

DESIGNS DEPARTMENT

DESIGNS DEPARTMENT HANDBOOK

No. 3.249(80)

AM5/32 Mixer Amplifier

**BRITISH BROADCASTING CORPORATION
ENGINEERING DIVISION**

DESIGNS DEPARTMENT HANDBOOK

No. 3.249(80)

AM5/32 Mixer Amplifier

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(I.D.B. Millar)
for Head of Designs Department

Written by: K.J. Conie

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AM5/32 Mixer Amplifier

C O N T E N T S

1. INTRODUCTION
2. PERFORMANCE SPECIFICATION
 - 2.1 Power Supplies
 - 2.2 A.C. Performance
3. CIRCUIT DESCRIPTION
4. MAINTENANCE

D R A W I N G S

Circuit	D 49877 A2
Parts List	D 49878 A4
Comp. Loc.	D 49882 A2

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AM5/32 Mixer Amplifier

1. INTRODUCTION

The AM5/32 contains two identical circuits each of which is comprised of a five input current mixing inverting amplifier followed by an inverting amplifier with a single output.

The amplifier is contained on a 3U BMM unsupported card. The card was designed for use in the PA6/87 module which is part of the EP10/18 Radio Continuity Suite.

2. PERFORMANCE SPECIFICATION

2.1 Power Supplies

±12 volts at 50 mA.

2.2 A.C. Performance

<u>Maximum output</u>	+18 dB
Gain	(Input -22 dB) +10 dB
Output at 12W	-12 dB
Input impedance	68 kΩ
Frequency response	40 Hz-15 kHz ±0.03 dB w.r.t. 1 kHz
Noise	-80 dB ₄
Distortion	Less than 0.1% T.H.D. @ +16 dB

3. CIRCUIT DESCRIPTION

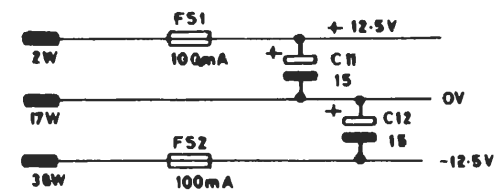
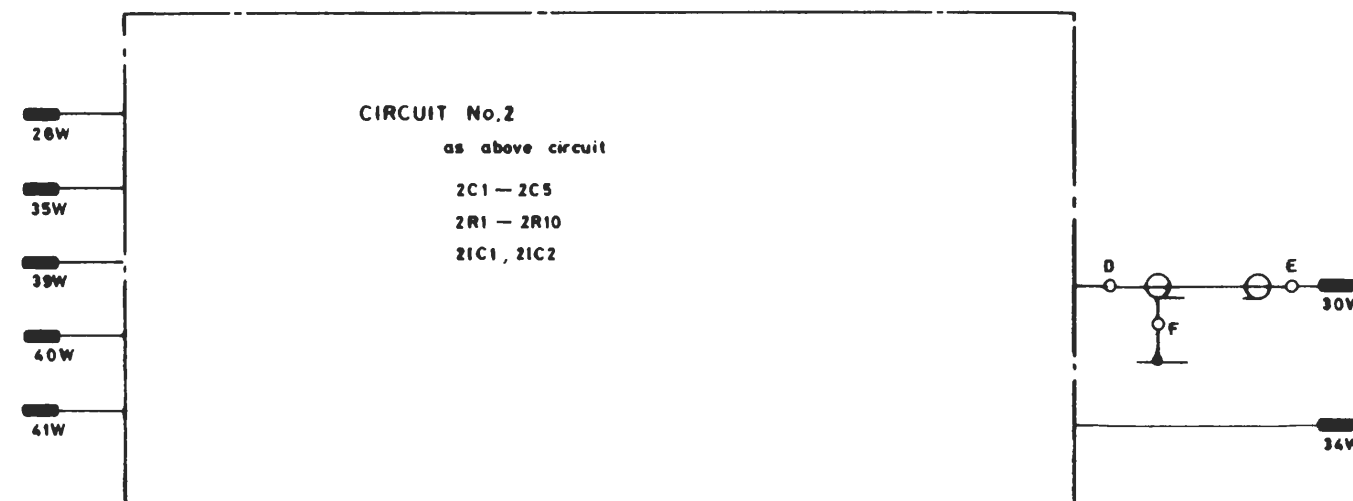
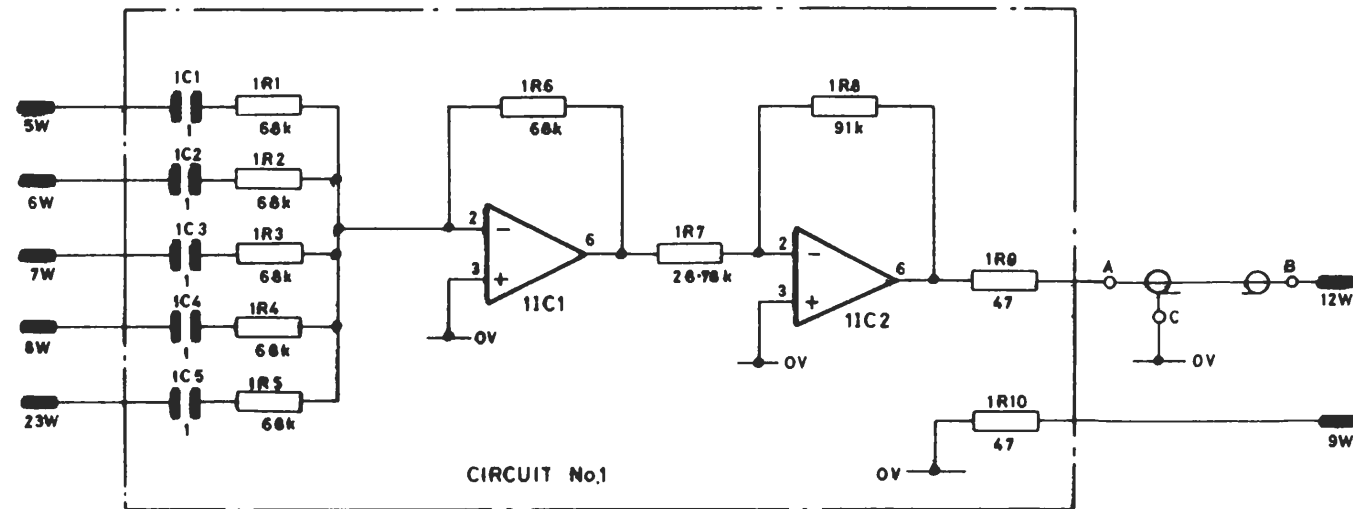
The AM5/32 carries two identical circuits. In this description only one half will be referred to.

IC1 is an inverting current mixing stage with 5 inputs and unity gain. The inputs are A.C. coupled. The output from IC1 is connected to IC2 which is an inverting amplifier with a gain of +10 dB.

4. MAINTENANCE

If a fault occurs the d.c. conditions should be checked first. The supply current should not exceed that given in 2.1 The output of each IC should be 0V ±20 mV.

D49877A2



CIRCUIT REF.	SUPPLY PINS		No OF PARTS	TYPE
	+12.5V	-12.5V		
11C1,2 21C1,2	7	4	1	LF356N

PARTS LIST : D49876A4

SCALE - 0

THIRD ANGLE PROJECTION

ORIGINAL FRAME SIZE 400mm x 574mm

CHANGE 30-10-80

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DS/A2.1

AM5/32

**MIXER AMPLIFIER
CIRCUIT**

All dimensions in millimetres unless otherwise stated
Normal tolerances
no decimal places = 1 mm unless
and otherwise stated

DRN 688
TCD
DESIGNS DEPARTMENT
D49877A2

CHANGE

30-10-80

AM 5/32 AMPLIFIER, MIXER PARTS LIST

ITEM No.	No OFF	DESCRIPTION	C'T REF.	BBC REF. OR DRG. No.
<u>DRAWING NUMBERS</u>				
		CIRCUIT	D49877A2	
		PARTS LIST	D49878A4	
		ASSEMBLY	D49879A2	
		DETAIL 1	D49880A4	
		P.B. WIRING	D49881A2	
		P.B. COMP. LOCATION	D49882A2	
		P.B. DRILLING	D49883A3	
<u>FURTHER INFORMATION REQUIRED FOR MANUFACTURE</u>				
UNIT ASSEMBLY INFORMATION EA104B4				
UNIT WIRING INFORMATION EA10139, EA10140				
1	1	PRINTED BOARD MANUFACTURED TO		D49881A2, D49882A2 D49883A3
2	1	CODING PLATE, 3U MODIFIED TO		S52253 - 0351637 D49880A4 DET.1
3	1	SCREEN PLATE ASSY		S52255 - 0367154
4	1	HANDLE, NATURAL, VERO 21-1884E		S53920 - 0388150
5	2	SPACER, 5mm LG X 5mm DIA TAPPED M2.5		
6				
7				
8				
9	10	CAPACITOR, 1.0NF, ±20% CERAMIC FILM	ICI-5 2CI-5	S20648 - 0389813
10	2	CAPACITOR, 15NF, 20V, TANTALUM	CH,12	S21124 - 0209372
11				
12				
13	2	FUSE, 100MA, QUICK ACTING	FSI,2	S22424 - 0345169
14	2	FUSEHOLDER, PRINTED BOARD		S22252 - 0345142

BBC

DS/PLA4

AM 5/32
AMPLIFIER, MIXER
PARTS LIST

DRN. GRB
TPD.
CKD.
APPD.

DESIGNS DEPARTMENT

D49878A4

SHEET 1 OF 2 SHGTS

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CHANGE

30-10-80

ITEM No	No. OFF	DESCRIPTION	CCT REF.	BBC REF. OR DRG. No.
15	4	INTEGRATED CIRCUIT LF356N	11C1,2 21C1,2	0194930
16				
17				
18				
19	4	RESISTOR, 47Ω, ±2%, 0.4W, METAL FILM	1R9.10 2R9.10	526877 - 0099291
20				
21				
22				
23				
24				
25	2	RESISTOR 20.78KΩ ACI COMPONENTS LTD EEO.1-20.78K-B-C1	1R7 2R7	
26	12	RESISTOR 68KΩ ACI COMPONENTS LTD EEO.1-68K-B-C1	1R1-6 2R1-6	
27	2	RESISTOR 91KΩ ACI COMPONENTS LTD EEO.1-91K-B-C1	1R8 2R8	
28				
29				
30	6	TERMINAL PIN, SEAELECTRO A00136206/T		0239341
31				
32				
33	A/R	WIRE PUN 1/1M VIOLET		
34				
35	0.25m	CABLE, PSN 1/1M, WHITE		
36				
37	4	SLEEVE, CABLE BINDING, HELLERMAN TH20 X 12.5mm		0051969
38				
39				
40				
41				
		<u>SCREWS</u>	<u>FOR FIXING ITEMS</u>	
42	2	M2.5 X 12 LG, CSK HD M.S. ZN.P	2, 5	
43	6	M2.5 X 6 LG, PAN HD M.S. ZN.P	3	
44				
45				
		<u>NUTS</u>		
46	2	M2.5, HEX FULL, M.S. ZN.P	2	
47				
48				
		<u>WASHERS</u>		
49	8	M2.5 PLAIN M.S. ZN.P	2, 3, 5	
50				
51				

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BBC

DS/PLA4

AMS/32

PARTS LIST

DRN.	GRB
TPD.	
CKD.	
APPD.	R

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D49878A4

SHEET 2 OF 2 SHEETS

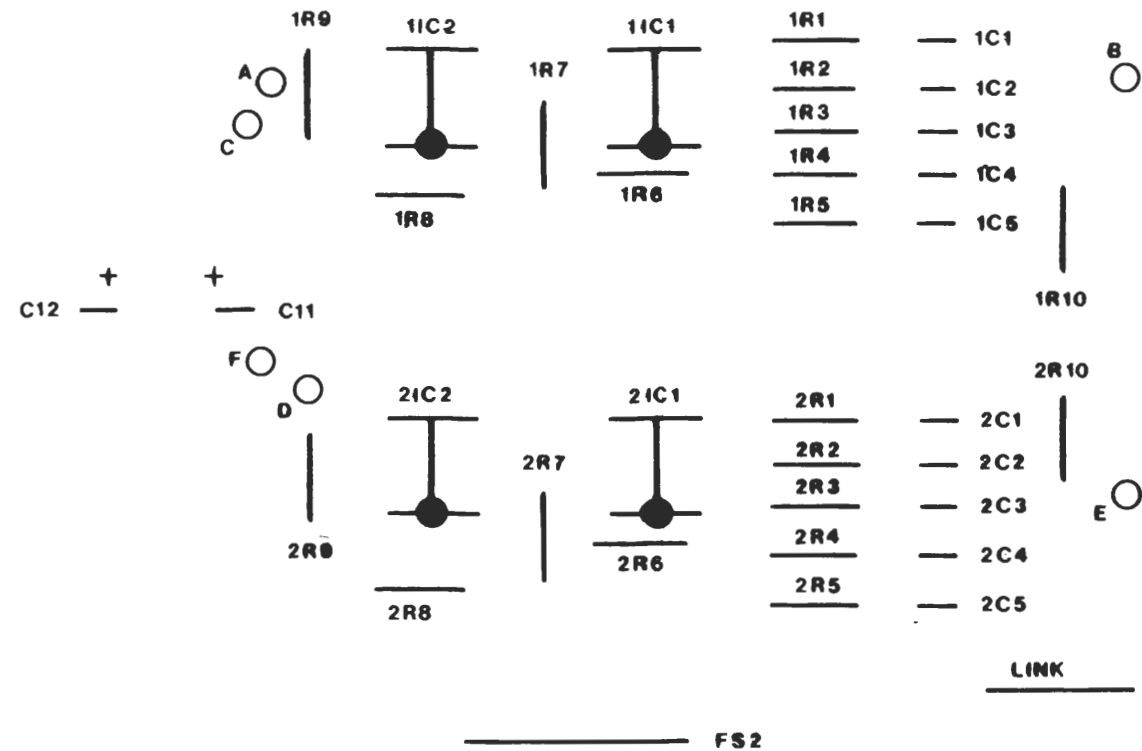
D49882A2

MINIMUM SIZE TO CUT NEGATIVE

TOP

FS1

AM5/32 D49882A2/1

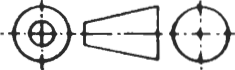


CHARACTERS & LINES TO BE PRINTED IN WHITE
PRINTED WIRING ON REVERSE SIDE OF BOARD IS D49881A2

SCALE 2:1

SCALE:-

THIRD ANGLE
PROJECTION



ORIGINAL
FRAME SIZE
400mm x 574mm

CHANGE
1 30-10-80

BBC

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DS/A2/1

AM5/32

PRINTED BOARD
COMPONENT LOCATION

All dimensions in millimetres unless otherwise stated
Normal tolerances
no decimal places - 1 mm unless
one decimal place - 0.3 mm otherwise
two decimal places - 0.1 mm stated

DRN GRB
TCD
CKD
APPD R

DESIGNS DEPARTMENT

D49882A2

SEN LTD L 1584

