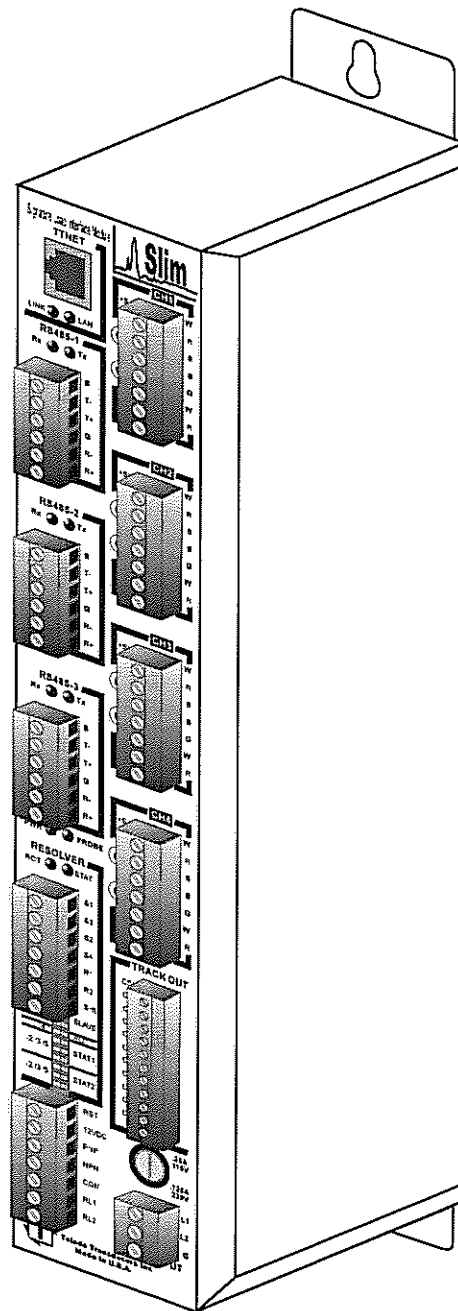
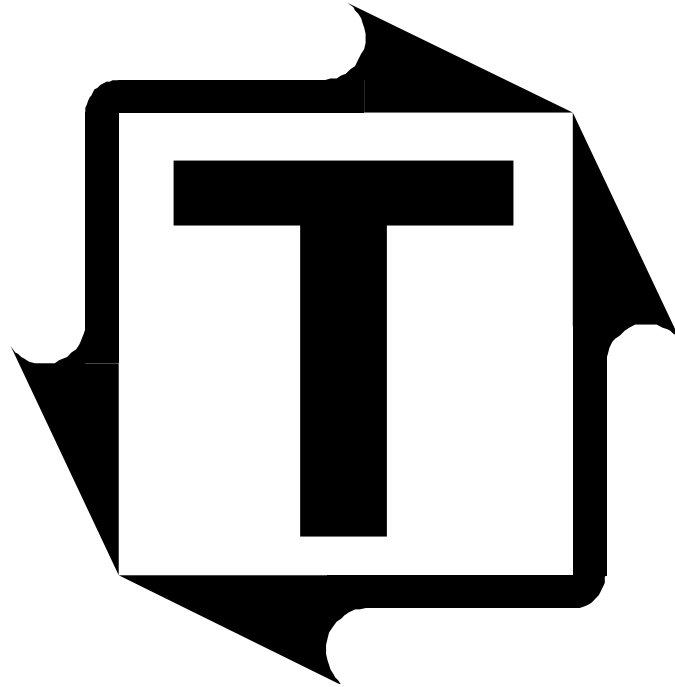


SLIM

Signature Load Interface Module
Toledo Transducers, Inc.



Operation Manual



SLIM Installation & Operation Manual

Revision: B



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Limited Warranty

This unit is warranted by the manufacturer, Toledo Transducers, Inc., to be free of defects in workmanship and materials for one year from date of manufacturer's shipment. This warranty is limited to repairing or replacing products which manufacturer's investigation shows were defective at the time of shipment by the manufacturer.

All products subject to this warranty must be returned for examination, repair or replacement

F.O.B. to: Toledo Transducers, Inc.
6834 Spring Valley Drive
Holland, Ohio 43528

The express warranty set forth herein is in lieu of all other warranties, expressed or implied, including without limitation any warranties of merchant-ability or fitness for a particular purpose. All such warranties are hereby disclaimed and excluded by the manufacturer.

Repair or replacement of defective products as provided above is the sole and exclusive remedy provided thereunder. The manufacturer shall not be liable for any further loss, damages, or expenses, including incidental or consequential damages, directly or indirectly arising from the sale or use of this product.

Any unauthorized repair voids this warranty.

There are no warranties that extend beyond those expressly set forth herein.



Introduction

The SLIM (Signature Load Interface Module) is a data processing module that directly interfaces with load sensors, provides data acquisition, force measurement and analyzes the incoming signature load signal. The SLIM can interface with a wide variety of equipment from the most sophisticated programmable logic controllers (PLCs) and industrial computers to standard personal computers (PCs). This signature module is very flexible and provides users a variety of configurations to fulfill different force monitoring and signature analysis criteria. For users interface, it requires an HMI (Human Machine Interface) unit like one of the following:

- SlimWare (SLIM HMI software) running on the Quik-Touch PC (TTI Touch Panel PC) or other IBM compatible PCs
- The Maximizer control systems
- SLIM Display Module (7-segment LED display with key inputs)

Refer to the appropriate HMI manual for initial parameters setup (i.e. Number of channels, press capacity, threshold and etc) and calibration procedures of the SLIM load module. A Calibration sheet is available in the appendix section of this manual.

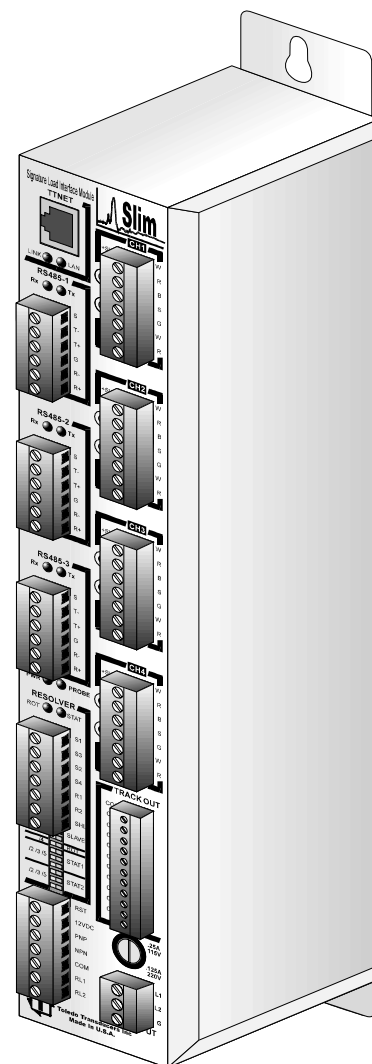
Important Note:

This manual refers to two different revisions of the SLIM monitor: RV1 and RV2. RV1 refers to the legacy SLIM monitors that interface with the SlimWare 4.x HMI software. RV2 SLIM monitors communicate with the newer SlimWare 5.x HMI software and higher.



Features Overview

- Signature load module for strain gage sensors and load cells
- Eight analog channels for accommodating up to sixteen sensors
- Generates signatures, enveloping and CCM (Critical Curve Monitoring)
- Triggered by resolver, internal threshold setting or threshold probe
- LED indicators for serial data and threshold probe activities
- Digital balance and gain setup
- Compact PLC design for flexible system integration and re-configuration
- Terminals for external alarm reset switch connection
- Built-in power supply for stable operation and noise rejection
- Press shutdown relay for alarm condition
- Three RS-485 serial ports for interfacing
- SlimWare user interface software is available
- Fully compatible with PressNet networking software
- Can interface with Maximizer or Maximizer TPC
- Steel enclosure for maximum protection and noise rejection
- Expandable design allows interface with optional I/O module



SLIM Load Module

Hardware Features



Front Panel Descriptions

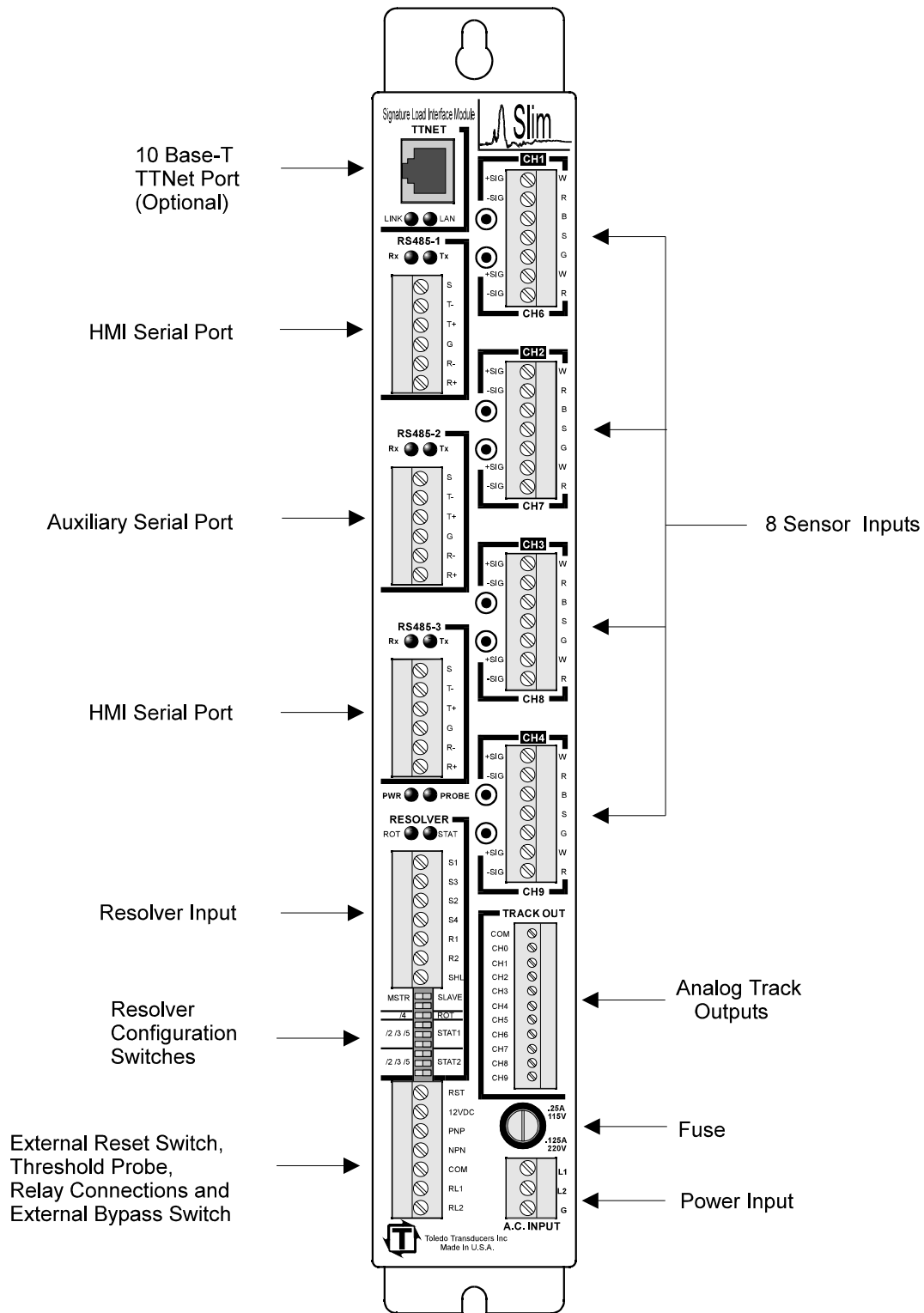


Figure 1

Mounting the SLIM

The dimensions and recommended mounting hole arrangement are as shown. Use #10 screws to securely mount the SLIM in an enclosure suited to the environment.

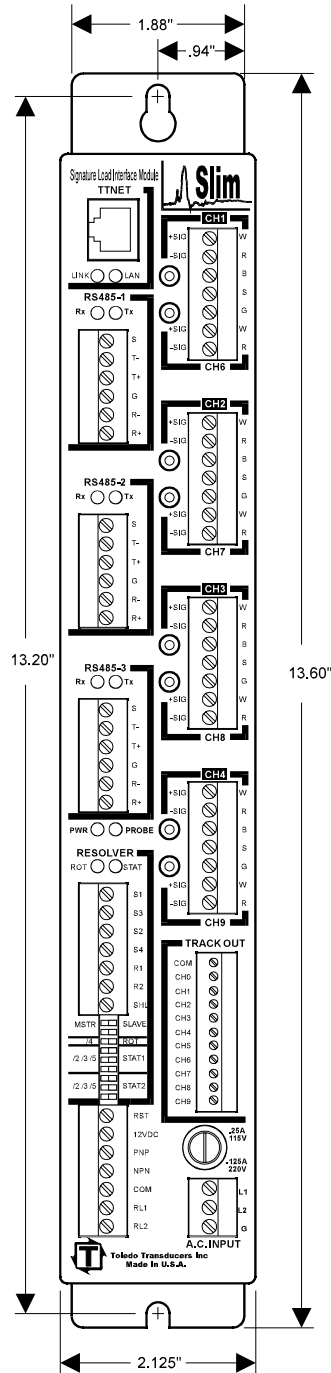


Figure 2

Sensor Cable Termination

Sensor Connection Guidelines

- Strip the sensor cable as shown in Figure 3.
Be sure not to nick any of the signal conductors or strip the shield completely away. At least $\frac{1}{2}$ inch of cable shield should be exposed for proper insertion into the wire lug.

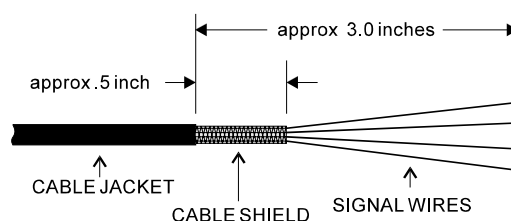


Figure 3

- Insert the cable through the lug as shown in Figure 4a.
Make sure the cable shield is aligned with the portion of the wire lug which will be crimped.
- Next, crimp the lug on to the cable shield, do not crimp too tight and risk smashing the wires. This could cause them to short to ground. Figure 4b shows a side view of the completed operation after crimping.

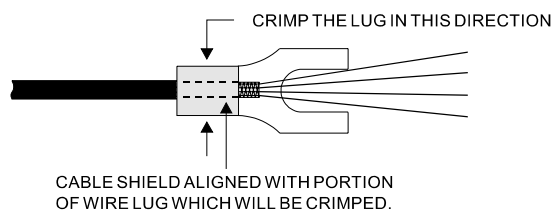


Figure 4a

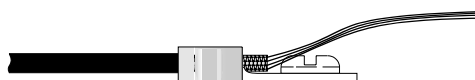


Figure 4b

- Attach the wire lug to a ground terminal on the front of the SLIM. Use a 6-32 x $\frac{1}{4}$ " screw for the grounding lug connection. If you have a Toledo Transducers sensor, attach the signal wires to the channel connector following the color codes in Figure 5.

Note: If your sensor cable is not double shielded with both foil and a braid, electrical noise may affect your output readings.

Sensors Connection

The SLIM Load Module accepts the signals from Toledo Transducers T-400 sensors as well as other strain gages. Figure 5 illustrates the sensor connections for the SLIM

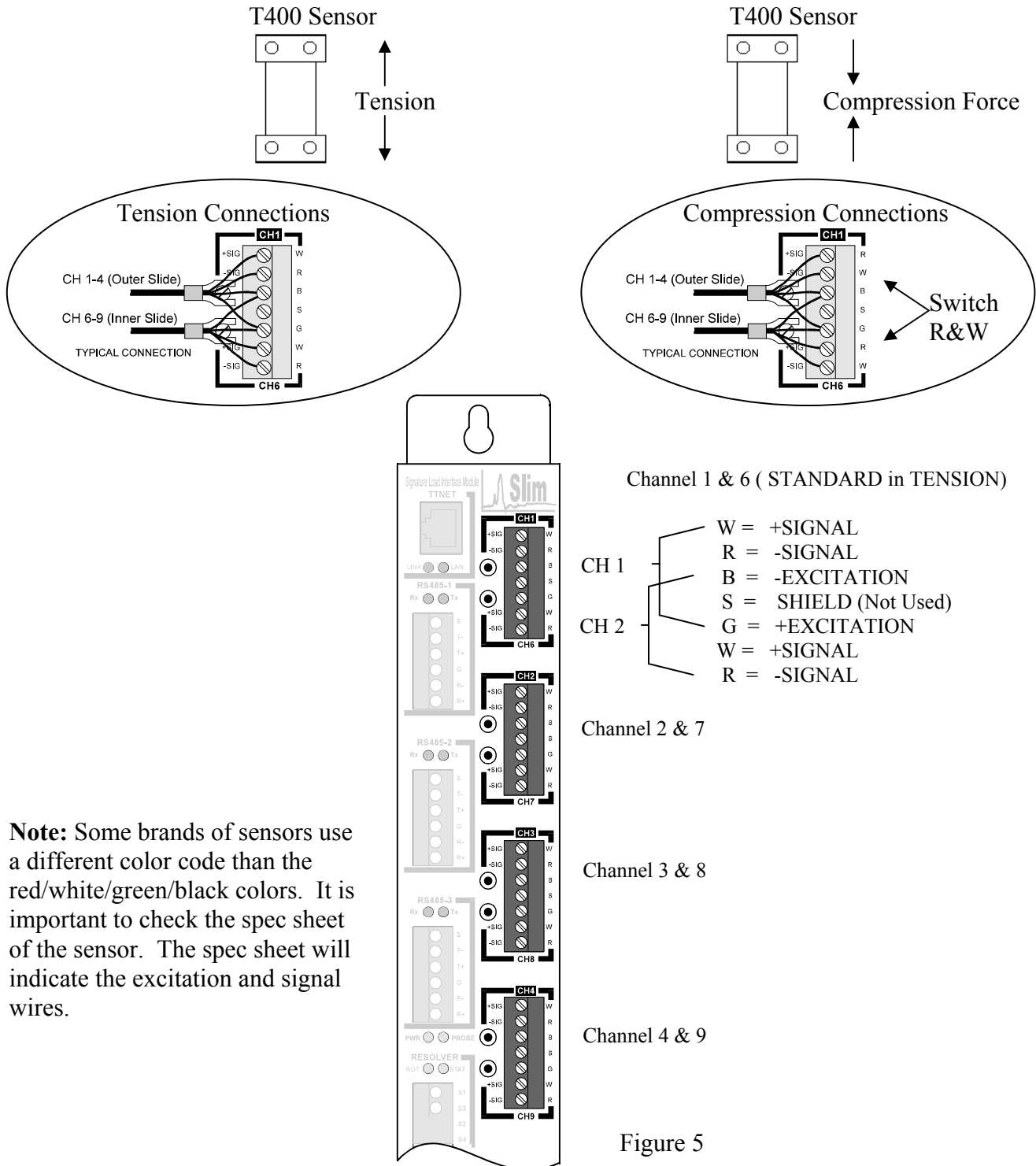


Figure 5

Serial Port Connection

There are (3) RS485 serial ports available for interfacing with a wide variety of instruments like Programmable Logic Controllers, Industrial PCs and laptop computers. RS485 allows the implementation of a daisy chain (multi-drop) serial network as a standard feature. The following description covers both RV1 and RV2 SLIM monitors. See the Introduction section of this manual for details.

RV1 SLIM MONITORS

RS485-1, -3: For HMI communication.
 RS485-2: For PressNet software interface.

Supported baud rates for
RS485-1, -2, and -3 ports

9600 38.4k 76.8k 115.2k

RV2 SLIM MONITORS

RS485-1, -3: For HMI communication.
 RS485-2: For factory use and custom applications.

Supported baud rates for
RS485-1, -3 ports RS485-2 port

38.4k	57.6k	115.2k	9600	38.4k	76.8k
230.4k	460.8k		115.2k	230.4k	

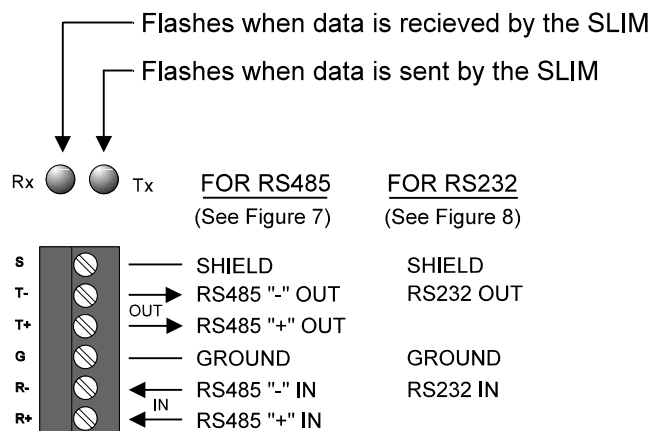
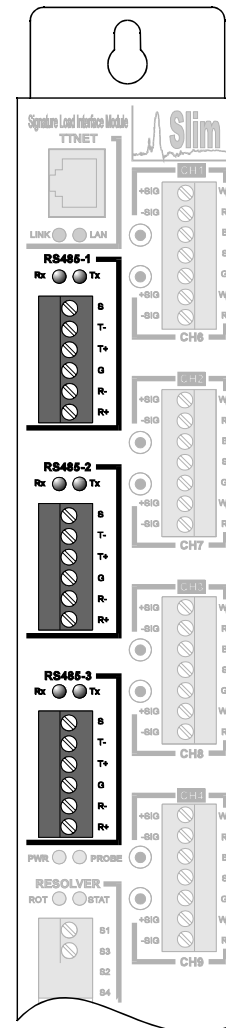


Figure 6

Computer to single SLIM wiring:

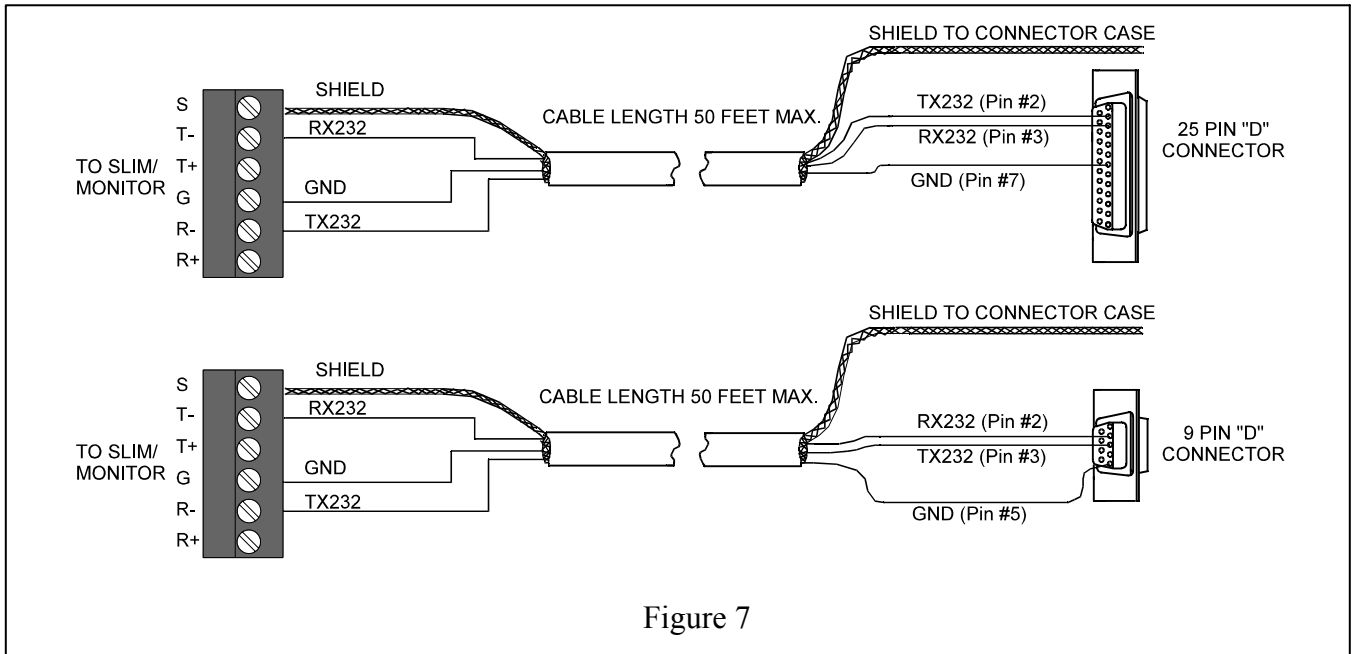


Figure 7

Computer to multiple SLIMs wiring (Networking):

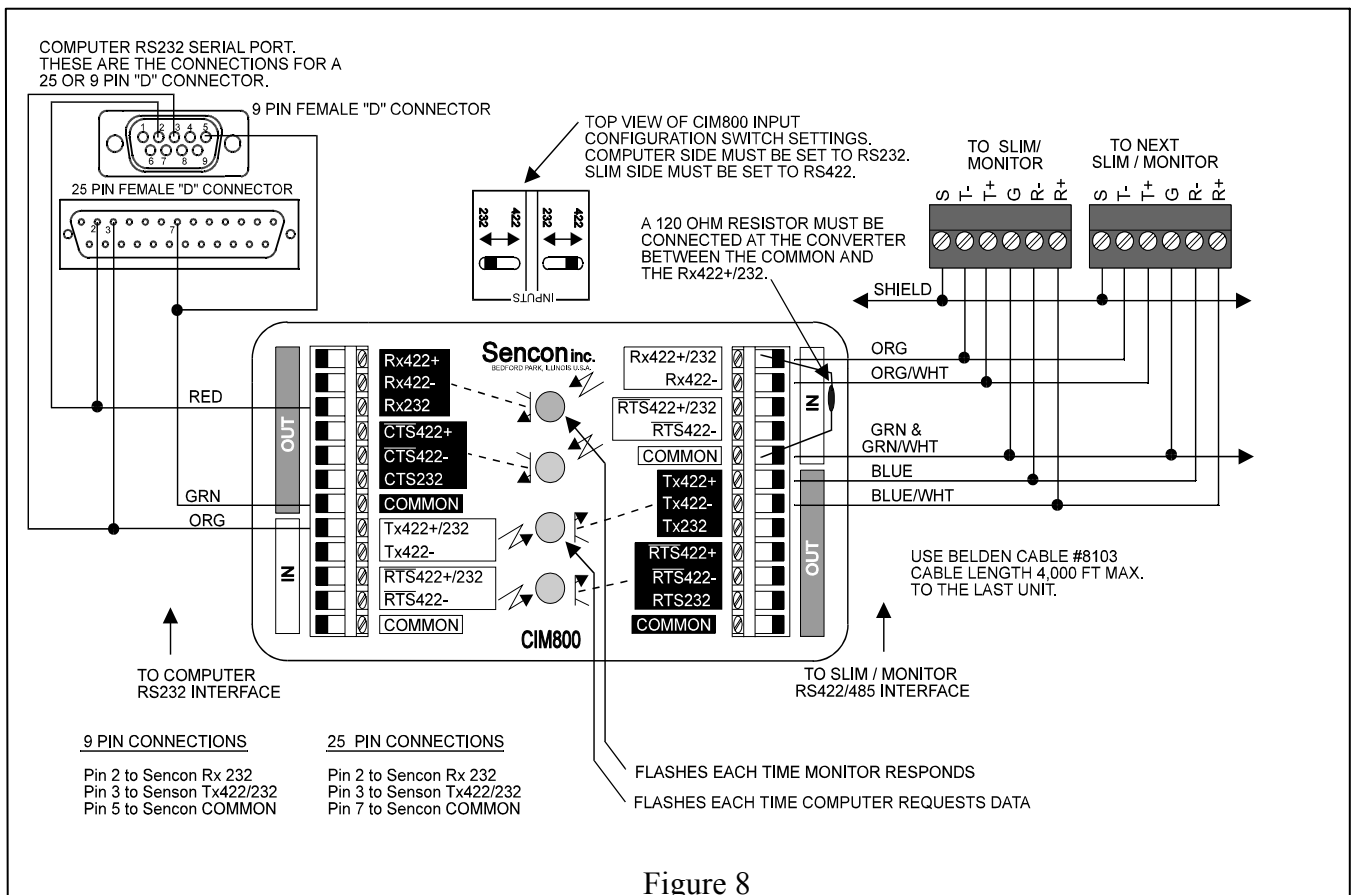


Figure 8

Shutdown Relay Connection

An internal relay is provided for press shutdown. Relay rating is 8 Amps, 250VAC or 30VDC. Relay contact provides standard Normally – Open operation. Normally – Closed operation is also available as an option.

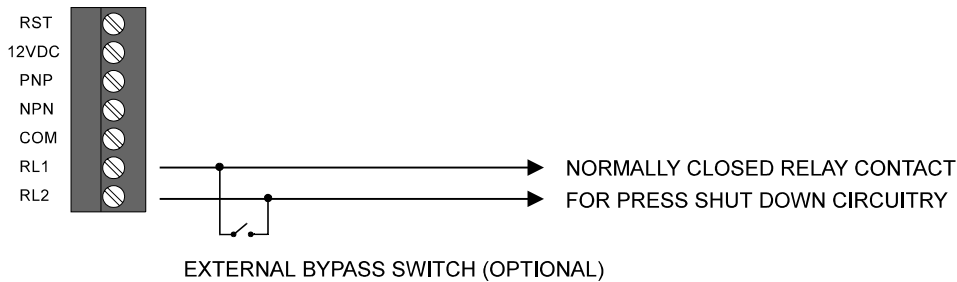


Figure 9

Reset Switch Connection

Two terminals are provided for connecting an external reset switch. The rating of the switch and wiring can be a minimum since it only interfaces with a small signal similar to TTL signal.

NOTE - In order to reduce noise that may trigger false reset:

- Use twisted pair wires for the connection.
- Do not run this pair of wires along with any high voltage or high current cables.
- Keep the wiring no longer than 12 feet.

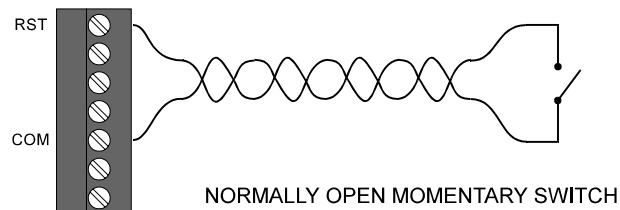
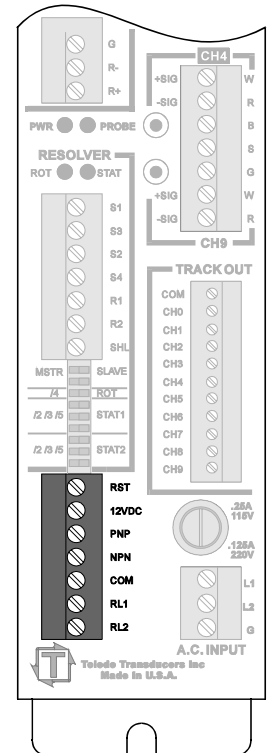


Figure 10



Probe Input Wiring

The probe supply voltage (+12VDC) is provided by the SLIM.

The Figure below illustrates the wiring for a variety of sensing devices.

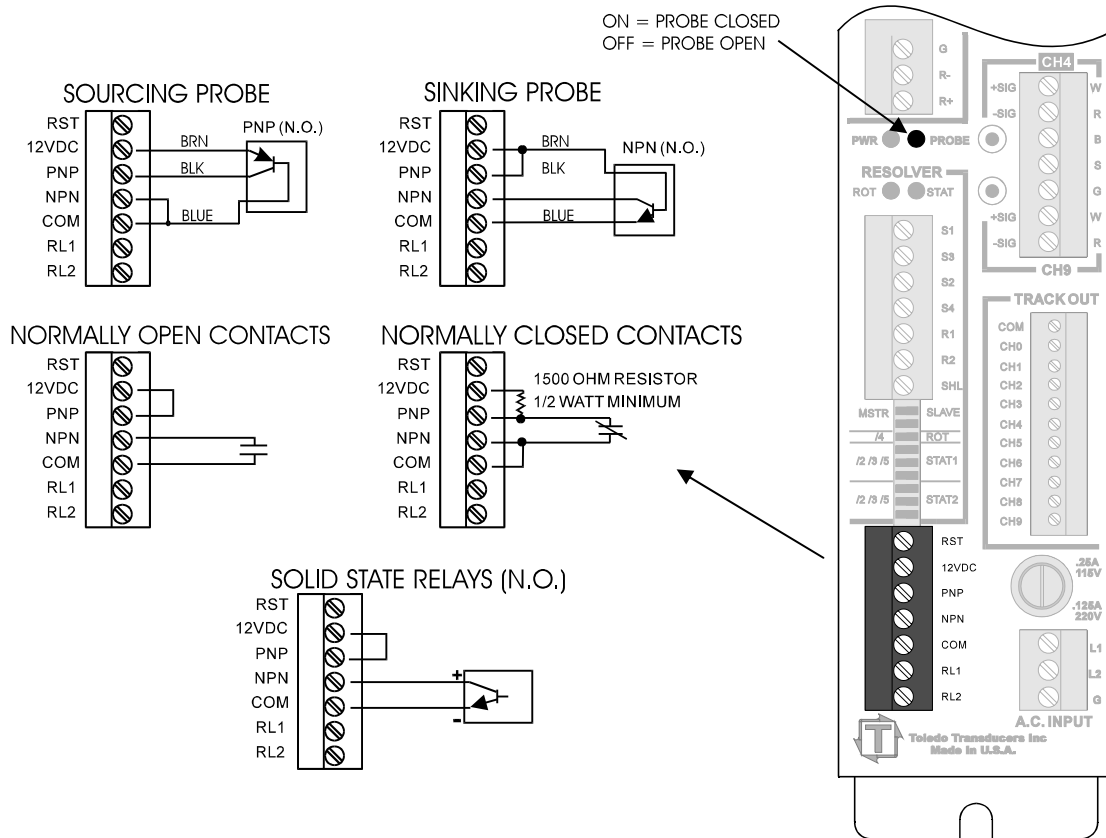


Figure 11

The timing of the probe should be such that it turns on just before the machine begins generating a load, typically at (140°) and remains on until the load is removed, typically at (240°).

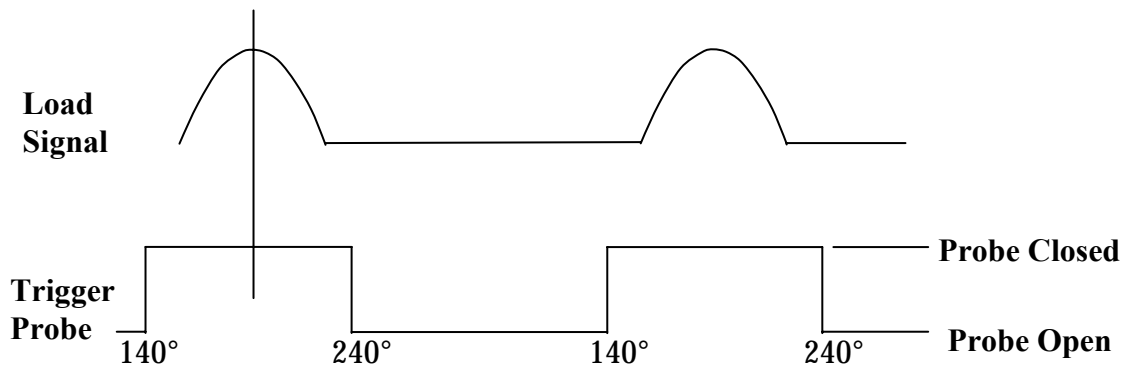


Figure 12

Power Requirement

The SLIM is available with a standard AC voltage input or with an optional DC voltage input. Both power input types are covered here, however **it is important to know which input voltage type applies to your specific SLIM unit.**

AC-POWERED UNITS:

With the proper jumper settings the SLIM can be powered by either 115 VAC or 220 VAC (Factory set at 115 VAC). The jumpers are located on the power PCB as shown in Figure 13. Connect power as shown in Figure 14. Use the proper fuse as indicated.

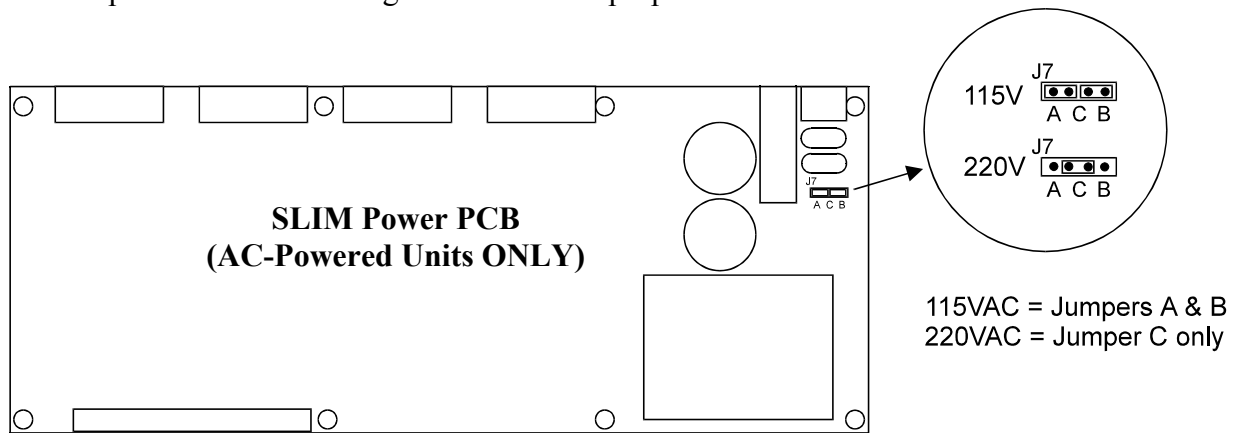


Figure 13

DC-POWERED UNITS:

The SLIM is powered by an external 24VDC Power Supply rated at 1.0 Amp or higher. Connect power as shown in Figure 14. If the power cable has a shield, it can be connected to the Shield terminal. Use the proper fuse as indicated.

POWER WIRING

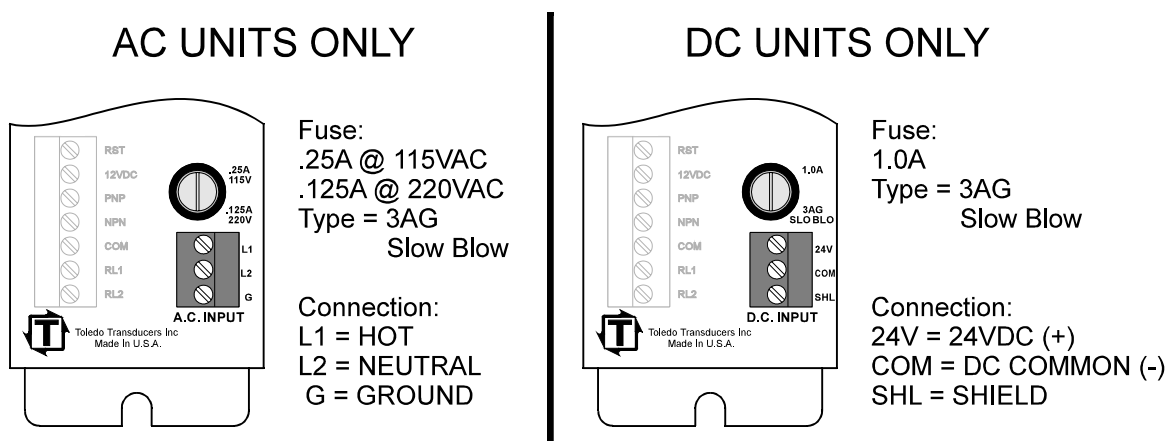


Figure 14

Resolver Connection

The SLIM resolver input has a built-in excitation which supports standard 5,000 Hz rotor excited positional resolvers. The input can be configured in Master Mode or Slave Mode. In Master Mode, the SLIM supplies excitation voltage to the resolver and is wired directly to the resolver. In Slave Mode, the SLIM does not supply excitation voltage to the resolver and is wired to the resolver input terminal of a Master device, where the resolver signal is shared.

The resolver input consists of the following components:

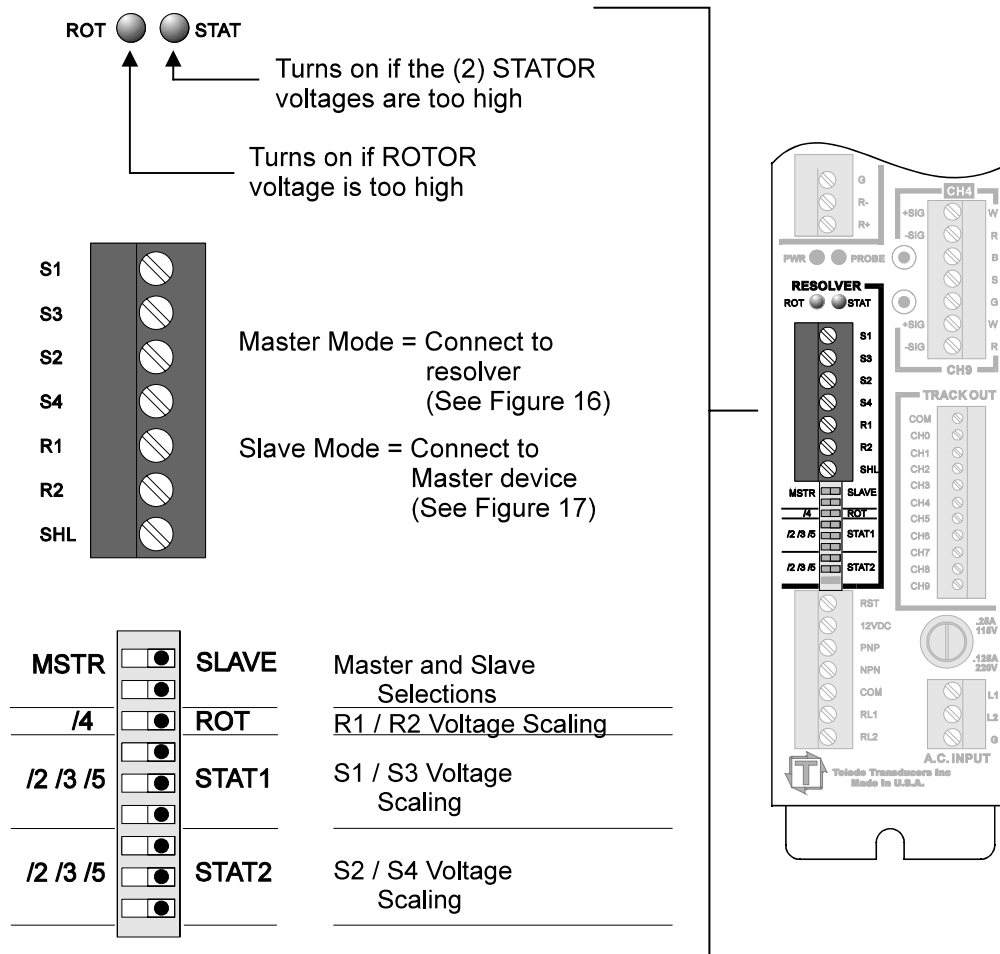
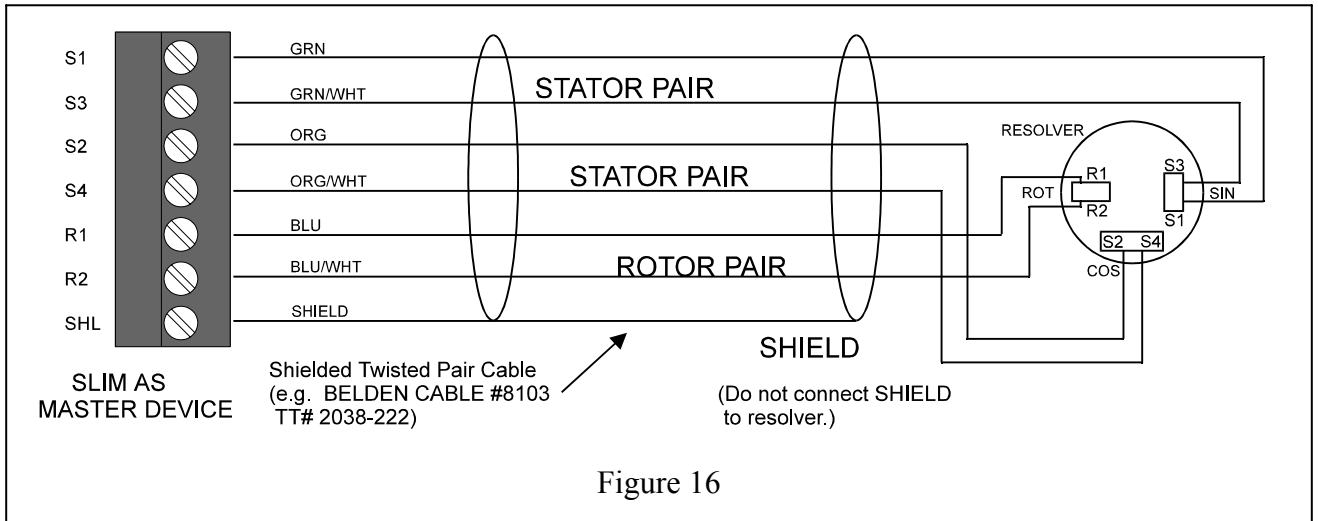
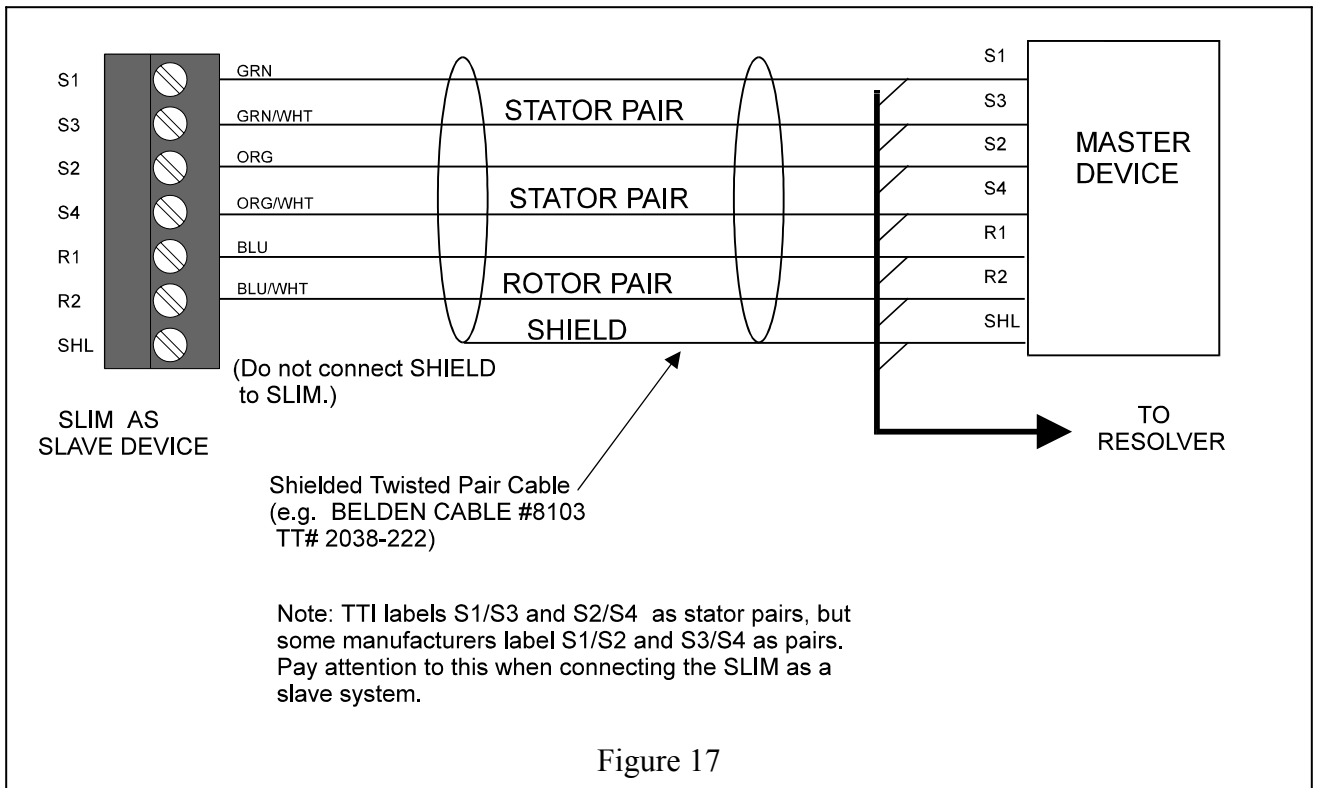


Figure 15

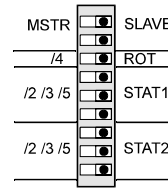
Master Mode Wiring:



Slave Mode Wiring:

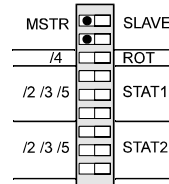


RESOLVER INPUT SETUP

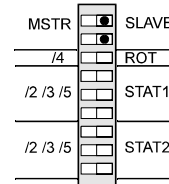


- 1) Set all DIP switches to the OFF (right) position.
- 2) Determine whether the resolver input should be in MASTER mode or SLAVE mode and make the proper setting.

Master Mode

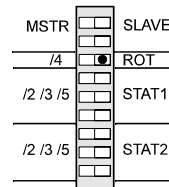


Slave Mode

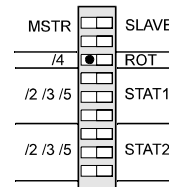


- 3) Make resolver connection.
- 4) With the system on (press can be either running or not running), check to see if the “ROT” LED turns on. Scale down the rotor input voltage by 4X if the “ROT” LED does turn on.

No Scale



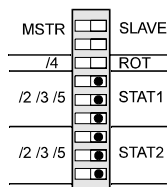
Scale Down 4X



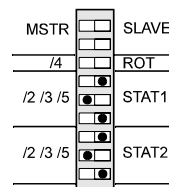
- 5) With the press running, check to see if the “STAT” LED turns on. If it turns on, scale down both stator input voltages first by 2X. If it still turns on, scale it down further by 3X and then by 5X until the “STAT” LED is not turned on. Perform the test in this order to give our unit the highest workable voltage and therefore more accurate results.

NOTE: Two stator inputs must have the same scale down factor. Therefore, the setting of STAT1 must be the same as STAT2.

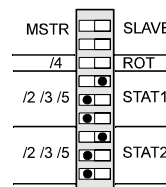
No Scale



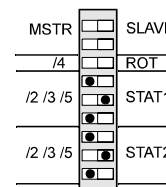
Scale Down 2X



Scale Down 3X



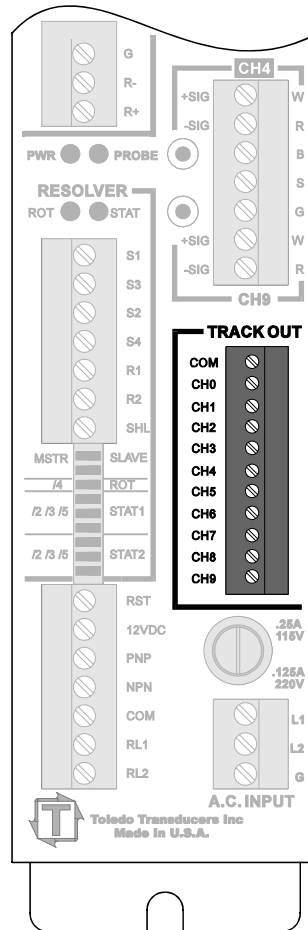
Scale Down 5X



- 6) Record all DIP switch settings on the calibration card.
- 7) Setup is basically completed. Refer to the HMI manual for resolver offset and direction adjustments.

Analog Output

The analog outputs are provided on an 11 pin connector for easy access and for interfacing with other peripherals.



Analog Voltage Output:

- Swing between $\pm 5V$
- 1.25V @ Capacity

- Com = Common
- CH 0 = Channel 0
- CH 1 = Channel 1
- CH 2 = Channel 2
- CH 3 = Channel 3
- CH 4 = Channel 4
- CH 5 = Channel 5
- CH 6 = Channel 6
- CH 7 = Channel 7
- CH 8 = Channel 8
- CH 9 = Channel 9

Figure 18

TTNet Port (Optional)

A 10 Base-T Ethernet-based port for custom communications applications.

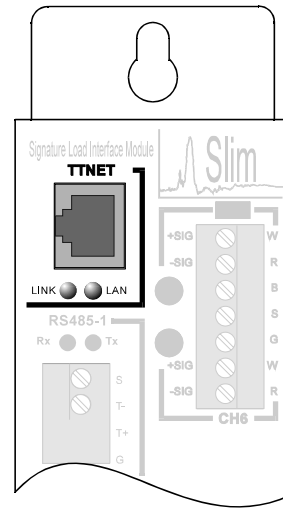
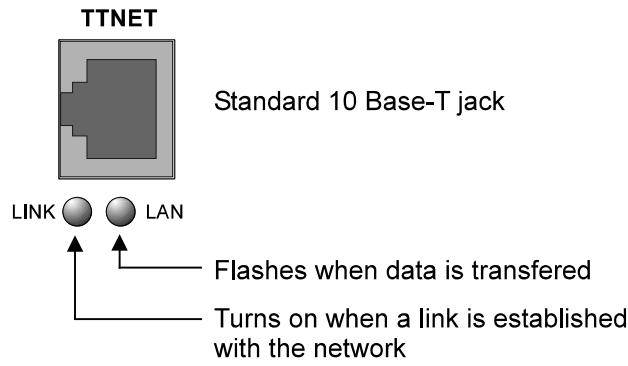


Figure 19

Expansion Connector

A 26-pin connector provides (8) inputs, (8) outputs, and (2) serial ports for custom applications.

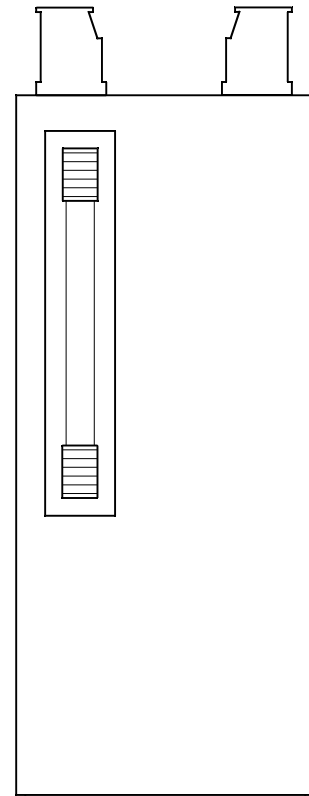


Figure 20

Calibration Card

Record all important operating parameters of the SLIM on the Calibration Card. Always keep this card in the pocket provided on the side of the SLIM.

Model: SLIM Serial No. _____																																																									
Cal. By _____ Date _____																																																									
Press No. _____ Addr. _____																																																									
CAPACITIES																																																									
CH0	CH5																																																								
CALIBRATION NUMBERS																																																									
CH1	CH6																																																								
CH2	CH7																																																								
CH3	CH8																																																								
CH4	CH9																																																								
RESOLVER	<input type="radio"/> STI No. <input type="radio"/> TFP No.																																																								
<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 20px;">1</td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td rowspan="9" style="vertical-align: middle; padding-left: 10px;"><input type="radio"/> Master</td></tr> <tr><td>2</td><td> </td><td> </td></tr> <tr><td>3</td><td> </td><td> </td></tr> <tr><td>4</td><td> </td><td> </td><td rowspan="5" style="vertical-align: middle; padding-left: 10px;"><input type="radio"/> Slave</td></tr> <tr><td>5</td><td> </td><td> </td></tr> <tr><td>6</td><td> </td><td> </td></tr> <tr><td>7</td><td> </td><td> </td></tr> <tr><td>8</td><td> </td><td> </td></tr> <tr><td>9</td><td> </td><td> </td></tr> <tr><td colspan="3" style="text-align: center;">Offset _____</td></tr> </table>	1			<input type="radio"/> Master	2			3			4			<input type="radio"/> Slave	5			6			7			8			9			Offset _____			<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">STI</td> <td style="text-align: center;">Lo</td> <td style="text-align: center;">Hi</td> </tr> <tr> <td>CH5</td> <td style="border: 1px solid black; width: 30px;"></td> <td style="border: 1px solid black; width: 30px;"></td> </tr> <tr><td colspan="3"> </td></tr> <tr> <td style="text-align: center;">TFP</td> <td></td> <td></td> </tr> <tr> <td>CH2</td> <td style="border: 1px solid black; width: 30px;"></td> <td style="border: 1px solid black; width: 30px;"></td> </tr> <tr> <td>CH4</td> <td style="border: 1px solid black; width: 30px;"></td> <td style="border: 1px solid black; width: 30px;"></td> </tr> <tr> <td>CH6</td> <td style="border: 1px solid black; width: 30px;"></td> <td style="border: 1px solid black; width: 30px;"></td> </tr> <tr> <td>CH8</td> <td style="border: 1px solid black; width: 30px;"></td> <td style="border: 1px solid black; width: 30px;"></td> </tr> </table>	STI	Lo	Hi	CH5						TFP			CH2			CH4			CH6			CH8		
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Figure 21

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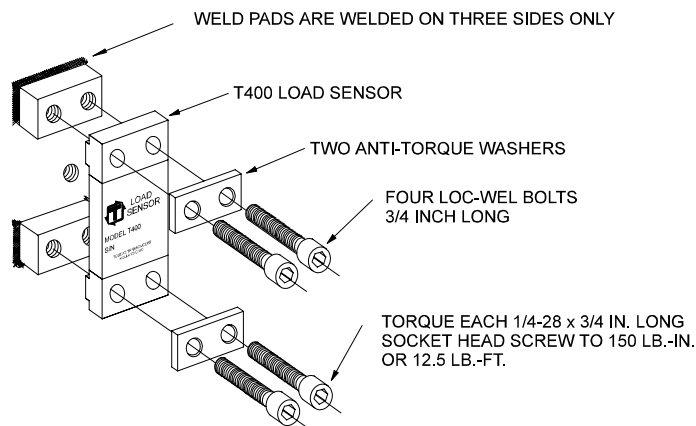
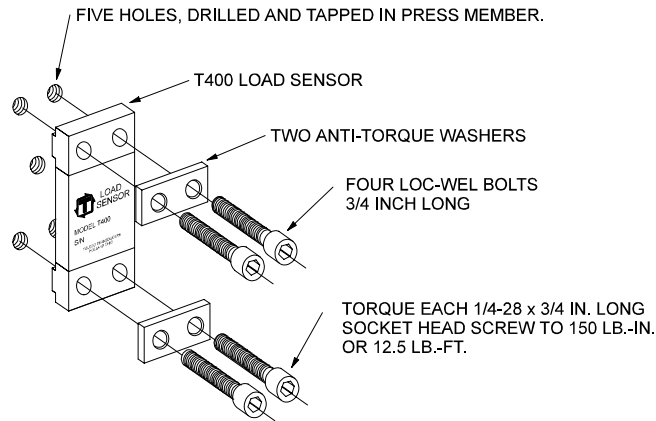


Appendix

- I) Sensor Installation (Doc# 11080)
- II) Calibration Sheets (2) (Form# 1224)



INSTALLING T400 LOAD SENSORS



The above illustrations represent the proper arrangement of Model T400 Load Sensor kit parts using either the Drill and Tap method or the Weld method.

A proper installation is necessary to produce good results.

Before installing the sensors, please read the appropriate instructions listed below.

Sensor Placement	Page 2
Press Frame	Page 3
Pitman Mount	Page 4
Drill and Tap Method of Installing Sensors	Page 5
Weld Method of Installing Sensors	Page 6
T400 Enclosure Mounting Details	Page 7

NOTES:

- 1) (2) SENSORS REQUIRED
- 2) (2) SENSOR ENCLOSURES ARE INCLUDED. THESE HELP PROTECT THE T400 SENSOR GAUGES. THESE ENCLOSURES INCLUDE 1/2" KNOCK-OUT HOLES. IF CONDUIT IS USED, WE SUGGEST USING 1/2" STRAIN RELIEFS IN THE KNOCK-OUT HOLES.

SENSOR PLACEMENT

Sensor location must be determined. You have two locations. The front or the rear of the press. (Shown in the shaded area.)

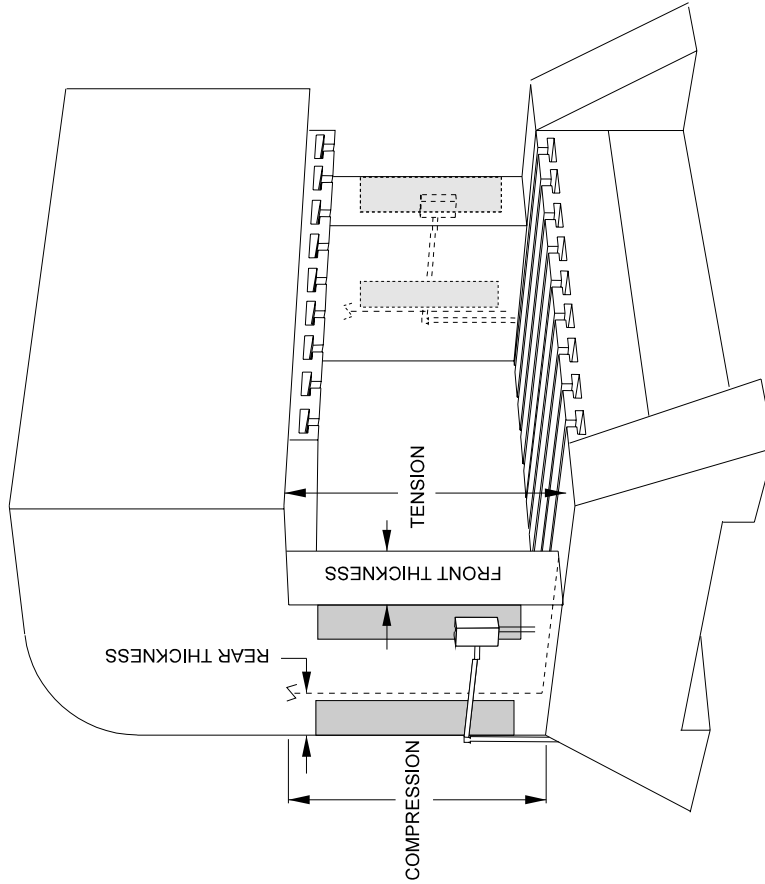
HOW TO DETERMINE THE BEST LOCATION

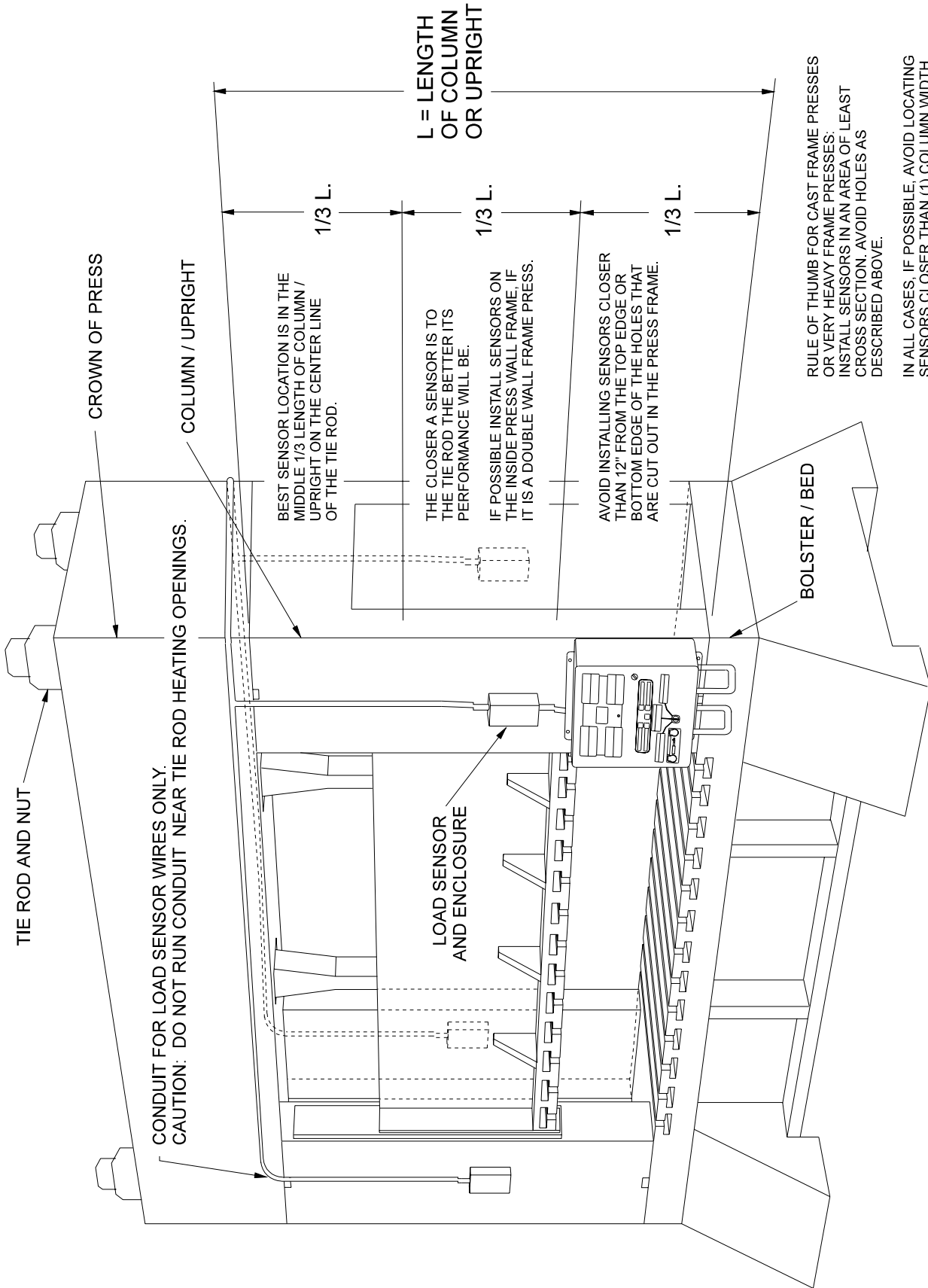
* MEASURE THE REAR THICKNESS _____ REAR

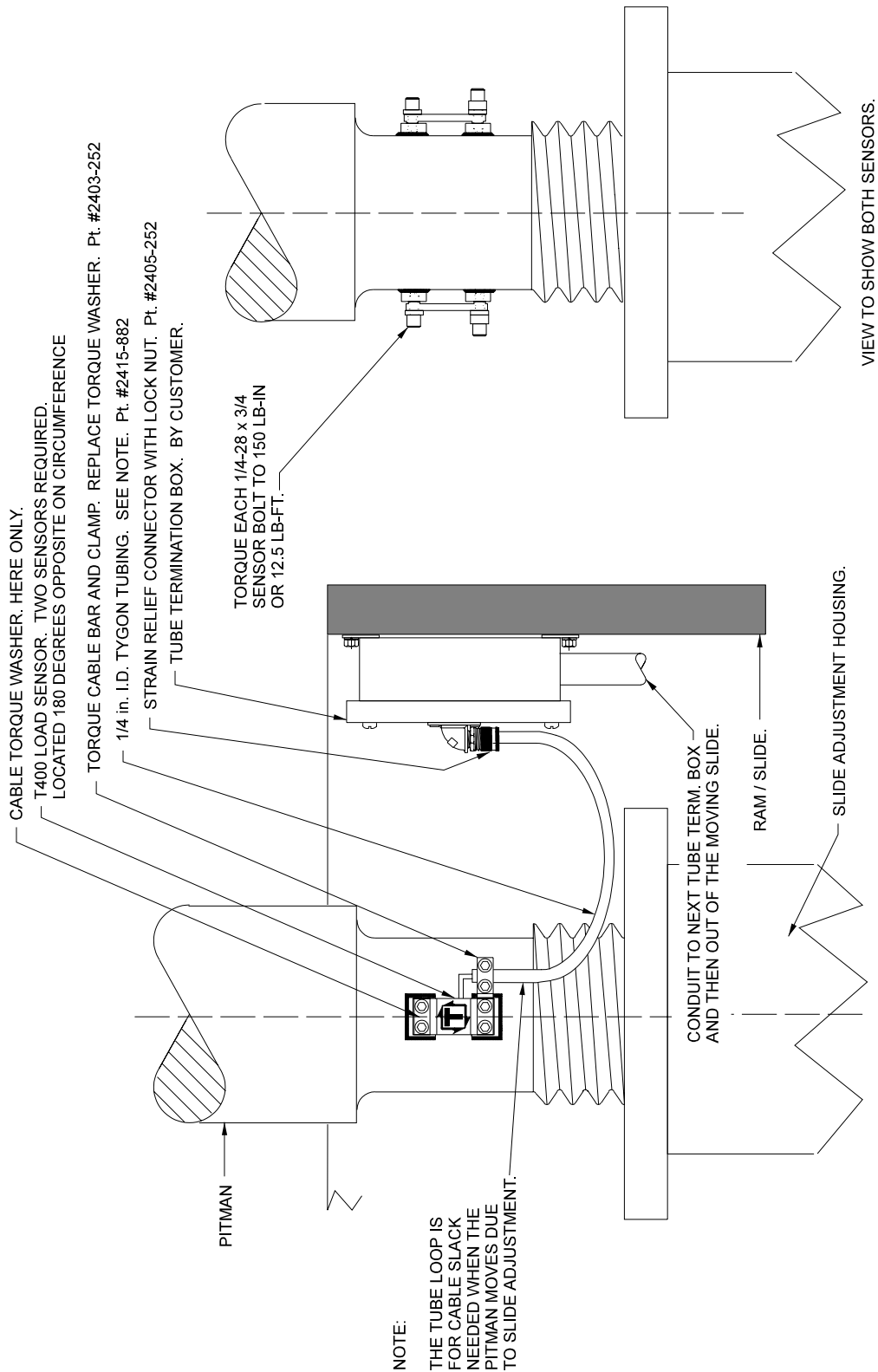
* MULTIPLY BY THREE X 3 =

* MEASURE THE FRONT THICKNESS _____ FRONT

If the front thickness is smaller than value in , then mount sensors in the front. (This is the most common.)
If the front thickness is larger, then place the sensor in the rear. Adjust the input connection for compression readings instead of tension.





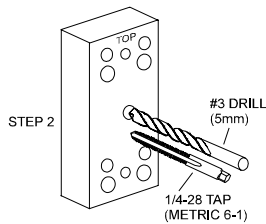


USING THE T400 SENSOR INSTALLATION FIXTURE KIT No. 1977-749

(METRIC INSTALLATION FIXTURE KIT No. 1974-749)

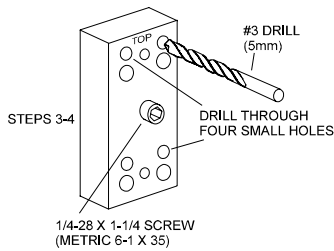
DRILL AND TAP METHOD FOR MOUNTING SENSORS

BE SURE THE SENSOR LOCATION FOLLOWS THE BEST LOCATION DESCRIBED ON THE PREVIOUS PAGES.



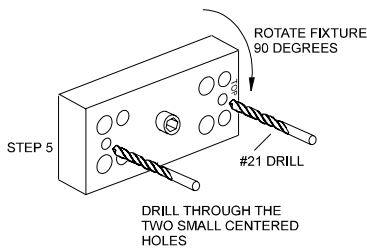
STEP 1 Remove all paint and grease from sensor mount area. If the machine surface is flat (total indicated reading of .002”) and smooth (125 μ in.) the load sensor can be bolted directly to the surface.

STEP 2 Drill and tap the center hole for mounting the fixture to the press member. This hole should be ½ inch (13mm) deep.

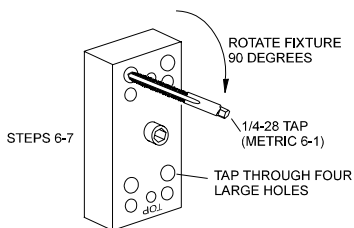


STEP 3 Bolt the fixture to the press member using the ¼-28 by 1-¼ inch (M6-1 x 35) long socket head cap screw in the center of the fixture.

STEP 4 Insert the number 3 drill (5mm) into the smaller corner hole and drill out all four holes to a depth of ¾ of an inch (19mm.)



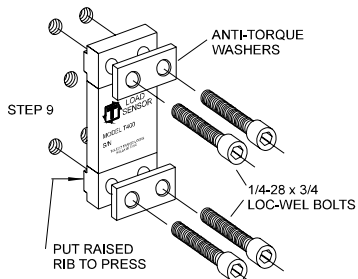
STEP 5 Loosen the fixture. Rotate the fixture 90 degrees clockwise. Tighten the center screw of the fixture. Insert the number 21 drill into the small centered hole and drill out both holes to a depth of 3/8 of an inch. These holes are for mounting the sensor enclosure. The fixture does not allow for tapping these holes. They are tapped without the fixture. Enclosure mounting is not done in metric.



STEP 6 Loosen the fixture. Rotate the fixture another 90 degrees clockwise such that the larger corner holes line up with the holes drilled in Step 4. Insert a tap to be sure the holes line up. Lock the fixture in place by tightening the center screw.

STEP 7 Insert the tap into the larger tap guide holes and tap each hole.

BE SURE TO USE PLENTY OF TAPPING FLUID.



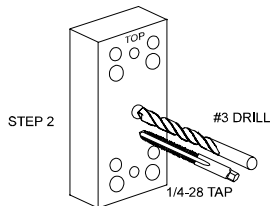
STEP 8 Remove the fixture and repeat Steps 1-7 for each additional sensor mounting position.

STEP 9 Mount the sensor with the raised rib to the press. The anti-torque washers should go between the screw and the sensor body. Torque each ¼-28 x ¾ in. long socket head cap screw to 150 LB.-IN or 12.5 LB.-FT.

USING THE T400 SENSOR INSTALLATION FIXTURE KIT No. 1977-749

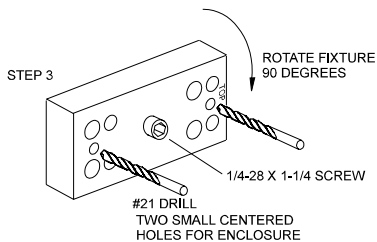
WELD PAD METHOD FOR MOUNTING SENSORS

BE SURE THE SENSOR LOCATION FOLLOWS THE BEST LOCATION DESCRIBED ON THE PREVIOUS PAGES.

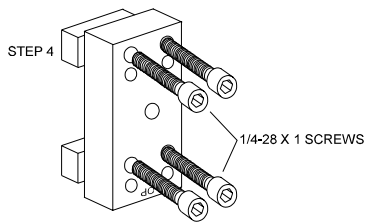


STEP 1 Remove all paint, grease, and or rust from surface to be welded. (Surface should be flat T.I.R. 1/32 of an inch.)

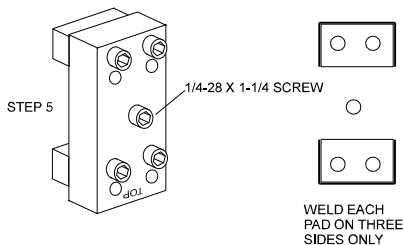
STEP 2 Drill and tap the center hole for mounting the fixture to the press member. This hole should be 1/2 inch deep. (Optional)



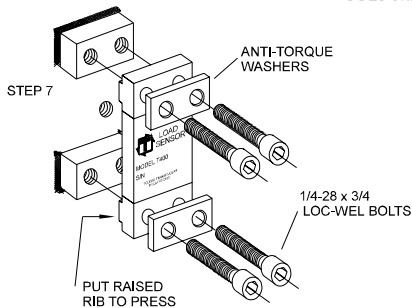
STEP 3 Bolt the fixture to the press member using the 1/4-28 by 1-1/4 inch long socket head cap screw in the center of the fixture. Orient the fixture as shown and drill out the #21 holes to a depth of 3/8 of an inch for the enclosure mounting. The fixture is not used for tapping these holes. (Optional)



STEP 4 Remove the fixture from the press member. Bolt the weld pads to the fixture with 1/4-28 by 1 inch long socket head cap screws provided. Reattach the fixture with the weld pads bolted on using the center hole as in Step 3. Orient the fixture as shown.



STEP 5 Weld the weld pads to the press member. (BE SURE TO ONLY WELD THE WELD PADS ON THREE SIDES AS SHOWN.) A single pass is sufficient. Do not remove the fixture until slag is removed and or assembly has cooled. When welding cast iron, use a dry nickel rod such as: Lincoln Electric "Soft Weld", Hobart "NI Cast 99", or MB Weld Prod. "MG 210. Strike arc on steel then puddle into the cast iron.



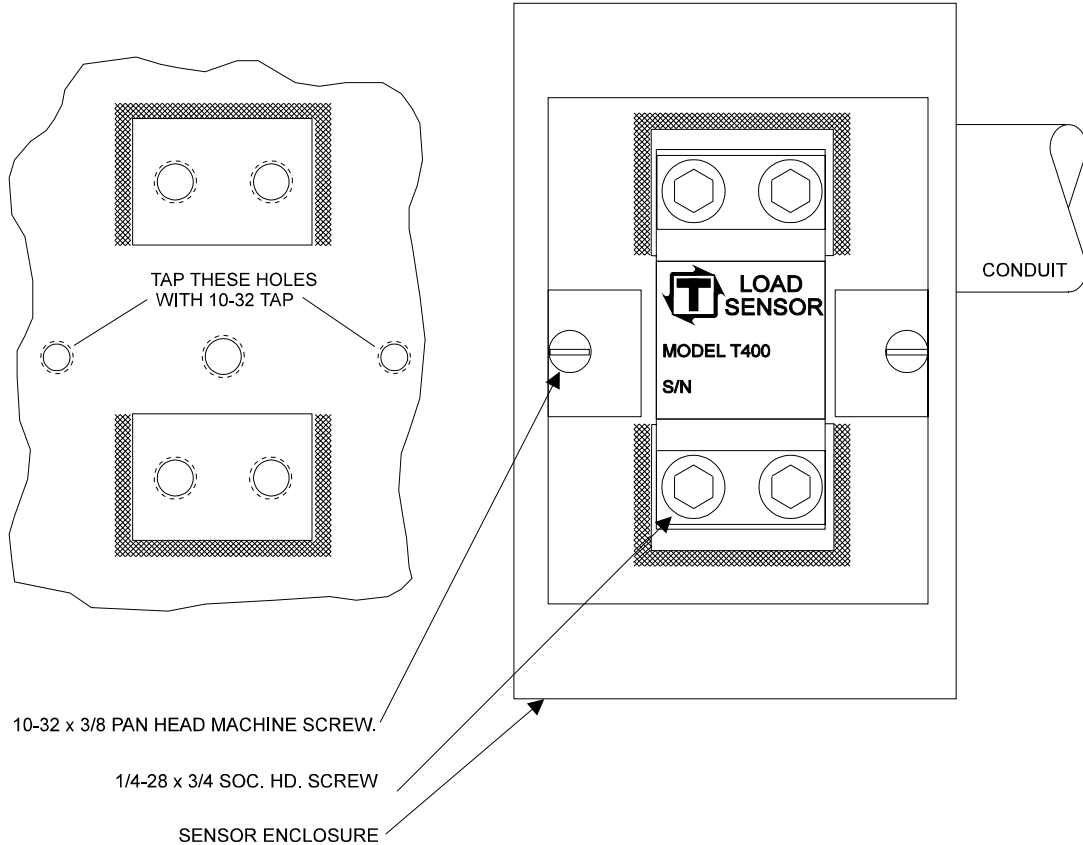
STEP 6 Remove the weld fixture. DO NOT WELD AFTER FIXTURE IS REMOVED. The 4 screws holding the pads to the fixture and the 1 center screw may be discarded. DO NOT USE THE FOUR 1 INCH LONG SCREWS TO ASSEMBLE SENSOR. The sensor kit contains four 3/4 inch long screws for assembling the sensor to the press member. Weld pad surface must be clean – no weld bumps, scratches, etc. Be sure the weld pad tapped holes are clean and bottom of holes are free of weld flash.

STEP 7 Mount the sensor with the raised rib to the press. The anti-torque washers should go between the screw and the sensor body. Torque each 1/4-28 x 3/4 in. long socket head screw to 150 LB.-IN or 12.5 LB.-FT.

SENSOR ENCLOSURE MOUNTING

USE 10-32 TAP IN THE TWO 3/8" DEEP HOLES THAT WERE DRILLED WITH THE FIXTURE IN THE PREVIOUS INSTRUCTIONS. MOUNT THE ENCLOSURE TO THE PRESS MEMBER AND RUN 1/2 INCH CONDUIT TO THE LOAD MONITOR ENCLOSURE.

RUN SENSOR CABLE THROUGH CONDUIT. PLACE SENSOR ON MOUNTING HOLES. PLACE ANTI-TORQUE WASHERS OVER SENSOR HOLES. SCREW IN SENSORS BOLTS, (4) EACH, FINGER TIGHT. USE ONLY THE 1/4-28 x 3/4 "LOC-WEL" BOLTS THAT ARE IN THE SENSOR PACKAGE. TORQUE EACH 1/4-28 x 3/4 SCREW TO 150 LB.-IN. OR 12.5LB.-FT. ASSEMBLE BOX COVER.



COMPANY: _____

DATE: _____

PRESS SERIAL No: _____

PRESS (Type and & No.): _____

CONTACT: _____

PRESS CAPACITY: _____

PHONE: (____) _____

LOAD MONITOR MODEL: _____

SERVICE ORDER #: _____

MONITOR SERIAL No. _____

SLIDE-ADJUST INDICATOR

TONNAGE APPLIED TO **LOAD CELLS** ON PRESS

TONNAGE DISPLAYED ON **LOAD MONITOR**

LR	_____	TOTAL	_____	RR
LF	_____		_____	RF

LR	_____	TOTAL	_____	RR
LF	_____		_____	RF

LR	_____	TOTAL	_____	RR
LF	_____		_____	RF

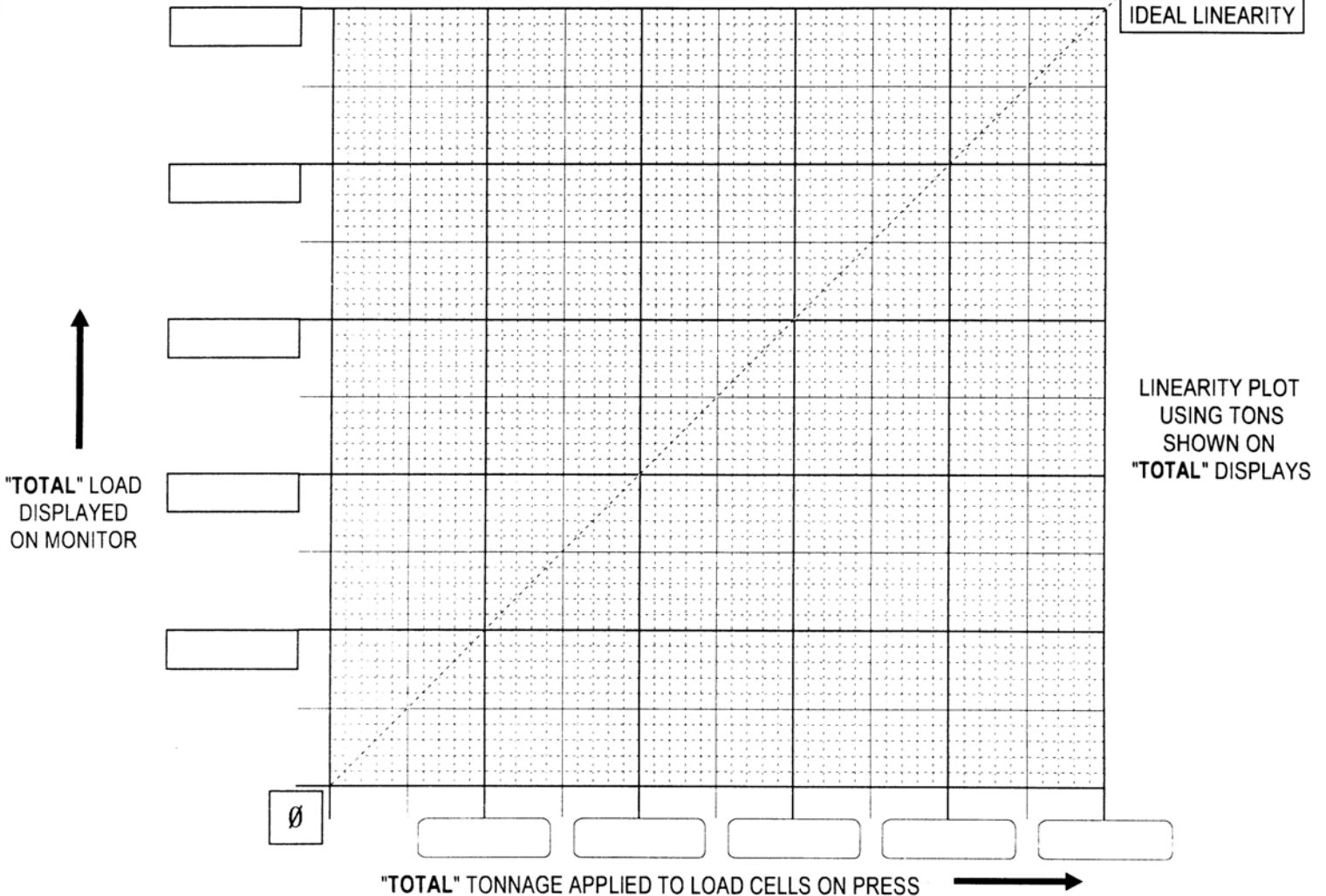
LR	_____	TOTAL	_____	RR
LF	_____		_____	RF

LR	_____	TOTAL	_____	RR
LF	_____		_____	RF

LR	_____	TOTAL	_____	RR
LF	_____		_____	RF

LR	_____	TOTAL	_____	RR
LF	_____		_____	RF

LR	_____	TOTAL	_____	RR
LF	_____		_____	RF



IDEAL LINEARITY

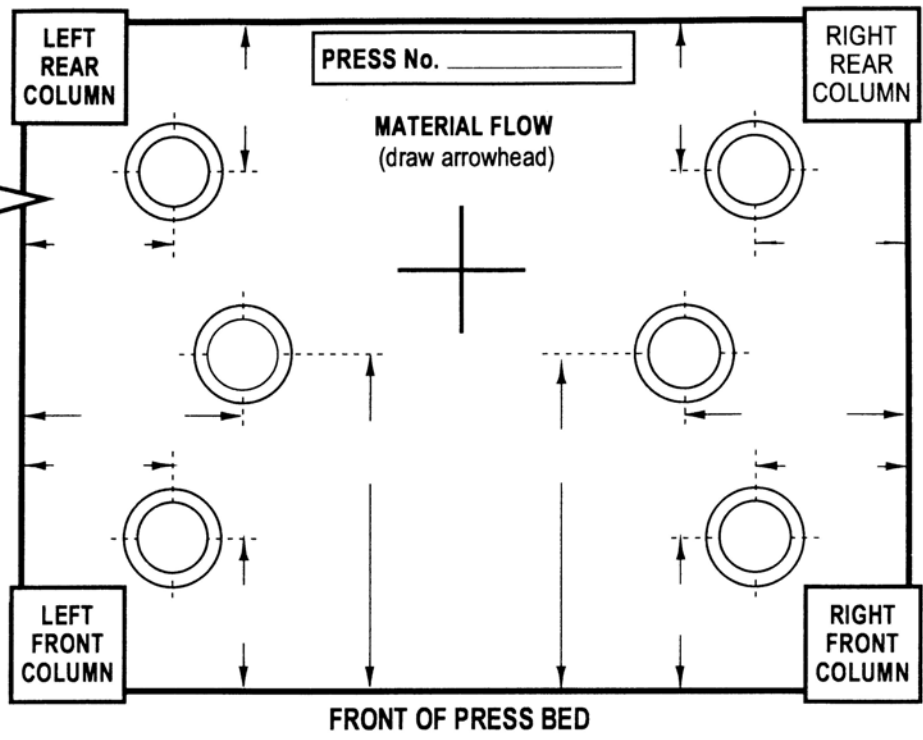
LINEARITY PLOT USING TONS SHOWN ON "TOTAL" DISPLAYS

DRAW IN : _____

- CHANNEL NUMBER
- SENSOR LOCATION
- MONITOR LOCATION
- LOAD CELL LOCATION
- DIRECTION OF MATL. FLOW

SHUNT RESISTORS:
 ONE MEG ? YES ___ NO ___

OTHER RESISTORS:
 CHAN. 1 _____
 CHAN. 2 _____
 CHAN. 3 _____
 CHAN. 4 _____



TYPE OF LOAD CELLS: _____ TYPE OF LOAD CELL READOUT: _____

TONNAGE SENSORS

CALIBRATION LOAD CELLS

SENSOR NUMBER	SERIAL NO.	CAL. NO.	X 10	LOCATION (LF, RF, LR, RR)
1				
2				
3				
4				

CELL NUMBER	CAPACITY TONS	SERIAL NO.	CAL. NO.
1			
2			
3			
4			

CCM TYPE: _____ CCM OFFSET: _____ STI REFERENCE NUMBER: LOW: _____ HIGH: _____

STI DEGREES IN CHANNEL No. 1: _____

TRIGGERED FROM PROBE ? YES ___ NO ___ (Show threshold value if not triggered from probe): _____

TRIPPED ALARM RELAY STOPS PRESS ? YES ___ NO ___ EXPLAIN: _____

ALL STICKERS AND DOCUMENTS FILLED OUT ? YES ___ NO ___ IF NOT, EXPLAIN WHY: _____

TFP No.: HIGH 2 _____ LOW 2 _____ HIGH 4 _____ LOW 4 _____ HIGH 6 _____ LOW 6 _____ HIGH 8 _____ LOW 8 _____

COMMENTS: _____

TESTS MADE BY: _____ TESTS ACCEPTED BY: _____ DATE: _____

MAIL ADDRESS:
 TOLEDO TRANSDUCERS, INC.
 P.O. BOX 10
 HOLLAND, OHIO 43528

SHIPPING ADDRESS:
 TOLEDO TRANSDUCERS, INC.
 6834 SPRING VALLEY DR.
 HOLLAND, OHIO 43528

PHONE: 1 (419) 867-4170
FAX: 1 (419) 867-4180

COMPANY: _____

DATE: _____

PRESS SERIAL No: _____

PRESS (Type and & No.): _____

CONTACT: _____

PRESS CAPACITY: _____

PHONE: (____) _____

LOAD MONITOR MODEL: _____

SERVICE ORDER #: _____

MONITOR SERIAL No. _____

SLIDE-ADJUST INDICATOR

TONNAGE APPLIED TO **LOAD CELLS** ON PRESS

TONNAGE DISPLAYED ON **LOAD MONITOR**

LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF

LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF

LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF

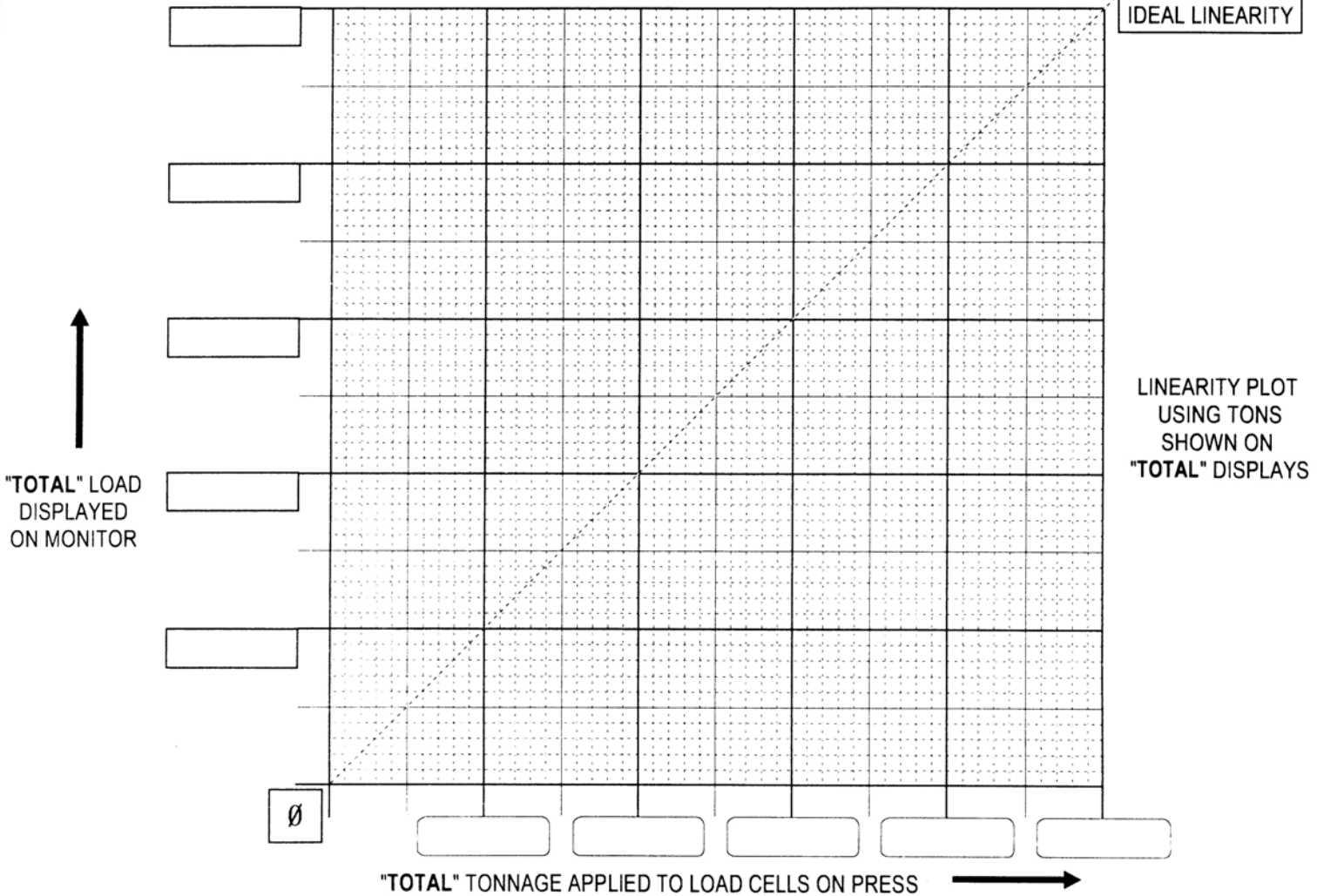
LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF

LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF

LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF

LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF

LR	<input type="text"/>	TOTAL	<input type="text"/>	RR
LF	<input type="text"/>	<input type="text"/>	<input type="text"/>	RF



DRAW IN : _____

- CHANNEL NUMBER
- SENSOR LOCATION
- MONITOR LOCATION
- LOAD CELL LOCATION
- DIRECTION OF MATL. FLOW

SHUNT RESISTORS:
ONE MEG ? YES ___ NO ___

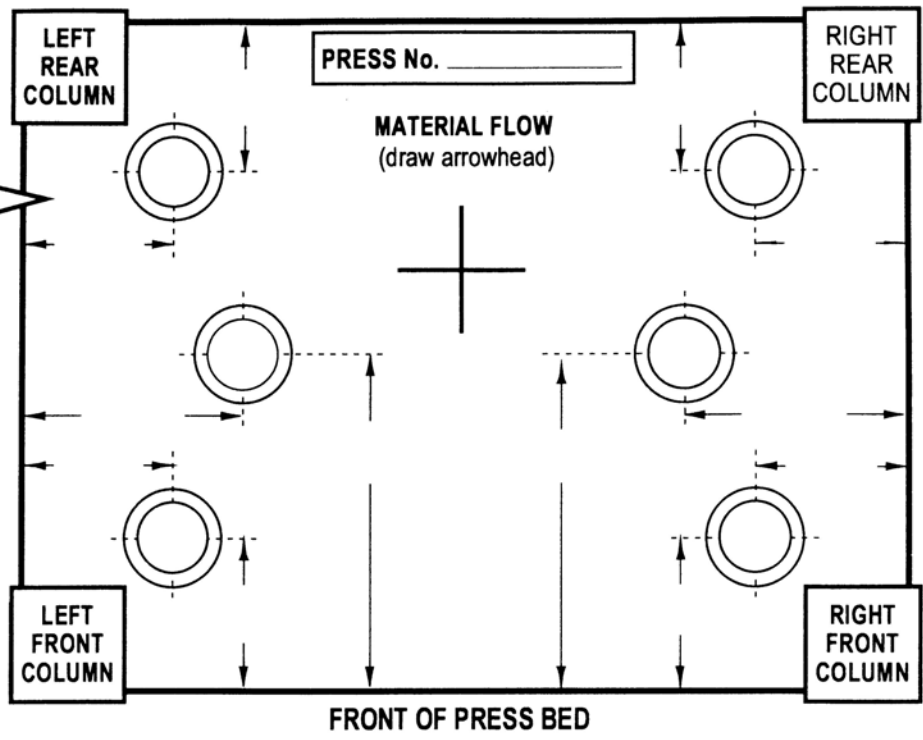
OTHER RESISTORS:

CHAN. 1 _____

CHAN. 2 _____

CHAN. 3 _____

CHAN. 4 _____



TYPE OF LOAD CELLS: _____ TYPE OF LOAD CELL READOUT: _____

TONNAGE SENSORS

CALIBRATION LOAD CELLS

SENSOR NUMBER	SERIAL NO.	CAL. NO.	X 10	LOCATION (LF, RF, LR, RR)
1				
2				
3				
4				

CELL NUMBER	CAPACITY TONS	SERIAL NO.	CAL. NO.
1			
2			
3			
4			

CCM TYPE: _____ CCM OFFSET: _____ STI REFERENCE NUMBER: LOW: _____ HIGH: _____

STI DEGREES IN CHANNEL No. 1: _____

TRIGGERED FROM PROBE ? YES ___ NO ___ (Show threshold value if not triggered from probe): _____

TRIPPED ALARM RELAY STOPS PRESS ? YES ___ NO ___ EXPLAIN: _____

ALL STICKERS AND DOCUMENTS FILLED OUT ? YES ___ NO ___ IF NOT, EXPLAIN WHY: _____

TFP No.: HIGH 2 _____ LOW 2 _____ HIGH 4 _____ LOW 4 _____ HIGH 6 _____ LOW 6 _____ HIGH 8 _____ LOW 8 _____

COMMENTS: _____

TESTS MADE BY: _____ TESTS ACCEPTED BY: _____ DATE: _____

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