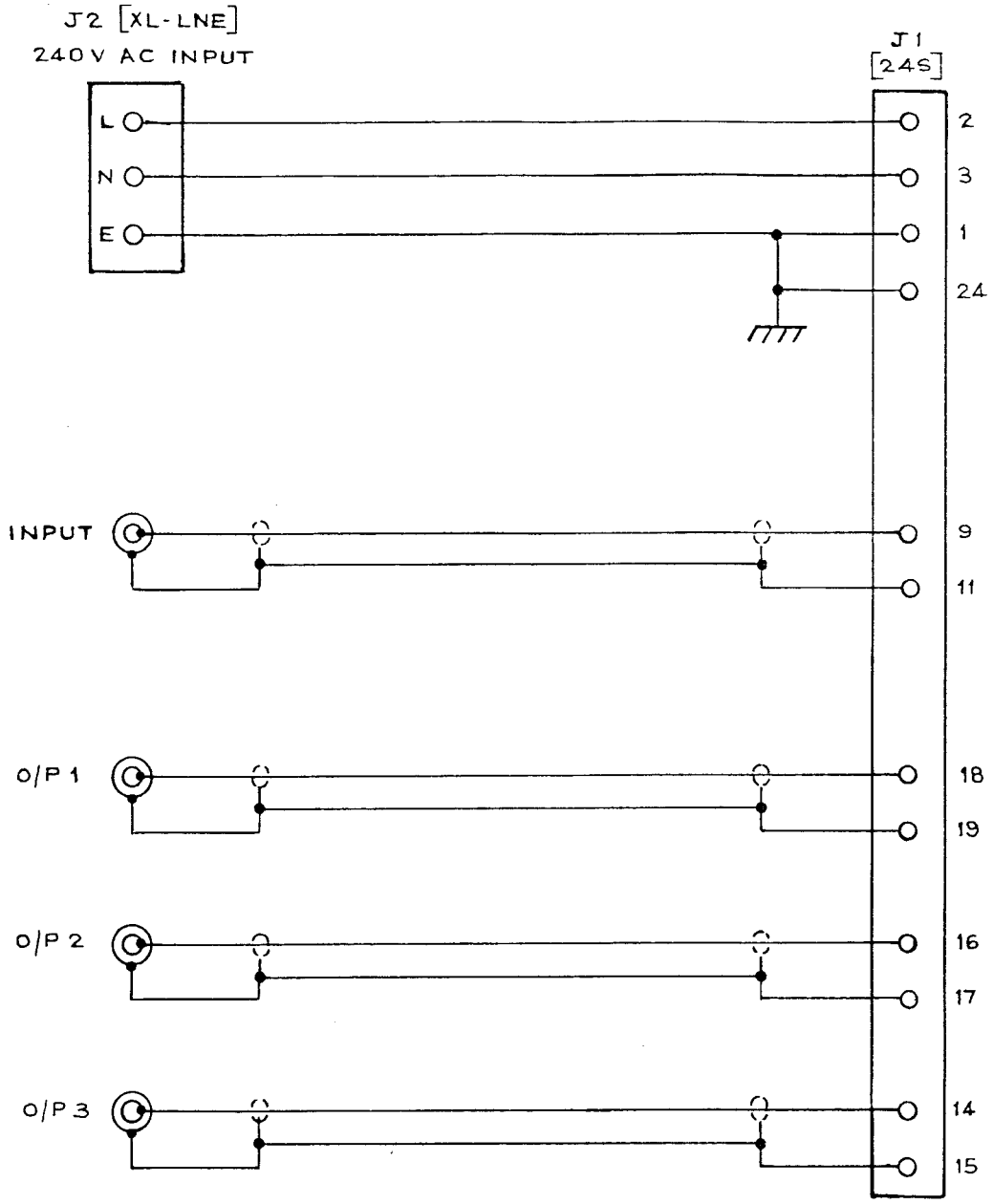
The rear assembly is mounted on the rear of the frame with the screws provided. Care should be taken not to over tighten these screws, as excessive force will damage the thread in the mounting frame.

Connections

Signal connections are by means of BNC sockets and power input by an XL-LNE socket all mounted on the rear assembly back plate.

ACCESSORIES

F-100D	Module Mounting Frame:- Provides mounting for up to 10 modules side by side in 123mm of standard rack space. (3 rack units).
TME-1	Module Extender:- Enables a module to be operated in position and provide access to all circuit boards, transistors and internal adjustments.
RB-53	Rear Assembly:- An additional rear assembly may be purchased to permit bench testing and servicing of the amplifier without disturbing the rear assemblies supplied with the amplifiers.
INSTRUCTION BOOK.	



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AA-342	

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FRACTIONS DECIMALS ANGLES

IRT

TITLE
RB-53
REAR ASSY

SIZE | SCALE

CONTRACT NO

DRAWING NO
801549

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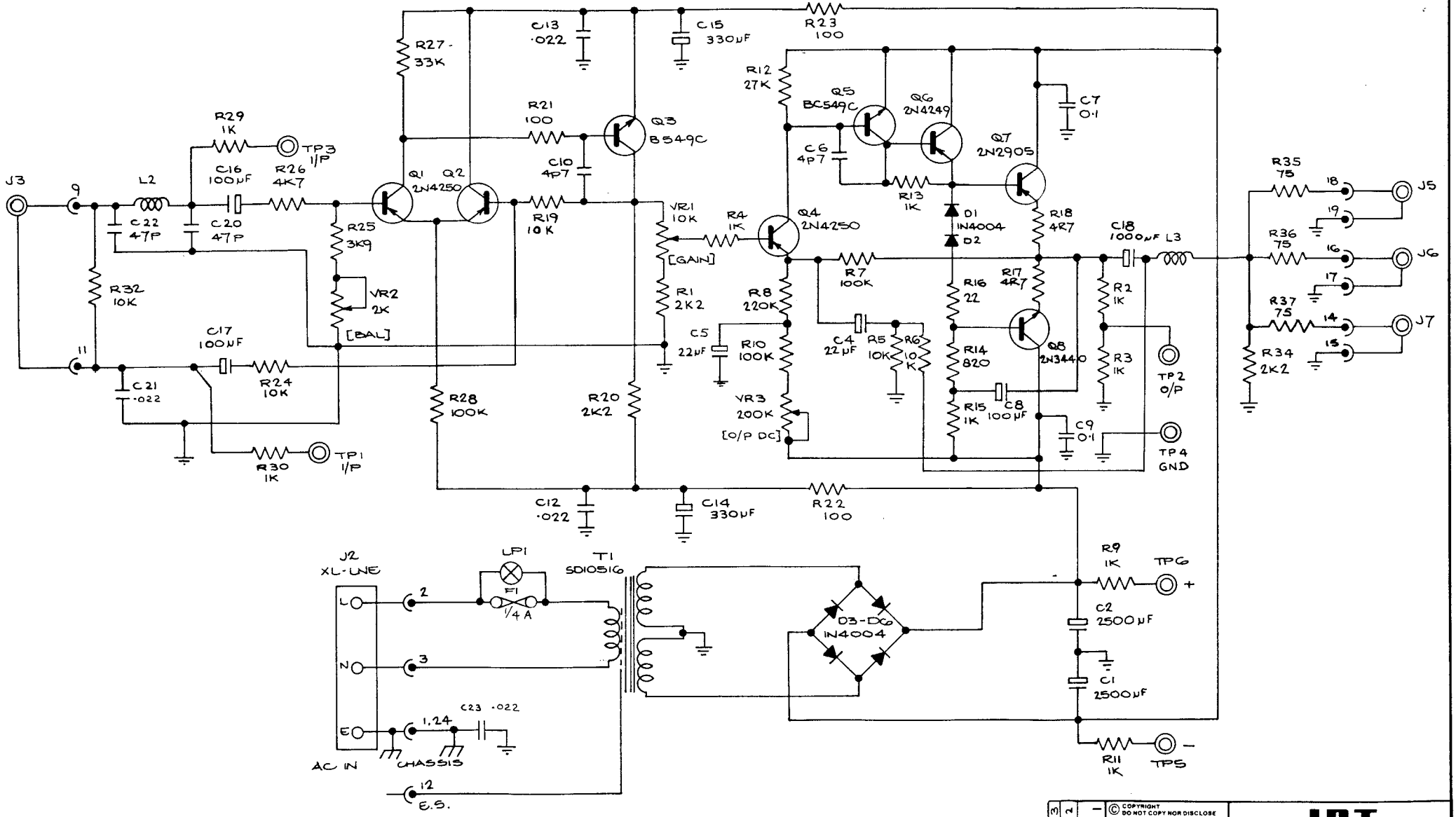

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2	9-3-81	
1	ORIGINAL ISSUE DATE 1-7-80	

IRT

TITLE: AA-342 WIDE BAND AUDIO AMPLIFIER

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Replacement Parts List **AA-342 ENCODED AUDIO DISTRIBUTION AMPLIFIER 8Ø1517 #3** Page 1 of 2

Part No.	Description.	Qty	Cct Ref.	Sup
RMF5Ø5-4R7	RESISTOR METAL FILM .5W 5%	2	R17,18	92
RMF5Ø2-22R	RESISTOR METAL FILM .5W 2%	1	R16	92
RMF5Ø2-75R	RESISTOR METAL FILM .5W 2%	3	R35-37	92
RMF5Ø2-1ØØR	RESISTOR METAL FILM .5W 2%	3	R21-23	92
RMF5Ø2-82ØR	RESISTOR METAL FILM .5W 2%	1	R14	92
RMF5Ø2-1K	RESISTOR METAL FILM .5W 2%	9	:2-4,9,11,13,15,29,3Ø	92
RMF5Ø2-2K2	RESISTOR METAL FILM .5W 2%	3	R1,2Ø,34	92
RMF5Ø2-3K9	RESISTOR METAL FILM .5W 2%	1	R25	92
RMF5Ø2-4K7	RESISTOR METAL FILM .5W 2%	1	R26	92
RMF5Ø2-1ØK	RESISTOR METAL FILM .5W 2%	5	R5,6,19,24,32	92
RMF5Ø2-27K	RESISTOR METAL FILM .5W 2%	1	R12	92
RMF5Ø2-33K	RESISTOR METAL FILM .5W 2%	1	R27	92
RMF5Ø2-1ØØK	RESISTOR METAL FILM .5W 2%	3	R7,1Ø,28	92
RMF5Ø2-22ØK	RESISTOR METAL FILM .5W 2%	1	R8	92
	NOT USED	2	R31,32	
3386P2Ø2	RESISTOR VARIABLE 2K	1	RV2	
WA2GO24S1Ø3A	RESISTOR VARIABLE 1ØK	1	RV1	2
3386P2Ø4	RESISTOR VARIABLE 2ØØK	1	RV3	
CC4P7	CAPACITOR CERAMIC 4.7pF	2	C6,1Ø	43
CC47P	CAPACITOR CERAMIC 47pF	4	C19-22	43
CC22N	CAPACITOR CERAMIC 22nF	3	C12,13,23	43
CCØM1	CAPACITOR CERAMIC Ø.1uF	2	C7,9	43
RB22/25	CAPACITOR ELECTRO 22uF/25V	2	C4,5	81
RB1ØØ/25	CAPACITOR ELECTRO 1ØØuF/25V	3	C8,16,17	81
RB33Ø/16	CAPACITOR ELECTRO 33Ø uF/16V	2	C14,15	81
RT1ØØØ/1Ø	CAPACITOR ELECTRO 1ØØØuF/1ØV	1	C18	81
RT25ØØ/25	CAPACITOR ELECTRO 25ØØuF/25V	2	C1,2	81
	NOT USED		C3,11	81
4312-Ø2Ø-3664Ø	FERRITE CHOKE	3	L1-3	81

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Replacement Parts List **AA-342 ENCODED AUDIO DISTRIBUTION AMPLIFIER 8Ø1517 #3** Page 2 of 2

Part No.	Description.	Qty	Cct Ref.	Sup
1N4ØØ4	DIODE POWER 1A	6	D1-6	97
BC549C	AUDIO TRANS TO-92 NPN	2	Q3,5	81
2N29Ø5A	HF TRANS TO-39 PNP	1	Q7	81
2N344Ø	POWER TRANS TO-39 NPN	1	Q8	81
2N4249	HF AMP TRANS TO-1Ø6 PNP	1	Q6	81
2N425Ø	RF AMP TRANS TO-1Ø6 PNP	3	Q1,2,4	81
9Ø5Ø-Ø9-Ø1	TRANSISTOR PAD TO-18	6	Q1-6	54
9Ø5Ø-Ø8-Ø1	TRANSISTOR PAD TO-5	2	Q7,8	54
223ØB-5	TRANSISTOR HEATSINK TO-5	2	Q7,8	81
SD1O 516	TRANSFORMER	1	T1	54
FH332	FUSE HOLDER	1	F1	2Ø
2ØX5 .25A	FUSE 2Øx5mm .25A	1	F1	43
SL77	NEON INDICATOR	1	LP1	2Ø
26-41ØØ-24P	CONNECTOR 24 PIN P	1	P1	54
PC8Ø1517	PCB AA-342 ISSUE 3	1		68
E8Ø168Ø	ESCUTCHEON AA-342	1		62
8Ø1567	HANDLE	1		1
8Ø1415	PRODUCTION CHASSIS S/W	1		26

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SUPPLIERS LIST