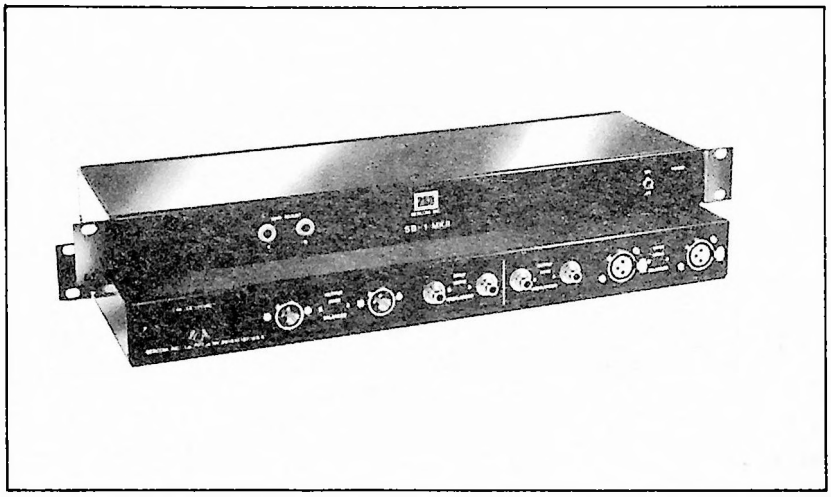
SB-1 MKII

STEREO BALANCE BOX



OPERATING INSTRUCTIONS

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GENERAL: The SB-1 MKII is designed to interface a two channel semi-professional tape recorder or VTR with a nominal level of -10dBv, unbalanced, to a professional mixer with a nominal +4dBm level, balanced.

MOUNTING: Your SB-1 MK-II is supplied with plain end panals. To install the rack mount end panals, remove the four screws from the plain end panals and replace them with the rack mount end panals.

Mount the unit near the tape recorder so that the longer cable runs to the mixer are the balanced inputs and outputs of the SB-1.

AMPLIFIER SECTION: Inputs A & B will accept a nominal -10dBv level, 1K ohm, unbalanced from the tape recorder outputs. The input impedance of the SB-1 is very high (100K ohms) and, therefore, will have no loading effect on the recorder output. The gain of this section is factory set at +14dB and may be adjusted by inserting a screwdriver through the front panel hole into the slot of the trim pot and turning it clockwise to increase the gain. To adjust the gain accurately, it is necessary to use an audio generator set at 1kHz and the desired input level. Adjust the gain for a +4dBm reading on a AC VTVM connected to the output. The outputs of this section are 600 ohms transformer-balanced, with a maximum output level of +18 dBm. The outputs may be either balanced or unbalanced depending on the input requirements of your mixer. If the unit is to be used unbalanced, it is necessary to tie the wires connected to pins #1 & #3 of the XLR (the SB-1 end of the cable) together at the terminating connector (the mixer end of the cable) for proper operation.

TRANSFORMER SECTION: The inputs are 600 ohms transformer-balanced, bridging and will accept the balanced low impedance mixer outputs with a nominal level of +4dBm. The outputs of this section will drive recorders with a nominal input level of -10dBv, 20K-50K ohms, unbalanced.

GROUND LOOPS: The SB-1 is shipped with a three-wire AC cord, the ground pin of which is connected to the chassis of the SB-1. This can create ground loops and may become evident, as hum and buzz, if there is an AC potential difference between your SB-1 and recorder or mixer. The best way to remedy this situation is to unplug all the signal cables from the SB-1 and reinsert them, one by one, until the hum reappears. This will determine between which pieces of equipment the problem exists. It is necessary to lift the shield, of a balanced line, from pin #1 of the XLR of the offending cable. When reinserting the remainder of the cables a new ground loop may reappear. If this happens, follow the same procedure as before.

CONNECTORS: Your SB-1 is supplied with RCA phono jacks for the unbalanced inputs and outputs. If you wish they may be changed to 1/4" phone jacks by just replaceing the connectors. The panal holes used for the RCA's are the same size as that of the 1/4" phone jacks.

POWERING: The SB-1 may be operated from 120 or 240VAC, 50/60Hz mains. The unit is factory wired for 120VAC. To operate the SB-1 from 240VAC, it is necessary to internally change the transformer AC jumpers. To do this, follow these steps:

1. REMOVE ALL POWER FROM THE UNIT
2. Remove the four screws from the end panel and slide the bottom plate out until it is clear of the extrusion.
3. Remove jumpers between #1 & #4 and #2 & #5 as marked on the P.C. board.
4. Install a new jumper between #2 & #4.
5. Reassemble the box.

CIRCUIT DESCRIPTION

AMPLIFIER SECTION: The input signal is applied to R2 & R3 which form a 6dB pad. C7 couples the pad to the non-inverting input of IC3A. The IC is used in the non-inverting configuration, and the lowest minimum gain possible is 6dB. Therefore, the pad previous to the IC input is used to compensate for this gain, making the minimum gain for this stage 0dB (unity). The ratio of R4 & R5 to R6 sets the gain of IC3A. R5 can adjust the gain of the stage from +36dB to +6dB and R4 sets the maximum gain of this stage. C9 in combination with R4 & R5 set the low frequency break-off point, and C8 in combination with R6 sets the rise time of IC3A. The output of IC3A is coupled by C10 to T2, a 1:1 600 ohms output transformer.

TRANSFORMER SECTION: The +4dBm input signal is applied to a -14dB, 600/600 ohm loss pad R7,R8,R9 & R10 the output of which is applied to the primary of T3 a 1:1 600 ohm input transformer. The secondary is terminated by R11.

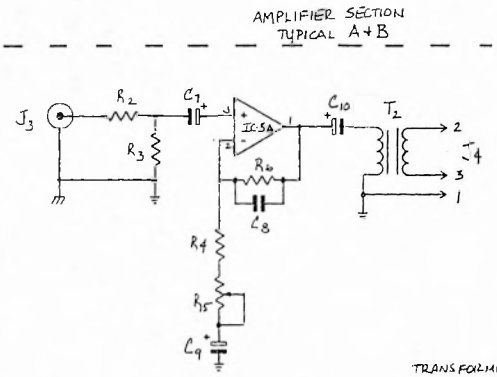
POWER SUPPLY: The power supply is a bipolar design and IC1 & IC2, provide for voltage regulation of +/-18VDC. C1,C2,C3, & C4 provide for filtering of the supply while C5 & C6 provide for RF filtering.

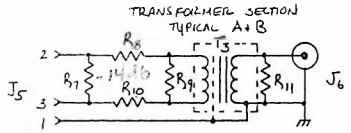
SPECIFICATIONS

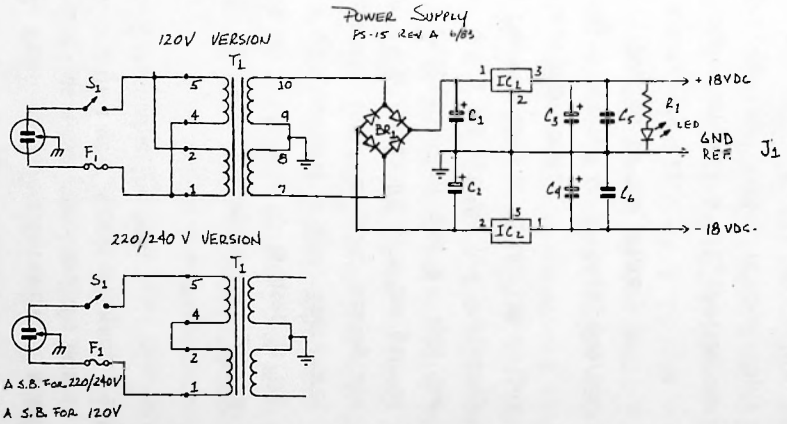
INPUT:
2 RCA Phono Jacks (amplifier)
2 Female XLR (transformer)
INPUT IMPEDANCE:
100K ohms Unbalanced (amplifier)
600 ohms Balanced (transformer)
MAX. INPUT LEVEL:
+18dBv (amplifier)
+18dBv (transformer)
COM.- MODE REJECTION RATIO:
-87dB @ 1kHz (transformer)
-76dB @ 10kHz (transformer)
GAIN:
0dB to +30dB (amplifier)
-14dB (transformer)
NOISE:
-101dB Below Rated Output
FREQ. RESPONSE:
+/-1dB, 20-20,000Hz
BANDWITH:
60kHz @ -3db (amplifier)
kHz @ -3db (transformer)
RISE TIME:
4.5µS (10%-90%) (amplifier)
µS (10%-90%) (transformer)

DISTORTION: (amplifier)
<.2% @ 20Hz Max.Rated Output
<.06% @ 30Hz Max.Rated Output
<.02% @ 50Hz Max.Rated Output
<.006% @ 1kHz Max.Rated Output
DISTORTION: (transformer)
<0.2% @ 20Hz Max.Rated Output
<.12% @ 30Hz Max.Rated Output
<.06% @ 50Hz Max.Rated Output
<.002 @ 1kHz Max.Rated Output
OUTPUT:
2 Male XLR (amplifier)
2 RCA Phone Jacks (transformer)
OUTPUT LOAD:
>600 ohms Balanced(amplifier)
>15K ohms Unbalanced(transformer)
OUTPUT LEVEL:
+18dBm Max.(amplifier)
+6dBm Max.(transformer)
POWER REQUIREMENTS:
* 120VAC or 220VAC, 50/60Hz
* Internal Selectable
DIMENSION:
48.66cm X 4.44cm X 12.70cm
19.00" X 1.75" X 5.00"

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	CH6 TRANS JOB, ADD C9, C10	4-18-83	RWS







PARTS LIST SB-1

C1,2	1000f/35V
C3,4	470µf/35V
C5,6	100nf/Disc
C7	10µf/16V
C9	22µf/10V
C8	22pf/Disc
C10	100µf/6.3V
R1,7,9	1K ohms 5%
R2,3	51K ohms 5%
R4	1K5 ohms 5%
R5	100K lin. pot.
R6	100K ohms 5%
R8,10	620 ohms 5%
R11	1K2 ohms 5%
BR1	1A , 50PIV
F1	1/4A SB 125VAC
IC1	78L18
IC2	79L18
IC3	LF353N
J1,2	Molex
J3,6	3501FR
J4	D3M
J5	D3F
S1	11J0010
T1	65J0004
T2	66J0265
T3	66J0261

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		SESCOM, INC. LAS VEGAS NV 89101 U.S.A.	
APPROVALS	DATE	SB-1 MKII STEREO BALANCE BOX	
DRAWN YM	3-12-83		
CHECKED RWS	3-16-83	SCALE	SIZE B / DRAWING NO. REV. A
		DO NOT SCALE DRAWING	SHEET 1 of 1