

S-20-

MODEL

INSTRUCTION MANUAL

Signature II AUDIO CONSOLE

LPB[®]

LPB Inc.
28 Bacton Hill Road
Frazer, Pa. 19355
(215) 644-1123

PRICE \$10.00



610 644-1123

FINAL TEST & INSPECTION REPORT

SIGNATURE CONSOLE

Customer WMAS

Model S- 20 s/n 10149 Date AUGUST 20, 1981 By M. MCB

No. Mic Preamps 2 Mechanical Inspection OK Electrical Inspection OK

Mic Channel (ch 1) (Line Pot at 6, Master at 14)

PGM 1
LEFT
CHANNEL

Audio input for 8 dBm output -55dBm at 1kHz

Distortion .115 percent at 1kHz

Response relative to 1kHz: 20Hz -.3dB 500Hz 0dB 5kHz -.3dB

10kHz -.6dB 20kHz -1dB

Noise -66 dB below +3dBm output

Hi Level Channel (ch 4B) (Line Pot at 7, Master at 14)

PGM 2
LEFT
CHANNEL

Audio input for 8 dBm output -10dBm at 1kHz

Distortion .09 percent at 1kHz

Response relative to 1kHz: 20Hz -.4dB 500Hz 0dB 5kHz -.1dB

10 kHz -.3dB 20kHz -1dB

Noise -68 dB below +8dBm output

Functions:

Monitor OK Cue OK Phones OK Muting Relay OK

All inputs OK All outputs OK On-Air Contacts OK

LPB[®]

Signature II AUDIO CONSOLE FEATURES

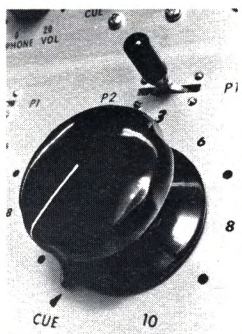


LPB[®] Signature II Audio Consoles...

Designed and manufactured to a high level of operational capability and electronic/mechanical reliability for the master control requirements of broadcasting and production.

Extensive human engineering and years of experience in console design have been combined to provide the operator with a console which is both visually appealing and easy to operate.

Internally, the approach is similar with immediate visual identification and ease of access to every component and connection in the console.

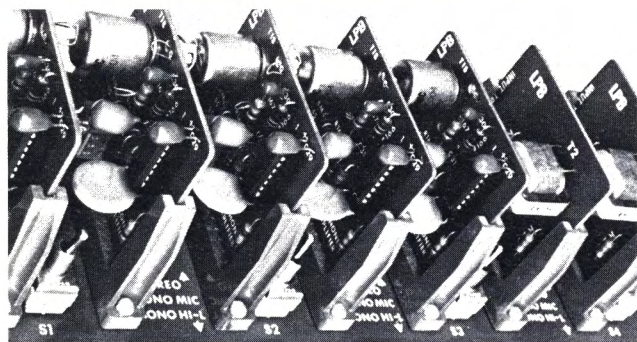


Signature II Consoles utilize these classic human engineered **control knobs** which readily conform to the grasp. Position markings allow immediate recognition of level settings at a glance from any direction. **Panel markings** are black epoxy silk screened over the .125 inch thick deep grained and brushed aluminum front panel, and overcoated with clear epoxy for additional permanence of markings.

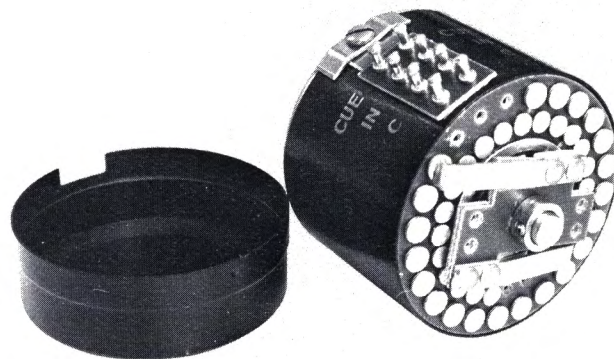
All **program buss switches** are rugged telephone-type roller cam design with gold alloy contacts. Additional closure contacts are provided for internal relay muting or are wired to terminal strips for external control of cartridge machines, turntables, etc.



A unique feature of the Signature II Stereo Consoles is the **mono/stereo input switch** located behind the front panel, which enables a mono source to be split to the left and right program busses. These selectors are provided for each microphone-capable channel and one high level channel.

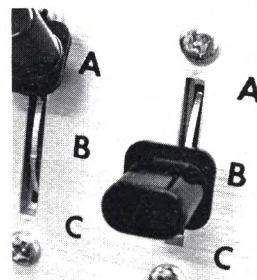


The **Card Edge Connectors** are molded of high stability diallyl phthalate and the contacts are phosphor bronze, with gold over copper plating. The contacts are of the "tuning-fork" variety with controlled lateral float, maintaining positive continuity of contacts and provides sufficient elastic reserve to prevent the contacts from becoming "set." All **I.C. sockets** feature gas-tight connection contact geometry with tin-alloy plated copper contacts. The miniature **toggle switches** used for microphone input gain selection, stereo/mono input switching and mono mixdown are Mil-Spec types with solid coin silver contacts and terminals which feature a minimum of 200,000 cycles of operation. (S-20 input circuit assembly shown)

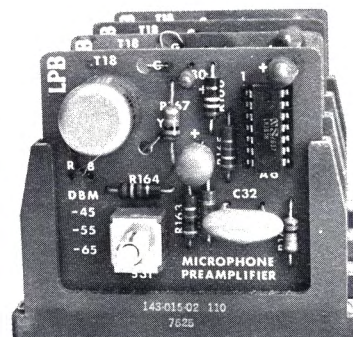


The **rotary step attenuators** are 2dB per step, 20 steps, with appropriate tapers at either end of the control range. The contacts are solid silver alloy and a laminated rotor is used to produce an exceptionally low noise figure of -125 dBm. A stainless steel shaft with free-turning sleeve-type bearings provides constant knob tension.

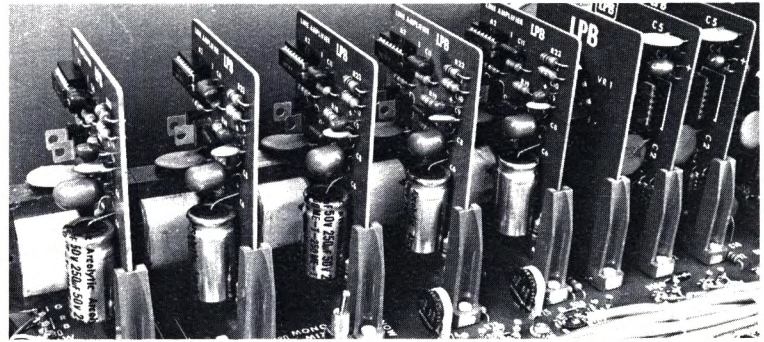
Signature II 8 and 10 mixer consoles feature 3 position **input selector switches** giving 24 and 30 input source capability. An exclusive manufacturing technique called "wedglock" contact fastening secures the stationary contact to prevent loosening and rotation of contacts. Spring tempered silver alloy contacts and coin silver rotor blades have a minimum lifetime of 250,000 cycles of operation.



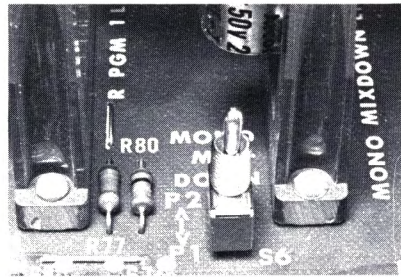
The plug-in **microphone preamp** incorporates switch selectable preamp gain to allow instant level matching to -45, -55 and -65 dB microphone sensitivity levels. All microphone inputs are coupled with a dual shielded, high RF suppression transformer. All active circuitry is located on **plug-in modules** for flexibility and ease of maintenance.



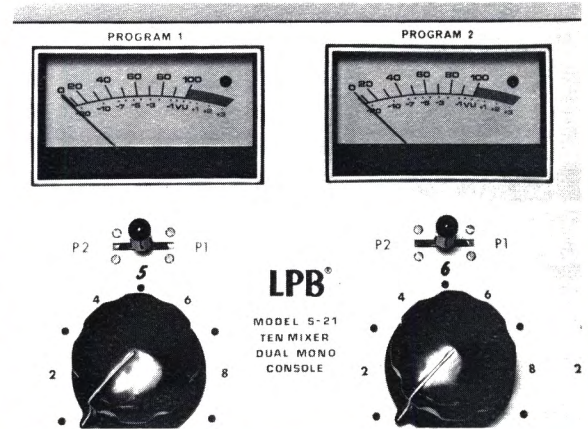
The **printed circuit boards** are 2 ounce copperclad G-10 fiber glass laminate, tin lead electroplated. Internal wire connections are soldered to silver plated miniature turret terminals, and all internal wiring is multiple-strand, 100% foil shielded. The **monitor power output transistors** are heat-sunk to the chassis rear panel for maximum heat dissipation. (S-20 output circuit assembly shown)



A feature of the Model S-20 10 mixer dual stereo console is the ability to add an optional output line amplifier which will provide a **mono mixdown**, switch selectable, of either the stereo program (P1) or audition (P2) busses.



High brightness **LED peak audio level indicators** are located in each illuminated VU meter and may be set by the user to flash at any desired level.



other

Signature II

console features

OUTPUT DIRECTOR SWITCH: Dual Consoles have a three position output director switch on the audition output line, other consoles have this switch on the program output line.

INTERNAL CUE SYSTEM: A 5" speaker and 1 watt power amplifier are located within the console to provide high quality audio performance.

MUTING AND TALLY RELAYS: Rugged telephone-type relays are utilized and are socket mounted for ease of maintenance.

POWER TRANSFORMER: The power supply and transformer is completely internal to the console, and the transformer is specifically designed for low field operation and has mylar interwinding insulation for protection against transient damage.

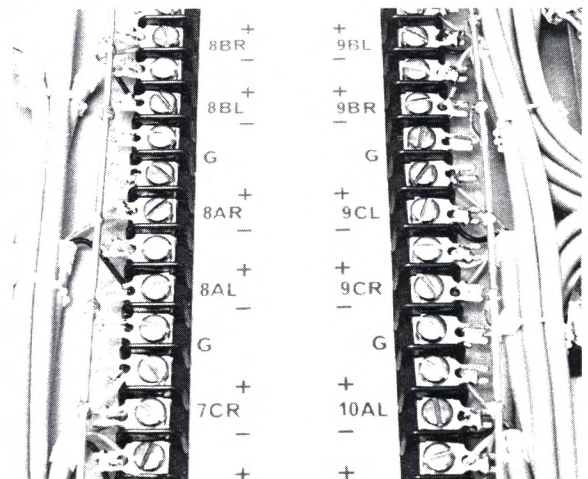
CHASSIS CONSTRUCTION: Consoles are constructed completely of aluminum alloy, with wood grain formica and vinyl covered warp free end panels attached to the metal end plates.

MODULAR ELECTRONICS: All active signal processing circuitry is "plug-in," and located on 2 "mother board" main frame assemblies. 5 types of plug-in modules are utilized for microphone preamps, balanced high level inputs, line outputs, voltage regulator, monitor output drivers and cue amplifier functions.

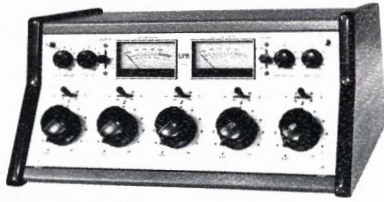
DUAL LINE LEVEL OUTPUTS: All audition (P2) outputs of Signature II Series consoles are balanced line level and metered, identical in performance to the main program (P1) output.

WARRANTEE: LPB guarantees your complete satisfaction upon receipt and will provide any necessary repairs at our factory, without charge for one year.

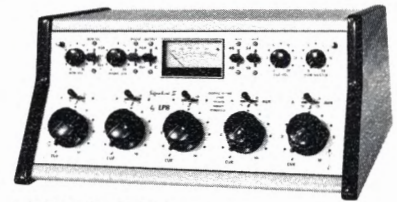
All **input-output connections** are made to screw terminal barrier strips clearly identified to aid in wiring without reference to the manual. The console harness cables are also identified and correspond to the internal circuit board wiring point markings and the wiring diagram.



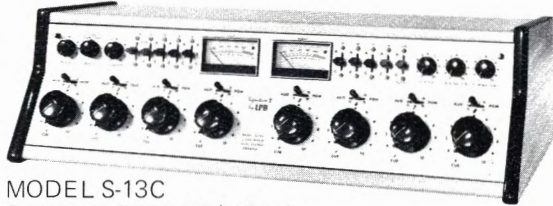
Signature II Series Audio Consoles...



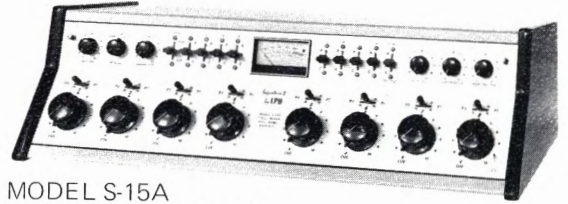
MODEL S-12
5 MIXER STEREO



MODEL S-14A
5 MIXER MONO



MODEL S-13C
8 MIXER STEREO/MONO



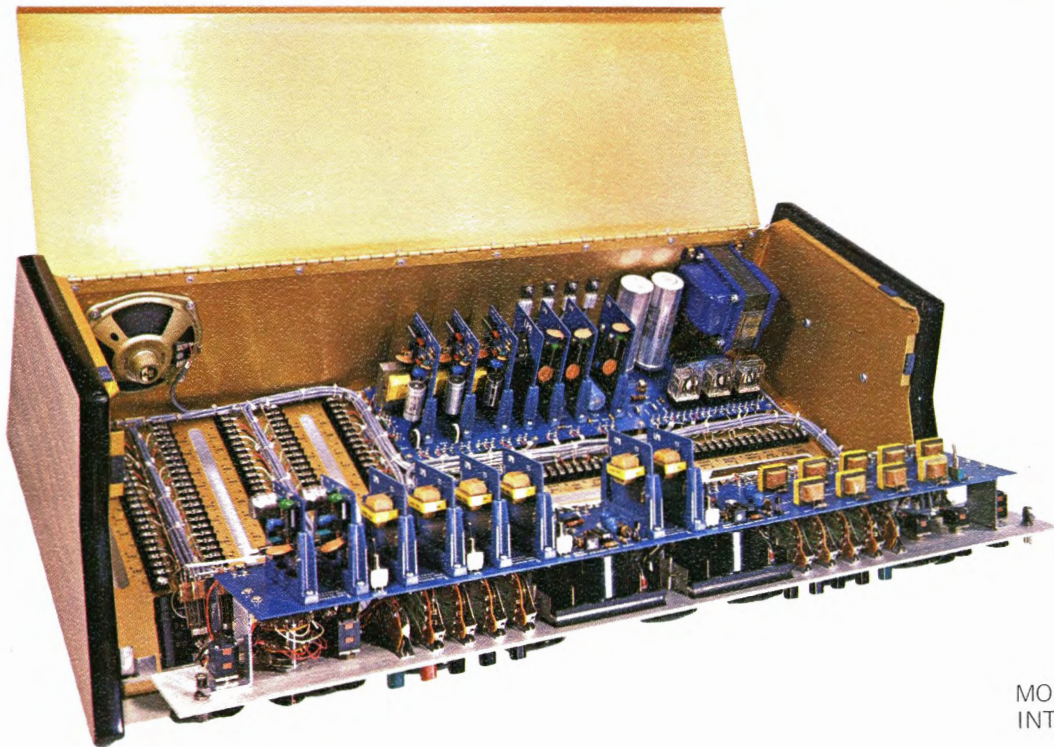
MODEL S-15A
8 MIXER DUAL MONO



MODEL S-20
10 MIXER DUAL STEREO



MODEL S-21
10 MIXER DUAL MONO



MODEL S-13C
INTERIOR

LPB[®]

LPB Inc.

28 Bacton Hill Road, Frazer, Pa. 19355 (215) 644-1123

6/77

LPB[®]

Signature II

10 MIXER DUAL STEREO CONSOLE



MODEL
S-20

- 30 Inputs • Step Attenuators • Plug-In Modules • Led Peak Indicators • Switch Selectable Mic Gain •
- All Transformer Inputs and Outputs • Demonstrated RF Immunity • Prewired for Simulcast Option •

The LPB Model S-20 10 Mixer Dual Stereo Console accepts a total of 30 transformer coupled audio inputs, 3 to each of the 10 mixers. As shipped, mixer 1 accepts 3 switched stereo microphone inputs and mixers 2 through 10 accept 3 switched stereo high level inputs each. Mixers 2 through 4, however, can each accept 3 switched microphone inputs by substituting the standard plug-in high level input boards with available microphone preamp plug-ins. Monitor speaker muting and tally relays are provided for mixers 1 through 3, and mixers 4 through 10 incorporate remote switch contacts. Mixers 1 through 4 are internally switch selectable to mono or stereo, as well as mixer 10 which includes a talkback line.

A cue position is provided on every mixer and the S-20 includes an internal cue system consisting of a cue amplifier, level control and 5 inch speaker. A phone jack mounted on the rear panel provides headphone monitoring of program, audition and cue with its own level control. The internal stereo monitor amplifier is switch selectable to

monitor program, audition or an external line. The illuminated VU meters are switched simultaneously with the monitor selector in the program and audition positions and return to read the program line in the external position of the monitor selector.

The program, audition and optional mono mixdown performance specifications are identical, with the mono mixdown amplifier switch selectable to provide a mono sum of either the program or audition outputs. The program and audition outputs each have a master level control on the front panel, with the audition output being fed to a 3-position output director switch. Program, audition, headphone and cue buss auxiliary outputs are also provided. Light emitting diode peak level indicators are standard, located in the VU meters, and may be adjusted to fire at various level thresholds. All connections to the S-20 are made through barrier strip screw connections located within the console.

SPECIFICATIONS

Mixers

Total 10 Stereo
 With Cue 10
 Type Step Attenuator

Inputs

Standard Factory Equipped
 Mic (Mono/Stereo) 3
 Hi-Level 27
 Optional Maximum
 Mic (Mono/Stereo) 12
 Hi-Level 30
 Total 30

Input Impedance

Mic 150 ohms source, Trans. Bal.
 Hi-Level 600 ohms, Trans. Bal.

Input Levels

Mic selectable: -45 dBm, -55 dBm, -65 dBm
 Hi-Level -10 dBm
 Remote/Net -10 dBm

Outputs

Program (P1) stereo, +8 dBm (Ovu), clipping level
 above +22 dBm
 Audition (P2) stereo, +8 dBm (Ovu), clipping
 level above +22 dBm
 Opt. Mono Mixdown +8 dBm (Ovu), clipping
 level above +22 dBm
 Monitor 4 Stereo @ 12 watts per channel
 Cue 1 @ 1 watt with 5" Internal Speaker
 Headphones 1, switchable between Program,
 Audition or Cue

Output Impedance

Program 600 ohms, Trans. Bal.
 Audition 600 ohms, Trans. Bal.
 Opt. Mono Mixdown 600 ohms, Trans. Bal.
 Monitor 2 to 8 ohms
 Headphones 200 ohms and up

Frequency Response

Program ±1.0 dB 20 Hz – 20 kHz
 Audition ±1.0 dB 20 Hz – 20 kHz
 Opt. Mono Mixdown ±1.0 dB 20 Hz – 20 kHz
 Monitor ±1.5 dB 20 Hz – 15 kHz

Total Harmonic Distortion

Program, Audition, Opt.
 Mono Mixdown Typ. 0.2%, 0.5% Max.,
 20 Hz – 20 kHz @ 18 dBm Output,
 -55 dBm Input
 Monitor 1.5% Max., 20 Hz to 15 kHz

I.M. Distortion

Program, Audition, Opt.
 Mono Mixdown Less than .15% @ +22 dBm
 Output Level
 Monitor Less than 0.2% @ 12 watts

Signal To Noise

Program, Audition, Opt.
 Mono Mixdown Better than 74 dB below +18 dBm
 Output with -50 dBm Input
 20 Hz – 20 kHz

Crosstalk

Program to Audition
 and Monitor Below noise level

Power Requirements

Voltage 117 VAC (234 VAC available)
 Frequency 50/60 Hz
 Power 70 watts

Dimensions

Width 38-3/4"
 Height 9"
 Depth 15"
 Weight 60 lbs.

Plug-In Modules

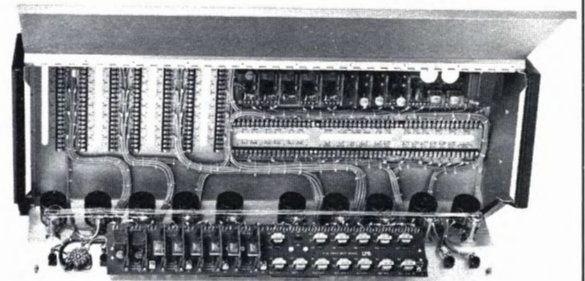
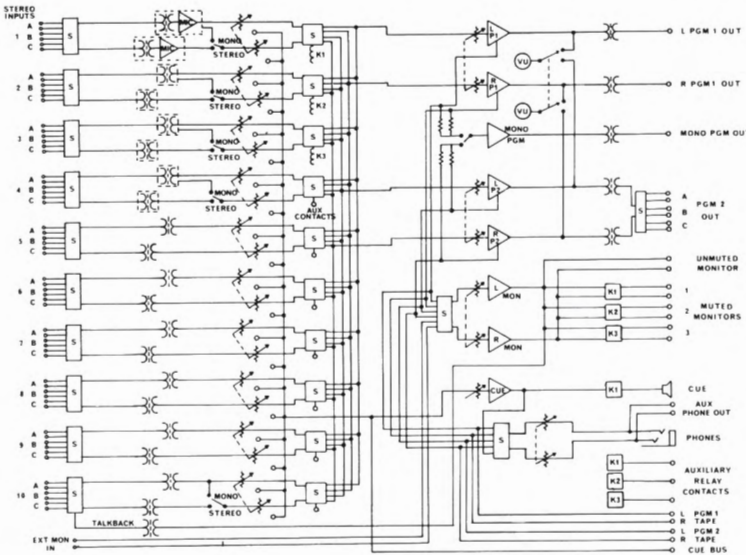
Types Mic Preamp, Hi-Level Input, Line
 Amp, Power Amp, Voltage Regulator
 Total Number 17

Cabinet

Material 0.125" Aluminum
 Finish Textured scratch resistant "champagne gray"
 Armorhide® exterior, gold anodized interior

Panel

Material 0.125" Aluminum
 Finish Horizontally ground and brushed aluminum,
 black epoxy silk screening with protective
 clear epoxy overcoat.



Model S-20 Console Interior

The S-20 Console top cover and front panel hinge open to allow immediate access to all circuit components and the labeled input/output screw terminals.

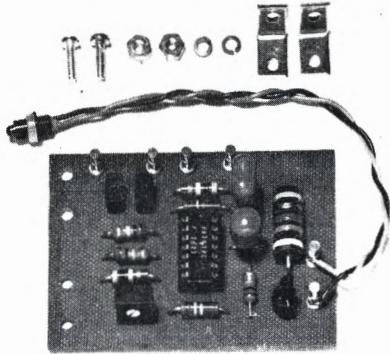


LPB Inc.

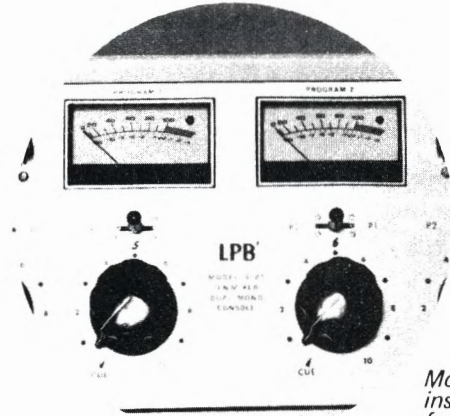
28 Bacton Hill Road, Frazer, Pa. 19355 (215) 644-1123

LPB[®]

LED PEAK LEVEL INDICATOR MODEL SA-1



Model SA-1 Kit



Model SA-1 as
installed in meter
faces of LPB
Audio Consoles

FEATURES

*Available installed in LPB consoles or in kit form
Utilizes ultra-high luminance light emitting diode
Adjustable peak level trigger
Pulse stretcher enhances display of rapid transients*

The LPB Model SA-1 LED Peak Level Indicator is designed to allow the operator of Audio Control equipment to be aware of actual peak levels at and beyond a pre-set reference level. This indication, especially when used in conjunction with an audio console will show how "hard" a peak signal limiter is being driven.

Although designed primarily to be connected across a VU meter, the SA-1 may be connected across virtually any audio source providing a signal of 0.4 to 6 VRMS without unbalancing or loading that source. +24 VDC is required for powering the SA-1, which draws nominally 15 ma. The LED display may be panel or meter mounted through a .189 diameter hole (#12 drill). When installed in LPB consoles, the LED display is mounted in the VU meter.

SPECIFICATIONS:

INPUT IMPEDANCE: 500,000 ohms bridging, balanced or unbalanced

INPUT SIGNAL REQUIRED: 0.4 to 6 VRMS

TRIGGER LEVEL RANGE: Adjustable +3dBm to +28dBm

POWER SUPPLY REQUIREMENTS: Nom. 24 VDC at 15 ma. avg. (5 ma to 30 ma peak)

SIZE AND MOUNTING: Circuit board 2-1/8" x 3" with 90° MTG BKTS on 1-5/8 centers, .187 red LED, mounts in panel thickness 1/16 to 3/16

SET-UP (Audio Console or similar 600 ohm referenced audio equipment)

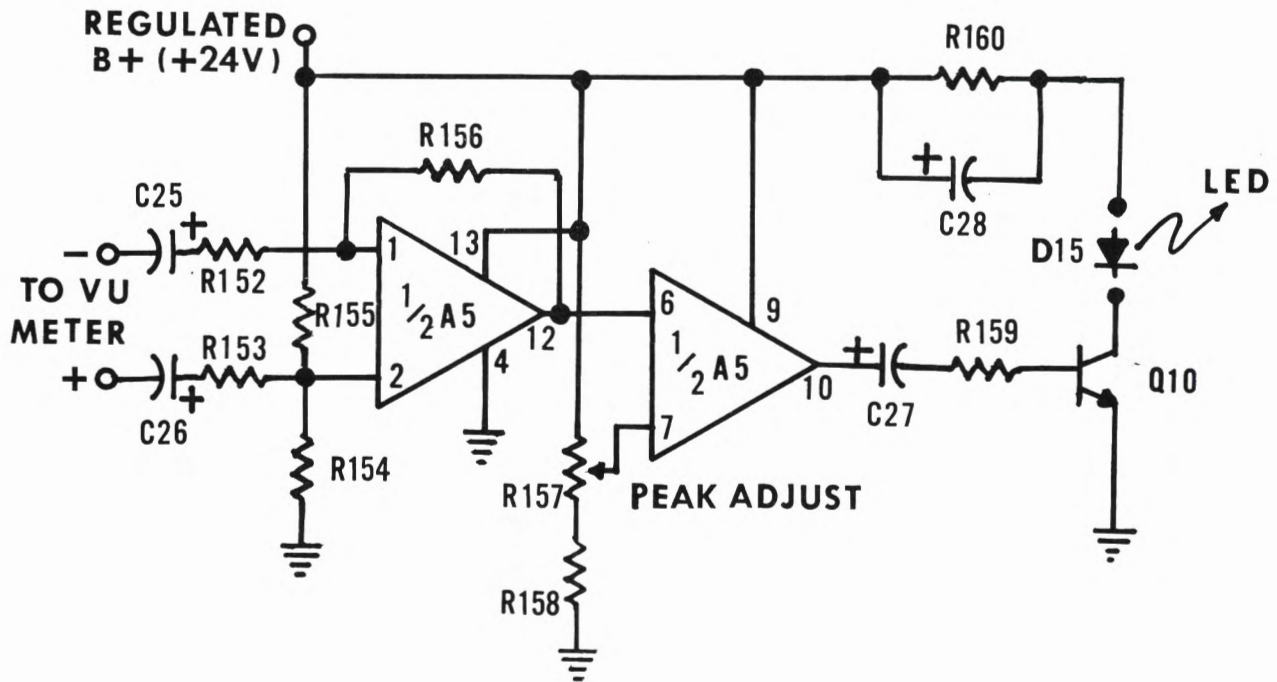
Connect a sine wave generator set at 1 kHz to the console input. Set the generator or console gain level to provide the peak output level you wish to monitor. Adjust the potentiometers so that the LED just lights (do not turn beyond this point). Example: On a typical console (0 VU = +8dBm), the generator level should be set for a console output of +16dBm. With this setting, the LED will illuminate whenever a peak reaches or exceeds 8 VU. NOTE: The VU meter will be reading off scale at this level.

Other methods to adjust for peak signal detection would be to set the trigger level to coincide with 100% transmitter modulation or 3% THD level for recording.

LPB[®]

LPB Inc.
28 Bacton Hill Road, Frazer, PA. 19355 (215) 644-1123

LED PEAK LEVEL INDICATOR MODEL SA-1



PARTS LIST

R152, 153	Resistor, 100K ohm, 1/2w, 5%
R154, 155	" , 300K ohm, 1/2w, 5%
R156	" , 150K ohm, 1/2w, 5%
R157	Potentiometer; 10K ohm, linear taper
R158	Resistor, 12K ohm, 1/2w, 5%
R159	" , 10K ohm, 1/2w, 5%
R160	" , 470 ohm, 2w, 5%
C25, 26	Capacitor, 1.0 mfd, 20 vdc, electrolytic
C27	" , 100 mfd, 20 vdc, electrolytic
C28	" , 47 mfd, 35 vdc, electrolytic
A5	Dual Op Amp, uA747PC (or equivalent)
Q10	Transistor, 2N3904
D15	LED, high intensity, red, 2 vdc

3/77

LPB[®]

LPB, Inc.
28 Bacton Hill Road
Frazer, PA. 19355
(215) 644-1123

INSTRUCTION MANUAL

LPB MODEL S-20

10-MIXER DUAL STEREO AUDIO CONSOLE

1.0 SUMMARY

The LPB Model S-20 10-mixer Dual Stereo Audio Console is directed to the master control requirements of stereo broadcasters. It accomodates many special requirements. The ten mixers are switchable into two identical program busses, identified as P1 and P2 (or PGM1 and PGM2). Two identical stereo program busses, coupled with meter and monitor amplifier switching, produce a dual console which will simultaneously:

Feed program to the transmitter (using P1), and

Allow production of other material for later air use (using P2).

Many other features make this console very flexible and convenient to use. A mono mixdown option is also available. Refer to the enclosed catalogue sheet, drawings and text for detailed descriptive information.

2.0 GUARANTEE

Upon receipt of this equipment we guarantee that you will find the appearance, workmanship and standards of materials and construction in keeping with the application and with good standards of commercial practice.

For a period of one year from date of delivery, we guarantee this equipment against any form of failure, provided that, in the opinion of the manufacturer, no improper use of or modification to the equipment is at fault. During this period, we will furnish the materials and labor in our shops to correct any failure.

If need for service arises, CONTACT LPB for permission to return and for shipping instructions BEFORE shipping. Note that shipping charges are not covered by our guarantee and that we assume no responsibility for correction of shipping damages, especially those which may result from the user's choice of a mode of shipment other than that recommended by LPB.

Prompt delivery of replacement parts is always available for out-of-warranty equipment, as are factory repairs. Contact LPB for current prices.

3.0 UPON RECEIPT

Upon receipt, immediately unpack and inspect the console to be certain that:

- a. Everything is complete, as ordered, and as itemized on the Packing List.
- b. No damage has occurred in transit to you. If there is any damage, retain all packing materials and immediately notify the carrier in writing and by telephone, with a copy to LPB.
- c. You are satisfied with the overall quality and appearance of the console.

4.0 INSTALLATION

This section of your S-20 console manual describes all aspects of wiring the console into your facilities and preparing for actual use.

4.1 DEFINITIONS

To better understand the instructions and illustrations, a list of definitions of some commonly confused terms is included. These are referenced to this console and may not apply to other equipment.

1. Channel - Each of the two signals that comprise a stereo program, Left and Right.
2. Mixer - The circuits in the console that take the input signals and feeds them into the busses at a controlled level.
3. Fader - The gain controlling device of a given mixer circuit. In this case, two channel step attenuators.
4. Buss - The point in the console where signals from the mixers are combined.
5. Muted and Un-Muted - To prevent feedback, in certain control positions, either monitor or cue speakers or both are disabled. Output connections are available for both monitor conditions, depending on studio layout.
6. Program - Historically defined as the signal fed to the transmitter. Since the S-20 has two outputs which can be used for this, both are named program but one is usually used for production or audition.

4.2 CONNECTION TO THE AC POWER SOURCE

The MAIN POWER SWITCH, FUSE and POWER CORD are to the right rear of the console. The power cord is of the three-wire type with an internal safety grounding pin. DO NOT REMOVE THE GROUNDING PIN from the power cord, as a safety hazard is presented and the equipment warranty is void.

The main Fuse, F1, is a type AGC 2 AMP. Another fuse, F2, will be found on the output base board inside the console. It is a 1/4 AMP fuse and is in series with the lamp bulbs in the VU meters only. Both of these fuses are standard fuses, DO NOT USE SLO-BLOW fuses.

4.3 INPUT IMPEDANCES AND INPUT LEVELS

All inputs and outputs of the LPB S-20 Dual Stereo Console are transformer balanced. The microphone inputs are 150 ohm; all other inputs and the program outputs are 600 ohm.

Unbalanced low impedance audio sources may be connected directly to any input of the S-20.

Unbalanced high impedance audio sources, such as TEAC and other tape recorders, may be connected to a high level input of the S-20 console only through an impedance matching transformer. See Figure A for an example of this type of connection.

The S-20 console is designed for conventional -55dBm input level microphones and -10dBm "high level" sources. Some audio sources may not provide outputs at these levels. Consult the manual on each of your audio sources. It is desirable that all inputs be at -55dBm or -10dBm level so that all mixer step attenuators operate in about the same position, usually about "1:30 o'clock".

An example is an Ampex AG-600B open-reel tape recorder whose output is 600 ohms balanced at +4dBm. An attenuator pad of 14dB attenuation is desired between the AG-600B output and the high level input of the S-20. Figure B1 shows such balanced "H pads" and tabulates resistor values for several.

Another example, in the case of microphone inputs, might be the use of a Sennheiser MKE 402 Electret Condenser Cardioid Microphone whose output is rated at -49dBm. This calls for a 6dB "H pad" attenuator between the microphone and the microphone input of the console. This example is shown in Figure B2.

4.4 INPUT/OUTPUT CONNECTIONS

All input and output connections to the console are made to screw terminal barrier strips along the inside bottom of the main frame of the console. Slots adjacent to these barrier strips allow the passage of audio wire from under the console to the strips.

Shielded twisted-pair audio wire, such as 2-conductor Belden "Beldfoil" #8451 (AWG 22 stranded of 7 strands AWG 30) or #8450 (AWG 22 solid) or 4-conductor "Beldfoil" #8723 (stranded) should be used for all audio input and output connections. The solid wire will be somewhat easier to handle and will more readily retain the shape to which it may be bent around corners. Equivalent Columbia stranded numbers are 2576 for 2-conductor and 2523 for 4-conductor.

An excellent choice of wire type from the monitor amplifier output to speakers is conventional AWG 18 stranded "Zip cord" as used for household lamps, etc.

Figure C shows the locations of input/output connections.

The 30 stereo input pairs, plus a number of common grounding points, are found on the seven barrier strips to the left of the main frame. The marking of these is interpreted as follows, using input 8BL as an example:

- 8 references an input to the #8 mixer.
- B references the "B" input to mixer #8, out of the three (A, B, & C) available.
- L references the Left channel input pair of wires.
- +,- references phasing of this input pair.
- G references ground connections.

Note that it is recommended that the shield of all audio interconnection cables be grounded only at the console end to avoid ground loops with attendant noise and hum problems.

Toward the right of the console, on 6 barrier screw terminal strips, are the output and control connections. Several examples follow to clarify the interpretation of the markings:

- PIL & PIR: Left and Right channel output pairs of the P1 program amps.
- MONO +,- Mono mixed down output pair, phased.
- MIX I C Mixer #1 auxillary switching contacts, common and normally
AUX NO open, which are closed upon moving the P1-OFF-P2 switch from the OFF position, used to control ON AIR lights or other outboard equipment starting. (See, for an example, Figure D)

MUTED	L	<u>Left, right and common (ground) connections for a monitor speaker which is muted upon moving the P1-OFF-P2 switch above mixer 1 from the OFF position.</u>
MON 1	R	
P2LB +,-		<u>Left stereo output from the P2 program amplifier, with the output direction switch in the B position (of A, B & C), phased.</u>
AUX	L	Alternate or <u>auxillary</u> connection point for <u>headphone</u> monitor, <u>L & R</u> stereo pairs (unbalanced).
PHONE	R	
EXT	L	Input to the console from <u>external off-the-air monitor</u> receiver, <u>L & R</u> stereo pairs (unbalanced).
MON IN	R	
CUE BUSS		Access to the <u>cue</u> buss for use of an outboard cue amplifier, if desired or to put a source, such as an intercom, into the console cue amplifier and speaker. This buss is high impedance. A -22dBm input to it produces approximately 1W to the cue speaker.
PGM 1	L	Unbalanced <u>P1</u> output at about 1V, L & R, suitable for <u>tape</u> recording directly from the program 1 buss.
TAPE OUT	R	
MIX 4	C	<u>Mixer #4 auxillary</u> switching contacts, <u>common</u> and <u>normally open</u> , as MIX 1 AUX described previously, except that the <u>auxillary</u> contacts for mixers #1 - #3 are via relays while for mixers #4 - #10 are from spare contacts on the P1-OFF-P2 switches
AUX	NO	

4.5 SET-UP FOR OPERATION

Input Switching: To either side of the VU meters along the top of the front panel are located the ten input switches, each numbered 1 thru 10 to correspond with mixers 1 thru 10. Each input switch allows the selection of one of three inputs to that mixer, designated A, B & C. Reference to the circuit diagram shows that the input switching is performed ahead of the input plug-in modules in mixers 1 thru 4 and ahead of the input transformers on 5 thru 10.

Plug-In Modules, Mixers 1 thru 4: Two plug-in module positions are provided for each mixer, 1 thru 4. These are left and right channel plug-ins, allowing choice of microphone level or high level input to each of these mixers. As priced, the S-20 Console is supplied with two microphone input plug-in modules for mixer 1, and high level plug-in modules for mixers 2, 3 and 4. All console inputs are transformer-matched. Select the appropriate plug-in modules for mixers 1 thru 4 for your requirements.

Stereo/Mono Mic/Mono Hi-L Switches, Mixers 1 thru 4: These three-position miniature toggle switches will be found adjacent to the plug-in modules for mixers 1 thru 4, on the input base board behind the front panel. With the appropriate plug-in module in place (microphone or high level, as described above) these switches allow selection of stereo or mono functioning of the individual mixer. Mono operation might be desired for mono mic, mono cart machine, etc.

In mono, the input is connected to the appropriate left input and is split equally to both left and right stereo program channels.

Stereo/Mono Switch, Mixer 10: Similar to the above, this switch, which is found to the right end of the input base board, allows stereo or mono operation of mixer 10. Mono operation may be desired for cart machine or remote line inputs.

In mono, the input is connected to input connections labeled 10AL, 10BL or 10CL, and is split equally to both left and right stereo program channels.

PGM 2 OUTPUT Switch: To the right of the mixer 10 input selector switch will be found a green handled 3-position switch marked PGM 2 OUTPUT, A, B, C. This is an output director switch for PGM 2, to allow direction of PGM 2 output to a choice of three loads, such as an open-reel recorder, cart machine, etc.

Mono Mixdown, P1/P2: The S-20 console is wired to accept an additional line output plug-in module on the main base board to provide mono mixdown of the left and right channel outputs of either P1 or P2. The P1/P2 selection is by another miniature toggle switch located adjacent to the mono mixdown plug-in module on the main base board.

The mono mixdown amplifier has no separate gain control of its own. When the mixdown select switch has been set to either PGM1 or PGM2, the setting of the appropriate Program Master control determines the output level of the mixdown amplifier. When both the left and right program levels are +8dBm, the mono output will be +8dBm. As priced, the S-20 console is not supplied with this mono mixdown plug-in module.

Remote/Network Inputs, Mixer 10: Mixer 10 and its associated inputs, 10A, 10B and 10C, are normally used for network and remote lines. Inputs 10A and 10B would normally be used for remotes and 10C for a network input. Inputs 10A and 10B have talkback capability.

When the input switch for mixer 10 is in the 10A position, the Left Monitor signal is present on input terminals 10B. When the input switch is in the 10B position, talkback is present on input terminals 10A. The level is dependent on the setting of the Monitor Volume control, with the maximum being +8dBm into 600 ohms.

4.6 SPEAKER MUTING, ON AIR LIGHT CONTROL AND REMOTE CONTROL

In typical operation, the console operator's microphone will be on mixer 1, input 1A. Since feedback can occur from cue and monitor speakers to microphone, provision is made to avoid this. When mixer 1 input switch is in the A position, the cue for mixer 1 and the MUTED MONITOR 1 speakers are disabled in either position of the program selector switch. In the center (or off) position of the program selector switch, only the cue is disabled.

In the B and C positions of the mixer 1 input switch, these functions are not disabled. If microphones are fed to these inputs from remote locations, the console operator will be able to utilize the cue and monitor functions of the console without the use of headphones.

Relays are provided within the console to accomplish muting functions, independently, for mixers 1, 2 and 3. Refer to Section 4.4 for description of the terminals, designated MIX 1 AUX, etc.

Operators often want, for example, the turntable motor to be turned on automatically when the switch over mixer 7 (presuming the turntable input to be connected to input 7A, 7B or 7C) is moved from OFF to either P1 or P2. Auxillary switch contacts are wired into the console input/output connection strips for this purpose.

See Figure D for outboard control via the auxillary switching contacts. AC powered loads, such as ON AIR light bulbs or turntable motors should not be run directly through the console. An outboard 24V DC power supply and secondary control relays are conventional for this purpose.

The left and right program line output transformers for P1 and P2 and the mono line output transformer all have center taps which are brought out to the console barrier strip. These center taps can be used for Simplex remote control through a balanced audio line with dc continuity. See Figure E for Simplex hookup method. Note: The relay used should have a sensitive coil with a high dc resistance to limit current flow in the transformers to a safe value of 50 ma maximum.

5.0 OPERATION OF THE CONSOLE

This section references the operator's use of front panel controls in the operation of the S-20 Console.

5.1 CONTROL SETTINGS

The S-20 Console utilizes stereo step attenuator faders in all ten mixer circuits and stereo potentiometers for PGM 1 and PGM 2 master gain

controls. (To accommodate any variations in the gain of the circuits within the console used for the left and right channels, the user will find internal trimmer potentiometers on the main base board adjacent to each left and right line output plug-in module.) Typical operation will find these faders and masters set at about 1:30 o'clock for program material peaking "0 VU" on the meters. Settings experienced in final test of your console will be found on the Final Test Report, included with this manual.

A CUE VOLUME control is adjacent to the program masters on the upper right of the panel.

The MONITOR SELECT rotary switch with positions labeled PGM 1, PGM 2 and EXT is to the upper left of the front panel. This switch simultaneously controls the inputs to the VU meters and monitor amplifiers, both of which are moved from PGM 1 to PGM 2. In the EXT position, only the monitor moves to the EXTERNAL monitor input to the console while the VU meters return to read PGM 1 console output levels.

MONITOR VOLUME, PHONE VOLUME and the PHONE selector (PGM 1 - PGM 2 - CUE) switch are also found to the upper left of the panel.

The cue speaker is to the left rear of the console. A nearby headphone jack is provided for headphones of 200 ohms or greater impedance.

5.2 PROGRAM OUTPUT CHARACTERISTICS

A reading of 0 on the VU meters corresponds to +8dBm at the program outputs of the console.

The PGM 2 OUTPUT switch (A - B - C) (see Section 4.4) allows the direction of PGM 2 output to a choice of three loads.

The program 1 output is not switch directable. This output is normally the transmitter audio feed.

5.3 MONITOR OUTPUT CHARACTERISTICS

The internal stereo monitor amplifier is rated at 12 watts per channel into 4 ohm loads. Although separately muted for mixers 1, 2 and 3, all monitor speakers operate in parallel on the output of the amplifier. The equivalent parallel impedance of the various speakers that the user may elect to utilize on the console should be held to not less than 2 ohms per channel.

Note that UNMUTED MONITOR output terminals are also provided within the console to drive a lobby speaker, etc.

Speaker leads carry high currents because of the low impedance levels of the speakers. These leads should be routed away from program output wires, and especially from inputs.

6.0 MAINTENANCE

You have invested a considerable sum of money in your LPB S-20 Dual Stereo Console. It is a high-quality hand-crafted electronic unit of which you can expect to be proud for many years. To expect this equipment to maintain original appearance and perform reliably requires certain minimums of care in the routine handling of the equipment and a bit of occasional maintenance.

The panel of the S-20 Console is silkscreen marked in baked epoxy with a clear baked epoxy overspray for additional protection. Use no solvents on the panel. Detergent cleaners such as "409" are quite safe and satisfactory, as is "Windex" for removal of any stains from the panel.

Care should be taken that a minimum of dirt collects inside the console. An occasional vacuuming is recommended. Quarterly, we recommend that the step attenuator rear dust covers be removed and the contacts cleaned. The contacts of the several printed circuit plug-in modules should also be cleaned once or twice each year. Many excellent aerosol contact cleaners are available for this purpose. No other routine maintenance is needed.

When removing or replacing plug-in printed circuit modules, turn the console power OFF to avoid any possible circuit damage from transients.

6.1 CIRCUIT DIAGRAM AND PARTS LIST

A complete circuit diagram is furnished with this manual. Refer to it for details of switching functions, etc.

A complete parts list tabulation also follows. A price list for replacement parts is impossible to publish because of rapid changes in our costs from suppliers. LPB will be pleased to quote current parts costs in response to your inquiry.

Your console has been tested in detail at the factory prior to shipment, as the enclosed Final Test Report indicates. If any problems are experienced or suspected, please call LPB immediately.

Figure A

CONNECTING AN UNBALANCED HIGH IMPEDANCE AUDIO SOURCE

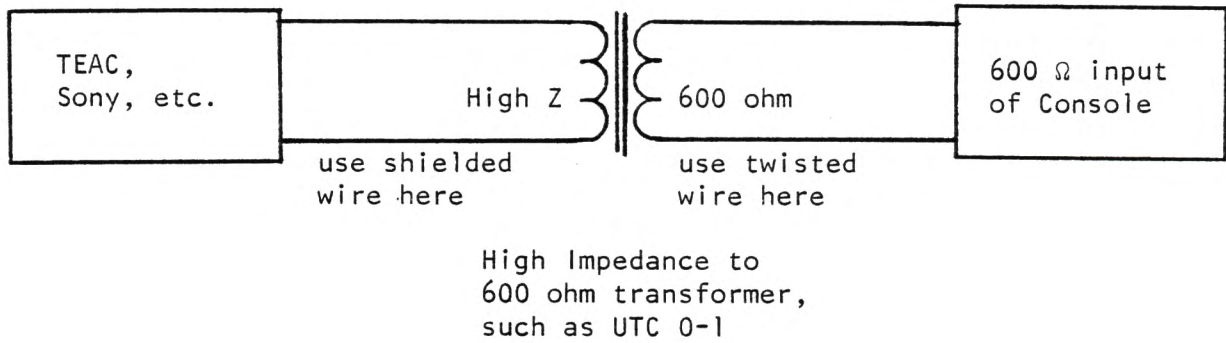
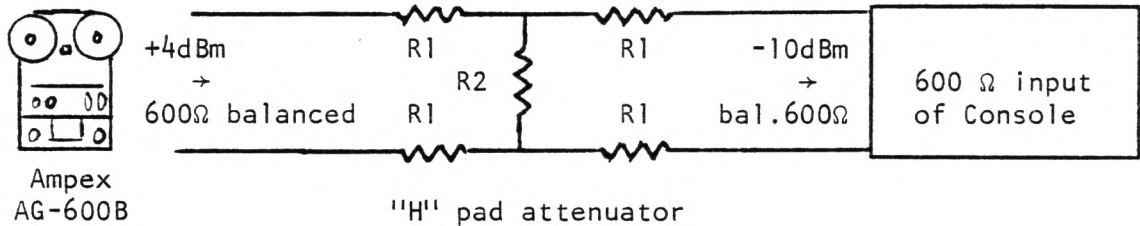


Figure B-1

ACCOMODATING HIGH-OUTPUT HIGH-LEVEL AUDIO SOURCES

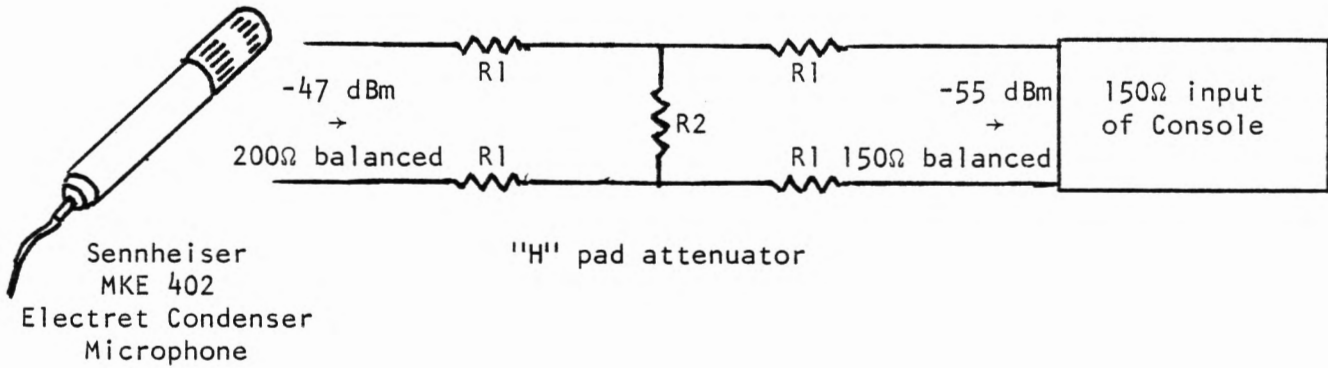


source level, dBm	- dB loss	R1, ohms	R2, ohms
-7	3	51	1600
-4	6	100	820
-1	9	150	470
+2	12	180	330
+5	15	200	220
+8	18	220	150

use this pad for the Ampex AG-600B example above

Figure B-2

ACCOMODATING HIGH-OUTPUT LOW-LEVEL AUDIO SOURCES

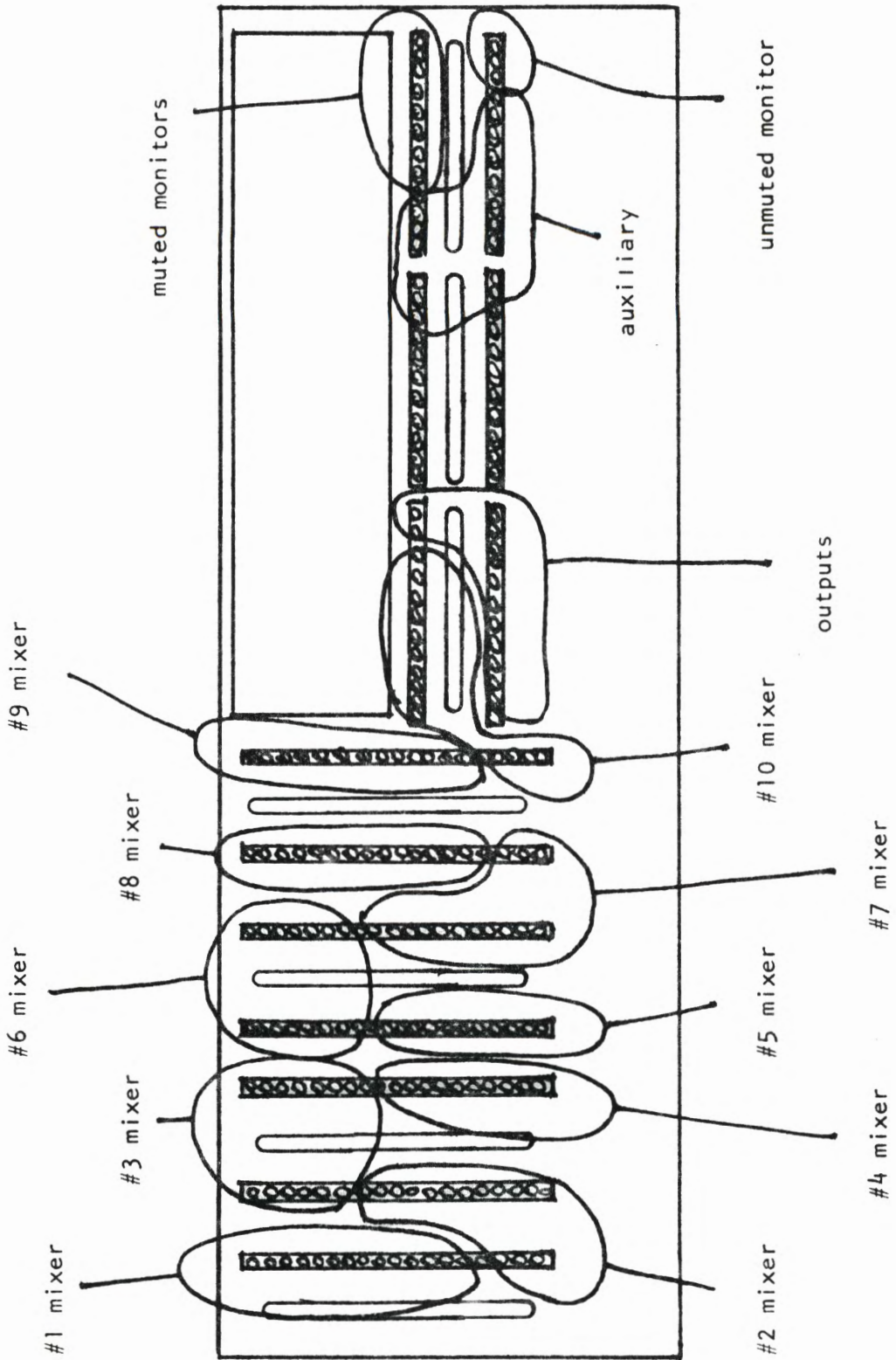


source level, dBm	dB loss	R1, ohms	R2, ohms
-52	3	13	430
-49	6	24	200
-46	9	36	120
-43	12	47	82
-40	15	51	56
-37	18	56	36
-34	21	62	27

→ use this pad for the Sennheiser electret microphone example above

Figure C

LOCATIONS OF INPUT/OUTPUT CONNECTIONS, S-20 CONSOLE



LPB

Figure D

REMOTE START & ON-AIR LIGHT SWITCHING

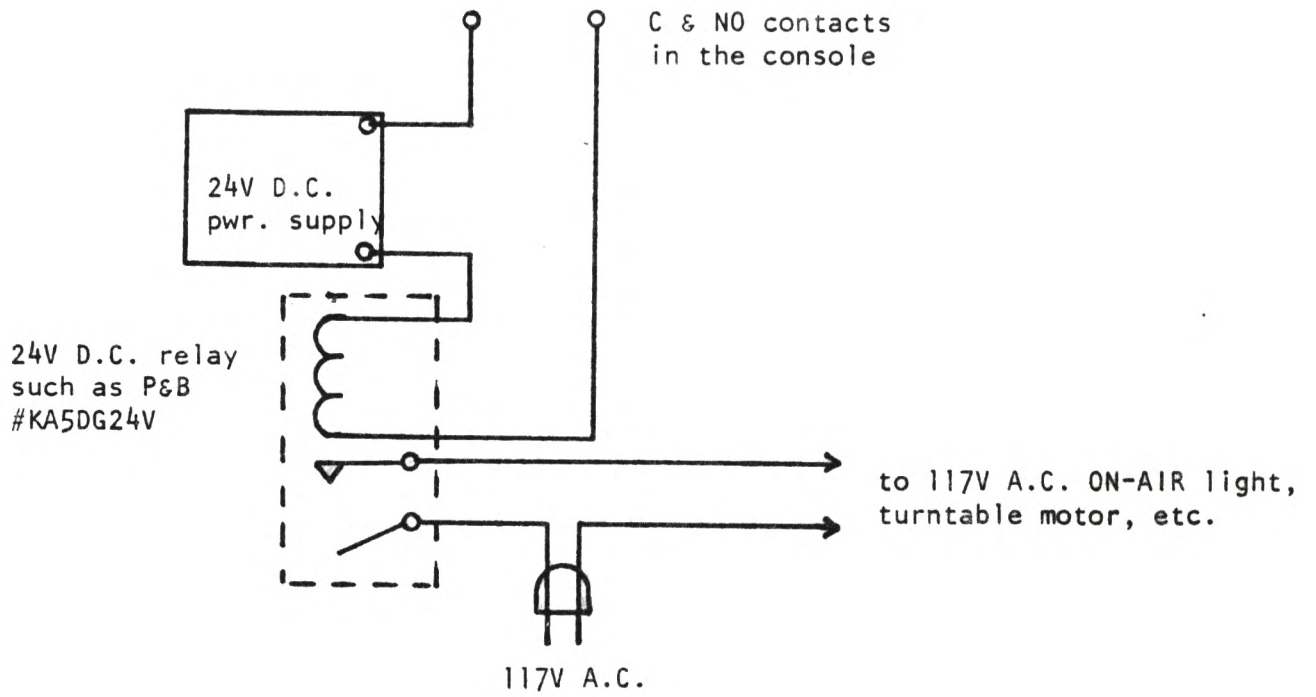


Figure E

SIMPLEX METHOD OF REMOTE CONTROL

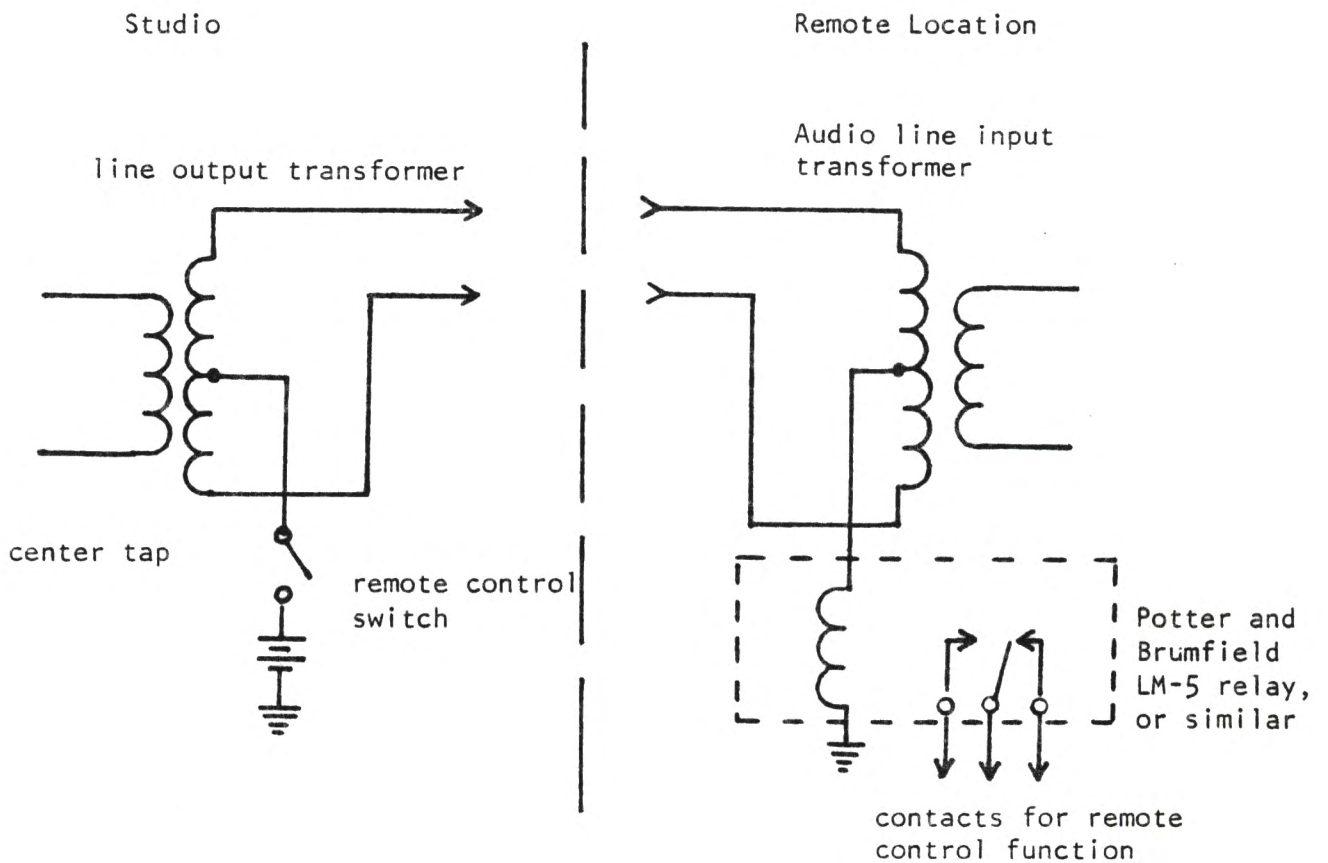
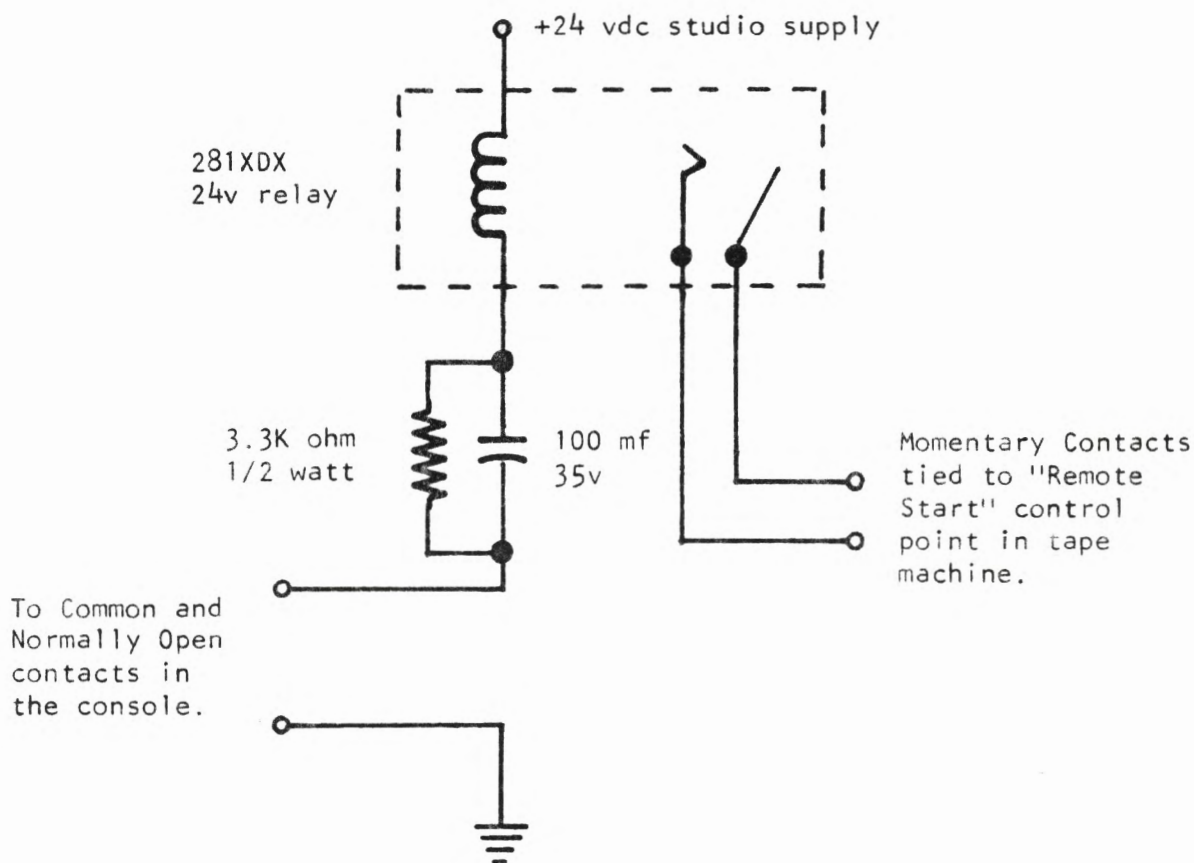


Figure F

MOMENTARY CONTACT CLOSURE METHOD
OF REMOTE STARTING

Many devices such as cartridge machines require a momentary contact closure to remotely control their "START" function. This method enables a console user to start a machine in a remote location using a set of standard Normally Open auxiliary contacts in the console.



NOTE: The resistor and capacitor values shown are only for the specific relay mentioned.

ADDENDUM

SIGNATURE II SERIES PLUG-IN CIRCUITS

PARTS LISTS CHANGES

PLA - Line Amplifier	C33 Capacitor, 15 mf, 20 VDC, Tantalum
PVR - Voltage Regulator	R161 Resistor, 237 ohm, 1/2 watt, 1% R162 Resistor, 4640 ohm, 1/2 watt, 1%
PMP - Microphone Preamplifier	R165 Resistor, 7.5K ohm, 1/2 watt, +5% C30 Capacitor, 2.2 mf, 35 VDC, Tantalum C39 Capacitor, 200 pf, 100 VDC, Dipped Mica A6 Op Amp, LM387 IC T18 Transformer, Beyer TR/BV310007004

LPB

PARTS LIST

Input Base Board

R37-53	Resistor, 5.6K ohm, 1/2w, 5%
R54	Resistor, 820 ohm, 1/2w, 5%
R55-58	Resistor, 10K ohm, 1/2w, 5%
R59-71	Resistor, 620 ohm, 1/2w, 5%
R92,93	Resistor, 10K ohm, 1/2w, 1%
R94,95	Resistor, 5.6K ohm, 1/2w, 1%
S1-4	Toggle Switch, Alco MTA-206-PA
S5	Toggle Switch, Cutler Hammer SF1SCY691
T5-16	Transformer, audio, LPB-812

Output Base and Power Supply Board

R72-75	Potentiometer, 1K, Bourns 3353W
R76-79	Resistor, 1.3 M ohm, 1/2w, 5%
R80, 81	Resistor, 10 K ohm, 1/2w, 5%
R82, 83	Resistor, 47 K ohm, 1/2w, 5%
R84, 85	Resistor, 15 ohm, 1w, 10%
R86	Resistor, 10 ohm, 1/2w, 5%
R87-89	Resistor, 300 ohm, 1/2w, 5%
R90, 91	Resistor, 100 ohm, 2w, 10%
D8-10	Diode, 1N4004 or equivalent
D11-14	Diode, 1N4007 or equivalent
C18, 19	Capacitor, 2000 mfd, 25 vdc, electrolytic
C20, 21	Capacitor, 1.5 mfd, 50vdc
C22	Capacitor, 250 mfd, 25 vdc, electrolytic
C23, 24	Capacitor, 3900 mfd, 50 vdc, electrolytic
F2	Fuse, 3AG, 0.25 amp
K1-3	Relay, 4PDT, Struthers-Dunn 281XDX, 24 vdc (or equivalent)
S-6	Toggle Switch, Cutler Hammer SF1SCY691

Front Panel

R96-105	Potentiometer, 10K ohm, audio, Shallco #920Q-2B3-M
R106-R145	Resistor, 9.1K ohm, 1/2w, 5%

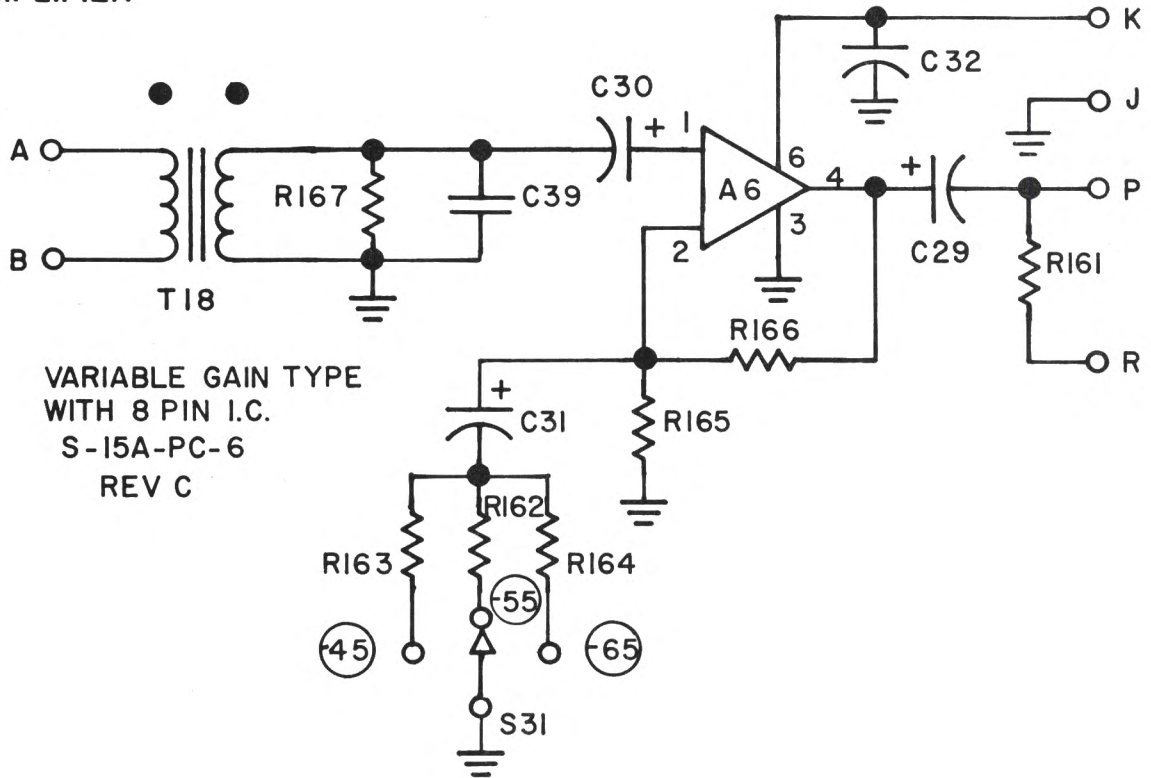
R146, 147	Potentiometer, 10K ohm, linear, dual
R148	Potentiometer, 10K ohm, audio, dual
R149	Potentiometer, 10K ohm, audio, single
R150	Potentiometer, 500 ohm, audio, dual
S7	Lever Switch, 6 pole, 3 position, Grigsby, No 45298-6050LR
S8-S15	Lever Switch, 4 pole, 3 position, Grigsby, No. 42020-6050LR
S16	Lever Switch, 6 pole, 3 position, Grigsby, No. 45298-6050LR
S17-26	Lever Switch, telephone type, Capitol model HLB, No. 2238
S27A, B	Rotary Switch, 6 pole, 3 position, Centralab type PA-1019
S28	Lever Switch, 6 pole, 3 position, Grigsby, No. 45298-6050LR
S29	Lever Switch, 2 pole, 3 position, Grigsby, No. 41757-6MLR
VU1, 2	VU Meter, Modutec 3BA-AVU-000-BB-B1-KW
PL1-4	Meter Illumination Light, #388 bulb

Chassis

SP1	Speaker, Quam 5A1Z45
R151	Resistor, 150 ohm, 1/2w, 5%
S30	Toggle Switch, SPDT, 6a, 125 vac
F1	Fuse, 3AG, 1 amp, slow-blow
J1	Phone Jack, 3 circuit
T17	Transformer, Power, LPB-124
Q6, 8	Transistor, MJE 205
Q7, 9	Transistor, MJE 105

Signature II SERIES PLUG-IN CIRCUITS

PMP MICROPHONE PREAMPLIFIER



VARIABLE GAIN TYPE
WITH 8 PIN I.C.
S-15A-PC-6
REV C

R161	Resistor, 10K ohm, 1/2 watt, 5%
R162	620 ohm
R163	3K ohm
R164	180 ohm
R165	7.5K ohm
R166	68K ohm
R167	10K ohm, 1/2 watt, 1%
C29	Capacitor, 15 uf, 35 VDC, Tantalum
C30	2.2 uf, 35 VDC, "
C31	100 uf, 20 VDC, "
C32	0.1 uf, 50 VDC, Disc
C39	200 pf, 100 VDC, Mica
A6	Op Amp, LM387 IC
T18	Transformer, Beyer TR/BV 310007004
S31	Toggle Switch, Alco MTA 206PA

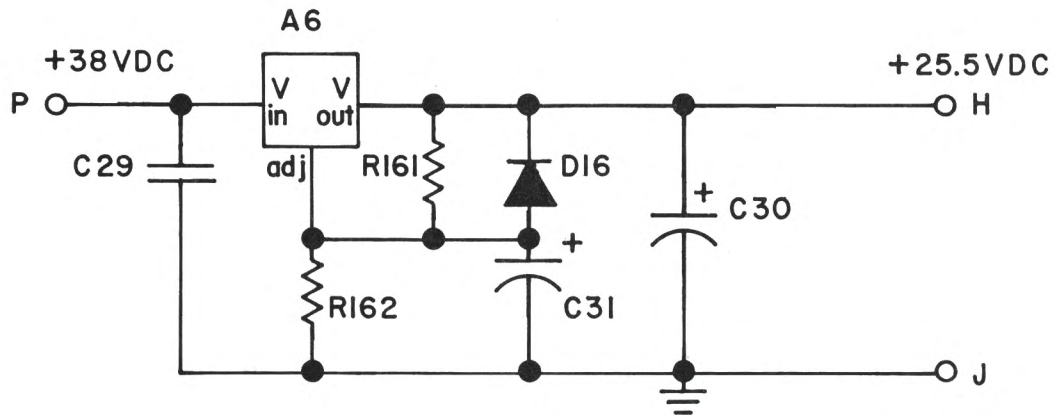
LPB[®]

LPB Inc.
28 Bacton Hill Road
Frazer, Pa. 19355
(215) 644-1123

11-79

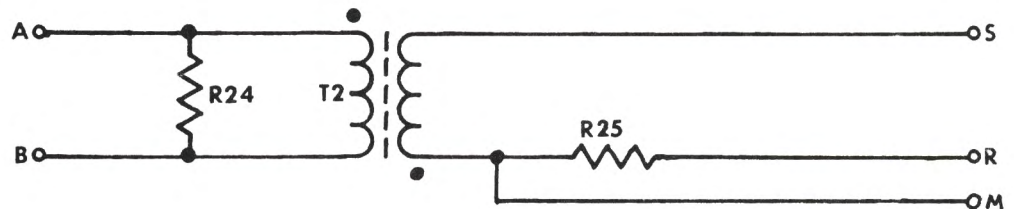
Signature II SERIES PLUG-IN CIRCUITS

PVA VOLTAGE REGULATOR



R161	Resistor, 237 ohm, 1/2 watt, 1%
R162	4640 ohm
C29	Capacitor, 0.1 uf, 50 VDC, Disc
C30	1 uf, 35 VDC, Tantalum
C31	10 uf, 35 VDC, "
D16	Diode, 1N4002 (or equivalent)
A6	3 Terminal Regulator, LM317K

INPUT TRANSFORMER



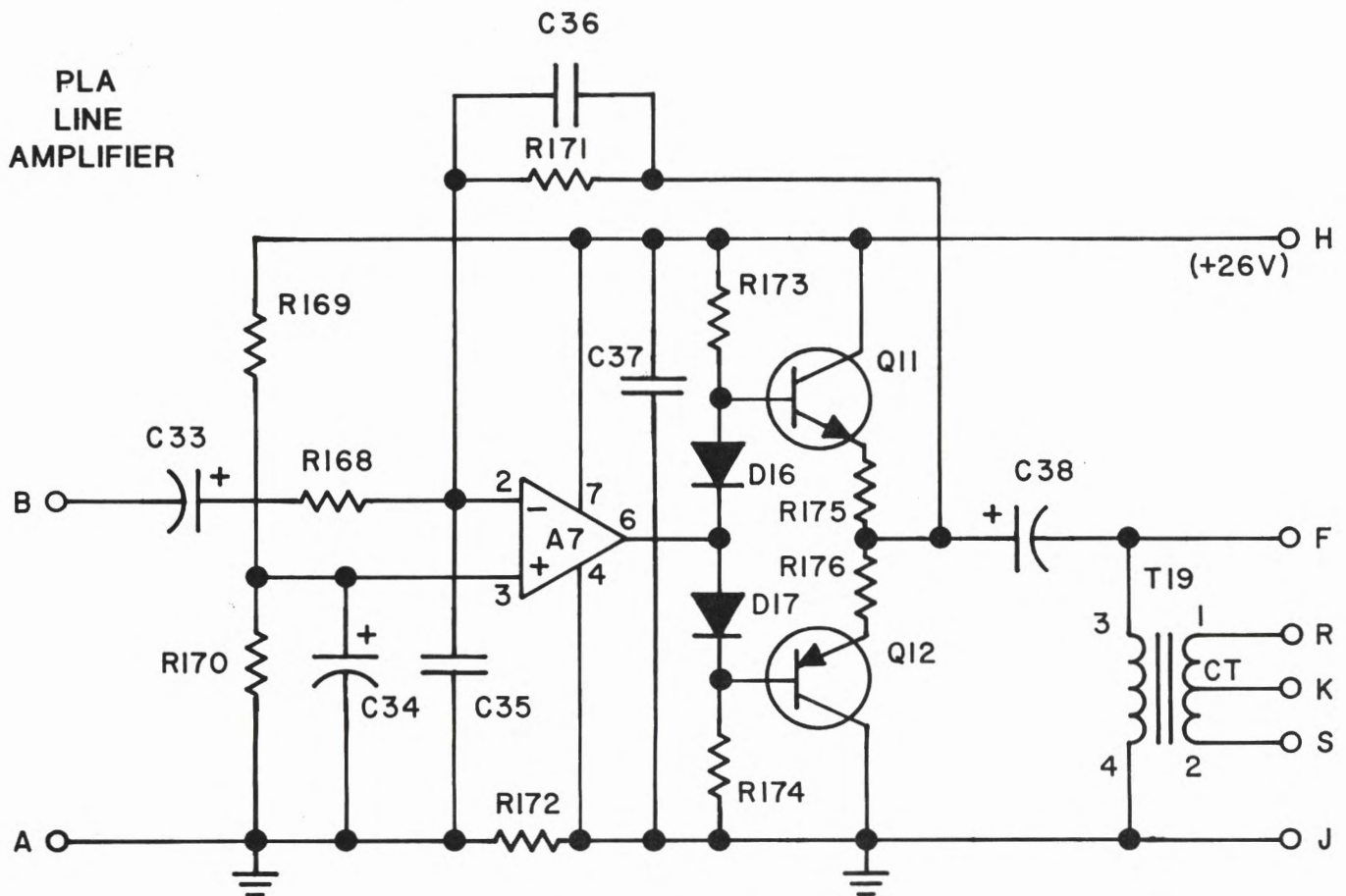
R24	Resistor, 620 ohm, 1/2 watt, 5%
R25	5.6K ohm
T2	Transformer, LPB-812

LPB[®]

LPB Inc.
28 Bacton Hill Road
Frazer, Pa. 19355
(215) 644-1123

11-79

Signature II SERIES PLUG-IN CIRCUITS



- | | |
|------|------------------------------------|
| R168 | Resistor, 100 ohm, 1/2 watt, 5% |
| R169 | 680K ohm |
| R170 | 680K ohm |
| R171 | 680K ohm |
| R172 | 10 ohm |
| R173 | 1.3K ohm |
| R174 | 1.3K ohm |
| R175 | 6.8 ohm |
| R176 | 6.8 ohm |
| C33 | Capacitor, 15 uf, 20 VDC, Tantalum |
| C34 | 2.2 uf, 20 VDC, " |
| C35 | .001 uf, 50 VDC, Disc |
| C36 | 2 pf, 50 VDC, Mica |
| C37 | .1 uf, 50 VDC, Disc |
| C38 | 1000 uf, 25 VDC, Electrolytic |
| A7 | Op Amp, LM318N |
| D16 | Diode, 1N4148 |
| D17 | 1N4148 |
| Q11 | Transistor, MPS-U04 |
| Q12 | " MPS-U52 |
| T19 | Transformer, LPB-026 |

LPB[®]

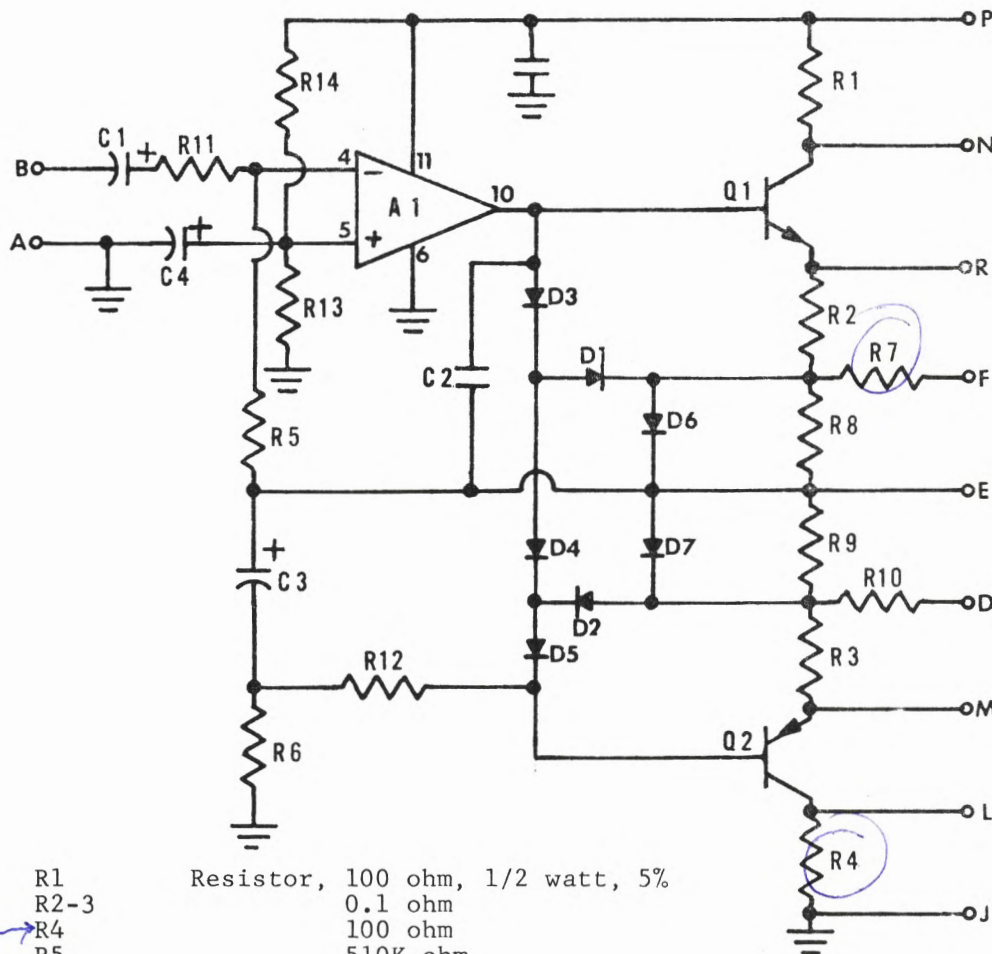
LPB Inc.
28 Bacton Hill Road
Frazer, Pa. 19355
(215) 644-1123

If You Didn't Get This From My Site,
Then It Was Stolen From...

www.SteamPoweredRadio.Com

Signature II SERIES PLUG-IN CIRCUITS

PPA POWER AMPLIFIER



- R1 Resistor, 100 ohm, 1/2 watt, 5%
 R2-3 0.1 ohm
 R4 100 ohm
 R5 510K ohm
 R6 1K ohm
 R7 2.2 ohm
 R8-9 22 ohm
 R10 2.2 ohm
 R11 5.1K ohm
 R12 1K ohm
 R13-14 1M ohm

D1-7 D, 1N4002 (or equivalent)

Q1 Transistor, MPS-U04 *EGG-190*
 Q2 MPS-U52 *EGG-189*
 Q6 -NPN SK-3188 MJE-205 (mounted on rear console case)
 Q7 -PNP SK-3189 MJE-105 (mounted on rear console case)

RS 2017 .05 - TIP-31 -
RS 2027 .05 - TIP-42 -

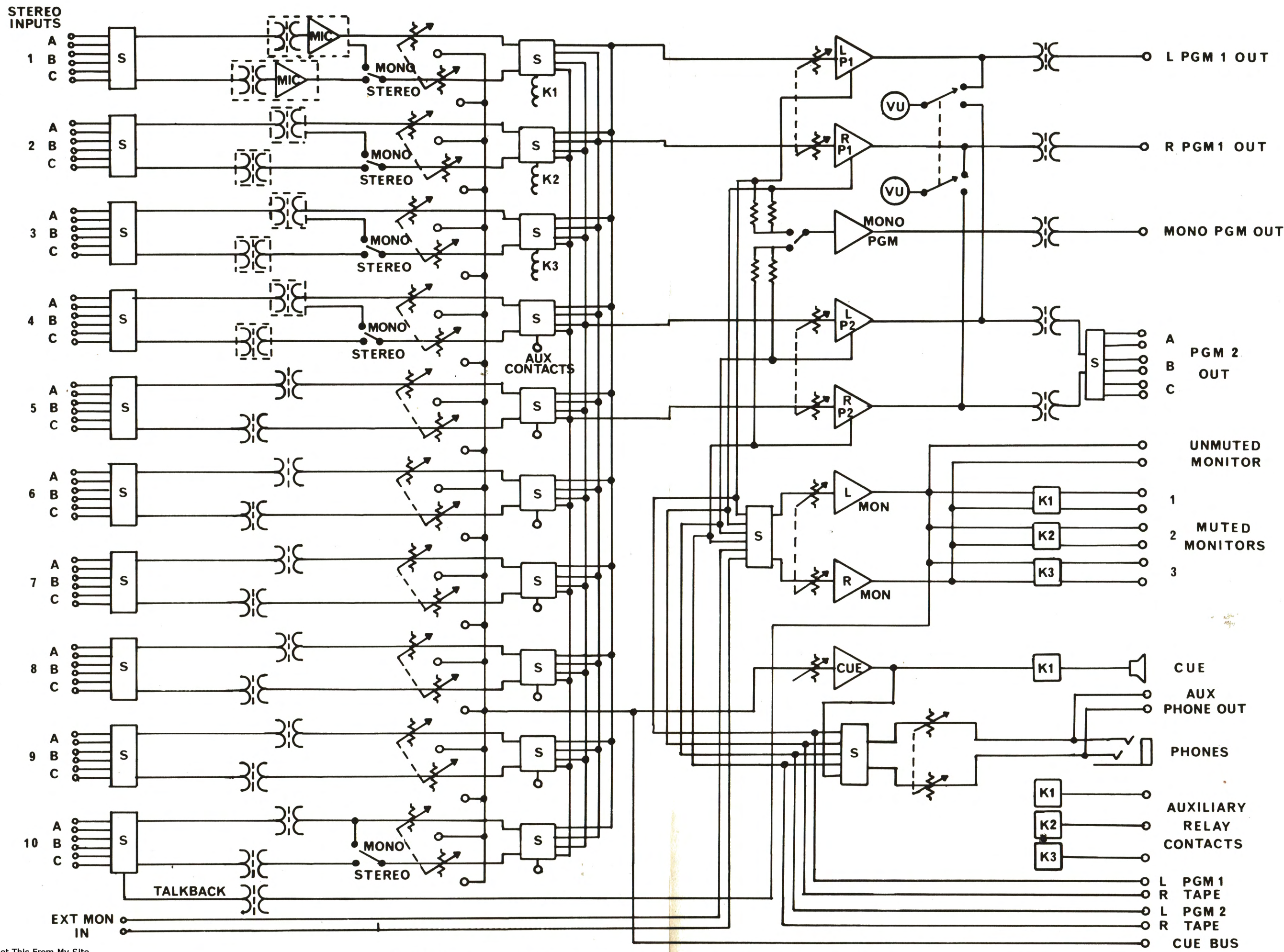
C1 Capacitor, 2.2 uf, 25 VDC, Tantalum
 C2 0.1 uf, 50 VDC, Disc Ceramic
 C3 47 uf, 35 VDC, Tantalum
 C4 15 uf, 35 VDC, Tantalum
 C5 0.1 uf, 50 VDC, Disc Ceramic

A1 Op Amp, RM741DC (or equivalent)

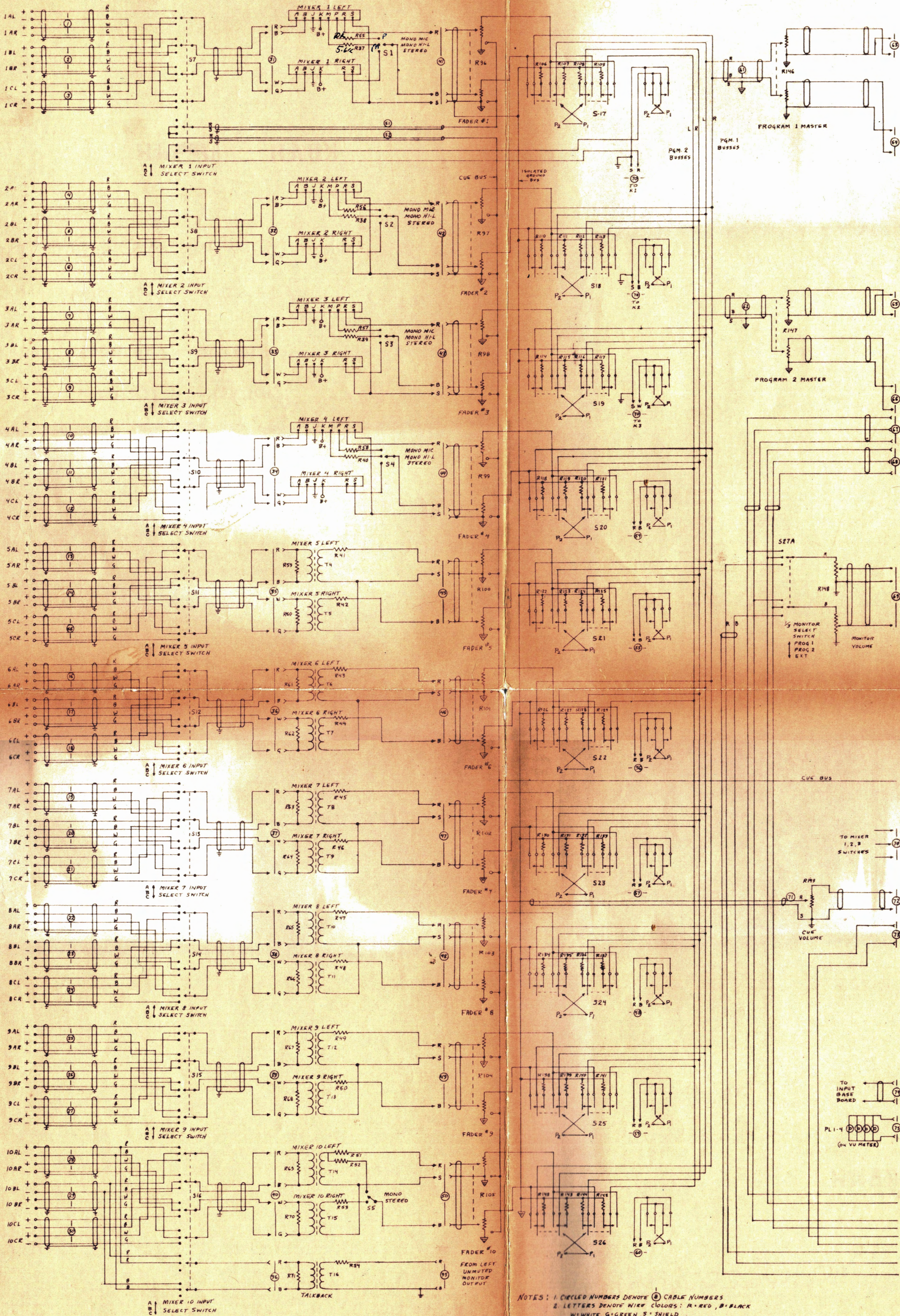
Q6 & 7
Q8 & 9
 WATCH FOR REVERSE
 PIN OUTS IN SUBSTITUTES

LPB[®] LPB Inc.
 28 Bacton Hill Road
 Frazer, Pa. 19355
 (215) 644-1123

11-79



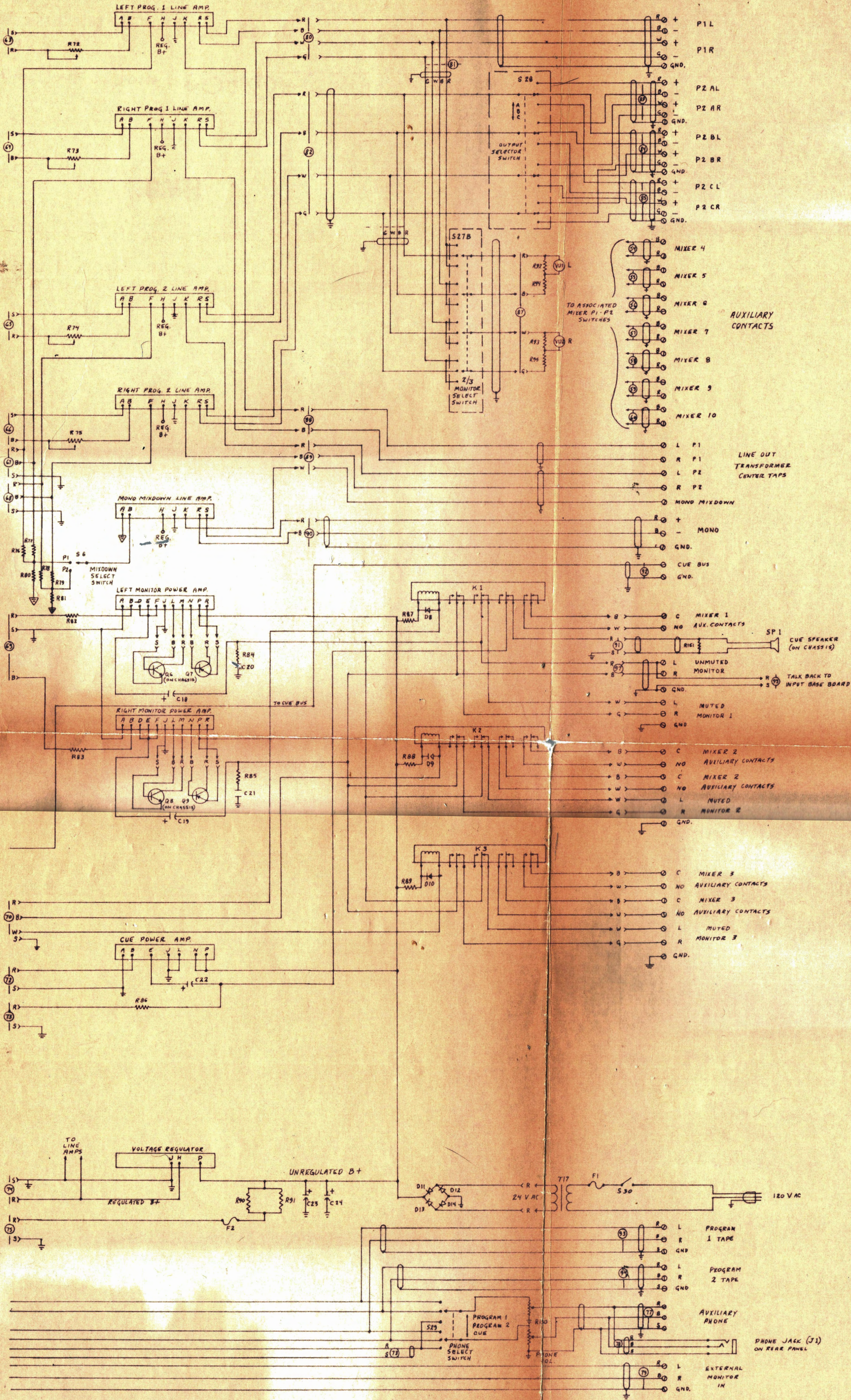
LPB S-20 10 MIXER DUAL STEREO CONSOLE



NOTES: 1. CIRCLED NUMBERS DENOTE CABLE NUMBERS
 2. LETTERS DENOTE WIRE COLORS: R-RED, B-BLACK, W-WHITE, G-GREEN, S-SHIELD
 3. — DENOTES TERMINALS ON PRINTED CIRCUIT BOARDS
 4. + DENOTES CHASSIS GROUND, ⊕ DENOTES ISOLATED GROUND
 5. SEE THE MANUAL FOR THE PLUG-IN CIRCUITS

If You Didn't Get This From My Site,
 Then It Was Stolen From...
www.SteamPoweredRadio.Com

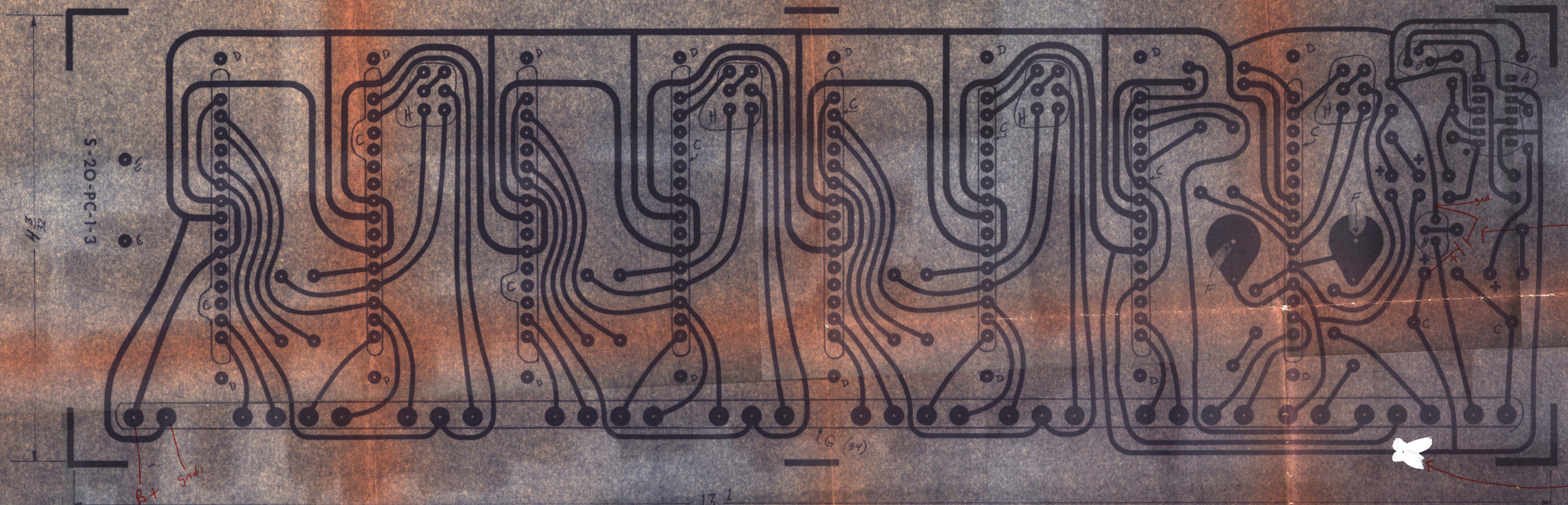
1016-1



S-20 STEREO CONSOLE
 MAIN FRAME SCHEMATIC
 LPB INC. 520 LINCOLN HWY.
 FRAZER, PA., 19355
 5/76
 SHEET 2

If You Didn't Get This From My Site,
 Then It Was Stolen From...
 www.SteamPoweredRadio.Com

1016-2



S-20-PC-1-3

4 3/32

13 1/2

NOTES

MATERIALS: NEMA GRADE G-10, 1/16" THICK GLASS EPOXY, BLUE, 2 OZ. COPPER CLAD ONE SIDE
 FINISH: TIN LEAD ELECTROPLATE, SAND EDGES, ROUNDED CORNERS.
 TOLERANCE: ± .010 ON DIMENSIONS, FLATNESS DEVIATION IS .005, PER INCH.
 INSTALL TURRET TERMINALS IN ALL "G" HOLES (34). USE PMP # IDS-5B OR EQUAL. INSERT THRU COMPONENT SIDE, ROLL ON COPPER SIDE.

MARKINGS: WHITE ON COMP. SIDE

DRILL SCHEDULE

SYMBOL	DRILL	DIA.	QTY.
UNMARKED	56	.047	
A	68	.091	14
B	62	.038	6
C	55	.052	122
D	32	.116	16
E	24	.152	2
F	7	.201	2
G	42	.0935	34
H	54	.055	24

28 BACON HILL RD
 LPB INC.
 FRAZER, PA, 19355
 SCALE: 2 X 1
 DWN: 1-4-77

TRIM & DRILL for:
 DWG: S-20-PC-1-3
 INPUT BOARD #1
 MODEL S-80 STEREO AUDIO
 STUDIO CONSOLE

OBsolete
 1103

use 100uf-50v
 or 47ufd-35v
 cap

cut lead, insert
 22k 1/2 watt
 resistor

PACKING LIST

W.O. # 15162

CUSTOMER P.O. # 4-070781-5

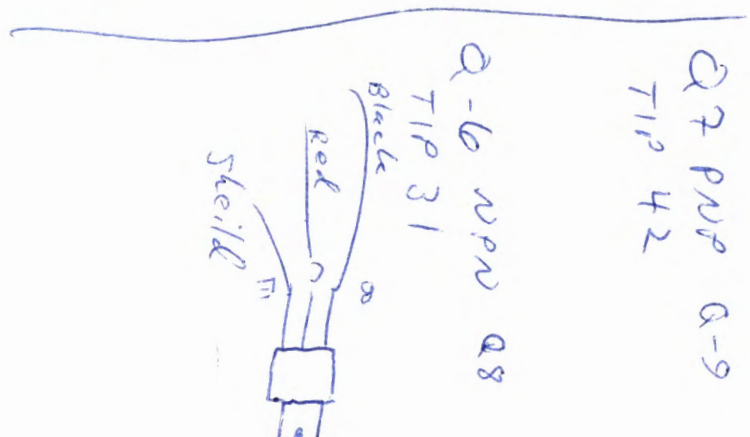
DATE SHIPPED 8/20/81

SHIPPED VIA New Pains

NO. OF PKGS. 1

CUSTOMER: WMAS Radio

ITEM	QTY. ORDERED	QTY THIS SHIPMENT	B.O.	DESCRIPTION	S/I
1	1	1	0	5-20 10 mixer dual stereo w/ mono middown (PLA)	10149
2	3	3	0	FMT mic preamp plug-in	
3	1	1	0	LM-1 mic boom, flange mt.	





LPB Inc.
28 Bacton Hill Road
Frazer, Pa. 19355
(215) 644-1123

FIELD SERVICE BULLETIN

(ECO #1120-824-1)

POWER AMPLIFIER FAILURES -- SIGNATURE SERIES CONSOLES

On occasion, when the power amplifier circuitry is subjected to abnormally heavy or shorted load conditions, or turn-on transients, the output power transistors (MJE 105 and MJE 205) and/or the Power Amplifier Plug-in may be damaged by excessive current peaks. To prevent this from happening, the following modification should be made.

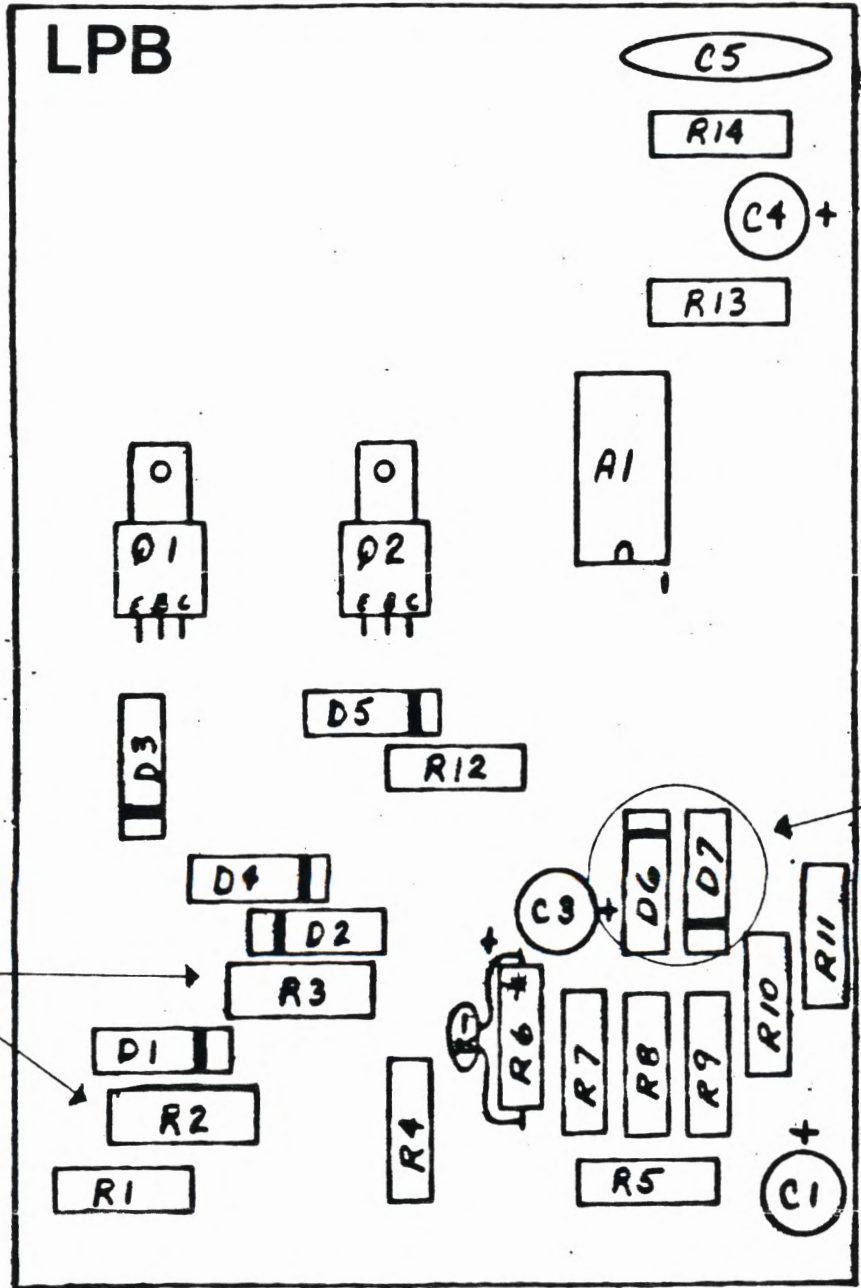
MODIFICATION

CHANGE R2 AND R3 FROM A 0.1 OHM - 2 WATT RESISTOR TO A 0.22 OHM - 2 WATT RESISTOR.

CHANGE D6 AND D7 FROM 1N4007 DIODE (1 AMP RATING) TO A 1N5404 DIODE (3 AMP RATING).

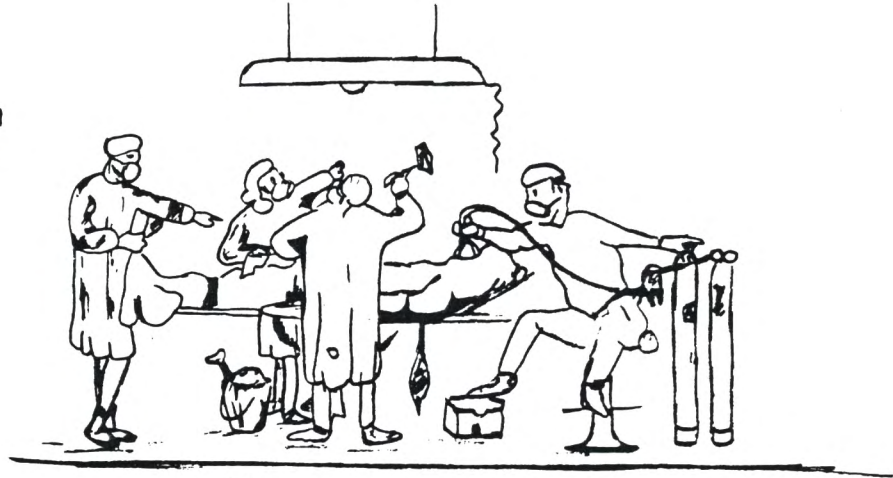
PROCEDURE (See Page 2)

- 1) TURN OFF CONSOLE POWER.
- 2) REMOVE POWER AMPLIFIER PLUG-INS FROM CONSOLE.
- 3) REMOVE R2, R3, D6, D7 FROM POWER AMPLIFIER PLUG-INS.
- 4) REPLACE R2 AND R3 WITH 0.22 OHM - 2 WATT RESISTORS.
- 5) REPLACE D6 AND D7 WITH 1N5404 DIODES; OBSERVE CORRECT POLARITY WHEN INSTALLING DIODES. BEFORE INSTALLING THESE DIODES, THE PC BOARD HOLES WILL HAVE TO BE SLIGHTLY ENLARGED TO ACCOMMODATE THE LARGER LEAD DIAMETER OF THE 1N5404. A PIN VISE IS BEST FOR THIS PURPOSE, ALTHOUGH A SMALL SOLDERING AID CAN BE USED. THIS MUST BE DONE CAREFULLY TO AVOID DAMAGING THE PC BOARD LANDS. THIS COMPLETES THE MODIFICATION.
- 6) BEFORE INSTALLING POWER AMPLIFIERS INTO CONSOLE, CHECK FOR POSSIBLE INTERMITTENT CONNECTIONS AT THE MOLEX PLUGS MOUNTED ON THE POWER OUTPUT TRANSISTORS ON THE CONSOLE REAR WALL. BAD CONNECTIONS COULD BE CAUSED BY POOR CRIMPING OF THE CONNECTOR PIN TO CONDUCTOR, CRIMPING OF THE CONNECTOR PIN OVER THE WIRE INSULATION OR WEAK SPRING ACTION OF THE CONNECTOR PIN ITSELF.



SIGNATURE II POWER AMP PLUG-IN

" BEFORE
OPERATING "



READ YOUR INSTRUCTION MANUAL

IT'S TO YOUR BENEFIT....STOP - AND READ THIS:

DAMAGE: This shipment was packed and delivered to the carrier with utmost care to insure safe delivery of goods. When shipment is received and signed for by the transportation company, LPB responsibility ceases. Do not accept a shipment which evidences damage or shortage until agent or carrier endorses a statement of the irregularities on the face of the transportation receipt. Without documented evidence, no claim can be filed.

CONCEALED DAMAGE: The Interstate Commerce Commission has indicated that the carrier is as much responsible for concealed damage as for visible damage incurred in transit. Upon receipt of this shipment, properly unpack and check it thoroughly. If concealed damage is discovered, cease further unpacking and request immediate inspection by the carrier. A written report of the agent's findings, with his signature, is necessary to support a claim.

SHORTAGE: Check shipment against the packing list. Do not discard the packing materials until the contents has been found correct. Check all possibilities before reporting a shortage.

CLAIMS: If the carrier has been given proper opportunity to inspect the shipment, any claim for shortage can be handled easily. Claims must be filed with the carrier by you. LPB cannot initiate any claim against the carrier.

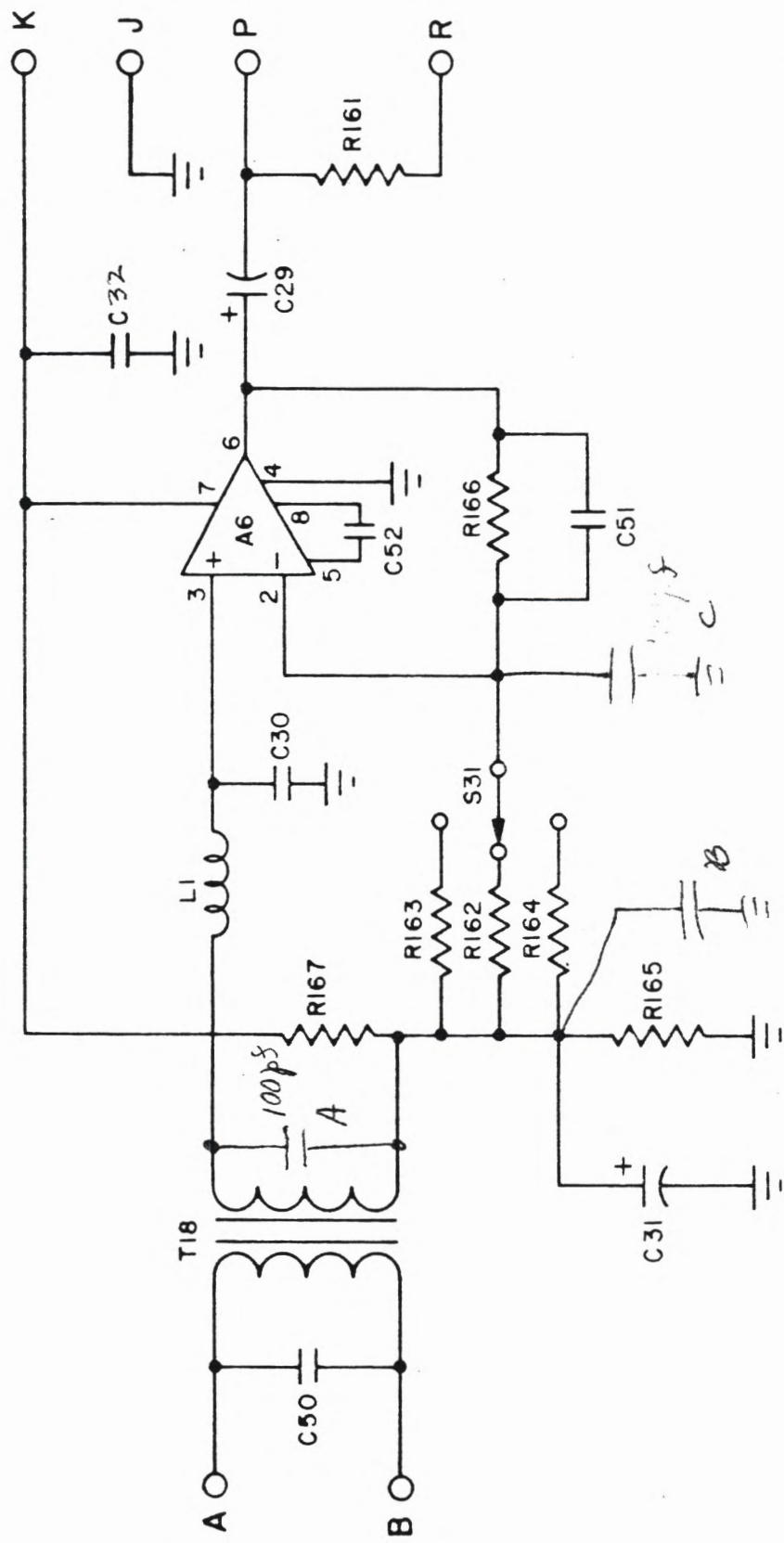
RETURNS: No returns will be accepted without LPB authorization. Return shipping charges are at your expense and a 15% restocking charge will apply, unless the return is because of an LPB error.

SHIPPING CARTON: Many LPB products are packed for shipment in specially designed systems. Many are also guaranteed for one year. Keep the shipping system in case of need to utilize the guarantee. Otherwise it may be difficult to return the equipment for repairs.

LPB[®]

LPB Inc.
28 Bacton Hill Road
Frazer, Pa. 19355
(215) 644-1123

Try caps one at a time, then together. Keep leads short.
 A & B should have most effect.



0.1 mfd

SIGNATURE II MIC PRE-AMP
 SCHEMATIC
 Dwg. 1136 Rev.F Ass'y. 1135

PTD 9-83

L F B P A R T S L I S T

SIG II MIC PREAMP PLUG-IN ASSY,FMP

ASSY NO. 1135-F

PAGE 1

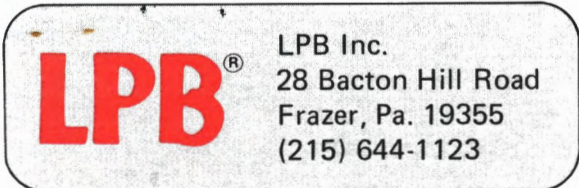
DATE 7/18/83

SUPERCEDES 11/19/82

SYMBOL	QTY	DESCRIPTION	PART	NOTES
R161	1	10K OHM, 1/2W, 5% RESISTOR, CARB FILM	762-2145	
R162	1	511 OHM, 1/2W, 1% RESISTOR, MET FILM	764-1269	
R163	1	1.69K OHM, 1/2W, 1% RESISTOR, MET FILM	764-1323	
R164	1	162 OHM, 1/2W, 1% RESISTOR, MET FILM	764-1221	
R165	1	47K OHM, 1/2W, 5% RESISTOR, CARB FILM	762-2161	
R166	1	29.4K OHM, 1/2W, 1% RESISTOR, MET FILM	764-1446	
R167	1	47K OHM, 1/2W, 5% RESISTOR, CARB FILM	762-2161	
C29	1	15 MFD AL CAP RAD 35V -10/+50 %	172-1056	
C30	1	100 PF DM CAP 500V +/- 5 % DM10	171-1094	
C31	1	100 MFD AL CAP RAD 25V -10/+50 %	172-1117	
C32	1	.1 MFD CER DISC CAP 50V	174-1254	1
C50	1	1000 PF DM CAP 100V +/- 5 % DM15	171-1175	
C51	1	100 PF DM CAP 500V +/- 5 % DM10	171-1094	
C52	1	27 PF DM CAP 500V +/- 5 % DM10	171-1049	
A6	1	NE5534AN LINEAR IC (8 FIN DIP)	361-1035	
T18	1	200:10K MIC XFMR PC MNT BEYER	863-1030	
S31	1	DPTT MIN TOGGLE SWITCH, PC MOUNT	821-1017	
L1	1	1.8 UH AIR COIL PC MOUNT	183-1001	
1	1	SIGII MIC PRE-AMP PLG-IN PCB, BLU/SS	671-1138-F	
2	1	8 FIN IC SOCKET RECESSED	365-1001	

NOTES:

1. BOTTOM OF CAPACITOR SHOULD BE NO MORE THAN 1/8" ABOVE PCB. SCRAPE COATING OFF LEADS IF NECESSARY.



FIELD SERVICE BULLETIN

DATE: June 15, 1982 ECO #: 1120-824-1

PRODUCT: LPB Signature II Series Audio Consoles,
Models: S-12, S-13C, S-14A, S-15A, S-20, S-21A & S-21B,
Manufactured after January 1, 1980.

PART(S) AFFECTED: "PPA" Power Amplifier Plug-in Circuit Boards.

REASON FOR CHANGE:

On occasion, when the power amplifier circuitry is subjected to abnormally heavy or shorted load conditions, or turn-on transients, the output power transistors (MJE 105 and MJE 205) and/or the Power Amplifier Plug-in may be damaged by excessive current peaks.

MODIFICATION REQUIRED:

To prevent this, the following changes are recommended to all the "PPA" Power Amplifier Plug-in Boards in your Signature II Console:

1. Change R2 and R3 from an 0.1 ohm 2-watt resistor, to a 0.22 ohm 2-watt resistor.
2. Change D6 and D7 from a 1N4007 diode (1 amp rating), to a 1N5404 diode (3 amp rating).

Field Modification Kits containing the parts required and modification instructions, are available from LPB at no charge. To order these parts, please complete the following form and mail to LPB's Customer Service Department. LPB cannot furnish these kits without the correct model number, serial number, and date for each console you own. This information will be found on the foil label on the rear panel of the console.

- - - - - cut here - - - - -

REQUEST FOR MODIFICATION KIT

Call Letters (or Company) _____

Attention: _____

Shipping Address: _____

Console Model Number: _____

Console Serial Number: _____

Console Date: _____