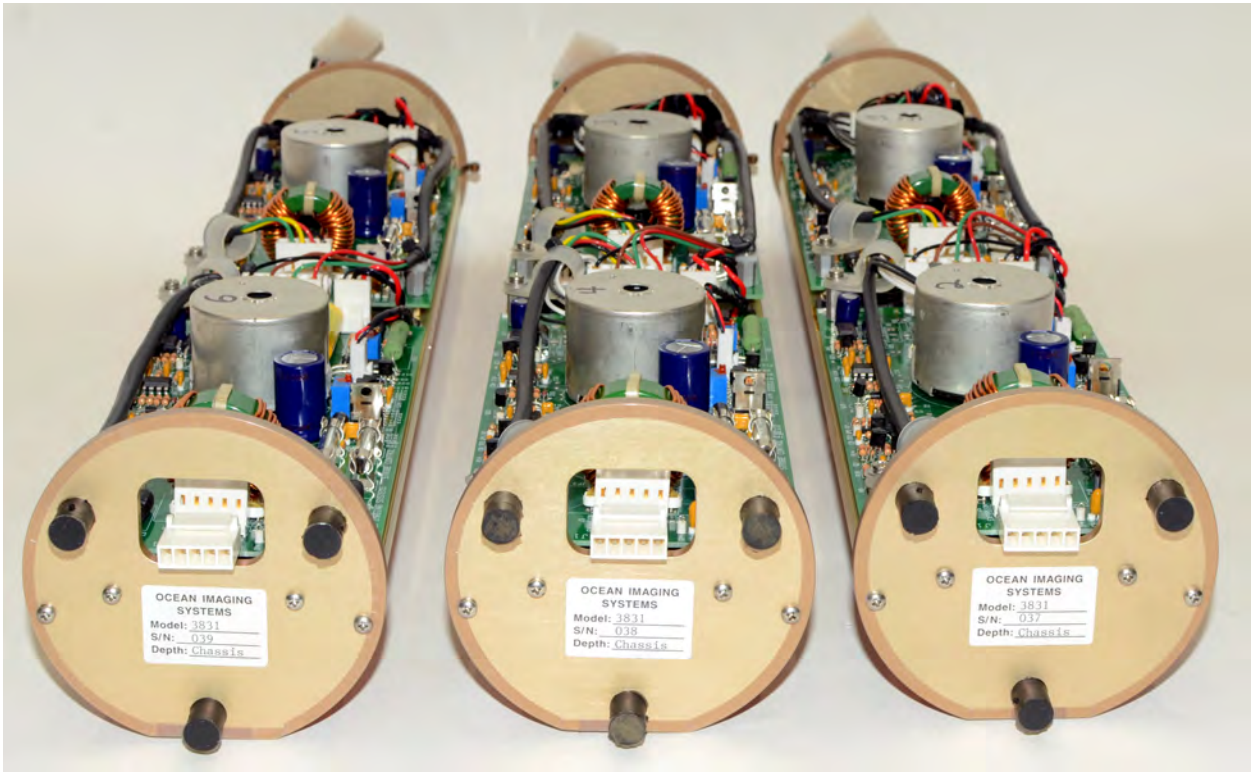
INSTRUCTIONS FOR THE OPERATION AND MAINTENANCE OF THE OCEAN IMAGING SYSTEMS REMOTE HEAD STROBE - MODEL 3831 300 AND 600 WATT-SECOND CHASSIS

M-3831-037 -038 -039

October 30, 2015



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WARNINGS:

DANGER: VERY HIGH VOLTAGES
SERVICE BY PERSONEL TRAINED IN HIGH VOLTAGE EQUIPMENT ONLY!

CAUTION: DO NOT OPERATE ELECTRONICS WITHOUT CAPACITOR BANK ATTACHED. DAMAGE TO ELECTRONICS WILL OCCUR!!

TO PREVENT INJURY: FIRE STROBE IMMEDIATELY AFTER DICONNECTING POWER, AND ALLOW UNIT TO SIT OVERNIGHT TO DISCHARGE DANGEROUS VOLTAGES!

1.0 INTRODUCTION

The Ocean Imaging Systems Model 3831 strobe is a high-energy, high-repetition rate flash designed for rigorous oceanographic imaging applications. The system consists of an electronics chassis containing the energy storage capacitors and supporting electronics. This special system was supplied without a housing and is intended to be installed in a customer supplied housing.

2.0 SPECIFICATIONS

Depth Rating:	As per housing, Customer Supplied
Input Voltage:	24 VDC nominal (23 to 33 vdc)
Input Current:	Up to 8.5 Amps during recharge (@24 vdc)
Strobe Energy	600 joules or 300 joules
Recycle Time:	5 seconds
Dimensions:	
Chassis:	4” Diameter, 20” Long (600WS) 4” Diameter, 12” Long (300WS)

2.1 CONNECTORS

Electronics housing power/sync input connector:	Molex 03-09-2042
Electronics housing strobe output connector:	Molex 03-09-1042

3.0 INSTALLATION

CAUTION: HIGH VOLTAGES PRESENT. EXERCISE EXTREME CAUTION

The electronics chassis supplied in this system are designed to be installed in WHOI-supplied housings, and several modifications have been done to facilitate ease of installation and removal, and increase safety in handling.

Three rubber vibration isolators have been installed on the bottom of each chassis to stabilize the chassis in the housing, and provide protection for connector J1, located on the end of each PCB. Rather than modifying the PCB to remove this connector, and limit future interchangeability, the connector has been capped with a housing which permanently enables the strobe. This housing must be kept in place to prevent electrical short circuit and make sure the strobe chassis will work with MISO systems.

Additionally, a Delrin plate with aluminum handle have been installed on the top of the chassis. The plate isolates the exposed capacitor terminals, and the handle allows for installation and removal of the chassis from the housing.

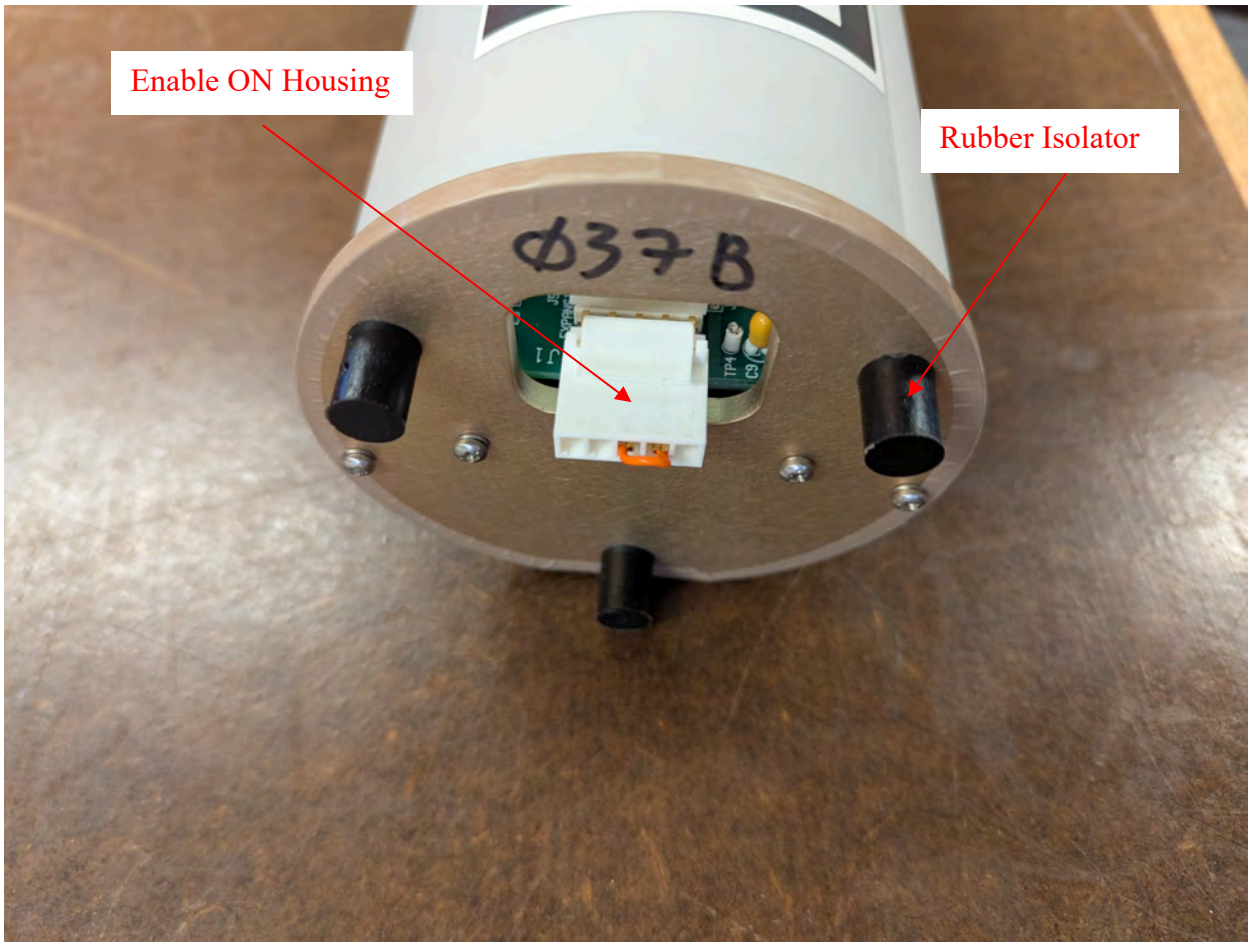

Figure 3.1 Chassis – Bottom View

3.1 INPUT POWER AND SYNC CONNECTIONS

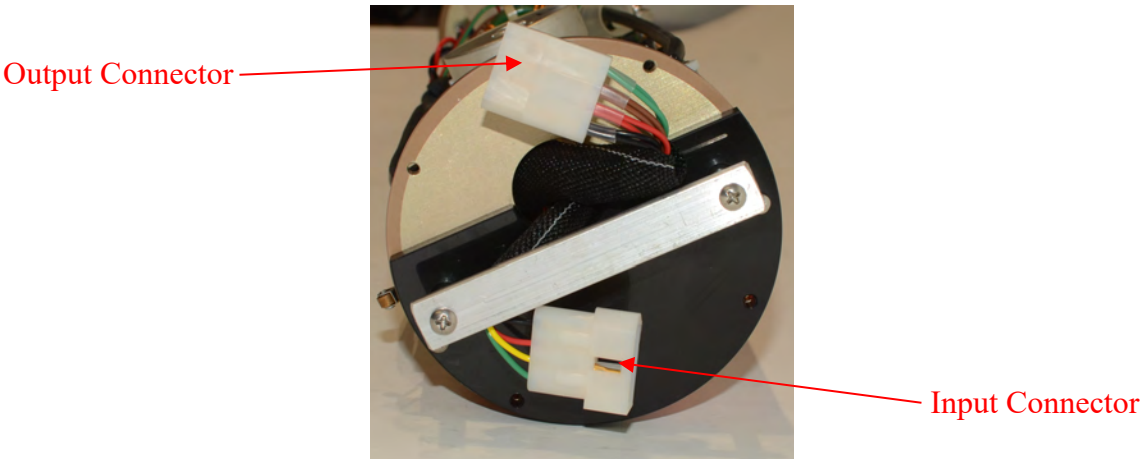

Figure 3.2 View of Connectors

Input connection to the strobe is made by means of the single 4-pin Molex Connector. Pin assignments are:

Pin 1	Black	Input power return (**C**ommon/Ground)
Pin 2	Red	+ 24 vdc input power (**B**attery)
Pin 3	Yellow	Control input (**P**rogram)
Pin 4	Green	**S**ync

The control line (P) is used to enable and disable the strobe. To continuously enable the strobe, it can be connected to the incoming power, or it can be switched on and off via remote control if required. The shorting housing on J1 of each PCB permanently enables each strobe PCB. The sync line is a negative going signal that cause the two flash boards to fire simultaneously. Both these lines are pulled up to +5V in the strobe and thus may be activated by an open collector driver or switch.

Output connection from the strobe is made by means of a single 4-pin Molex Connector. Pin assignments are:

Pin 1	Black	Ground
Pin 2	Red	Strobe Tube Anode (+350VDC)
Pin 3	Brown	Strobe Tube Cathode
Pin 4	Green	Trigger

4.0 ELECTRONIC CIRCUITRY

This 600 WS version of the 3831 strobe is configured as two 300 WS strobe boards. The inputs and outputs of the two boards are tied together and operate from the same power and sync/quench signals. The flash delivers the full 600 WS upon each triggering of the sync input. The 300 WS chassis contains one of these PCBs, and delivers 300 WS when triggered.

All the flash electronic circuitry is contained on the two flash boards within the electronics housing. Repair at the component level is NOT recommended. Repair of the electronics is limited to the replacement of the electronic PC Board(s) (or energy storage capacitors). The PC board schematic is included for informational purposes only.

DANGER: VERY HIGH VOLTAGES

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Before working on unit, make certain that the capacitor bank is fully discharged. Measure voltage at capacitor bank connector J3 – See Below.

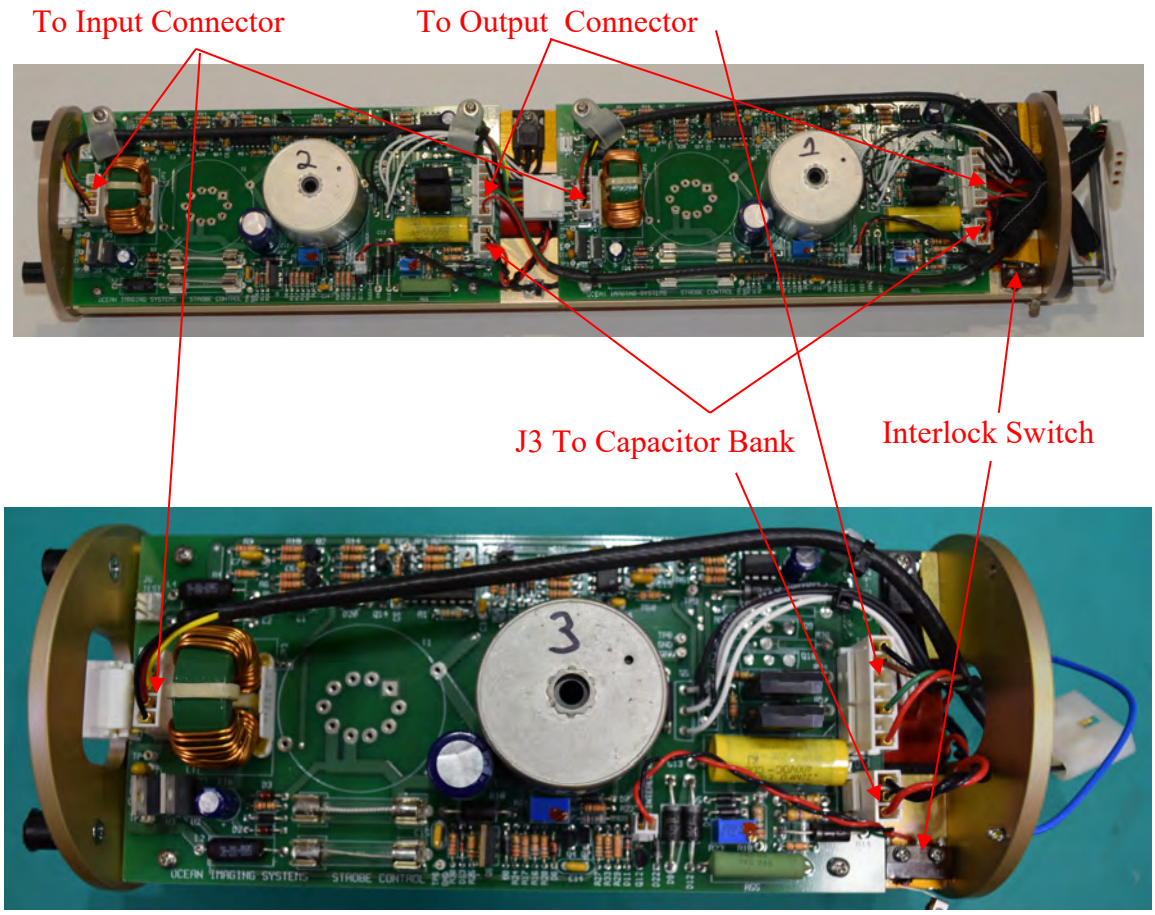

Figure 4.1 Electronics PC Boards and Wiring

CAUTION:

Operation of the electronics with the capacitor bank disconnected may cause damage to the electronics!

5.0 MAINTENANCE

The electronics and capacitor bank do not require maintenance and should provide long-term reliable service without any attention. Repair of the electronics should be limited to replacement of the PC board and capacitors. For board level repairs, return the faulty board to the factory.

6.0 DRAWINGS

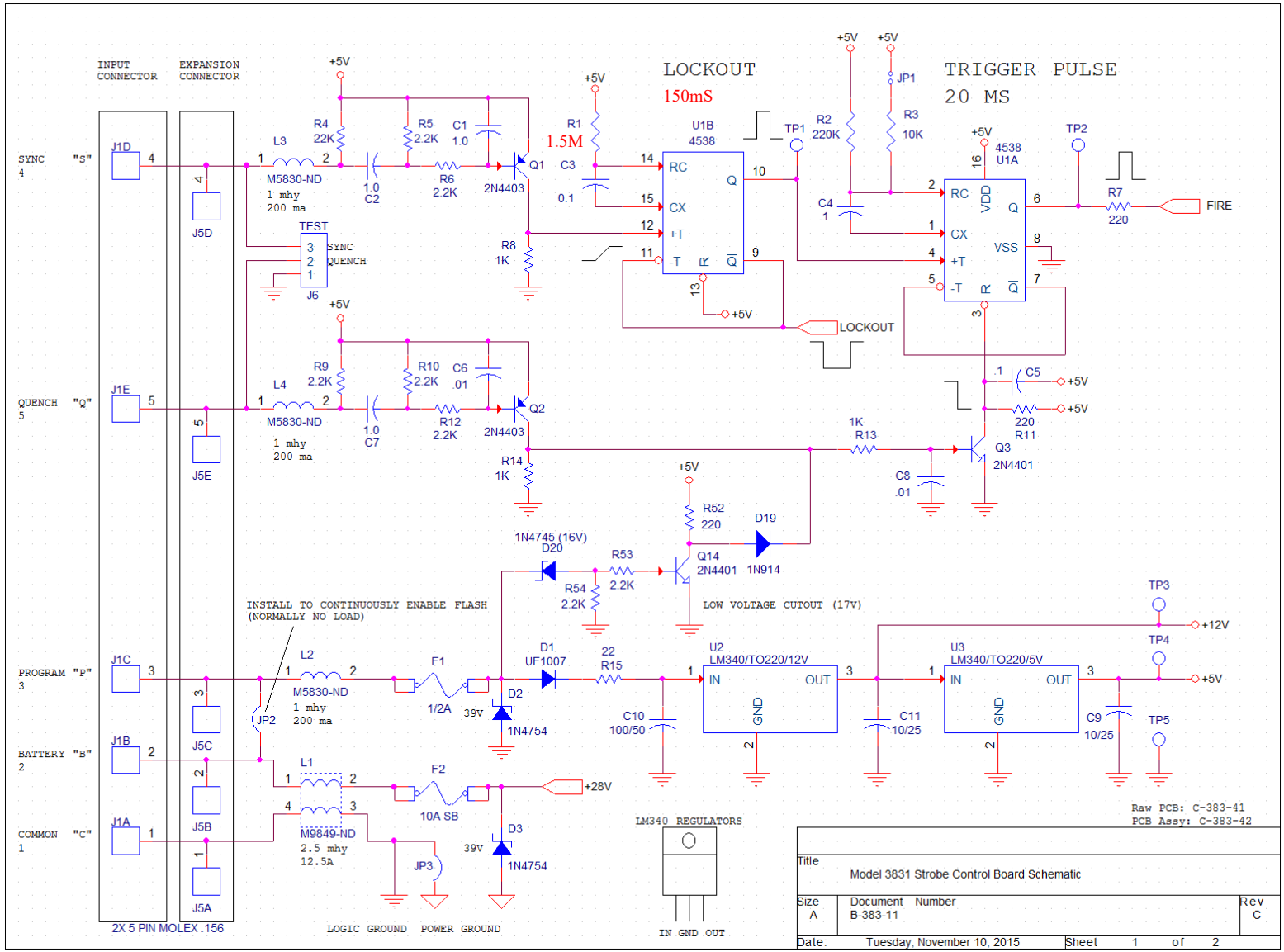

Figure 6.1 Schematic - Interface Section

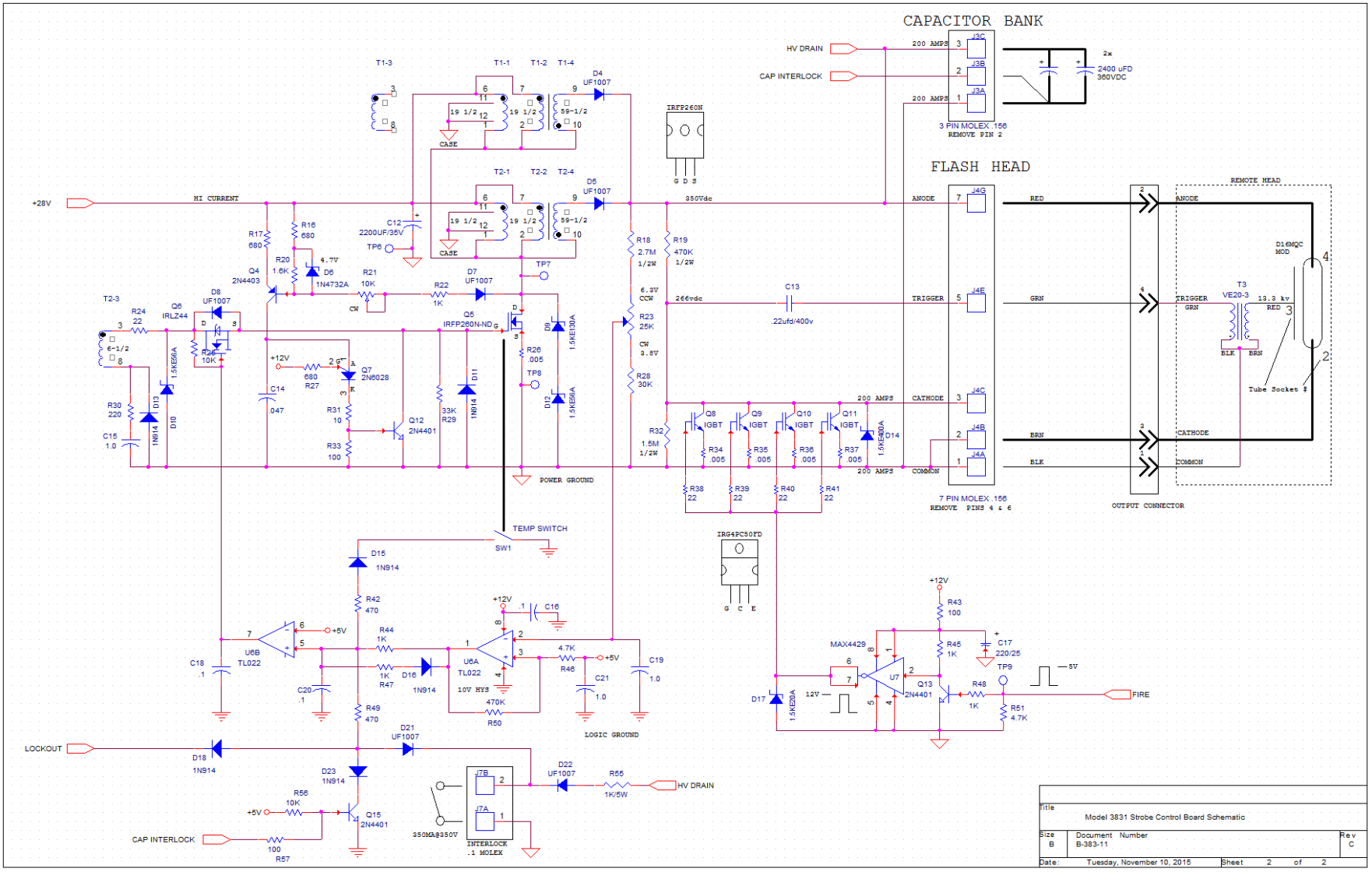

Figure 6.2 Schematic - Power Section

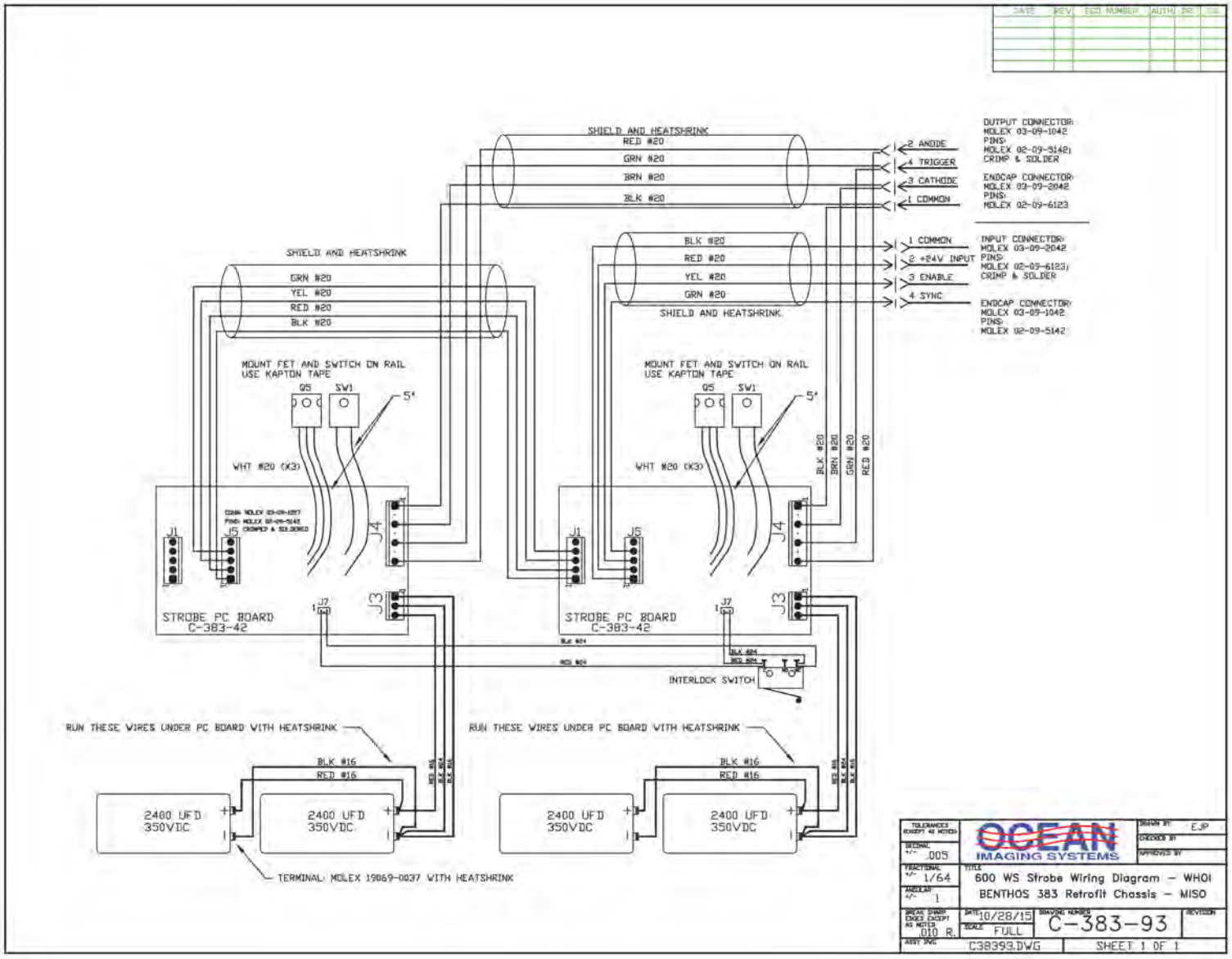

Figure 6.3 Chassis Wiring Diagram (300WS Version Similar)

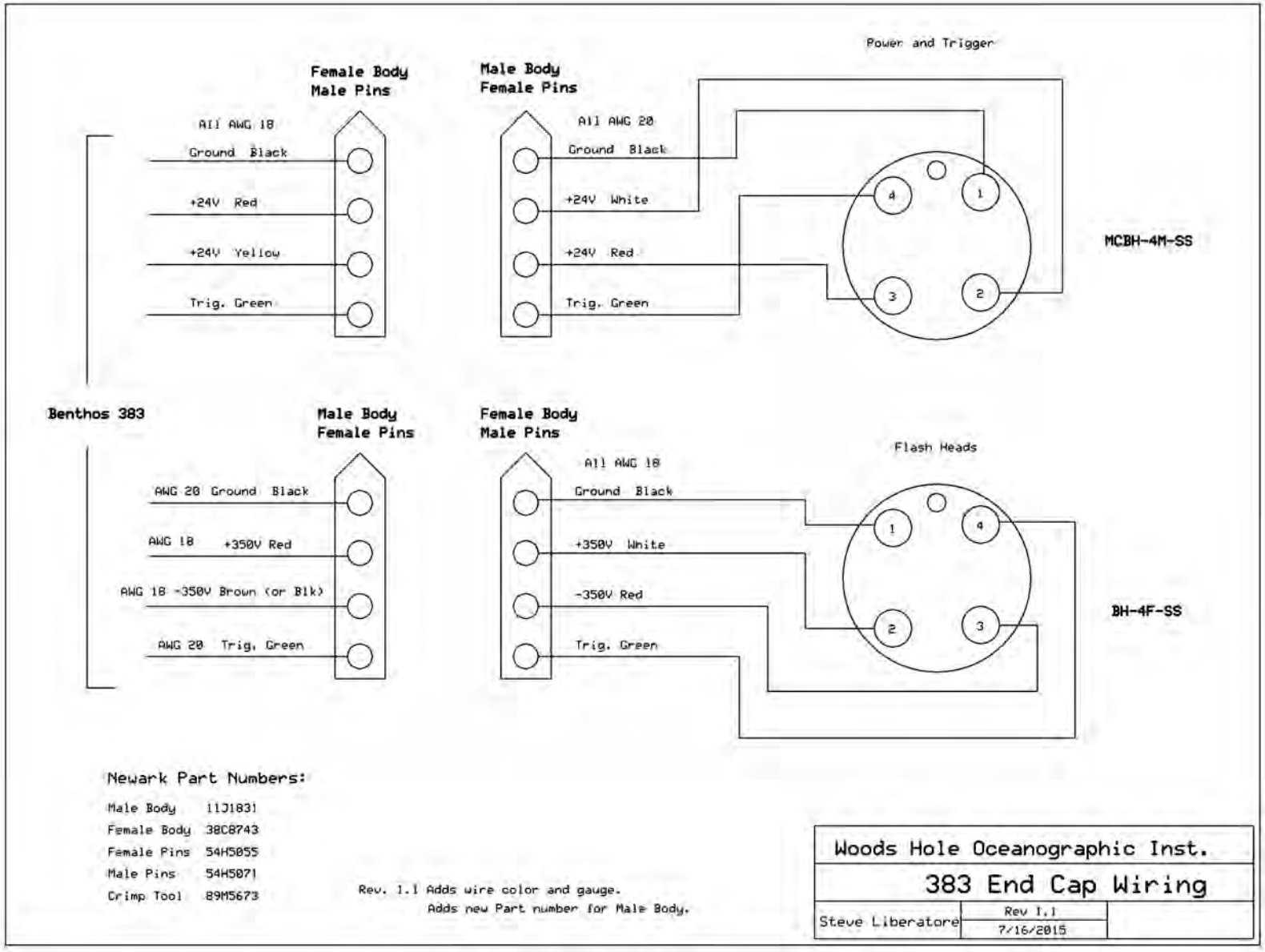

Figure 6.4 WHOI-Supplied Endcap/Connector Wiring Diagram