CARDINAL®

CenterPoint

DB-SP

Load Cell Kits

Technical Manual

TABLE OF CONTENTS

Serial Number_____

Date of Purchase _____

Purchased From_____

_____

_____

RETAIN THIS INFORMATION FOR FUTURE USE

PRECAUTIONS

Before using this product, read this manual and pay special attention to all "NOTIFICATION" symbols:

DANGER!
WARNING!
CAUTION!

Copyright

Disclaimer

While every precaution has been taken in the preparation of this manual, the Seller assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from use of the information contained herein. All instructions and diagrams have been checked for accuracy and ease of application; however, success and safety in working with tools depend largely upon the individual accuracy, skill, and caution. For this reason, the Seller is not able to guarantee the result of any procedure contained herein. Nor can they assume responsibility for any damage to property or injury to persons occasioned from the procedures. Persons engaging the procedures do so entirely at their own risk.

FCC Compliance Statement

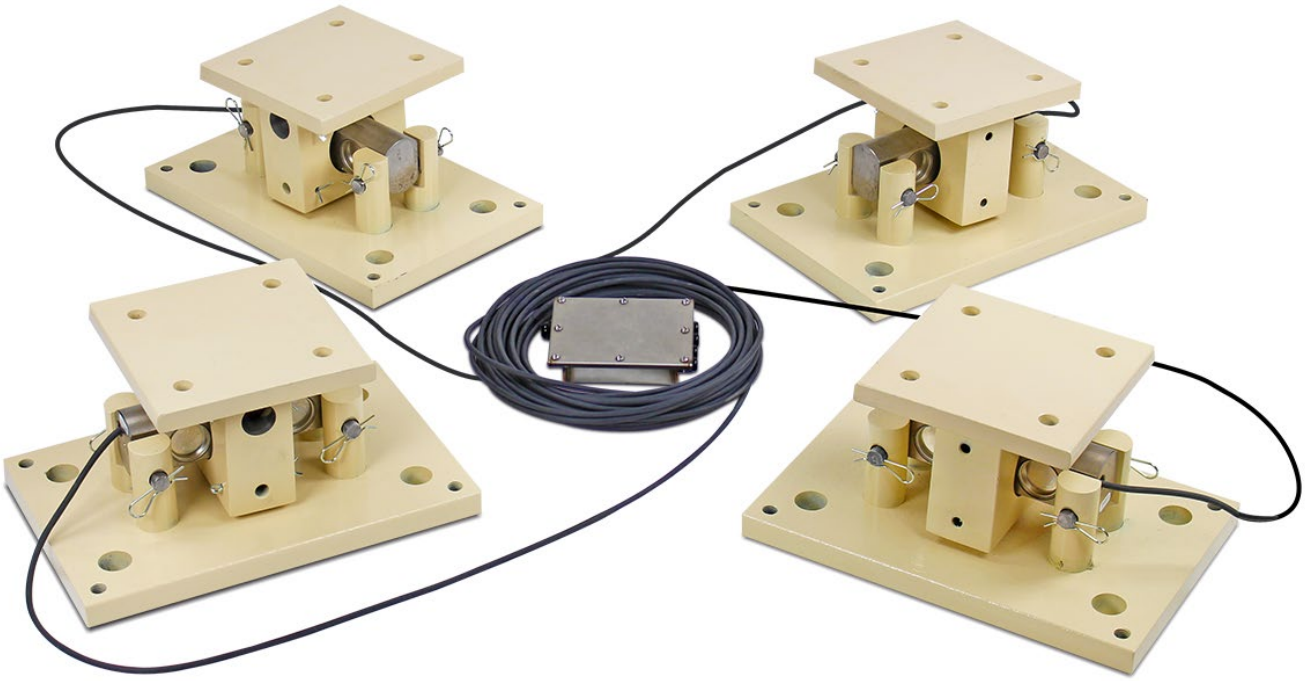
This equipment generates uses, can radiate radio frequency, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been designed within the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user will be responsible to take whatever measures necessary to correct the interference.

You may find the booklet “How to Identify and Resolve Radio TV Interference Problems” prepared by the Federal Communications Commission helpful. It is available from the U.S. Government Printing Office, Washington, D.C. 20402. Request stock No. 001-000-00315-4.

INTRODUCTION

Cardinal Scale's DB-SP CenterPoint load cell heavy-capacity mounting kits utilize the time-tested and reliably proven model DB double-ended stainless steel load cells that feature a center load design. The stands are available in either stainless steel or mild steel powder-painted industrial tan and they bolt directly to the floor and tank. The DB-SP's environmentally sealed load cells are NTEP, OIML, and VCAP certified for quality and accuracy. The DB-SP CenterPoint load cell kits are perfect for mixing, blending, batching, inventory control, and general weighing. Combine them with one of Cardinal's state-of-the-art 200 series weight indicators for a complete digital weighing system.

The DB-SP CenterPoint series feature stainless steel, environmentally sealed, center-load, pin-mount, double-ended shear beam load cells, with standard system capacities that range from 60,000 to 300,000 lbs (27,000 to 136,000 kg).



This manual should be studied thoroughly before attempting to install the load cell kit and must be used in conjunction with certified drawings of the particular scale being installed.
In case of conflict, the certified drawings will govern.

Safety should always be the prime consideration during all phases of the installation. Failure to comply with the instructions in this manual will void all warranty implied or stated.

All systems need to be safety-checked or chained to prevent failure. A qualified engineer should be consulted that has determined that the vessel to be used is structurally sound and capable of being supported by three or four points when filled to capacity.

SPECIFICATIONS

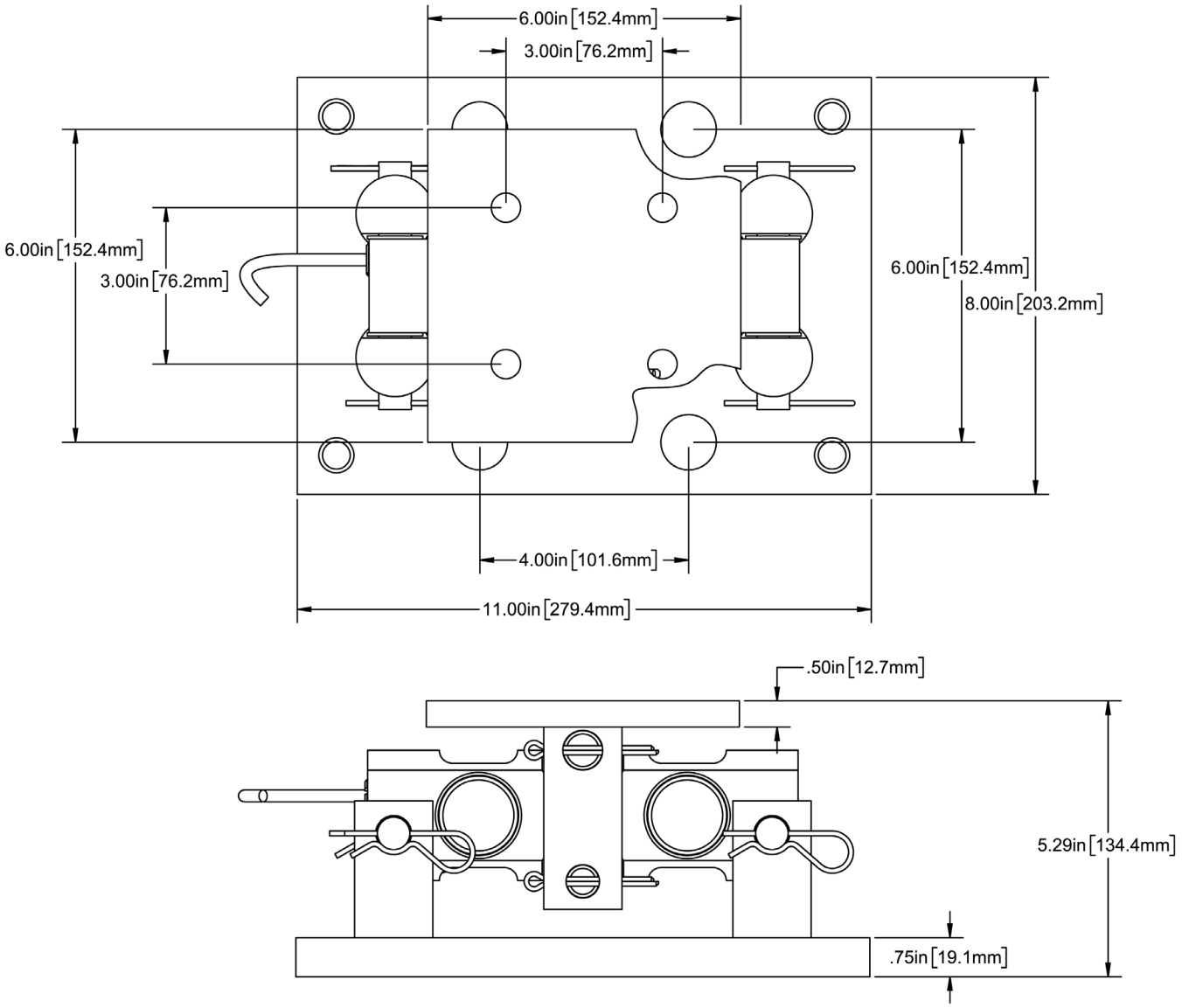
Specification	Description
Load Cell Model:	DB series
Load Cell Type:	Stainless steel, center-load, double-ended shear beam load cells
Load Cell Protection Class:	IP68
Load Cell Capacities:	20,000 lb (9,070 kg) up to 75,000 lb (34,000 kg)
Load Cell Cable:	30 ft / 9 m
Stand Type:	Bolt-in-place design with leveling screws
Stand Construction:	Stainless steel or powder-painted mild steel
Junction Box Type:	Stainless steel 4-cell trim box
Junction Box Cable Length to Indicator:	30 ft / 9 m with 9-pin D connector
Included:	Each kit consists of three or four stand assemblies, load cells, load cell stands, stainless steel NEMA 4 junction box, and load cell cable.
System Capacities:	Standard Capacities range from 60,000 lb (27,000 kg) up to 300,000 lb (136,000 kg)
Indicators:	A wide selection of digital weight indicators are also available from Cardinal Scale
Weighing Applications:	Tanks, hoppers, silos, and bins. New installations or existing conversions
Load Cell Certifications:	NTEP, OIML, and VCAP

Load Cell Capacities

MODEL	CONSTRUCTION	CAPACITY	SHIPPING WEIGHT
DB-20000SP	Stainless Steel	20,000 lb / 9,070 kg	18 lb / 8.2 kg
DB-30000SP	Stainless Steel	30,000 lb / 13,605 kg	18 lb / 8.2 kg
DB-50000SP	Stainless Steel	50,000 lb / 22,700 kg	18 lb / 8.2 kg
DB-75000SP	Stainless Steel	75,000 lb / 34,000 kg	18 lb / 8.2 kg

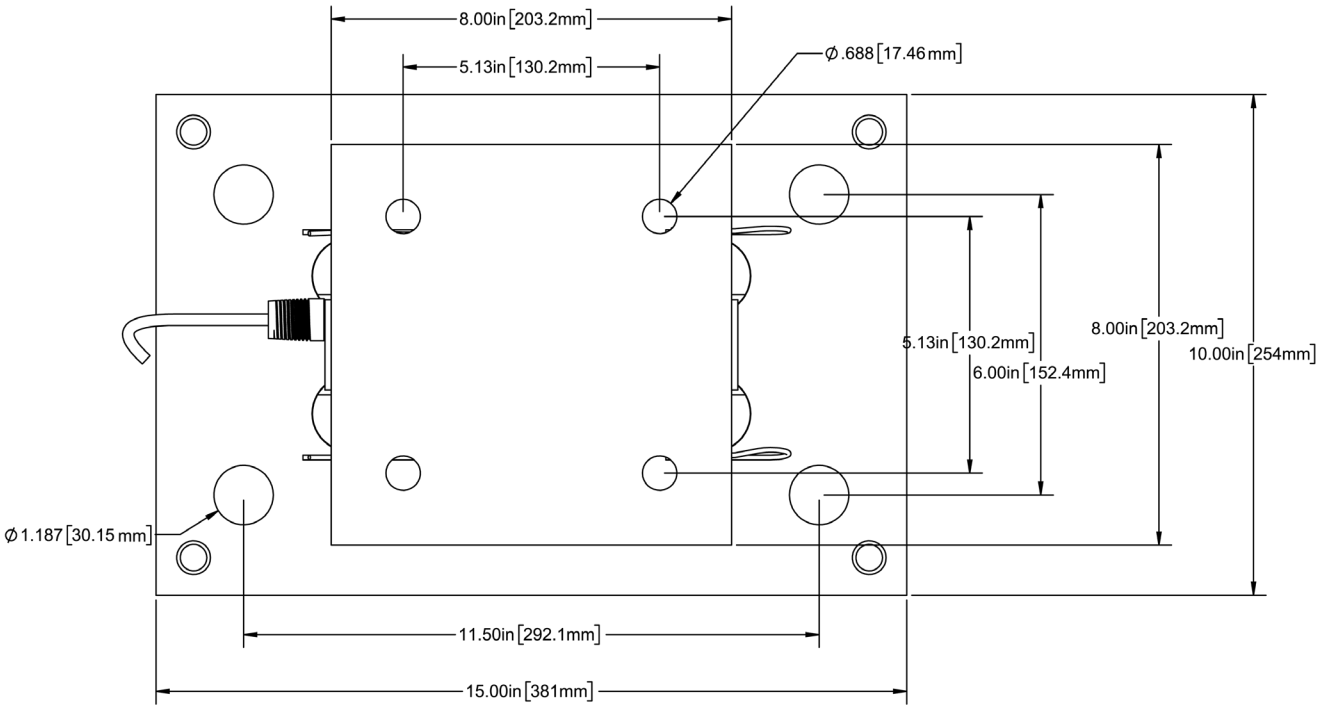
SPECIFICATIONS, CONT.

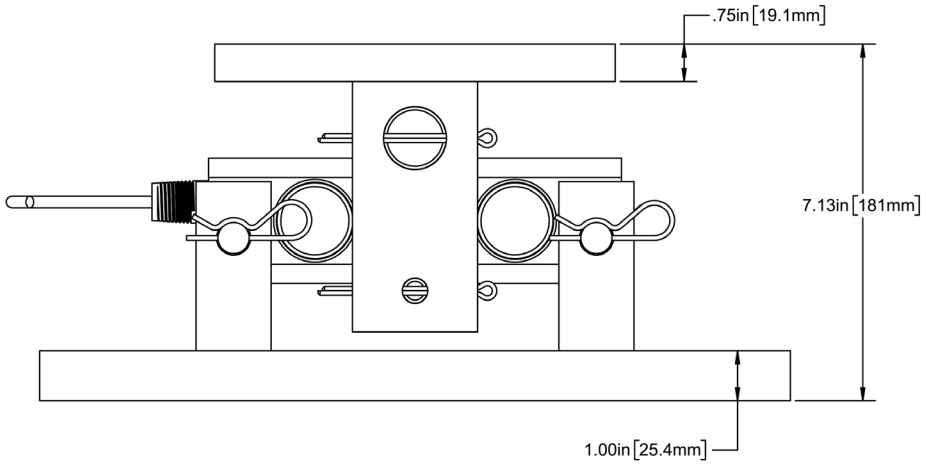
Stand Dimensions – DB-20000SP(S)



SPECIFICATIONS, CONT.

Stand Dimensions – DB-30000SP(S), DB-50000SP(S), DB-75000SP(S)





SPECIFICATIONS, CONT.

System Capacities

3 Load Cell Systems | Mild Steel Stands

MODEL	LOAD CELL CONSTRUCTION	LOAD CELL CAPACITY	SYSTEM CAPACITY	SHIPPING WEIGHT
DB-20000SP-3	Stainless Steel	20,000 lb / 9,070 kg	60,000 lb / 27,215 kg	94 lb
DB-30000SP-3	Stainless Steel	30,000 lb / 13,605 kg	90,000 lb / 40,825 kg	343 lb
DB-50000SP-3	Stainless Steel	50,000 lb / 22,700 kg	150,000 lb / 68,040 kg	343 lb
DB-75000SP-3	Stainless Steel	75,000 lb / 34,000 kg	225,000 lb / 100,000 kg	343 lb

3 Load Cell Systems | Stainless Steel Stands

MODEL	LOAD CELL CONSTRUCTION	LOAD CELL CAPACITY	SYSTEM CAPACITY	SHIPPING WEIGHT
DB-20000SPS-3	Stainless Steel	20,000 lb / 9,070 kg	60,000 lb / 27,215 kg	94 lb
DB-30000SPS-3	Stainless Steel	30,000 lb / 13,605 kg	90,000 lb / 40,825 kg	343 lb
DB-50000SPS-3	Stainless Steel	50,000 lb / 22,700 kg	150,000 lb / 68,040 kg	343 lb
DB-75000SPS-3	Stainless Steel	75,000 lb / 34,000 kg	225,000 lb / 100,000 kg	343 lb

4 Load Cell Systems | Mild Steel Stands

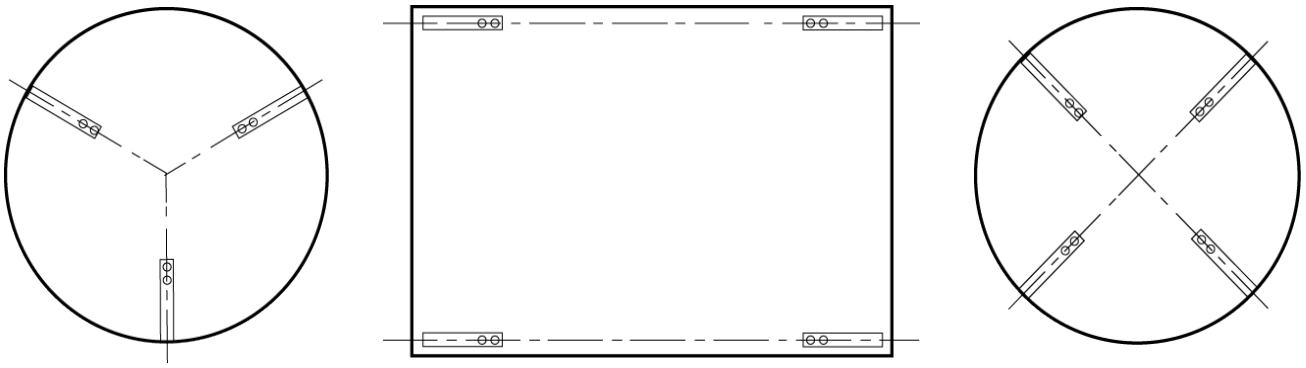
MODEL	LOAD CELL CONSTRUCTION	LOAD CELL CAPACITY	SYSTEM CAPACITY	SHIPPING WEIGHT
DB-20000SP-4	Stainless Steel	20,000 lb / 9,070 kg	80,000 lb / 36,280 kg	124 lb
DB-30000SP-4	Stainless Steel	30,000 lb / 13,605 kg	120,000 lb / 54,420 kg	456 lb
DB-50000SP-4	Stainless Steel	50,000 lb / 22,700 kg	200,000 lb / 90,800 kg	456 lb
DB-75000SP-4	Stainless Steel	75,000 lb / 34,000 kg	300,000 lb / 136,000 kg	456 lb

4 Load Cell Systems | Stainless Steel Stands

MODEL	LOAD CELL CONSTRUCTION	LOAD CELL CAPACITY	SYSTEM CAPACITY	SHIPPING WEIGHT
DB-20000SPS-4	Stainless Steel	20,000 lb / 9,070 kg	80,000 lb / 36,280 kg	124 lb
DB-30000SPS-4	Stainless Steel	30,000 lb / 13,605 kg	120,000 lb / 54,420 kg	456 lb
DB-50000SPS-4	Stainless Steel	50,000 lb / 22,700 kg	200,000 lb / 90,800 kg	456 lb
DB-75000SPS-4	Stainless Steel	75,000 lb / 34,000 kg	300,000 lb / 136,000 kg	456 lb

GENERAL INSTALLATION GUIDELINES

1. The mounting surface for the base plate and top plate must clear of debris and rough spots and be level within ± 0.5 degrees to minimize side loads and extraneous forces. If the mounting surfaces are not level, the base plate has four leveling screws that can be adjusted up or down as necessary to level the module. Because deflections in legs and supporting structures may cause additional side forces that greatly affect accuracy, check if level and plumb again when the container is fully loaded. Cross-bracing of legs or other support structures may need reinforcement to correct this. Deflections of the module's top or base plate due to loading should not exceed ± 0.5 degrees.



2. Mounting systems use three or four mounts. The load on each mounting assembly should vary by no more than 20 percent. Add shims where necessary to achieve correct load distribution.
3. During installation, dummy load cells can be used to prevent overload damage.

NOTE: If the actual load cells are used during the installation, extreme care must be taken to prevent overload damage. A tank or hopper weighing several tons can exert huge forces when dropped only a fraction of an inch.

4. All piping or conduit should be horizontal and flexible. If flexible piping is not used, make sure the distance from the tank to the first pipe support is 20-30 times the pipe diameter. In smaller, lower-capacity tanks and hoppers, isolating resultant forces becomes extremely critical. When possible, flexible conduit piping should be used close to the tank instead of the rigid variety.
5. Load cells should not be installed in the modules until all welding is completed. If possible, use a dummy load cell when welding to maintain the finished height. If welding is unavoidable after load cell installation, ground in such a manner as to prevent welding current from passing through the load cell. Ground the welder as closely as possible to the point of welding.

INSTALLATION

The type of installation, the structure of the tank supports, and the strength of the mounting surface govern the method of locating, attaching and installing the load cell assembly. Carefully consider three areas that commonly cause accuracy problems:

- Are the supporting legs adequately braced so they will not spread when the system is fully loaded?
- Does the supporting structure have the necessary strength to prevent flexing when the system is fully loaded?
- Is there attached equipment such as skirting, venting, or piping that is likely to cause binding or lack of flexibility?

1. Determine where to position the load cell assembly, as well as in which direction it should be orientated.
2. Make necessary preparations for the mounting surfaces.
3. Lift and block the vessel to the same height as the load cell assembly.
4. Lift one corner or side of the vessel enough to slide the load cell assembly into place.
5. If the load cell assembly is being fitted under the leg of the vessel, verify that the leg's centerline passes through the center of the top plate (through the center of the load cell's load hole).
6. Attach the top plate by bolting. Do not fully tighten because shimming may be necessary to level.
7. Repeat steps 4, 5, and 6 for the remaining load cell assemblies. The vessel should now be supported on the load cell assemblies alone.
8. If necessary, move the vessel to its final position. Verify that there is no initial misalignment between the base plate and top plate by lifting the vessel slightly at each support point in turn. This will also indicate if the load is evenly distributed on all load cell assemblies. If the load is not evenly distributed, adjust the four leveling screws up or down as necessary to evenly distribute the load on the load cell assemblies.
9. Verify that the base plate is no more than ±0.5 degrees out of level. If necessary, adjust the four leveling screws up or down to level the base plate, then attach the base plate to the foundation using anchor bolts for concrete, or by bolting or welding to a steel structure.
10. Check that the top plates are no more than ±0.5 degrees out of level. Install shims between the leg of the vessel and the top plate if necessary and fully tighten the bolts.
11. The load distribution can be more accurately checked by connecting each load cell to the junction box and indicator and measuring the output with a voltmeter. To verify wiring, check the load cell and junction box wiring section of this manual. The variation in the load among the cells should be no more than 20%. Repeat steps 8, 9, and 10 if necessary.

LOAD CELL WIRING

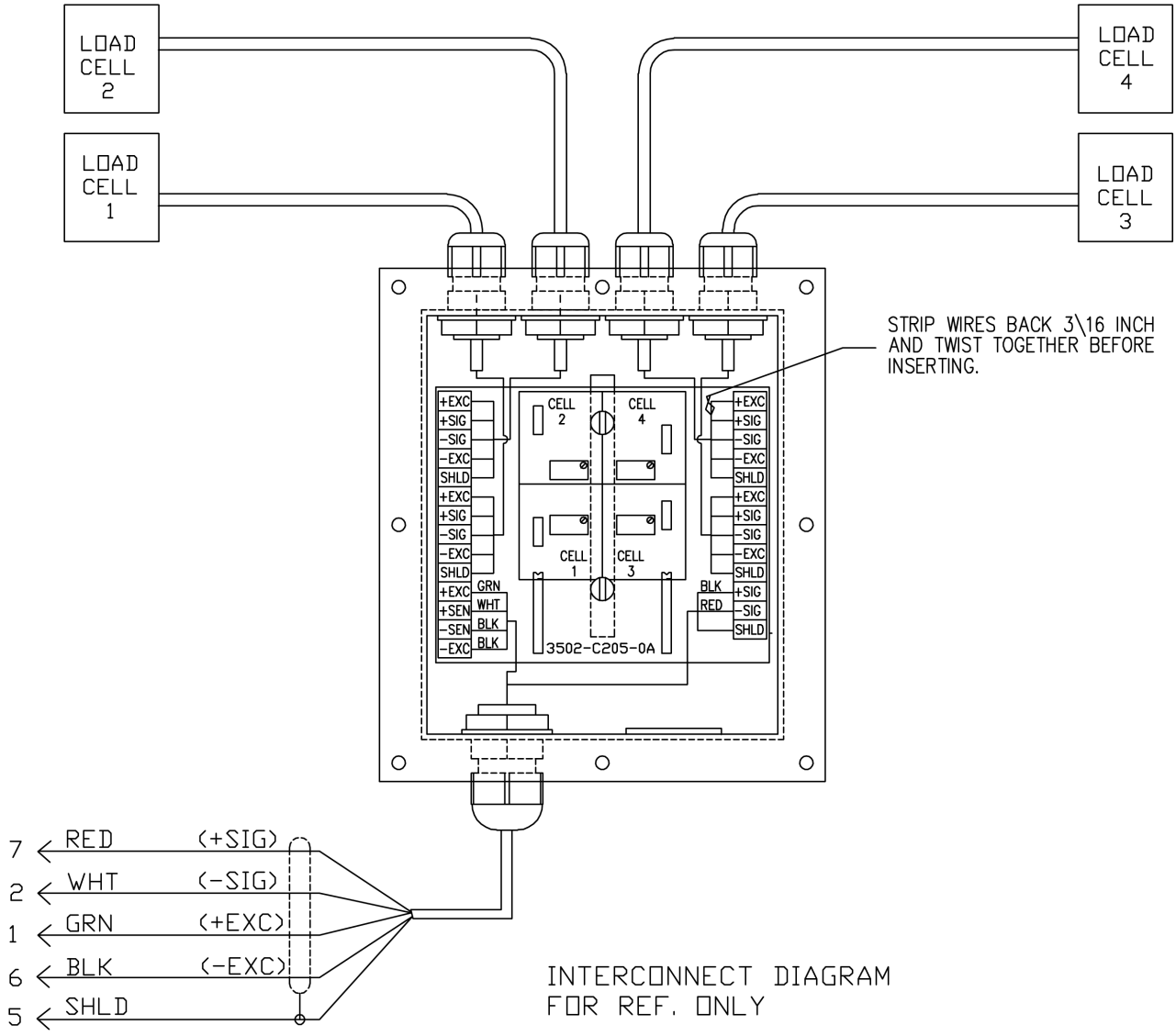
NOTE: Cardinal Scale Mfg. Co. recommends that the customer install protective conduit/cover for the load cell cables whenever the condition is present that can result in damage or abrasion to the load cell cables.

1. Route the load cell cables so they will not be damaged or cut. The cable should not be routed near heat sources. Do not shorten any load cell cable. The load cell is temperature compensated with the supplied length of cable. Cutting the cable will affect temperature compensation. Coil excess cable and protect it so it will not be damaged or sit in water.
2. Provide a dip loop in all cables so that water or other liquids will not run directly down the cables onto either the load cells or the junction box. Attach the load cell cable to the structure, not the tank.
3. If conduit protection is necessary against mechanical or rodent damage to the load cell cables, use flexible conduit and conduit adapters at the load cells.
4. Connect cables to the summing board in the junction box according to the illustration shown on the next page and the labels on the terminal strips of the junction box. To verify the wiring, refer to the documentation shipped with each load cell.

DB-SP Wiring Color Code

FUNCTION	WIRE COLOR
+EXCITATION	RED
–EXCITATION	BLACK
+SIGNAL	GREEN
–SIGNAL	WHITE
SHIELD	YELLOW

JUNCTION BOX WIRING

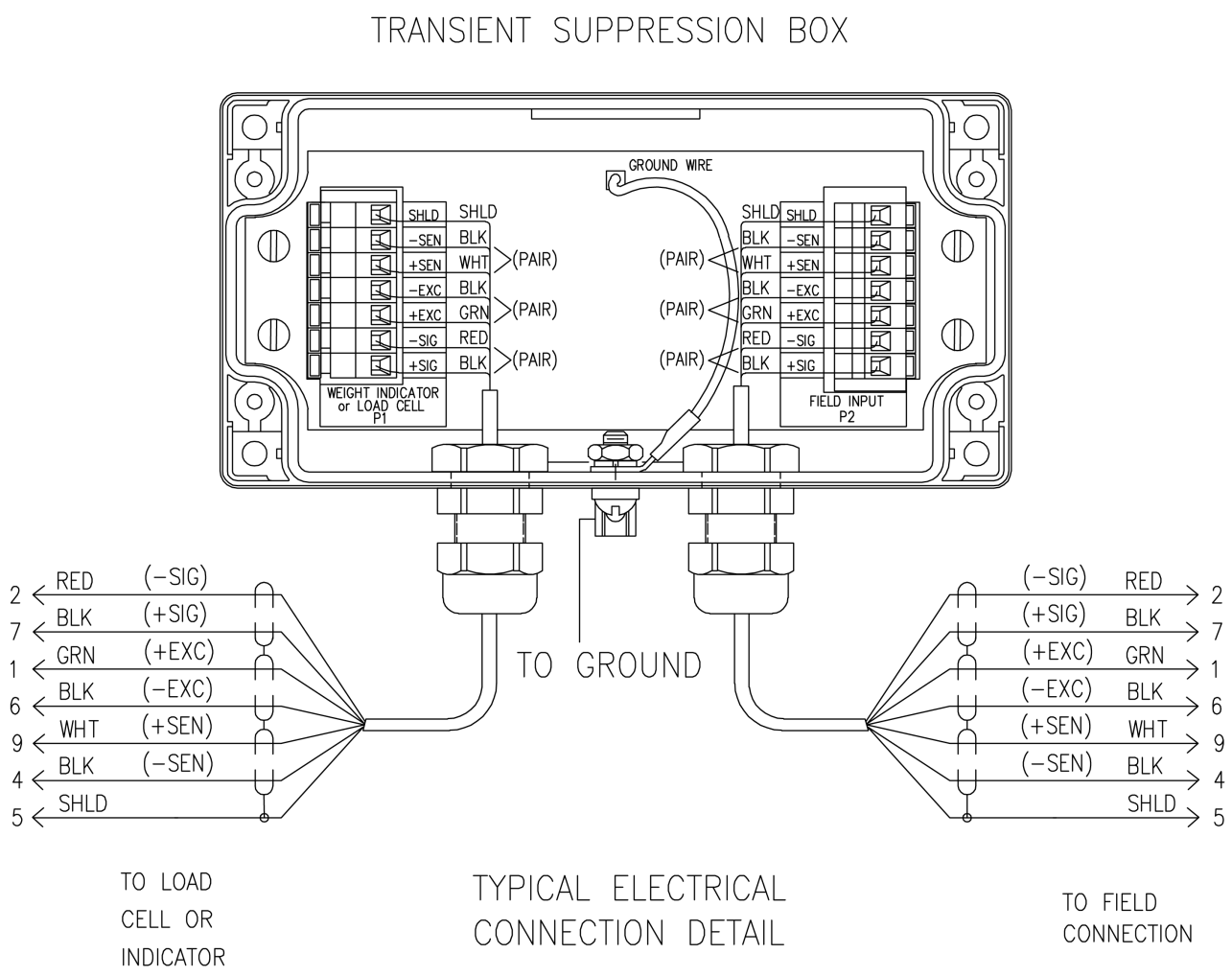


Load Cell Wiring Color Code

FUNCTION	CARDINAL COLOR CODE	WEST COAT COLOR CODE
+EXCITATION	GREEN	RED
–EXCITATION	BLACK	BLACK
+SIGNAL	RED	GREEN
–SIGNAL	WHITE	WHITE

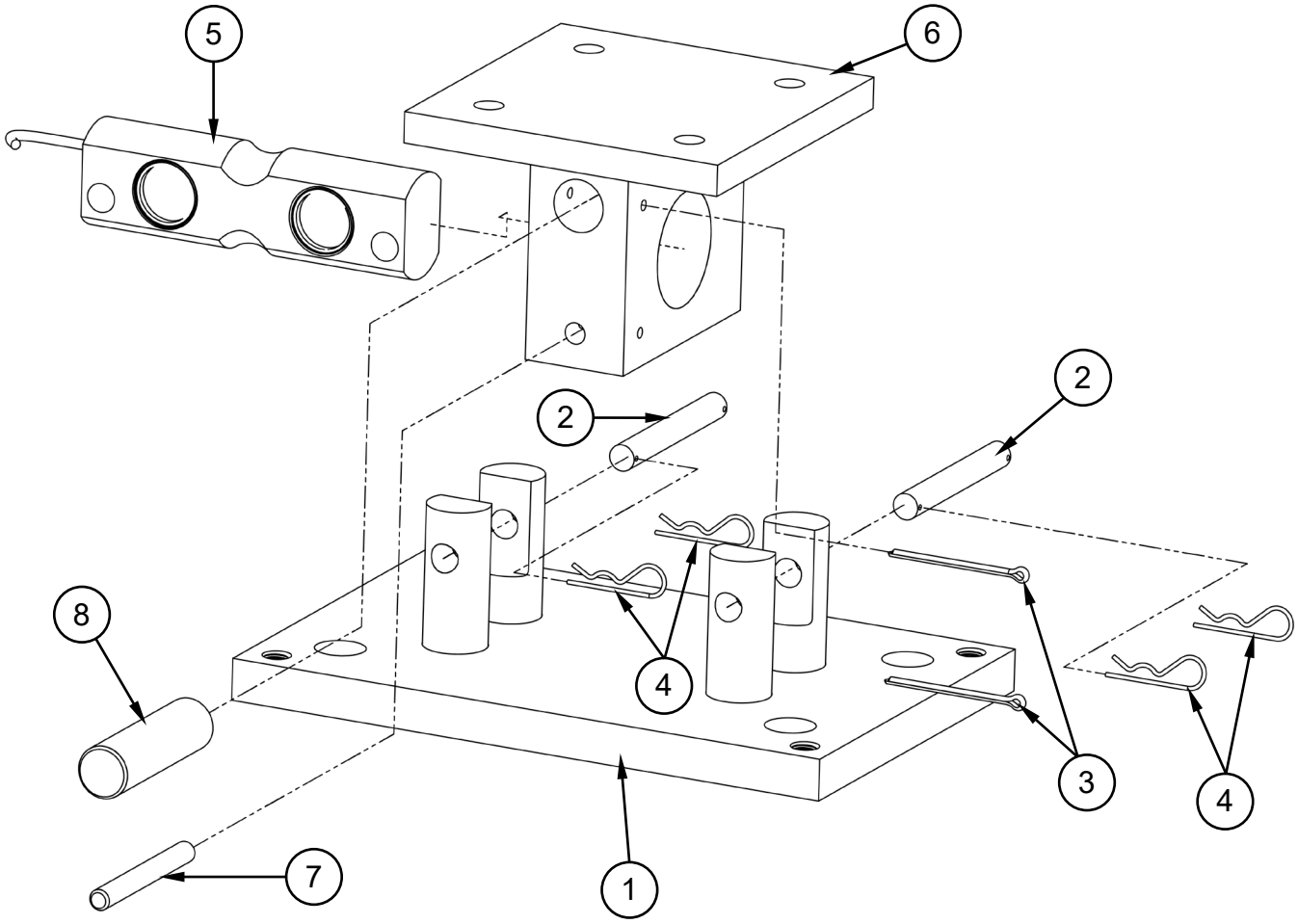
NOTE: For 2 to 4 load cell trimming, connect 2, 3, or 4 load cells to the trim board as shown. There are no jumpers that need to be set or additional terminations to be made.

TRANSIENT SUPPRESSION BOX WIRING



LOAD CELL REPLACEMENT

The following procedure describes changing the load cell in a DB-SP CenterPoint, mild steel powder painted, or stainless steel low-profile load cell stand.



DANGER! TO PREVENT TIPPING OF THE VESSEL, SUPPORT THE VESSEL WITH BLOCKS OR OTHER SUPPORTS TO ENSURE THE STABILITY OF THE VESSEL, BEFORE LIFTING IT OFF THE LOAD CELL STAND.

1. To start, turn off or unplug the indicator and then disconnect the load cell from the junction box. Refer to the JUNCTION BOX WIRING section of this manual for wiring information.
2. Next, using a jack at the load cell to be replaced, lift the vessel to remove the load off the load cell stand, and high enough to place blocks or other supports under the vessel to ensure its stability while replacing the load cell.

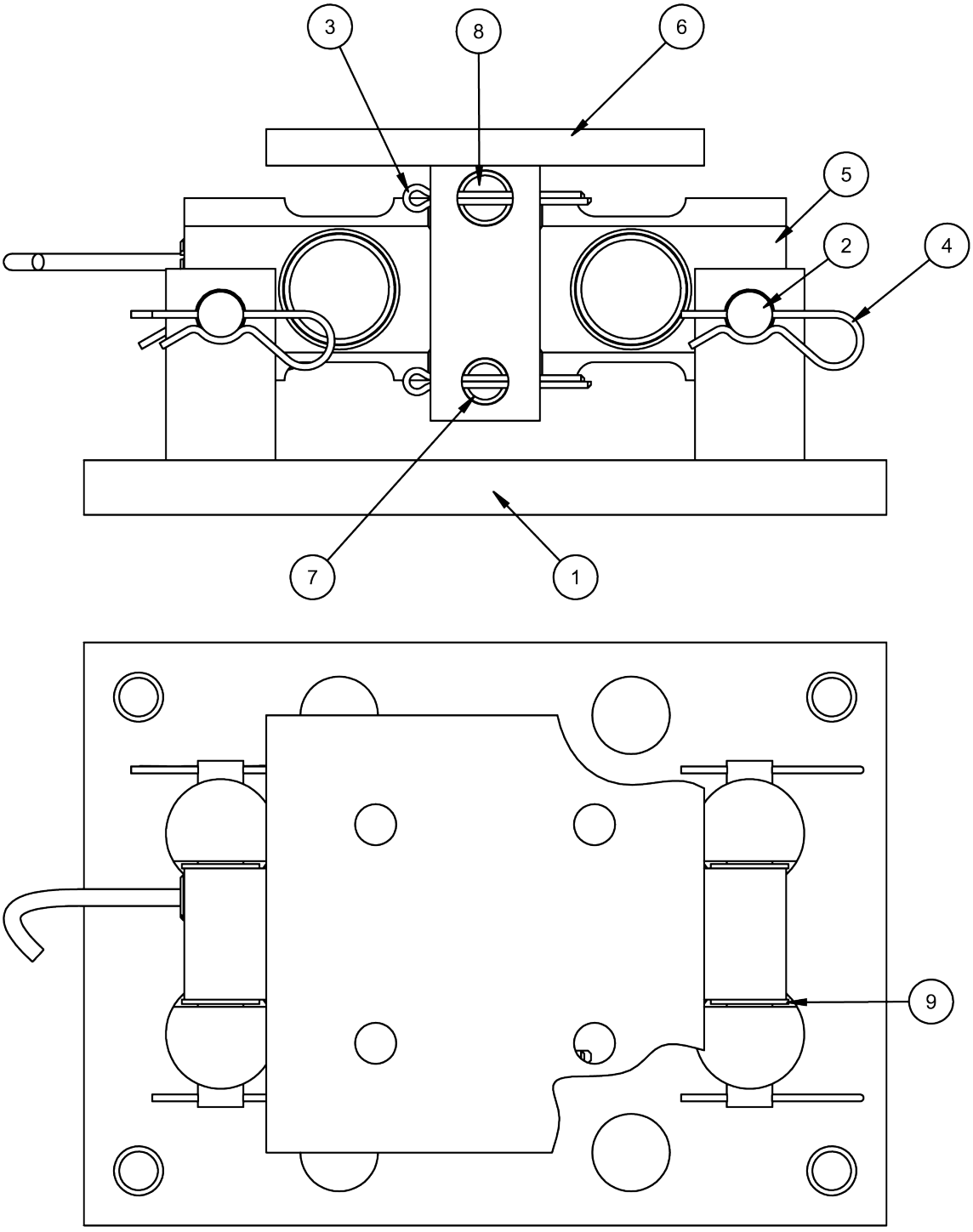
NOTE: If the vessel is empty, a chain or cable slings can be used to lift the vessel to remove the load off the load cell stand, and high enough to place blocks or other supports under the vessel to ensure its stability while replacing the load cell.

LOAD CELL REPLACEMENT, CONT.

3. With the load off the load cell stand and load cell, remove the two load cell mounting pins [2]. This is accomplished by removing the cotter hairpins [4] (one on each end of the load cell) from the load cell mounting pins [2]. **NOTE:** This only needs to be done on one side of the load cell stand.
4. Next, on the opposite side of the load cell stand, on one end of the load cell [5], grasp the cotter hairpin [4] in the load cell mounting pin [2] and remove the mounting pin [2] from the bottom plate [1] mounting posts and load cell [5]. Repeat this for the mounting pin [2] on the other end of the load cell [5].
5. The next step is to remove the cotter pin [3] securing the load pin [8] in the top plate [6]. Using pliers, squeeze the ends of the cotter pin [3] together, and then pull it out of the top plate [6].
6. Now, insert a screwdriver into the top small hole on the opposite side of the top plate [6], and push the screwdriver in until the load pin [8] starts to slide out of the top plate [6]. Grasp the load pin [8] and remove it from the top plate [6].
7. Now remove the load cell [5] from the load cell stand. Grasp the end of the load cell [5] with the cable and slide it out of the bottom plate [1] mounting posts and top plate [6].
8. To install the new load cell [5], slide the end of the load cell [5] without the cable through the bottom plate [1] mounting posts on one side of the load cell stand, through the top plate [6], and finally through the bottom plate [1] mounting posts on the other side of the load cell stand. **NOTE:** When installing the load cell [5], the two holes in the load cell [5] should be positioned down toward the bottom plate [1].
9. With the load cell [5] positioned in the load cell stand, align the holes in one end of the load cell [5] with the holes in the bottom plate [1] mounting posts. When aligned, insert a mounting pin [2], and push it through the bottom plate [1] mounting post, and load cell {5] until it is out of the other bottom plate [1] mounting post.
10. Next, install a cotter hairpin [4] to secure the mounting pin [2] and load cell [5] in place. You will need to repeat this for the mounting pin [2] on the other end of the load cell [5] to completely secure the load cell [5] in the load cell stand.
11. Now, re-install and secure the load pin [8]. To do this, insert the load pin [8] through the hole in the top plate [1] passing it through the center notch in the load cell [5] until it stops, which indicates it is against the other side of the top plate [1]. Install a *new cotter pin* [3] to secure the load pin [8] in the top plate [6].
12. With the new load cell installed, raise the vessel slightly to remove the blocks or other supports, and then slowly lower the vessel to return the load to the load cell stand.
13. Reconnect the load cell to the junction box. Refer to the LOAD CELL WIRING and JUNCTION BOX WIRING sections of this manual for wiring information.
14. Finally, apply power to the indicator and perform calibration before returning to normal operation.

PARTS IDENTIFICATION

Mild Steel and Stainless Steel Stand for DB-20000 Load Cells



NOTES:

1. THE PURCHASERS OF LOAD CELL STAND ASSEMBLIES ARE ADVISED TO INSTALL SAFETY RODS TO PREVENT TIPPING. CARDINAL SCALE MFG. CO. WILL NOT BE RESPONSIBLE FOR STABILITY OF THE SYSTEM.

PARTS IDENTIFICATION, CONT.

Mild Steel Stand for DB-20000 Load Cells

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3500-0337-0A	BOTTOM PLATE WELDMENT, DB-20000SP
2	2	3500-0347-18	SS 5/8” DIA X 4 3/4" LG LOAD PIN
3	2	6009-5006	COTTER PIN 3/16 X 2” SS
4	4	6009-5096	COTTER HAIRPIN 3/32 X 2 3/8" LG S.S.
5	REF	DB-20000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 20,000 LB, STAINLESS STEEL
6	1	3500-0338-0A	TOP PLATE WELMENT, DB-20000SP
7	1	3500-0345-18	SS 5/8"DIA X 3 1/4" LG VERTICAL CHECK PIN
8	1	3500-0346-18	SS 3/4"DIA X 3 1/4" LG TOP LOAD PIN
9	4	6024-0143	WASHER FLAT, 1.062 OD, 0.64 ID, 0.06 THK UHMW
*	4	6007-0230	BLT HEX HD 5/8-11 X 3” TAP BOLT GRADE 5

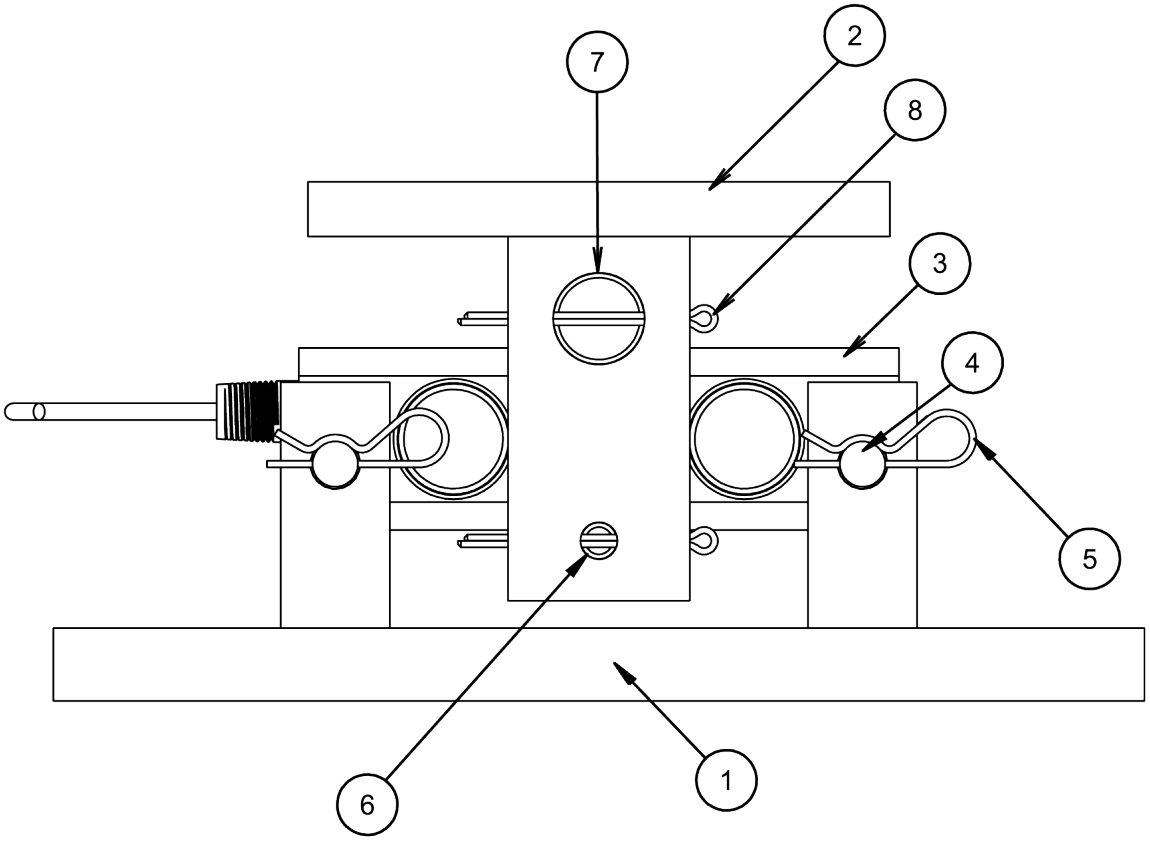
Stainless Steel Stand for DB-20000 Load Cells

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3500-0337-1A	BOTTOM PLATE WELDMENT, DB-20000SPS
2	2	3500-0347-18	SS 5/8” DIA X 4 3/4" LG LOAD PIN
3	2	6009-5006	COTTER PIN 3/16 X 2” SS
4	4	6009-5096	COTTER HAIRPIN 3/32 X 2 3/8" LG S.S.
5	REF	DB-20000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 20,000 LB, STAINLESS STEEL
6	1	3500-0338-1A	TOP PLATE WELMENT, DB-20000SPS
7	1	3500-0345-18	SS 5/8"DIA X 3 1/4" LG VERTICAL CHECK PIN
8	1	3500-0346-18	SS 3/4"DIA X 3 1/4" LG TOP LOAD PIN
9	4	6024-0143	WASHER FLAT, 1.062 OD, 0.64 ID, 0.06 THK UHMW
*	4	6007-0230	BLT HEX HD 5/8-11 X 3” TAP BOLT GRADE 5

* NOT SHOWN

PARTS IDENTIFICATION, CONT.

Mild Steel and Stainless Steel Stand
for DB-30000, DB-50000, and DB-75000 Load Cells



NOTES:

1. THE PURCHASERS OF LOAD CELL STAND ASSEMBLIES ARE ADVISED TO INSTALL SAFETY RODS TO PREVENT TIPPING. CARDINAL SCALE MFG. CO. WILL NOT BE RESPONSIBLE FOR STABILITY OF THE SYSTEM.

PARTS IDENTIFICATION, CONT.

Mild Steel Stand for DB-30000, DB-50000, and DB-75000 Load Cells

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3500-0340-0A	BOTTOM WELDMENT, DB-30000SP, DB-50,000SP, DB-75000SP
2	1	3500-0342-0A	TOP PLATE WELDMENT, , DB-30000SP, DB-50,000SP, DB-75000SP
3	REF	DB-30000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 30,000 LB, STAINLESS STEEL
		DB-50000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 50,000 LB, STAINLESS STEEL
		DB-75000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 75,000 LB, STAINLESS STEEL
4	2	3500-0347-18	SS 5/8"DIA X 4 3/4" LG LOAD PIN
5	4	6009-5096	COTTER HAIRPIN 3/32 X 2 3/8" LG S.S.
6	1	3500-B191-18	RETAINING PIN S.S.
7	1	3500-B190-18	LOAD PIN S.S.
8	2	6009-5006	COTTER PIN 3/16 X 2” SS
*	4	6007-0230	BLT HEX HD 5/8-11 X 3” TAP BOLT GRADE 5

Stainless Steel Stand for DB-30000 / DB-50000 / DB-75000 Load Cells

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3500-0340-1A	BOTTOM WELDMENT, DB-30000SPS, DB-50,000SPS, DB-75000SPS
2	1	3500-0342-1A	TOP PLATE WELDMENT, DB-30000SPS, DB-50,000SPS, DB-75000SPS
3	REF	DB-30000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 30,000 LB, STAINLESS STEEL
		DB-50000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 50,000 LB, STAINLESS STEEL
		DB-75000SP	LOAD CELL, DOUBLE END SHEAR BEAM, PIN MOUNTED, 75,000 LB, STAINLESS STEEL
4	2	3500-0347-18	SS 5/8"DIA X 4 3/4" LG LOAD PIN
5	4	6009-5096	COTTER HAIRPIN 3/32 X 2 3/8" LG S.S.
6	1	3500-B191-18	RETAINING PIN S.S.
7	1	3500-B190-18	LOAD PIN S.S.
8	2	6009-5006	COTTER PIN 3/16 X 2” SS
*	4	6007-0230	BLT HEX HD 5/8-11 X 3” TAP BOLT GRADE 5

* NOT SHOWN

STATEMENT OF LIMITED WARRANTY

WARRANTY TERMS

Cardinal Scale Manufacturing Company warrants the equipment we manufacture against defects in material and workmanship. The length and terms and conditions of these warranties vary with the type of product and are summarized below:

PRODUCT TYPE	TERM	MATERIAL AND WORKMAN-SHIP	LIGHTNING DAMAGE See note 9	WATER DAMAGE See note 7	CORROSION See note 4	ON-SITE LABOR	LIMITATIONS AND REQUIREMENTS
WEIGHT INDICATORS	90 DAY REPLACEMENT --- 1 YEAR PARTS	YES	YES	YES	YES	NO	1, 2, 3, 5, 6 A, B, C, D
LOAD CELLS (Excluding Hydraulic)	1 YEAR	YES	YES	YES	YES	NO	1, 2, 3, 5, 6 A, B, C, D
HYDRAULIC LOAD CELLS (When purchased with Guardian Vehicle Scale)	LIFETIME	YES	YES	YES	YES	90 DAYS	1, 5, 6, 8 A, B, C, D
HYDRAULIC LOAD CELLS (When purchased separately)	10 YEARS	YES	YES	YES	YES	NO	1, 5, 6, 8, 9 A, B, C, D
VEHICLE SCALE (Deck and Below Excl. PSC Series)	5 YEARS	YES	YES	YES	YES	90 DAYS	1, 2, 3, 5, 6 A, B, C, D, E
LSC SCALE (Deck and Below)	3 YEARS	YES	YES	YES	YES	90 DAYS	1, 2, 3, 5, 6, 11 A, B, C, D
GUARDIAN FLOOR SCALES	10 YEARS	YES	YES	YES	YES	NO	1, 2, 3, 5, 6, 9, 10 A, B, C, D
ALL OTHER CARDINAL PRODUCTS	1 YEAR	YES	YES	YES	YES	NO	1, 2, 5, 6 A, B, C, D, E
REPLACEMENT PARTS	90 DAYS	YES	YES	YES	YES	NO	1, 2, 4, 5, 6 A, B, C, D
SWIM AND 760 SERIES VEHICLE SCALES	1 YEAR	YES	YES	YES	YES	90 DAYS	1, 2, 5, 6 A, B, C, D
SOFTWARE	90 DAYS	YES	N/A	N/A	N/A	NO	1, 6 B, C, D
CONVEYOR BELT SCALES (including Belt-Way)	1 YEAR	YES	YES	YES	YES	NO	1, 2, 3, 5, 6 A, B, C, D, E, F

CARDINAL®

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Webb City, MO 64870

04/24
Printed in USA
315-WARRANTY-CAR-M

APPLICABLE LIMITATIONS AND REQUIREMENTS

1. This warranty applies only to the original purchaser. The warranty does not apply to equipment that has been tampered with, defaced, damaged, or had repairs or modifications not authorized by Cardinal or has had the serial number altered, defaced or removed.
2. This warranty is not applicable to equipment that has not been grounded in accordance with Cardinal's recommendations.
3. This equipment must be installed and continuously maintained by an authorized Cardinal / Belt-Way dealer.
4. Applies only to components constructed from stainless steel.
5. This warranty does not apply to equipment damaged in transit. Claims for such damage must be made with the responsible freight carrier in accordance with freight carrier regulations.
6. Warranty term begins with date of shipment from Cardinal.
7. Only if device is rated NEMA 4 or better or IP equivalent.
8. Lifetime warranty applies to damages resulting from water, lightning, and voltage transients and applies only to the hydraulic load cell structure itself (does not include pressure transducers, rubber seals, o-rings, and associated wiring).
9. 10-Year prorated warranty on hydraulic load cells.
10. 1-Year warranty for scale structure.
11. PSC models' warranty coverage applies only to agricultural installations on farms up to 3,000 acres (LSC models not limited in this manner).
12. Load cell kits MUST be installed in accordance with Cardinal Scale instructions. Failure to follow these instructions will void the warranty.

EXCLUSIONS

A.) This warranty does not include replacement of consumable or expendable parts. The warranty does not apply to any item that has been damaged due to unusual wear, abuse, improper line voltage, overloading, theft, fire, water, prolonged storage or exposure while in purchaser's possession or acts of God unless otherwise stated herein.

B.) This warranty does not apply to peripheral equipment not manufactured by Cardinal. This equipment will normally be covered by the equipment manufacturer's warranty.

C.) This warranty sets forth the extent of our liability for breach of any warranty or deficiency in connection with the sale or use of our product. Cardinal will not be liable for consequential damages of any nature, including but not limited to loss of profit, delays or expenses, whether based on tort or contract. Cardinal reserves the right to incorporate improvements in material and design without notice and is not obligated to incorporate said improvements in equipment previously manufactured.

D.) This warranty is in lieu of all other warranties expressed or implied including any warranty that extends beyond the description of the product including any warranty of merchantability or fitness for a particular purpose. This warranty covers only those Cardinal products installed in the forty-eight contiguous United States and Canada.

E.) This warranty does not cover paint coatings due to the variety of environmental conditions.

F.) Do not cut load cell cables on load cells returned for credit or warranty replacement. Cutting the cable will void the warranty.

G.) Software is warranted only for performance of the functions listed in the software manual and/or the Cardinal proposal.

H.) The software warranty does not cover hardware. Warranties on hardware are provided from the hardware vendor only.

I.) The software warranty does not cover interfacing issues to non-Cardinal supplied hardware.

J.) The software warranty does not include automatic software upgrades unless purchased separately.

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