

**INSTRUCTIONS FOR THE OPERATION AND MAINTENANCE OF THE
OCEAN IMAGING SYSTEMS REMOTE HEAD STROBE - MODEL 3831
TITANIUM HOUSING RATED FOR 6000 METERS**

M-3831-024

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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 bottle containing the energy storage capacitors and supporting electronics, and one remote flash heads. This special strobe has an extra transformer (T1) installed, as well as other changes to reduce the recycle time to from 3 seconds to 2 seconds.

2.0 SPECIFICATIONS

Depth Rating:	6000 meters
Input Voltage:	24 VDC nominal (23 to 33 vdc)
Input Current:	Up to 6.5 Amps during recharge (@24 vdc)
Strobe Energy	200 joules
Recycle Time:	2 seconds

Dimensions:

Electronics Bottle:	5" Dia x 14" long (excluding connectors) 5" Dia. x 17" long including mounting brackets
Flash Head:	3.35" Dia x 9-1/4" long 8.25" Dia Reflector

Weights:

Electronics Bottle (air):	23.2 Lbs (10.5 Kg)
Electronics Bottle (water):	14.7 Lbs (6.7 Kg)
Flash Head (air):	2.5 Lbs (1.14 Kg)
Flash Head (water):	2 Lbs (0.9 Kg)

2.1 UNDERWATER CONNECTORS

Electronics housing power/sync bulkhead:	Impulse BH-5-MP SS + DLSA-M
Electronics housing power/sync mate:	Impulse IL-5-FS + DLSA-F
Electronics housing remote head bulkhead:	Impulse BH-4-FS SS + DLSA-F
Electronics housing remote head mate :	Impulse IL-4-MP + DLSA-M

Remote head bulkhead:	Impulse LPBH-4-MP SS w/ 1/2" thread
Remote head mate:	Impulse LPIL-4-FS

2.2 O-RINGS

Electronic housing end cap O-Rings:	#2-240 (2x)
Remote Head O-Rings:	#2-225

3.0 INSTALLATION

CAUTION: HIGH VOLTAGES PRESENT. EXERCISE EXTREME CAUTION

Mount the electronics bottle by the fiberglass mounting brackets. Connect the remote flash head(s) to the bottle exercising care, as high voltages may be present on the remote head connector..

The remote flash head may be mounted by the four 1/4-28 taped holes around the base, or by means of the screws on the back (connector) side of the endcap.



Figure 3.1 Remote Flash (reflector removed)

3.1 INPUT POWER AND SYNC CONNECTIONS

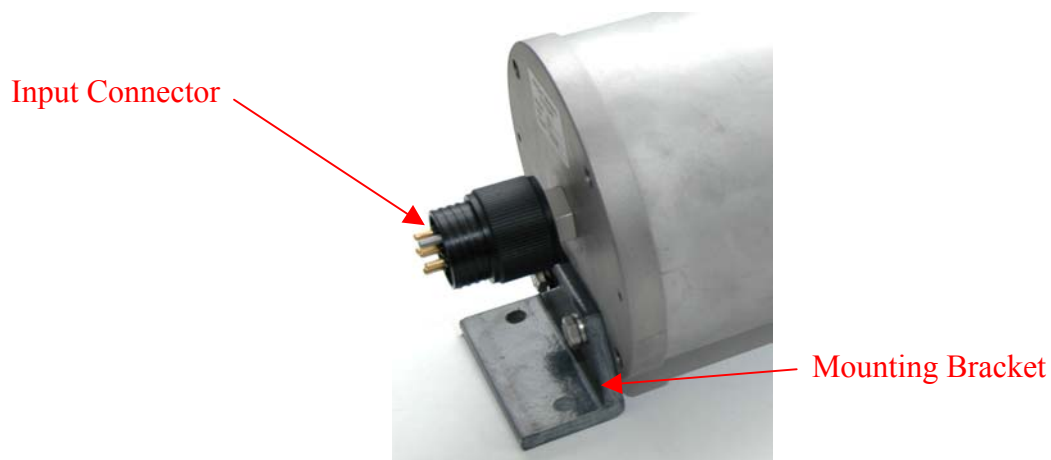


Figure 3.2 Housing – View of Input Connector

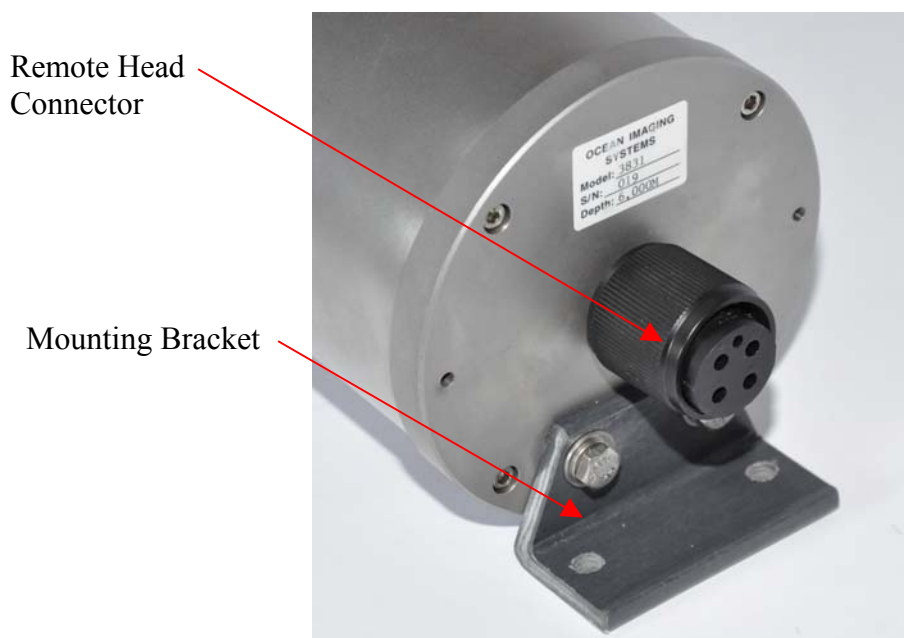


Figure 3.3 Housing – View of Remote Head Connectors

Connection to the strobe is made by means of the single Impulse BH-5-MP bulkhead connector. Pin assignments are:

Pin 1	Input power return (Common)
Pin 2	+ 24 vdc input power (Battery)
Pin 3	Control input (Program)
Pin 4	Sync (Sync)
Pin 5	Quench (Quench)

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 sync line (S) is a negative going signal that causes the flash to fire, while the quench (Q) line is also negative going and is used by auto-exposure systems to truncate the flash when it has been determined by the camera that it has received enough light. Both these lines are pulled up to +5V in the strobe and thus may be activated by an open collector driver or switch.

4.0 ELECTRONIC CIRCUITRY

All the flash electronic circuitry is contained on the flash board 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 (or energy storage capacitors). The PC board schematic is included for informational purposes only.

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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.

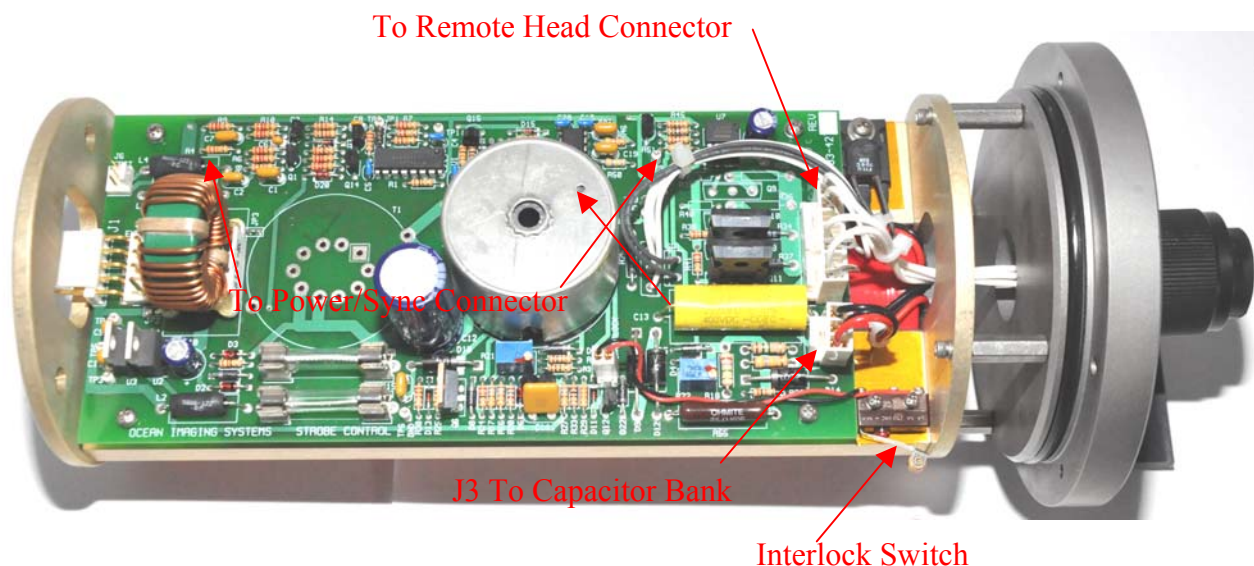


Figure 4.1 Electronics PC Boards and Wiring

CAUTION:

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

5.0 MAINTENANCE

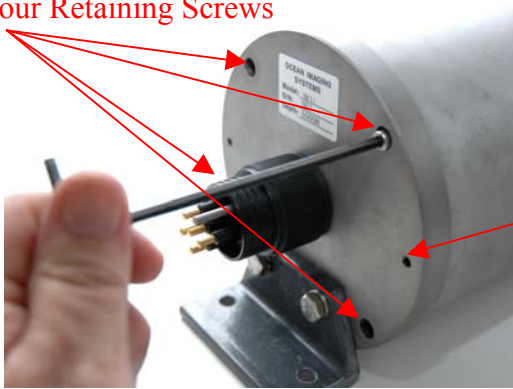
The electronics and capacitor bank do not require maintenance and should provide long-term reliable service without any attention. Repair of the electronics should be limited to replacement of the PC board and capacitors. For board level repairs, return the faulty board to the factory.

5.1 ELECTRONICS HOUSING MAINTENANCE

Should it necessary to open the electronics housing follow the procedure below.

Remove the 4 screws that retain the end cap containing the power connector. (You must remove this end cap FIRST!) Insert **plastic** #8-32 screws into the two “jacking screw” holes, and gently screw them in to extract the end cap. Be sure to remove this end cap first! See figure 5.1 below.

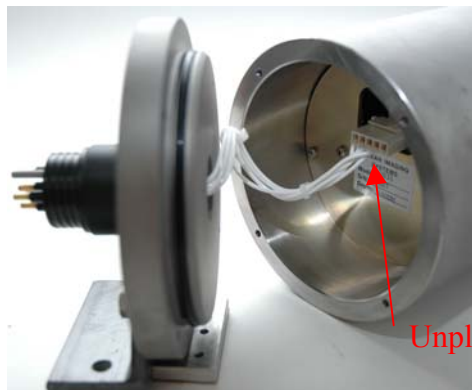
Remove Four Retaining Screws



Jacking Screw



Figure 5.1 Opening Pressure Housing



Unplug connector and remove end cap

Figure 5.2 End cap Removal

Remove the other end cap, following the same procedure outlined above. The chassis will now slide out, connected to the remote head connector end cap.



Figure 5.3 Chassis Assembly Shown With Housing Removed

Re-assembly is performed by reversing the dis-assembly procedure.

5.3 REMOTE FLASH HEAD MAINTENANCE

The only maintenance that should be required for the remote head is the replacement of the flashtube. To replace the flashtube, remove the four dome retaining screws as shown in 5.8 below. Relieve the pressure of the four bolts evenly, moving from one to the next.



Figure 5.4 Flash Head Retaining Bolt Removal

Remove the dome, exercising care to avoid chipping the glass. Remove the flashtube retaining screw, and extract the flashtube from the socket. See figure 5.9 below.

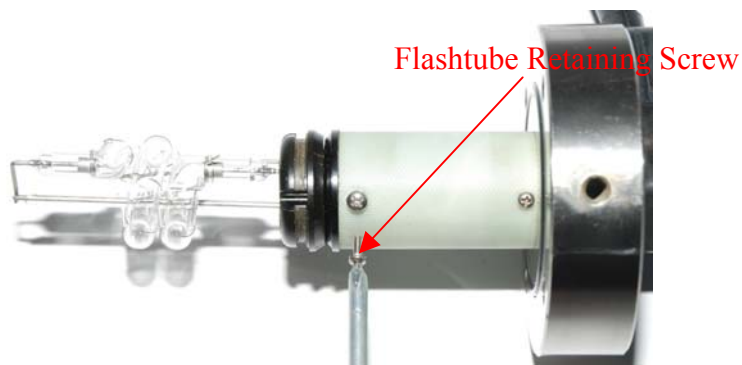


Figure 5.5 Flashtube Retaining Screw Removal

Install a new flashtube (note that the pin 1 of the flashtube must have a .093 drill thru it to allow for the retaining screw), and install the #2 retaining screw. Carefully clean the tube with alcohol to removal all fingerprints and grease that would cause reduced tube life.

Clean the end cap surface, o-ring and dome, and re-install the dome retainer. Tighten the four screws evenly until the split lock washers are fully compressed. Make sure that the retainer is level. When tightening the screws, be sure to do it evenly, alternating from one screw to the next.

Clean the end cap surface, o-ring and dome, and re-install the dome retainer. Tighten the four screws evenly until the split lock washers are fully compressed. Make sure that the retainer is level. When tightening the screws, be sure to do it evenly, alternating from one screw to the next.

6.0 DRAWINGS

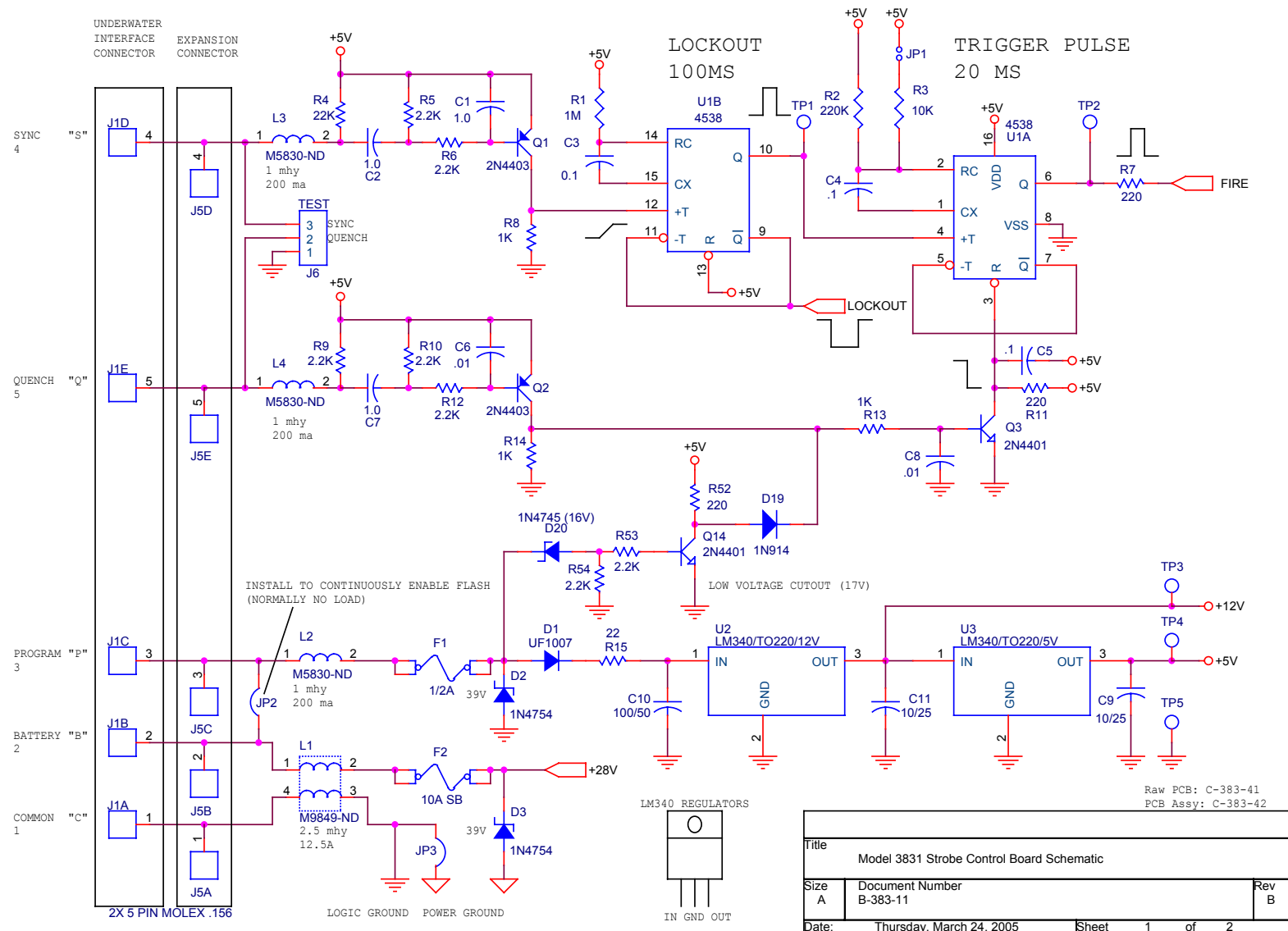


Figure 6.1 Schematic - Interface Section

