

BA714/715 INFORMATION



(Includes BA714/A &amp; BA715/A information)

GENERAL - (See figure 1)

BA714 and BA715 together form a sandwich assembly and are mounted in the upper part of channel or rev modules. A single 16 way flying flatcable connector connects BA714 to BA712. BA714/715 make up two independant 12dB/octave high pass and low pass filters with variable corner frequencies, which can be switched into the Channel or the Mixdown signal paths.

An electronic switch selects the input for the Mixdown path according to the console mode. This switch is not present in the /A variant.



USER CONTROLS

"CH" button	: out - filters in mixdown path in - filters in channel path
 " button	: out - high pass filter bypassed in - high pass filter in path
 " button	: out - low pass filter bypassed in - low pass filter in path
"25Hz - 250Hz" control	: Varies high pass filter corner frequency over this range.
"3kHz - 15kHz" control	: Varies low pass filter corner frequency over this range.

DETAILBA714/715

See ET10213 (circuit diagram), EB20364 (channel module block diagram), and figure 1.

There are two signal paths through the filters assembly, known as the Channel and the Mixdown paths. The input to the Channel path comes from the main (mic, line, or tape) output of the BA712/713 assembly. Mixdown path input is selected by the electronic switch (see below) to be the Tape output from BA712/713 when the console is in "TRACK" or "MIX" modes, and the channel Post-Insertion signal from the BA740/741 Group Control assembly when in "DIRECT" mode. S1 on BA715 is the "CH" button and puts both high and lowpass filters into the channel path when pressed. When not pressed both filters are in the mixdown path.

The highpass filter (see below) is on BA715 and is either selected or bypassed by S1 on BA714, the  " button. BA714 also carries the lowpass filter (see below) and S2, the  " button, which either selects the lowpass output or bypasses it. One pole of each switch is used to switch LED's mounted remotely on BA740.

The two outputs from the BA714/715 assembly, "CHANNEL FROM FILTERS" and "MIXDOWN FROM FILTERS" go to the insertion switches on the BA740/741 Group Control assembly via the BA712/713 assembly.

## BA714/A and BA715/A

Refer to ET10213/A (circuit diagram), EB20386 (rev strip block diagram), e figure 2.

This variant of the filters assembly lacks the electronic switch, and is used in Rev modules where the Rev Return output from the BA752/753 assembly is permanently connected to the Mixdown path input of the filters.

The channel signal path is then used for either the Rev Send or the Delay Insertion signals depending upon the setting of the "INS" buttons on BA752. In all other respects the /A filter assembly variant is identical to the normal one as described above.

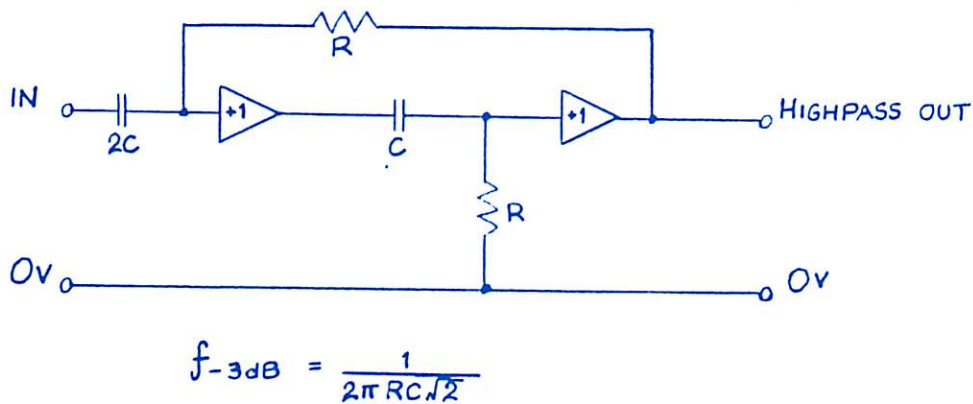
## ELECTRONIC SWITCH

This is an electronic changeover switch on the BA714 card which selects either the Tape output from the BA712/713 assembly or the Channel Post-Insertion signal from the BA740/741 Group Control assembly to be the Mixdown path input for the filters. TR1 and TR2 are the actual switching elements, the one corresponding to the desired input being turned on (low resistance) and the other one being turned off (high resistance). These transistors both feed into a virtual-earth amplifier IC3, whose output is inverted by IC1d in order to maintain phase integrity. IC1d output is thus the Mixdown path input for the filters.

D5, D6, R7, R9, and IC2 on BA714 control the states of TR1 and TR2 according to the "MODE SELECT" control voltage which is produced by the BA720 card. When in "TRACK" or "MIX" modes (+18V or 0V control voltages) the input to IC2d is pulled up to 0V by R7, TR2 gate is thus held at -12V (TR2 off) and TR1 gate is held at 0V (TR1 on). In "DIRECT" mode the control voltage is -18V which pulls down IC2d input to -12V and reverses the states of TR1 and TR2.

## HIGHPASS FILTER

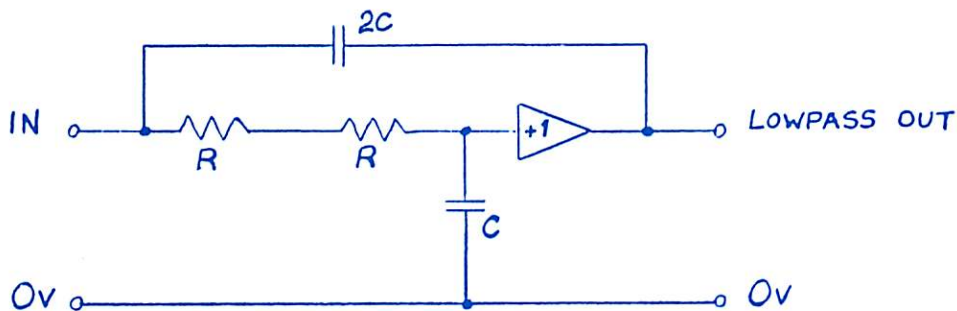
The highpass filter circuits are all on the BA715 card and comprise IC1b, c and d. IC1b is a non-inverting buffer driving the filter proper which is based upon the maximally flat sallen-key circuit below:



RV1 on BA715 is used to vary both Rs in the above circuit together and thus varies the -3dB frequency from 25Hz to 250Hz.

## LOWPASS FILTER

The lowpass filter circuits are all on the BA714 card and comprise IC1a and b. IC1a is a non-inverting buffer driving the filter proper which is based upon the maximally flat sallen-key circuit below:



$$f_{-3dB} = \frac{1}{2\pi RC\sqrt{2}}$$

RV1 on BA714 is used to vary both Rs in the above circuit together and thus varies the -3dB frequency from 3kHz to 15kHz.

## LEVELS

All input and output levels are nominally -10dBu.

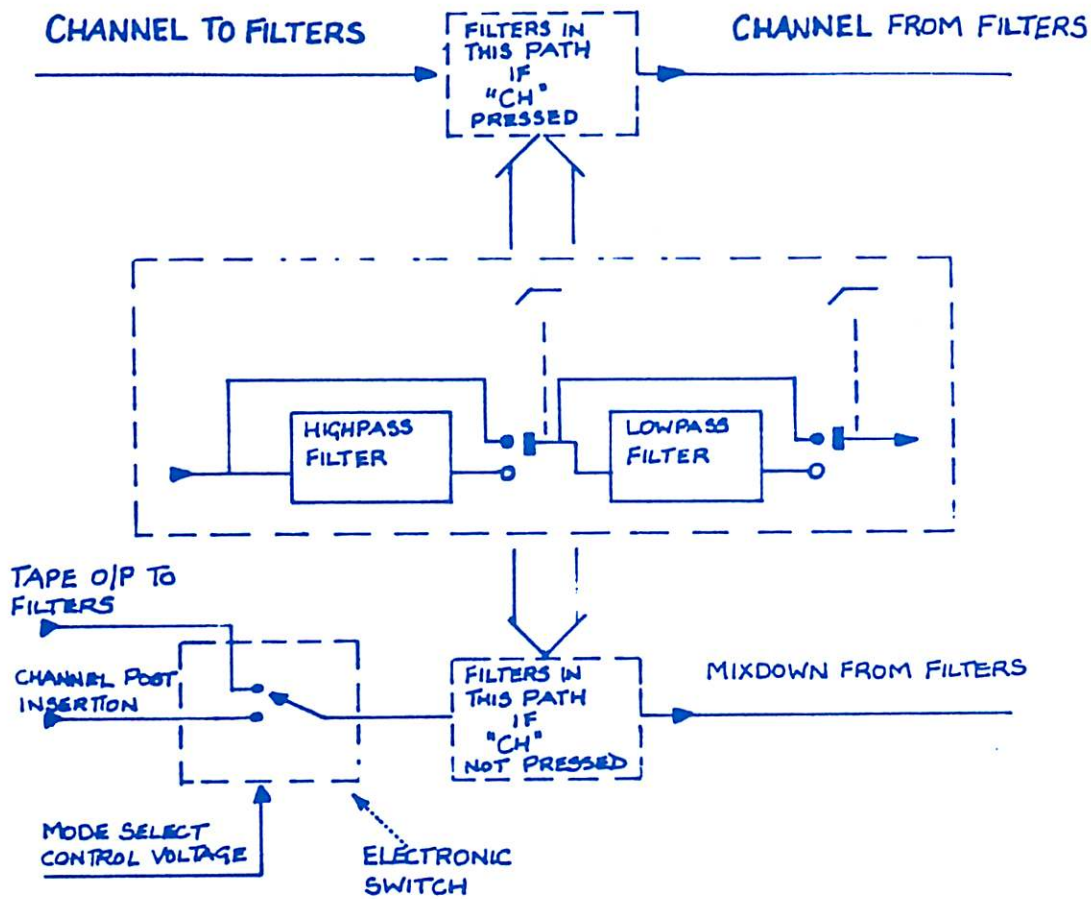
## D.C. SUPPLIES

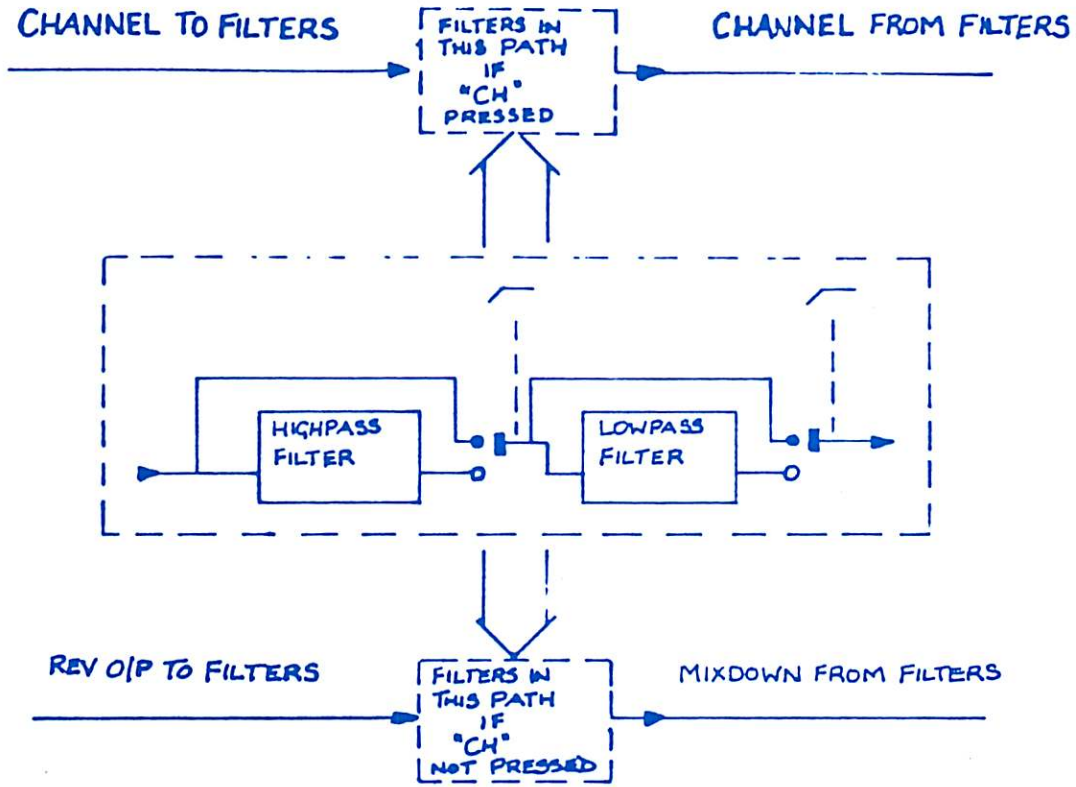
BA714/715 and its /A variant run from +18V regulated supplies provided by the BA712/713 or the BA752/753 (for the /A) assemblies.

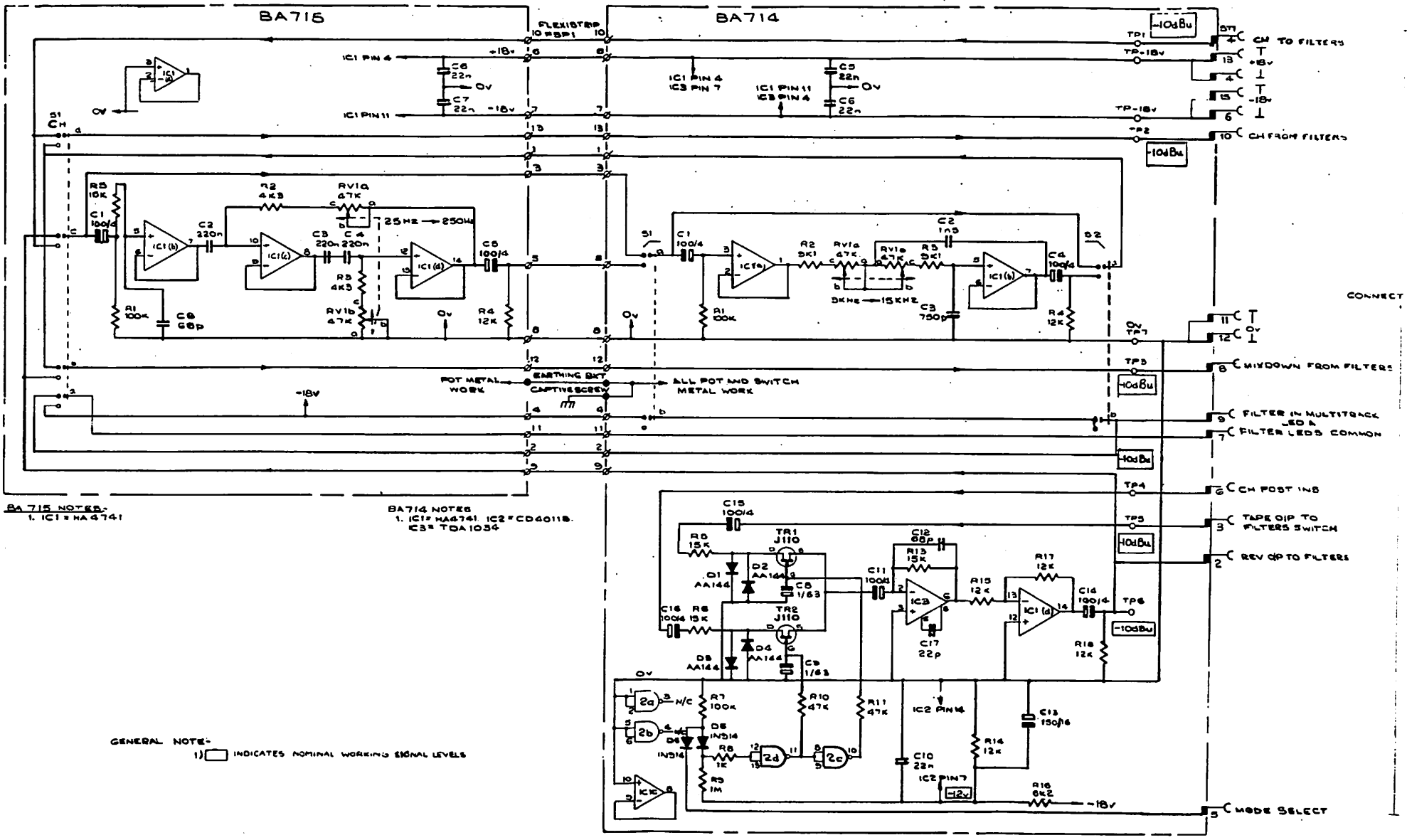
## TEST POINTS

Test points are provided as follows on BA714:

TP1	Channel path input signal "CH TO FILTERS"
TP2	Channel path output signal "CH FROM FILTERS"
TP3	Mixdown path output signal "MIXDOWN FROM FILTERS"
TP4	"CH POST INSERTION" input to electronic switch
TP5	"TAPE O/P TO FILTERS" input to electronic switch
TP6	Mixdown path input signal after electronic switch
TP7	0V
TP+18V	+18V regulated supply
TP-18V	-18V regulated supply



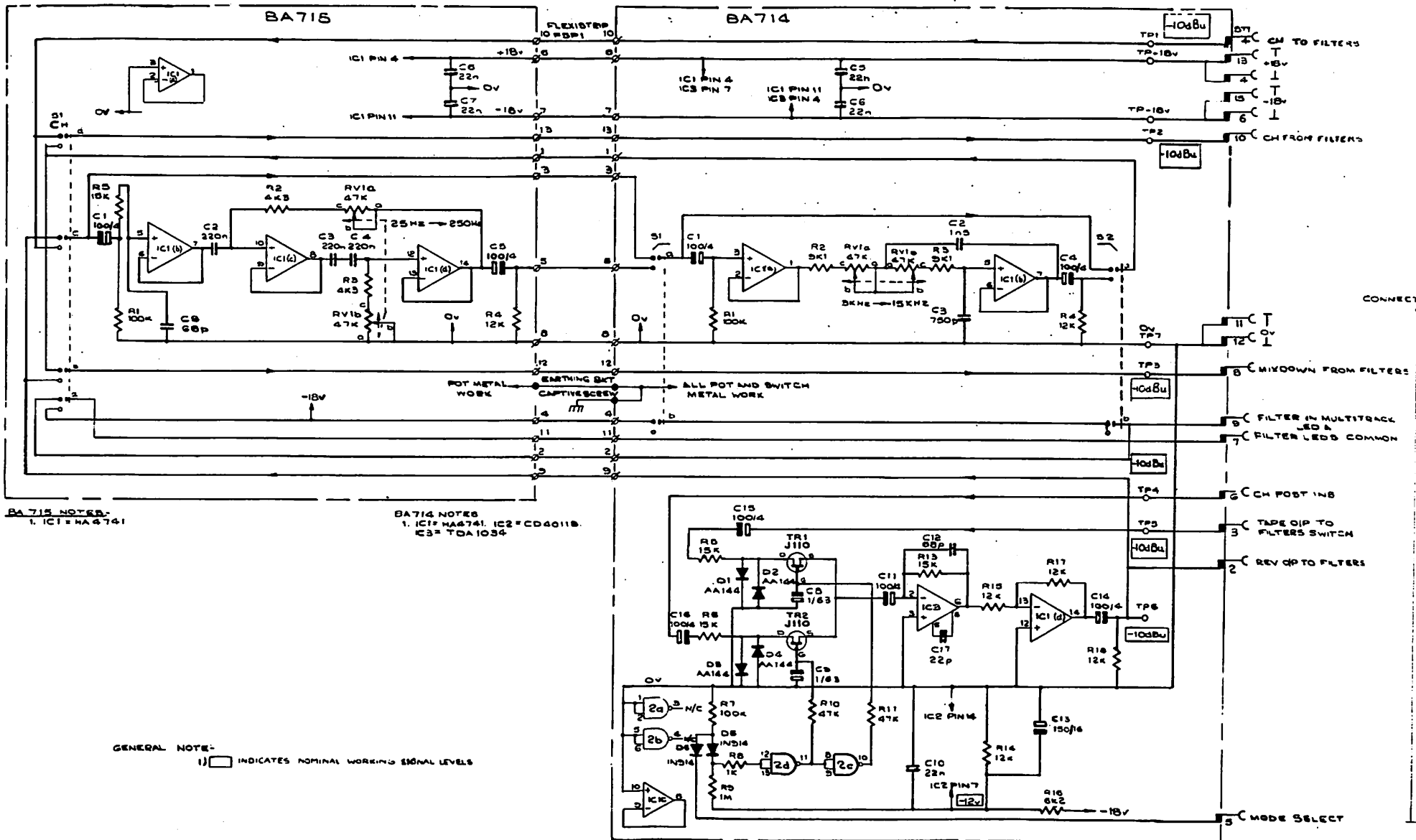




BA715 NOTES:  
1. IC1 = NA4741

BA714 NOTES:  
1. IC1 = NA4741 IC2 = CD4011B.  
IC3 = TDA1034

GENERAL NOTE:-  
1)  INDICATES NOMINAL WORKING SIGNAL LEVELS



TITLE: HIGH PASS & LOW PASS FILTERS ASSEMBLY PART LIST No. PL80007 SHT. 1. OF 7.



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FIRST USED ON: A 5158

ITEM No.	N.E.L. PART NO.	DESCRIPTION	No. OFF	
1		MANUFACTURING INFORMATION FOR		BA 714
② 2	EU10714	MASTER LINE DIAGRAM		
② 3	EV10714	MANUFACTURING DETAILS		
② 4	EW10714	COMPONENT LAYOUT		
④③② 5	ET10213	CIRCUIT DIAGRAM		ISSUE 5 . NOTE FOR BOTH BA 714 & BA 715
6				
7				
8		MANUFACTURING INFORMATION FOR		BA 715
9	EU10715	MASTER LINE DIAGRAM		
10	EV10715	MANUFACTURING DETAILS		
11	EW10715	COMPONENT LAYOUT		
12	EZ10714	TEST SPECIFICATION		ISSUE 1 NOTE FOR BOTH BA 714 & BA 715
13				
14		INDEX OF SUBASSEMBLIES		
15	PAGE 2.	— PAGE 4. BA 714		} TO BE KITTED SEPERATELY
16	PAGE 5.	— PAGE 6. BA 714		
17	PAGE 7.	INTERFACE COMPONENTS		
18				10 9 8
19				18-12-80 16-12-80 28-6-80
20				30589 61063 60900

DRAWN: M.FROGLEY	ISSUE	A	1	2	3	4	5	6	7	PART LIST No: PL80007
	DATE	23/2/79	30/5/79	31-7-79	28-11-79	30-11-79	7-2-80	10-3-80	31-5-80	
CHECKED: [Signature]	C/N No.			60492	30249	30274	60751	60793	60360 60751	SHT. 1. OF 7.



ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	
③ 21		COMPONENTS FOR SUBASSEMBLY		BA 714
22				
23	EV10714	PRINTED CIRCUIT BOARD	1.	ISSUE 10
24				
25	CA10221	CAPACITOR MULLARD 22PF	1.	C17.
26	CA10681	—————"———— 68PF	1.	C12.
27	CA17500	—————"———— SUFLEX 750PF	1.	C3.
⑤ 28	CA20014	—————"———— 1n5F	1.	C2.
29	CA20223	—————"———— MULLARD 22nF	3	C5,6,10
30	CAG0011	—————"———— ELECTROLYTIC 1 $\mu$ F63	2.	C8,9
31	CAG1000	—————"———— 100 $\mu$ F4 $\nu$	6	C1,4,11,14,15,16.
32	CAG1501	—————"———— 150 $\mu$ F16 $\nu$	1.	C13.
33				
34				
35				
36	CN20162	I.C. SOCKET 8WAY	1.	FOR ITEM NO 46
③ 37	CN20282	—————"———— 14-""	2.	FOR ITEM NOS 45,47.
38				
39				
40				
41	DD10002	DIODE IN 914	2.	DS.6.
42	DD12000	—————"———— AA 144	4.	D1-4.
43				
44	FG10502	POP RIVET 3/32" X 0.2"	1F	FOR ITEM NO 72
DRAWN:				PART LIST No. PL 80007
CHECKED:				SHT. 2. OF 7.

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	
45	IC2035	I.C. 4011 B	1.	IC2.
46	IC20007	I.C. TDA 1034 B	1.	IC3.
47	IC20010	I.C. HA 4741	1.	IC1.
48				
49				
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51	PT49000	POT DUAL 47K LIN	1.	RVI.
52				
53				
54				
55	RA001K0	RESISTOR TR4 1K OHMS	1.F	R8.
56	RA006K2	———— " ——— 6K2 — " —	1.F	R16.
57	RA009K1	———— " ——— 9K1 — " —	2.F	R2,3.
58	RA012K0	———— " ——— 12K — " —	5.F	R4,14,15,18,17
59	RA015K0	———— " ——— 15K — " —	3.F	R5,6,13.
60	RA047K0	———— " ——— 47K — " —	2	R10,11.
61	RA100K0	———— " ——— 100K — " —	2.F	R1,7.
62				
63	RFO01M0	RESISTOR CR25 1M OHMS	1.	R9.
64				
65				
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67	SA10400	TO18 MTG PAD	2.F	FOR ITEM 76.
68				
DRAWN:				PART LIST No. PL80007
CHECKED:				SHT. 3 OF 7.

ADMEL P121048

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ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	
69				
70				
71				
③ 72	SW20520	2B.2P DIALISTAT SWITCH	1.	S1, S2.
73				
74				
75				
⑩ 76	TR 32409	TRANSISTOR J110 FET	2.	TR1, 2.
77				
78				
79				
80	WA17005	TEST POINT TERMINAL	10 <sup>F</sup>	TP1-7, TP+18v, -18v. 0v.
81	WA17207	BBA SOLDER TAG	1 <sup>F</sup>	FOR ITEM N° 72.
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DRAWN:				PART LIST No. PL 80007
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ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	
93		COMPONENTS FOR SUBASSEMBLY		BA 715
94	EV 10715	PRINTED CIRCUIT BOARD	1.	ISSUE 10
95				
96				
97	CA 20223	CAPACITOR MULLARD 22nF	2.	C6.7.
98	CA 22202	— " — SIEMENS 220nF	3.	C2.3.4.
99	CA 61000	— " — ELECTROLYTIC 100µF	2.	C1.5.
② 100	CA 10681	— " — MULLARD 68pF	1	CB
101				
102				
103	CN 20282	I.C. SOCKET 14 WAY	1.	FOR ITEM 107.
104				
105				
106				
107	IC. 20010	I.C. HA 4741	1.	ICI.
108				
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111	PT 49000	POT DUAL 47K LIN	1.	RVI.
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DRAWN:				PART LIST No. PL 80007
CHECKED:				SHT. 5 OF 7

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	
117	RA 004K3	RESISTOR TR4 4K3 OHMS	2F	R2, R3.
118	RA012K0	———— " ——— 12K — " —	1F	R4.
119	RA100K0	———— " ——— 100K — " —	1F	R1.
② 120	RA015K0	———— " ——— 15K — " —	1F	R5
121				
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123	SW20501	1B.4P. DIALISTAT SWITCH	1.	S1.
124				
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DRAWN:				PART LIST No. PL 80007
CHECKED:				SHT. 6. OF 7.

ITEM No.	N.E.L. PART No.	DESCRIPTION	No. OFF	
141		INTERFACE COMPONENT		
142				
143				
⑥ 144	FA12703	PAN POZI HD SELF TAPPING		
145		SCREW N°4 X 3/8" LG.	8 <sup>F</sup>	FOR ITEM N° 148
146				
147				
148	MG22250	PCB PLASTIC BRIDGE	2.	
149	MG22251	CAPTIVE RETAINING SCREW	2.	FOR ITEM N° 148
③ 150	MG22258	EARTHING BKT	1.	FOR ITEMS 51, 111
151				
152				
153				
154	CN 20323	ANSLEY WRAP POST		
③ 155		SOCKET POLARIZED 16WAY	1.	FITTED TO ITEM 162
156				
157				
158				
③ 159	WA17601	SOLDER TRANSITION 16WAY	1.	FSPI
160				
161				
③ 162	WR71007	FLAT CABLE 16 WAY		100mm LENGTH FITTED TO ITEM 154.
163	WR74381	FLEXI STRIP 20 WAY	1.	CUT TO 13 WAYS
164				
DRAWN:				PART LIST No. PL 80007
CHECKED:				SHT. 7. OF 7.