

Standard Operating Procedure v1.0

December 11, 2015

## BLWT Scanivalve Pressure Scanner System

Powell Family Structures & Materials Laboratory



Professor: Forrest Masters, PhD

## 1. Description of Equipment / Sensor

### 1.1. 512-Channel Thermal Control Unit (TCU)

Manufacturer: Scanivalve Corp.

PN: 70080-2

Description: Rugged stainless steel case housing eight 64Px ZOC33 miniature pressure scanner modules along with an E-RAD 4000 Ethernet remote analog to digital (A/D) module. The TCU can operate in temperatures ranging from - 45°C up to 65°C. (See manuals for more information about the E-RAD4000 and ZOC33 pressure scanners).



Figure 1. Thermal Control Unit (TCU) housing 8-ZOC33 (64Px).

### 1.2. 2~150 PSI Pressure Regulator Box

Manufacturer: Scanivalve Corp.

PN: 70213-2

Description: Regulates the control pressure used to switch the valves in the ZOC33 module to one of the standard operating modes: Zero, Operate, Calibrate, and Isolate. The control pressure for the ZOC33 modules must be 60 to 65 psi.



Figure 2. 2~150 PSI Pressure Regulator Box (PRB).

### 1.3. ZOC33 TCU Manual Purge

Manufacturer: Scanivalve Corp.

PN: 70211-1

Description: Pneumatic logic valve for the calibration or purge of the ZOC33 pressure scanner modules. The purge mode allows a purge pressure to be input and purge condensation or contaminants back through the input tubes. For testing, the purge and calibration valves are normally closed.



Figure 3. ZOC33 TCU Manual Purge.

#### 1.4. ZOC33/RAD 4000 Power Supply

Manufacturer: N/A.

PN: N/A

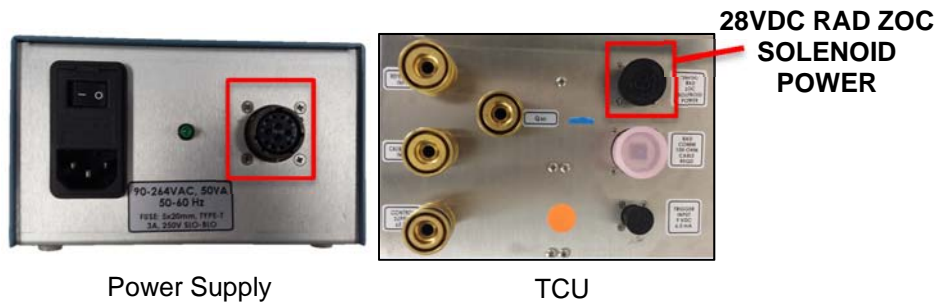
Description: Provides 28V DC power to the ZOC33 pressure scanners and ERAD4000 Ethernet remote A/D module.



Figure 4. ZOC33/RAD4000 Power Supply

## 2. Instructions

**Step 1.** Connect the power cable to the **28VDC RAD ZOC SOLENOID POWER** port located on the side of the TCU (See Figure).



**Step 2.** Connect the vinyl tubing from the port labeled **CONTROL SUPPLY 65 PSI** (with black tape) located on the side of the TCU (See Figure) to the manual purge port labeled **TO ZOC33 TCU 65PSI CONTROL PRESSURE**.



**Step 3.** Connect short vinyl tube from the port labeled **FROM 65PSI CTL PRESSURE SOURCE** on the back of the manual purge to the port labeled **REGULATED OUTPUT 2~150PSI** located in the regulator box.

**Step 4.** Close the valve of the pressure regulator by completely rotating the circular knob counter clockwise. (Rotating the circular knob clockwise increases the pressure).



Figure 5

**Step 5.** Connect the vinyl tube containing the compressed air separators (i.e., filters) to the input port of the pressure regulator box labeled **INPUT 200PSI MAX.**

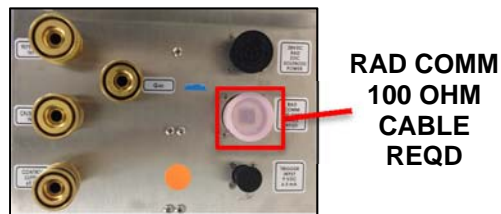
**Step 6.** Connect the free end of the vinyl tubing containing the air separator (i.e., filters) to an air pressure source.



Figure 6. Moisture separator.

**Step 7.** With the regulator box in the on position and the manual purge in normal operation mode (See figure), supply 70 psi from the pressure source. Regulate the pressure with the circular knob in the regulator box and set it to 65 psi.

**Step 8.** Connect an Ethernet cable from the TCU port labeled **RAD COMM 100 OHM CABLE REQD** to a PC for communication with the E-RAD4000.



Add photos with captions here (for now). These should be interleaved between the steps. Use Insert >> Caption >> Label: Figure to autonumber the captions. These figures can then be crossreferenced in the text using Insert >> Cross-reference >> Reference type: Figure and Insert reference to: Only label and number.

### 3. Version History

Version	Date	Activity	Contributors
1.0	12/11/15	Created formal document from working notes	Pedro Fernandez