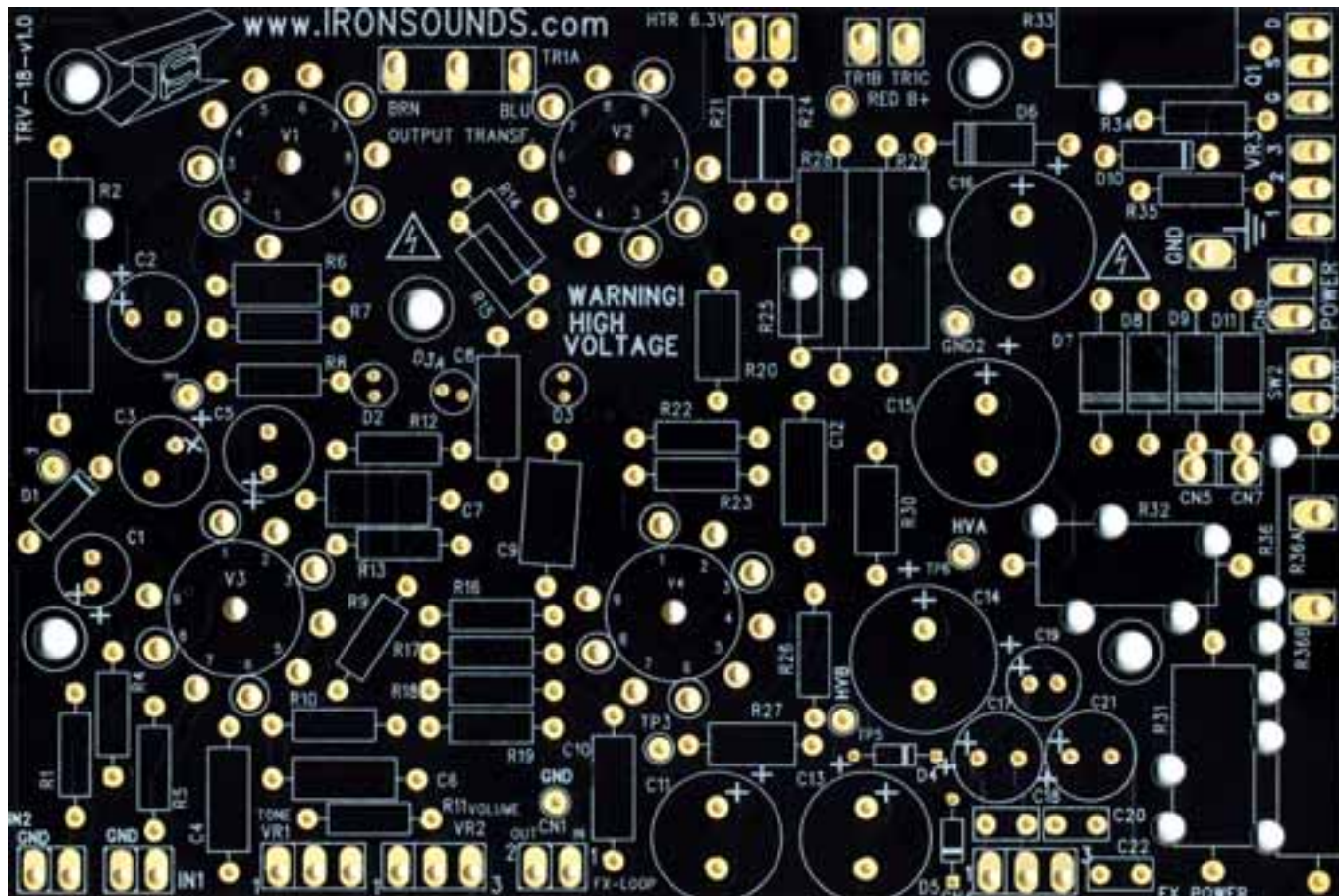


IRON SOUNDS AMPLIFICATION

Traveler 18 (TRV-1N) Installation Guide



Warnings and Disclaimer

You will be working with **HIGH VOLTAGE**. These voltages **CAN BE DEADLY** if you are not extremely careful. If you are not comfortable working with **HIGH VOLTAGE**, please do not attempt to do so. Should you experience difficulty when installing this unit, contact an experienced amplifier technician.

⚠ USE AT YOUR OWN RISK ⚠

Iron Sounds LLC, assumes no liability FOR PERSONAL INJURY OR PERSONAL PROPERTY CLAIMS RESULTING FROM THE USE OF THIS PRODUCT OR THE INFORMATION INCLUDED IN THIS MANUAL.

Table of Contents

Warnings and Disclaimer	1
Before You Begin	3
Soldering Tips	3
Tools Needed	3
Traveler 18 TRV-1N Overview	3
Requirements.....	4
Recommended Chassis	4
Power Transformer.....	4
Output Transformer.....	4
Wire.....	4
Fuse	4
TRV-1N Parts List	5
TRV-1N PCB Assembly Instructions	6
Resistors	6
Tube Sockets	7
Diodes	8
Capacitors.....	9
TRV-1N Wiring Layout.....	10
TRV-1N PCB Connection Chart.....	11
Testing Amplifier Voltages.....	13
Tube Type and Location Chart	14
Schematic/Tube Voltage Chart	15

Before You Begin

When you first receive your kit, remove all of the parts from the shipping box and place them on a well-lit, clean surface. Check all of the parts against the parts list and verify that you have everything before you begin. Contact us at once if you are missing anything, or if something appears to be damaged.

Soldering Tips

- Set the temperature of your soldering iron to about 700F.
- Use 60/40 rosin-core solder.
- Make a good *mechanical* connection first, and then make a good electrical connection.
- Tin all wires before soldering.
- Never “butter” partially melted solder to make a connection.
- Do not apply the tip of the soldering iron to the PCB any longer than it takes for the solder to flow.

Tools Needed

- Soldering Iron
- Solder Vacuum Bulb or Solder-Sucker.
- Needle-Nose Pliers
- Wire Strippers
- Wire Cutters
- Phillips and Flat-Head Screwdrivers for #4, #6 and #8 screws.
- Nut Driver/Socket Set

Traveler 18 TRV-1N Overview

The Traveler 18 TRV-1N contains the following features:

- EL-84-based amp uses only (2) 12ax7 tubes and (2) EL-84 tubes to deliver 18 watts of power.
- Solid-State Rectifier
- Small form factor
- Single Channel, Single Input
- Volume Control
- Tone Control
- Ultra-quiet circuitry
- Gold-Plated Circuit Board, Heavyweight Traces and thru-plating for maximum durability and tone.

Requirements

Recommended Chassis

- Hammond 1444-24 Aluminum Enclosure (8" L x 12" W x 3" H [203.2mm x 304.8mm x 76.2mm])

Power Transformer

- **Primary:** 115/240 V 60/50 Hz.
- **Secondary Tap:** 290-0-290 (120 mA)
- **Filament tap:** 6.3 VCT (3.25A)
- NO TUBE RECTIFIER TAP REQUIRED

Output Transformer

- Heyboer 18 watt Output Transformer recommended

Wire

- Use 22 gauge stranded wire rated for 600v

Fuse

- Single 2A (slo-blow) fuse for entire amp

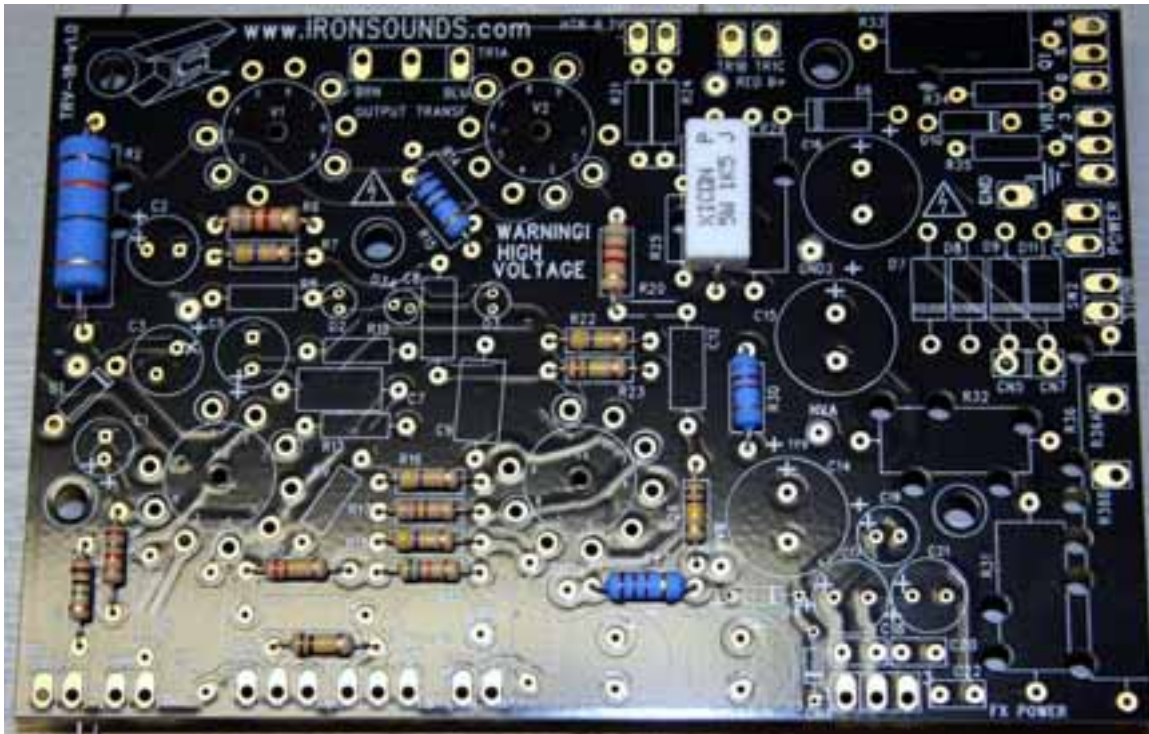
TRV-1N Parts List

Part Description	Value:	Qty	Location
Capacitor 630V .0047uF 5%	0.0047uF, 630V	1	C6
Capacitor 630V .01uF 5%	.01uF 630V	4	C4,8,10,12
Capacitor 630V .022uF 5%	0.022uF, 630V	1	C9
Capacitor Electrolytic 450V 22uF 20%	22uF, 450V	2	C11,13
Capacitor Electrolytic 450V 33uF 20%	33uF, 450V	2	C14,15
Capacitor Electrolytic 63V 100uF 20%	100uF, 63V	1	C2
Capacitor Electrolytic 63V 47uF 20%	47uF, 63V	1	C1
Diode Rectifiers 1000V 3A	1000V 3A	4	D7,8,9,11
Potentiometers Linear 500K	500K A	2	VR1,2
Resistor 1/2W 1.5Kohms 5%	1.5k, 1/2W	1	R4
Resistor 1/2W 100Kohms 5%	100k, 1/2W	3	R11,23,26
Resistor 1/2W 1Mohms 5%	1M, 1/2W	1	R5
Resistor 1/2W 220Kohms 0.05	220k, 1/2W	1	R10
Resistor 1/2W 470Kohms 5%	470k, 1/2W	4	R7,16,18,22
Resistor 1/2W 56Kohms 5%	56k, 1/2W	1	R19
Resistor 1/2W 820ohms 0.05	820, 1/2W	1	R17
Resistor 1W 8.2Kohms 5%	8.2k, 1W	2	R6,20
Resistor 2W 100ohms 5%	100, 2W	1	R15
Resistor 2W 2.2Kohms 5%	2.2k, 2W	1	R27
Resistor 2W 8.2Kohms 5%	8.2k, 2W	1	R30
Resistor 5W 130ohms 5%	130, 5W	1	R2
Resistor 5W 1.5Kohms 5%	1.5k, 5W	1	R28
SOCKET, 9 PIN, PC MOUNT		4	V1,2,3,4
JACK, MONO INPUT		2	CN13,14
Screws		10	
Spacer HEX .250X.375 ALUM	Spacer .375	5	
Traveler 18 PCB		1	
IRON SOUNDS NAME PLATE		1	

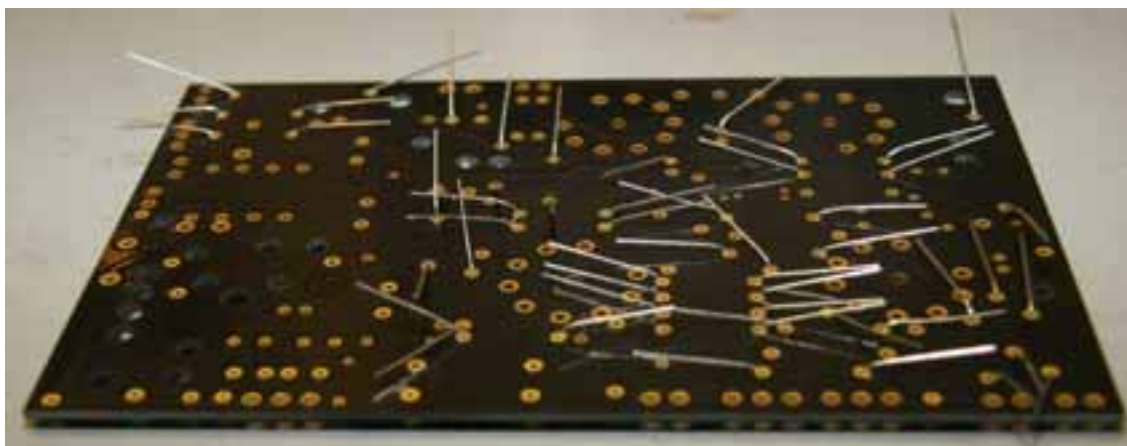
TRV-1N PCB Assembly Instructions

Resistors

1. Locate all of the resistors included in the kit and bend the pins of the resistors as shown.
2. Using the markers printed on the PCB as your guide, insert the resistor leads into the PCB. Do not force them in.



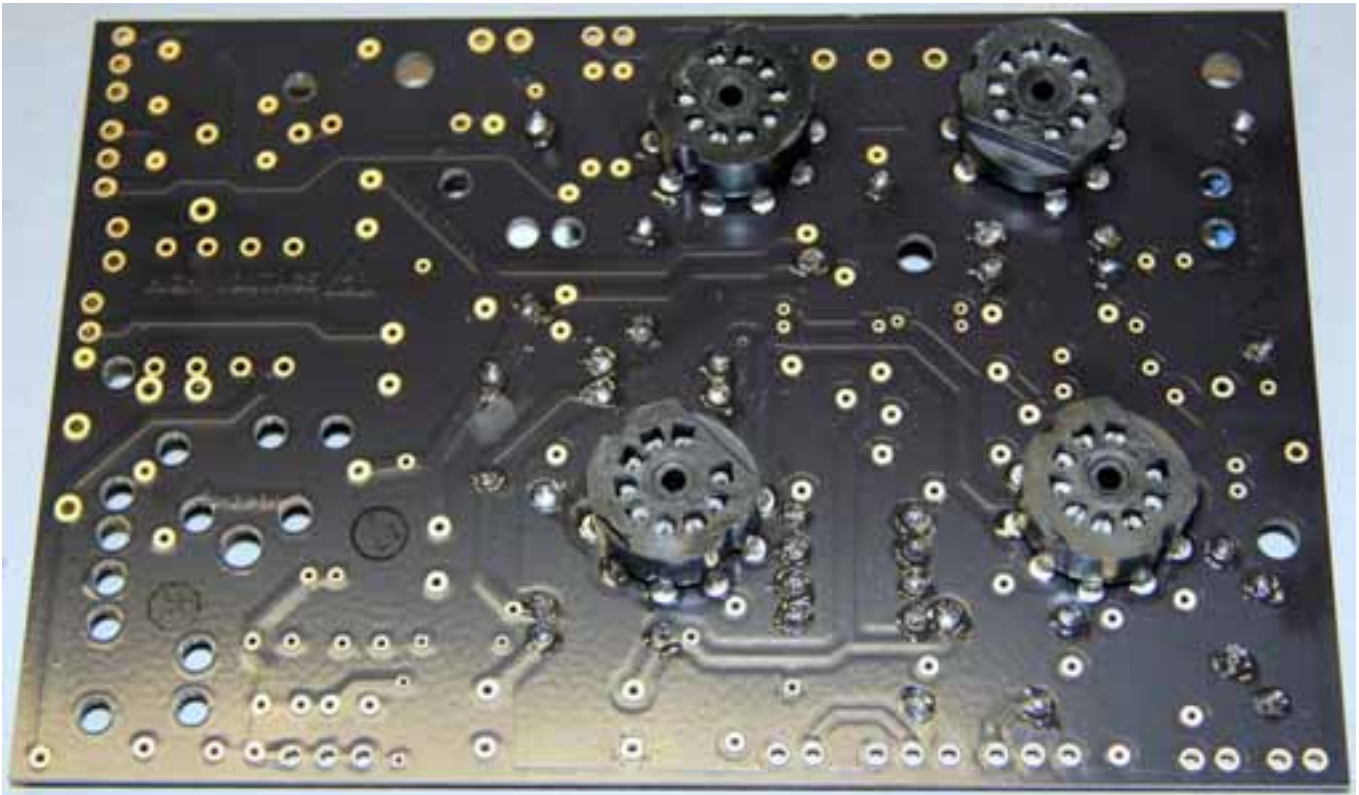
3. Once all of the resistor leads are in the PCB, solder all of them to the PCB.



4. Inspect your work and verify that all holes are filled with solder.
5. When finished, snip the ends of the leads off.

Tube Sockets

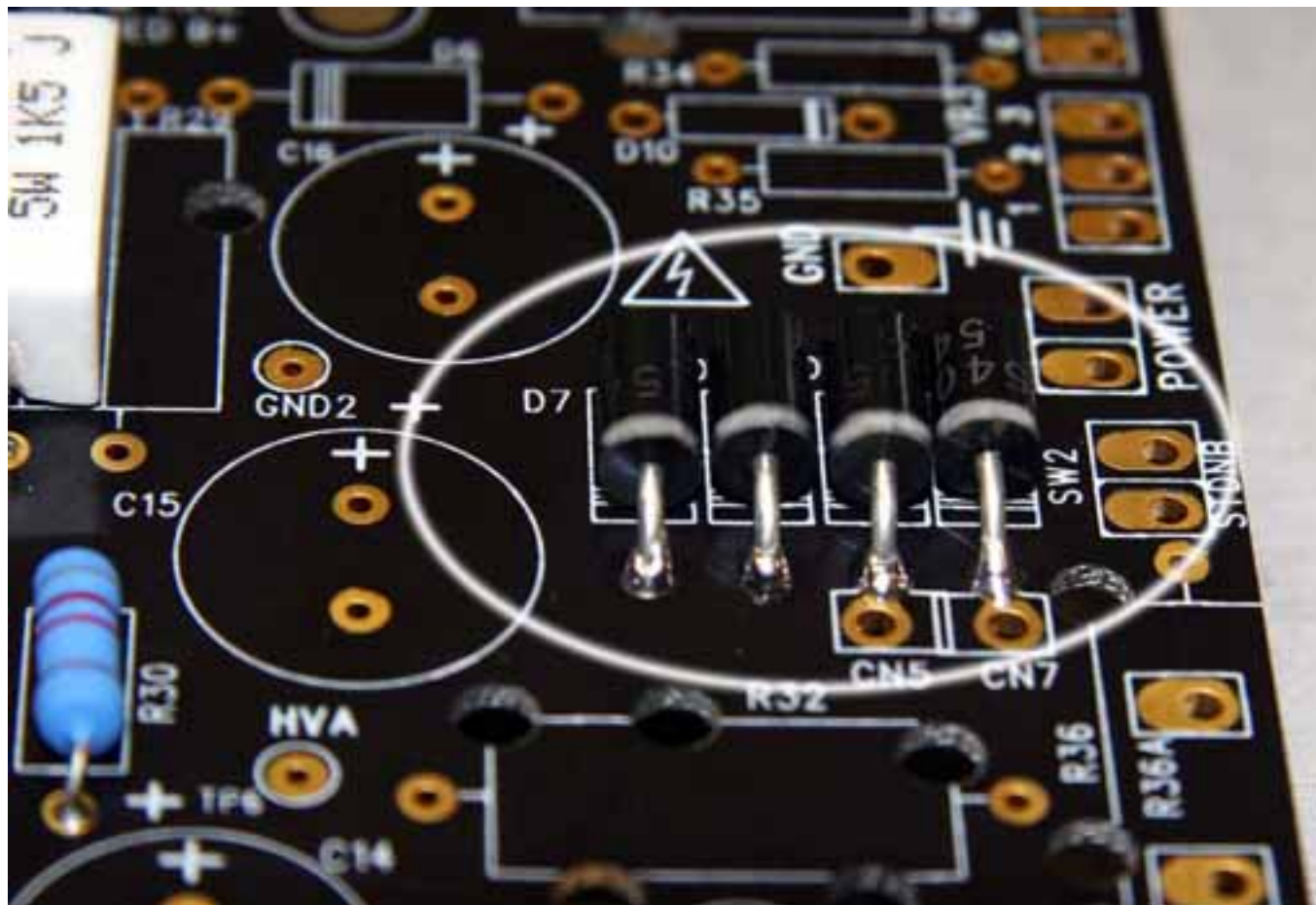
1. You will have (4) tubes sockets.
2. Insert the tube sockets ON THE UNDERSIDE of the board as shown.



3. Verify that all of the pins are fully inserted and that the socket is flush against the PCB.
4. Solder the socket and inspect your work. All holes must be filled with solder.

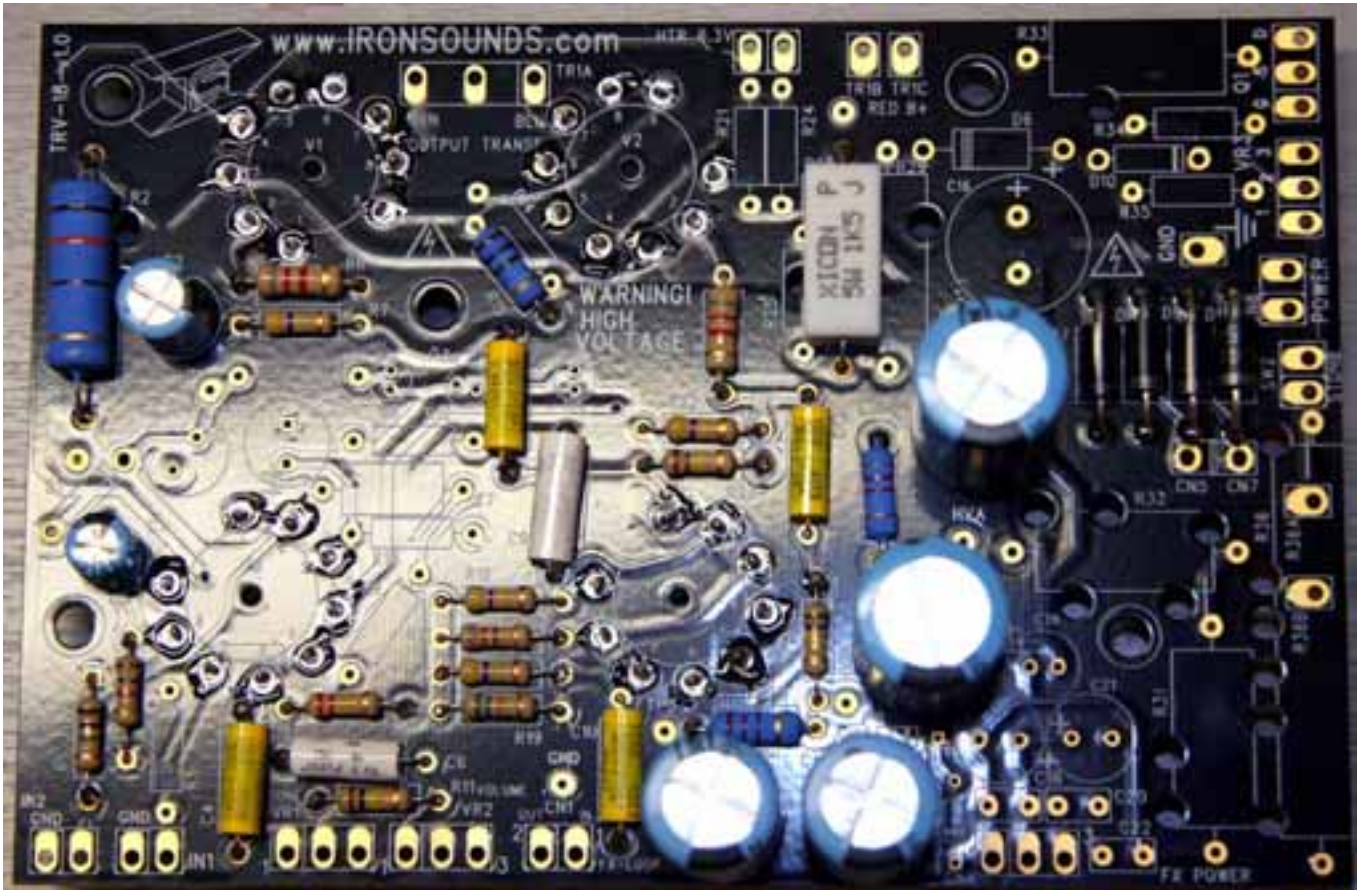
Diodes

1. Insert and solder the (4) diodes in locations D7, D8, D9 and D11. Be sure to observe the polarity marker.



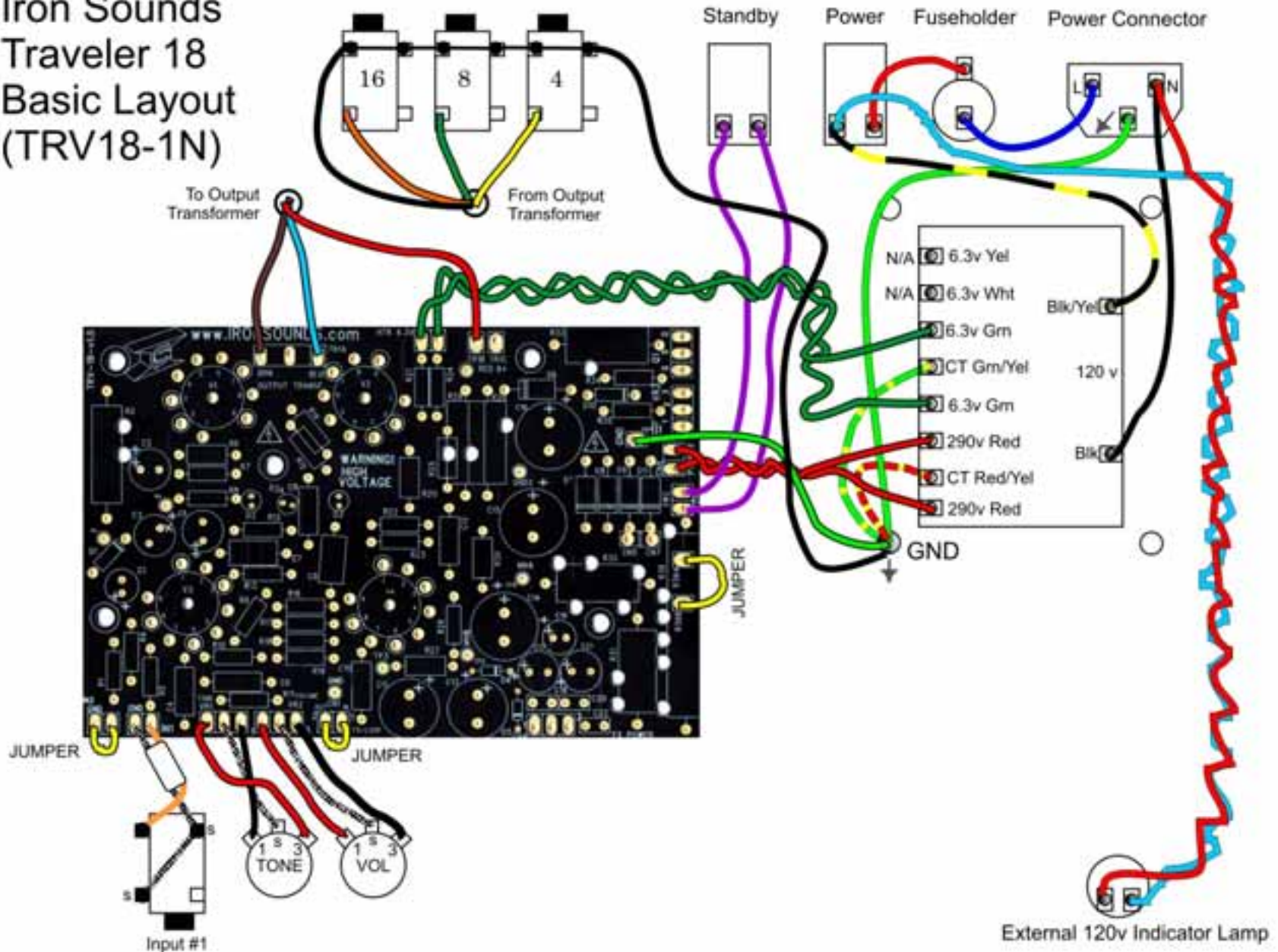
Capacitors

1. Install all of the capacitors in the same manner as the resistors. Be sure to observe the correct polarity of the electrolytic capacitors. **Failure to do so could result in explosion!**



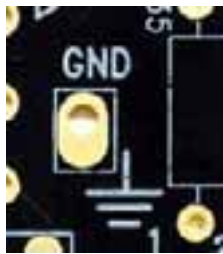
TRV-1N Wiring Layout

Iron Sounds
Traveler 18
Basic Layout
(TRV18-1N)



TRV-1N PCB Connection Chart

GND (Ground)



- **GND:** To Chassis Ground

CN8 "POWER"



- **(1 & 2):** To 290V Tap on Power Transformer (Usually Red Pair)

SW2 (STDBY)



- **(1 & 2):** To Standby Switch
Note: If no standby switch is used, add jumper wire between pads

R36



- **R36A & R36B:** Add jumper wire between pads

CN1 (FX LOOP)



- **IN (1) & OUT (2):** Add jumper wire between pads

TR1A "OUTPUT TRANSF."



- **BRN:** To Brown Wire on Output Transformer
- **BLU:** To Blue Wire on Output Transformer

Note: DO NOT USE MIDDLE PAD

HTR 6.3V



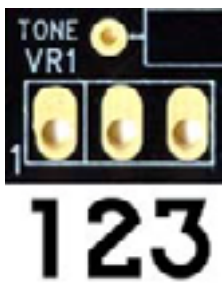
- (1 & 2): To Power Transformer 6.3v Tap (Usually Green Pair)

TR1B "RED B+"

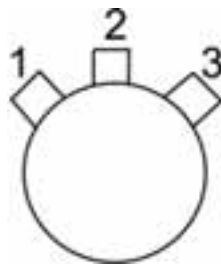


- **TR1B:** To Red Wire On Output Transformer
Note: DO NOT USE TR1C

VR1 (TONE) 500k Potentiometer

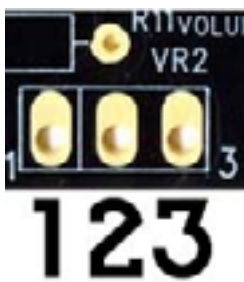


PCB #	POT #
1	3
2 (Shield)	2 (Shield)
3	1

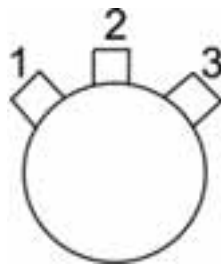


* Please note the connections for 1&3 are reversed for this pot
 (Rear View of Pot)

VR2 (VOLUME) 500k Potentiometer

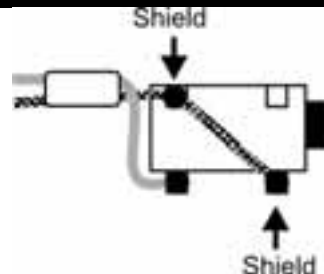
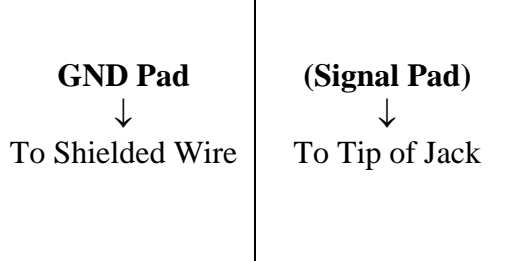


PCB #	POT #
1	1
2	2
3 (Shield)	3 (Shield)



(Rear View of Pot)

IN1 (Input Jack #1)



IN2 (Input Jack #2)



- Add jumper wire between pads

Testing Amplifier Voltages

⚠ IMPORTANT – You must verify that all ground connections are soldered well and secured to the chassis before proceeding.

In this section, use maximum caution. Do not under any circumstances touch any parts inside of the amplifier with your hands. Even if the amplifier is disconnected from power for a number of weeks, the electrolytic capacitors will remain charged. Inadvertently touching these capacitors **CAN KILL YOU**.

We suggest that you wear Safety Goggles in case you have wired an electrolytic capacitor in backwards (they will explode).

1. It is advisable that you place one hand in your pants pocket at this time, as it may prevent an electric shock from traveling from one hand to the other and across your vital organs if you should come into contact with high voltage.
2. **DO NOT INSTALL THE TUBES AT THIS TIME**
3. Insert a **2A slow blow** fuse into the fuse holder.
4. Verify that the Power and Standby switches are in the OFF position.
5. Insert the power cord into the AC Power Connector and plug the cord into the wall.

Note: Be ready to pull the power cord if you see, smell or detect anything unusual (i.e. smoke)

6. Turn the Power Switch ON. The indicator lamp will illuminate.
7. Using a multi-meter, connect your meter's negative lead to chassis ground and test the “HTR 6.3V” voltage:



Each pad should read close to 3.2V AC.

8. **WITH ONE HAND IN YOUR POCKET**, test the CN8 Power voltage:



Each pad should read close to 290v AC.







Tube Type and Location Chart

Insert the following tubes in the PCB:

Tube Location	Tube Type	Purpose
V1	EL-84	Power Tube
V2	EL-84	Power Tube
V3	12ax7	Preamp Tube (Signal) * Use Highest Quality Tube Possible
V4	12ax7	Preamp Tube (Phase Splitter)

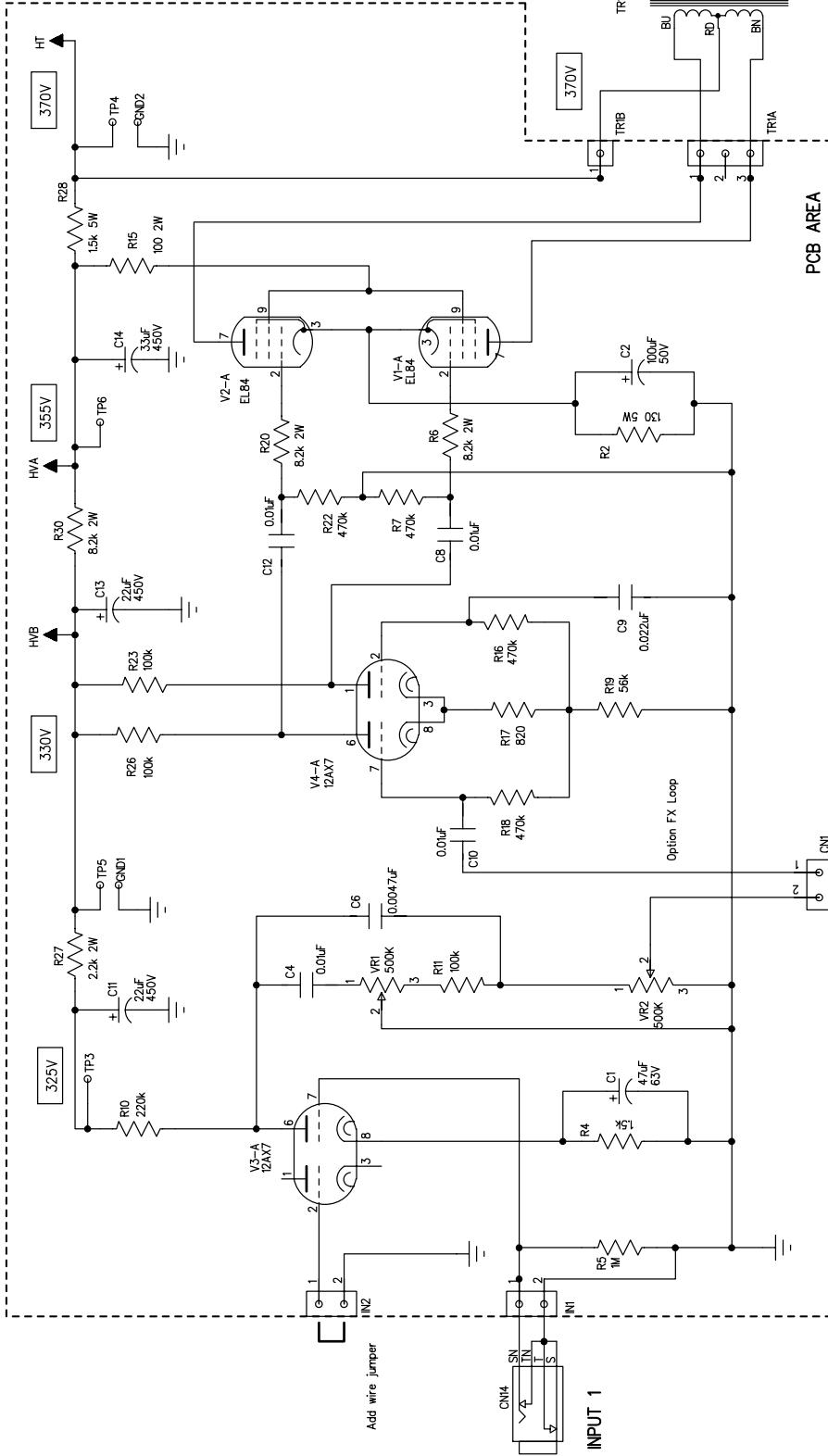
- Turn the Standby Switch ON.
- With the negative lead of your multi-meter attached to chassis ground, obtain voltage readings from the following test points on the board:

Note: The voltages listed below are *approximate*, not exact.

TP1	TP2	TP3
 <p>0 Volts (Ground)</p>	 <p>0 Volts (Ground)</p>	 <p>328V</p>
RED B+ (TP4)	TP5 (HVB)	TP6 (HVA)
 <p>370 V</p>	 <p>330 V</p>	 <p>355 V</p>

- If all voltages are correct, plug a guitar into the input jack and verify that the amplifier is working.

Note: If any 'ringing' sounds occur, inspect the preamp tube (V3) by tapping on it with your finger. If you hear a "thud", then switch or try other preamp tubes in that tube position.



If no FX Loop, add wire jumper to pin 1 and 2

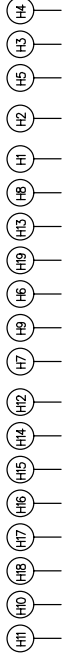
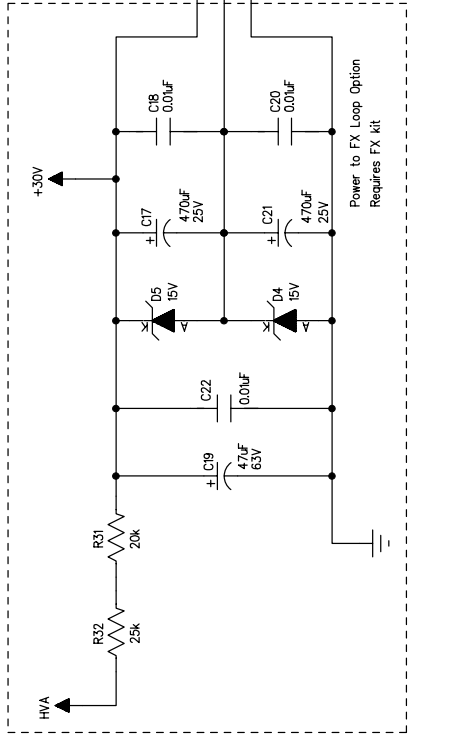
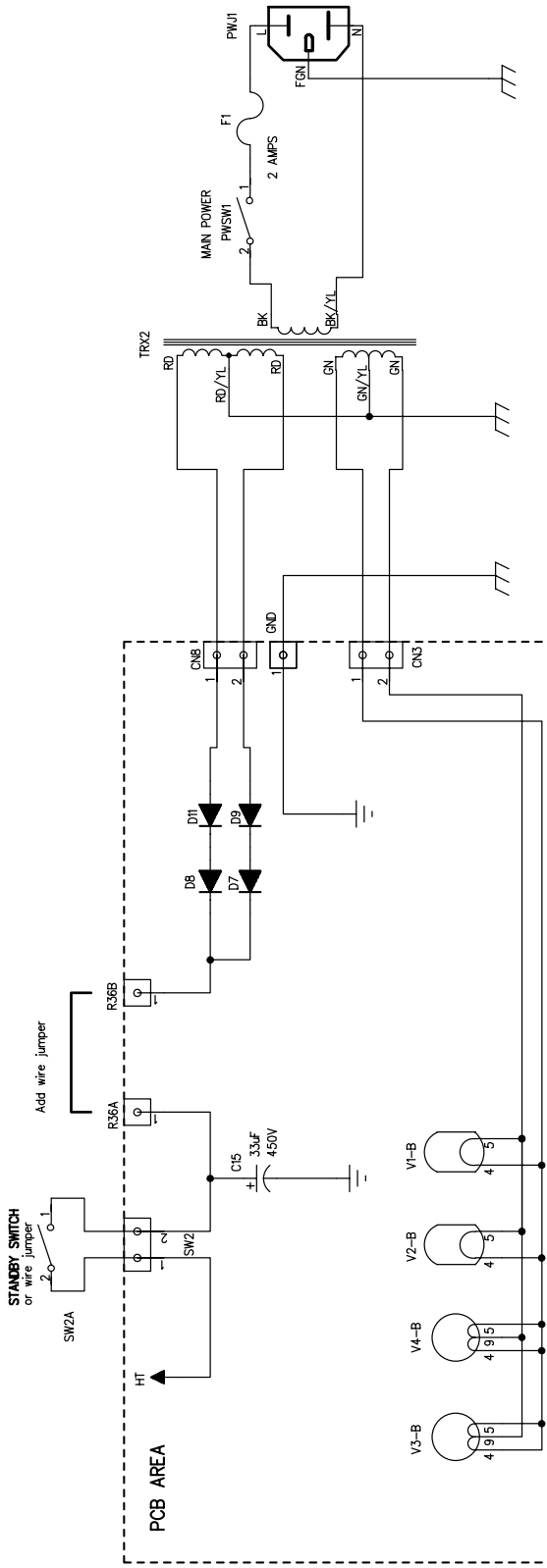
NOTE:
Voltage measured in reference to GND

TUBE	1	2	3	4	5	6	7	8	9	PIN
V1 EL84			11.5V	3.2V AC	3.2V AC	360V				349V
V2 EL84			11.5V	3.2V AC	3.2V AC	360V				349V
V3 12AX7				3.2V AC	3.2V AC	146V		1.2 V		3.2V AC
V4 12AX7	256V		89V	3.2V AC	3.2V AC	243V				88.5V 3.2V AC

SCALE	UNIT	PAGE	DATE	APPROVAL	CHECKED	DRAFTSMAN
		1 of 2	02/23/09	J. A.		DRUSZALA
TRAVELER 18			MAIN BOARD AMPLIFIER			
MODEL TRV18-11N			SERIES			
INITIAL RELEASE			DRAWING No. IES-000140b			
DATE			APPROVAL			

IRON SOUNDS LLC

PROTO No. AD10-000500-P1



SCALE	UNIT	PAGE	DATE	APPROVAL	CHECKED	DRAFTSMAN
		2 of 2	02/23/09		J.A.	DRUSZALA
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INITIAL RELEASE			SECTION			
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			AD10-000500-P1			

IRON SOUNDS LLC

Iron Sounds, LLC
PO Box 1676
West Caldwell, NJ 07007
E-Mail: ironsounds@verizon.net
Web: <http://www.ironsounds.com>