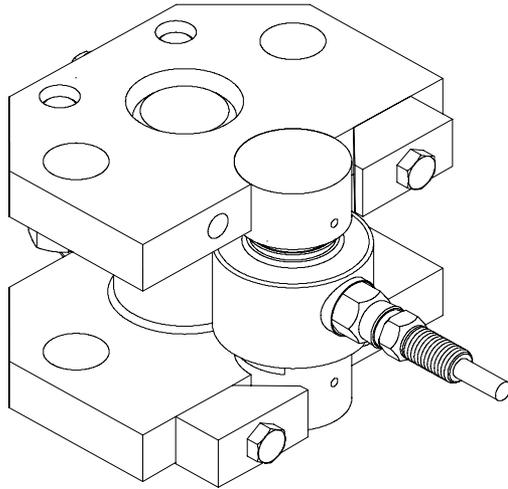


**HI LPRA
LOAD POINT ASSEMBLIES**

**OPERATION AND INSTALLATION
MANUAL**



Corporate Headquarters

9440 Carroll Park Drive

San Diego, CA 92121

Phone: (858) 278-2900

FAX: (858) 278-6700

Web-Site: <http://www.hardysolutions.com>



Local Field Service

Hardy has over 200 field technicians in the U.S., and more positioned throughout the world to assist you in your support needs. We also have factory engineers who will travel to your facility anywhere in the world to help you solve challenging applications. We're ready to support you with:

- **Installation and start-up**
- **Routine maintenance and certification**
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- **Emergency troubleshooting and repair**

To request Emergency Service and Troubleshooting, Start-up, Installation, Calibration, Verification or to discuss a Maintenance Agreement please call **800-821-5831** or Emergency Service after hours (Standard Hours 6:00 AM to 6:00 PM Pacific Standard Time) and weekends Ext. 9550.

Outside the U.S

Hardy Instruments has built a network of support throughout the globe. For specific field service options available in your area please contact your local sales agent or our U.S. factory at +1 **858-292-2710**.

CAUTION:

UNPACK WITH CARE

WHEN UNPACKING, DO NOT DISCARD THE PACKING CASE OR ANY PACKING MATERIAL, UNTIL THE CONTENTS OF THE PACKING CASE ARE INSPECTED AND CAREFULLY COMPARED WITH THE SHIPPING DOCUMENTS.

IF ANYTHING IS UNSATISFACTORY, PLEASE NOTIFY HARDY PROCESS SOLUTIONS IMMEDIATELY BY CALLING, FAXING OR E-MAILING TO:

Customer Support Department
Hardy Process Solutions, INC.
9440 Carroll Park Drive
San Diego, California 92121

Phone: (800) 821-5831
(858) 278-2900

FAX: (858) 278-6700

E-mail: hardysupport@hardysolutions.com
Web Address: www.hardysolutions.com

TO RETURN DEFECTIVE OR DAMAGED PRODUCT(S) CALL HARDY TECHNICAL SUPPORT FOR A HARDY SERVICE TICKET NUMBER (RMA#). YOUR COMPANY NAME, ADDRESS, TELEPHONE NUMBER, SERIAL NUMBER OF THE UNIT AND A BRIEF DESCRIPTION OF THE PROBLEM SHOULD BE READY WHEN CALLING. FOR ALL NON-WARRANTY REPAIRS A PURCHASE ORDER OR CREDIT CARD IS ALSO REQUIRED.

IN CASE OF DAMAGE DUE TO SHIPPING, NOTIFY THE DELIVERING CARRIER IMMEDIATELY FOR AN INSPECTION.

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Congratulations, on your purchase of the Hardy ADVANTAGE[®] Load Point Assembly. This product, is engineered to set a new standard in load point assemblies. It combines new innovations with previously extra cost features and common sense features to provide you with optimum performance unequaled anywhere.

General Information

The Hardy HI LPR Series ADVANTAGE, Low Profile, Rocker Load Point System is designed for use on high capacity vessels. It provides accurate output in the most demanding applications, with load sensor performance exceeding IP68 and NEMA 6 Standards for Wash Down Resistance.

The stainless steel load sensor has Enhanced C2[®] Second Generation Calibration, matched mV/V and mV/V/Ohm and a 1/4 inch NPT (National Pipe Thread) conduit adapter. The gauge area and cable entry point are hermetically sealed. The rocker load point system eliminates the effects of unwanted forces resulting in exceptional load measuring accuracy.

Each load point is shipped with a grounding strap and provides built-in checking and lift-off protection. The load points mounting hardware is available in either 300 series stainless steel or zinc plated steel. The load sensor is shipped in a separate container.

Unpacking

- Do not remove the load sensor's packaging until just before installation. Although the load sensor is designed for harsh environments, it is a precision instrument and should be treated as such.
- Inspect the box, packing and the load point assembly for any signs of shipping damage. Since almost all of the load point assemblies are shipped F.O.B. our factory, shipping damage is normally the responsibility of the carrier and should be reported to them.
- **LOAD SENSOR CERTIFICATION SHEETS ARE AVAILABLE 24 HOURS A DAY AT OUR WEBSITE: <http://www.hardysolutions.com> (Go to "Products" or "Support" and click on Advantage Load Sensor Tool/Certification, then follow directions.)**

HI HLPRA SERIES LOAD POINT ASSEMBLY

- Record the serial number(s) on the inside of the back cover for reference when talking to Hardy Customer Service. Store this information in a secure dry location for future reference.

Site Preparation

- All foundations for the HI LPRA load point assemblies require a metal base plate adequate to prevent any deformation of the plate when welding the bottom plate of the load point assembly to the foundation. Check the I/I diagrams on the Hardy Process Solutions Web Site (<http://www.hardysolutions.com> or contact your local Hardy Representative for an I/I diagram) for the proper dimensions of the load point assembly being installed.
- All mounting surfaces for the base and loading plate must be level. The Load Point Assemblies in a system must be level to within $\pm 0.5^\circ$.
- Do the welding before you install the load sensor.

Precautions

- Always treat the load sensor as a precision instrument. Keep the assembly in its packaging until it is time for installation.
- NEVER CARRY OR SWING THE LOAD SENSORS BY THEIR CABLE.
- WARNING: Load cell cable length has been calculated into C2 calibration data. Hardy recommends that you DO NOT CUT your Advantage load sensor cable as your C2 accuracy will be affected and the warranty will be voided.
- Never allow moisture to get into any interconnections.

Basic Engineering Principles for Positioning Load Point Assemblies

- Position each load point assembly to distribute the load (weight) as evenly as possible between each load point on the scale.
- When the installation does not allow even distribution of the load, select higher capacity load point assemblies. This does not effect the weighing accuracy of the scale.

- All load point assemblies must have the same capacity when used in one scale.

Typical Mounting Arrangements

The HI LPRA series load point is omni-directional concerning lift-off and side loading when orienting the load points.

NOTE:

Make sure that the load point assemblies are oriented so that the cables do not stick out so far that they can be broken by machinery or vehicles. Ensure the leg/support is centered on the load sensor, not the mount center.

Round Vessel - 3 Load Point Assemblies

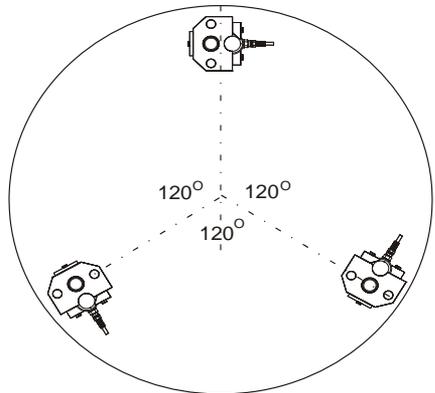


FIG. 1: ROUND VESSEL TANK - 3 LOAD CELLS

NOTE:

For three load point systems, the mounting locations should be spaced 120 degrees apart. For four load point systems the mounting locations should be spaced 90 degrees apart.

Individual load point assemblies may be rotated as required for ease of installation and maintenance. Make sure that the cable is positioned away from any foot traffic or pinch points.

HI HLPRA SERIES LOAD POINT ASSEMBLY

**Round Vessel - 4
Load Point
Assemblies**

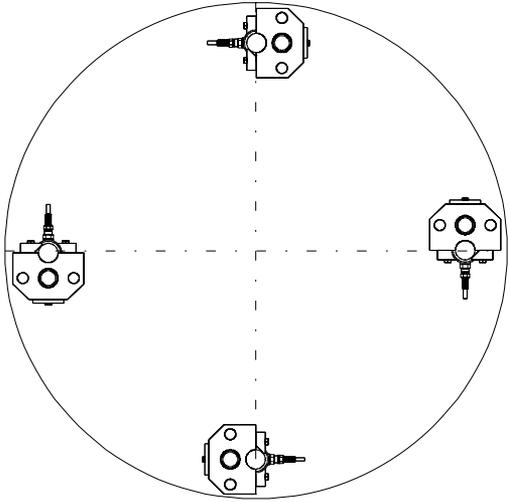


FIG. 2: ROUND VESSEL TANK - 4 LOAD POINT ASSEMBLIES

**Square Vessel - 3
Load Point
Assemblies**

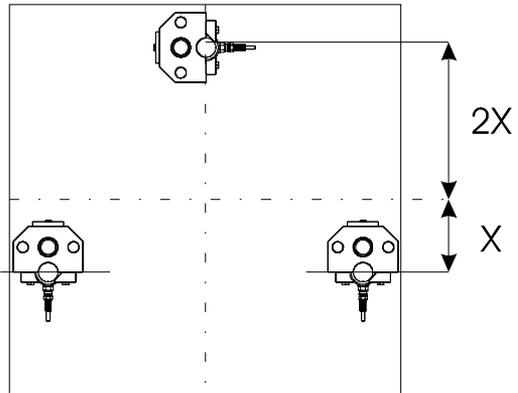


FIG. 3: SQUARE VESSEL - 3 LOAD POINT ASSEMBLIES

**Square Vessel -
4 Load Point
Assemblies**

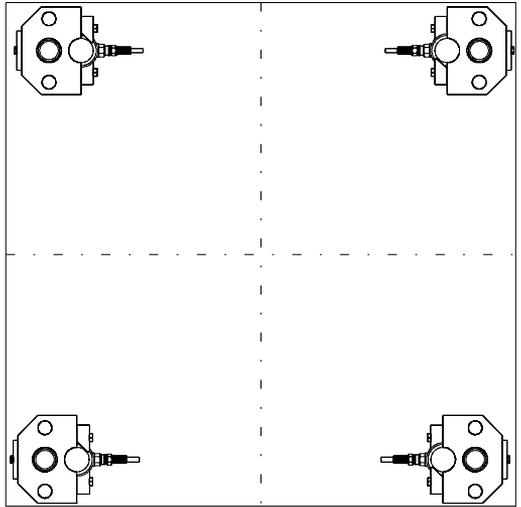


FIG. 4: SQUARE VESSEL - 4 LOAD POINT ASSEMBLIES

**Horizontal Tank -
4 Load Point
Assemblies**

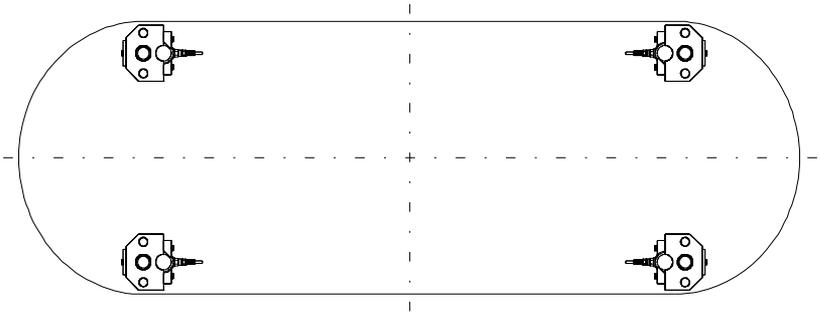


FIG. 5: HORIZONTAL TANK - 4 LOAD POINT ASSEMBLIES

NOTE:

In case there is some doubt concerning load point assembly installation, contact your local Hardy Representative, Hardy Application Engineering or Customer Support Department for assistance.

HI HLPRA SERIES LOAD POINT ASSEMBLY

Installing a Load Point Assembly

- Step 1. Read the Operation and Installation Manual first to familiarize yourself with the installation process.
- Step 2. Remove the Mounting Assembly from the shipping crates. You should normally have the following:
- (1) Mounting Assembly with shipping spacer between the Upper and Lower Mounting Cups.
 - (1) Operation and Installation Manual.
 - (1) Grounding Cable
 - Outline drawing 0588-0089

NOTE:

The Load Sensor is shipped in a separate crate.

- Step 3. Set the load sensor in a safe and secure location. You don't need it right now.
- Step 4. Place the Load Sensor Mounting Assembly with shipping spacer on the foundation plates. (See Fig. 6) If you are using bolts to fasten the Load Point Mounting Assemblies to a foundation, Fig. 10 shows where to set the anchor bolts in the foundation.

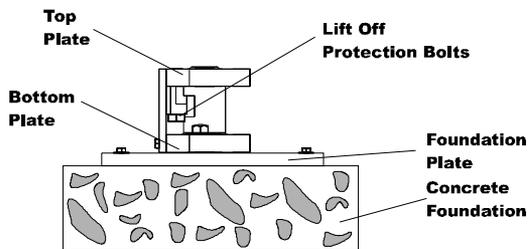


FIG. 6: INSTALLATION OF LOAD POINT ASSEMBLY ON FOUNDATION PLATE

NOTE:

Arrow on drawing (See Fig. 7) notes the Center Point. This Center Point is the upper load cup and should be centered on the load carrier foot plate.

OPERATION AND INSTALLATION MANUAL

- Step 5. Level the top plate for each load point assembly, and verify that all the top plates are level (within $\pm 0.5^{\circ}$) with each other, side to side, corner to corner.
- Step 6. If you need to shim the load point assemblies to make them level with each other, do the following: (See Fig. 8)
1. Use shimming only if the load carrier is so stiff that fine adjustment is necessary to obtain the correct load distribution between corners. (See Figs. 7 and 8)

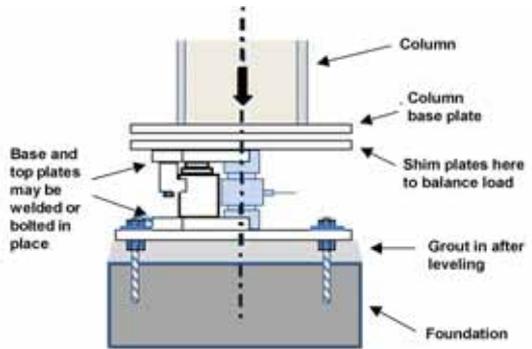


FIG. 7: THE CENTER POINT OF THE UPPER LOAD CUP SHOULD BE CENTERED ON THE LOAD CARRIER FOOT PLATE

NOTE:

Minimum foot and base mounting plates should be 160mm x 180mm with the load centered on the load sensor, not the center post

2. Shim (maximum 5 mm) in one corner with circular shim washers (Item 1). If required, shim a maximum of an additional 5 mm in the diagonally opposite corner. Add washer (Item 2) as required to maintain the gap at the lift off protection. (See Fig. 8)

HI HLPRA SERIES LOAD POINT ASSEMBLY

- For shimming requirements larger than 5 mm, place shim plates sized 160 x 180 mm on top of the weigh module as shown (See Figs. 8 & 9)

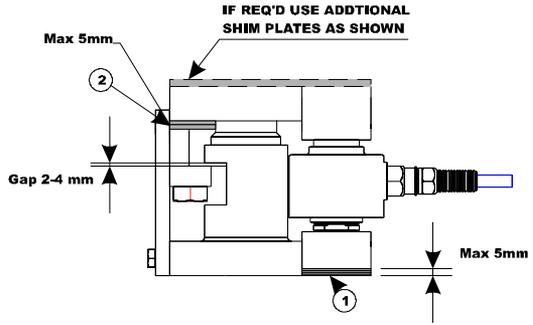


FIG. 8: SHIM STOCK SIDE VIEW

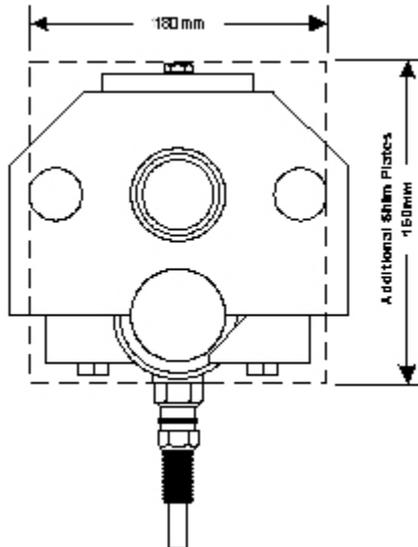


FIG. 9: SHIM STOCK TOP VIEW

NOTE:

Shim should cover load point footprint. 180x160mm (7"x6.25")

- Step 7. When all the load point assemblies are within tolerance of each other (side to side corner to corner) you have two options:
1. Weld the bottom plate to the foundation plate. (See Fig. 10). Make sure to clean all welds with a wire brush and apply a coat of primer and protective paint to all welded surfaces.

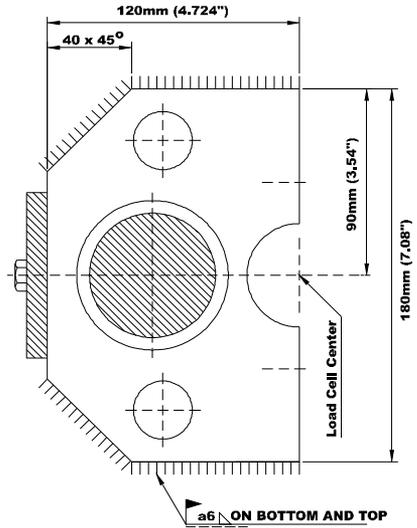


FIG. 10: WELDED ALTERNATIVE

NOTE:

“a6” denotes the height and angle of the weld bead.

2. Bolt the bottom plate to the foundation plate.

HI HLPRA SERIES LOAD POINT ASSEMBLY

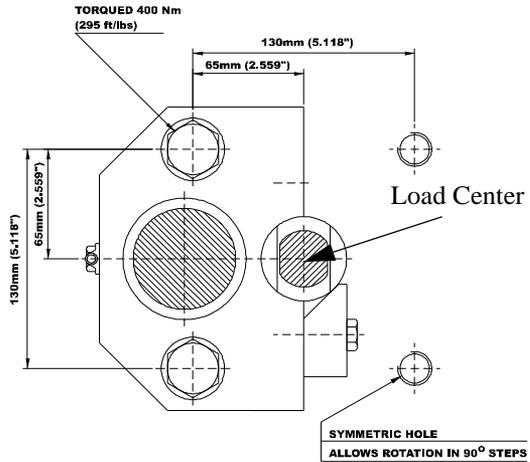


FIG. 11: BOLTED ALTERNATIVE

- Install the hex nuts onto the j-bolts (studs) that fasten the bottom plate to the foundation plate. Tighten so they are snug. **DO NOT TORQUE.** (See Fig. 11)
- As you lower the vessel load carrier plate onto the top plate of the load point assembly, make sure that all the bolt holes are aligned center to center. Be sure that the load carrier plate is resting on the bumper. (See Fig. 12)
- Put the Bolts through the vessel load carrier plate and top plate to be sure that they fit. If not, adjust the vessel until all the holes on all the load point assemblies line up. You can also adjust the load point assemblies to some degree when trying to line up the bolt holes.

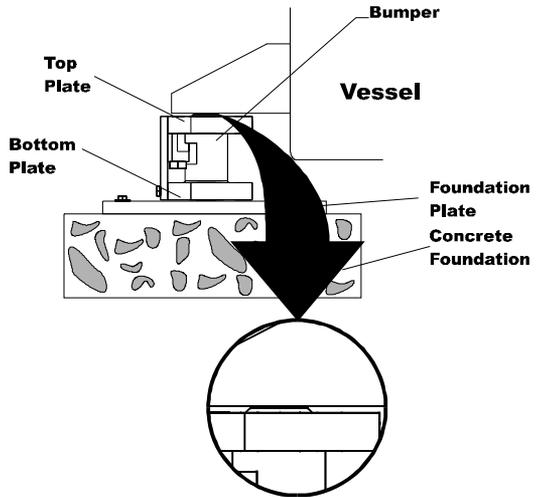


FIG. 12: LOWERING VESSEL SUPPORT PLATE ONTO THE LOAD POINT ASSEMBLY

NOTE:

If you cannot get the top plate and the load carrier plate bolt holes to align and you cannot get all the bolts into the holes, we recommend installing the load point assemblies with bolting on the top plate and welding on the bottom plate.

- Step 8. When all the top plate bolt holes line up. Use a socket or box end wrench and remove the hex bolt that fastens the shipping plate to the top plate. (See Fig. 12) Keep the bolt in a safe place. You will need it when you install the ground strap.

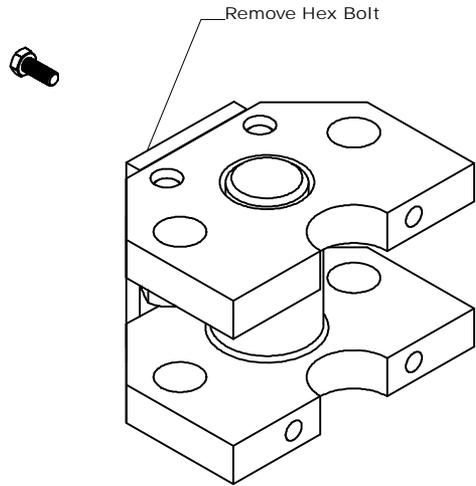


FIG. 13: REMOVING TOP HEX BOLT

- Step 9. Lift the top plate until it contacts the load carrier plate. Make sure that the top plate is parallel with the shipping plate.
- Step 10. **If you weld** the top plate to the load carrier plate, make sure that the top plate is parallel with the shipping plate and that the top plate is not rotated. Tack weld the top plate to the load carrier plate. Once you are sure that the top plate is lined up with the bottom plate, finish welding the top and load carrier plates together. (See Fig. 10 for welding information)
- Step 11. **If you bolt** the top plate to the load carrier plate, tighten the bolts that fasten the top plate to the load carrier plate; then tighten the bolts that fasten the bottom plate to the foundation plate. See Fig. 11 for recommended torque.
- Step 12. Remove the hex bolt that fastens the shipping plate to the bottom plate.
- Step 13. Remove the Shipping Plate and store it in a safe, secure location in case you have to

send the load assembly for repair or installation elsewhere.

Step 14. Repeat steps 7-11 for all the load point assemblies in your scale.

Installing the Load Sensor

- Step 1. Work on one load point assembly at a time. Use the appropriate capacity jack and lift the load carrier 8-10mm (5/16" to 3/8").
- Step 2. Use a socket or box-end wrench to remove the bolts that fasten the loading cup brackets to the top and bottom plate. (See Fig. 17)
- Step 3. Remove the loading cup clamps and the loading cups.
- Step 4. Remove the load sensor from the packaging and place the Top and Bottom Loading cups on the Load Sensor. (See Fig. 14) Make sure that the load sensor is completely seated into the bottom loading cup with the anti-rotation machined flats and aligned properly. (See Fig. 14)

NOTE:

Use a light lubricant on the rubber "O" rings for installation on to the load sensor.

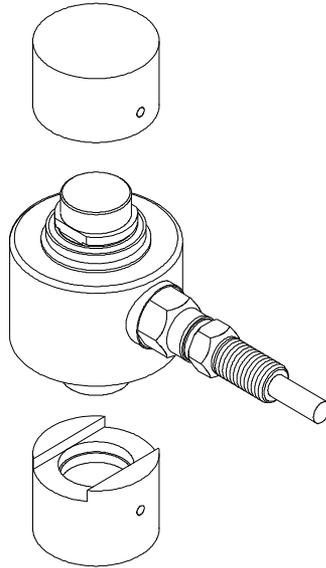


FIG. 14: PLACING THE LOADING CUPS ON THE LOAD SENSOR

Step 5. Make sure the conduit adapter is at a right angle to the slot in the bottom load sensor cup (See Fig. 14). Always install the load sensor with the lid end (concave) facing down. (See Fig. 14)

NOTE:

You will notice that the loading cup with the rotation stop is mounted on the bottom of the load cell. For safety reasons we highly recommend that the loading cup with the rotation stop always be mounted on the bottom of the load cell.

Step 6. Slide the load sensor assembly into the half round sensor housing in the bottom and top plates. (See Figs. 15 & 16)

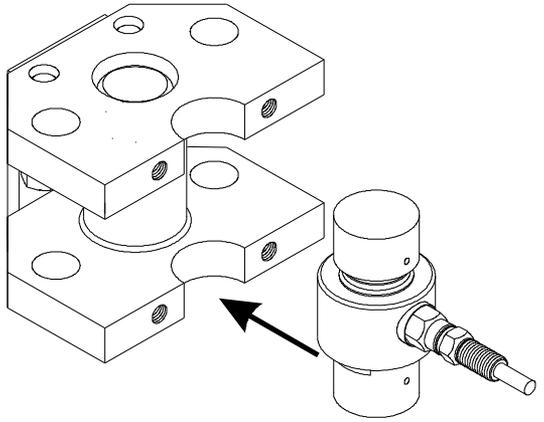


FIG. 15: INSTALLING THE LOAD CELL

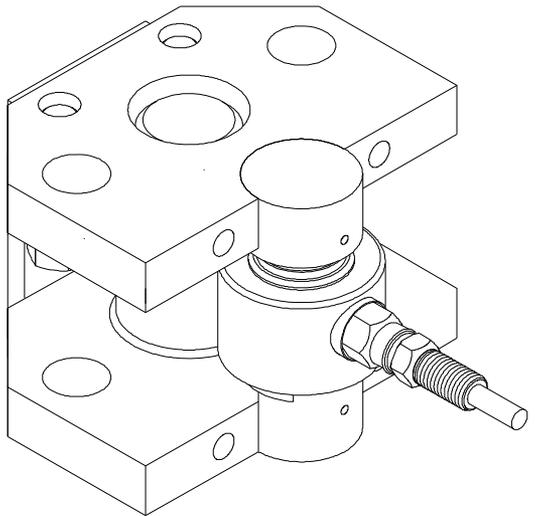


FIG. 16: LOAD CELL INSTALLED

- Step 7. Install the top and bottom loading cup clamps. (See Fig. 17) Tighten the lower hex bolts until snug. Tighten the upper clamp hex bolt slightly so the upper cup can slide axially.

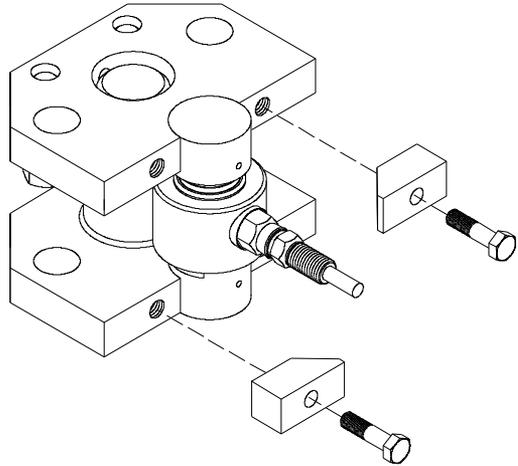
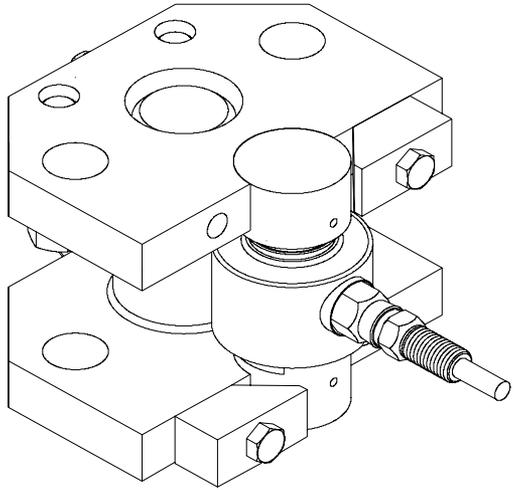
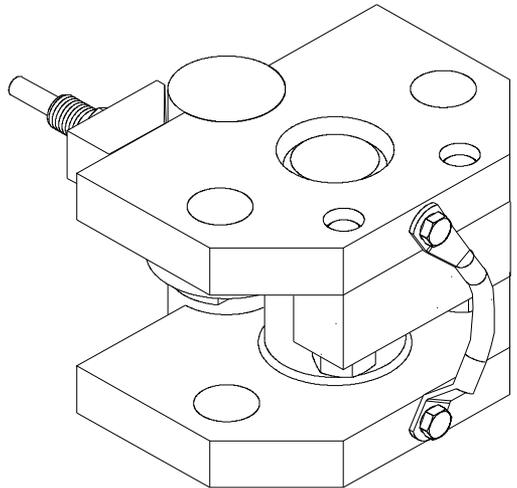


FIG. 17: INSTALLATION OF CLAMPS

- Step 8. Tighten the upper clamp hex bolt the lift off protection bolts. Be sure to leave at least a 2 mm gap between the lift off protection plate and the bumper. (See Fig. 7)
- Step 9. Use a socket or box-end wrench to remove the remaining hex bolt that fastens the shipping plate to the bottom plate.
- Step 10. Use the two shipping plate hex bolts to fasten the ground wire to the top and bottom plates.
- Step 11. Lower the load carrier and remove the jack.
- Step 12. Repeat the installation process for each of the load point assemblies in the system.
- Step 13. When finished the load point assembly should look like Figure 18.



**FIG. 18: FINISHED LOAD POINT ASSEMBLY
WITH STANDARD LOAD SENSOR**



**FIG. 19: FINISHED LOAD POINT ASSEMBLY
WITH GROUND STRAP INSTALLED**

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Troubleshooting

Physical Checks

Before doing any electrical tests do the following:

- Step 1. Visually inspect each load point assembly for physical damage. Look for distortions or cracks in all metal parts.
- Step 2. Check all welds to be sure they are not cracked or have deep pot marks.
- Step 3. Check all cables for cracks, cuts or crimping. Check for any abrasions on the cables.
- Step 4. Look for structural changes in the scale or supporting structures.
- Step 5. Look for binding of any kind on the load point assembly.
- Step 6. In the Hardy HI 2151/30WC Weight Controller Manual, go to Chapter 8 for information on how to troubleshoot using Integrated Technician. For your convenience this manual is available on the Hardy website at: <http://www.hardysolutions.com> on the support page. If you do not have access to the internet, contact your local Hardy Representative for information as to where to get this and other manuals for Hardy products.
- Step 7. Get the Load Sensor certification sheets for referencing while troubleshooting. The certifications are available to you 24 hours a day at our Web Site: <http://www.hardysolutions.com>.
- Step 8. If you find any of the problems stated above, replace the part that is damaged.

Electrical Tests for Load Point Assembly Problems

Zero Balance Test

Problem: Changes in the Zero Balance.
Cause: Load Cell has been overloaded.

Remedy:

- Step 1. Use a millivolt meter or the Integrated Technician feature of the HI 2151/30WC (See Physical Checks, Step 6) and measure the LPS output under “no load” conditions. The reading should be less than 1% of the full scale output.

NOTE:

Sensors can shift up to about 10% of their full scale and still function correctly.

- Step 2. If the output has shifted more than 10%, replace the sensor.

Assumption: A 5VDC excitation on a sensor with a 3mV/V output sensitivity, a 1% shift in zero balance will yield a 1mV/V change from the specification.

**Bridge
Resistance
Test**

Problem: Changes in Bridge Resistance

Cause: Failure of a compensating element or a broken or burned bridge wire. Often caused by an electrical transient such as lightning.

Remedy:

- Step 1. Use an Ohmmeter to measure the resistance between the EXC + and EXC- leads. The value for the EXC leads should be 1150 ohms + - 50 ohms.
- Step 2. Use an Ohmmeter to measure the resistance between the SIG + and SIG - leads. The value for the SIG leads should be 1,000 ohms + - 10 ohms.
- Step 3. Readings that exceed the ranges indicated suggest damage, and the load cell should be thoroughly inspected or replaced.

**Resistance to
Ground Test**

Problem:Electrical leakage is creating an unstable output from the instrument.

Cause: Water contamination in the load sensors or cables.

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Remedy:

- Step 1. Tie together the load sensor excitation (2), signal (2) and ground (1) wires.

NOTE:

Be careful NOT to include the two C2 wires.

- Step 2. Use a megohmmeter and measure the resistance between all five wires tied together and the load cell metal body.
- The measured value should be 5,000 megohms or more.

WARNING

WHEN USING A MEGGER DO NOT EXCEED 50 VOLT RANGE.

- If the sensor fails this test, remove the ground wire and test with only the four live leads.
- If the sensor passes the test, an insulation problem in the cable is most likely.

- Step 3. Replace the load cell if the cell fails both tests.

Electrical Termination Cable Color Codes

The cable is 6 conductor, shielded (floating) and 30 feet in length.

EXC+	Red
EXC -	Black
SIG +	Green
SIG -	White
C2+	Gray
C2-	Violet
SHIELD	Yellow

Model Numbers

NOTE:

The -43 indicates a stainless steel load sensor with stainless steel mounting hardware. For zinc plated mounting hardware use -45.

Capacity		Model #	Model #
LBS	MT	Fixed Assembly	Spare Load Sensor
16.5k	7.5	HILPRA16.5K-45C	HI RCH04-16.5K
33k	15	HI LPRA33K-45C	HI RCH04-33K
50k	23	HI LPRA50K-45C	HI RCH04-50K

TABLE 1: MODEL NUMBERS & CAPACITIES

NOTE:

1 metric ton (MT) = 1,000kg

Specifications

Operating Specifications

Rated Output (F.S.)	2±0.002mV/V
Non-Linearity	±0.012% R.O.
Hysteresis	<±0.025% R.O.
Zero Balance	<±1.0% R.O.
Creep @ 5 Min.	<±0.010% R.O.
Temp Effect Output	<±0.0014% R.O./C
Temp Effect Sensitivity	<±0.0005% R.O./C
Input Resistance	1050 to 1200 ohms
Output Resistance	1000 ± 10 ohms
Insulation Resistance	>5000 megohms
Excitation	5-15VDC
Safe Load Limit	200% Emax
Ultimate Load	300% Emax
Safe Side Load	16,860 lbs. (75KN)
Lift Off Protection	16,860 lbs. (75KN)
mv/V/ohm	0.002 ± 0.1%

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Environmental Specifications

Operating Temperature	-----	Minus 40° F to Plus 176° F (-40° C to +80° C)
Compensated Temperature	-----	14° F to 104° F (Minus 10° C to Plus 40° C)
Load Sensor Material	-----	17-4 Martensitic (Magnetic) Stainless Steel
Load Sensor Fittings	-----	Coated Tool Steel
Top Plate & Base Plate Material	---	316 Stainless Steel or Zinc Plated Steel
Conduit Adapter	-----	.250-18 NPT
Hermetic Sealing		
Gauging Area	-----	Welded Cylindrical Sleeve
Cable Entry	-----	Glass to Metal Header

Please print the unit serial number and model number for reference when ordering parts for the HI LPRA Load Point Assembly

The serial number can be found on the side of the load sensor, or by using the INTEGRATED TECHNICIAN®.

Scale Name/Location:

Model Number:

Serial Number 1:

Serial Number 2:

Serial Number 3:

Serial Number 4:

Serial Number 5:

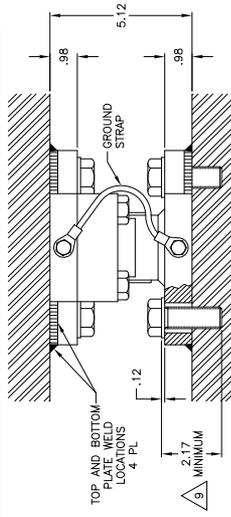
Serial Number 6:

Serial Number 7

Serial Number 8:

HI HLPRA SERIES LOAD POINT ASSEMBLY

CAPACITY LBS [1]	MOUNT	MODEL NUMBER	PART NUMBER
16.5K [7.5]	STAINLESS STEEL	HI LPR16K5-43C	0555-0021-03
33K [15]	STAINLESS STEEL	HI LPR33K-43C	0555-0021-01
50K [22.5]	STAINLESS STEEL	HI LPR50K-43C	0555-0021-02
16.5K [7.5]	PLATED STEEL	HI LPR16K5-45C	0555-0021-13
33K [15]	PLATED STEEL	HI LPR33K-45C	0555-0021-11
50K [22.5]	PLATED STEEL	HI LPR50K-45C	0555-0021-12



9. BOLTS AND WASHERS MAY BE USED, AS AN OPTION, TO MOUNT THE TOP AND BOTTOM PLATES. RECOMMENDED BOLT TORQUE: 295 LB/FT [400NM].
8. SEE INSTALLATION MANUAL, PN 0596-0243-01, FOR ADDITIONAL INFORMATION.
7. LOAD SENSOR IS STAINLESS STEEL, 17-4PH (1.4548).
6. CABLE IS 6 CONDUCTOR, SHIELDED AND 30 FEET [9.14M] IN LENGTH. CABLE SHIELD IS FLOATING.

5. C2 WIRE COLOR CODE FLAG LABEL, PN 0530-0594, TO BE LOCATED APPROX. 10 INCHES [254MM] FROM END OF CABLE.

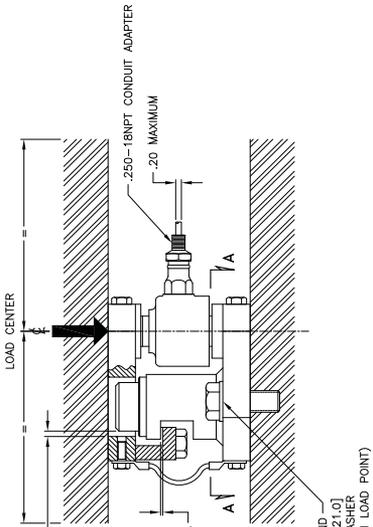
- EXCITATION +
 - SIGNAL -
 - SHIELD -
 - C1 -
 - C2 -
 - SHIELD
- BLACK
GREEN
RED
WHITE
GRAY
VIOLET
YELLOW

4. CABLE WIRE ENDS ARE STRIPPED BACK 0.5 INCH [12.7MM] AND TINNED. CABLE JACKET IS STRIPPED BACK APPROXIMATELY 5 INCHES [127MM].
3. LOAD POINT WEIGHT (EXCLUDING LOAD SENSOR), 24.25 LBS [11KG].
2. MAXIMUM FORCE ON LIFT OFF PROTECTION, 16.860 LBS [759K].
1. MAXIMUM FORCE ON BUMPER, 16.860 LBS [759K].

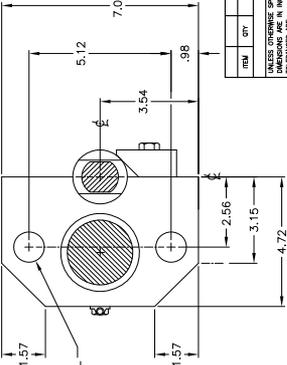
NOTES: UNLESS OTHERWISE SPECIFIED

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES. DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE TO BE USED, UNLESS OTHERWISE SPECIFIED. DIMENSIONS IN PARENTHESES ARE TO BE USED, UNLESS OTHERWISE SPECIFIED. DIMENSIONS IN PARENTHESES ARE TO BE USED, UNLESS OTHERWISE SPECIFIED.

REV	DESCRIPTION	DATE	BY	CHKD	APP'D
A	010721 RELEASED	07-29-01	LAB	SA	MJC
B	09048 REVISED PER ENA	09-21-07	TA	MJC	TA
C	10782 REVISED PER ENA	10-11-10	MJC	DA	MJC
D	11002 REVISED PER ENA	08-28-12	MJC	DA	MJC



9. 9.750[W20] BOLT AND
Ø1.44[37.0] X Ø.83[21.0]
X .12[3.0] THICK WASHER
(NOT INCLUDED WITH LOAD POINT)



VIEW A-A
MOUNTING DIMENSIONS ARE TYPICAL
FOR TOP AND BOTTOM PLATES

ITEM	QTY	PART NUMBER	DESCRIPTION	COMMENTS
PARTS LIST				
TITLE: OUTLINE DRAWING, LOAD POINT, HI LPR SERIES				
DATE: 08-29-00				
DRAWN BY: V. CHALA				
CHECKED BY: L. OTERVAL				
APPROVED BY: K. MANLEY				
SCALE: 1:1				
SHEET 1 OF 1				