TRACE ELLIOT

SERVICE MANUAL NO. SM00022

ISSUE 1

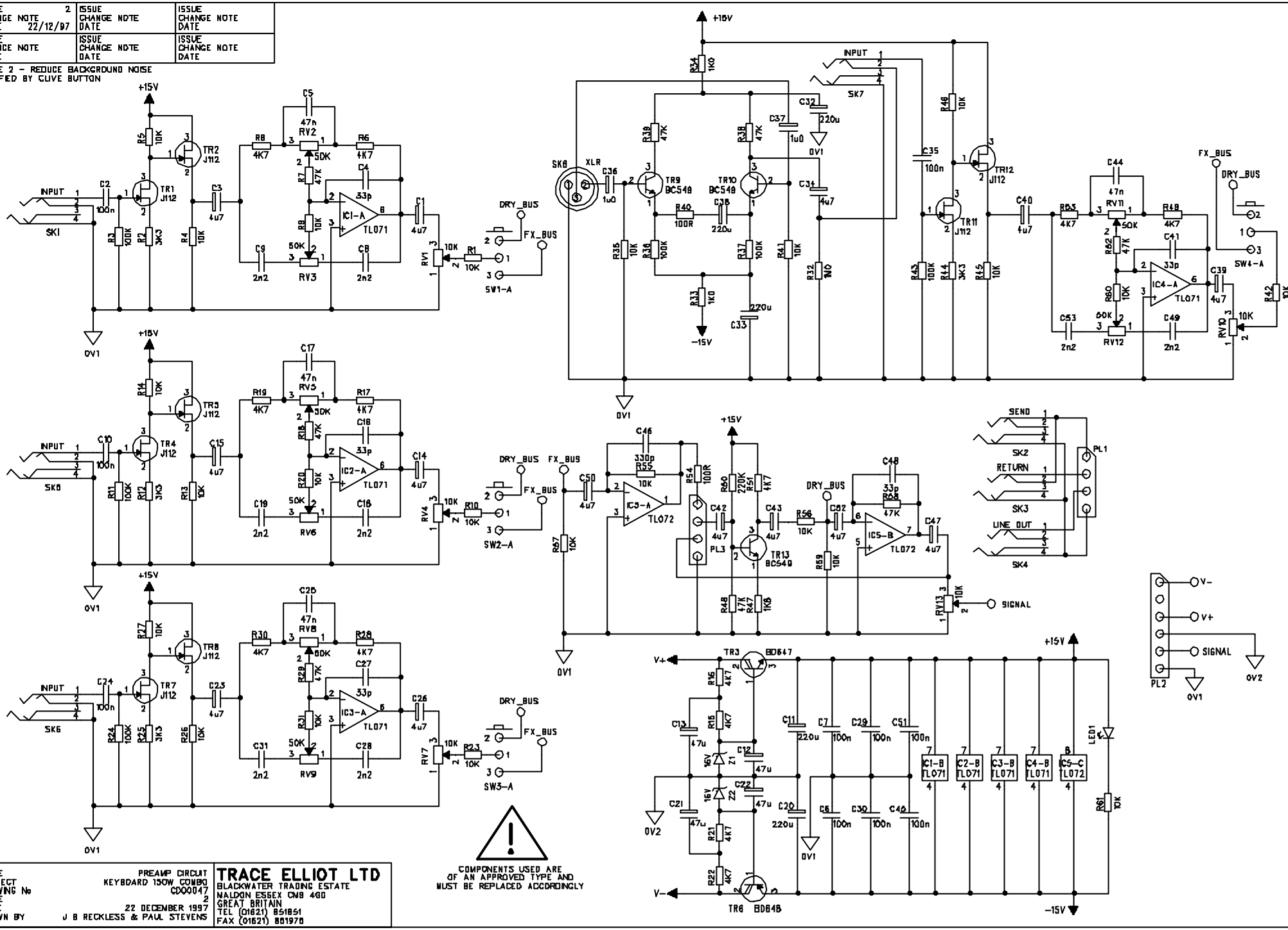
Date:	October 28, 1996
Product Code :	T1400
Model No :	TEK 150
Technical File No :	TE00022

Issued by:

Trace Elliot Limited.
Blackwater Trading Estate
The Causeway, Maldon
Essex CM4 4GG.

ISSUE 2 CHANGE NOTE DATE 22/12/97	ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE
ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE

ISSUE 2 - REDUCE BACKGROUND NOISE
MODIFIED BY CLIVE BUTTON



COMPONENTS USED ARE
OF AN APPROVED TYPE AND
MUST BE REPLACED ACCORDINGLY

TITLE	PREAMP CIRCUIT
PROJECT	KEYBOARD 150W COMBO
DRAWING No	CD00047
ISSUE	2
DATE	22 DECEMBER 1997
DRAWN BY	J B RECKLESS & PAUL STEVENS

TRACE ELLIOT LTD
BLACKWATER TRADING ESTATE
MALDON ESSEX CM9 4GG
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PARTS LIST FOR KEYBOARD 150 PREAMP

ISSUE 1 (3/7/96) PS

Description	Part Code	Qty	Where Used
PCB	PC00052x1	1	
RESISTORS			
0 ohm link	72-RCZERO	24	As shown on PCB
100R 1/4W	72-RM100R	2	R40 R54
1K0 1/4W	72-RM1K0	2	R33 R34
3K3 1/4W	72-RM3K3	4	R2 R12 R25 R44
5K1 1/4W	72-RM5K1	1	R56
4K7 1/4W	72-RM4K7	14	R6 R8 R15 R16 R17 R19 R21 R22 R28 R30 R47 R49 R51 R53
10K 1/4W	72-RM10K	22	R1 R4 R5 R9 R10 R13 R14 R20 R23 R26 R27 R31 R35 R41 R42 R45 R46 R55 R57 R59 R60 R61
47K 1/4W	72-RM47K	7	R7 R18 R29 R38 R39 R48 R52
82K 1/4W	72-RM82K	1	R50
100K 1/4W	72-RM100K	6	R3 R11 R24 R36 R37 R43
150K 1/4W	72-RM150K	1	R58
1M 1/4W	72-RM1M	1	R32
SEMICONDUCTORS			
BZY88 16V ZENER	72-D-BZY88C16V	2	Z1 Z2
RED LED 5mm	72-LED-RED	1	LED1
BC549	72-TBC549C	3	TR9 TR10 TR13
BD647	72-TBD647	1	TR3
BD648	72-TBD648	1	TR6
J112 FET	72-FET-J-112	8	TR1 TR2 TR4 TR5 TR7 TR8 TR11 TR12
TL071 OPAMP	72-IC-TL071	4	IC1 IC2 IC3 IC4
TL072 OPAMP	72-IL-TL072	1	IC5
CAPACITORS			
33p 100V ceramic	72-C33P-100VC	5	C4 C16 C27 C41 C48
330p 100V ceramic	72-C330P-100VCD	1	C46
1u0 35V tant	72-C1-35VT	2	C36 C37
4u7 35V tant	72-C4.7-35VT	14	C1 C3 C14 C15 C23 C26 C34 C39 C40 C42 C43 C47 C50 C52
47u 16V elect rad	72-C47-16VER	4	C12 C13 C21 C22

220u 25V elect rad	72-C220-25VER	5	C11 C20 C32 C33 C38
2n2 100V poly box	72-C2N2-100VP	8	C8 C9 C18 C19 C28 C31 C49 C53
47n 100V poly box	72-C47N-100VP	4	C5 C17 C25 C44
100n 100V poly box	72-C100N-100VP	10	C2 C6 C7 C10 C24 C29 C30 C35 C45 C51
CONNECTORS			
4 way 0.1"	72-HEAD-4W	2	PL1 PL3
6 way 0.1"	72-HEAD-6W-2	1	PL2
SOCKETS			
1/4" MONO JACK SKT	73-SKT-JCKBNBG	7	SK1 SK2 SK3 SK4 SK5 SK6 SK7
XLR pcb mount female	73-XLR-PCB-F	1	SK8
SWITCHES			
Push Switch Latching	73-SW-F2UEE	4	SW1 SW2 SW3 SW4
POTENTIOMETERS			
10K	73-POT-A10K	5	RV1 RV4 RV7 RV10 RV13
50K LINEAR	73-POT-B50K	8	RV2 RV3 RV5 RV6 RV8 RV9 RV11 RV12
HEATSINK			
T03 HEATSINK	71-HS-TEG	2	TR4 TR6
SCREW M3x8	71-SCR-M3X8PP/TT	2	TR4 TR6
WASHER M3 BLACK	71-WAS-M3ABLK	1	TR4
WASHER M3 NYLON	71-WAS-M3NYL	1	TR6
SHAKE PROOF M3	71-WAS-M3INTSP	2	TR4 TR6
NUT M3	71-NUT-M3ZINC	2	TR4 TR6

Paul Stevens
3 July 1996

ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE	ISSUE CHANGE NOTE DATE
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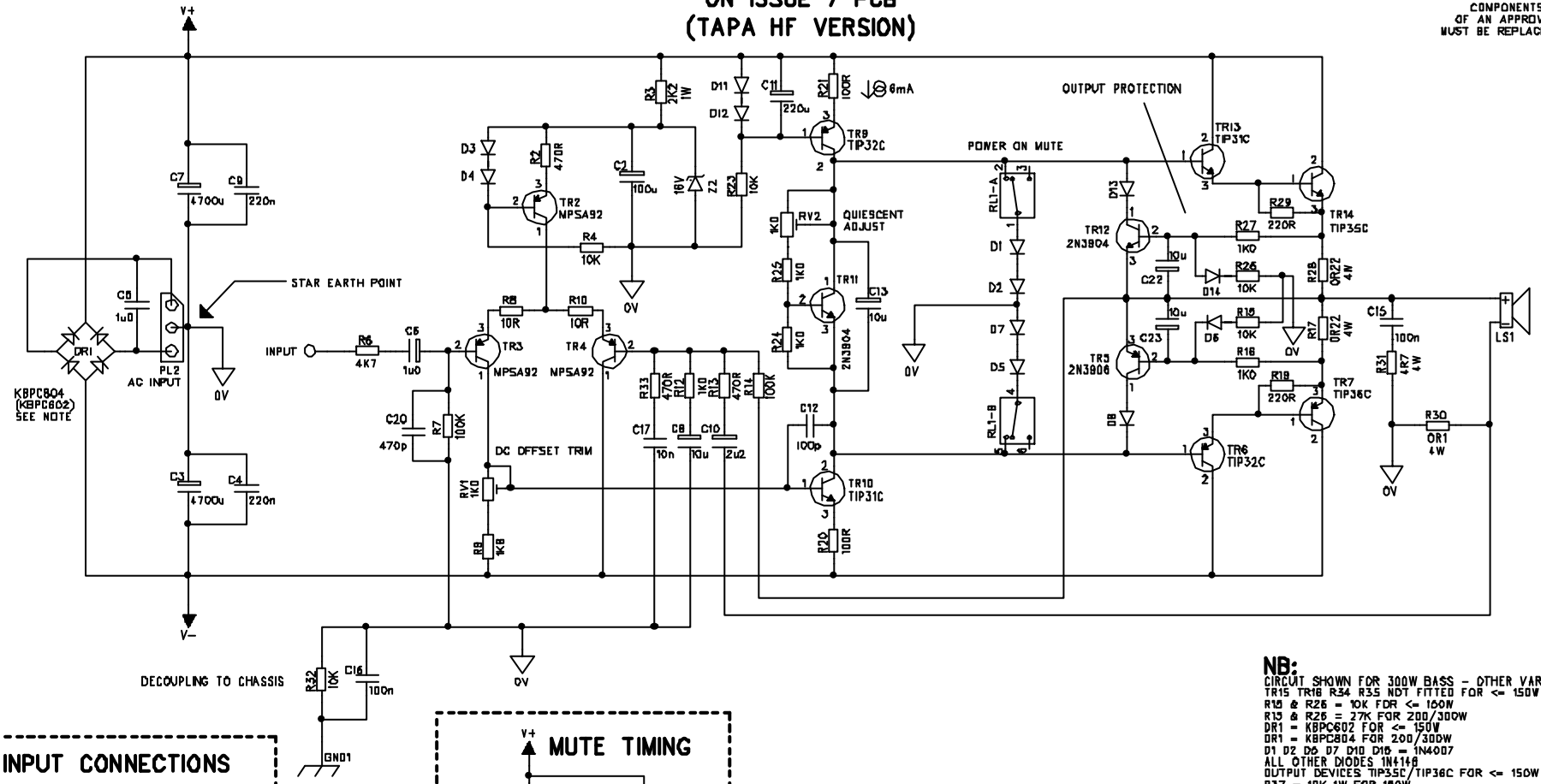
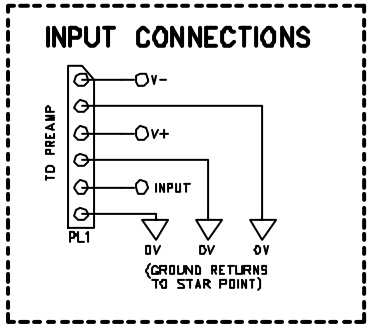
THE BIPOLAR BEAR OUTPUT STAGE CIRCUIT DIAGRAM
ON ISSUE 7 PCB
(TAPA HF VERSION)

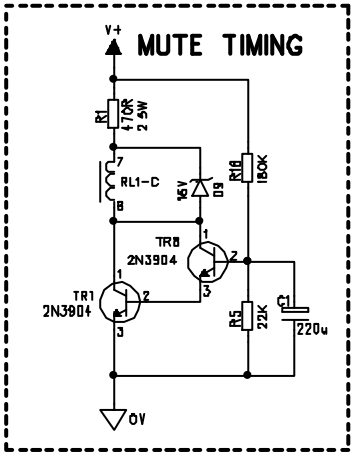
COMPONENTS USED ARE
OF AN APPROVED TYPE AND
MUST BE REPLACED ACCORDINGLY



INPUT CONNECTIONS



MUTE TIMING



NB:
CIRCUIT SHOWN FOR 300W BASS - OTHER VARIANTS BELOW.
TR15 TR16 R34 R35 NOT FITTED FOR <= 150W
R15 & R26 = 10K FOR <= 150W
R15 & R26 = 27K FOR 200/300W
DR1 = KBPC602 FOR <= 150W
DR1 = KBPC804 FOR 200/300W
D1 D2 D6 D7 D10 D15 = 1N4007
ALL OTHER DIODES 1N4148
OUTPUT DEVICES TIP35C/TIP36C FOR <= 150W
R37 = 10K 1W FOR 150W

TAPA LF:
R13 = 470R
C10 = 10u
Z1 = 27V ZENER
C19 = 47u 63V

TEK150:
R30 = S/C LINK
R13 C10 NOT FITTED
R12 = 3K3
C8 = 2u2
R33 = 1K0
C17 = 10n

TAPA HF:
ONE PAIR OF TIP35C/TIP36C FOR OUTPUTS
FAN DRIVE CIRCUIT NOT FITTED
R3 = 2K2 1W
R23 = 10K
R1 = 470R 2.5W
R16 = 180K
R13 = 470R
R33 = 470R
C17 = 10n
C20 = 470p

TITLE	THE BIPOLAR BEAR
PROJECT	TAPA HF
DRAWING No	CD00025
ISSUE	1
DATE	7/10/1996
DRAWN BY	J B RECKLESS

TRACE ELLIOT
TRACE ELLIOT LIMITED
MALDON ESSEX CM9 7XD
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Important Notice

To make the bi-polar 300 watt bass board reliable the following guidelines must be adhered to.

When a board need to be serviced it is advisable to replace both the Output Transistors and TIP31 and TIP32. Also it is advisable to replace TR11 which is situated under the rear of the heatsink.

The Output device should only be T2SC4468 and T2SA1695's
The Drivers should be of the same manufacturer as each other to ensure stability.
And TR11 is a T2N3904 as listed on the parts list.
TR11 need to be completely covered in Heat Transfer Compound (HTC)
This is to ensure that it keeps the unit biased correctly even when the unit gets hot. If TR11 is not covered then the fan can cool this component down and give the board a fault reading of temperature and provide and inappropriate bias.

When adjusting the bias on the scope, make sure that the crossover distortion is just not visible. Too far beyond this point will over bias the unit.

Use a Shake-proof washer under the pcb earth point to ensure a permanent connection and prevent crackling noises in the future.

Paul Mathews

Jan 2000-01-25

PARTS LIST FOR TEK150 POWER OUTPUT STAGE USING PC00026 ISSUE 7
Please label the pcb 'TEK150'

Description	Part Code	Qty	Where Used
DIODE 1N4007	72-D-1N4007	14	D1.....D8 D10.....D15
ZENER DIODE 16 VOLT	72-D-BZX55C16V	3	Z1 Z2 D9
ZENER DIODE 56 VOLT	72-D-BZX55C56V	2	Z3 Z4
ZERO OHM LINKS	72-RCZERO	14	***FIT A LINK TO POS R30***
RES 1/4W 100K	72-RM100K	2	R7 R14
RES 1/4W 100R	72-RM100R	2	R20 R21
RES 1/4W 10K	72-RM10K	4	R4 R15 R26 R32
RES 1 WATT 10K	72-RM10K-1WATT	1	R37
RES 1/4W 10R	72-RM10R	2	R8 R10
RES 1/4W 1K0	72-RM1K	5	R16 R24 R25 R27 R33
RES 1/4W 1K8	72-RM1K8	1	R9
RES 1/4W 220R	72-RM220R	2	R19 R29
RES 1/4W 22K	72-RM22K	2	R5 R23
RES 1/4W 2R7	72-RM2R7	1	R36
RES 1/4W 3K3	72-RM3K3	1	R12
RES 1/4W 470K	72-RM470K	1	R18
RES 1/4W 470R	72-RM470R	1	R2
RES 1/4W 4K7	72-RM4K7	1	R6
RES 1 WATT 4K7	72-RM4K7-1WATT	1	R3
CAP RADIAL 1u0 63V	72-C1-63VER	1	C6
CAP RADIAL 2u2 100V	72-C2.2-100VER	1	C8
CAP RADIAL 10u 63V	72-C10-63VER	4	C13 C18 C22 C23
CAP RADIAL 100u 16V	72-C100-16VER	2	C2 C19
CAP RADIAL 220u 25V	72-C220-25VER	2	C1 C11
CAP CERAMIC 100p 100V	72-C100P-100VCD	1	C12
CAP BOX POLY 2n2 100V	72-C2N2-100VP	1	C20
CAP BOX POLY 10n 100V	72-C10N-100VP	1	C17
CAP BOX POLY 100n 100V	72-C100N-100VP	2	C15 C16
CAP BOX POLY 220n 250V	72-C220N-250VP	2	C4 C9
CAP BOX POLY 1uF 250V	72-C1-250VP	1	C5
TRANSISTOR MPSA92	72-TMPSA92	3	TR2 TR3 TR4
TRANSISTOR 2N3904	72-T2N3904	5	TR1 TR8 TR11 TR12 TR18
TRANSISTOR 2N3906	72-T2N3906	1	TR5
TRANSISTOR TIP31C	72-TIP31C	2	TR10 TR13

TRANSISTOR TIP32C	72-TIP32C	2	TR6 TR9
PRESET 1K0	72-PRESET-1K	2	RV1 RV2
RELAY 47W/6 12V DPCO	73-RELAY-47W	1	RL1
PCB TERMINAL 2 WAY	73-TERM-PCB-2WAY	1	FAN OUTPUT
HEADER 6 WAY 0.1"	72-HEAD-6W-2	1	PL1
HEADER 3 WAY 0.2"	72-HEAD-3W-3	1	PL2
HEADER 2 WAY 0.2"	72-HEAD-2W-2	1	LS1
RES W/W 0R22 4W	72-RWW0R22-4W	2	R17 R28
RES W/W 4R7 4W	72-RWW4R7-4W	1	R31
RES W/W 1K0 2.5W	72-RWW1K-2.5W	1	R1
CAP 4700u 63V SNAP IN	72-CAP-470063V	2	C3 C7
RECTIFIER KBPC602	72-BRIDGE-2	1	DR1 (fit to heatsink)
HEATSINK FINNED	71-HS-TEG	1	fit to DR1
TRANSISTOR TIP35C	72-TIP35C	1	TR14
TRANSISTOR TIP36C	72-TIP36C	1	TR7
TRANSISTOR BUW11A	72-TBUW11A	1	TR17
HEATSINK KR70	74-HS-KR70-1	2	fit to output devices
TRANSISTOR CLIP	74-HS-KR70-CLIP1	3	fit to output devices
THERMAL TRIP 100C	73-SWT-THERM-2	1	fit to heatsink, wire to TRIP1
FIXINGS:	71-SCR-M3X8PP/TT	10	for heatsinks and trip
	71-SCR-M3X16PP	1	for KBPC602
	71-NUT-M3ZINC	1	for KBPC602
	71-WAS-M3AZINC	1	for KBPC602
	71-WAS-M3SCOIL	1	for KBPC602
	71-WAS-M3NYL	8	for heatsinks under PCB
	45-MISC	0.5	

PARTS LIST FOR C12-PCB-CHOKETEK

ISSUE 1 (9/5/96) PS

Description	Part Code	Qty	Where Used
PCB	73-PCB-1048-XO	1	
3u3 100V poly box	72-C3.3-100VP	1	C1
INDUCTOR	73-TRAN-INDUCTOR	1	L1
B.T.C.	45-WIR-TIN-16S	≈3"	R1

Paul Stevens
9 MAY 1996