



IRT ELECTRONICS PTY LTD
26 Hotham Parade, ARTARMON, N.S.W. 2064 Australia
Phone: (ISD Code 61) (02) 439 3744 Fax: (02) 439 7439 Telex: AA122130

AA-342

AUDIO DISTRIBUTION AMPLIFIER

801517

Ø1-Ø6-1982

DESIGNED AND MANUFACTURED
IN AUSTRALIA

AA-342

AUDIO DISTRIBUTION AMPLIFIER
INSTRUCTION BOOK

Section	Contents	Page
1.	General Description	1.
2.	Technical Data	2.
3.	Circuit Description	3.
4.	Maintenance	4.
5.	Installation	5.
6.	Circuit Diagrams	
7.	Parts Lists	

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 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-LINE 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	$\pm 0.5\text{dB}$ 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	240 volts at 2VA.
REQUIREMENTS	
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 ± 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

	<u>EMITTER</u>	<u>BASE</u>	<u>COLLECTOR</u>
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 hardware 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.

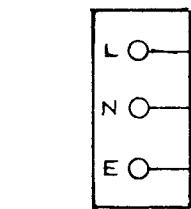
RB-53

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.

J2 [XL-LNE]
240V AC INPUT



J1
[24S]

2
3
1
24

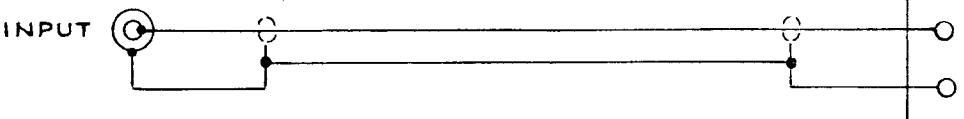
9
11

18
19

16
17

14
15

INPUT



O/P 1

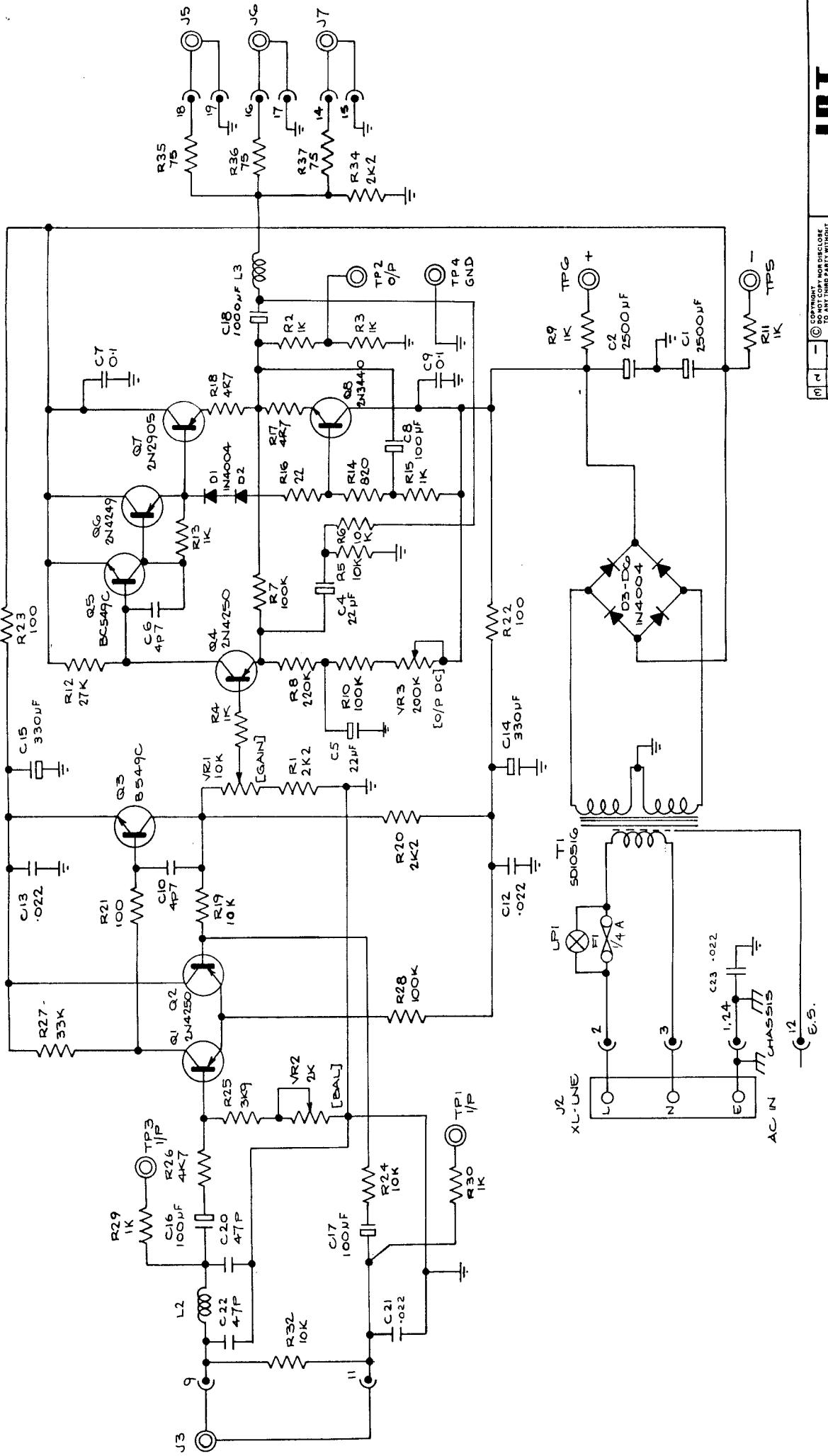
O/P 2

O/P 3

USE WITH

AA-342	

ORIGINAL ISSUE	2	COPYRIGHT DO NOT COPY NOR DISCLOSE TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT	TITLE	
DATE 13.3.84		DRAWN BY DATE	RB-53	IRT
		TAPED		
		CHECKED KN	SIZE	SCALE
		ENG APP.		
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM FRACTIONS DECIMALS ANGLES	CONTRACT NO	DRAWING NO
				801549
				SHEET OF
			IRT	



INT	
RCA ELECTRONICS PVT. LTD.	
COPYRIGHT © R.C.A. 1969. ALL RIGHTS RESERVED. PRINTED IN U.S.A. NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE COMPANY.	
DATE	9-3-69
DRAWN	E.S.
TAKED	Q.
CHECKED	-
ENG APP	-
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILS ANGLES IN DEGREES	-
ORIGINAL ISSUE	9-2-69
REISSUE	18-2-69
SIZE	1/2
SCALE	1:1
CONTRACT NO	AA-342
DRAWING NO	8C517
SHEET 1 OF 1	

I.R.T. ELECTRONICS PTY.LTD.

Replacement Parts List AA-342 ENCODED AUDIO DISTRIBUTION AMPLIFIER 801517 #3 Page 1 of 2

Part No.	Description	Qty:	Cct Ref.	Sup:
RMF5005-4R7	RESISTOR METAL FILM .5W 5%	2	R17,18	92:
RMF5002-22R	RESISTOR METAL FILM .5W 2%	1	R16	92:
RMF5002-75R	RESISTOR METAL FILM .5W 2%	3	R35-37	92:
RMF5002-100R	RESISTOR METAL FILM .5W 2%	3	R21-23	92:
RMF5002-820R	RESISTOR METAL FILM .5W 2%	1	R14	92:
RMF5002-1K	RESISTOR METAL FILM .5W 2%	9	:2-4,9,11,13,15,29,30	92:
RMF5002-2K2	RESISTOR METAL FILM .5W 2%	3	R1,20,34	92:
RMF5002-3K9	RESISTOR METAL FILM .5W 2%	1	R25	92:
RMF5002-4K7	RESISTOR METAL FILM .5W 2%	1	R26	92:
RMF5002-10K	RESISTOR METAL FILM .5W 2%	5	R5,6,19,24,32	92:
RMF5002-27K	RESISTOR METAL FILM .5W 2%	1	R12	92:
RMF5002-33K	RESISTOR METAL FILM .5W 2%	1	R27	92:
RMF5002-100K	RESISTOR METAL FILM .5W 2%	3	R7,10,28	92:
RMF5002-220K	RESISTOR METAL FILM .5W 2%	1	R8	92:
	NOT USED	2	R31,32	92:
3386P202	RESISTOR VARIABLE 2K	1	RV2	2 :
WA2GO24S103A	RESISTOR VARIABLE 10K	1	RV1	2 :
3386P204	RESISTOR VARIABLE 200K	1	RV3	2 :
CC4P7	CAPACITOR CERAMIC 4.7pF	2	C6,10	43:
CC47P	CAPACITOR CERAMIC 4.7pF	4	C19-22	43:
CC22N	CAPACITOR CERAMIC 22nF	3	C12,13,23	43:
CC0M1	CAPACITOR CERAMIC Ø.1uF	2	C7,9	43:
RB22/25	CAPACITOR ELECTRO 2.2uF /25V	2	C4,5	81:
RB100/25	CAPACITOR ELECTRO 1000uF /25V	3	C8,16,17	81:
RB330/16	CAPACITOR ELECTRO 330uF /16V	2	C14,15	81:
RT1000/10	CAPACITOR ELECTRO 10000uF /10V	1	C18	81:
RT2500/25	CAPACITOR ELECTRO 25000uF /25V	2	C1,2	81:
	NOT USED	3	C3,11	81:
	FERRITE CHOKE	3	L1-3	81:

I.R.T. ELECTRONICS PTY.LTD.

Replacement Parts List AA-342 ENCODED AUDIO DISTRIBUTION AMPLIFIER 801517 #3 Page 2 of 2

Part No.	Description	Qty:	Cct Ref.	Sup:
1N4004	: DIODE POWER 1A	: 6	: D1-6	:
BC549C	: AUDIO TRANS TO-92 NPN	: 2	: Q3,5	: 97:
2N2905A	: HF TRANS TO-39 PNP	: 1	: Q7	: 81:
2N3440	: POWER TRANS TO-39 NPN	: 1	: Q8	: 81:
2N4249	: HF AMP TRANS TO-106 PNP	: 1	: Q6	: 81:
2N4250	: RF AMP TRANS TO-106 PNP	: 3	: Q1,2,4	: 81:
9050-09-01	: TRANSISTOR PAD TO-18	: 6	: Q1-6	: 54:
9050-08-01	: TRANSISTOR PAD TO-5	: 2	: Q7,8	: 54:
2230B-5	: TRANSISTOR HEATSINK TO-5	: 2	: Q7,8	: 81:
SD10 516	: TRANSFORMER	: 1	: T1	: 54:
FH332	: FUSE HOLDER	: 1	: F1	: 20:
20X5 .25A	: FUSE 20x5mm .25A	: 1	: F1	: 43:
SL77	: NEON INDICATOR	: 1	: LP1	: 20:
26-4100-24P	: CONNECTOR 24 PIN P	: 1	: P1	: 54:
PC801517	: PCB AA-342 ISSUE 3	: 1		: 68:
E801680	: ESCUTCHEON AA-342	: 1		: 62:
801567	: HANDLE	: 1		: 1 :
801415	: PRODUCTION CHASSIS S/W	: 1		: 26:

I.R.T. ELECTRONICS PTY. LTD.

SUPPLIERS LIST

IRT ELECTRONICS PTY LTD.....	1
ALLEN BRADLEY PTY LTD.....	2
AC&E SALES PTY LTD.....	3
AMMSON TRADING Co.....	4
AMPEC ELECTRONICS.....	5
BOWTHORPE AUSTRALIA PTY LTD.....	6
API.....	7
ARLEC PTY LTD.....	8
TDK.....	9
ASSOCIATED CONTROLS PTY LTD.....	10
KERIGAN-LEWIS WIRE.....	11
AWA LTD.....	14
AWA LTD NORTH RYDE.....	15
BEALE PRITCHETT PTY LTD.....	20
CICB AUSTRALIA PTY LTD.....	26
C&K ELECTRONICS PTY LTD.....	29
CONSTRUCTION SYSTEMS.....	33
CONNECT ELECTRONICS PTY LTD.....	34
R H CUNNINGHAM PTY LTD.....	35
DBX INC.....	36
ELMEASCO.....	37
ELECTRICAL EQUIPMENT.....	38
FURGUSON TRANSFORMERS.....	39
ELLISTRONICS.....	40
F J PRECISION PTY LTD.....	41
GEORGE BROWN & Co.....	43
HARBUCH ELECTRONICS PTY LTD.....	46
HARTLAND MANUFACTURING PTY LTD.....	47
CRUSADER ELECTRONIC COMPONENTS.....	49
IRH COMPONENTS.....	51
I R STEPHENS PTY LTD.....	52
J A GODFREY ENGRAVING.....	53
JOHN A SEVERN PTY LTD.....	54
JOHN R TURK & SONS PTY LTD.....	55
LENLOK PTY LTD.....	57
PHILIPS ELCOMA.....	58
MULTI CONTACT AUSTRALIA PTY LTD.....	61
MORRIS PRODUCTIONS.....	62
NSD AUSTRALIA PTY LTD.....	63
NEOSID LTD.....	64
PRECISION CIRCUITS.....	65
PARAMETERS.....	66
PLESSY COMPONENTS PTY LTD.....	67
PRINTRONICS.....	68
PROMARK PTY LTD.....	69
RAGEEM FASTENERS Co.....	70
RALMAR INTERNATIONAL.....	71
RADIO SPARES.....	74
ROBERT FORD & Co PTY LTD.....	75
RIFA PTY LTD.....	76

R&I INSTRUMENT & GEAR Co.....	77
E S RUBIN PTY LTD.....	79
RVB LTD.....	80
SOANAR ELECTRONICS.....	81
STAR DELTA PTY LTD.....	83
SYNTEC PTY LTD.....	84
SCREEN PROCESS CIRCUITS.....	85
SIEMENS INDUSTRIES PTY LTD.....	86
TEKNIS.....	88
TOTAL ELECTRONICS PTY LTD.....	91
TRI COMPONENTS PTY LTD.....	92
TECHNICO PYE INDUSTRIES.....	94
UTILUX PTY LTD.....	96
VSI ELECTRONICS PTY LTD.....	97
WARBURTON FRANKI PTY LTD.....	98
XENITEK PTY LTD.....	99
ACME ELECTRONICS.....	109
L M ERICSON PTY LTD.....	110
J N ALMGREN PTY LTD.....	111
SALTERCO J S T AUSTRALIA PTY LTD.....	112
INOVONICS PTY LTD.....	113
LEATHAM ELECTRONICS.....	114
EAST COAST PRINTED CIRCUITS.....	120
MARTIN DE LAUNAY.....	999