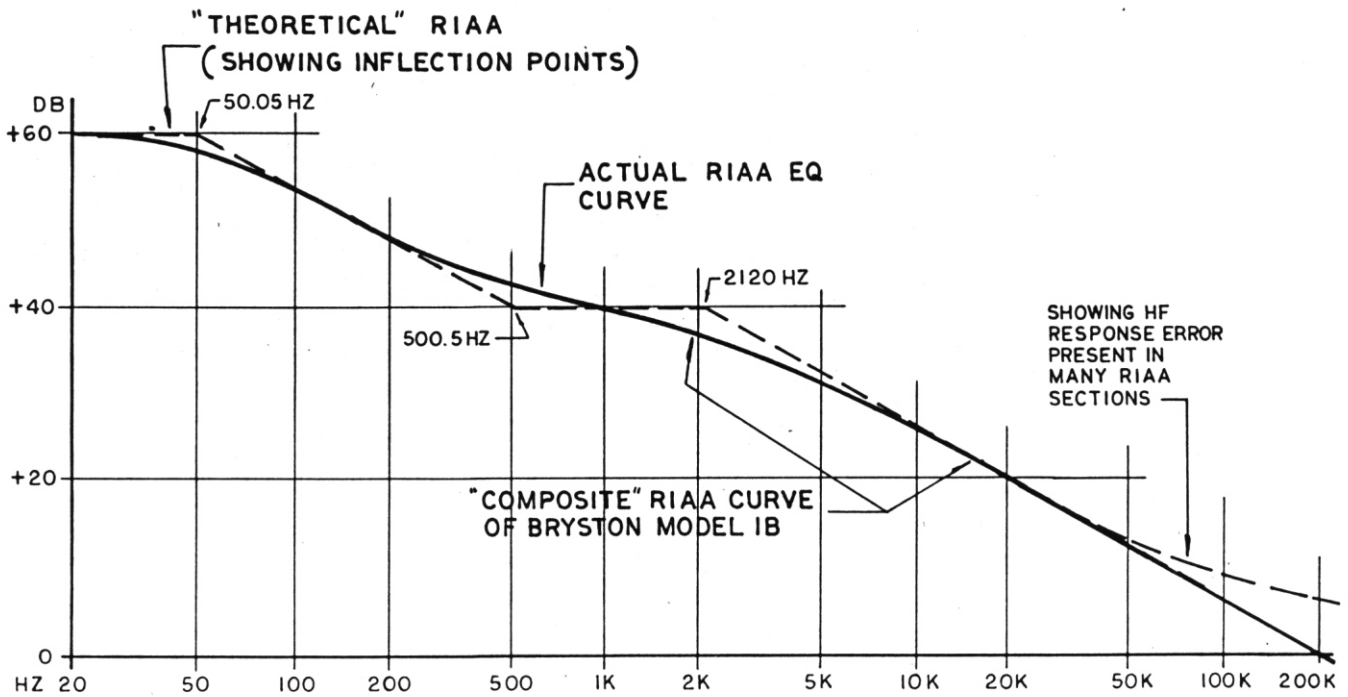
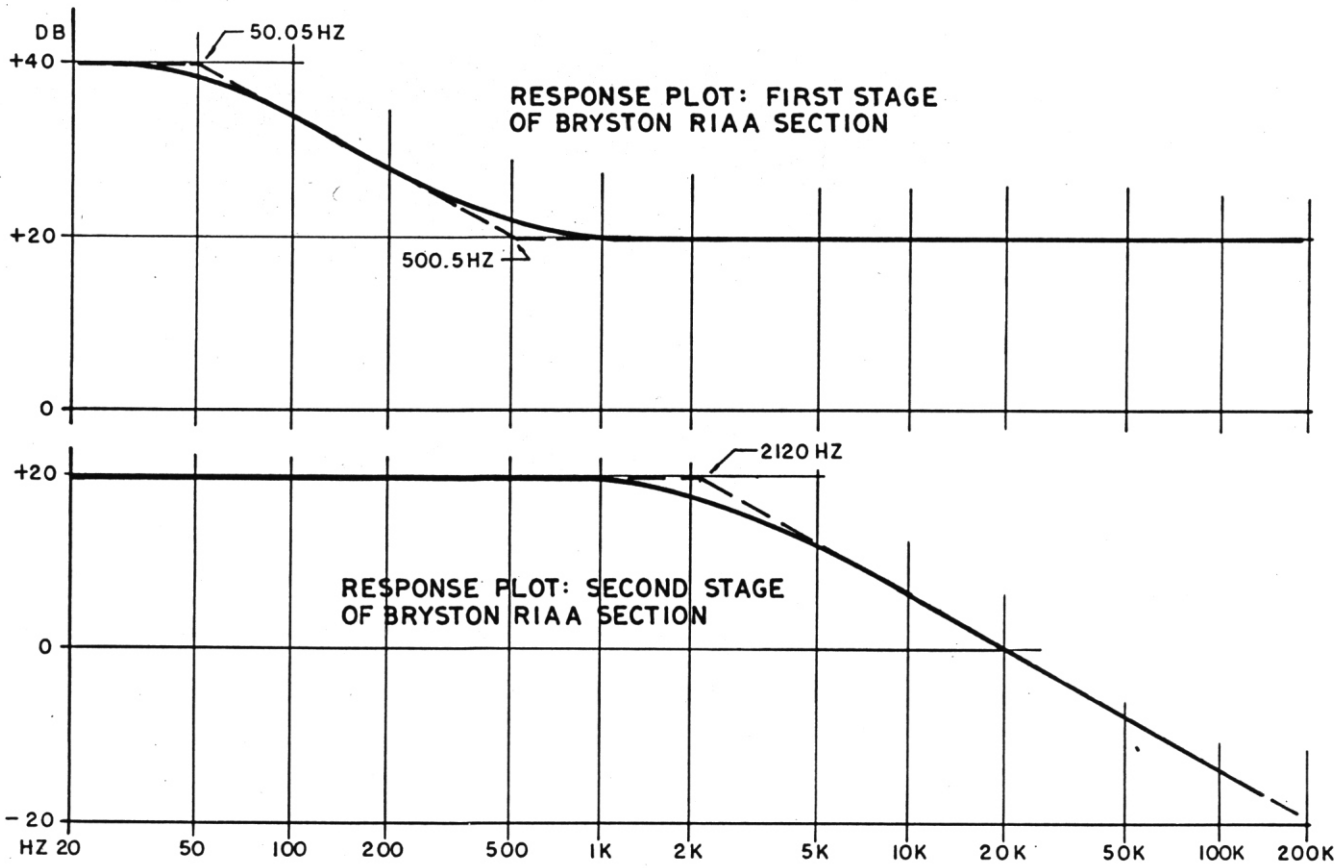


BRYSTON

**1B PREAMPLIFIER
SERVICE MANUAL**

MAY 85

This model has been discontinued.



BRYSTON MANUFACTURING LTD.

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

BRYSTON 1B PRE-AMPLIFIER CHECK-OUT PROCEDURE

PART A: Visual Examination of:

- 1) -all component value and placement (orientation) including daughter board modules, fuse type and transformer type
- 2) -soldering

PART B: Performance Tests

NB: completed mother board must be installed in and properly grounded to steel chassis during all performance tests.

- 3) -Turn-on Delay Circuit: delays should be approximately 1 second before output signal is connected, via relay, to output jacks, and no more than approximately .1 second during turn-off before output signal is disconnected from output jacks.
- 4) -P.S.U. regulated voltages: shall be within 1 volt of 31.5v, and either supply rail (+ and -) should be within 1 volt of the other. Also dc input to regulator MUST be at least 2v (minimum) greater than regulated output voltage.
- 5) -T.H.D.: measured at 5 v output with balance pot centred approx. input voltage levels at Phono inputs are as follows:

10mv @ 20hz)	
40mv @ 200 hz)	
140mv @ 2Khz)	adjust volume pot. for
1.0 v @ 20Khz)	5v output

distortion figures should be below .005%

- 6) -Noise: measured using 'A' weighting network, referred to 1Khz at 5mv input with balance pot. centered and vol. pot. at maximum. Typical noise figures $\geq -80\text{db A}$ ($\leq 220\mu\text{V}$)
- 7) -"R.I.A.A." Frequency response: measured, using a high accuracy inverse "R.I.A.A." network, at the following frequencies:

20hz	
200hz	
2Khz	(1Khz is used as a 0 db reference point)
20Khz	

Measured response should be within $\pm 0.15\text{db}$ of standard response. (This figure allows for some inaccuracies in inverse "R.I.A.A." network and measuring equipment.)

BRYSTON 1B PRE-AMPLIFIER CHECK-OUT PROCEDURE

- 8) -High Pass Filter: when in circuit, should attenuate at 31.7hz. by approx. 3bd (At 20hz., attenuation should \cong 5db.)
- 9) -Maximum Output: before clipping, measured at 1Khz., should be \geq 19.5v(rms) (from main outputs only)
- 10) -Volume Pot Tracking: should be within 1db. This measurement can be accomplished rather simply by feeding a 1Khz signal at approx. 30mv into both L & R phono inputs and, using a properly calibrated, dual trace scope, observing both outputs simultaneously by overlapping the two traces and noting the difference between the two against screen graticule.
- 11) -Balance control: rotate control clockwise and counter clockwise from centre position, while observing scope traces, to ensure that attenuation is smooth and gradual with no sharp or sudden drops or induced noise.
- 12) -Signal Continuity, Channel Isolation and Mono/Stereo Switch:

All four output pairs - tape one out, tape two out, main out one, and main out two - must be checked to ensure that they pass a signal properly through every possible input without excessive crosstalk between different input source channels, or between left and right channels of each source channel.

Test Procedure:

- a) Set dual channel oscilloscope amplitude levels to 2v/div., and set time/div. to 20u sec. to 50u sec.
- b) Connect scope inputs to pre-amp. main output pair #1, left and right jacks.
- c) Connect a test signal of 10K Hz (sine wave) at 150mv to phono input #1, left and right jacks simultaneously. (Adjust bal. and vol. controls to display two traces of equivalent and adequate amplitude. Adjust vertical position of both traces so that they are clearly separated from one another.) Move source selector through all positions to ensure that signal appears at output jacks ONLY in phono #1 position.
- d) Remove test signal and reapply to only left input - only one trace should appear on screen.
- e) Activate mono/stereo switch - two equivalent traces should appear on screen. De-activate mono/stereo switch.
- f) Apply test signal to phono #1, right input only - only one trace should appear in opposite half of screen.

BRYSTON 1B PRE-AMPLIFIER CHECK-OUT PROCEDURE

12) Cont.

- g) Re-activate mono/stereo switch - two equivalent traces should appear on screen.

De-activate mono/stereo switch.

(No further testing of mono/stereo switch will be required.)

- h) Repeat steps c, d, and f for phono inputs #2.
- i) Increase test signal amplitude to 1.5v and repeat steps c, d, and f for tuner, aux., tape #1 and tape #2 inputs.
- j) Disconnect scope input cables from main outputs #1 and reconnect to tape outputs #2. Repeat steps c, d, f, h, and i, using tape select instead of source select switch.

NB: In step "c", rotate tape selector switch as well as source selector to switch between phono 1 & 2.

NB: In step "i", omit tape #2 inputs.

- k) Disconnect scope input cables from tape out #2 and reconnect to tape out #1. Repeat steps c, d, f, h, and i, using tape select instead of source select switch.

NB: In step "c", rotate tape selector as well as source selector to switch between phono 1 & 2.

NB: In step "i", omit tape #1 inputs.

NB: Since main output jacks #1 and #2 are paralleled, as long as main output jacks #2 pass a signal properly, it can be safely assumed that they will parallel the operation of the other main output pair.

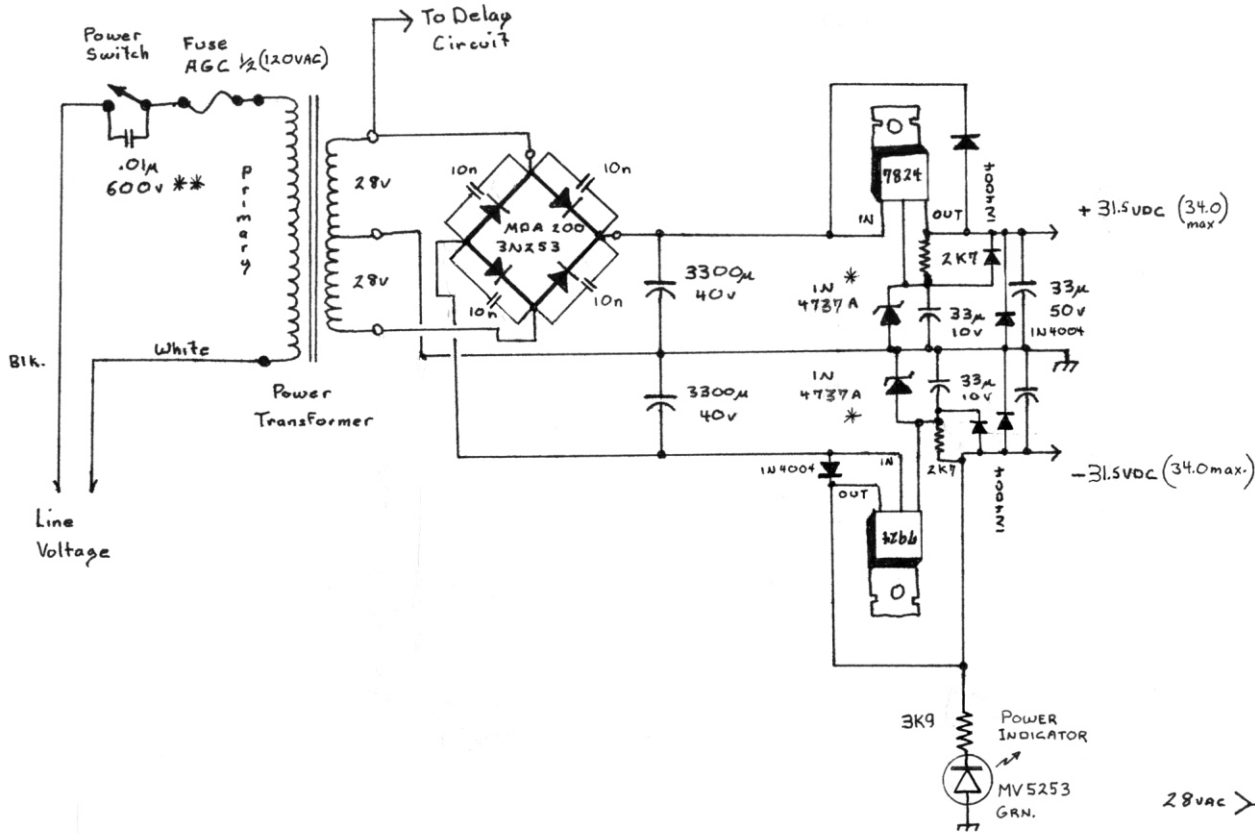
NB: It is advisable to employ external triggering for scope from test signal generator.

- 13) Crosstalk: On 1B models equipped with dual ganged (100K log/100K anti-log) balance pots, measured crosstalk between left and right phono inputs should be greater than or equal to -60db @ 1K Hz, or -40 db @ 20 K Hz, referenced to 150mv input/10v. output.

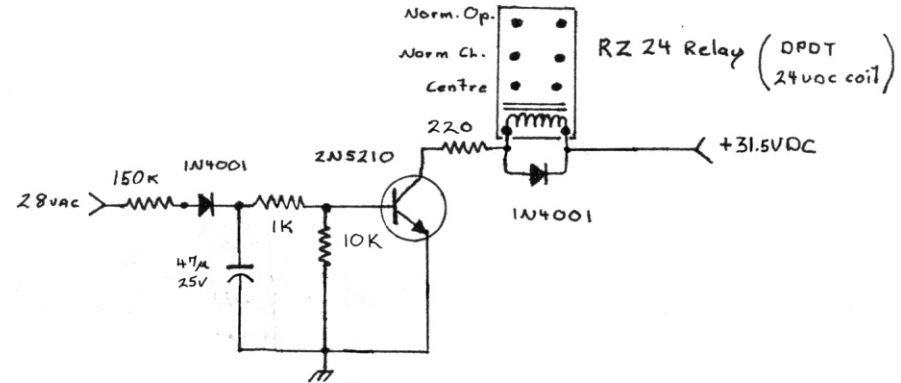
Crosstalk between any source channels (e.g., phone to aux., tuner to tape in, etc.) should be greater than -60db (with and input impedance of 1K ohms) reference to 10v out. at 20 K Hz.

BRYSTON 1-B PRE-AMP.

POWER SUPPLY



TURN-ON Delay Circuit

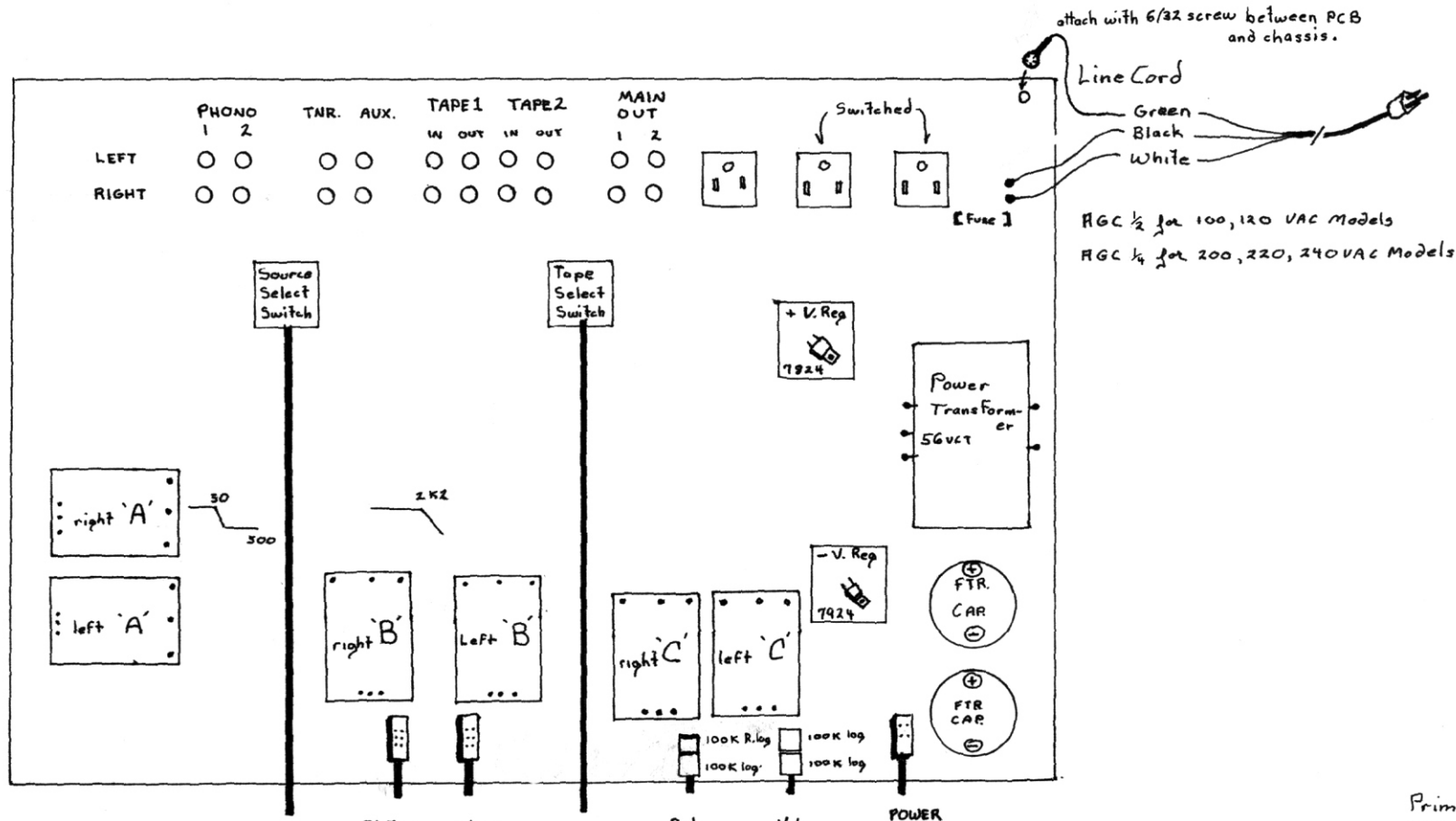


** .01µ/600v cap omitted on 220/240VAC models

* 1N4737 A Zener: 7.5v/1watt
or 1N4740A Zener: 10v/1w depending on transformer secondary

SEPT 83
AUG 83
WP July 80

BRYSTON 1-B PRE Amp

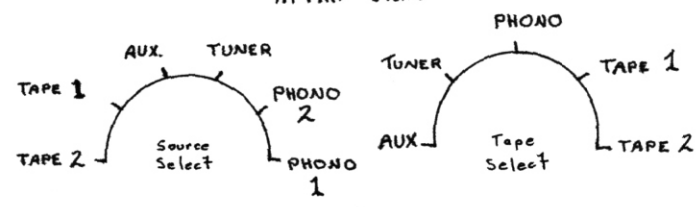


attach with 6/32 screw between PCB and chassis.

Line Cord
Green
Black
White

Fuse

AGC 1/2 for 100, 120 VAC Models
AGC 1/4 for 200, 220, 240 VAC Models

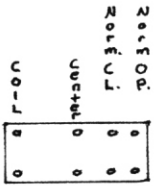
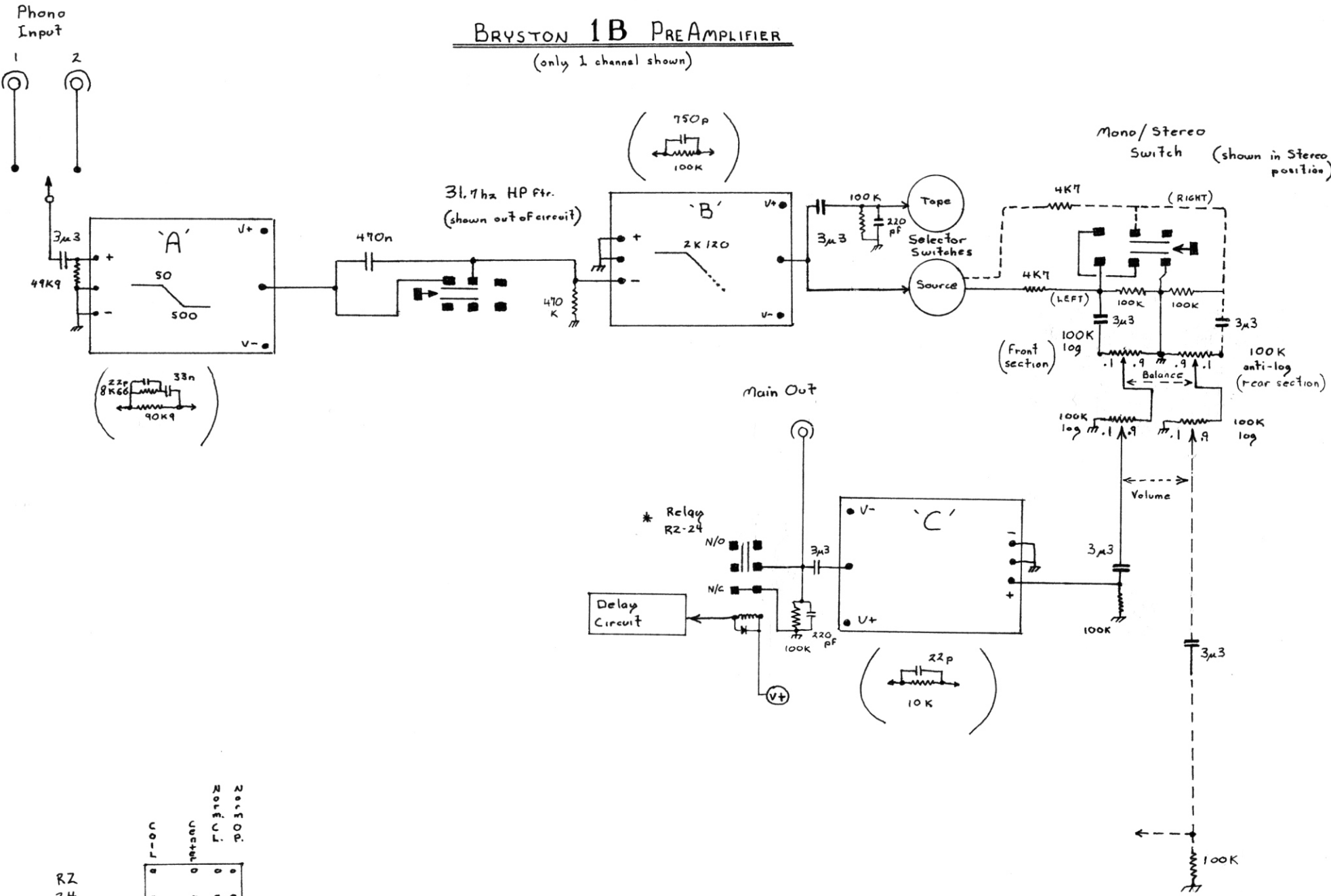


56VCT TRANSFORMER

Primary Voltage	Primary Winding Resistance	
100		
120	≈ 53Ω	(45Ω min.)
200		
220	≈ 205Ω	
240		

BRYSTON 1B PREAMPLIFIER

(only 1 channel shown)



RZ
24
Relay

Bottom View

(Feedback networks shown in brackets next to appropriate board)

2 pairs of 100nF supply decoupling caps are not shown

1B-A Board

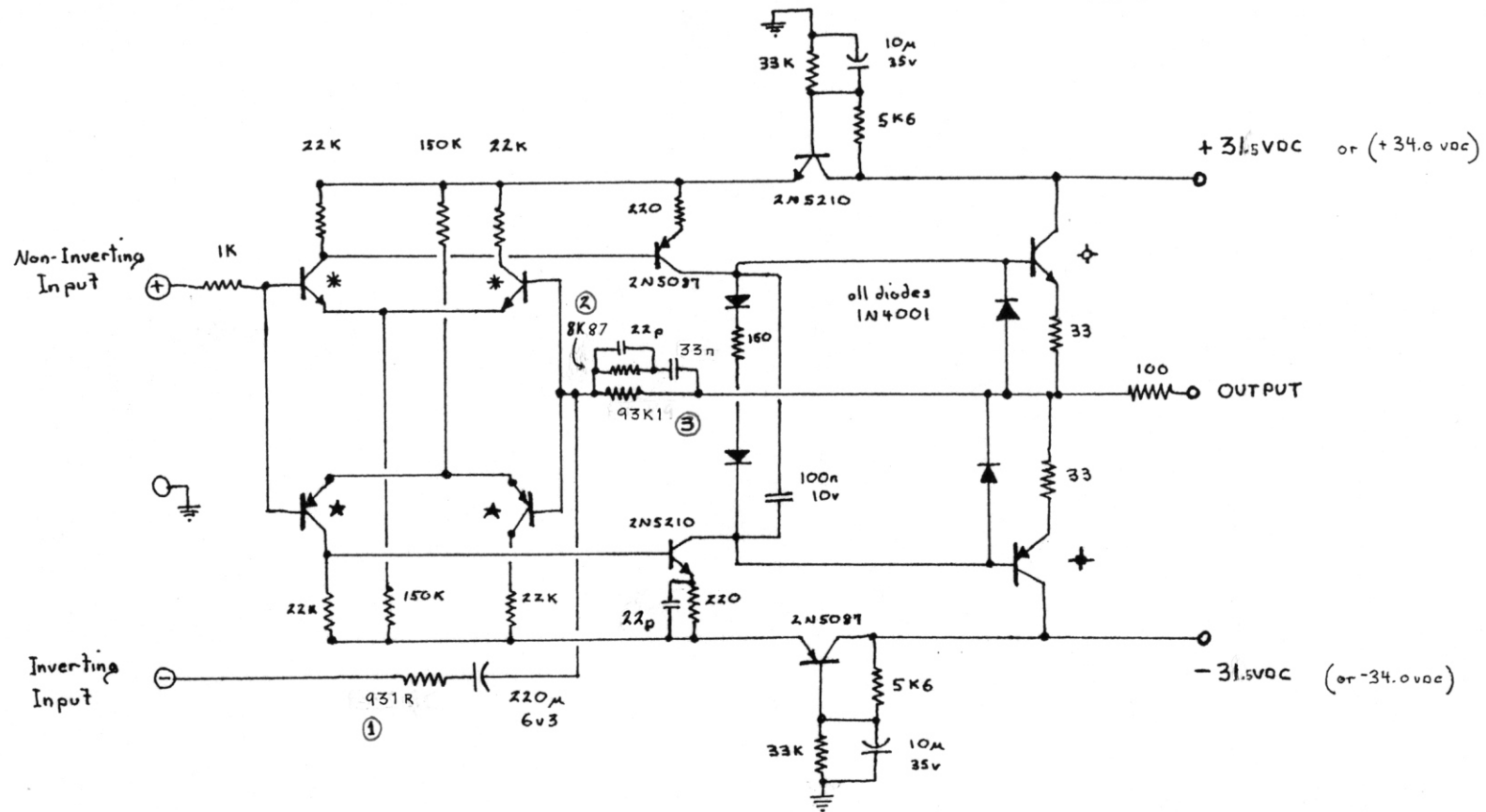
REV. 4 6 MAY 85

revised DEC. 80

revised DEC. 81

" FEB. 83

Equalization Modifications ① ② ③



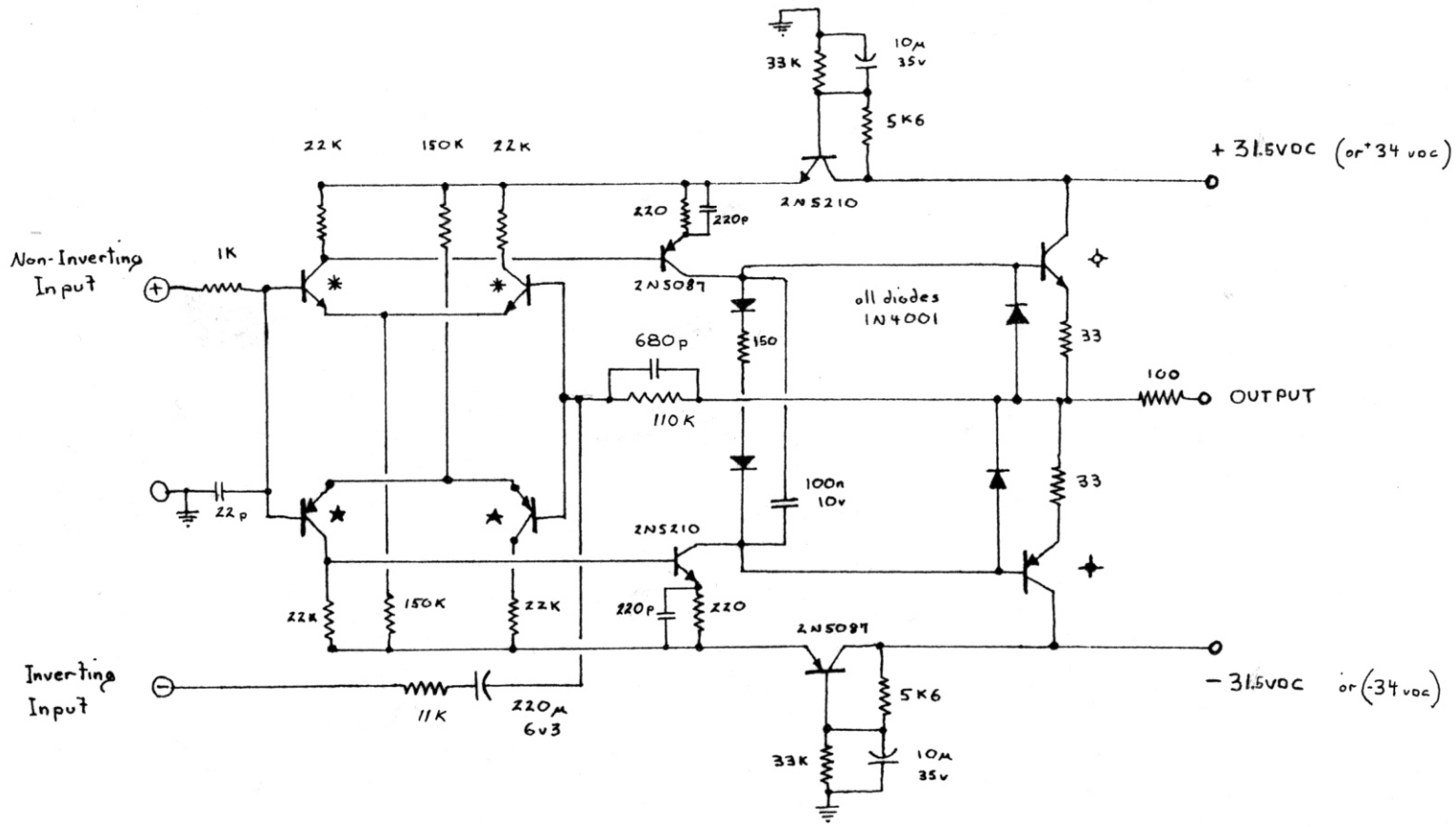
* MPS A18
BC 413C

★ 2N4250A
BC 415C

⊕ 2N 5691 }
5320 } TO 39 (can)
3007 }
JE 1490 }
FT 3178 } TO 220 (tab)

⊖ 2N 5679 }
5322 } TO 39 (can)
5007 }
JE 1491 }
FT 4178 } TO 220 (tab)

1B-B Board



* MPS A18
BC 413C

★ 2N4250A
BC 415C

◇ 2N 5681 }
5320 } TO 39 (can)
3007 }
JE 1490 }
FT 3178 } TO 220 (tab)

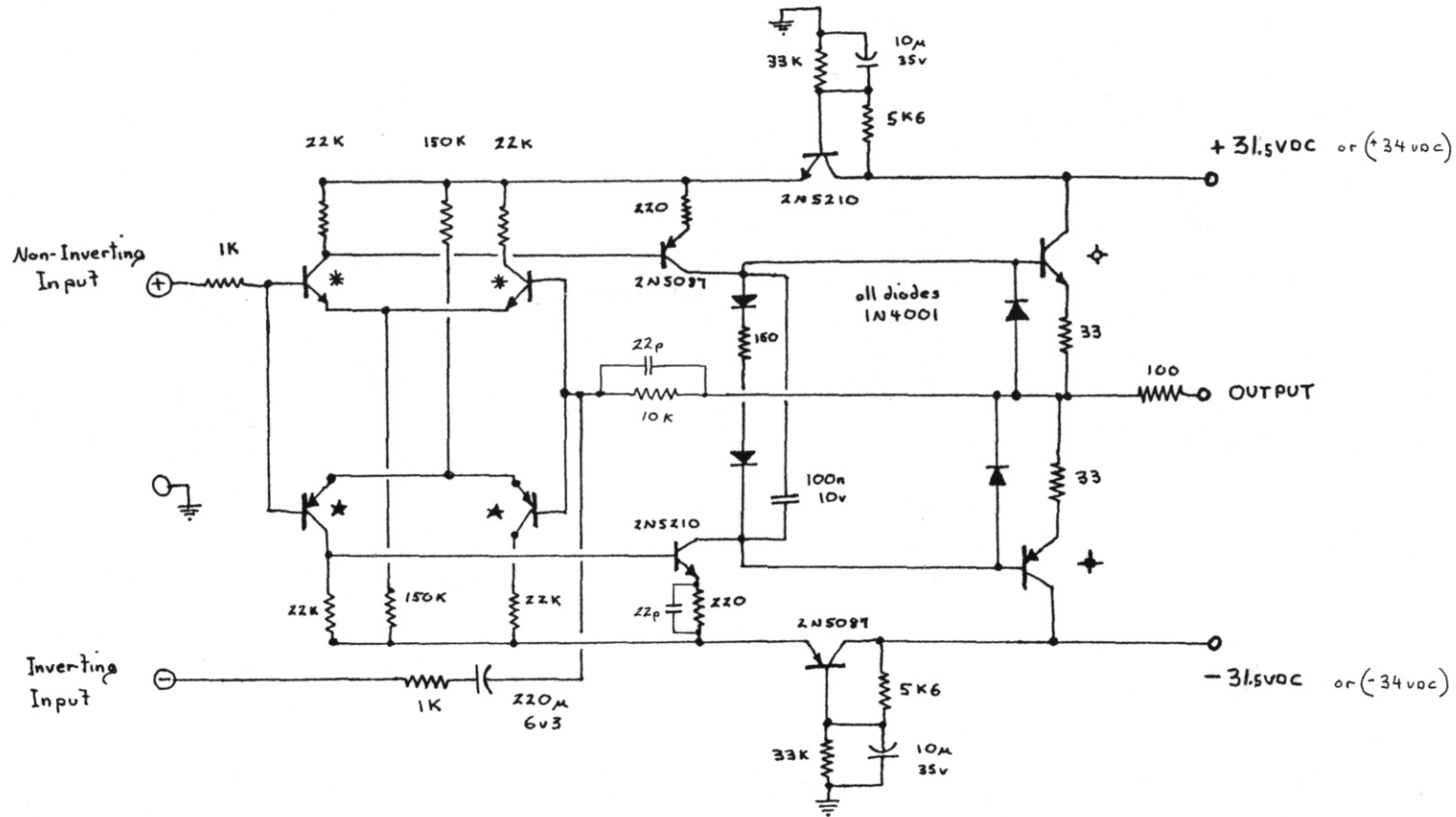
◆ 2N 5679 }
5322 } TO 39 (can)
5007 }
JE 1491 }
FT 4178 } TO 220 (tab)

REV. 4 6 MAY 85

July 80

REV. 80 / DEC 81 / FEB 83

1B-C Board



* MPSA18
 BC413C

★ 2N4250A
 BC415C

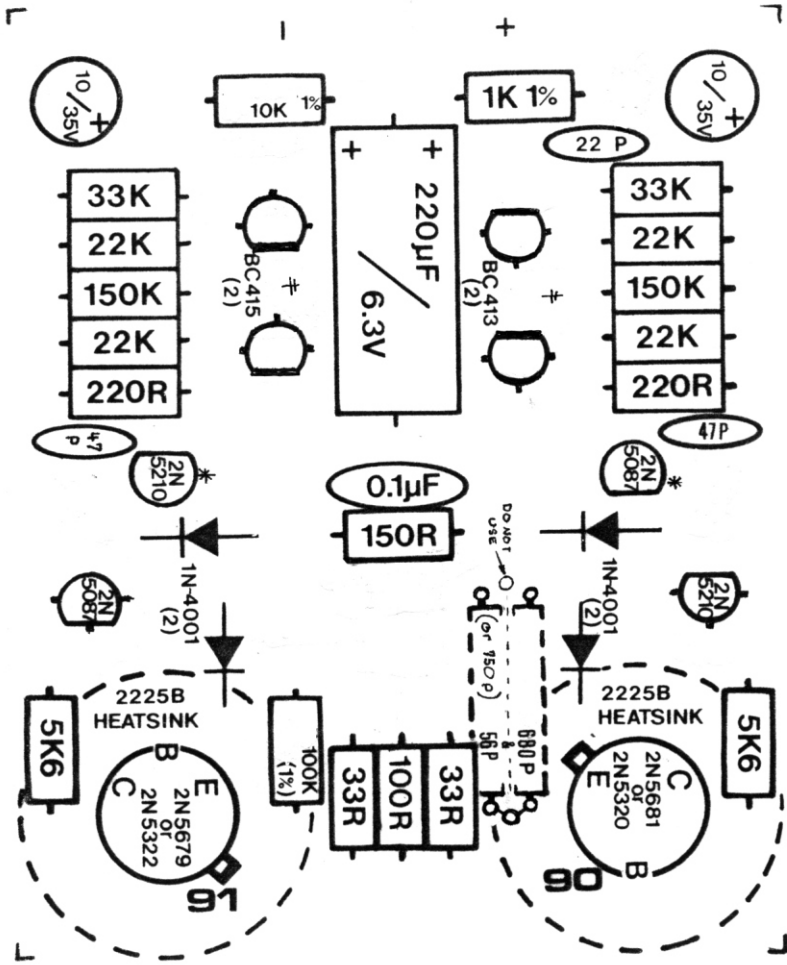
⊕ 2N 5691 }
 5320 } TO 39 (can)
 2007 }
 JE 1490 }
 FT 317B } TO 220 (tab)

⊕ 2N 5679 }
 5322 } TO 39 (can)
 5007 }
 JE 1491 }
 FT 417B } TO 220 (tab)

1B

"B" BRD

revised OCT 82
FEB 83



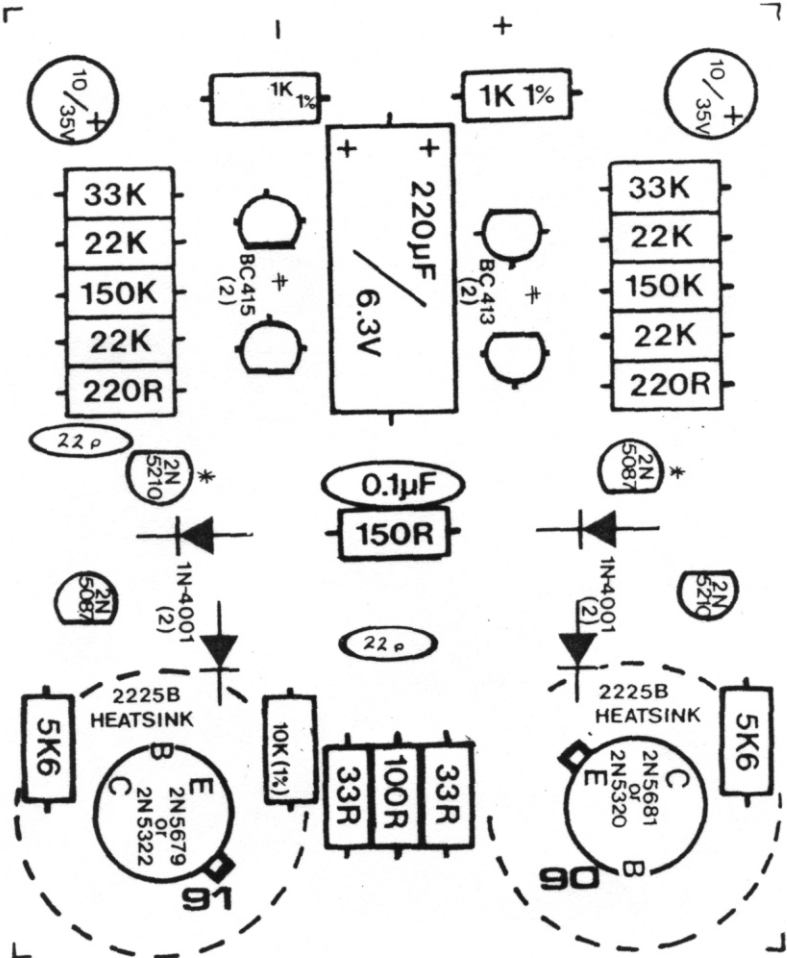
* pre-tested Drivers
‡ Beta Matched Pairs

"B"

1B

C BRD

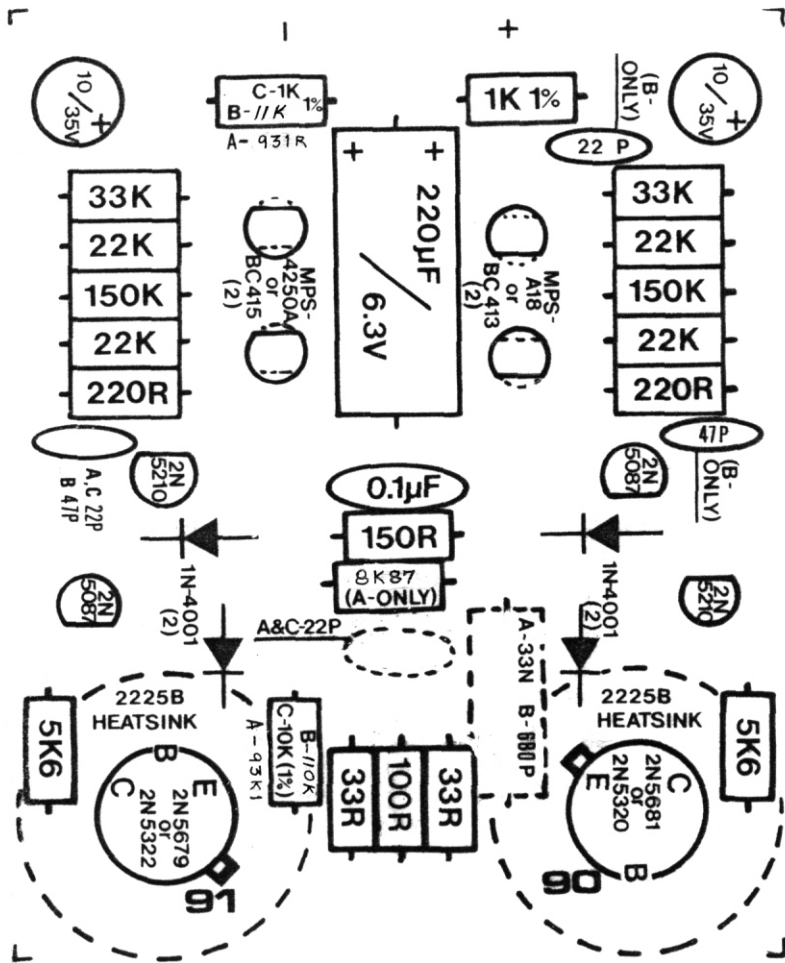
revised OCT 82
FEB 83



* pre-tested Drivers
‡ Beta matched pairs

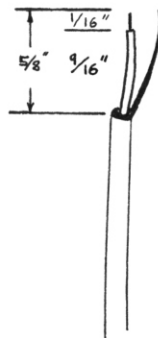
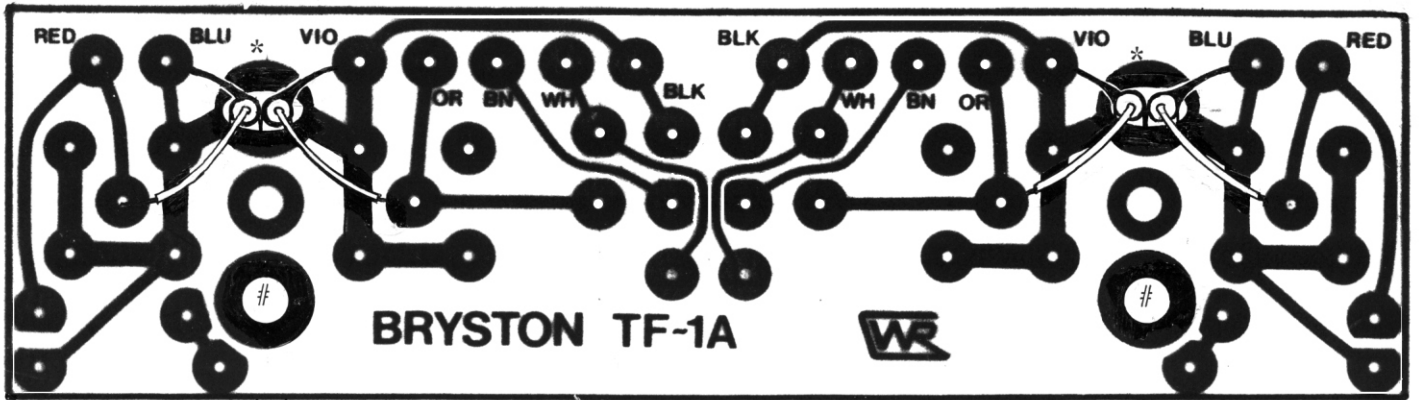
"C"

1B Discrete OpAmp Board



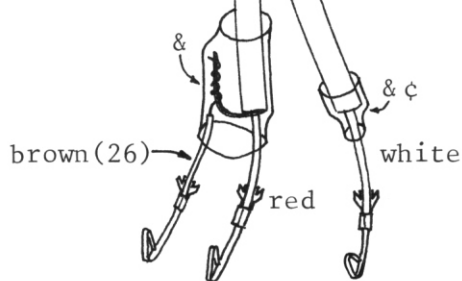
FEB 83

REV. 2 6 MAY 85

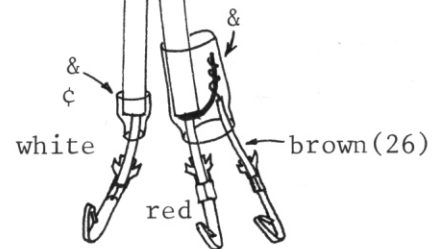


Strip both ends of all co-ax cables as shown.

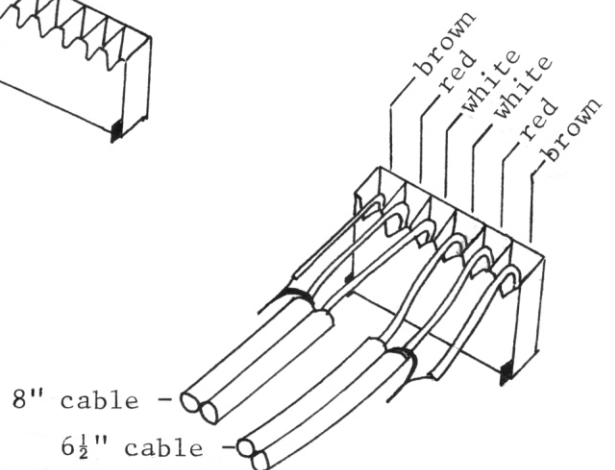
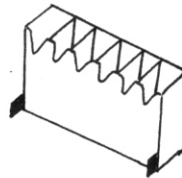
8" twin co-ax



6 1/2" twin co-ax



cut grooves in terminal housing as shown below



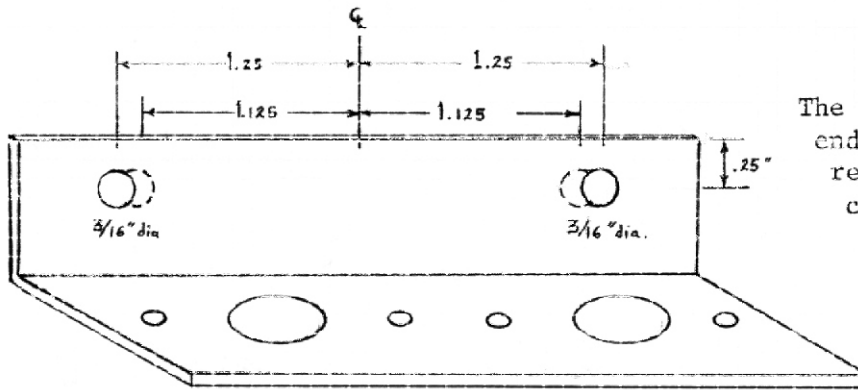
- '&' - heat shrinkable insulation
- '*' - widen these holes by filing to accomodate twin co-ax cable
- '#' - mounting holes
- 'ç' - cut shield wires off at this end on the white wire only.

1B-TF TRANSFORMER INSTALLATION

REV. 1 27 NOV 85

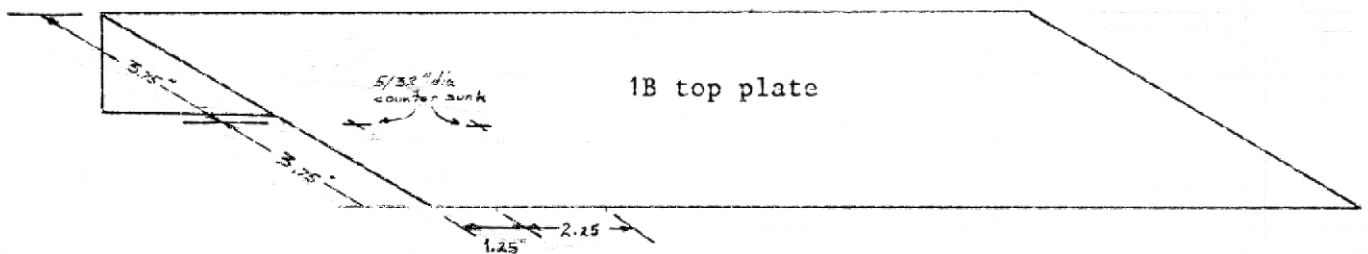
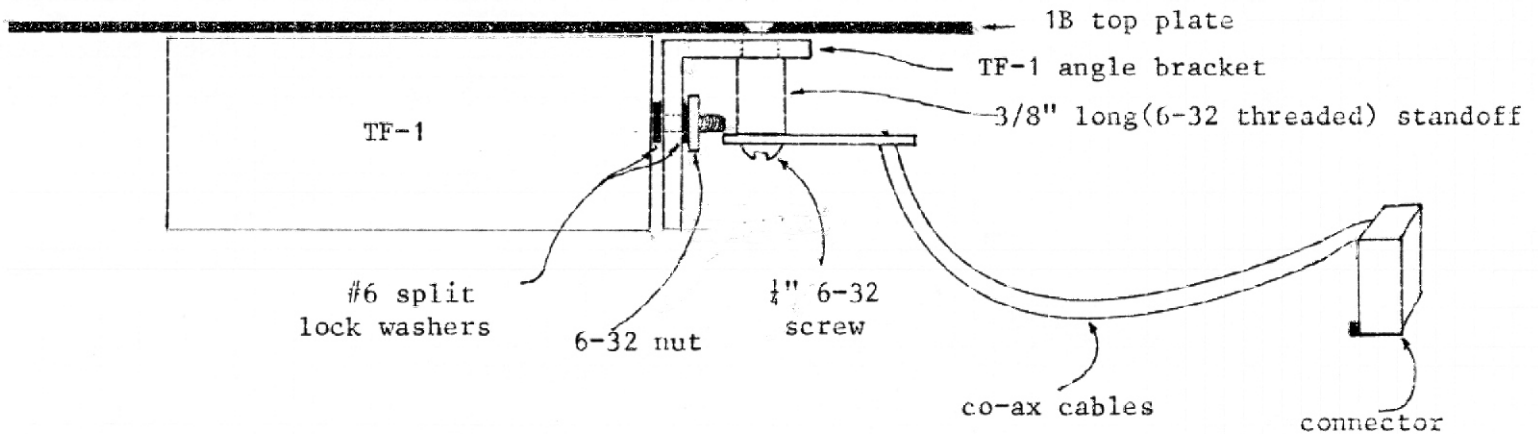
W

(see also '1B-TF
Transformer Hookup)



The two 3/16" holes on the shallow end of the angle bracket must be re-punched at 1.125" from the center line as shown.

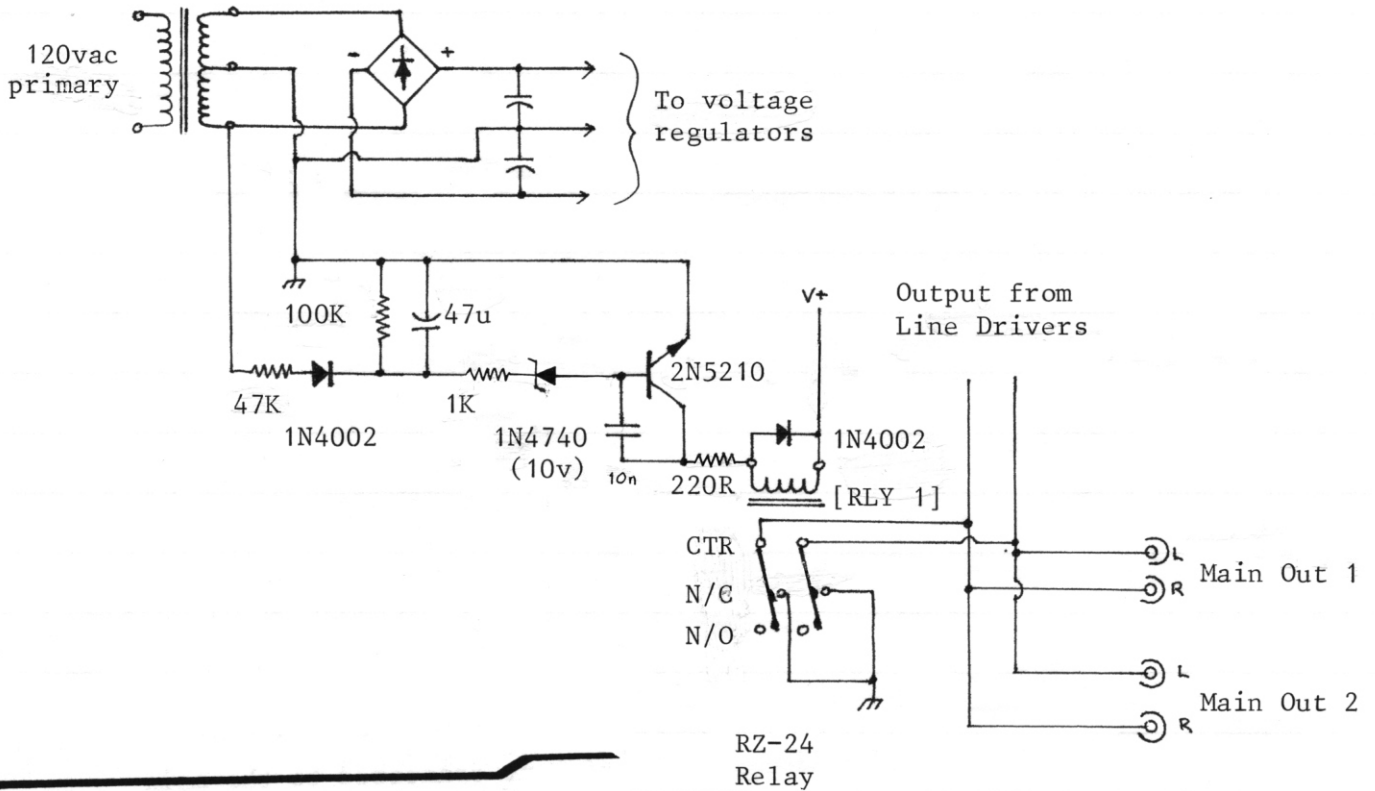
TF-1 angle bracket



NB holes in 1b top plate are counter sunk

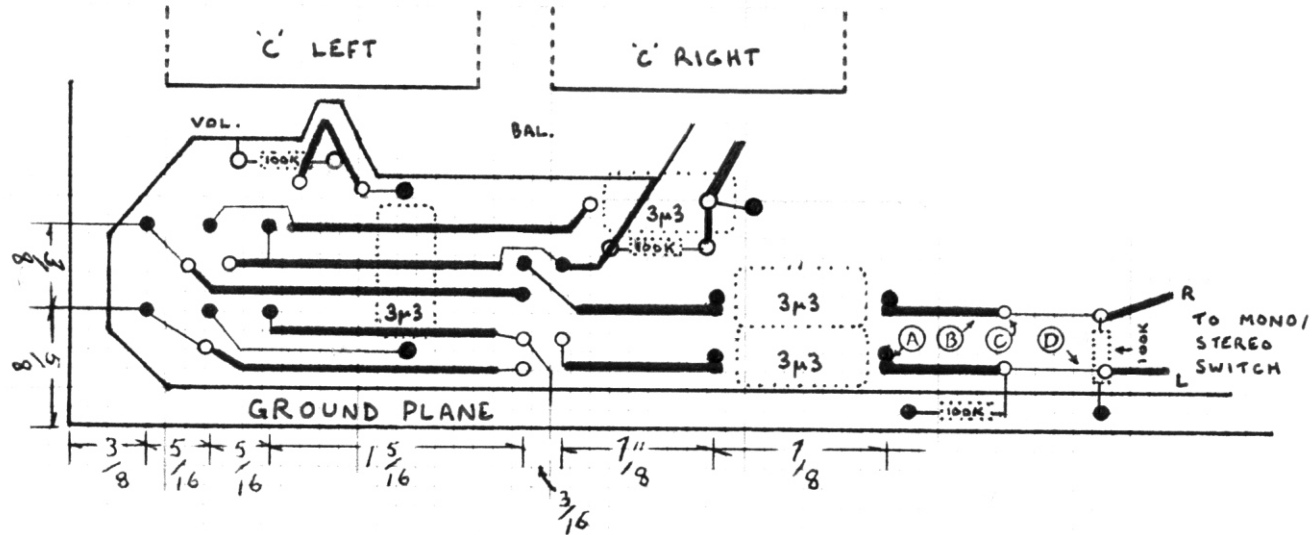
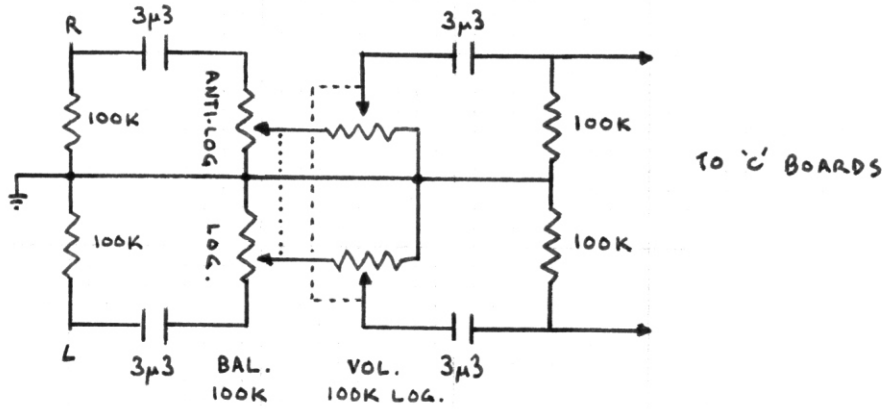
1B Pre-Amp Turn-On-Delay Circuit Change

Power Transformer



CUT TRACES HIGHLIGHTED IN RED.
ADD TRACES HIGHLIGHTED IN YELLOW

MAIN OUTPUT



- (A) → ● HOLES TO BE DRILLED TO ADAPT NEW COMPONENTS - 1/16"
- (B) → — ORIGINAL FOIL TRACE
- (C) → ○ ORIGINAL MOUNTING HOLES
- (D) → — BUS WIRE OR COMPONENT LEAD

LAYOUT DIAGRAM AND PARTS PLACEMENT - 1B UPDATE TO DUAL GANGED BALANCE CONTROL.

for MODEL(s) : *1B , 1B-MC*

DATE: *25 FEB 85*

PARTS/COMPONENTS

WIRING HARNESES

ASSEMBLY PROCEDURES

PCBs

METAL WORK/SCREENING

Q.C. PROCEDURES

DESCRIPTION

Both pairs of phono inputs will have 220pf (polystyrene) connected from the input to ground.

These load caps will be installed on 'Molex' female terminals(#08-56-0110) which are mounted in terminal housing #22-01-2065.

Two caps will be mounted on each connector. The terminal housing of the connector will be cut down to approx. 2/3rds its normal height to expose the terminals to allow the caps to be soldered directly to the terminals which have been inserted in the housing.

The connectors with load caps installed are to be plugged onto the .025" square pin headers installed on the 1B main board.

NB This applies to both pairs of phono inputs on the regular 1B, but only to the MM (moving magnet) phono inputs on the 1B-MC.

Capacitors : . Mallory SXL 322

(4 required per 1B
2 required per 1B-MC)

This ECO affects the following personel:

Jim Gunn

Doug Hodgson

Ron Bryan

APPROVAL (all ECOs must be approved by both the Engineering and Production departments)

for Engineering: *Wayne R Plunket*

for Production: *W. H. H. H. H.*

for MODEL(s) : 1B, 1B-MC

DATE: 4 MAR 85

PARTS/COMPONENTS

WIRING HARNESSSES

ASSEMBLY PROCEDURES

PCBs

METAL WORK/SCREENING

Q.C. PROCEDURES


DESCRIPTION

The 220pf (Phillips #630-09221) ceramic capacitor located accross the collector-base of the 2N5210 transistor in the turn-on-delay circuit is changed to a 10nf ceramic disc cap (#DDM-103)

This ECO affects the following personel:

Jim Gunn
Doug Hodgson
Ron Bryan

APPROVAL (all ECOs must be approved by both the Engineering and Production departments)

for Engineering: *Wayne R Plumley* 

for Production: *M. Rodriguez*