

WD7S PRODUCTIONS DS-1 BARGRAPH DISPLAY ASSEMBLY INSTRUCTIONS

In order to align all the leds in a straight line and at the same height, a straight edge is required that will lie on the board and support the leds. Do not place any other components on the pc board until all the leds are in their place and soldered. Place one row of leds at a time and then solder one lead of each led on the top only. Next, straighten each led and solder the remaining lead. The led anodes (positive) are all on the right-hand side, (front top up) except the SWR and OVERTEMP leds. The led side of the board (front) has the printing on it. After all the leds are mounted, place the IC sockets and resistors on the top and solder. All components taller than your led height will mount on the back, (pots, electrolytics, and headers). Be sure to pay attention to the capacitor polarity when viewing from the other side.

Use a bench supply or the DS-PS to supply operating voltage the board. An adjustable bench supply is required to check the meters for proper operation. The LM3914's will take quite a bit of over-voltage (35v) on their inputs so don't worry about cooking them. Refer to the various board schematics for wiring the display board into your amplifier and interfacing with the other boards. The board can be hard-wired if you choose not to use headers for interconnections.

The display requires a 3.375 x 7.25 inch hole in the amplifier's front panel. Use the silk-screen print or the un-populated pc board to mark the cutout and four mounting holes. The board will mount with hex stand-offs with their length depending on the installed height of the leds and the front panel thickness. This should be between .375 - .5 inch. Take care not to damage the lens while installing and clean only with a soft cloth, NO paper towels. The lens cover should be secured with nylon screws painted your choice of color.

Calibration is straight forward. Set the negative supply to the zero-center tune meter to extinguish all the negative side leds (approx -1.25v). Be sure to calibrate the SWR meter before you set the SWR trip point. Use a bench supply feeding the SWR bargraph input to set the SWR trip point. The plate current meter uses a 1-ohm shunt for the 0-1.5-amp scale and a 2-ohm shunt for the 0-1-amp scale. Follow the instructions for the triode board for calibrating the other bargraphs. If your using your own HV meter voltage divider it will have to include a series calibration pot. Be sure to ground the bottom of the meter voltage divider. See the WD7S website for schematics.

WD7S PRODUCTIONS
DS-1 BARGRAPH DISPLAY
PARTS LIST

C1, C3, C4, C7, C9, C14, C17; 10UF ELECTROLYTIC, MOUSER, 140-XLR50V10
C2, C6, C15; 2.2UF NON POLARIZED ELECTROLYTIC, MOUSER,
140-NPRL50V2.2
C5, C10; 1MF 25V TANT, MOUSER80-T350A105K025
C8, C11, C12, C13, C16; .1UF DISK, MOUSER, 140-CD50V10-104Z
D1- D91, D93; SQUARE LED, MOUSER, 604-L503HDT, GDT, YDT, 46G, 26R, 20Y
D92, D94, D95; 1N914B, MOUSER, 583-1N914B
L1 – L5; 1MH MOLDED CHOKE, MOUSER, 434-23-102
R1, R12, R13, R19, R24, R26; 1.2K = 1.1K USED
R2, R18; 8.2K
R3, R16; 300
R4, R5; 50K MULTI-TURN POT, MOUSER, 72-T93YB-50K
R6, R28; 8.2M
R7; 2M
R8, R9, R14, R25, R27; 10K
R10, R20; 3.3K
R11, R15, 10K MULTI-TURN POT, MOUSER, 72-T93YB-10K
R17; 2.2K
R21, R22; 330-OHM SIP NETWORK, MOUSER, 71-CSC06A01-330
R23; 750
U1 –U4, U6 –U9; LM3914N-1, DIGI KEY, LM3914N-1-ND
U5; LM393, MOUSER, 511-LM393N
J1, J3, J4; 8-PIN HEADER, .100, MOUSER, 538-22-23-2081
J2, J5; 5-PIN HEADER, .100, MOUSER, 538-22-23-2051
8EA 18-PIN DIP SOCKETS, MOUSER, 571-26403594
1EA 8-PIN DIP SOCKET, MOUSER, 571-26404634
ALL RESISTORS .25 WATT, MOUSER, 291-(Resistance)

WD7S PRODUCTIONS 04-17-2008

WD7S PRODUCTIONS

DS-PS ASSEMBLY INSTRUCTIONS

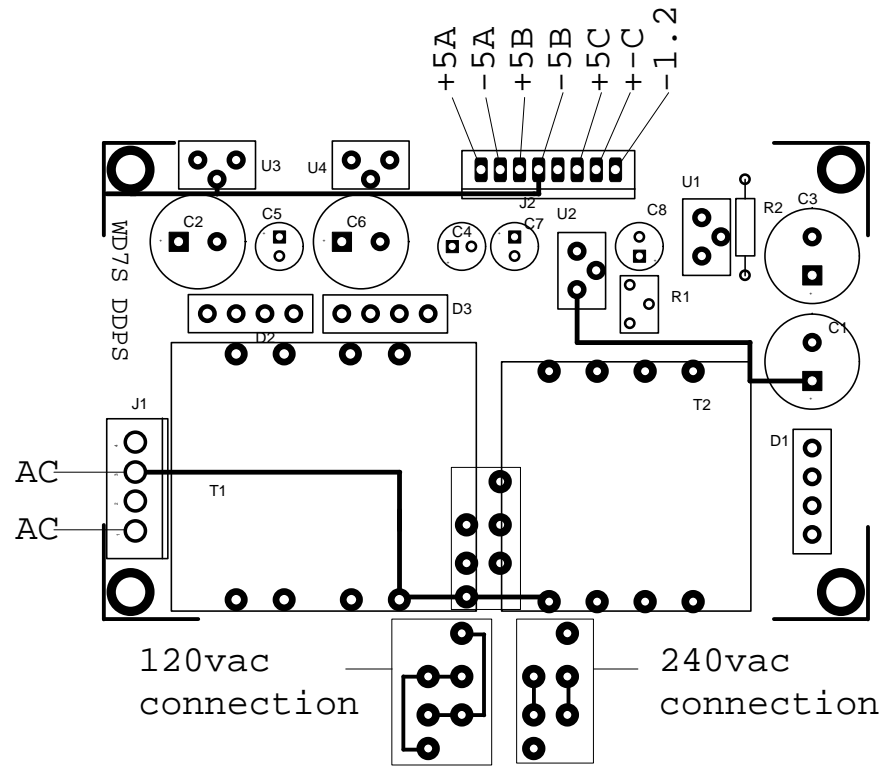
Start by marking the mounting-hole pattern where the board will be mounted or on a piece of paper for later use as a pattern. Follow the silk-screen layout for populating the board. All components are on top. Pay attention to the positive leads of the full-wave bridge rectifiers, they should go to the positive side of the filter capacitors. The AC header is very close to T1 and the friction lock needs to be cut off with a sharp knife. Use insulated jumpers on the top of the board for the 120VAC connections with one end making the jump under the board to the designated pad. For the 240VAC connection, simple jumpers under the board will suffice. If metal stand-offs are not used for mounting the board make sure to ground the “-5B” terminal to chassis. The dual polarity supply common needs to be attached to chassis also. R-1 needs to be adjusted to extinguish all the negative LEDs on the display board’s zero center bargraph (approx – 1.25VDC). A color picture of a completed board is available on the website at Wd7s.home.att.net

WD7S PRODUCTIONS

DS-PS BARGRAPH DISPLAY

POWER SUPPLY PARTS LIST

C1, C3, C5, C6, 1000UF 50V, MOUSER, 647-UVR1H102MHA
C2, C4, C7, C8, 1UF 25V TANT, MOUSER, 80-T350A105K025
D1, D2, D3, BRIDGE RECTIFIER 2 AMP, MOUSER 583-RS203L
HEAT SINK, 4EA, MOUSER, 532-507302B00
J1, HEADER 4-PIN, 156, MOUSER, 571-6404454
J2, HEADER 8-PIN, .100, MOUSER 538-22-23-2081
R1, 2K MULTI-TURN POT, MOUSER, 72-T93YB-2K
R2, 120 OHM ¼ WATT, MOUSER, 291-120
T1, 12.6VAC CT @ 6VA MAGNETEK, MOUSER, 553-FS12-500
T2, 12.6VAC CT @ 2.5VA MAGNETEK, MOUSER, 553-FS12-200
U1, U2, U3, 5 VOLT REGULATOR, MOUSER, 511-L7805ABV
U4, LM337 ADJUSTABLE NEGATIVE VOLTAGE REGULATOR,
MOUSER, 511-LM337SP

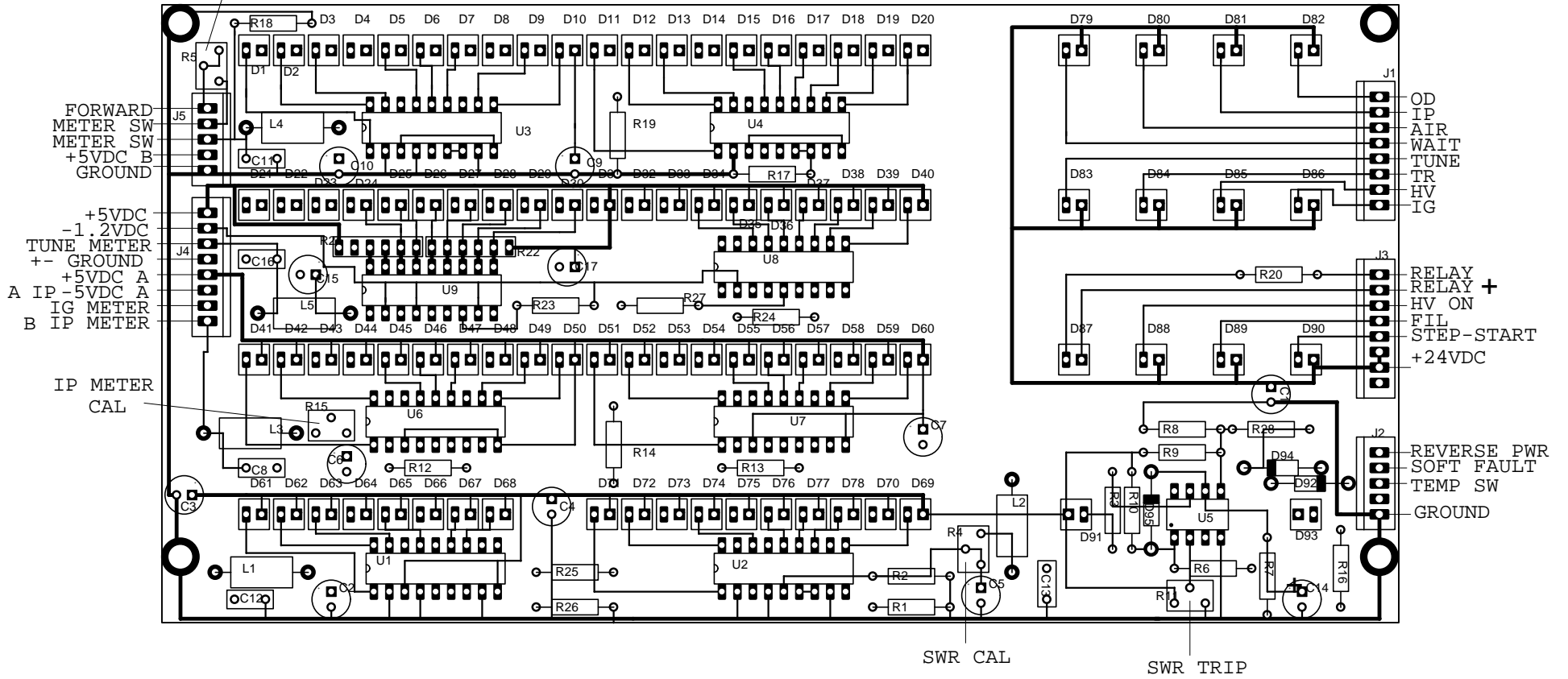


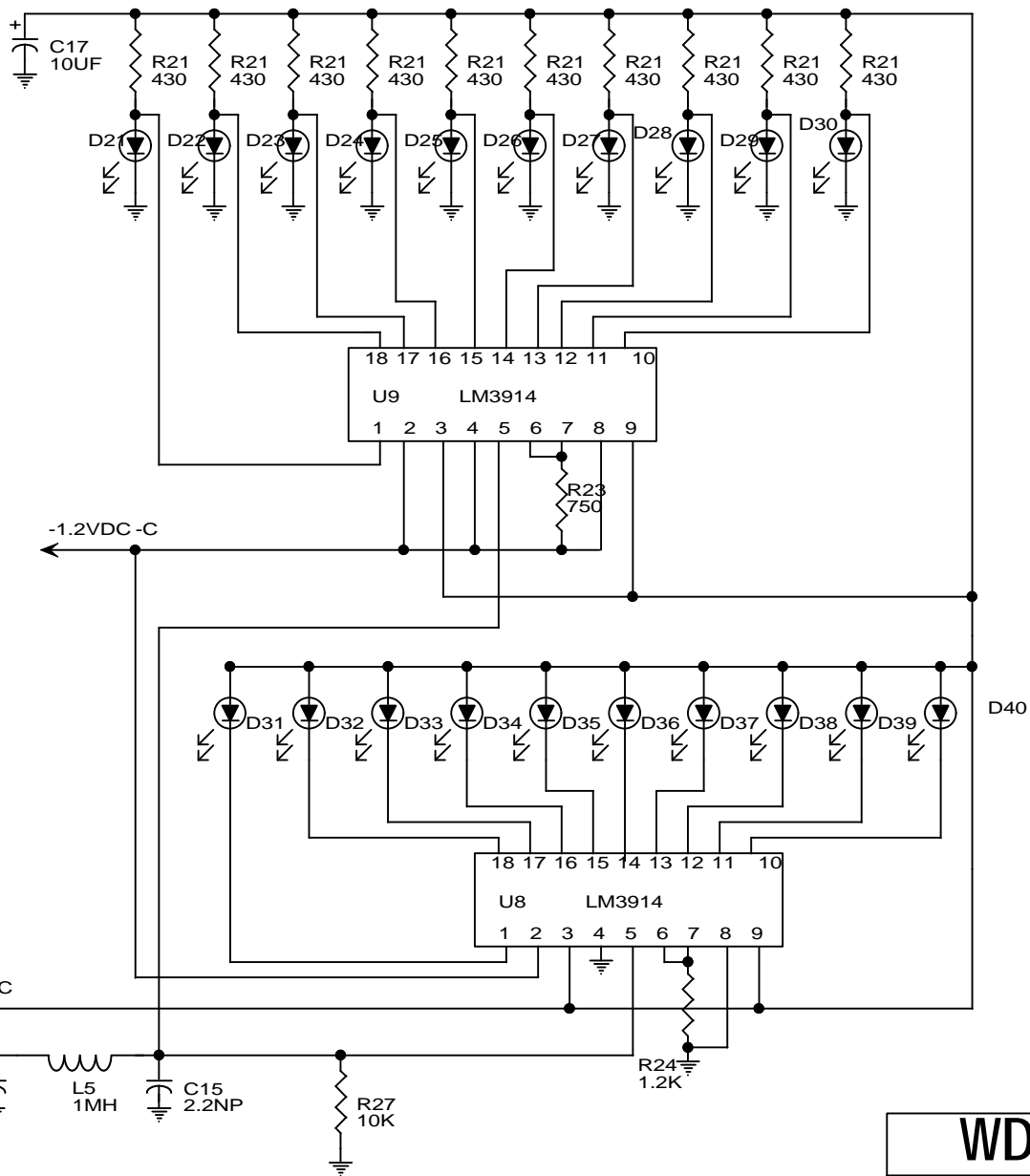
FORWARD CAL

TOP VIEW

WD7S PRODUCTIONS

DS-1

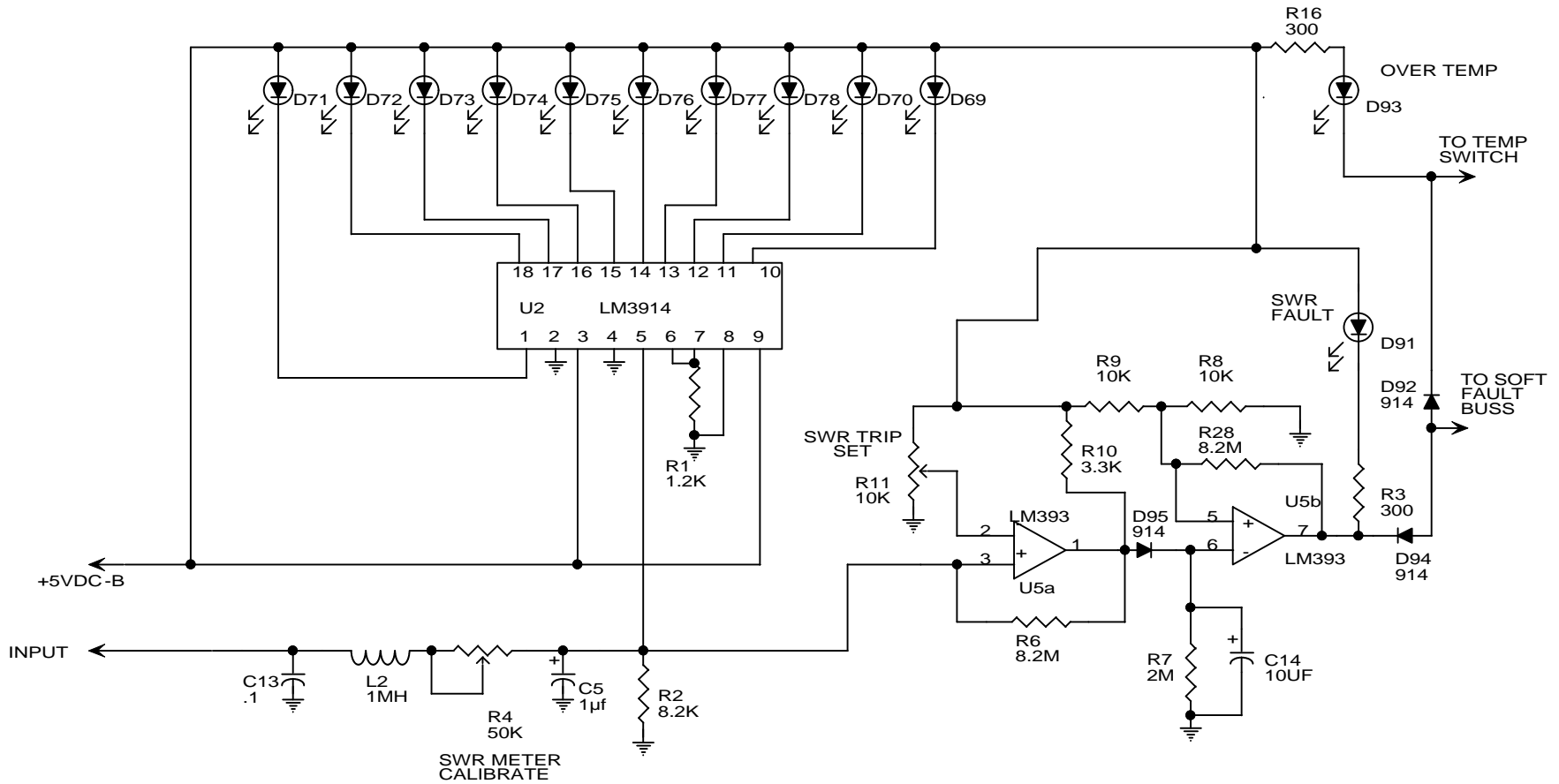




OBSERVE D1 - D10
POLARITY

WD7S PRODUCTIONS

Title: ZERO-CENTER BAR.PIC		
Size A	TUNE METER	Rev
Date: 1/01/09 Thu		

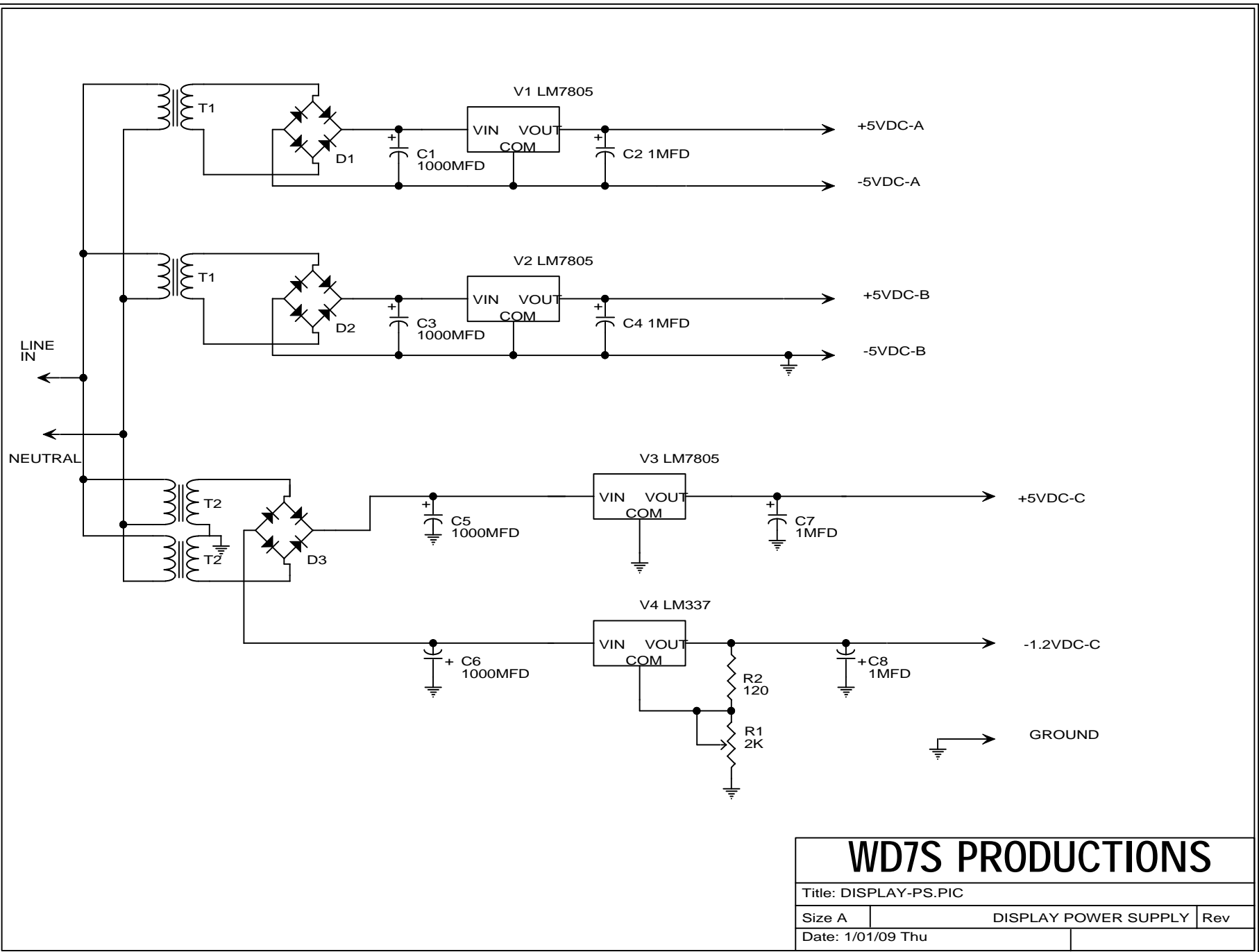


WD7S PRODUCTIONS

Title: SWR DISPLAY-ALARM.PIC REV-2 04-05-2001

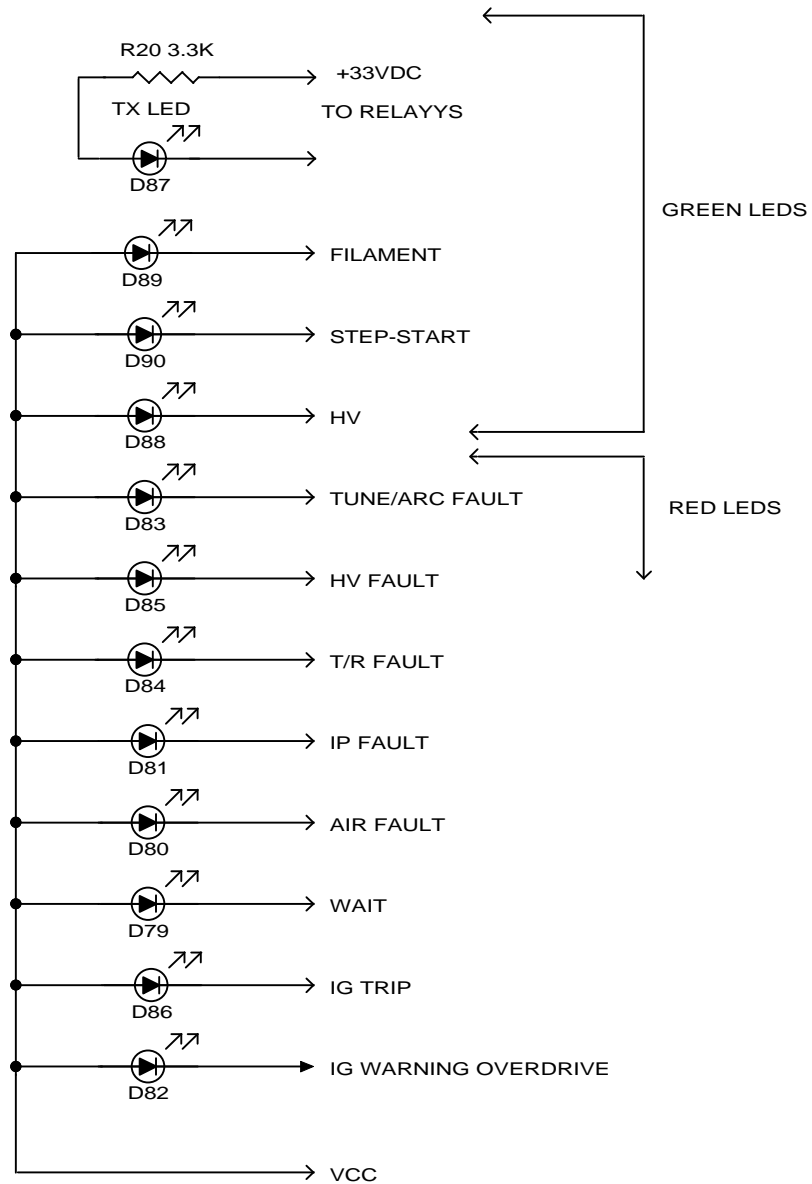
Size A FS=1.2-7VDC BARGRAPH Rev

Date: 1/01/09 Thu



WD7S PRODUCTIONS

Title: DISPLAY-PS.PIC		
Size A	DISPLAY POWER SUPPLY	Rev
Date: 1/01/09 Thu		



WD7S PRODUCTIONS

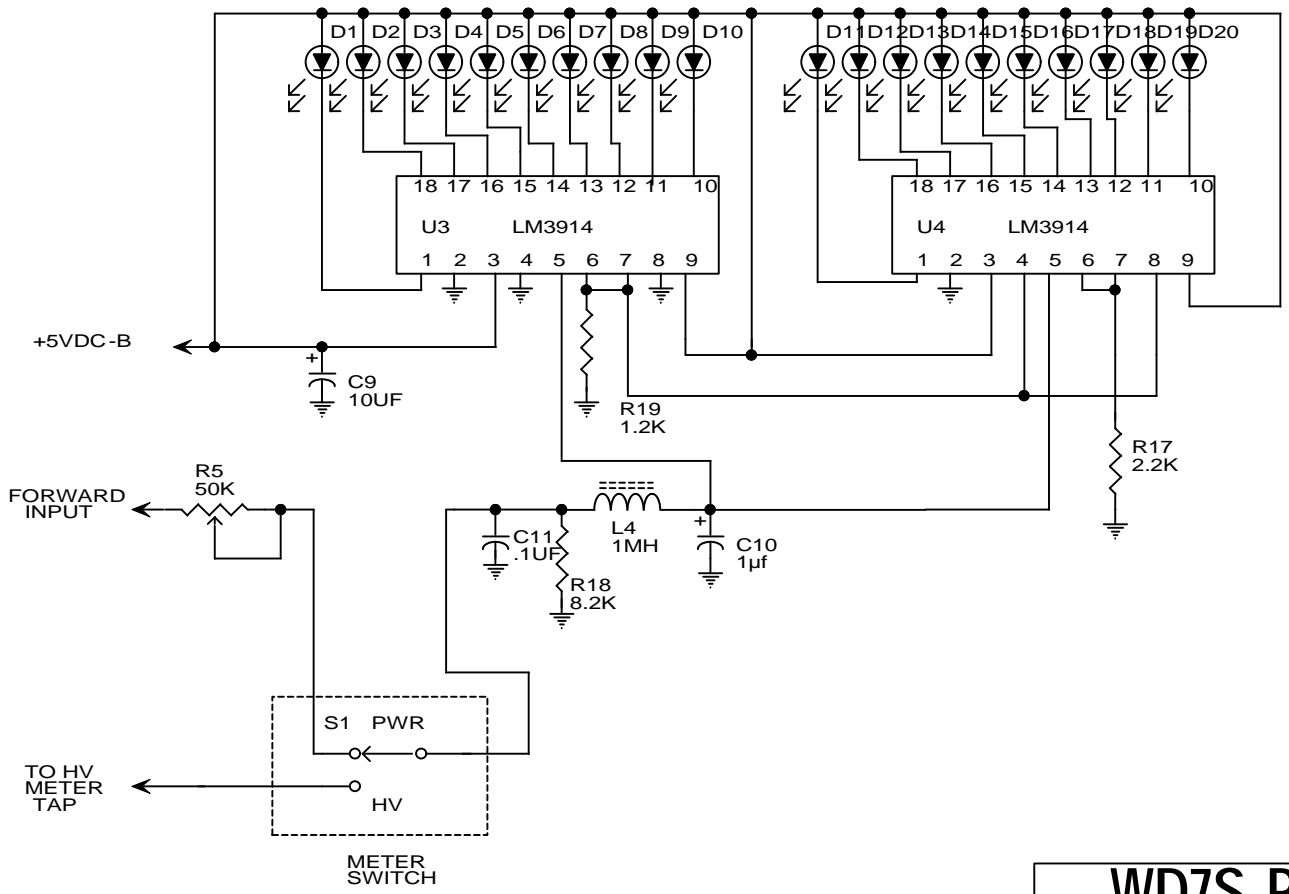
Title: Ds-1leds.pic

Size A

DS-1 STATUS LEDS

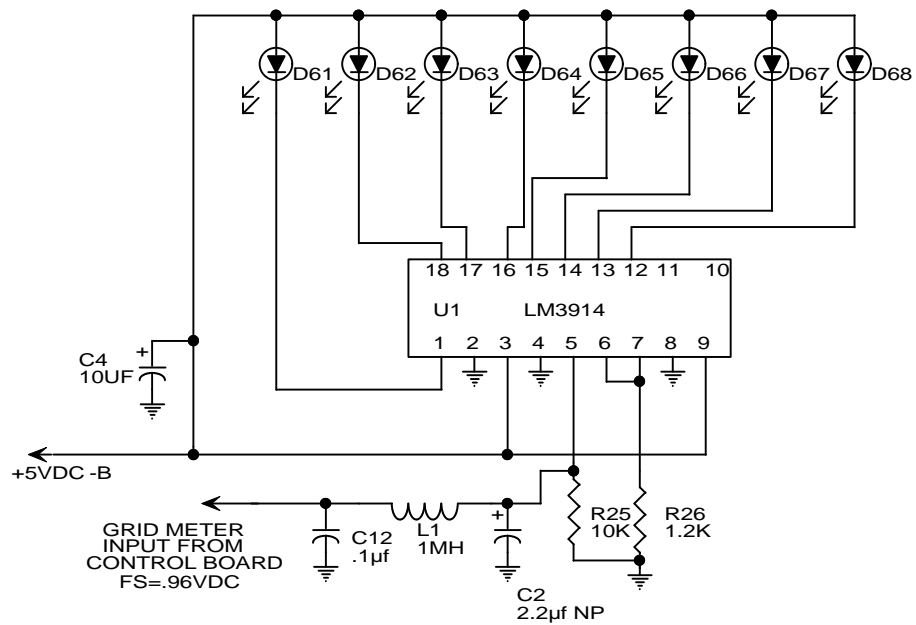
Rev

Date: 1/01/09 Thu



WD7S PRODUCTIONS

Title: WATTHVBAR.PIC	
Size A	BAR-MODE HV/PWR FS=2.4/Rev
Date: 1/01/09 Thu	



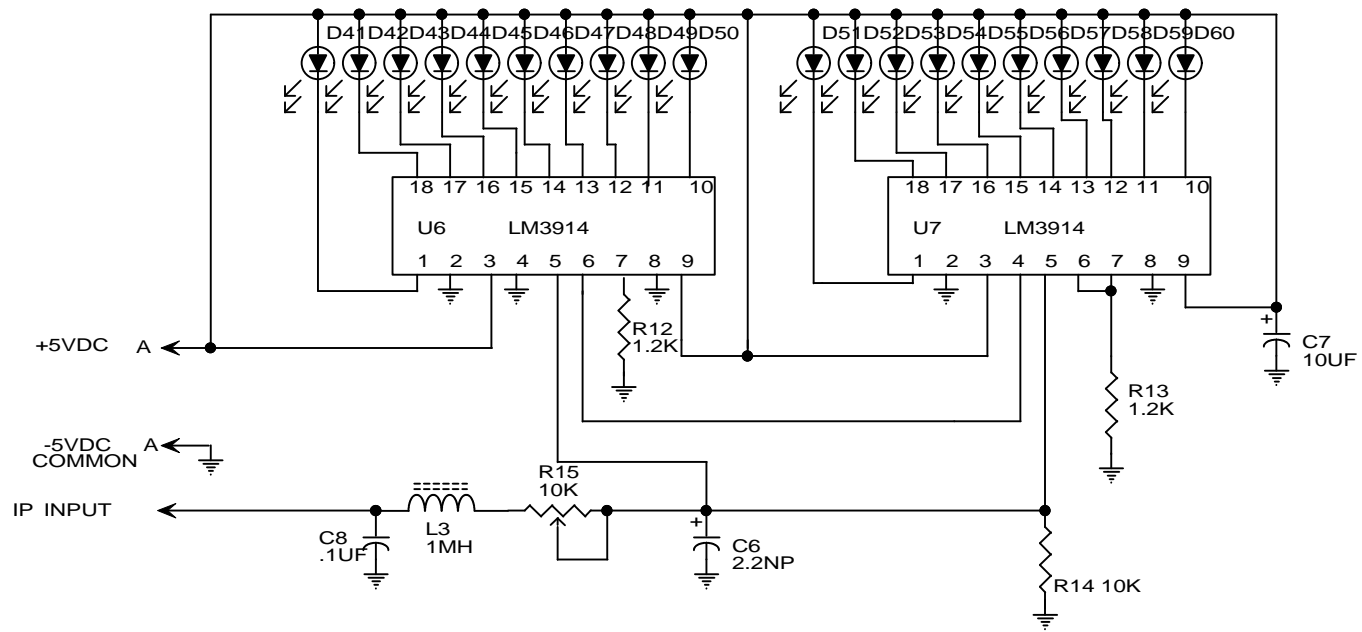
WD7S PRODUCTIONS

Title: Grid bar.pic

Size A

GRID CURRENT BAR-GRAPH Rev

Date: 1/01/09 Thu



ISOLATED POWER SUPPLY

WD7S PRODUCTIONS

Title: Ip meter.pic

Size A

20 SEG IP METER FS= 1.2-2 Rev

Date: 1/01/09 Thu