OBSOLETE
3B/4B POWER AMPLIFIER
TECHNICAL DATA

BRYSTON LTD
P.O. BOX 2170, 677 NEAL DRIVE, PETERBOROUGH, ONTARIO, CANADA K9J 7Y4
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OBSOLETE 3B/4B POWER AMPLIFIER TECHNICAL DATA

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57A WESTMORE DR., REXDALE, ONTARIO, CANADA M9V 3Y6 TELEPHONE: 746-1800, CABLE BRYREXCAN

BRYSTON 3B/4B Check-Out Procedure

PART A

1) Visual examination of all component values and placement (orientation).

2) Visual examination of all soldering.

PART B Performance Tests - using test jig or chassis

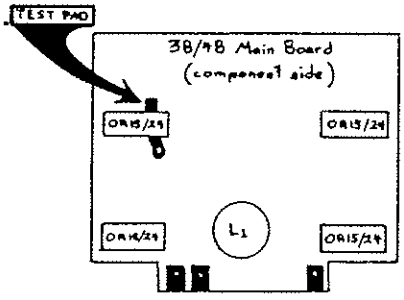
N.B. When testing 3B/4B Channels in chassis, remove one external fuse and power up only one channel at a time; set mono-stereo switch to STEREO position.

3) Check all input, output and load connections. (Use 8 ohms at 500 watts (minimum) for dummy load.) Set signal generator to 20K Hz (sine wave) at approximately 1 volt.

4) Slowly turn 'Variac' (variable autotransformer) up to appropriate line voltage while observing scope trace to ensure that sine wave is symetrical and undistorted.

5) Remove 20k Hz input signal and short channel input to ground.

Set bias at 4mv. to 6mv., measuring from V+ (at red lead crimp connector on filter capacitor) to Test Pad at emitter of upper 2N6609 power transistor (running beneath 5 watt, OR15/OR24 emitter resistor).



6) With input still shorted to ground, measure DC offset across output terminals. Should be less than 50mv.

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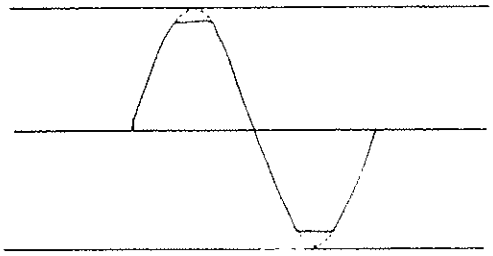
PART B Performance Tests (cont'd)

7) a. Re-insert 20k Hz signal to channel input and adjust level to clip amplifier. Clipping should be symetrical and clipping indicator (red LED) should turn on.



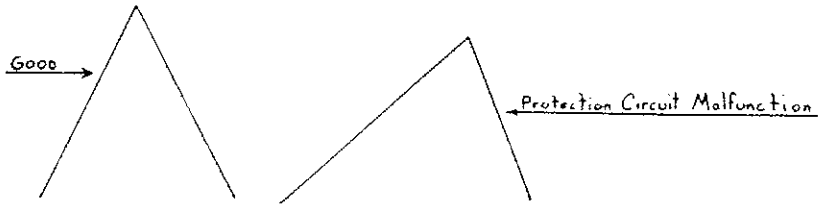
b. Reduce input signal level to bring amplifier output just below the threshold of clipping and measure output power.

Typical output power (rms measurement derived):

3B - 128 watts/channel
4B - 270 watts/channel

8) Momentarily place a non-polar, 5u6/100V capacitor across output terminals to engage protection circuitry.

Sine wave should be converted to a symetrical triangle wave. If triangle wave is shifted more than approximately 30°, protection circuitry is malfunctioning.



9) THD should be below .01% at 20K Hz at full rated output level.

10) Noise - referenced to full rated output; unweighted noise should be greater than -100db.

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BRYSTON POWER AMPLIFIER

BURN-IN PROCEDURE

All power amplifiers are 'burned-in' for approximately four days in the mono mode, using a capacitive load of 330nF (200v) for 2B, 660nF for 3B/4B across the two speaker hot (red) terminals (preferably with a fuse in series), and bias is initially set at 4mv to 6mv.

A 3K hz square wave signal is fed into the amplifier's left channel input at a level sufficient to produce 50 VAC - as measured with an 'averaging' voltmeter - across the two hot (red) output terminals, for three out of every four hours during burn-in period. Chassis tops are left off the amplifiers during burn-in.

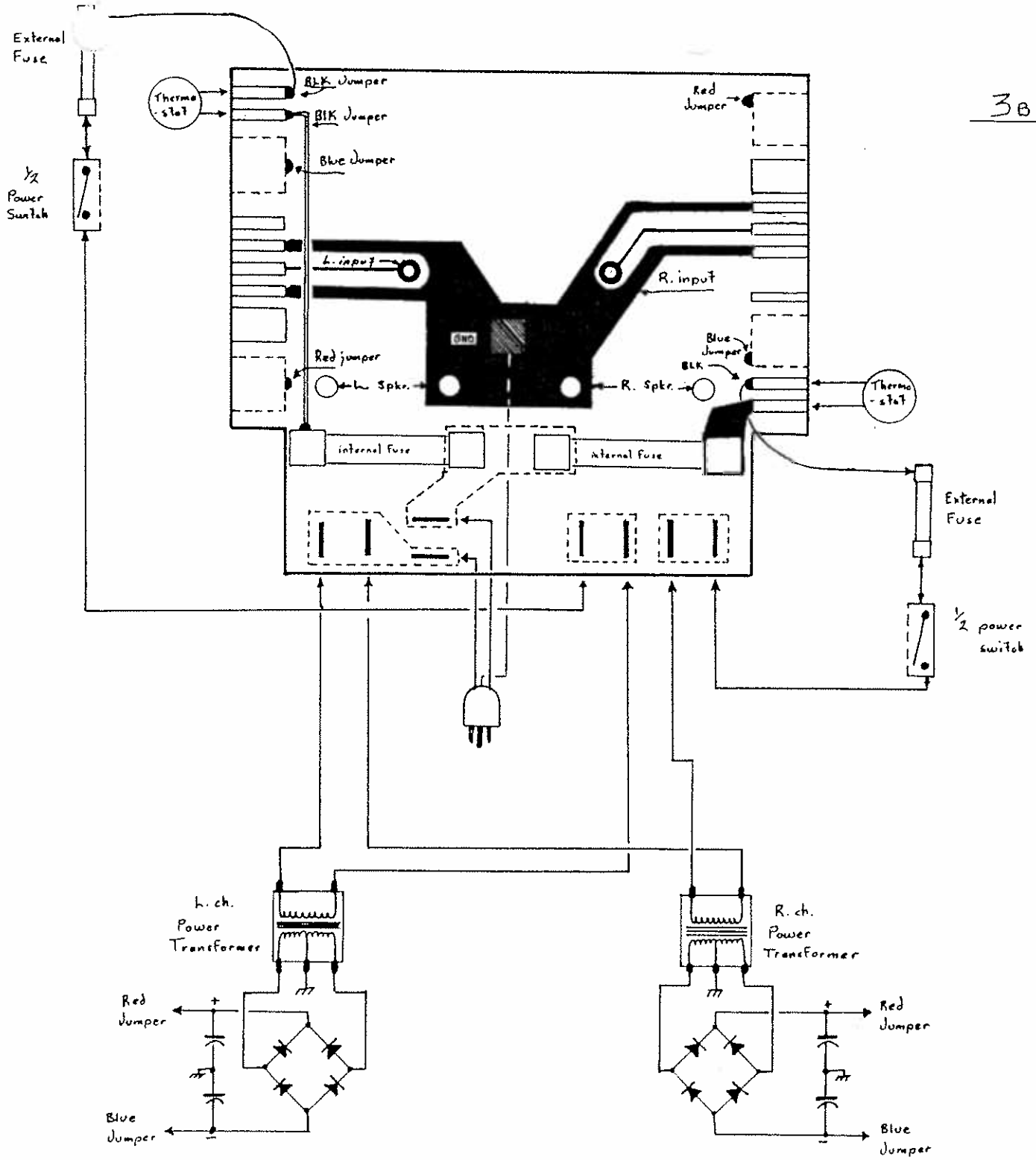
After four full days of burn-in, 3K hz square wave input signal and capacitive load are removed, and chassis top is put on amplifier. Bias is reset to:

	Line Voltage	
Model	120 VAC	220 VAC
2B	10 - 12 mv	6 - 8 mv
3B	12 - 15 mv	7 - 9 mv
4B	12 - 15 mv	8 - 10 mv

Bias is rechecked every half hour until it has stabilized. No further bias adjustments will then be made.

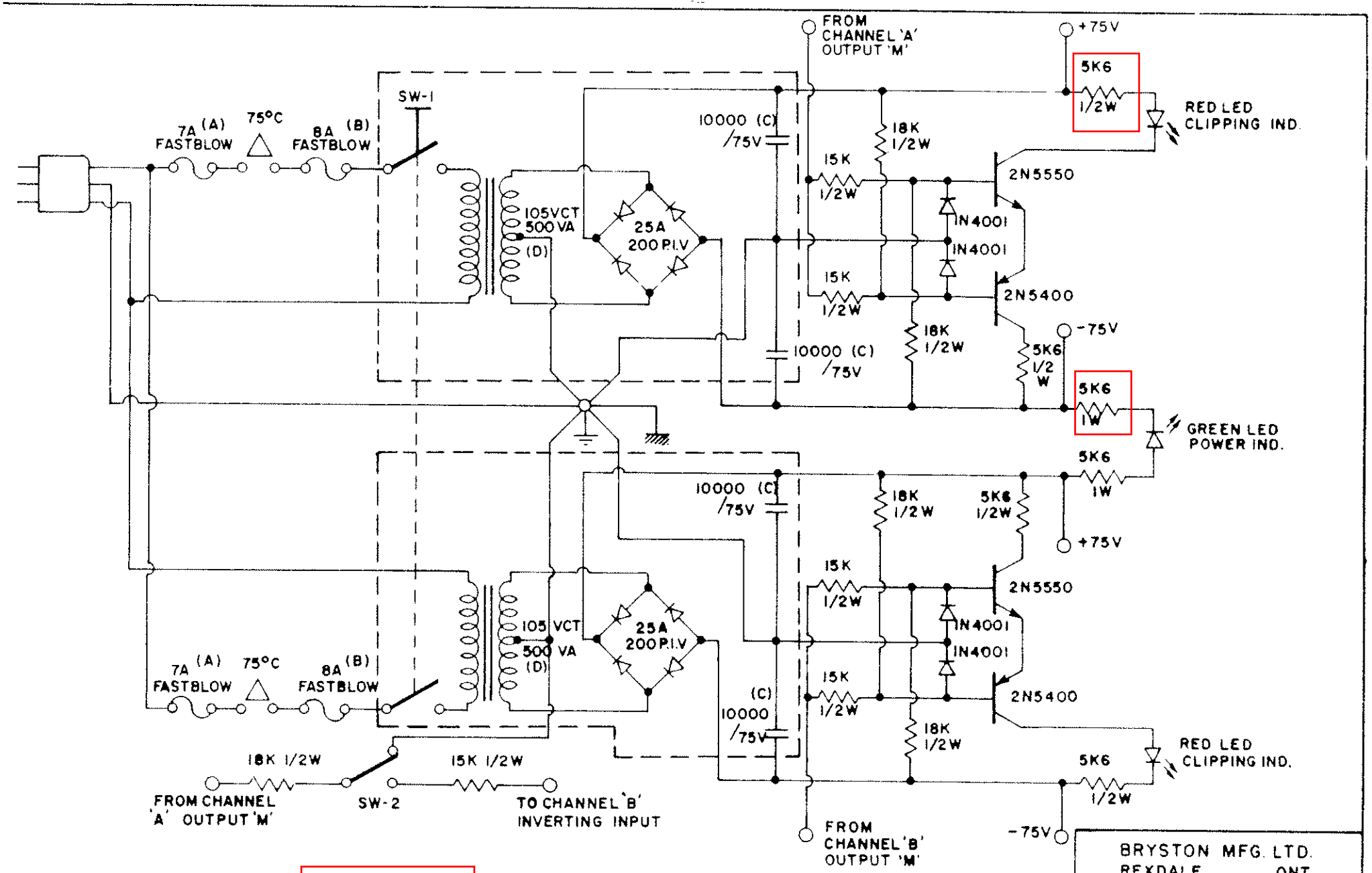
N.B. Line voltage should be stable while bias is being set.

3B & 4B Backboard Hook-Up



NB: Transformer Primaries are wired out of phase with each other

WP July 80



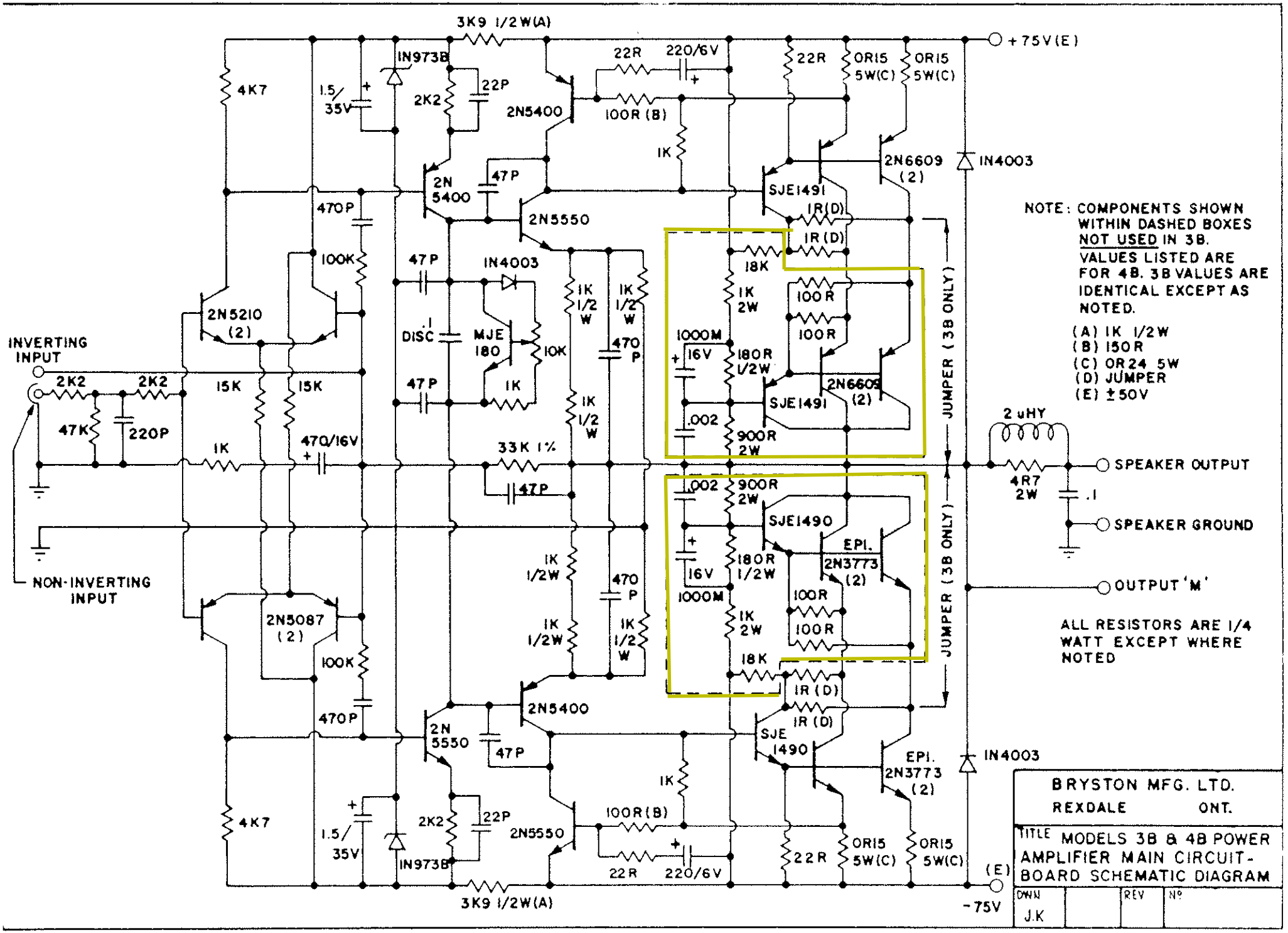
VALUES SHOWN ARE FOR MODEL 4B
3B VALUES IDENTICAL EXCEPT AS NOTED:
(A) 4A FASTBLOW
(B) 5A FASTBLOW
(C) 7500/50V
(D) 70VCT 250VA

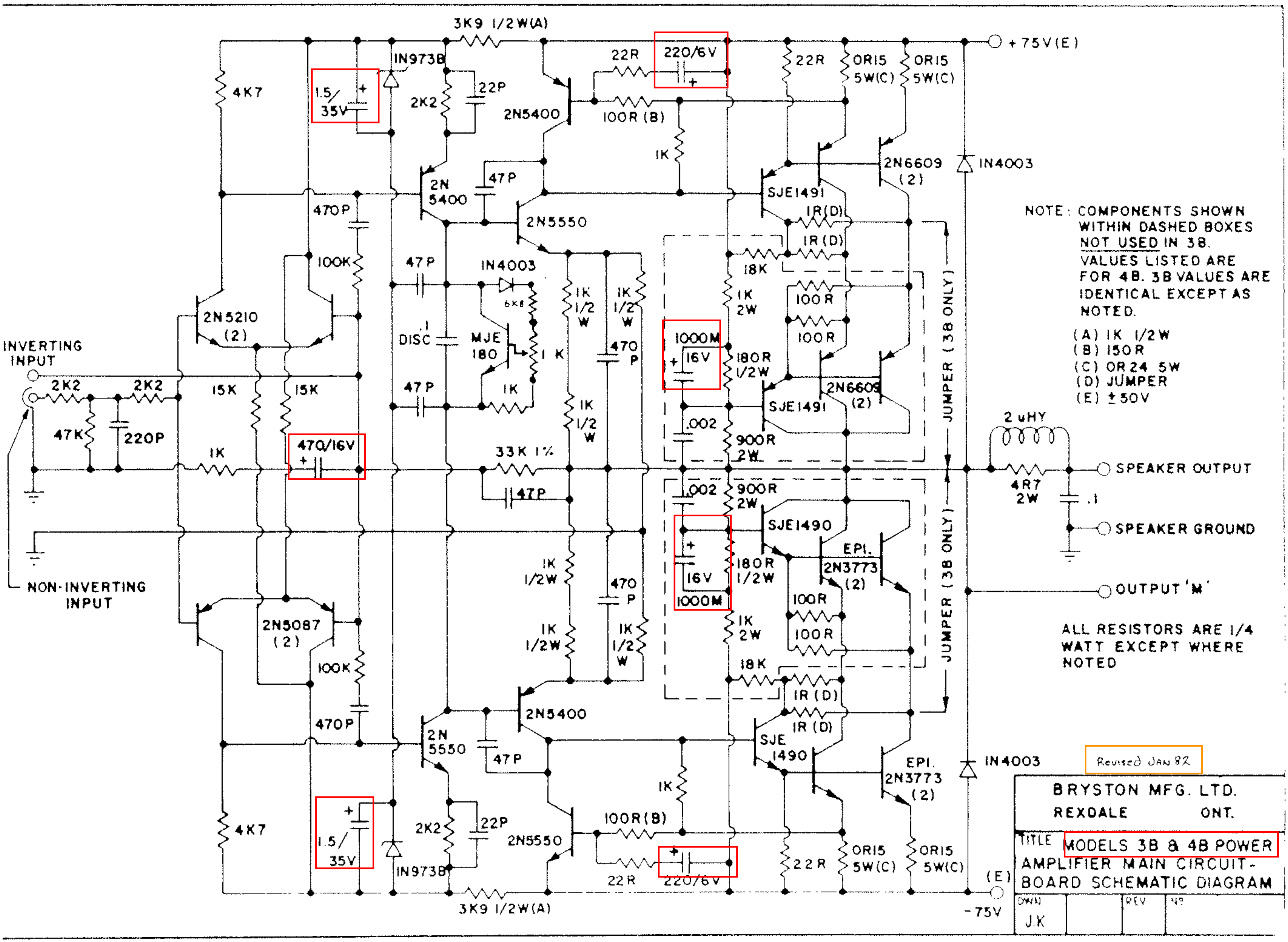
ALL COMPONENTS EXCEPT THOSE SHOWN WITHIN DASHED BOXES MOUNTED ON PCB

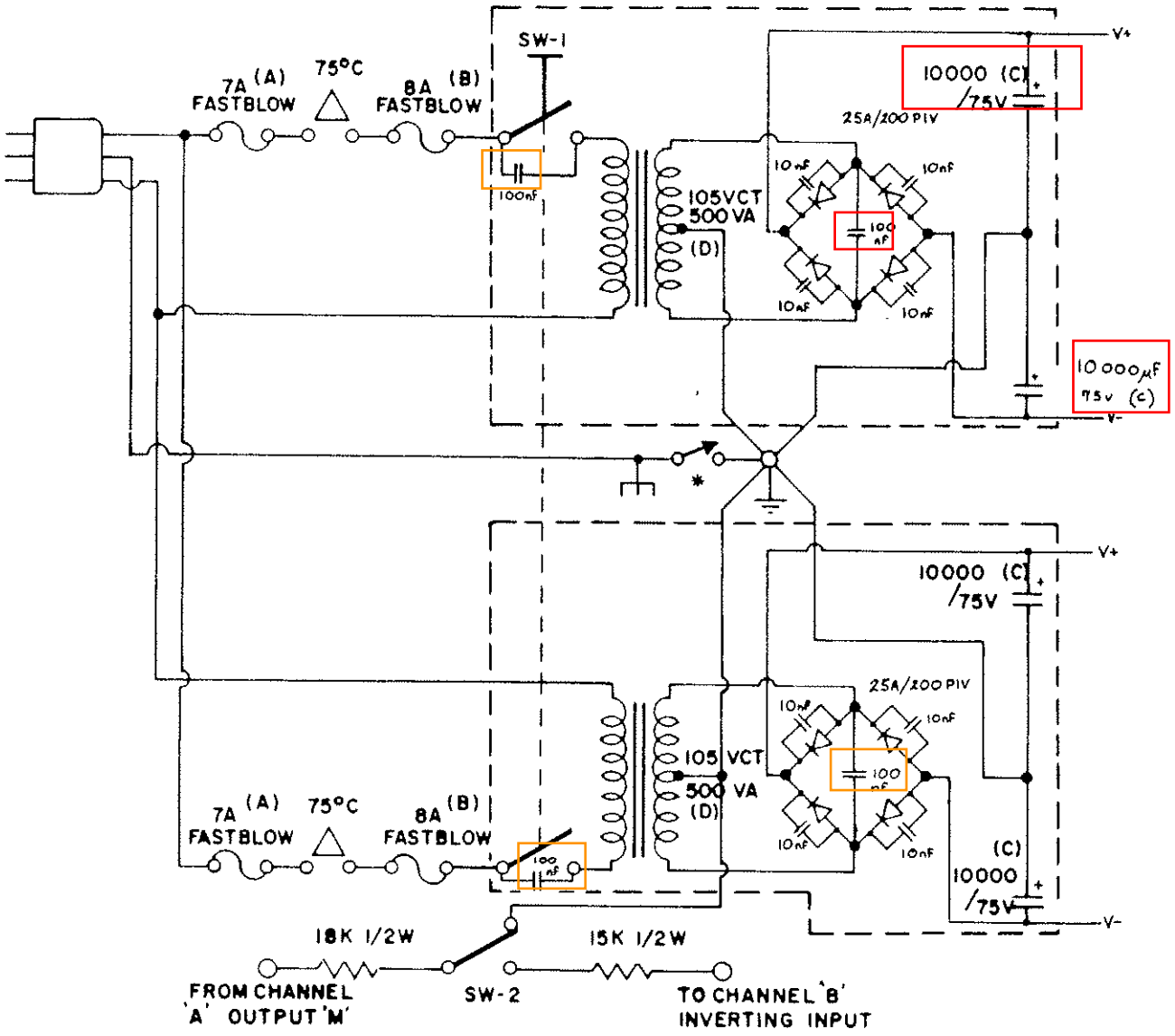
BRYSTON MFG. LTD.
REXDALE ONT.

TITLE MODELS 3B & 4B
POWER SUPPLY SCHEMATIC DIAGRAM

DWN	DATE	REV	No
J.K	14-12-79		


3K9 1/2W(A)
+75V(E)
4K7
1.5/35V
IN973B
2K2
22P
2N5400
22R
220/6V
100R (B)
1K
22R
0R15 5W(C)
0R15 5W(C)
2N6609 (2)
IN4003
2N 5400
47P
SJE1491
1R(D)
2N5550
470P
100K
47P
IN4003
1K 1/2 W
1K 1/2 W
18K
1K 2W
100R
100R
1000M
16V
180R 1/2W
2N6609 (2)
SJE1491
.002
900R 2W
JUMPER (3B ONLY)
2N5210 (2)
DISC .1
MJE 180
10K
1K
470 P
47P
1K 1/2 W
INVERTING INPUT
2K2
2K2
47K
220P
15K
15K
1K
470/16V
33K 1%
47P
2 uHY
4R7 2W
.1
SPEAKER OUTPUT
SPEAKER GROUND
NON-INVERTING INPUT
OUTPUT 'M'
2N5087 (2)
100K
470P
1K 1/2W
1K 1/2W
470 P
1K 1/2 W
.002
900R 2W
SJE1490
EPI. 2N3773 (2)
180R 1/2W
16V
1000M
1K 2W
100R
100R
18K
1R (D)
1R (D)
2N5400
2N 5550
47P
SJE 1490
EPI. 2N3773 (2)
IN4003
1K
4K7
1.5/35V
IN973B
2K2
22P
2N5550
100R(B)
22R
220/6V
22R
0R15 5W(C)
0R15 5W(C)
(E)
-75V
3K9 1/2W(A)
NOTE: COMPONENTS SHOWN WITHIN DASHED BOXES NOT USED IN 3B. VALUES LISTED ARE FOR 4B. 3B VALUES ARE IDENTICAL EXCEPT AS NOTED.
(A) 1K 1/2W
(B) 150R
(C) OR24 5W
(D) JUMPER
(E) ±50V
ALL RESISTORS ARE 1/4 WATT EXCEPT WHERE NOTED
BRYSTON MFG. LTD.
REXDALE ONT.
TITLE MODELS 3B & 4B POWER AMPLIFIER MAIN CIRCUIT-BOARD SCHEMATIC DIAGRAM
DWN J.K
REV
Nº


3K9 1/2W(A)
+75V(E)
-75V
(E)
4K7
1.5/35V
IN973B
2K2
22P
2N5400
2N5550
22R
220/6V
100R(B)
1K
47P
470P
100K
2N5210 (2)
2N5087 (2)
INVERTING INPUT
NON-INVERTING INPUT
47K
220P
15K
470/16V
33K 1%
47P
IN4003
6K8
.1 DISC
MJE 180
1K
1K 1/2 W
470 P
SJE1491
SJE1490
IR(D)
18K
1K 2W
100R
1000M 16V
180R 1/2W
.002
900R 2W
2N6609 (2)
EPI. 2N3773 (2)
0R15 5W(C)
JUMPER (3B ONLY)
2 uHY
4R7 2W
.1
SPEAKER OUTPUT
SPEAKER GROUND
OUTPUT 'M'
NOTE: COMPONENTS SHOWN WITHIN DASHED BOXES NOT USED IN 3B. VALUES LISTED ARE FOR 4B. 3B VALUES ARE IDENTICAL EXCEPT AS NOTED.
(A) 1K 1/2W
(B) 150R
(C) 0R24 5W
(D) JUMPER
(E) ±50V
ALL RESISTORS ARE 1/4 WATT EXCEPT WHERE NOTED
Revised Jan 82
BRYSTON MFG. LTD.
REXDALE ONT.
TITLE MODELS 3B & 4B POWER AMPLIFIER MAIN CIRCUIT-BOARD SCHEMATIC DIAGRAM
DWN J.K
REV
No



VALUES SHOWN ARE FOR MODEL 4B
3B VALUES IDENTICAL EXCEPT AS NOTED:
(A) 4A FASTBLOW
(B) 5A FASTBLOW
(C) 7500/50V
(D) 70 VCT 250VA

* Grounding switch mounted on backboard.

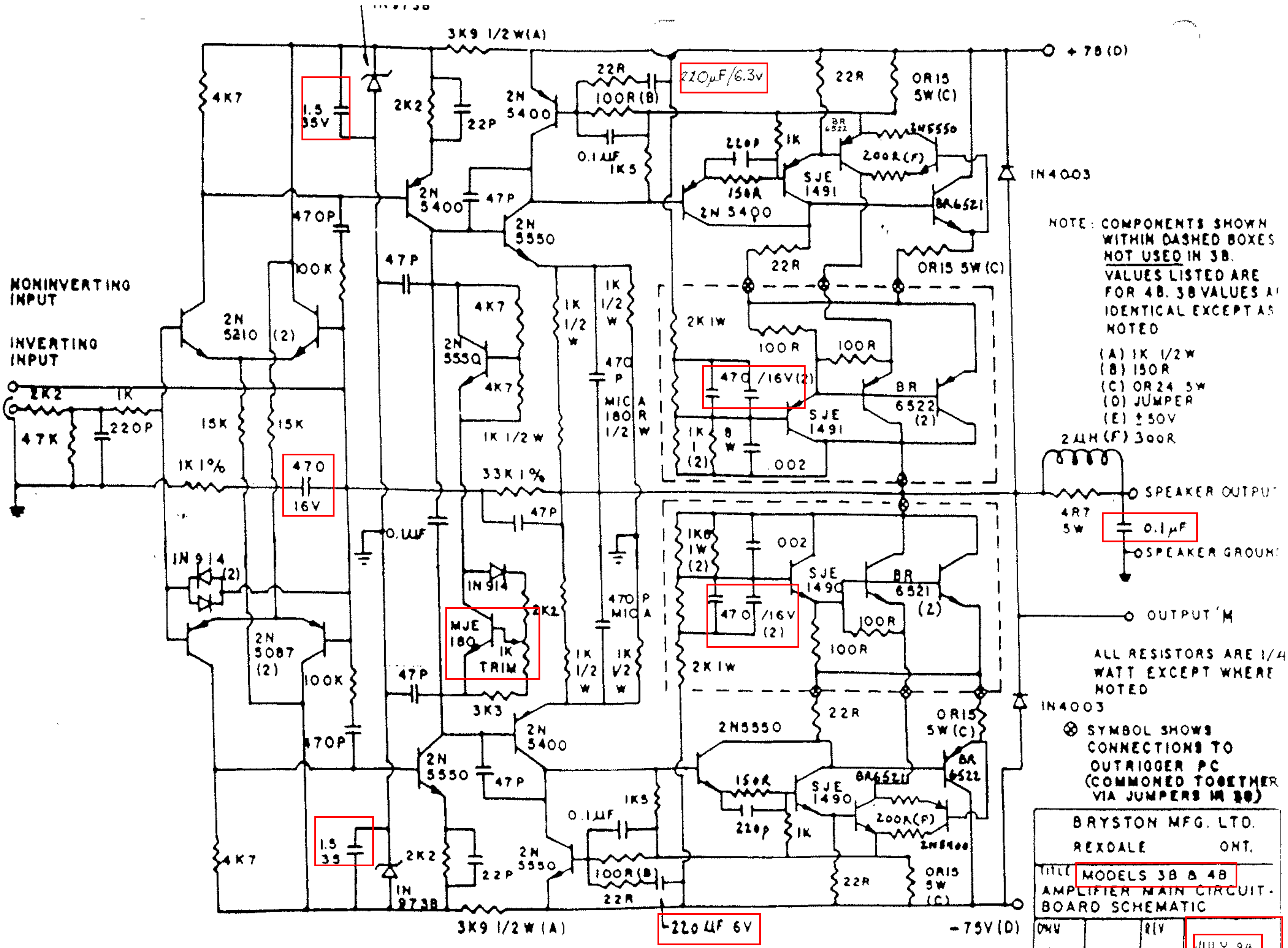
4B ±75 VDC
3B ±50 VDC

REVISED JAN 82 / AUG 83

BRYSTON MFG. LTD.
REXDALE ONT.

TITLE MODELS 3B & 4B POWER SUPPLY SCHEMATIC DIAGRAM

DWN	DATE	REV	Nº



NOTE: COMPONENTS SHOWN WITHIN DASHED BOXES NOT USED IN 3B. VALUES LISTED ARE FOR 4B. 3B VALUES ARE IDENTICAL EXCEPT AS NOTED

(A) IK 1/2W
(B) 150R
(C) OR24 5W
(D) JUMPER
(E) ±50V

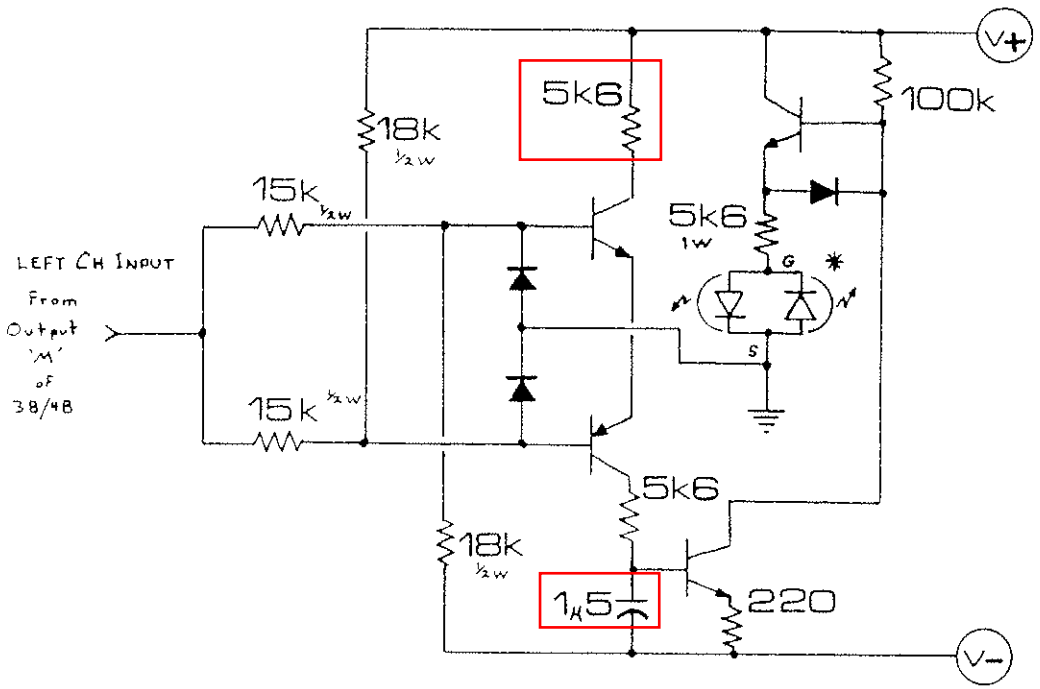
ALL RESISTORS ARE 1/4 WATT EXCEPT WHERE NOTED

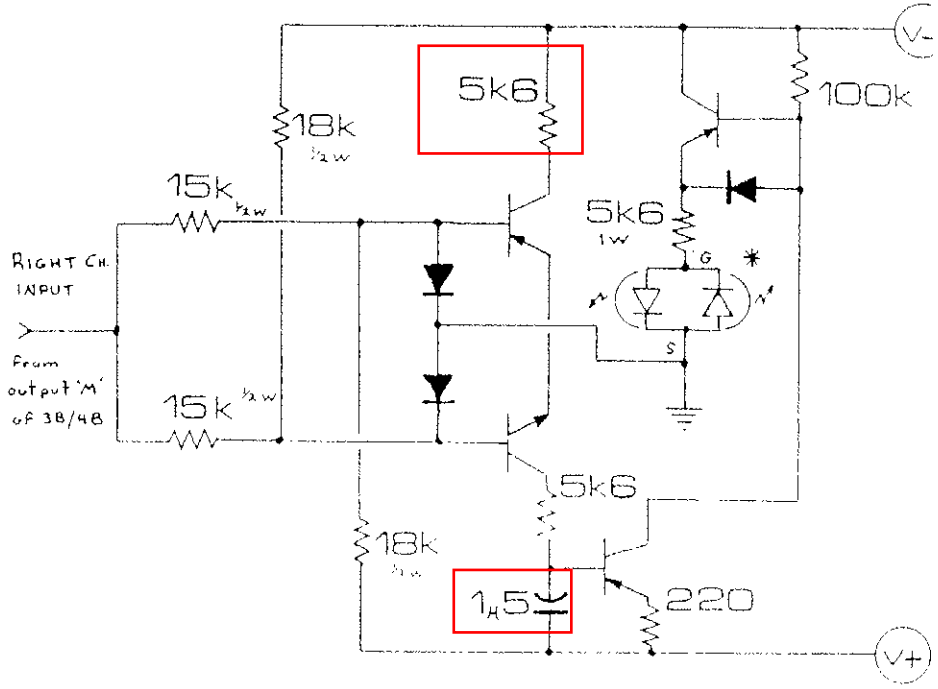
⊗ SYMBOL SHOWS CONNECTIONS TO OUTRIGGER PC (COMMONED TOGETHER VIA JUMPERS IN 3B)

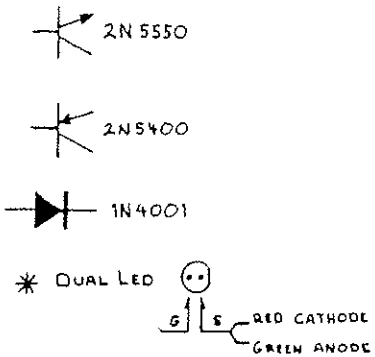
BRYSTON MFG. LTD.			
REXDALE		ONT.	
TITLE MODELS 3B & 4B AMPLIFIER MAIN CIRCUIT-BOARD SCHEMATIC			
DWN		REV	
J K			JULY 84

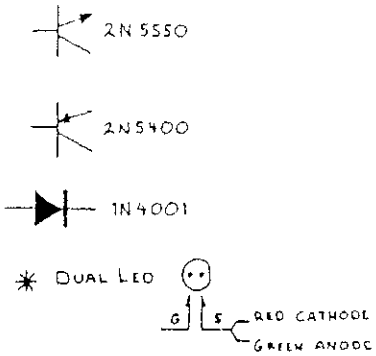
NEW OUTPUT STAGE

3B/4B POWER/CLIPPING INDICATOR





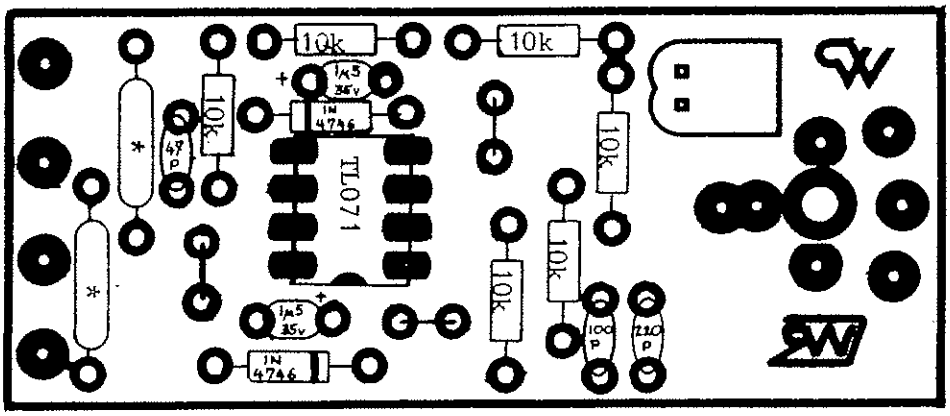


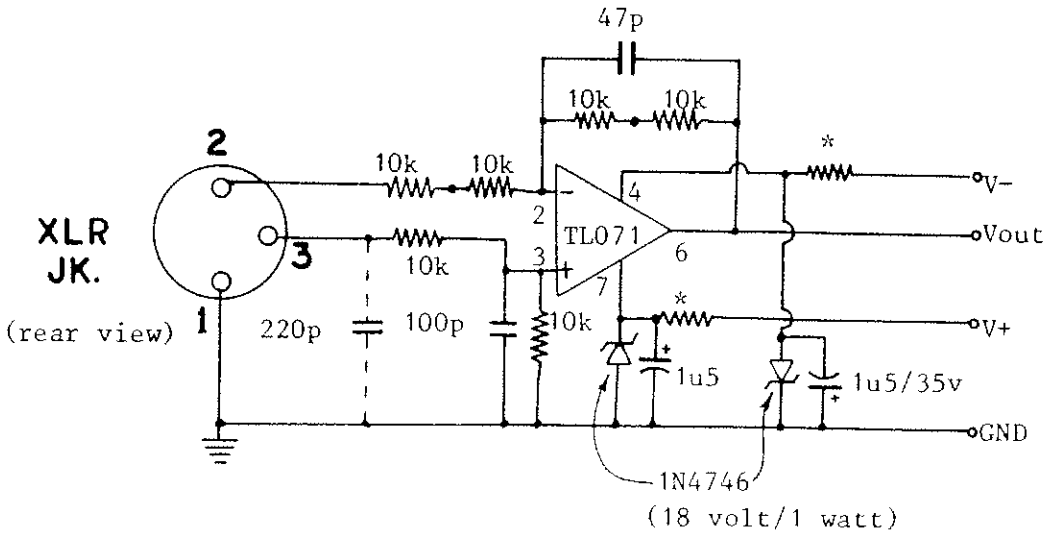


JAN 82

BRYSTON® LTD. LTEE.
57 WESTMORE DR , REXDALE, ONTARIO, CANADA M9V 3Y6 TELEPHONE 746-1800, TELEX 06-989548

BAL- 071 ACTIVE INPUT BALANCING CIRCUIT

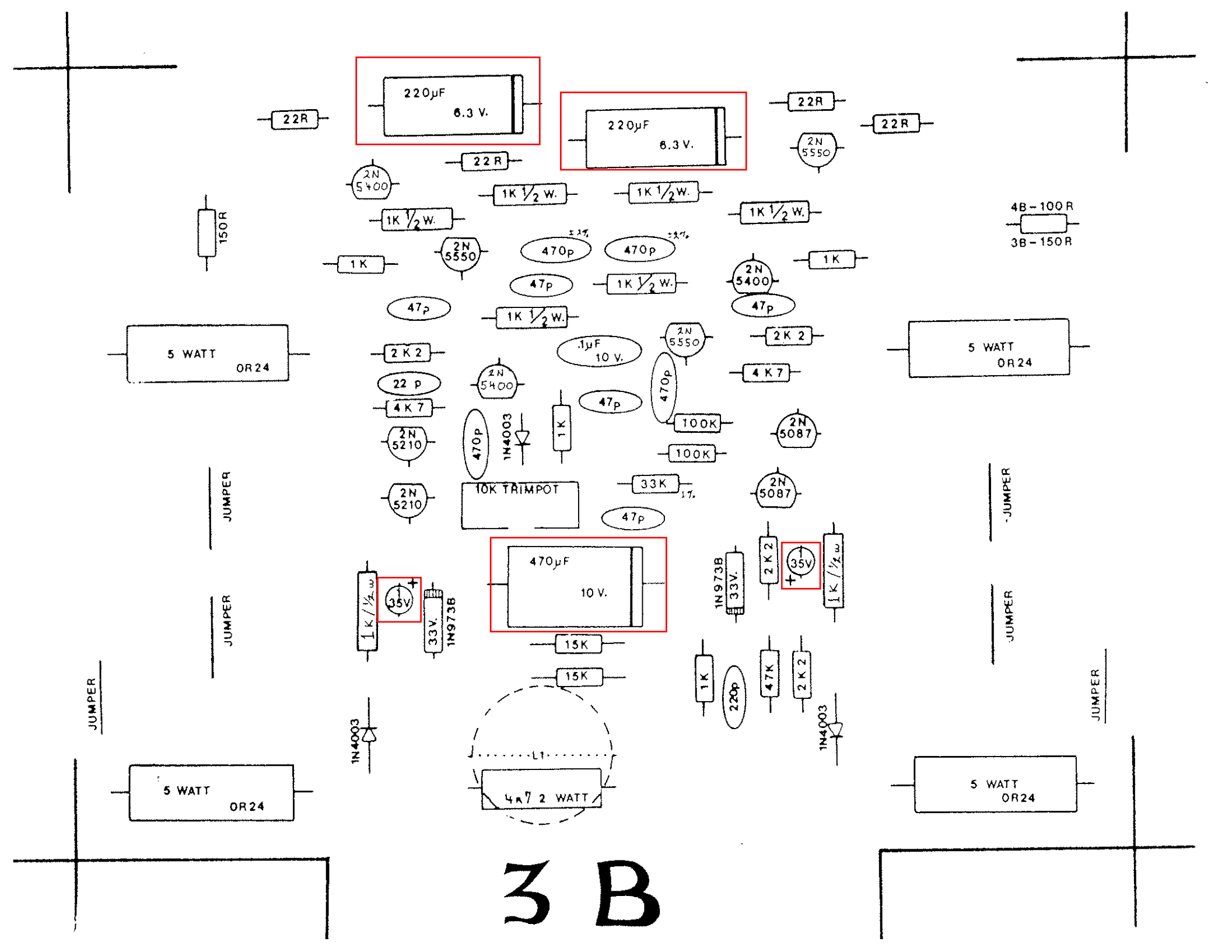




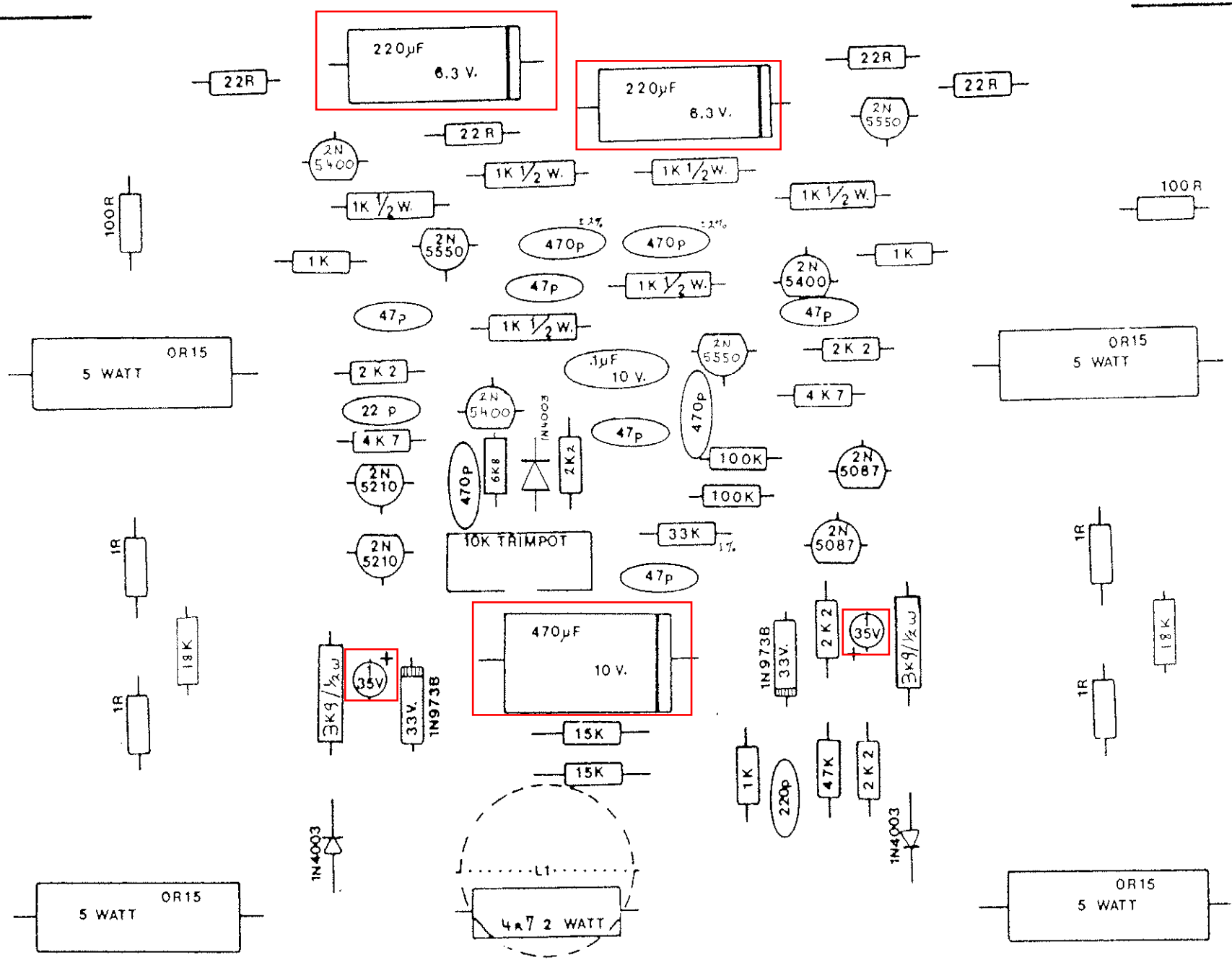
All 10k resistors are ¼watt, 0.1%

* - for 2B & 3B use 3K9/½watt; for 4B's use 5K6/½watt

24 APRIL 84

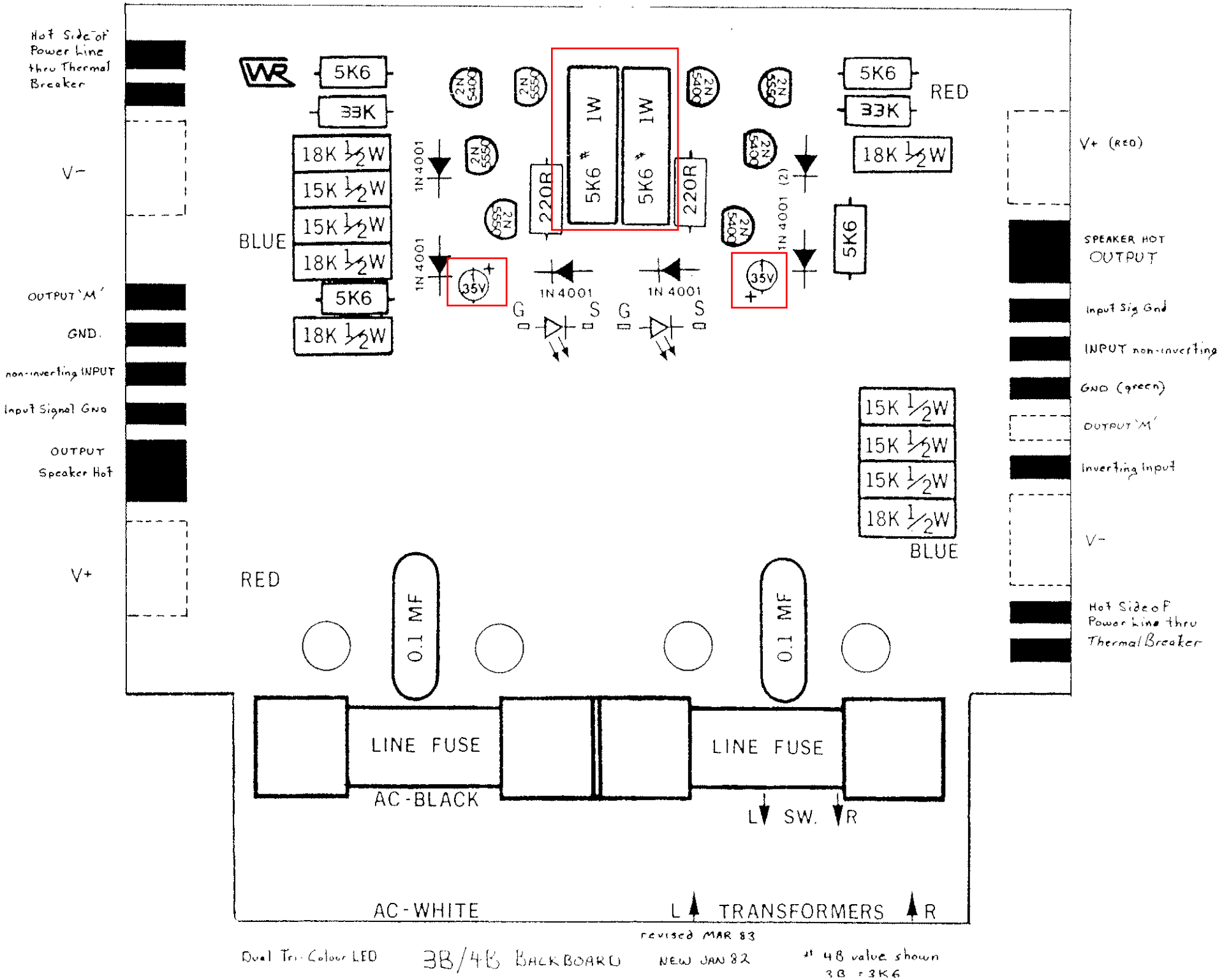

220µF 6.3 V.
220µF 6.3 V.
22R
22R
22R
22R
2N 5400
2N 5550
1K 1/2 W.
1K 1/2 W.
1K 1/2 W.
1K 1/2 W.
150R
4B - 100 R
3B - 150 R
1K
1K
2N 5550
470p
470p
47p
1K 1/2 W.
2N 5400
47p
47p
1K 1/2 W.
5 WATT OR24
2K 2
2K 2
5 WATT OR24
.1µF 10 V.
2N 5550
22 p
2N 5400
4K7
4K7
470p
47p
100K
2N 5087
2N 5210
470p
1N4003
1K
100K
33K 1%
2N 5087
2N 5210
10K TRIMPOT
47p
JUMPER
JUMPER
JUMPER
JUMPER
JUMPER
470µF 10 V.
1K 1/2 W.
35V
33V.
1N973B
1N973B
33V.
2K 2
35V
1K 1/2 W
15K
15K
1K
220p
47K
2K 2
1N4003
1N4003
L1
4K7 2 WATT
5 WATT OR24
5 WATT OR24

3 B



4B

Revised JAN 82



revised MAR 83

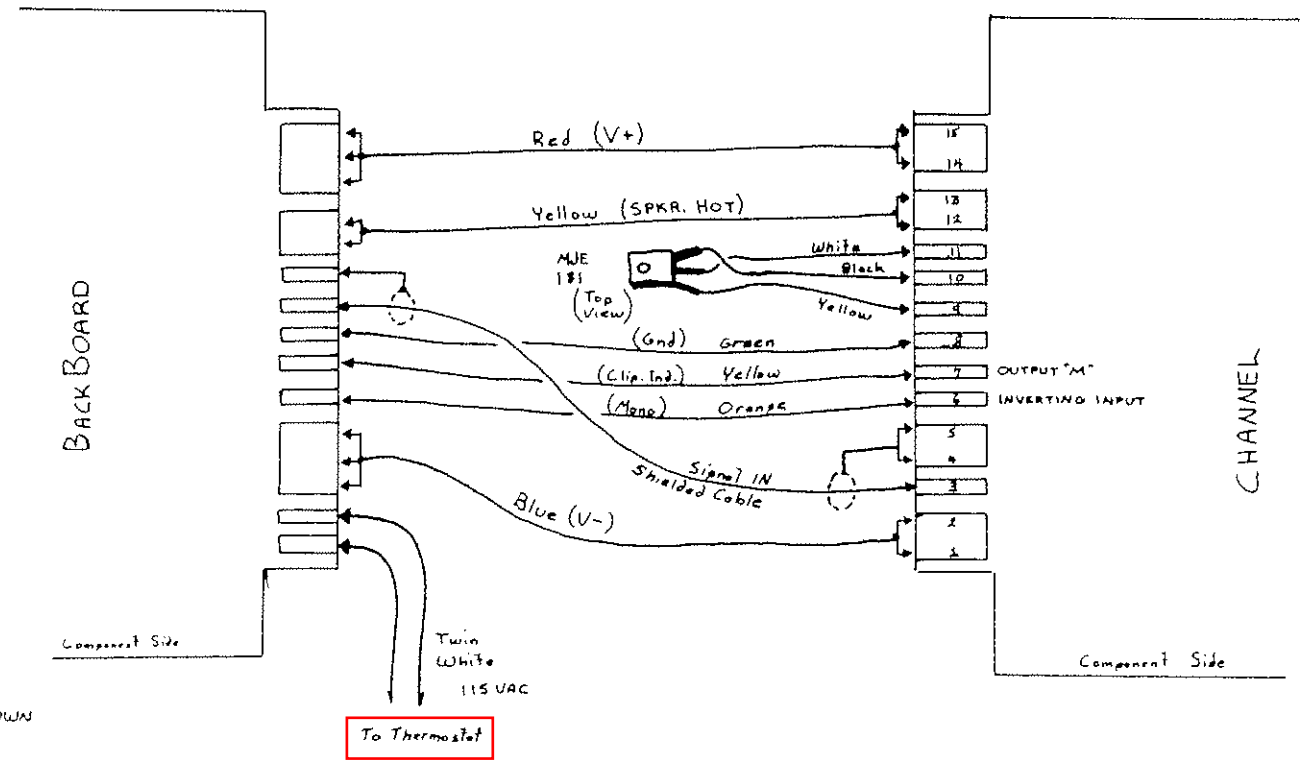
Dual Tri-Colour LED

3B/4B BACKBOARD

NEW JAN 82

* 4B value shown
3B = 3K6

3B/4B Wiring Harness



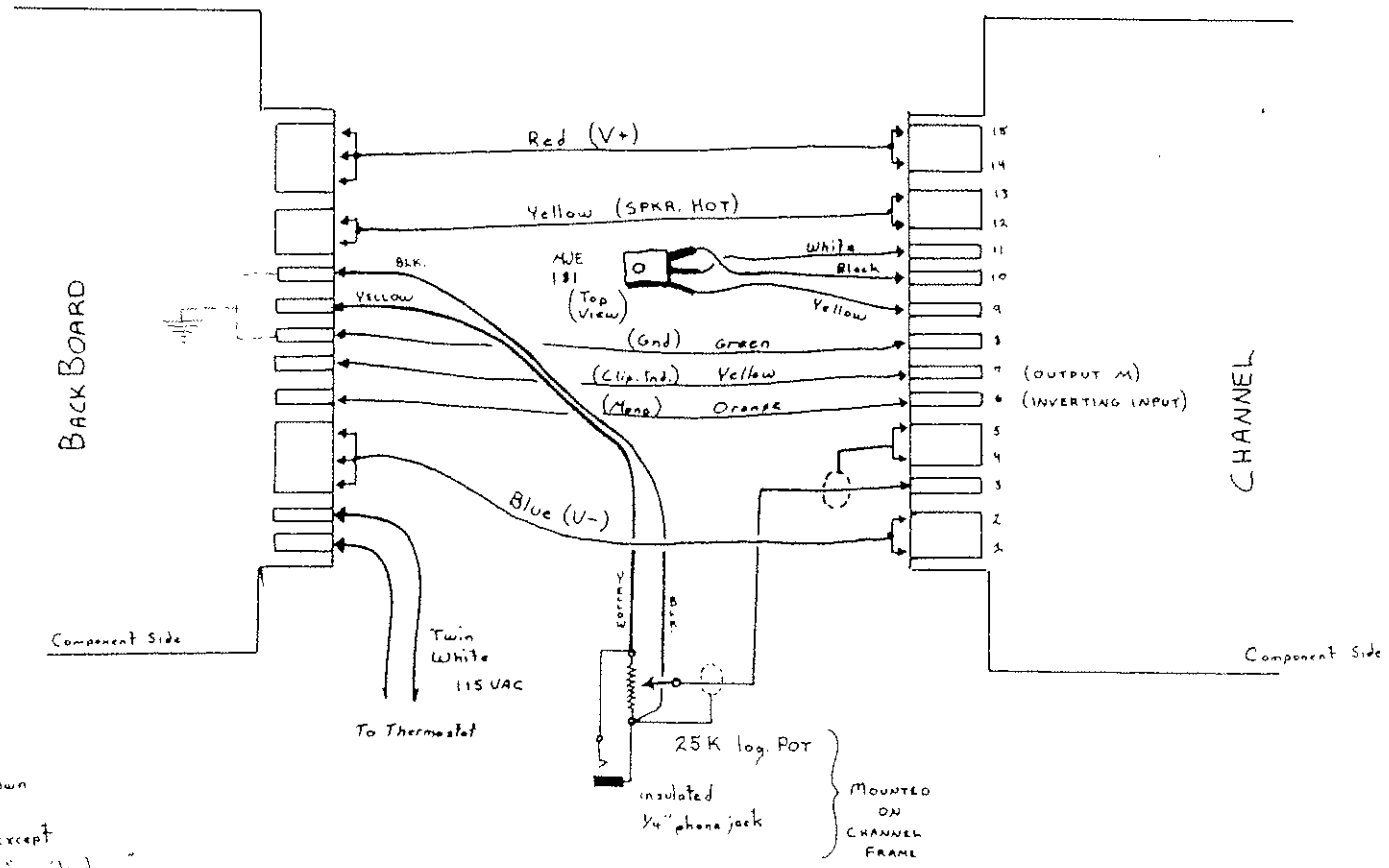
Right Channel Shown

Left channel wiring sequence the same except left channel is installed "up side down" in chassis and backboard edge pads are reversed (i.e., "Red V+" wire is at bottom of backboard edge & "Blue V-" wire is at top of backboard edge

see "3B/4B" Backboard Hook-Up Diagram"

38/4B Wiring Harness

PRO Models



Right Channel shown

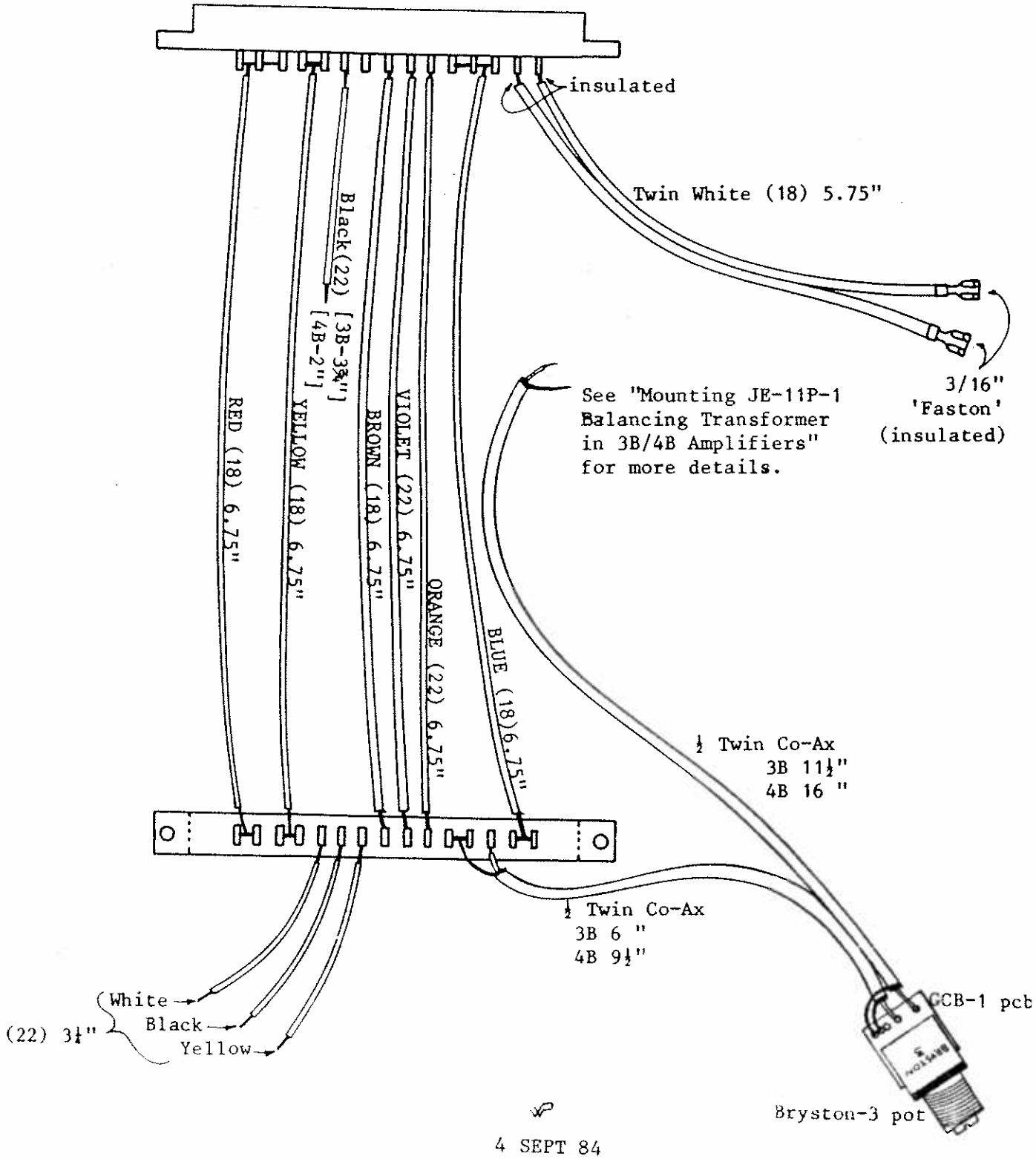
left channel the same except that channel is installed "up side down" in chassis and back board edge pads are reversed i.e., "RED V+" wire is at bottom and BLUE V- wire is at top

see "38/4B Back Board Hook-Up diagram"

VP

BRYSTON 3B/4B POWER AMPLIFIER WIRING HARNESS

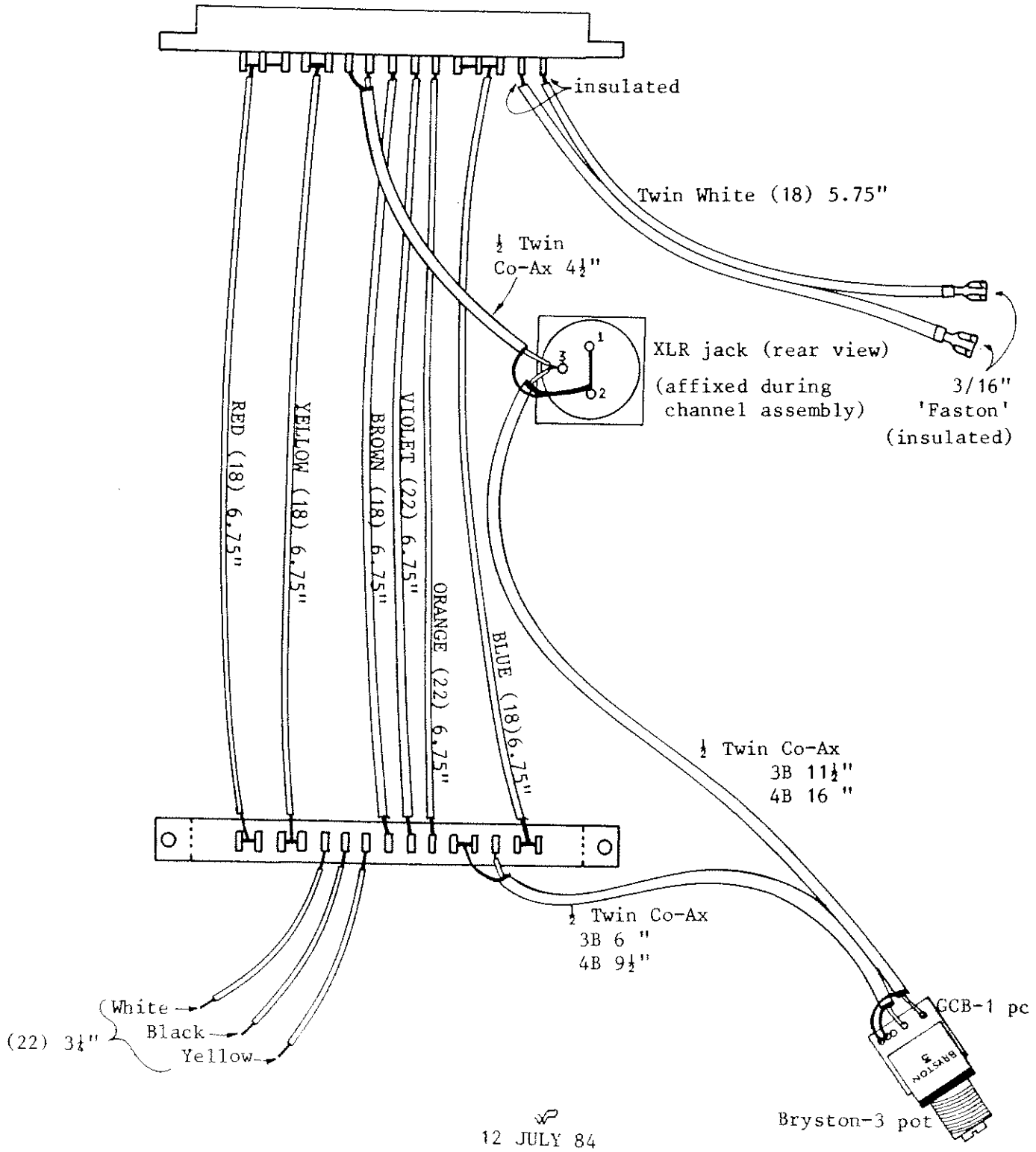
XLR TRANSFORMER BALANCED FRONT MOUNT POT



4 SEPT 84

BRYSTON 3B/4B POWER AMPLIFIER WIRING HARNESS

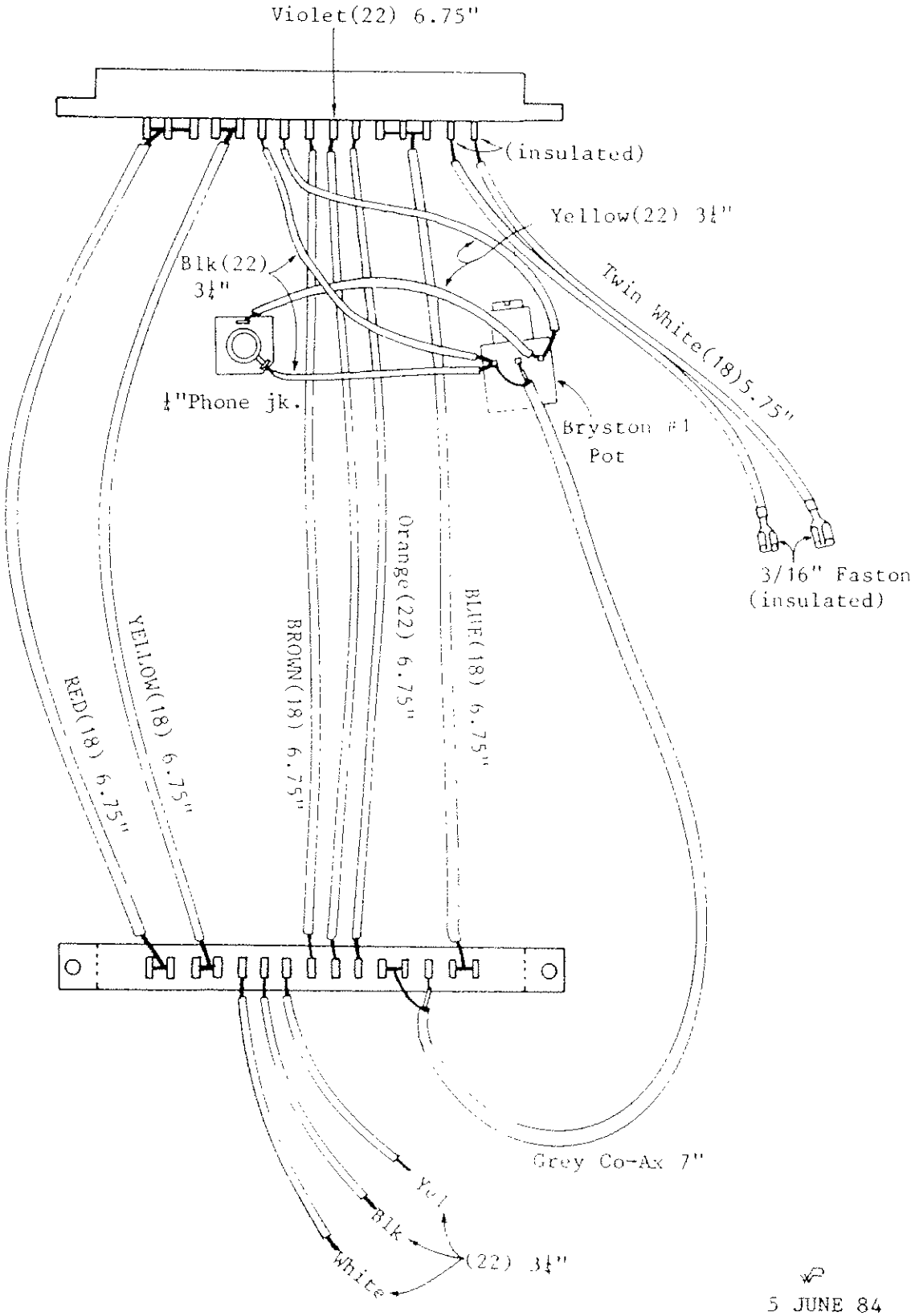
XLR UN-BALANCED FRONT MOUNT POT



12 JULY 84

BRYSTON

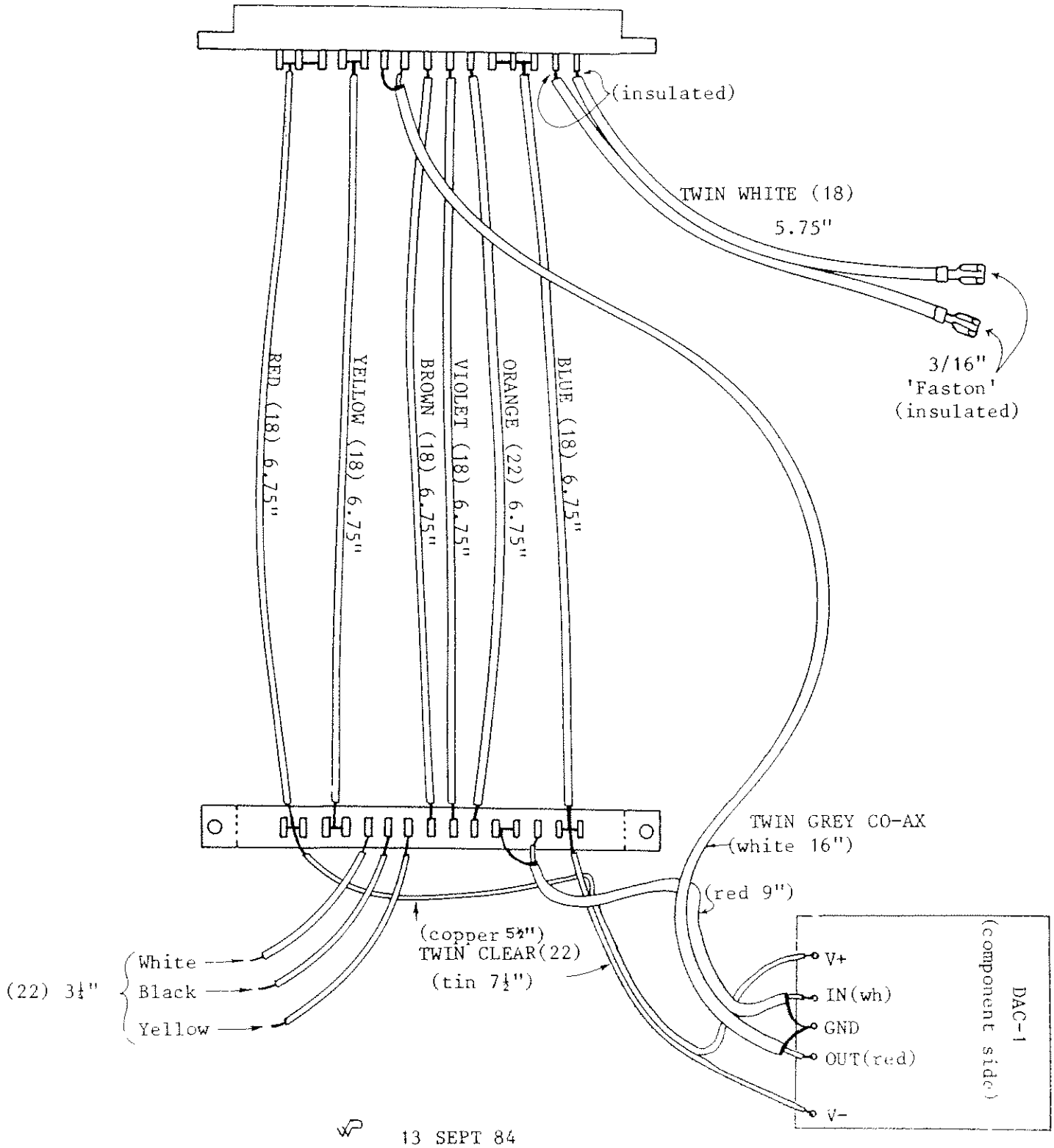
3B/4B PRO : PHONE JK. INPUT, REAR MOUNT POT



5 JUNE 84

BRYSTON 3B POWER AMPLIFIER WIRING HARNESS

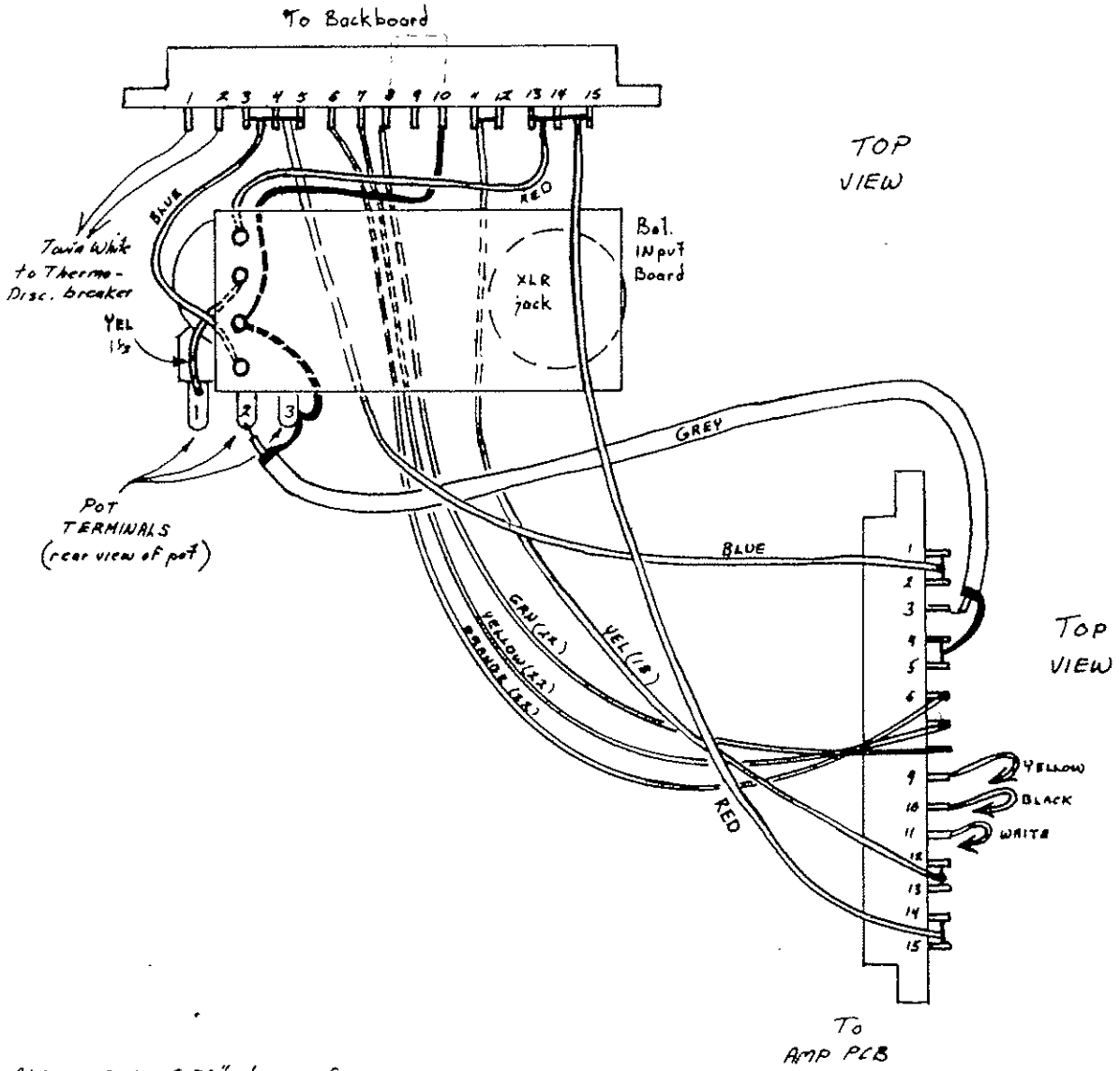
FRONT MOUNTED DAC-1 ATTENUATOR



13 SEPT 84

WIRING HARNESS For 3B/4B XLR-BAL. IN. BOARD with rear mount POT.

RED (18)	3"	V+	B/B →	BK Brd Edge Con 13, 14, 15
BLUE (18)	2"	V-	B/B →	" " " " 3, 4, 5
YEL (22)	1.5"	∿	B/B →	POT 1
BLACK (18)	1.5"	⏚	B/B →	POT 3
BLACK (18)	2¾	⏚	B/B →	Bk Brd. Edge Con 10
GREY (¼")	7½"	∿	POT 2 →	Amp Edge Con 3 (shield 4)



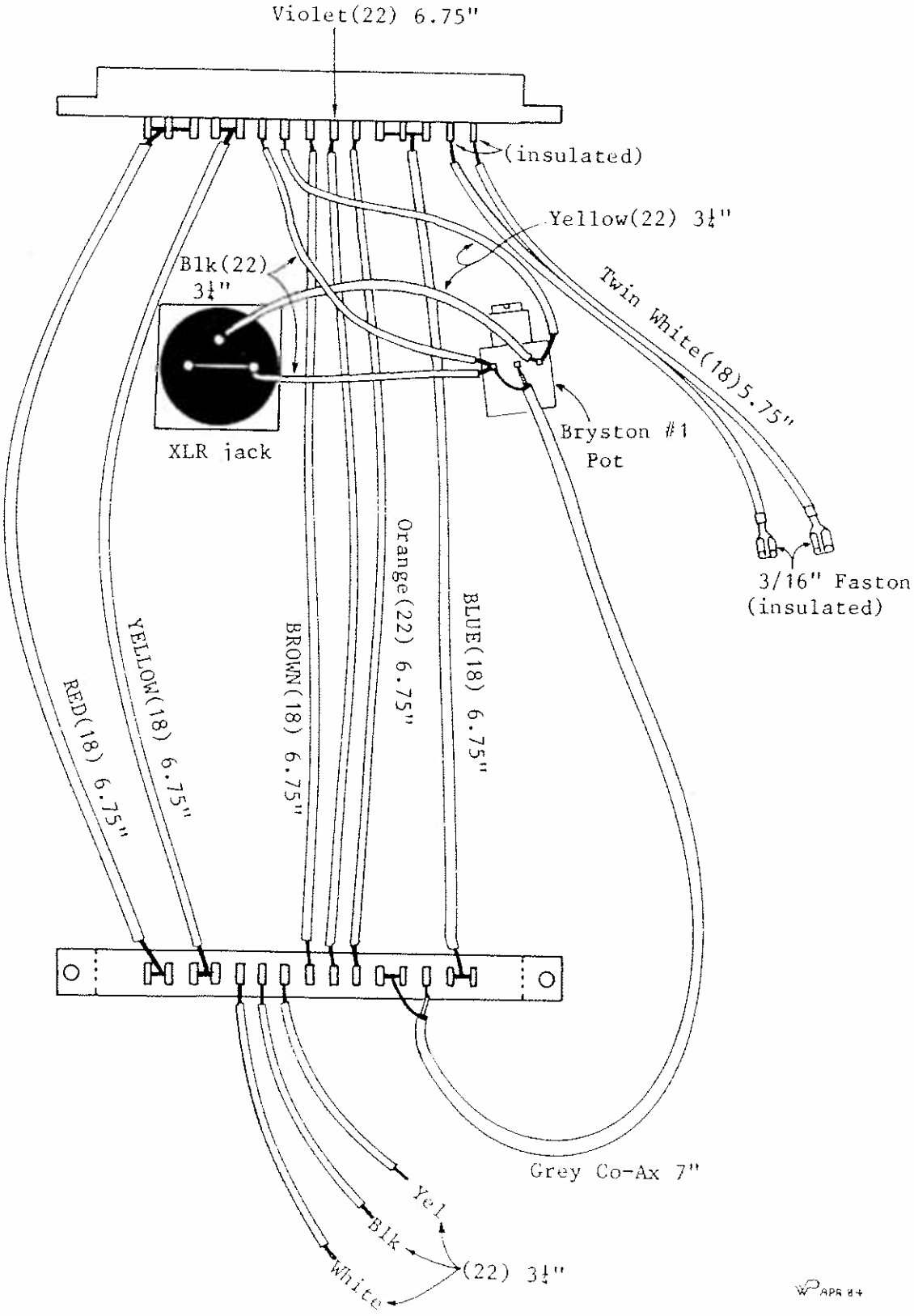
ALL WIRES 6.75" long From

Bk Board Edge Con		to	Amp Edge Con
RED (18) V+	13, 14, 15	→	14, 15
BLUE (18) V-	3, 4, 5	→	1, 2
EL (18) SPKR.	11, 12	→	12, 13
GREEN (Brown) (22)	8	→	8
YEL (Violet) (22)	7	→	7
ORANGE (22)	6	→	6

AUG 83

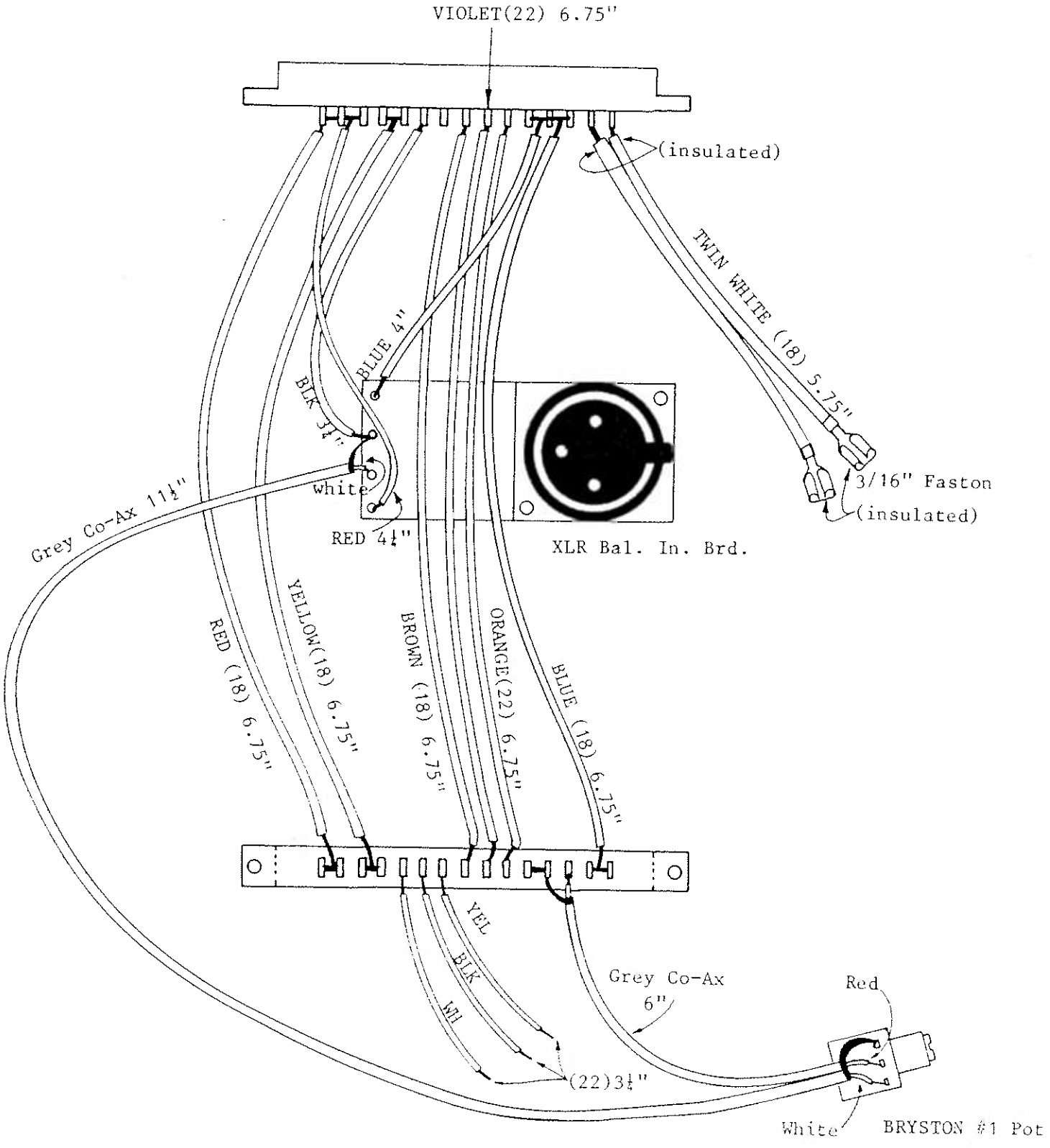
BRYSTON

3B/4B PRO : XLR UN-BALANCED, REAR MOUNT POT



BRYSTON

3B PRO, XLR-BAL. INPUT, FRONT MOUNT POT.



VP MAR. 3+