

Overload Detect and Efficiency Meter Board

+/- 18VDC Unreg. can come from PWM or class H modulator boards

Setup and Adjustments

Important Note: The test points (TP1, TP2, TP3, TP4) will be loaded down by standard 20000 ohms per volt multimeters. This will affect the voltage measurements. Be sure to be aware of this and make corrections to your readings. The TPs each have an internal resistance of 3.2k ohms. A 20000 ohms per volt meter on a 3V scale has a resistance of 60k ohms. This will cause a .152 V error at 3V, and the meter will read 2.85V. Make the necessary corrections to your figures. The error will be different for different voltages and will need to be figured for each reading.

Adjust R702 (voltage cal) for 3 VDC at TP1 with operating DC carrier voltage. Initial setup as follows: With +12vdc at Input port, set R702 for .8VDC at TP1. This is the approx. setup for 45V Carrier (45V = 3V). Re-adjust with operating DC carrier voltage after initial setup.

Adjust R706, R708 (current zero, current gain) such that, with normal operating current flowing from modulator, TP2 reads 3VDC with operating current and 0VDC with no current. Initial Setup: with no current, set R708 (CurGain) in the middle. Set R706 (CurZer) for 1VDC at pin 1 of U702. Set R708 (CurGain) for 3V at TP2. Re-adjust R706 (CurZer) for 0V at TP2.

Adjust R720 for 3VDC at TP3 in standby (no modulator output)

Adjust R713 - Meter Set for 1/2 scale, xmtr in standby

Overload Note: If, under normal operation, the overload sensor is too sensitive (trips on normal voice peaks, etc.), set R702 (voltage cal) to a slightly higher voltage at TP1, up to 3.5 V

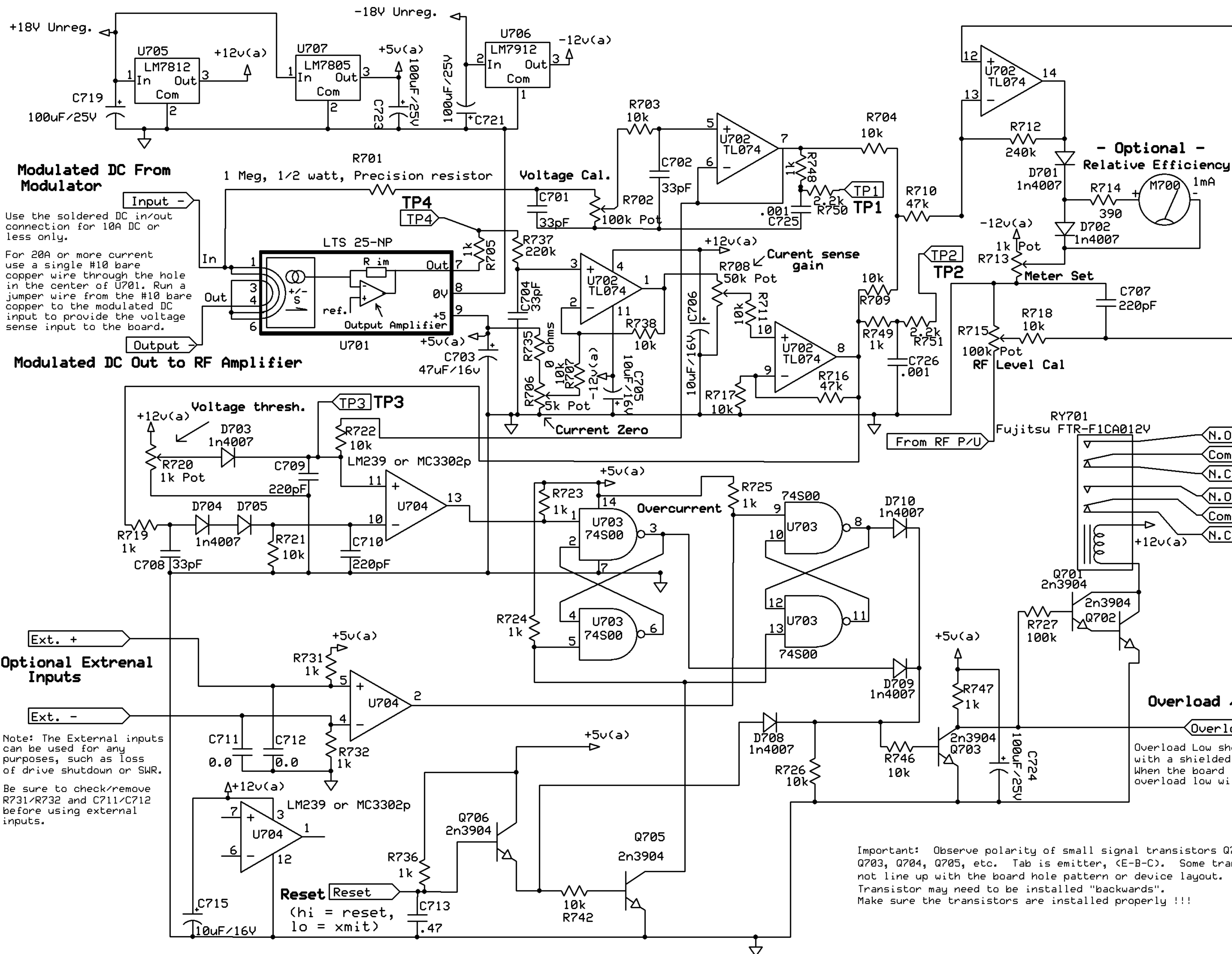
Verify TP2 voltage of 3.0V at normal carrier current. Adjust R706 and R708 (current zero, current gain) if necessary.

Using the Reset and Overload Low output

When the reset line is high (floats high when not pulled to 0V) the board will reset, and also enter the overload state asserting the Overload Low output. T/R system in receive mode.

In general, the Reset should be configured so the reset line is floating (pulls high - board in reset), and an external relay or switch is then used to pull the reset line to 0V (gnd) when in transmit.

The reset state should be used when going from transmit to receive, as the modulator output will be turned off immediately upon entering the reset/overload state.



Modulated DC From Modulator

Use the soldered DC in/out connection for 10A DC or less only.

For 20A or more current use a single #10 bare copper wire through the hole in the center of U701. Run a jumper wire from the #10 bare copper to the modulated DC input to provide the voltage sense input to the board.

Modulated DC Out to RF Amplifier

Voltage thresh.

Optional External Inputs

Note: The External inputs can be used for any purposes, such as loss of drive shutdown or SWR.

Be sure to check/remove R731/R732 and C711/C712 before using external inputs.

Important: Observe polarity of small signal transistors Q701, Q702, Q703, Q704, Q705, etc. Tab is emitter, (E-B-C). Some transistors may not line up with the board hole pattern or device layout. Transistor may need to be installed "backwards". Make sure the transistors are installed properly !!!

Circuit & Methods Copyright 1998-2016 Radio Engineering Associates Inc. Use of this circuit by individuals for their own non-commercial use is permitted and encouraged. All other uses, reproduction, duplication, mass production or use for any commercial purpose is prohibited without written permission.

Patent Pending, US Patent & Trade Office.

700 - Efficiency Meter - Overload Detect - Board

Radio Engineering Associates		
Efficiency Meter, Overload Detect		
Steve Cloutier	Etch Rev F, Doc Rev 1 12/2016	Page 1 of 1