

Note on the modifications to the special WRP-16 card

One of the WRP-16 cards installed in the warm receiver crate has been modified from the original design in order to provide 1.8 volt power to a special preamp card inside the LAPD dewar. This special preamp card has a custom ASIC that requires two independent 1.8 Volt power inputs. The special preamp card draws a maximum total current of approximately 130 mA.

This modification to the special WRP-16 card changes the output voltage of two of the on-board regulator circuits from the typical 6 Volt value to 1.8 Volts. Figure 1 shows the schematic for the unmodified WRP-16, and Figure 2 shows the unique details of the special WRP-16 card.

Here is the complete list of the modifications:

(1) Change Zener diode D801 to a part with a different Zener voltage and add variable resistance R802.

(2) Add diodes D806 through D809 to each modified regulator. This series of forward-biased diodes will go into increasing conduction if the regulated voltage increases above the nominal 1.8 volts. In the case of a regulator failure which drives the regulated voltage above 2.3 volts, the diode array will conduct in excess of 500 mA, which will blow fuse F801. F801 is rated at 500 mA and the diodes have continuous current ratings of 1 Amp (1N4001) and 3 Amps (1N5820). This circuit element is added to protect the voltage-sensitive ASIC preamp card inside the LAPD cryostat.

(3) Add diodes D804 and D805 to ensure that the two voltages from the modified regulators will remain within one diode drop of each other. D804 and D805 have a continuous current rating of 1 Amp. This circuit element was added to protect the ASIC preamp chip inside the LAPD cryostat from being powered on only one of its two voltage inputs.

(4) Remove F801 from the two voltage regulators that are not used on the special WRP-16.

Note: No other changes were made to this special WRP-16. This card is connected to the same regulated and fused power that is used to supply the other non-modified WRP-16 cards. The power inputs and outputs consist of the same connectors, wire gauges and fusing elements as the unmodified WRP-16 cards.

WRP-16 Warm Receiver & Power 16 Channel

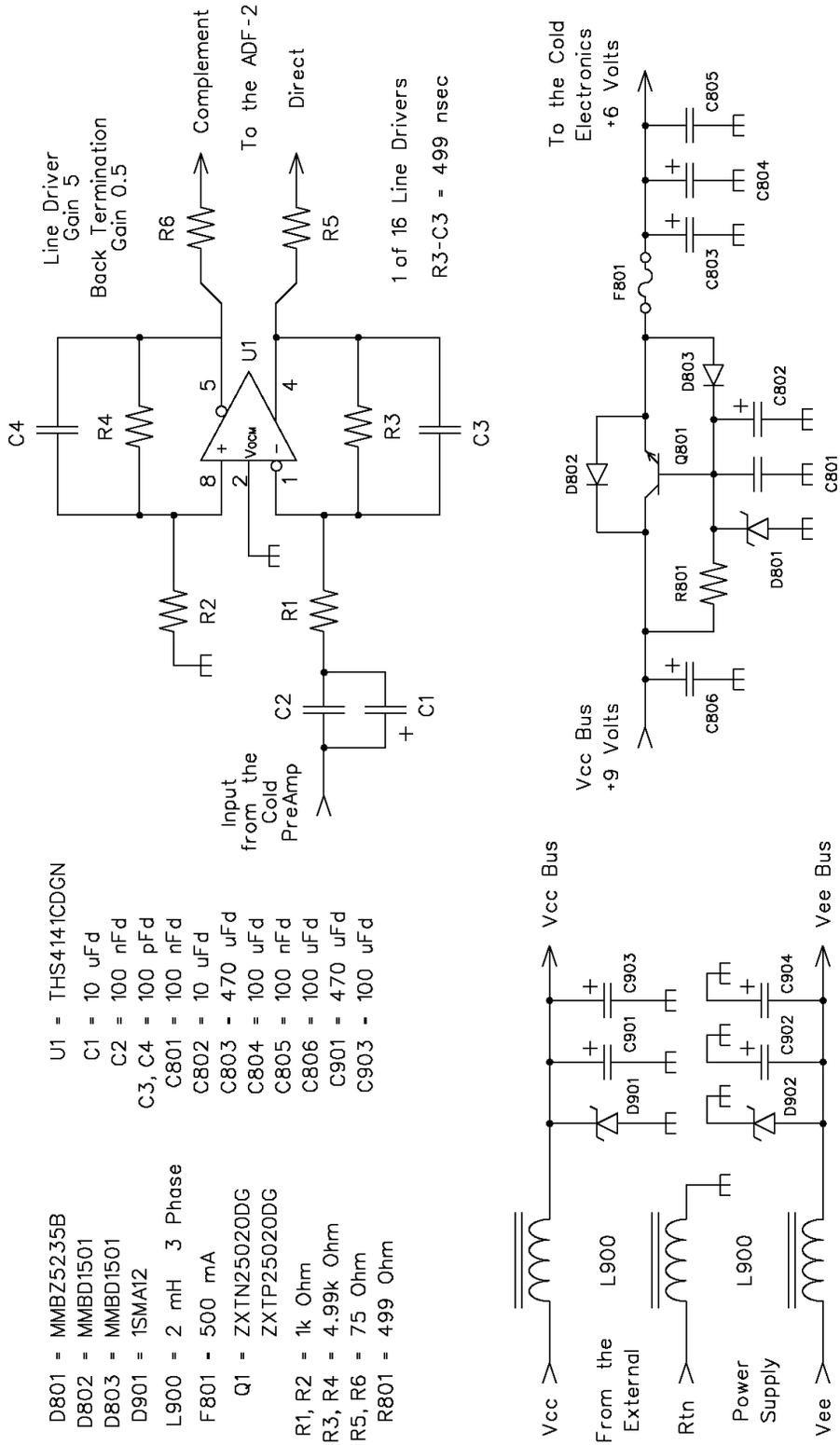
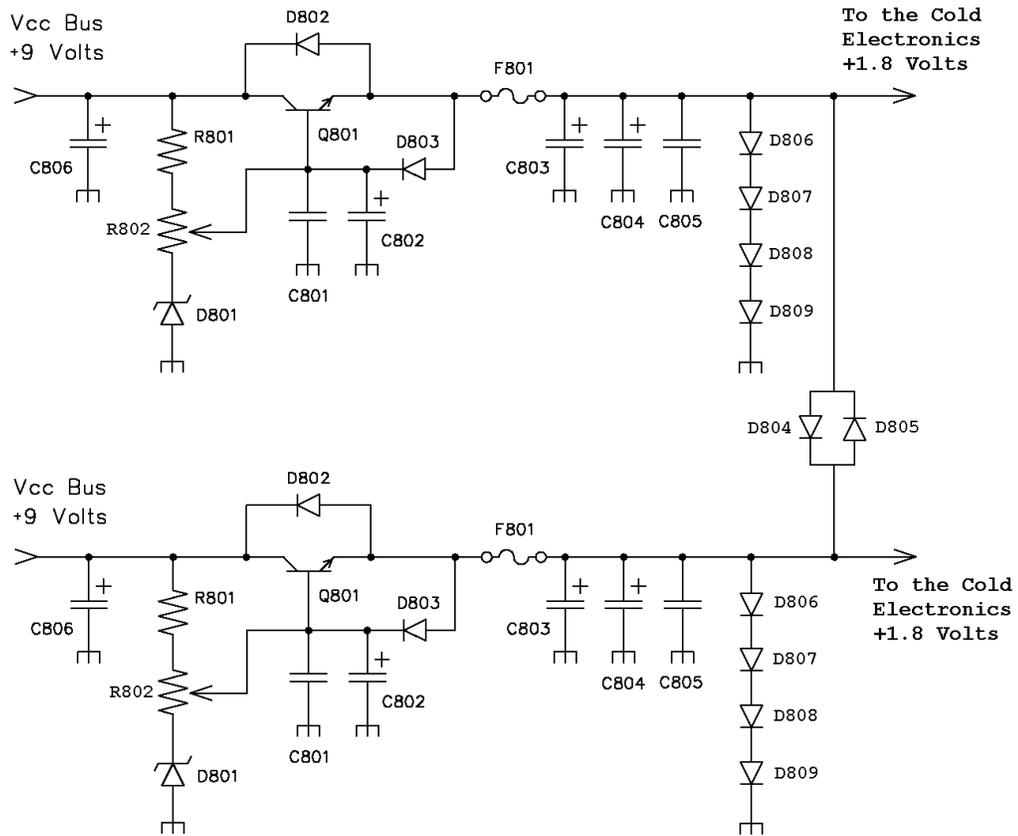


Figure 1. Schematic of the unmodified WRP-16 card.

1 of 4 Cold Power Regulators
 *1 PreAmp Vcc *2 Filter Vcc
 *3 Driver Vcc *4 PreAmp Vee



Part changes relative to unmodified
WRP-16 regulator circuit

D801 = MMBZ5223B-7-F
D804, D805, D806, D807 = 1N4001
D808, D809 = 1N5820
R802 = 500 Ohm trimmer

Figure 2. Modified pair of regulator circuits on the special WRP-16 card.