

INSTALLATION AND  
OPERATING INSTRUCTIONS

MODEL 210 B  
STEREO TURNTABLE PREAMPLIFIER/EQUALIZER

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STANTON MAGNETICS, INC.  
PLAINVIEW, NEW YORK

# I. SPECIFICATIONS

## I-1 GENERAL:

The Stanton Model 210B Preamplifier is designed for Professional use as a stereo turntable preamplifier with the standard NAB (Mar '64) record playback equalization. It may also be used as two separate monophonic channels. The unit is equipped with front panel gain and high frequency adjustment controls for each channel. In addition, it has provision for use as a dual flat response preamplifier by means of a front panel switch. Provision is made for table top or panel mounting.

## I-2 DETAILED SPECIFICATIONS:

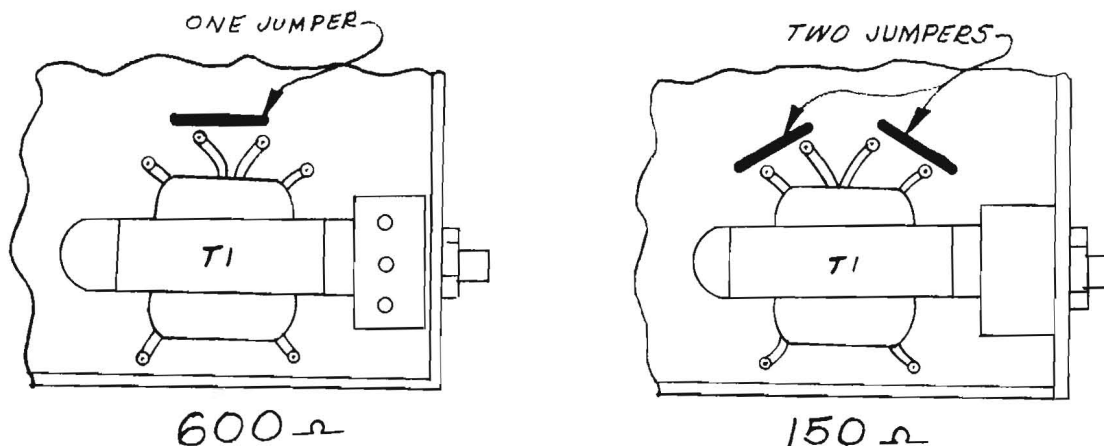
Output Level:	+20 dBm Maximum
Distortion:	Less than 0.25% @ +20 dbm
Output Impedance:	150 or 600 ohms, internally Selectable Transformer Output. Shipped wired for 600 ohm isolated outputs.
Frequency Response:	+1dB from 30 to 20,000 Hz Either Flat or NAB Standard Equalization Curve. Individual high frequency adjustments for NAB curve.
Gain (Controls at max.)	52dB +2 @ 1 kHz (NAB) 54dB <u>+2</u> @ 1 kHz (FLAT)
Maximum input level before clipping @ 1kHz:	150 mV
Noise (Input terminated in cartridge):	Better than -60dB Ref. 5.0 mV input (NAB)
Input Impedance:	47,000 ohms
Channel Separation:	60dB Minimum (30-15kHz)
Input Connectors:	RCA Phono Jacks
Output Connectors:	Five Terminal Barrier Strip
Power Requirements:	117 Vac 60 Hz, 5 W
Mechanical Dimensions:	Panel 3 1/2" x 9 1/2" Overall Case Size 3" x 8 1/2" x 7" behind panel
Mounting Provisions:	Normal Table-Top or Cabinet Mounting. Optional Rack Panel Adapter Available.

## II. INSTALLATION AND OPERATION

### II-1 INSTALLATION:

The Stanton Model 210B Preamplifier requires no special installation as a table top unit, other than plugging into a 115 volt AC power line. For panel mounting it will usually be necessary to unscrew the four rubber feet.

Note: The Model 210B is shipped with the output transformers factory wired for 600 ohm isolated outputs. If it is desired to use the 150 ohm outputs, the jumpers must be changed internally on the printed circuit boards as shown below:



If the preamplifier is mounted in a metal cabinet, there is the possibility of additional ground loops since both RCA input phono jacks are grounded to the chassis, which in turn is grounded through the three wire AC line cord. If the additional chassis ground creates (through the metal cabinet) an undesirable ground loop, simply plug in the AC line through a standard NEMA grounding to non-grounding adapter plug.

### II-2 OPERATION:

After mounting the preamplifier and completing the desired input and output connections, the power line can be connected, the FLAT or NAB response selected with the front panel switch, and the front panel power switch turned on. The POWER ON indicator should light and the output level or gain of the individual channels can now be adjusted. The LEVEL (gain) controls are effective in both the FLAT and NAB response positions, while the HF-ADJ controls are only effective in the NAB position. The latter controls allow the high frequency roll-off of the amplifiers to be adjusted for more or less roll-off than the standard NAB record reproducing response.

II-2 OPERATION: (con'd)

The HF-ADJ controls can be set by either of two methods. The first method is to feed the preamplifier with a standard signal generator and then adjust the frequency response to the NAB curve with the HF-ADJ controls. The second method is to adjust the preamplifier when it is completely wired into a system by using a standard test record, such as the NAB TEST RECORD (with discrete frequencies recorded in accordance with the March 1964 NAB recording standard). This allows the preamplifier to compensate for any deficiencies in the high frequency response of the cartridge or other system components. In both methods, it is only necessary to take measurements at two frequencies such as 1 KHZ and 10 KHZ, i.e., the gain is measured first at 1 KHZ and then the preamplifier response adjusted at 10 KHZ to give the desired difference in gain at these two frequencies.

### III. CIRCUIT DESCRIPTION AND MAINTENANCE

#### III-1 CIRCUIT DESCRIPTION:

The Stanton Model 210B Stereo Preamplifier consists of three basic modules, i.e., a dual regulated power supply and two identical preamplifiers. The power supply is shown on Sheet 2 of the schematic, while the Preamplifier is shown on Sheet 1.

The power supply consists of two identical regulated supplies, with the positive output of one supply grounded and the negative side of the second supply grounded. Each supply consists of a transformer isolated full wave bridge rectifier (CR1-CR4) and a capacitive filter (C1), followed by an integrated circuit voltage regulator (A1). The high frequency regulation is further improved by C3, while R2 and R3 set the nominal regulated output voltage. R4 and R5 are used as output voltage trim resistors if required. R1 sets the current limiting. Each preamplifier consists basically of the two sections of a low noise integrated circuit dual operational amplifier (A1). The first section is used for both the NAB and FLAT response amplification. In the FLAT position of S102, R3 and R6 control the voltage gain at a nominal value of 82, while R4, R5, C3, C4, and C5 control the NAB response performance. The first amplifier section is followed by the LEVEL (gain) control (R9) and then a flat response power amplifier with a nominal voltage gain of 7 controlled by R11 and R12. The integrated circuit amplifier (A1) drives a power output stage consisting of Q2 and Q3 connected as a complementary-symmetry emitter follower pair with biasing provided by R14, R15, R16, and Q1. This output is then transformer isolated by T1.

#### III-2 MAINTENANCE:

The modular design of the Model 210B Stereo Preamplifier facilitates servicing and troubleshooting of the unit should any problems develop. If any trouble does develop, first check to see that the dual power supply is putting out both +16 volts DC and -16 volts DC with respect to the chassis ground. If not, remove the + and - power leads to both preamps and recheck the power supply output voltages. If the supply checks out by itself, reconnect one preamp at a time to isolate the faulty unit. On the other hand, if the supply is not putting out the proper voltages, a comparison of the + and - supplies will determine which side is faulty, since both supplies are identical.

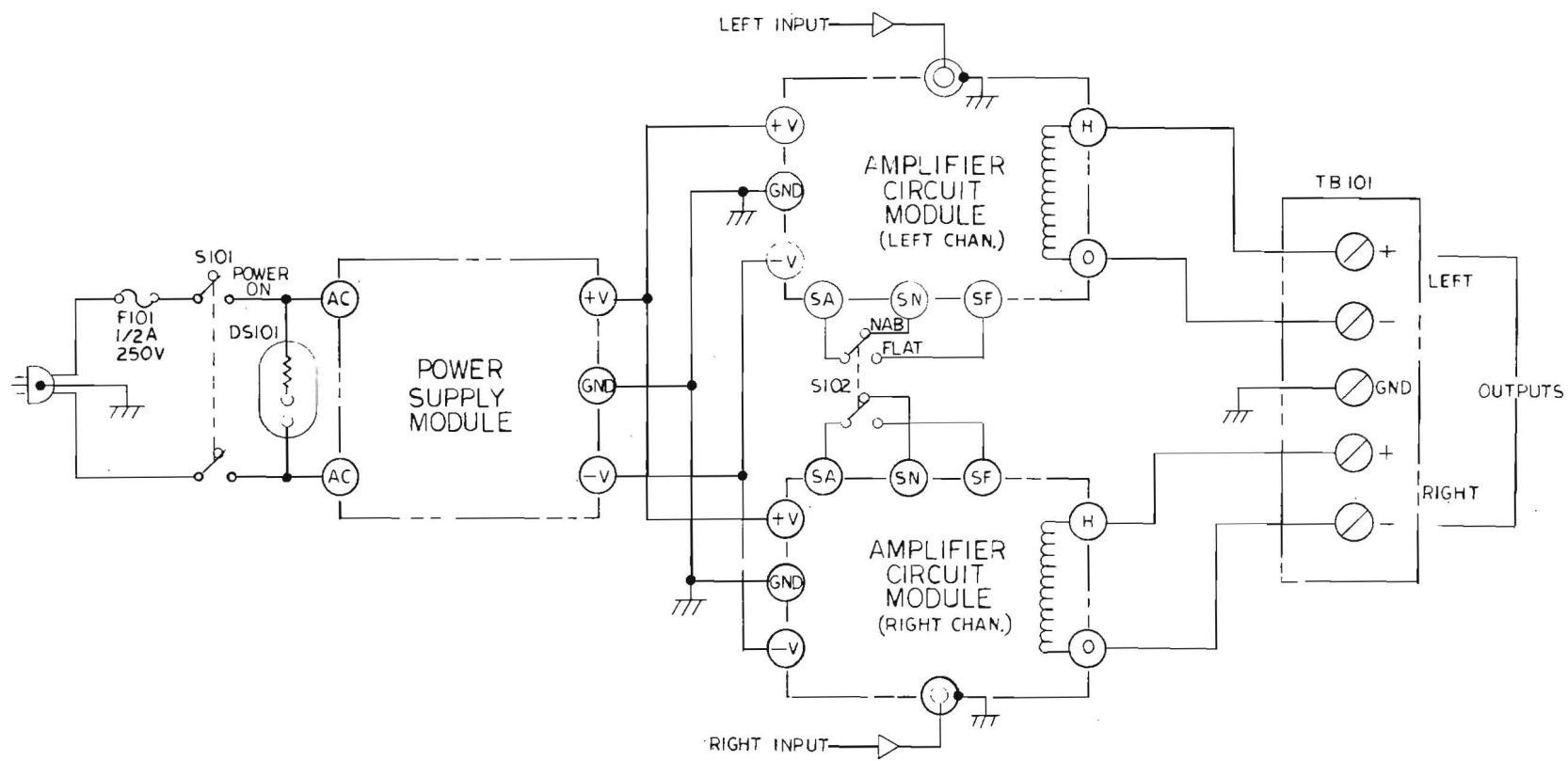
After locating the faulty module, standard servicing techniques can be followed using the schematics and parts list furnished.

III-2 MAINTENANCE: (con'd)

Please note that line operated ohmmeters and VTVM's can inject large line voltage spikes into the circuit being tested. Therefore, use particular caution in measuring the various integrated circuits in the pre-amplifier since integrated circuits are extremely sensitive to this type of voltage spike.

TABLE OF REPLACEABLE PARTS

<u>Symbol</u>	<u>Description</u>
F101	Fuse, 3AG, 1/2 Amp.
S101	Switch, Rocker Slide, Illuminated
S102	Switch, Rocker Slide, Shorting
<u>Power Supply</u>	
A1, A2	Integrated circuit, Fairchild U9A7723393
C1, C4	Capacitor, electrolytic, 470 UF, 35V
C3, C6	Capacitor, electrolytic, 4.7 UF, 50V
C2, C5	" ceramic, 100 PF, 1KV
CR1-CR8	Rectifier, IN4002
R1, R6	Resistor, carbon, 1/4W, 5%, 4.7 ohms.
R4, 5, 9, 10	" " " " select at test
R2, R7	" film, 1/8W, 1%, 8.25K
R3, R8	" " " " 7.15K
T1	Transformer, power, Stanton 2100-4210
<u>Amplifier</u>	
A1	Integrated circuit, Fairchild U6A7739393
C1, 10, 11	Capacitor, electrolytic, 4.7 UF, 50V
C2	" " 22 UF, 25V
C3, 6	" film, .0056UF, 200V
C4	" Mica, 820 PF, 500V
C5	" " trimmer, 450-1390PF
C8, 13	" ceramic, .05 UF, 50V
C9	" " .001 UF 1KV
C12	Capacitor, film, .022 UF, 200V
C14, 15	" " .01 UF, 200V
C16	" electrolytic, 47 UF, 16V
C17	" ceramic, 25 PF, 1KV
R1	Resistor, carbon, 1/4W, 5%, 510 ohms
R2, 5, 11	" " " " 47 K
R3	" " " " 82 K
R4	" film, 1/4W, 5%, 560 K
R6	" carbon, 1/4W, 5%, 1.0K
R7, 17, 18	" " " " 10 ohms
R8, 15	" " " " 750 ohms
R9	Resistor, carbon, variable, 100 K
R10	" " 1/4W, 5%, 150 K
R12	" " " " 300 K
R13	" " " " 33 ohms
R14	" " " " 2.7 K
R16	" " " " 33 K
Q1	Transistor, silicon, NPN, 2N4400
Q2	" " NPN, Motorola MPS-U-02
Q3	" " PNP, Motorola MPS-U-52
T1	Transformer, Output Stanton 2100-4211



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SHT. 3 OF 3

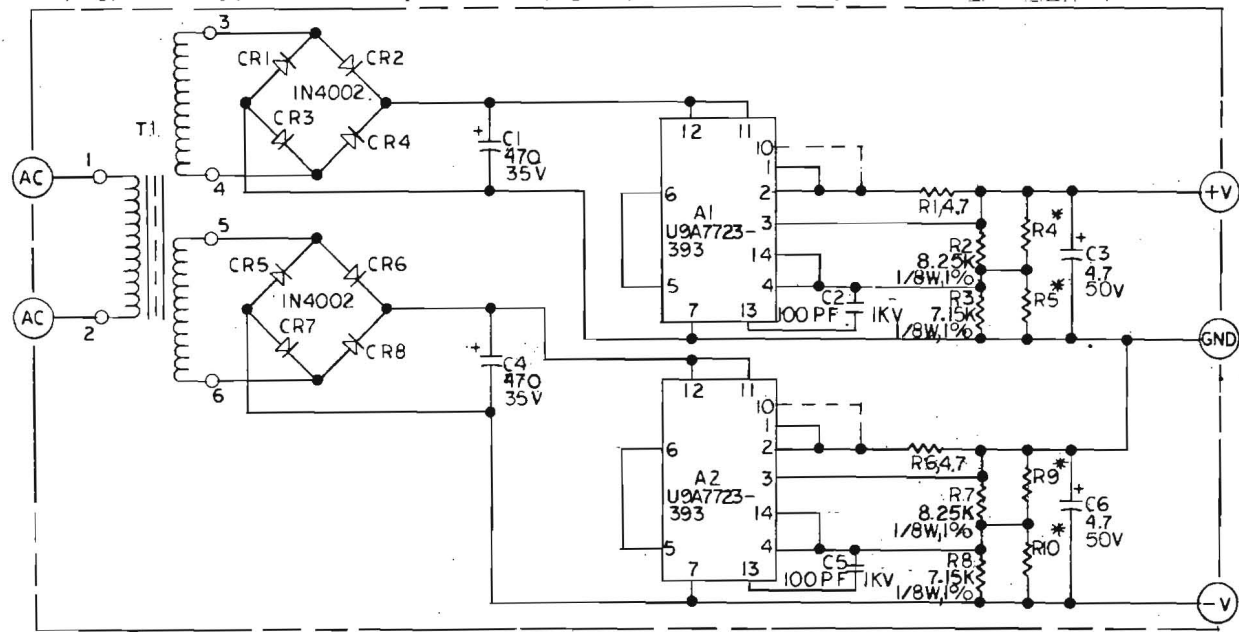
LOGIC DIA.-PROFESSIONAL  
PRE AMP MODEL 210B

05	SEE CHANGES ON SHTS 1 & 2 DEC # 27/5	1/2	60	SCALE	1/2"
02	SEE SHT 10FB	1/2	60	DO NOT SCALE PRINT	
				TOLERANCES UNLESS OTHERWISE SPECIFIED:	
				DECIMALS 2.000	
				FRACTIONS 1/32	
				ANGLES 1/16	

ALL MACHINED SURFACE FINISHES 125 MICRO-INCHES MAX UNLESS OTHERWISE SPECIFIED

2100-0109-05  
SHT 3 OF 3





P. C. BD. NO. 2100-4510-03

POWER SUPPLY MODULE

NOTES:

1. \*SELECTED IN TEST.
2. UNLESS OTHERWISE SPECIFIED:  
ALL RESISTORS ARE IN OHMS, 1/4 WATT, 5%,  
ALL CAPACITORS ARE IN MICROFARADS.

2100-0109-05

SHT. 2 OF 3

ISSUE

05	C1, C2 - 470 MFD 35V C3, C4 - 470 MFD 50V R1, R2, R7 - 8.25K R3, R4, R5, R6, R8, R9, R10 - 7.15K IN4002 1000 PAK DCR & RT15	1/2	GA
03	C1, C2 WAS 6 C3, C4 WAS 500	4/8	MC
02	SEE SHT. 1 OF 3	2/8	GP

SCHEMATIC-PROFESSIONAL  
PRE-AMP MODEL 210B...

ALL MACHINES SURFACE FINISHED 1/8" MICRO-INCHES MAX.  
UNLESS OTHERWISE SPECIFIED

SCALE: 1/8" = 1"

DO NOT SCALE PRINT

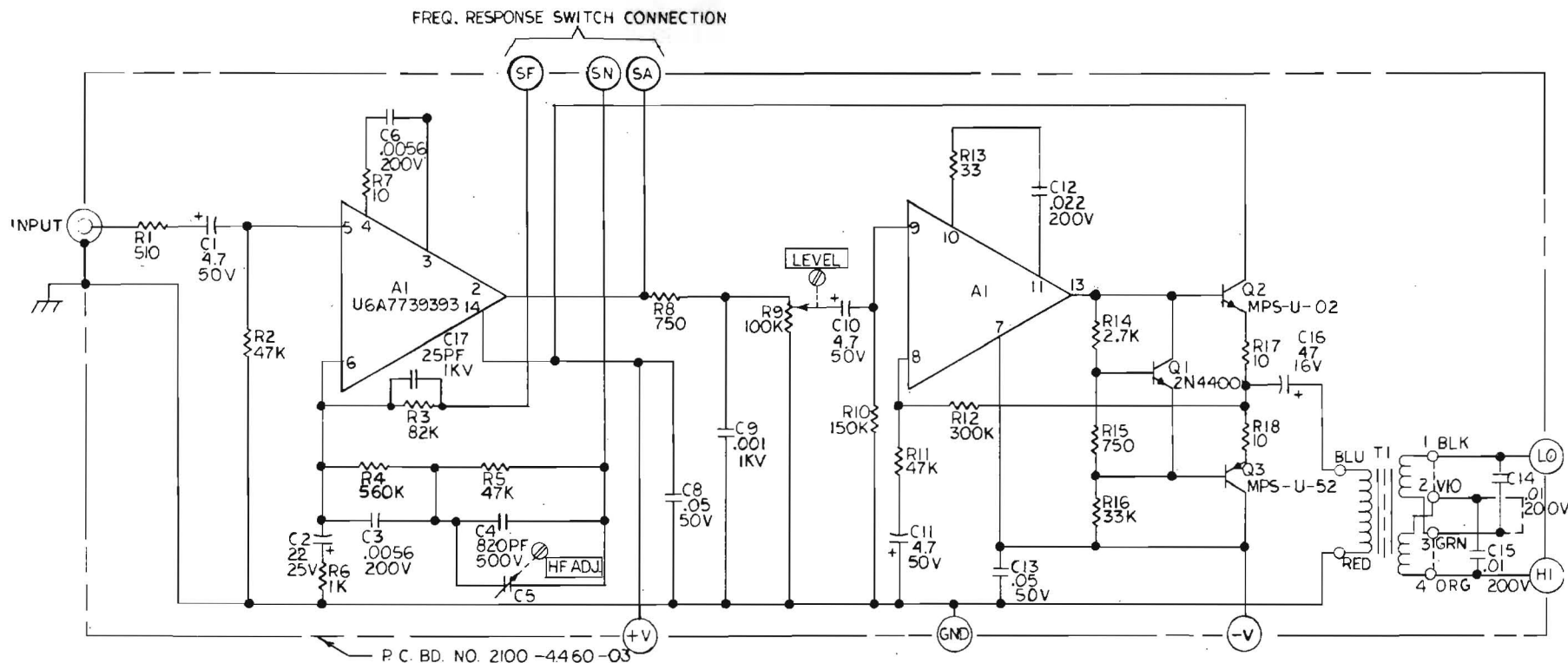
UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED

2100 0109 05  
SHT. 2 OF 3



AMPLIFIER MODULE  
(TWO MODULES REQD. FOR PRE AMP)

NOTES  
1. UNLESS OTHERWISE SPECIFIED:  
ALL RESISTORS ARE IN OHMS, 1/4 WATT 5%,  
ALL CAPACITORS ARE IN MICROFARADS.

05	C4 - 500V WAS 300V		
	R5 WAS 97.5K.		
	R8 WAS 1.1K		
	R4 WAS 562K, 1/4	1/2	50
	C9, C17 - 1KV		
	WAS 500V.		
	C1, C10, C11 - 50V		
	WAS 25V		
	C7 REMOVED		
	DCR # 2715		
02	C1, C10, C11 WAS 50V		
	R10 WAS 50, C10 WAS 25		
03	Q1 WAS 2N4400		
02	R4 WAS 750K 1/4		
	PER P.C.R. 2223		

SCHEMATIC, PROFESSIONAL  
PRE AMP MODEL 210B