REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	RELEASED TO PRODUCTION as P2	05/09/05	
B	Added Note to see input and output on Solenoid valve	3/3/06	
C	Added Notes to Exclude 6KW units from contactor installation	4/14/06	

DRAWN Matt Wisbauer 05/09/05

CHECKED

APPROVED

USED ON / NOTES

DYNALOAD
A Division of Transistor Devices, Inc.

WORK INSTRUCTIONS

ALL WCL

CODE IDENT # A 403450

SHEET 1 of 10

TDI
Transistor Devices

Installation of WCL External Connections Accessories Kit

TDI-Dynaload® Division

Document Number 403450 — Revision C

Disclaimer

The contents of this document, including all specifications, are subject to change without notice.

Mandatory Customer Information

Federal Communications Commission (FCC) Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy; and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at their expense.

Trademarks

Dynaload is a registered trademark of Transistor Devices, Inc.

Ordering Information

The ordering number for this document is 403450. To order this document, contact:

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Online Availability

To find out more about TDI and our products, visit us on the web at: http://www.tdipower.com/ or visit TDI-Dynaload directly at: http://www.tdipower.com/dynaload/.

Customer Services

For technical assistance regarding our products, contact the following:

Sales Inquires

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Preparing the Water Cooled Master for Operation.

OVERVIEW- Installing the External Connections Accessories Kit

Prior to using your Dynaload you must provide for various services. i.e. Cooling fluid, Electrical Current & Optional Input Signals

Optional Remote control and Input sample information is received via the rear Terminal Strip. Connect any desired conductors to the 9 position terminal strip prior to attaching the coolant flow control valves and high current relay. Access to this area will be limited once the high current Large Relay is installed. See the WCL manual pages 17-19 for this information.

- The **flow control assembly** must then be attached to ensure that coolant is reduced as the load is reduced. This ensures that no condensation damage can occur from water forming on the cold plates. (See Figure 1)

- The load draws current through a **large relay** (Contactor). This large relay must be installed and wired.

- Wiring the Connector: Coolant flow control and the current relay control is through the flow control connector (FL). **You must connect three devices into this connector as described in Section 3.**

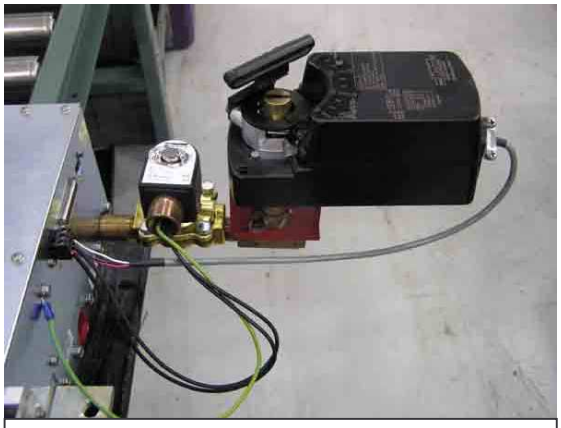

Figure 1

1. *Optional Connections to the Terminal Strip*

Connections to this terminal strip are as described in the WCL Users Manual page 17-19. (See Figure 2)

Some optional connections are:

A. Install the Positive + and Negative -, Sense leads
B. Install the Current Sample leads
C. Install the Remote Programming leads

Figure 2

Please check the contents of your Accessories Package

Part List , PART NUMBER: 403499 REV: A "EXTERNAL CONNECTIONS KIT" (See Figure 3)

ASSEMBLY PN: 403499 REV: C					
KIT, EXTERNAL CONNECTIONS					
DESG	FIND NO	QTY	UM	PART NUMBER	DESCRIPTION
NIPPLE	1	1	EA	4568K173	NIPPLE, BRASS, ½"NPT MALE X 1/2NPT MALE X 2"L
VALVE	2	1	EA	08F22C2140A3F4C80	VALVE, 24 VDC, ½', PIPE DIA THREAD
NIPPLE	3	1	EA	12XCLBRN	NIPPLE, BRASS, ½"NPT X CLOSE
SERVO	4	1	EA	BV05-2-10/DM24-70	SERVO VALVE, ½"NPT, 24VDC, 0-10V, CNTRL BRASS
CABLE	5	1	EA	401855	ASSY, CABLE, SERVO
CABLE	6	1	EA	401812	ASSY, CABLE, RELAY 12 KW only
RELAY	7	1	EA	SW-1000-12	RELAY, 24 DC CW, 1000A, SINGLE POLE, N.O. 12 KW only
HDWR	8	4	EA	108538-6	WASHER, FLAT BRASS NO. 3/8 12 KW only
HDWR	9	2	EA	108537-6	WSHR EXT TOOTH SIL BRZ NP 3/8 12 KW only
HDWR	10	2	EA	108535-8	BOLT BYNP 3/8-16 X 1 1/4 HEX HD 12 KW only
HDWR	11	2	EA	108544-6	NUT HEX BYNP 3/8-16 12 KW only

Part Locations

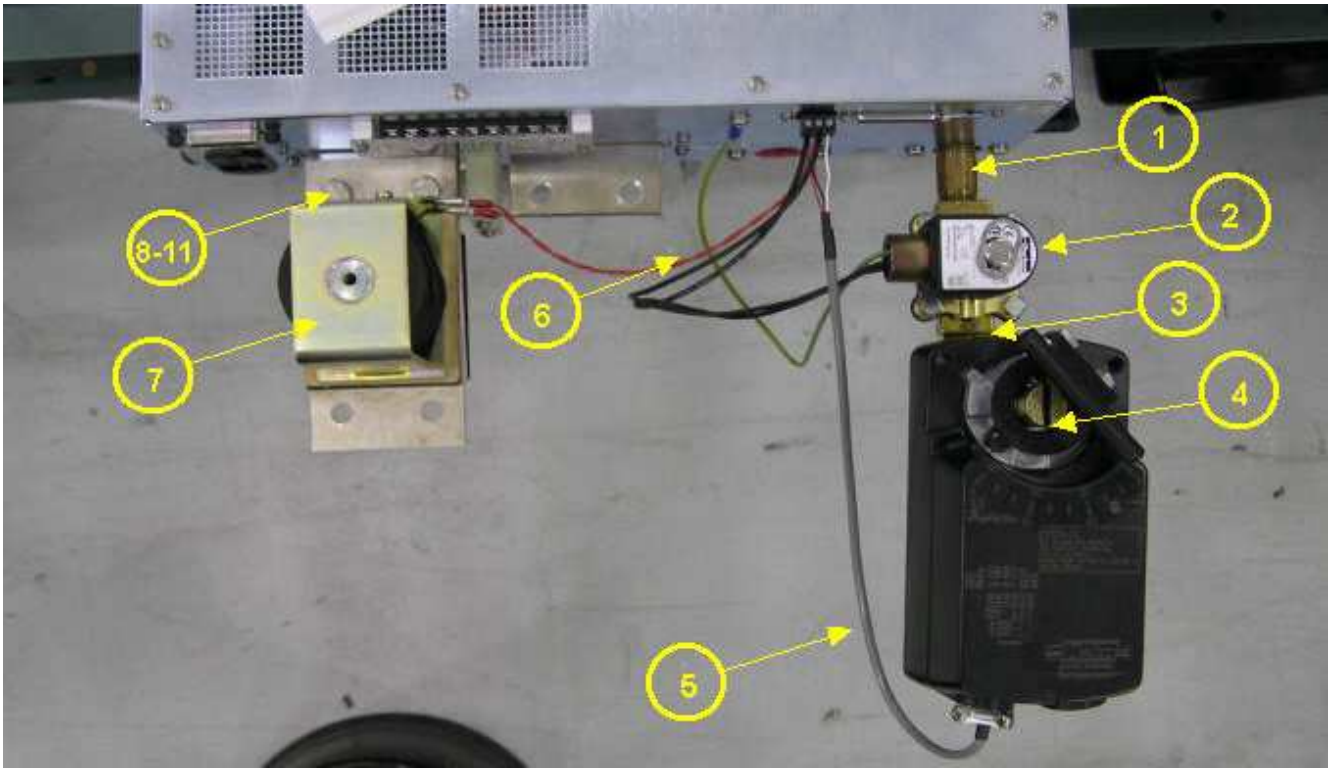

Figure 3

2. Assemble the Flow Control Sub Assembly

The flow control assembly has four parts. (See Figure 4)

1. (1)- 2" x ½ " NPT brass PN 4568K173. Installed closer to chassis. (See 1)
2. The solenoid controlled Shutoff Valve PN Parker PN O8F22C2140A3F4C80 (See 2)
   Note: Orient the Shutoff Valve with "IN" to the near side of the chassis and "OUT to the ball valve side.

3. (1)- 1" x ½ " NPT brass PN 12XCLBRN. Installed between the water shutoff valve and the servo ball valve. (See 3)
4. The Servo controlled Ball Valve. PN Delta BV05-2-10 / DM24-70 (See 4)

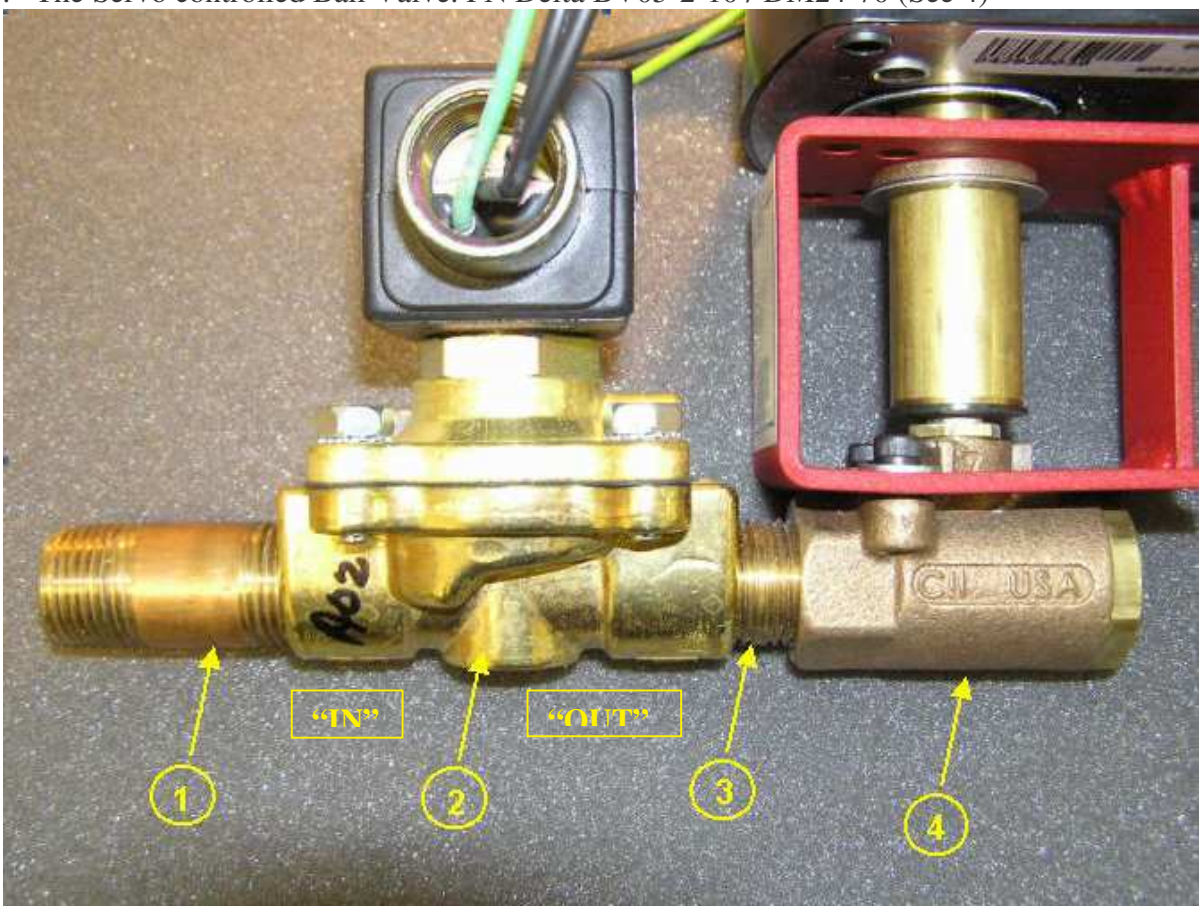

Figure 4

- Pre assemble the plumbing as illustrated in the picture above. Use "Teflon" tape or plumbers dope ("RECTORSEAL ©" pipe thread sealant # 5 or equivalent) when threading pipes together.
- Remove the red plug from the coolant outlet and screw in the flow control assembly.

- Do not over tighten. Limit torque to 135 in/lbs (15.25 N/m.)

- Check the Servo Alignment. See section on trouble shooting for the proper alignment.

3. Install the Large Relay (Contactor)

NOTE Only 12 KW units get an External Relay.
Installing an External relay on a 6 KW unit will cause serious damage and void the warranty

- Using the hardware provided, place a flat washer on the bolt
- Insert the 1 ¼ "x 3/8" - 16 bolts through the contactor PN SW-1000-12, and the bus bar from the top. (See Figure 5)
- Add a flat washer, an external star washer and install the nut from the bottom.
- Repeat this sequence for all bolts.
- Install the wiring to the flow controller connector.

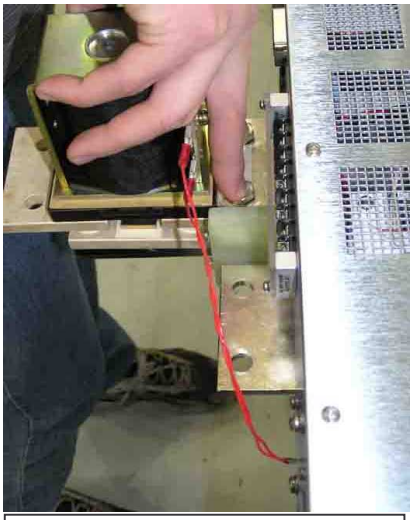

Figure 5

4. Wire and Install the Flow Control Connector

The location of the connector is labeled as shown on the rear of the WCL:

+	-	FL
RELAY		

Three different devices will connect through this flow connector.

1. The solenoid water Shutoff Valve, PN O8F22C2140A3F4C80.
2. The high current Large Relay, PN SW-1000-12.
3. The servo controlled Ball Valve, PN BV05-2-10 / DM24-70.

a) First connect the servo Ball Valve first. **Red** (+), **Black** (-) & **White** (FL). **Tighten this FL screw.** (See Figure 6)

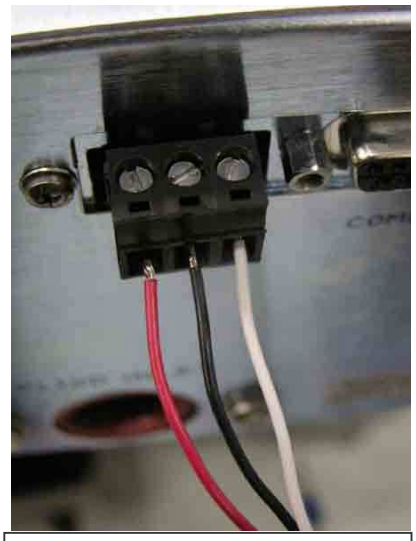

Figure 6

b) Wire the Large Relay second. Red and Red. No sequence is required here. Just connect to terminals one "+" and two "-". **Do not tighten + or - screws at this time.**

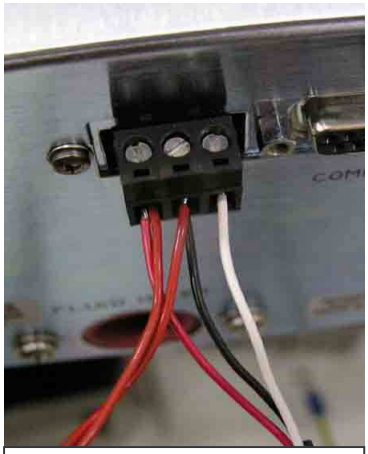

Figure 8

Third insert the black wires going to the Solenoid valve last.
Black (+) and Black (-) to the two left most connectors. (See Figure 7)

Tighten all screws.

Insert the connector in the slot. (See Figure 8)

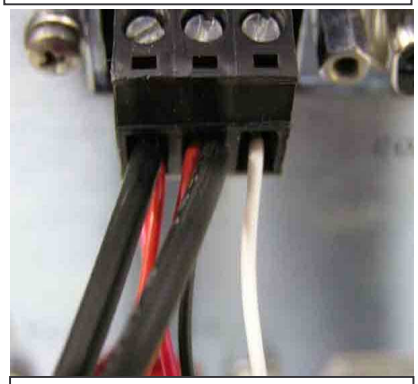

Figure 7

Final Assembly

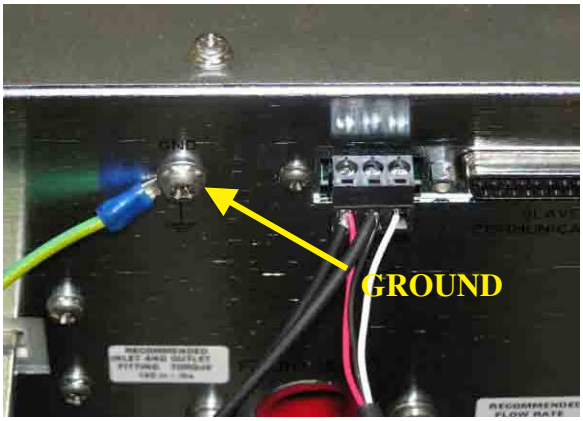

Figure 9

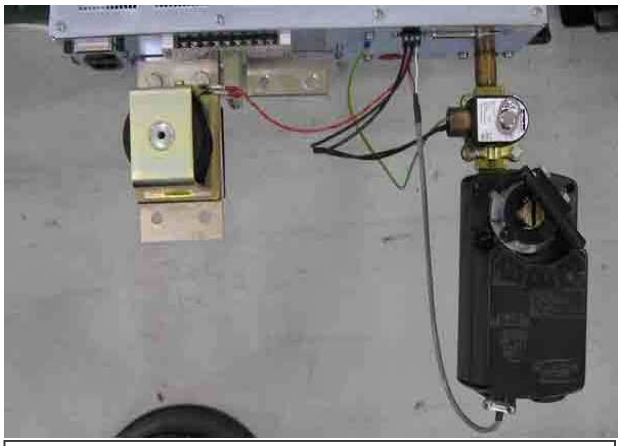

Figure 10

Connect Ground

Finish with a connection of the remaining green wire to the ground screw on the Dynaload. (Figure 9)

The accessories are now properly installed. (Figure 10)

Operation Check

Check the valve operation upon startup. When the DC button is engaged the solenoid shutoff valve should open and the servo ball valve should close.

Finish Plumbing

Finishing the installation requires the connection to the cooling system at this point. The inlet connection point is ½" NPT fitting. The outlet is ½" NPT thread at the ball valve PN BV05-2-10 / DM24-70. Please consult your "in house" engineering or maintenance staff for this phase of the installation.

Connect the Power Source

See the WCL manual to connect the low inductance cables to the bus bar.

Troubleshooting

Servo alignment consists of both a mounting plate alignment and ball alignment.

Ball Alignment Check

Check alignment of Indicator with the Ball of the valve. Open is with the indicator to the left (See Figure 11)

Ball Alignment

If the valve is not in this position it can be moved manually by depressing the manual release and turning the handle.

Depress the Release button. Release the servo from the shaft and manually turn as in the picture. (See Figure 12)

Figure 11

Indicator Alignment

Realign the indicator by loosening the 7/16” nuts on the U bolt if necessary. (See Figure 13)

Retighten and torque to 100-120 in/lbs.

Figure 12

Shaft Slippage

If brass shavings can seen around the shaft or on the servo, the shaft may have slipped.

Realign as necessary.

Retighten and torque the U bolt nuts to 100-120 in/lbs. When retightening nuts do not exceed 120 In/ lbs (13.5 N/m). (Figure 15)

Mounting Plate Misalignment

Insure the correct alignment of the servo body to the shaft. When the servo body is parallel to the red plate it is correct. (See Figure 12 and 14)

MOUNTING PLATE ALIGNMENT

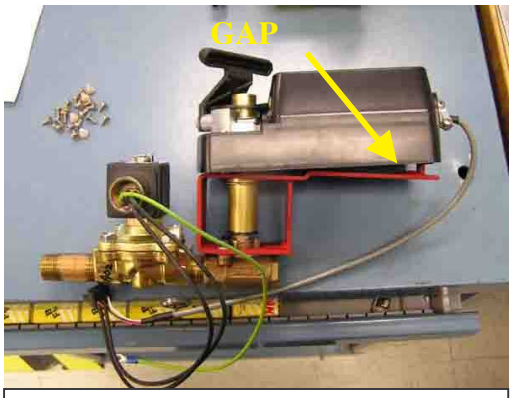

Figure 13 - Wrong

Check

In some cases the ball valve, the shaft, or the mounting plate can slip and may become misaligned. (Figure 13)

Mounting Plate Alignment

Plate alignment is accomplished by loosening the 7/16” Hex nuts holding the shaft. (Figure 14)

Loosen

To realign these parts loosen the shaft U bolt with a 7/16” wrench or nut driver. (Figure 14)

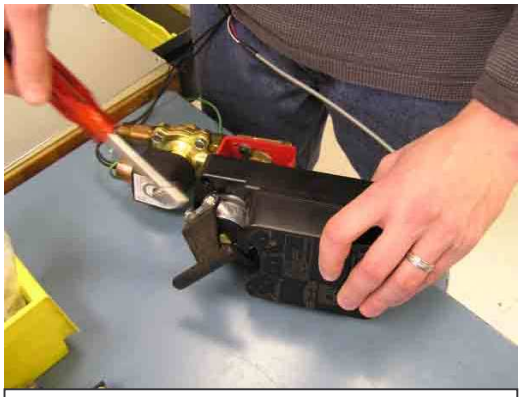

Figure 14– Loosen

Press and Tighten

While holding the red plate against the servo housing by the rear or the housing, retighten the U bolts. (Figure 15)

Torque

Finish with a torque of 100 to 120 in/lbs on these U bolt nuts. (11.3-13.5 N/m)

When retightening U bolt nuts do not exceed 120 In/ lbs (13.5 N/m). (Figure 16)

Follow the WCL manual for operation of your Dynaload.

Figure 15 – Correct by pressing rear plate.

Figure 16- Torque

If you have any questions regarding this procedure, please feel free to contact Dynaload Service at: 1-908-850-5088