Standel®
Solid State Music Systems
P. O. BOX 709
4918 DOUBLE DRIVE
EL MONTE, CALIFORNIA 91734
686-0850 (213) 442-0301

STANDEL SERVICE INFORMATION

1968

ACOUSTIC MAGNIFIERS AND PA COLUMN AMPLIFIERS
PB50, PB100, AM48, AM48S, AM30, AM30S
AM24, AM24S

S-148-6
6C168

STANDEL SERVICE INFORMATION

CIRCUIT DESCRIPTION

A modular design concept has been utilized throughout the amplifier in order to provide a unit that may be serviced with a minimum of individual component measurements.

The black module is an encapsulated input amplifier which provides impedance matching between the input signal line and the driver section of the power amplifier. It also provides volume compression when required.

The components of the power output section, which include a drive transistor (Q1), a drive transformer, the power output transistors, and all associated components are mounted directly on the heat sink assembly.

The power amplifier section is operated Class B in a single-ended push-pull configuration, which is similar to a balanced bridge with the speaker connection at approximately zero voltage. The static current is very low until the transistors are switched into a high current condition by the signal applied to the base. Each transistor conducts on alternate signal cycles through the speaker to the ground. Since the internal resistance of the transistor in a conduction state is negligible, the speaker becomes the limiting factor. For this reason, extension speakers should not be used.

The power supply consists of a stepdown isolation transformer, a rectifier bridge, a capacitive input filter, and resistance capacitance filtering as required for the various stages of the amplifier.

TROUBLE SHOOTING

Signal tracing methods may be used to isolate the trouble to a module or component. The signal levels indicated at various points on the circuit should result from a .16 V RMS input of approximately 300 cycles/second.

The DC levels indicated at various points on the power supply are for no signal conditions, and will average 2 to 5 volts less when the amplifier is operating at full power output.

CROSSOVER DISTORTION

In some cases under low power line voltage conditions, the amplifier will develop low level distortion which sounds very much like a bad speaker.

The problem will generally occur at line voltages below 115V when the amplifier is played at low volume levels.

This can be eliminated by replacing resistors R7, R8, R9, and R10 as shown on the schematic diagram. Replacement kit must be obtained from the Standel Company. When ordering replacement kit, please send the model and serial number of the amplifier involved.

PARTS REPLACEMENT AND BIAS SETTINGS

If it is necessary to replace the power drive transistor or related components, it will be necessary to readjust R22 as indicated on schematic. Should it be necessary to replace the power transistors, matched sets should be obtained from the factory and silicon grease should be used between the transistor and heat sink to provide maximum heat transfer. Care should be taken to position the teflon insulating spacers correctly to avoid shorting the transistors to the chassis.

Replacements for faulty modules or components may be ordered from the factory. When ordering replacement parts, please specify the Standel part number of the required parts, as well as the model and year of the unit for which they are required.

If further information is required, contact factory Service Department at the following address:

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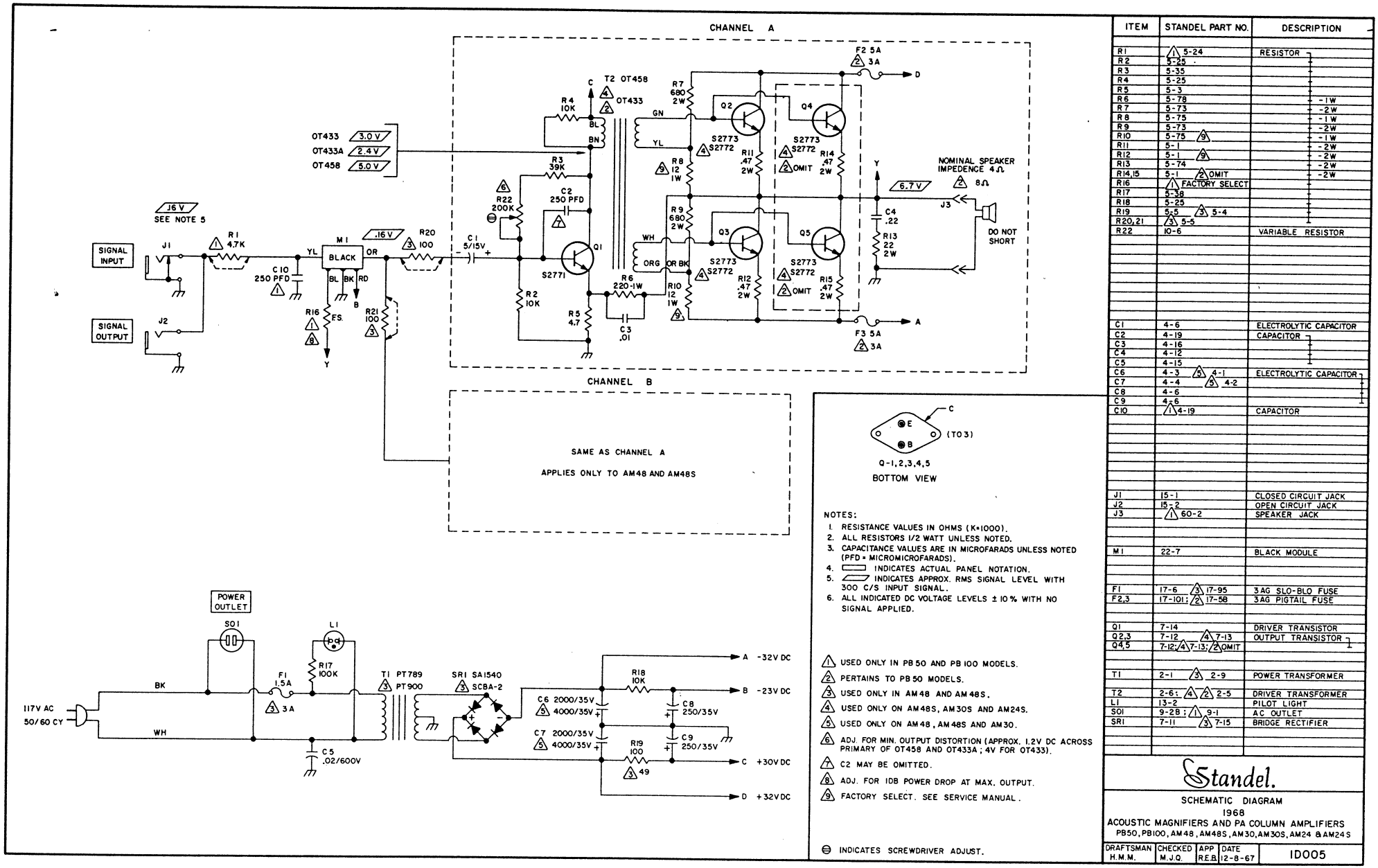

Q-1,2,3,4,5

BOTTOM VIEW

NOTES:

1. RESISTANCE VALUES IN OHMS (K=1000).
2. ALL RESISTORS 1/2 WATT UNLESS NOTED.
3. CAPACITANCE VALUES ARE IN MICROFARADS UNLESS NOTED (PFD = MICROMICROFARADS).
4. ▭ INDICATES ACTUAL PANEL NOTATION.
5. ▱ INDICATES APPROX. RMS SIGNAL LEVEL WITH 300 C/S INPUT SIGNAL.
6. ALL INDICATED DC VOLTAGE LEVELS ± 10% WITH NO SIGNAL APPLIED.

△1 USED ONLY IN PB50 AND PB100 MODELS.
△2 PERTAINS TO PB50 MODELS.
△3 USED ONLY IN AM48 AND AM48S.
△4 USED ONLY ON AM48S, AM30S AND AM24S.
△5 USED ONLY ON AM48, AM48S AND AM30.
△6 ADJ. FOR MIN. OUTPUT DISTORTION (APPROX. 1.2V DC ACROSS PRIMARY OF OT458 AND OT433A; 4V FOR OT433).
△7 C2 MAY BE OMITTED.
△8 ADJ. FOR 1DB POWER DROP AT MAX. OUTPUT.
△9 FACTORY SELECT. SEE SERVICE MANUAL.

⊖ INDICATES SCREWDRIVER ADJUST.

ITEM	STANDEL PART NO.	DESCRIPTION
R1	△1 5-24	RESISTOR
R2	5-25	
R3	5-35	
R4	5-25	
R5	5-3	
R6	5-78	-1W
R7	5-73	-2W
R8	5-75	-1W
R9	5-73	-2W
R10	5-75 △9	-1W
R11	5-1	-2W
R12	5-1 △9	-2W
R13	5-74	-2W
R14,15	5-1 △2 OMIT	-2W
R16	△1 FACTORY SELECT	
R17	5-38	
R18	5-25	
R19	5-5 △3 5-4	
R20,21	△3 5-5	
R22	10-6	VARIABLE RESISTOR
C1	4-6	ELECTROLYTIC CAPACITOR
C2	4-19	CAPACITOR
C3	4-16	
C4	4-12	
C5	4-15	
C6	4-3 △5 4-1	ELECTROLYTIC CAPACITOR
C7	4-4 △5 4-2	
C8	4-6	
C9	4-6	
C10	△1 4-19	CAPACITOR
J1	15-1	CLOSED CIRCUIT JACK
J2	15-2	OPEN CIRCUIT JACK
J3	△1 60-2	SPEAKER JACK
M1	22-7	BLACK MODULE
F1	17-6 △3 17-95	3AG SLO-BLO FUSE
F2,3	17-101; △2 17-58	3AG PIGTAIL FUSE
Q1	7-14	DRIVER TRANSISTOR
Q2,3	7-12 △4 7-13	OUTPUT TRANSISTOR
Q4,5	7-12; △4 7-13; △2 OMIT	
T1	2-1 △3 2-9	POWER TRANSFORMER
T2	2-6; △4 △2 2-5	DRIVER TRANSFORMER
L1	13-2	PILOT LIGHT
SO1	9-28; △1 9-1	AC OUTLET
SR1	7-11 △3 7-15	BRIDGE RECTIFIER

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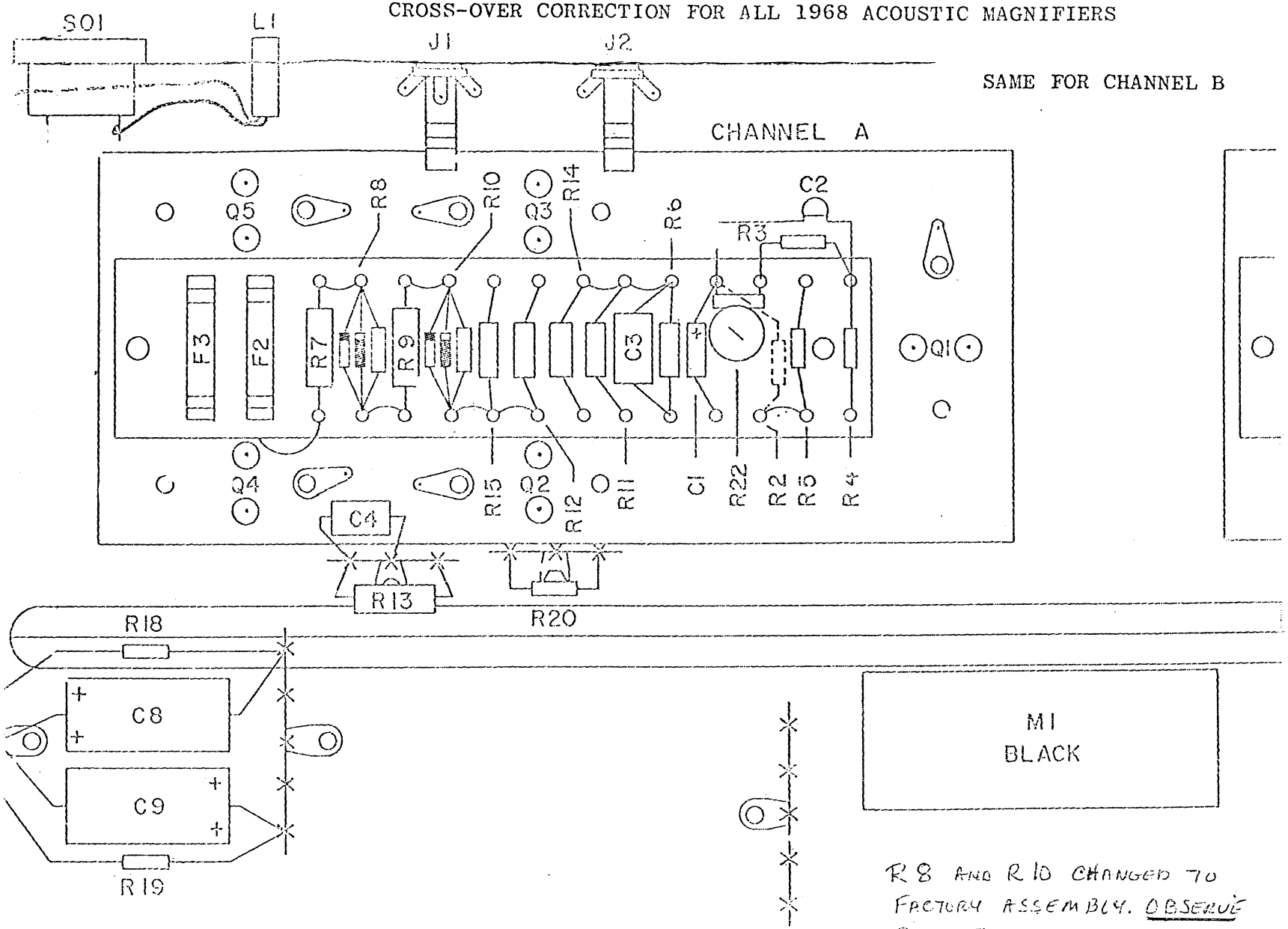
SCHEMATIC DIAGRAM
1968
ACOUSTIC MAGNIFIERS AND PA COLUMN AMPLIFIERS
PB50, PB100, AM48, AM48S, AM30, AM30S, AM24 & AM24S

DRAFTSMAN	CHECKED	APP	DATE	
H.M.M.	M.J.Q.	R.E.B.	12-8-67	1D005

S-148-6A
6C 266

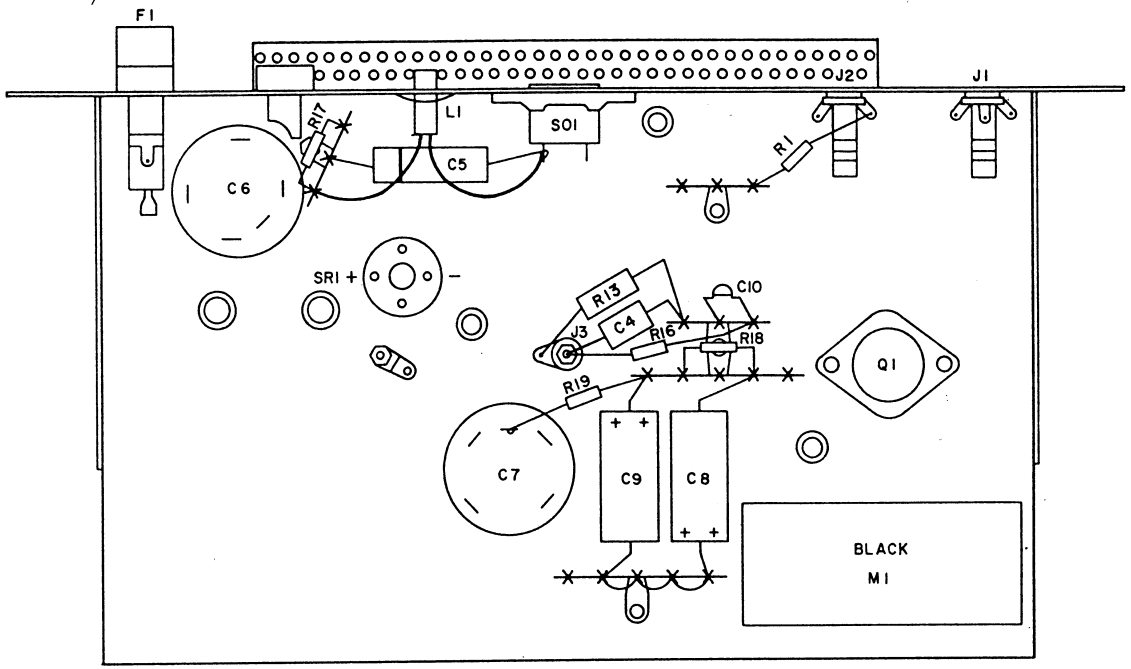
CROSS-OVER CORRECTION FOR ALL 1968 ACOUSTIC MAGNIFIERS

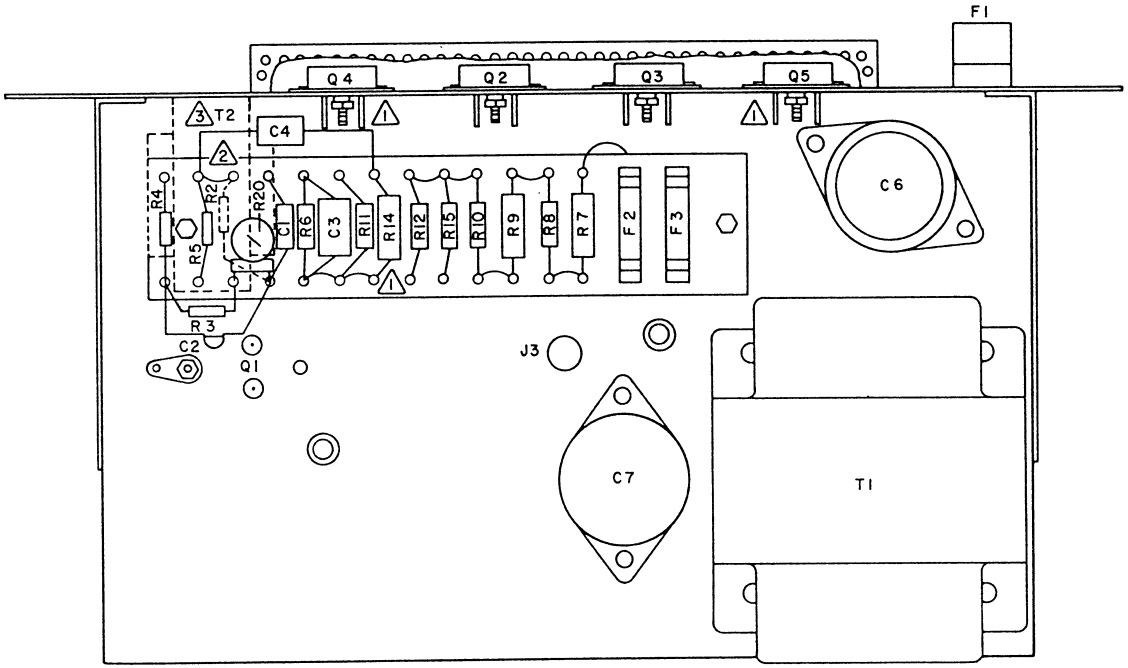
SAME FOR CHANNEL B



R8 AND R10 CHANGED TO FACTORY ASSEMBLY. OBSERVE POLARITY

R7 AND R9 CHANGED TO 2.7K 1W 5%





NOTES :

1. Q4, Q5, R14 AND R15 NOT USED IN PB50.
2. R2 LOCATED BELOW BOARD.
3. T2 DASHED TO SHOW PARTS BELOW.

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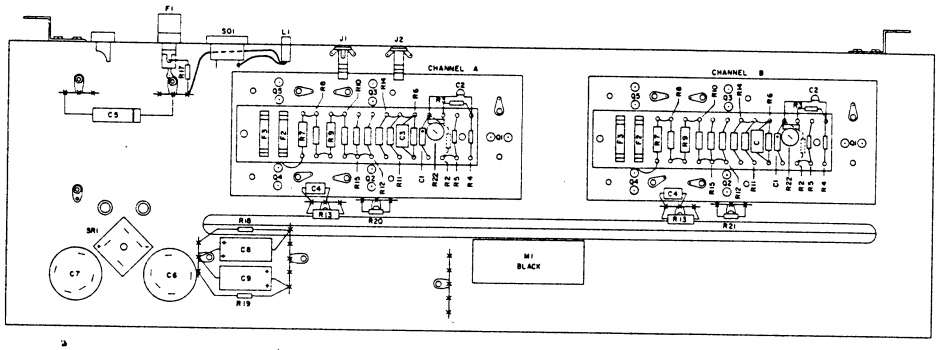
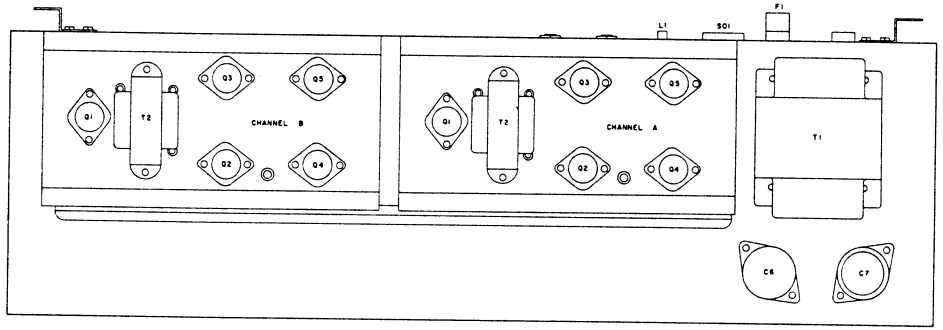
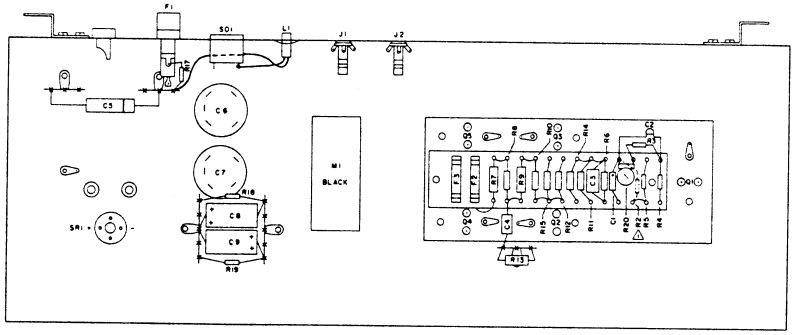
PICTORIAL DIAGRAM
1968
PB 50 AND PB 100

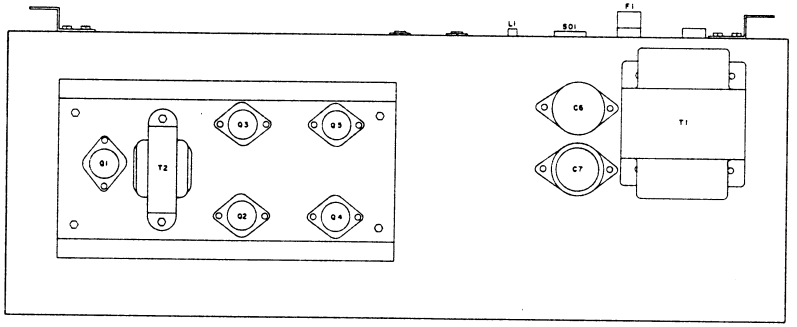
DRAFTSMAN	CHECKED	APP	DATE	
H.M.M.	M.J.Q.	R.E.B.	12-13-67	1C001





Standel.				
PICTORIAL DIAGRAM 1968 AM48 AND AM48S				
DRAFTSMAN H.M.M.	CHECKED M.J.Q.	APP R.E.B.	DATE 12-14-67	1E006





Standel.				
PICTORIAL DIAGRAM 1968 AM30,AM30S,AM24 & AM24S				
DRAFTSMAN H.M.M.	CHECKED M.J.Q.	APP R.E.B.	DATE 12-14-67	1E007