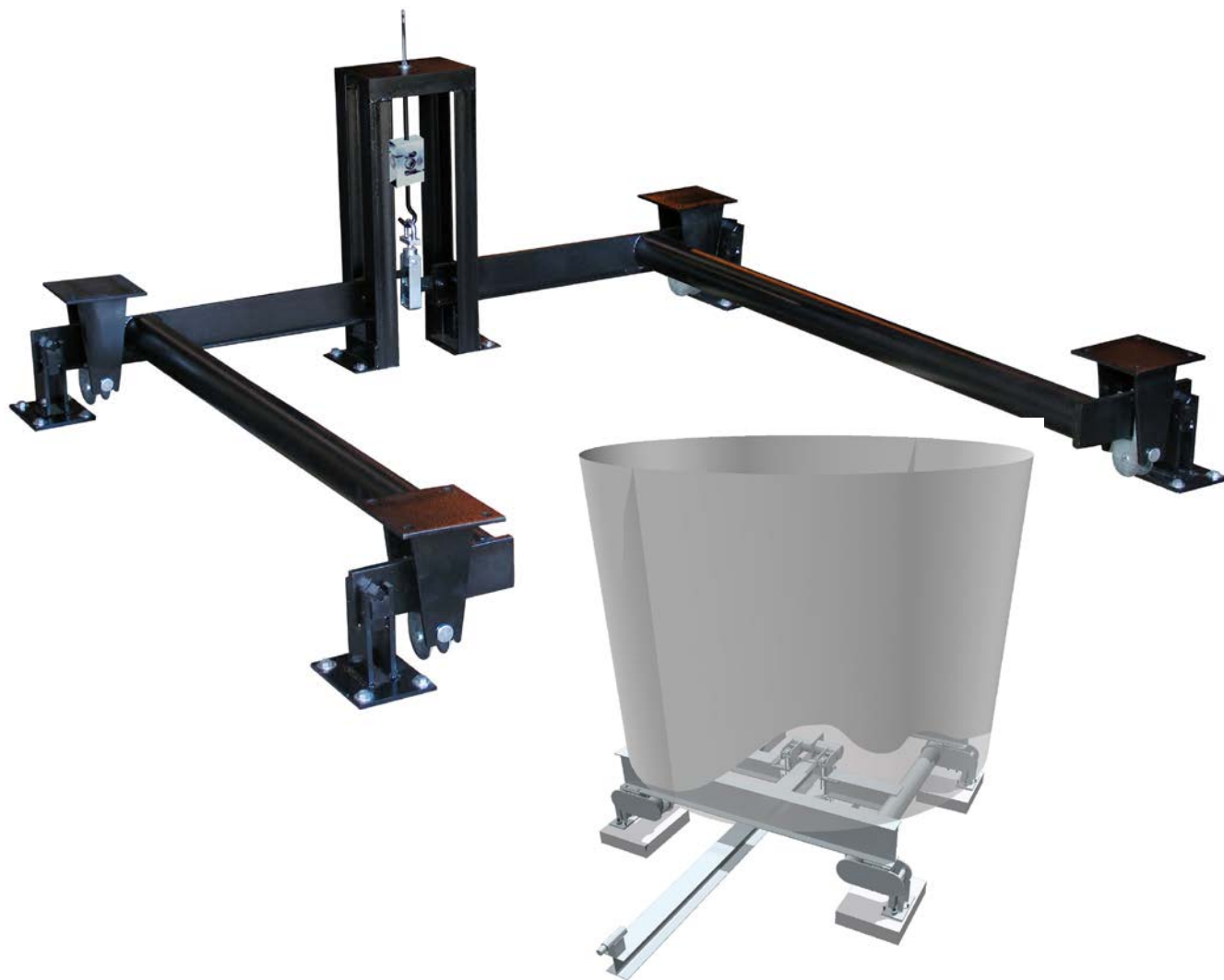




CARDINAL®




FS Series
Floor Stand Tank / Hopper Scale
Technical Manual

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Serial Number _____ Date of Purchase _____ Purchased From _____ _____ _____ <p style="text-align: center; font-size: small;">RETAIN THIS INFORMATION FOR FUTURE USE</p>

<h2 style="margin: 0;">PRECAUTIONS</h2> <p style="margin: 5px 0;">Before using this product, read this manual and pay special attention to all "NOTIFICATION" symbols:</p> <div style="display: flex; align-items: center; gap: 10px;">  <div style="text-align: left;"> <p style="margin: 0;">DANGER!</p> <p style="margin: 0;">WARNING!</p> <p style="margin: 0;">CAUTION!</p> </div> </div>

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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 FS Series Floor Stand Scales are designed for use in wineries, breweries, soap, oil, paint, glass, chemical and mineral plants, or wherever liquid or material portioning is a necessity. They are available in a wide range of sizes, shapes, and capacities to fit almost any tank or hopper. Vertical tanks with flat bottoms, horizontal tanks with end discharge, and vertical tanks with cone bottoms are just a few of the many variations of tanks that the FS Series Floor Stand Scales are designed to be used with.

The scales are designed so that the tank or hopper legs, or weighbridge can be mounted directly on the scale girder chair bases. The low-profile construction of the FS Series Floor Stand Scale, makes it ideal where minimum headroom is available.

All FS Series Floor Stand Scales incorporate a link suspension bearing system that absorbs impacts, and provide a free-floating platform. The levers are constructed of structural steel shapes and extra heavy seamless steel tubing to give greater strength than much heavier materials of comparative low tensile strength.

To ensure that the scales will fit the proposed tank or hopper, complete drawings are furnished on each installation.

Features

- Free-Floating Steel Platform
- Ideal for Inventory Control
- NTEP Legal for Trade
- Used in Blending or Portioning of Liquids
- Weigh-in or Weigh-Out Operations

This manual should be studied thoroughly before attempting to install the floor stand tank scale, and must be used in conjunction with certified drawings of the particular scale being installed.

In case of conflict, the Certified Engineering Drawings for the scale 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 four points when filled to capacity.

SPECIFICATIONS

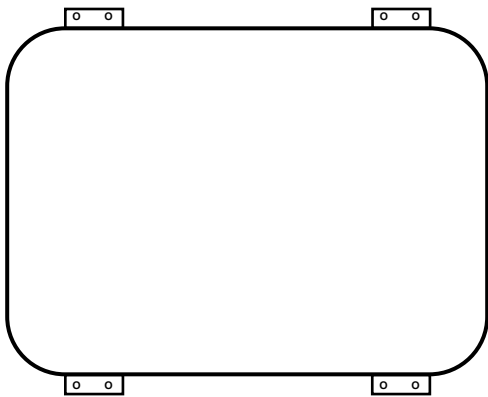
Specification	Description
Load Cell Model / Type:	ZX Series, Stainless-steel, tension load cells
Load Cell Protection Class:	IP67
Load Cell Capacities:	250 lb (113.4 kg) up to 20,000 lb (9,701.9 kg)
Load Cell Cable:	30 ft / 9 m
Construction:	Stainless steel or powder-painted mild steel
Construction:	Mild or stainless steel, bolt-in-place stands
System Capacities:	5,000 lb (3,175 kg) to 200,000 lb (90,718 kg)
Indicators:	A wide selection of Cardinal Scale digital weight indicators are available
Weighing Applications:	Wineries, breweries, soap, oil, paint, glass, chemical and mineral plants, or wherever liquid or material portioning is a necessity

Models and Capacity

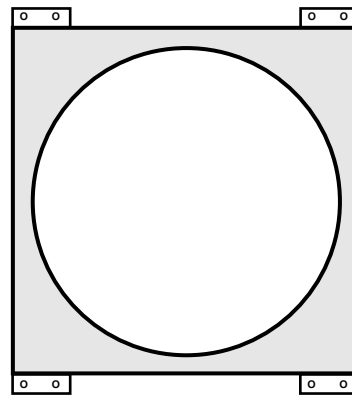
Model	Floor Stand Scale Capacity
FS-1	5,000 lb (3,175 kg)
FS-2	7,000 lb (2,268 kg)
FS-2.5	10,000 lb (4,536 kg)
FS-3	20,000 lb (9,072 kg)
FS-4	30,000 lb (13,608 kg)
FS-5	50,000 lb (22,680 kg)
FS-6	60,000 lb (27,216 kg)
FS-7	80,000 lb (36,287 kg)
FS-8	100,000 lb (45,359 kg)
FS-9	150,000 lb (68,039 kg)
FS-10	200,000 lb (90,718 kg)

GENERAL INSTALLATION GUIDELINES

1. Floor stand tank scales are designed for static concentric loading.
2. Vertical tanks shall be checked to prevent tipping.
3. The purchaser of a floor stand tank scale is advised to install safety piers or other devices under the weighbridge, or main levers and transverse lever arms to restrict the vertical movement to one inch or less in case of accidental or other disarrangement of the scale assembly.
4. The purchaser shall provide physical checking to limit the horizontal movement of weight receiver to 1/4" maximum.
5. The mounting surface for the corner stands, load cell stand, transverse lever stand, and main lever stand must be level, and the mounting surface must be level within ± 0.5 degree to minimize side loads and extraneous forces. If the mounting surfaces are not level, then shims or grout may be used to level the stands. Because deflections in legs and supporting structures may cause additional side forces that greatly affect accuracy, check if level and plumb again when container is fully loaded. Cross bracing of legs or other support structures may need reinforcement to correct this.



Rectangular tank mounted directly to Floor Stand Girder Chair Bases



Weighbridge mounted to Floor Stand Girder Chair Bases with Cylindrical tank installed on weighbridge

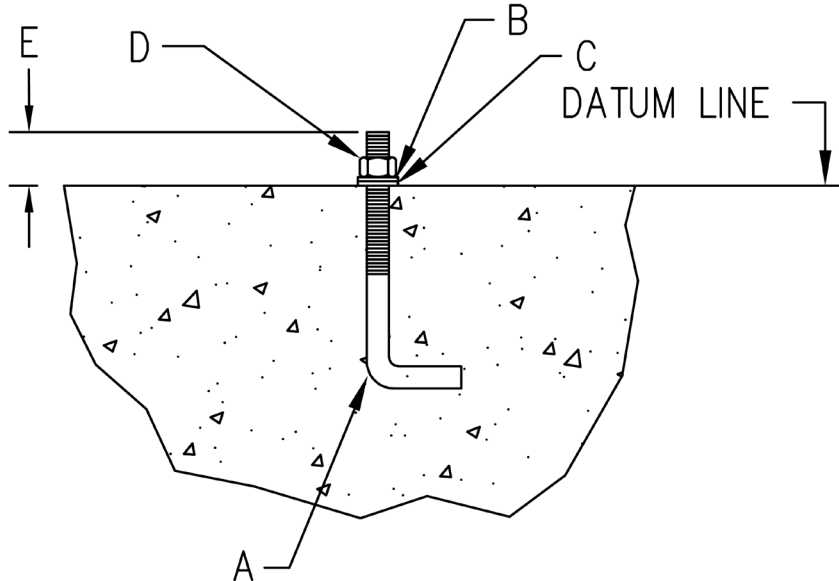
6. The tank/hopper is mounted to the floor stand scale using four mounting points called the Girder Chair Base. The load on each girder chair base should vary by no more than 20 percent. Add shims where necessary to achieve correct load distribution.
7. All piping or conduit should be horizontal and flexible. If flexible piping is not used, make sure the distance from tank to the first pipe support is 20-30 times 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.
8. The contractor shall contact the state Weight and Measures Division for state installation and calibration requirements.

INSTALLATION

Suggested Anchoring



IMPORTANT: Based on the tank or hopper used, Cardinal Scale Engineering may recommend different anchor bolts than the sizes suggested in the table below.



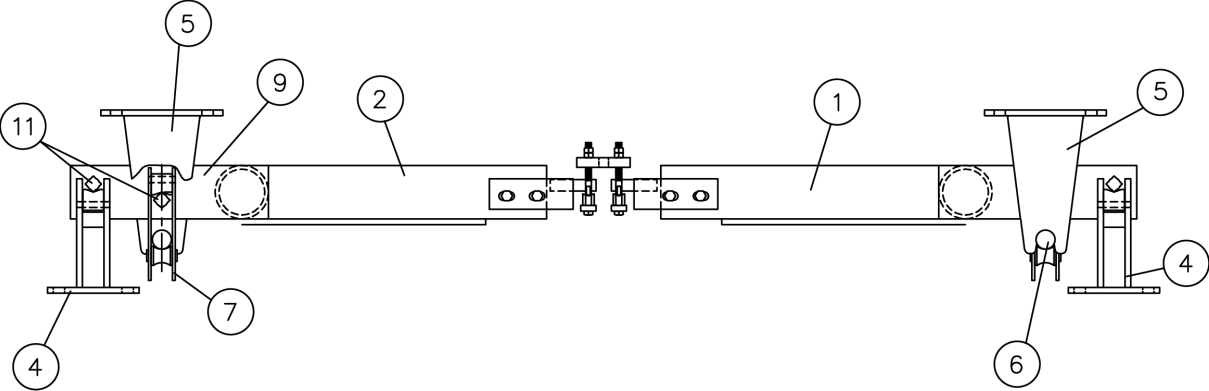
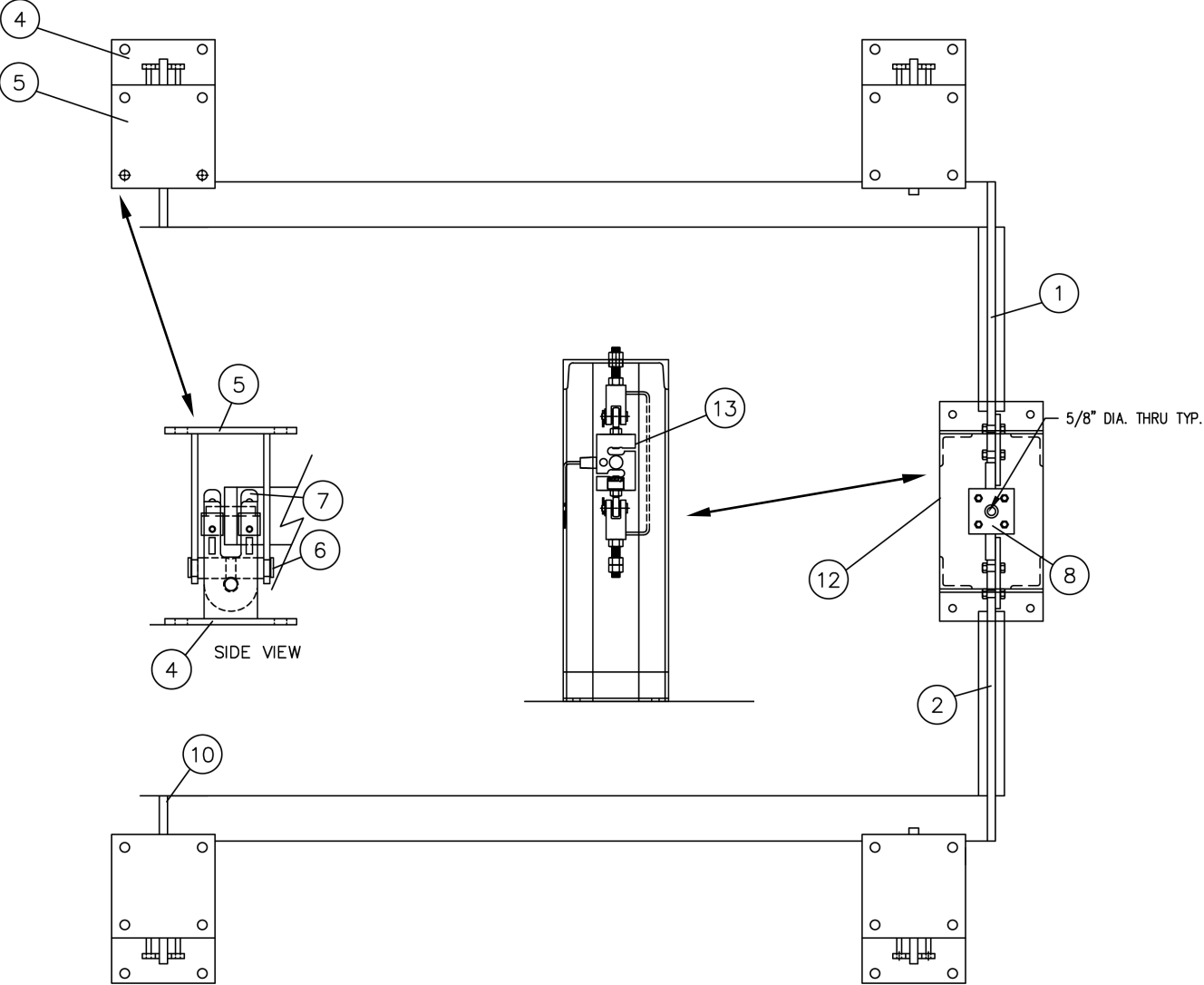
FS-1 through FS-6 Suggested Anchoring Components – (Provided by Customer)

Item	FS-1	FS-2, FS-2-5, FS-3, and FS-4	FS-5, and FS-6
A	1/2-13 UNC-2A X 8" L-BOLT	5/8-11 UNC-2A X 8" L-BOLT	3/4-10 UNC-2A X 10" L-BOLT
B	1/2 FLAT WASHER	5/8 FLAT WASHER	3/4 FLAT WASHER
C	1/2 LOCK WASHER	5/8 LOCK WASHER	3/4 LOCK WASHER
D	1/2-13 UNC-2B HEX NUT	5/8-11 UNC-2B HEX NUT	3/4-10 UNC-2B HEX NUT
E	1 5/16 inch	1 1/2 inch	2 inches

FS-7 Suggested Anchoring Components – (Provided by Customer)

Item	Shelf Lever and Load Cell Stand	Main Lever Stand and Trans. Lever Stand
A	1/2-13 UNC-2A X 10" L-BOLT	1"-8 UNC-2A X 10" L-BOLT
B	1/2 FLAT WASHER	1" FLAT WASHER
C	1/2 LOCK WASHER	1" LOCK WASHER
D	1/2-13 UNC-2B HEX NUT	1"-8 UNC-2B HEX NUT
E	2 inches	2 inches

INSTALLATION



NOTE: Views are of FS2.5 Floor Stand Scale. Other models are similar.

INSTALLATION, CONT.



Refer to accompanying **Certified Engineering Drawings** of the particular scale being installed to facilitate instructions. Read instructions carefully and follow steps as they are listed.

1. Check the anchor bolt layout with the **Certified Engineering Drawing** to be certain that the anchor bolts are located correctly and that they are the correct diameter.
 2. Locate the four corner stand assemblies (Item 4) and loads cell stand (Item 12) on the anchor bolts. Only hand tighten nuts at this time.
 3. Locate the right- and left-hand main lever assemblies (Items 1 & 2) on the corner stands. Block up tip of lever until lever arm is level.
 4. Connect the two center shackles (Item 8) to the right- and left-hand main lever assemblies (Items 1 & 2). Place the main lever nose irons in the center shackles. Adjust the shackles until the main levers are level. Be sure all connections are plumb and level. *
 5. Hang the four load loop assemblies (Item 7) on the corner stands (Item 4) and insert the four load link pins (Item 6) through the load loop assemblies as shown. Place the four girder chairs (Item 5) on the load link pins (Item 6).
 6. Place the tank legs or weighbridge on the girder chair bases and bolt into place. Check that the tank moves freely with the girder chairs.
 7. Level main lever pipes and splice arms by shimming under corner stands. Check main lever pivots to see that they are correctly seated and aligned in the bearings, level transverse lever and check pivots for alignment with bearings. Plumb all connections and tighten anchor bolts.
- * Under no circumstances are the adjustable nose irons to be moved to plumb connections. If nose irons should have been inadvertently moved be sure these are placed back on the factory seal mark.

LOAD CELL WIRING



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

1. Route the load cell cable so it 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 sitting in water.
2. Provide a dip loop in the load cell cable so that water or other liquids will not run directly down the cable onto the load cell. 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 cable, use flexible conduit and conduit adapters at the load cell.
4. Connect the cable from the load cell (Item 13) to the indicator according to the instructions for the indicator being used in the installation.

Refer to applicable digital indicator technical and installation manual for instructions to install the indicator, connect the load, and perform setup and calibration.

5. To verify the wiring, refer to the documentation shipped with each load cell.

ZX Series Wiring Color Code

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

PARTS IDENTIFICATION

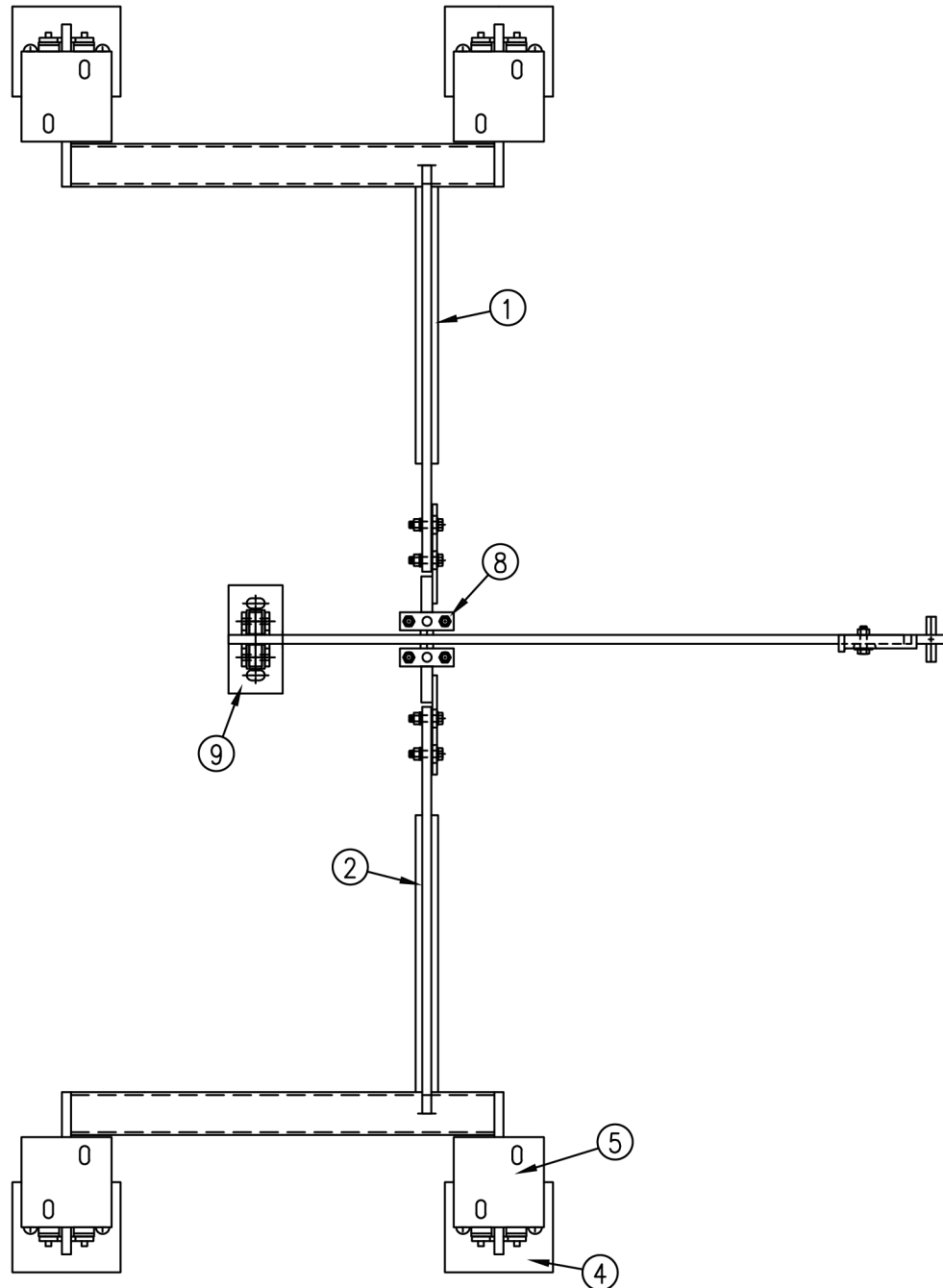
IMPORTANT!

FS Series Floor Stand Tank and Hopper Scales are designed to work with specific tanks or hoppers and will vary from one installation to the next.

To ensure you are ordering the correct part, refer to the ***Certified Engineering Drawings*** for your scale, to verify the part number listed in the following section is correct before ordering a replacement part.

PARTS IDENTIFICATION, CONT.

FS-1 Floor Stand Tank Scale

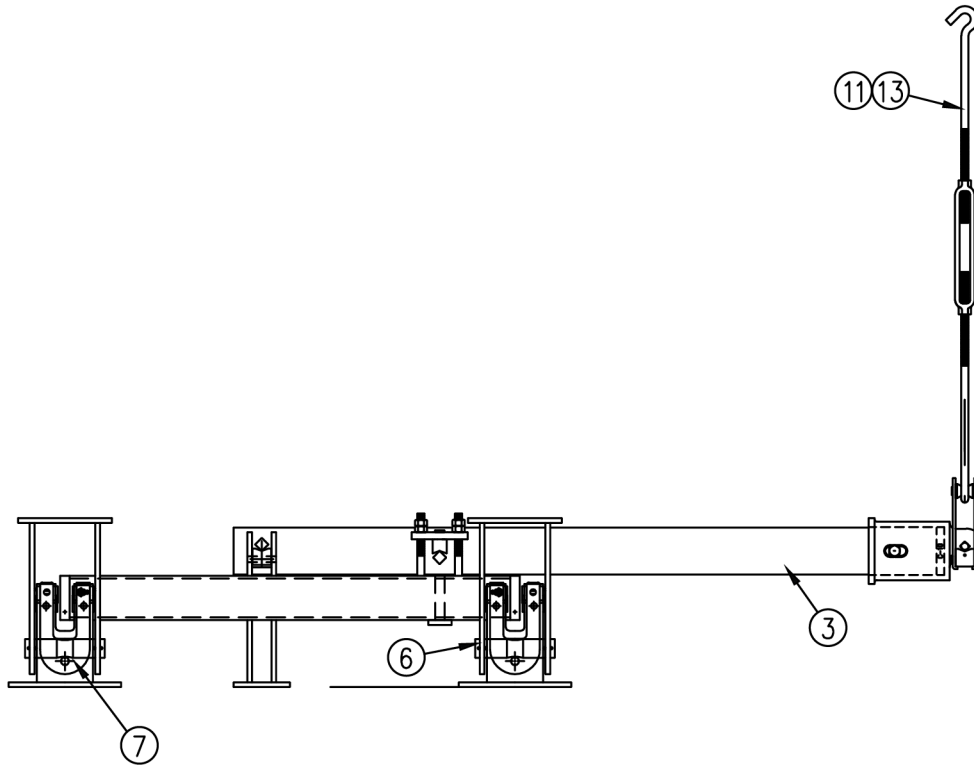


NOTE:

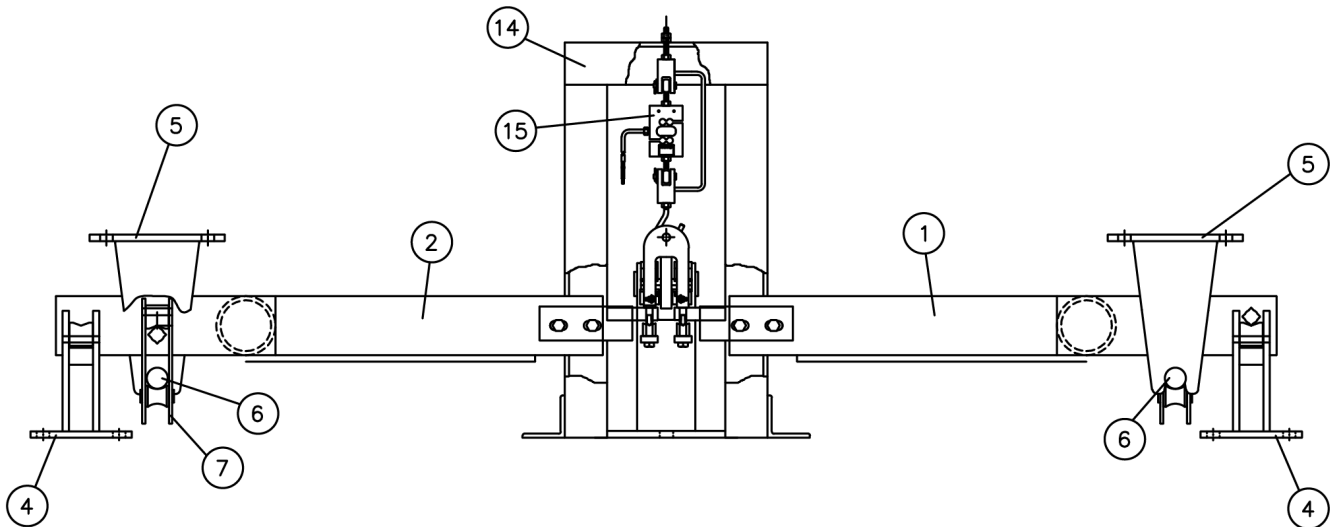
- Lever Arms (1 & 2) can be inside as shown or outside.
- Transverse Lever (3) is not always used.
- Load Cell (15) and Stand (14) can go in place of Transverse Lever (3) at the center shackle (8).

PARTS IDENTIFICATION, CONT.

FS-1 Floor Stand Tank Scale, Cont.



FS-1 with Draft Rod for Beam and Dial Weight Indicators



FS-1 with Load Cell Stand Assembly and Load Cell for Digital Weight Indicators

PARTS IDENTIFICATION, CONT.

FS-1 Floor Stand Tank Scale

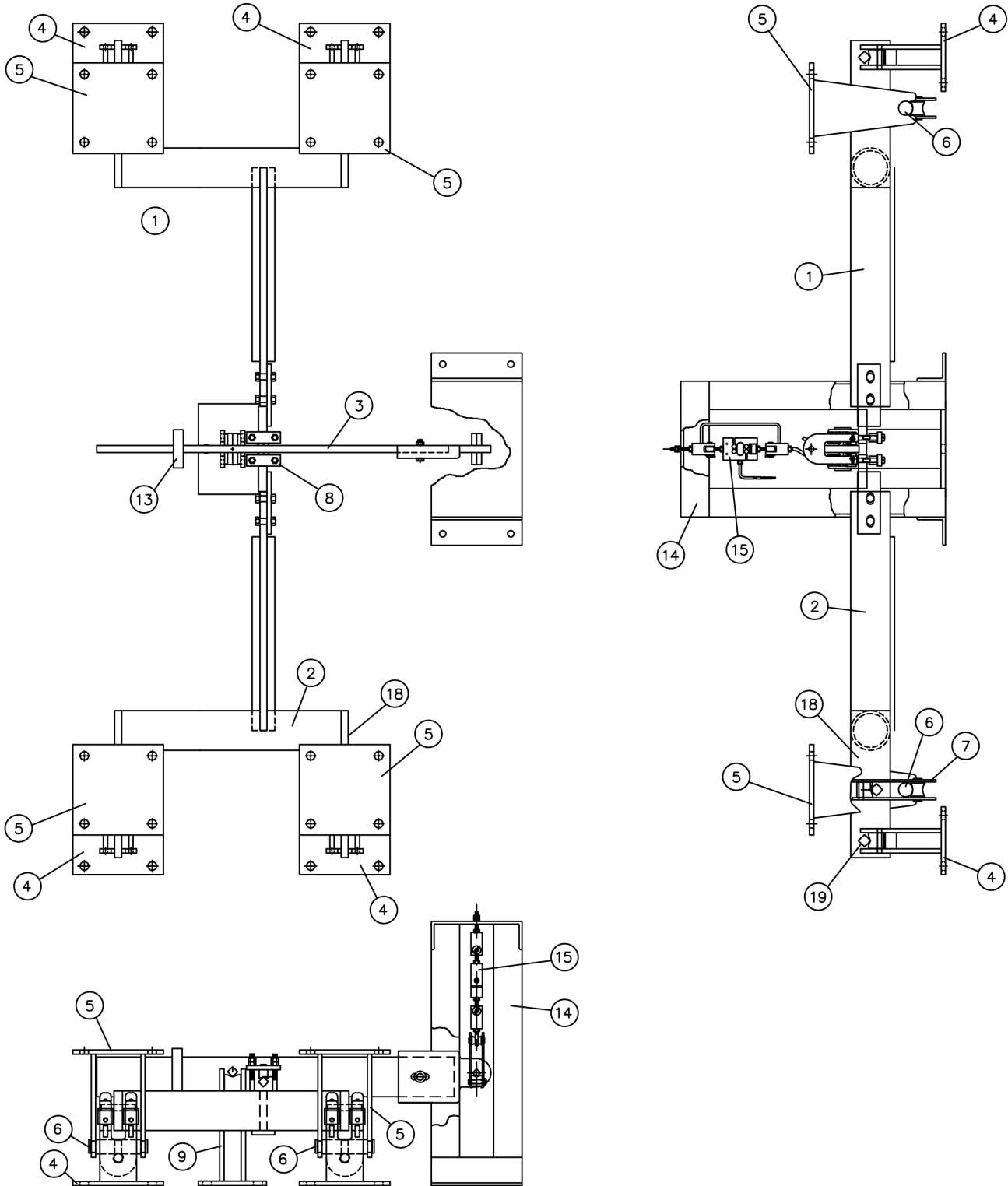
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	RIGHT-HAND MAIN LEVER
2	1		LEFT-HAND MAIN LEVER
3	1	#2	TRANS. LEVER ASSY.
4	4	0309-C004	CORNER STAND
5	4	0309-C003	GIRDER CHAIR
6	4	0309-C003-3	LOAD LINK PIN
7	4	0409-B028	C-37 LOOP
8	2	0309-C015	CENTER SHACKLE
9	1	0309-C005	TR. LEVER STAND
10	1	2009-C018-0A	OFFICE FIX. ASSY. *
11	1	<i>Refer to Certified Scale Drawings</i>	DRAFT ROD *
12	1	1510-B019-0A	OFFICE FIX. ASSY. **
13	1	<i>Refer to Certified Scale Drawings</i>	DRAFT ROD **
12	1	1510-B019-0A	OFFICE FIX. ASSY. **
14	1	3500-C021-0A	LOAD CELL STAND ASSY.
15	1		LOAD CELL ASSY (PART OF ITEM #14)
16	3	0409-C052	C.B. WEIGHT, 5 LB FOR SHELF LEVER **
17	2	0409-C054	C.B WEIGHT, 20 LB **

* USED WITH BEAM WEIGHT INDICATORS

** USED WITH DIAL WEIGHT INDICATORS

PARTS IDENTIFICATION, CONT.

FS-2 Floor Stand Tank Scale



NOTE:

- Load Cell configuration will depend on the load cell capacity and multiple.

PARTS IDENTIFICATION, CONT.

FS-2 Floor Stand Tank Scale

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	RIGHT-HAND MAIN LEVER
2	1		LEFT-HAND MAIN LEVER
3	1	#3	TRANSVERSE LEVER ASSY.
4	4	0309-C008-60	CORNER STAND
5	4	0309-C007	GIRDER CHAIR
6	4	0309-B003	LOAD LINK PIN
7	4	0409-B029	C-39 LOOP
8	2	0309-C015	CENTER SHACKLE D-68 MODEL
9	1	0309-C009-62	TR. LEVER STAND
10	1	<i>Refer to Certified Scale Drawings</i>	OFFICE FIX. ASSY. *
11	1		DRAFT ROD *
12	1	<i>Refer to Certified Scale Drawings</i>	OFFICE FIX. ASSY. **
13	1		DRAFT ROD **
14	1	<i>Refer to Certified Scale Drawings</i>	LOAD CELL STAND ASSY.
15	1		LOAD CELL ASSY (PART OF ITEM #14)
16		0409-C052	C.B. WEIGHT, 5 LB FOR SHELF LEVER **
17	1	0409-C054	C.B WEIGHT, 20 LB **
18	4	0309-B051	END LUG
19		1401-B008	PIVOT 5/8" SQ.

* USED WITH BEAM WEIGHT INDICATORS

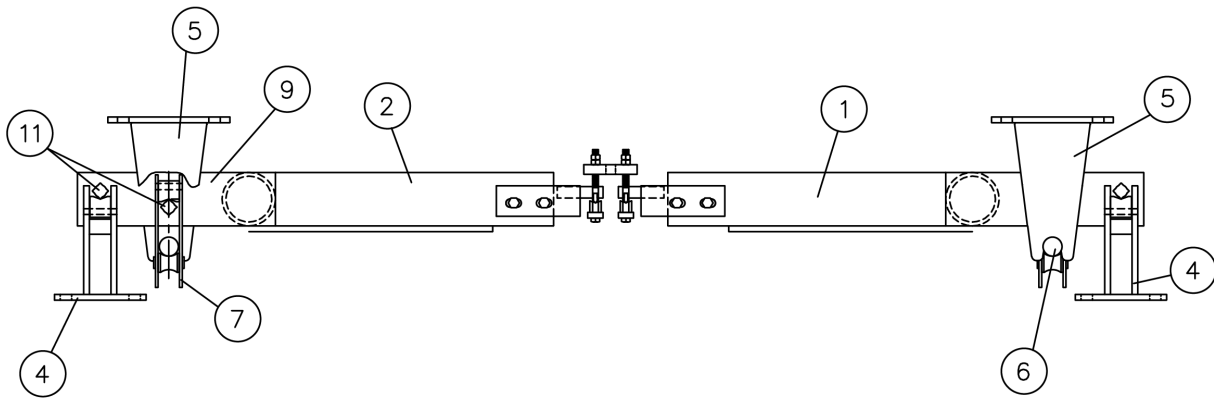
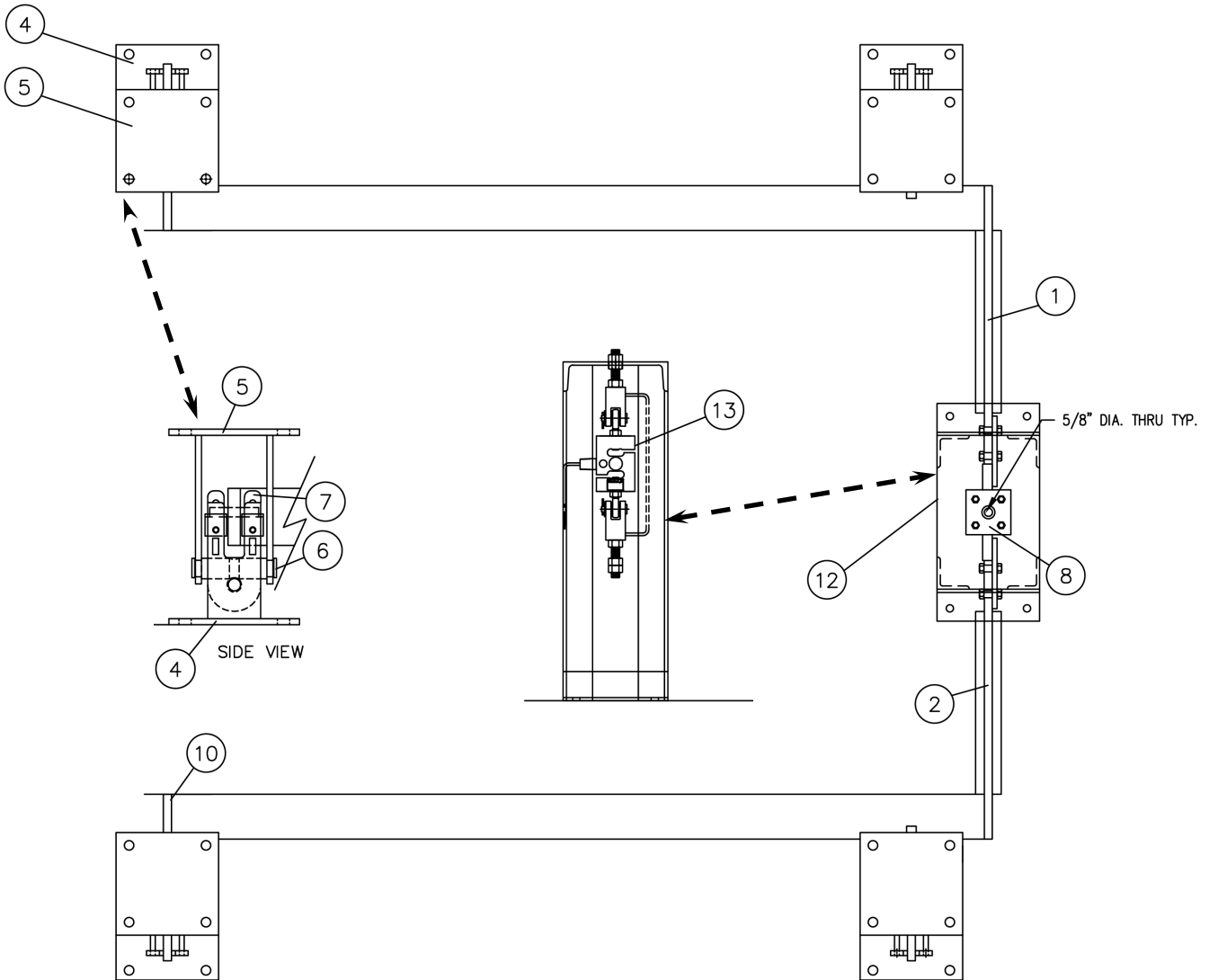
** USED WITH DIAL WEIGHT INDICATORS

NOTE:

- Lever Arms (1 & 2) can be inside as shown or outside.
- Transverse Lever (3) is not always used.
- Load Cell (15) and Stand (14) can go in place of Transverse Lever (3) at the center shackle (8).

PARTS IDENTIFICATION, CONT.

FS-2.5 Floor Stand Tank Scale



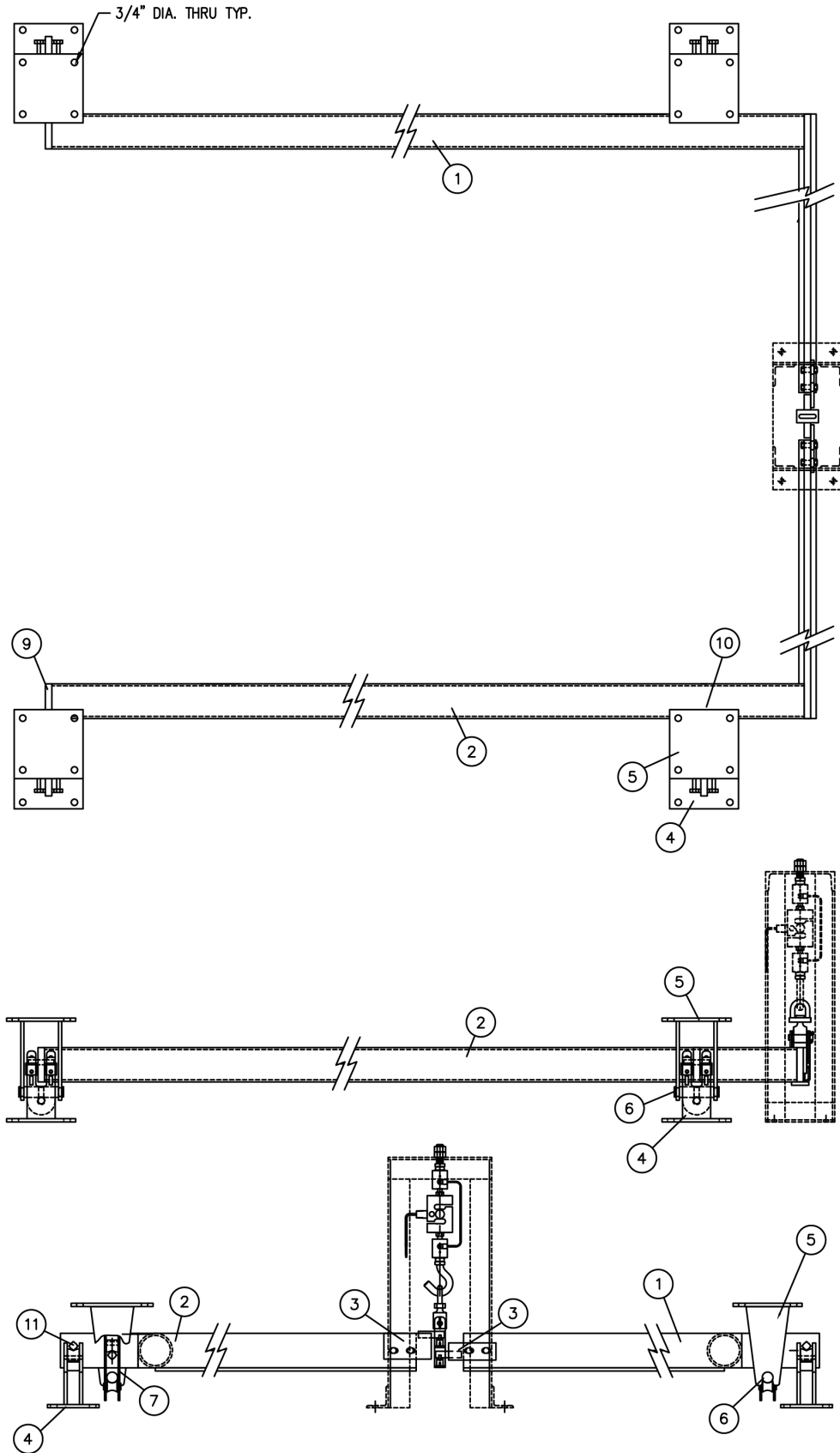
PARTS IDENTIFICATION, CONT.

FS-2.5 Floor Stand Tank Scale

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	RIGHT-HAND MAIN LEVER
2	1		LEFT-HAND MAIN LEVER
3	–	–	–
4	4	0309-C008-60	CORNER STAND
5	4	0309-C007	GIRDER CHAIR
6	4	0309-B003	LOAD LINK PIN
7	4	0409-B029	C-39 LOOP
8	2	0309-C071-0A	CENTER SHACKLE
9	2	0309-B052	INTER. LUG
10	2	0309-B051	END LUG
11	8	1401-B008	PIVOT 5/8" SQ.
12	1	0309-C089-3A	LOAD CELL STAND
13	1	3501-B131-2A	LOAD CELL ZX-2500 STAINLESS-STEEL

PARTS IDENTIFICATION, CONT.

FS-3 Floor Stand Tank Scale



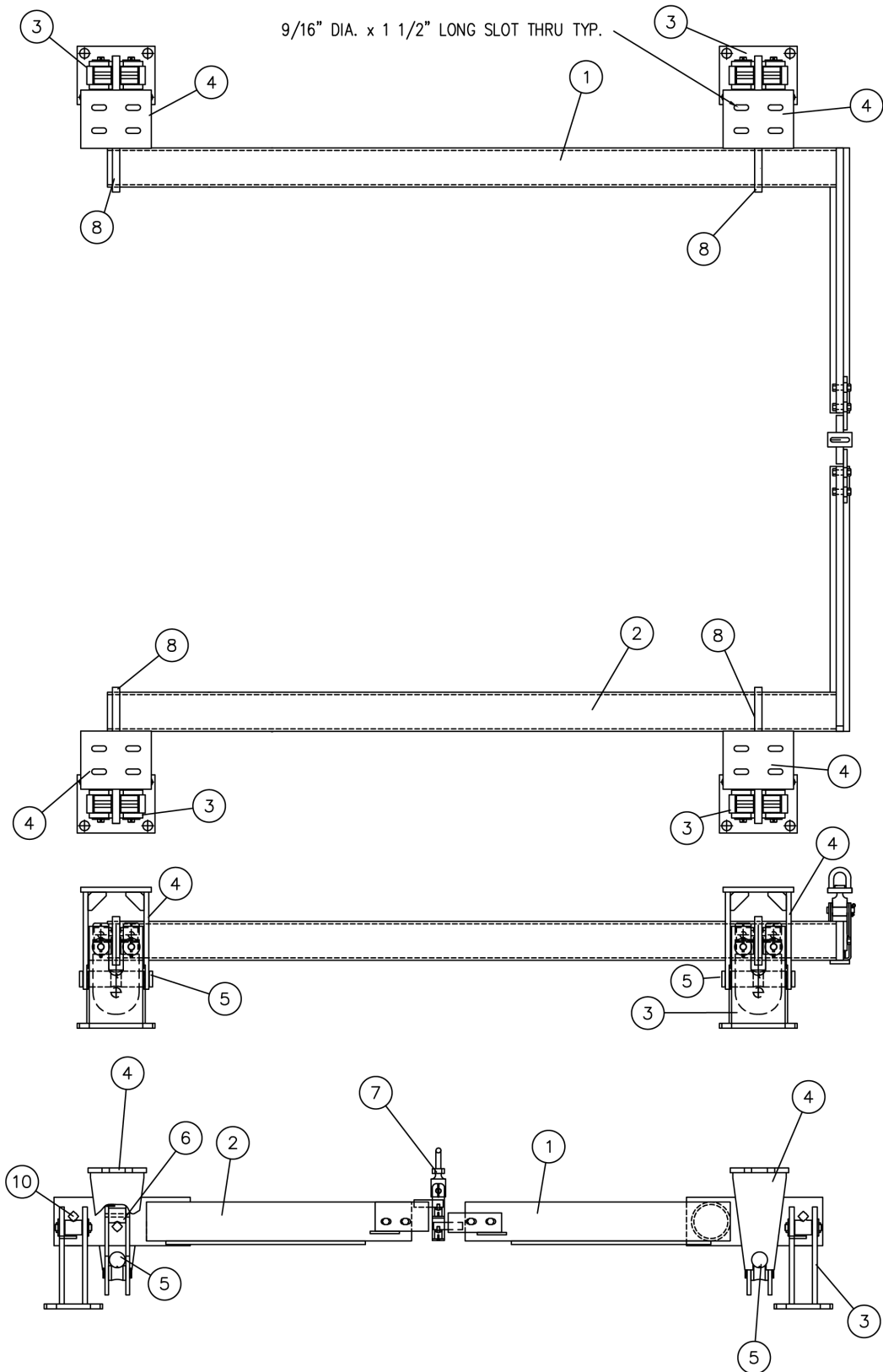
PARTS IDENTIFICATION, CONT.

FS-3 Floor Stand Tank Scale

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	RIGHT-HAND MAIN LEVER
2	1		LEFT-HAND MAIN LEVER
3	1	0409-C011	NOSE IRON
4	4	0309-C008-60	CORNER STAND
5	4	0309-C007	GIRDER CHAIR
6	4	0309-B003	LOAD LINK PIN
7	4	0409-B029	C-39 LOOP
8	2	0409-C017-0A	C-74 C-SHACKLE
9	2	0309-B053	END LUG
10	2	0309-B054	INTERMEDIATE LUG
11	8	1401-B009-1	PIVOT
12	1	0309-C208-0A	LOAD CELL STAND
13	1	LLC2.5-1-JR	LOAD CELL ASSEMBLY, 2500 LB

PARTS IDENTIFICATION, CONT.

FS-4 Floor Stand Tank Scale



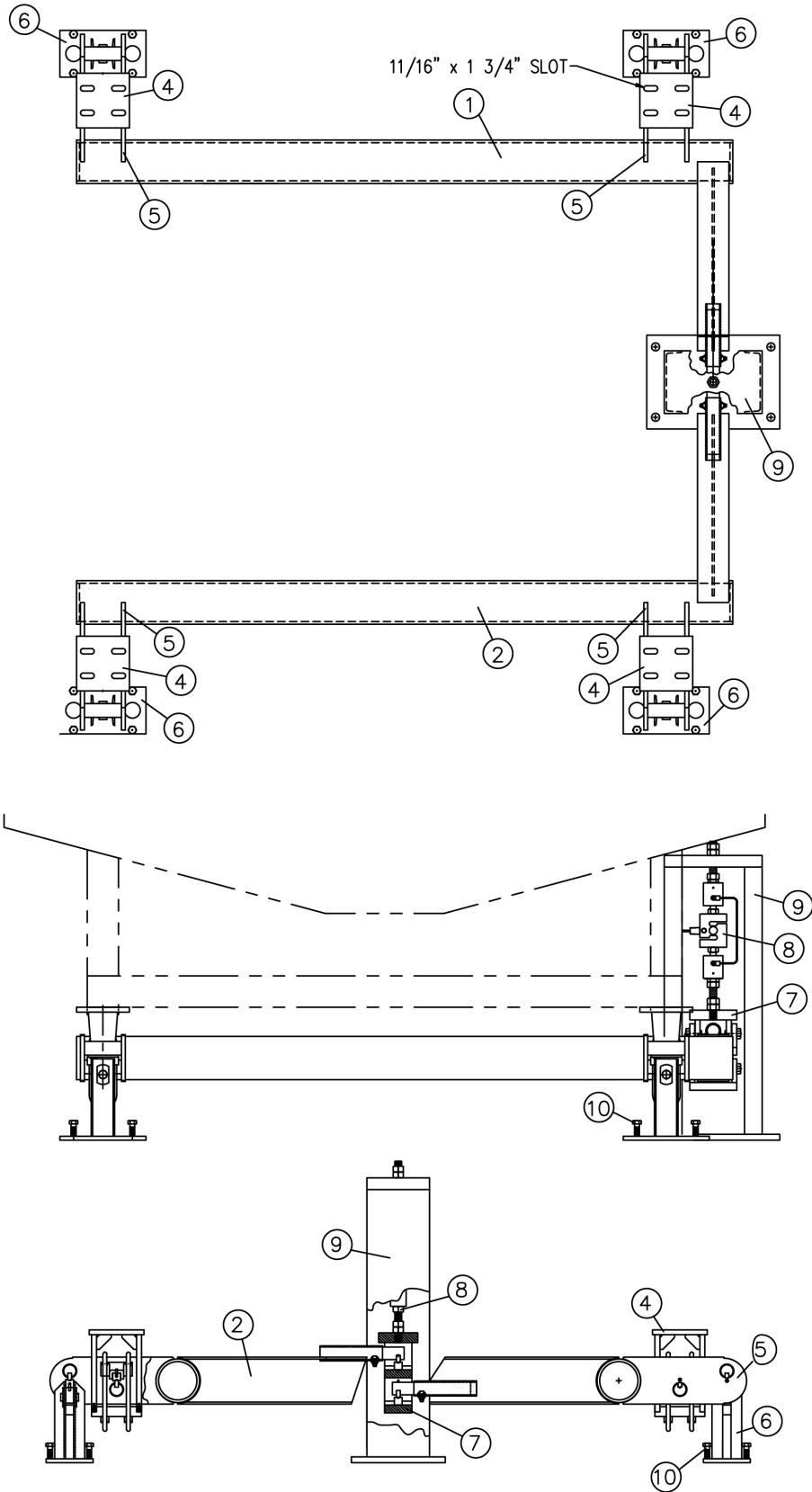
PARTS IDENTIFICATION, CONT.

FS-4 Floor Stand Tank Scale

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	RIGHT-HAND MAIN LEVER
2	1		LEFT-HAND MAIN LEVER
3	4	0309-B044	CORNER STAND
4	4	0309-B047	GIRDER CHAIR
5	4	0309-B048	LOAD LINK PIN
6	4	0409-C013	C-113 LOOP
7	1	0409-C017-0A	C-74 C-SHACKLE
8	4	<i>Refer to Certified Scale Drawings</i>	END LUG
9	–	–	–
10	8	<i>Refer to Certified Scale Drawings</i>	PIVOT

PARTS IDENTIFICATION, CONT.

FS-5 Floor Stand Tank Scale



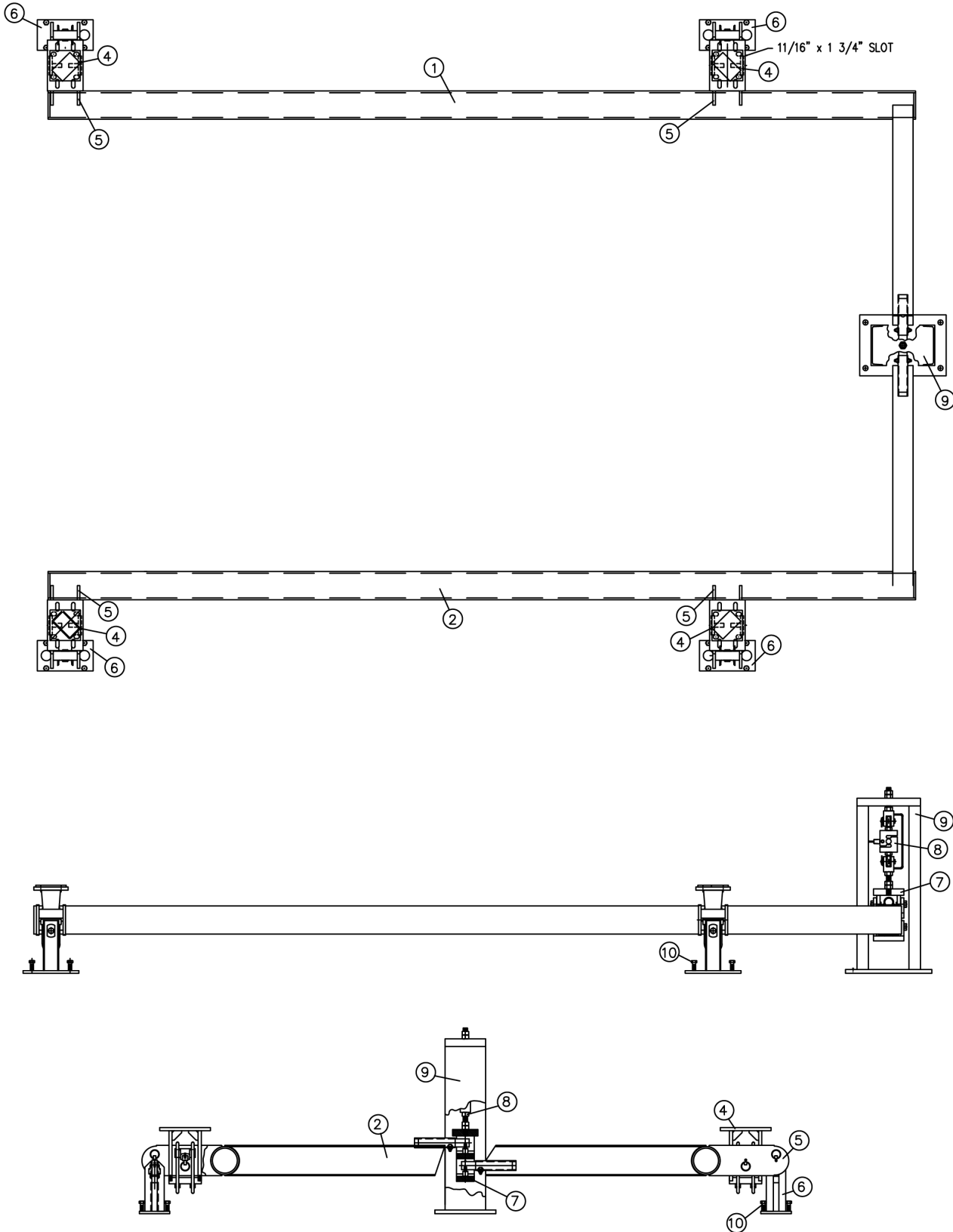
PARTS IDENTIFICATION, CONT.

FS-5 Floor Stand Tank Scale

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	RIGHT-HAND MAIN LEVER
2	1		LEFT-HAND MAIN LEVER
3	–	–	–
4	4	0119-D004	GIRDER CHAIR ASSEMBLY
5	4	0119-B075	PIVOT HEAD ASSEMBLY
6	4	0119-C022	CORNER STAND ASSEMBLY
7	1	<i>Refer to Certified Scale Drawings</i>	CENTER SHACKLE, MAX. LOAD 12,500
8	1	3501-B134-2A	LOAD CELL, ZX-10000 STAINLESS-STEEL
9	1	<i>Refer to Certified Scale Drawings</i>	LOAD CELL STAND
10	16	6007-0210	LEVELING BOLTS, 5/8-11 UNC-2A X 2 1/2"

PARTS IDENTIFICATION, CONT.

FS-6 Floor Stand Tank Scale



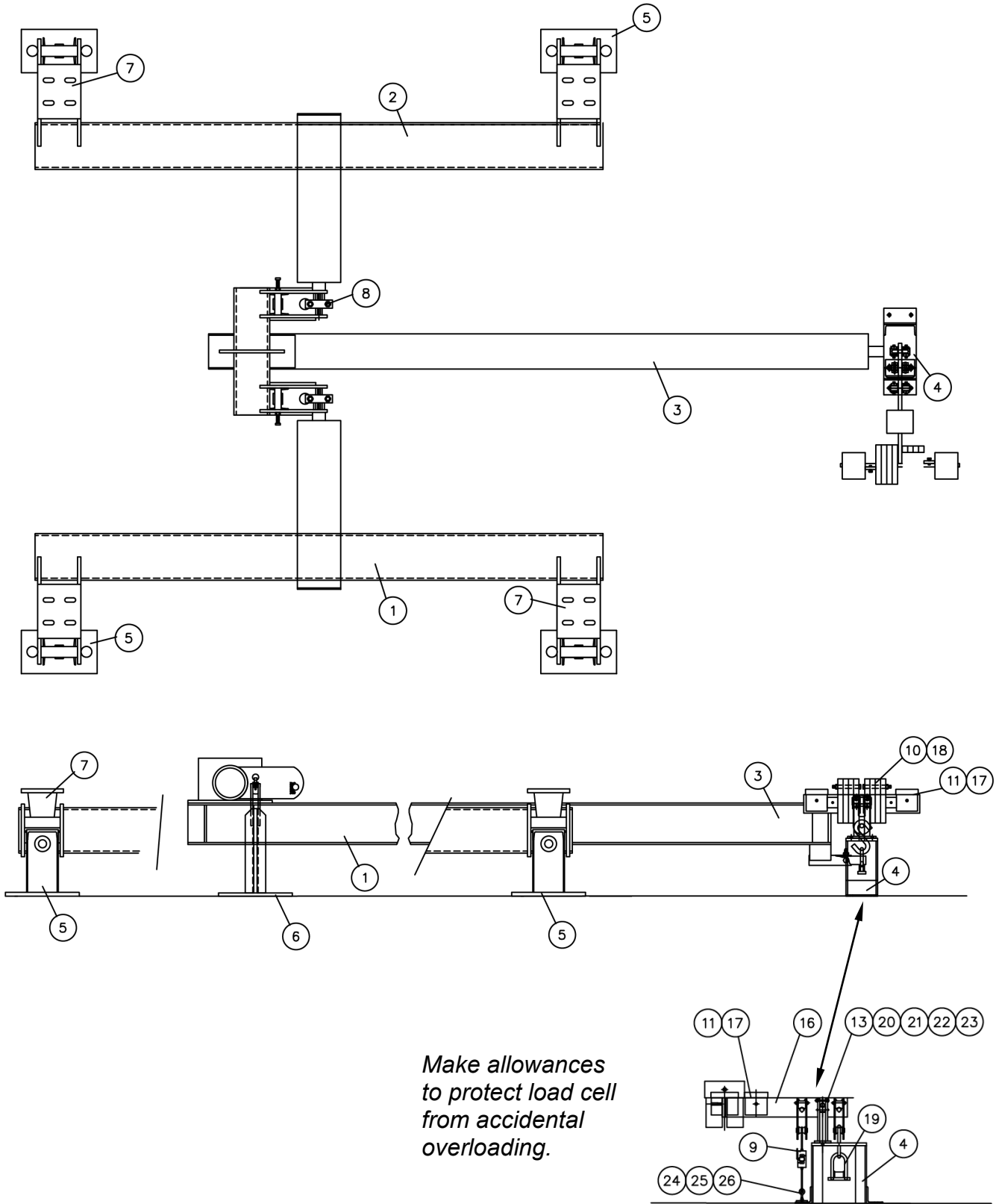
PARTS IDENTIFICATION, CONT.

FS-6 Floor Stand Tank Scale

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	RIGHT-HAND MAIN LEVER
2	1		LEFT-HAND MAIN LEVER
3	–	–	–
4	4	0119-D004	GIRDER CHAIR ASSEMBLY
5	4	0119-B075	PIVOT HEAD ASSEMBLY
6	4	0119-C022	CORNER STAND ASSEMBLY
7	1	<i>Refer to Certified Scale Drawings</i>	CENTER SHACKLE, MAX. LOAD 12,500
8	1		LOAD CELL, ZX-10000 STAINLESS-STEEL
9	1		LOAD CELL STAND
10	16	6007-0210	LEVELING BOLTS, 5/8-11 UNC-2A X 2 1/2"

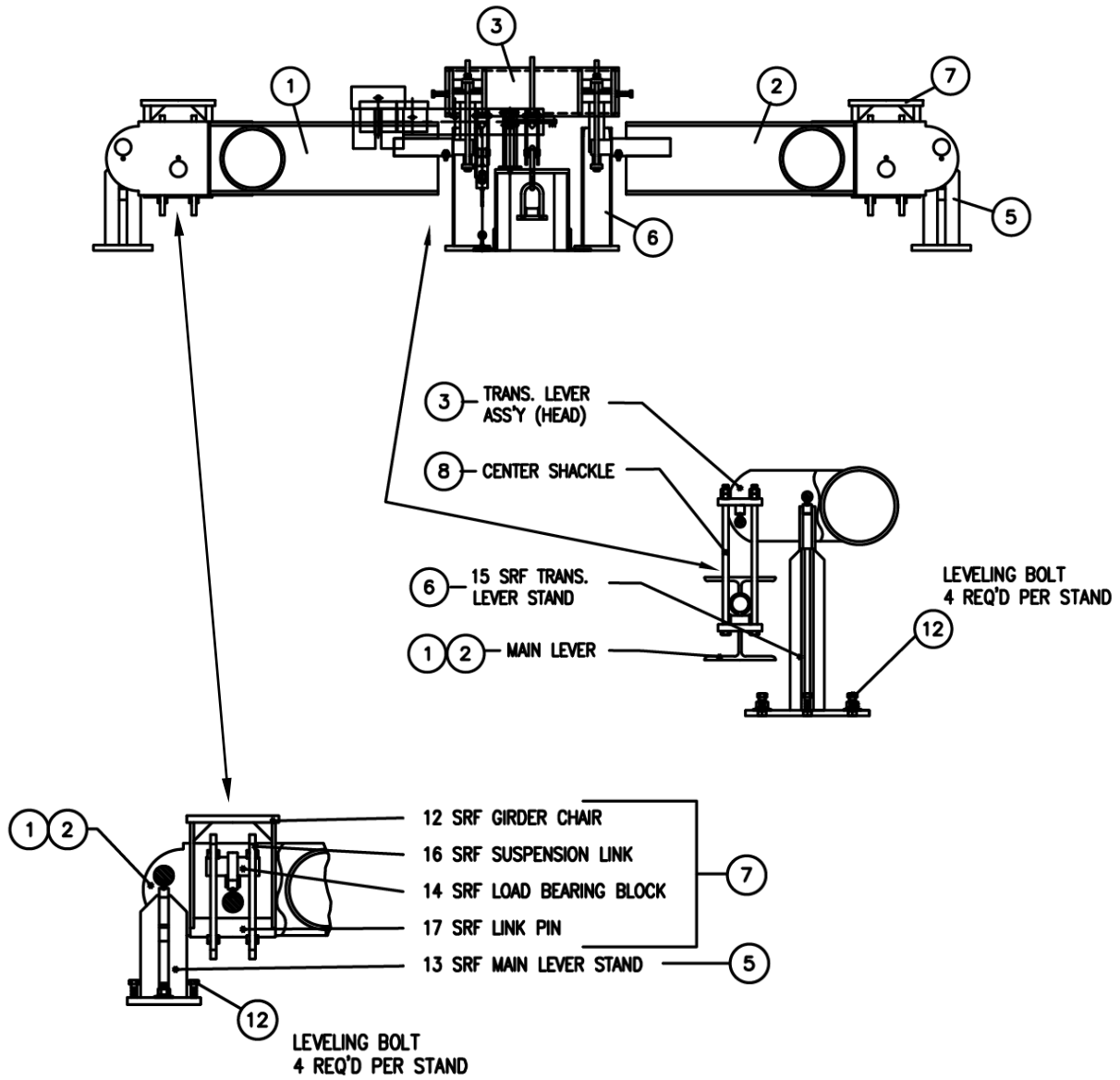
PARTS IDENTIFICATION, CONT.

FS-7 Floor Stand Tank Scale



PARTS IDENTIFICATION, CONT.

FS-7 Floor Stand Tank Scale



PARTS IDENTIFICATION, CONT.

FS-7 Floor Stand Tank Scale

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	<i>Refer to Certified Scale Drawings</i>	MAIN LEVER ASSY
2	1		MAIN LEVER ASSY
3	1		TRANS. LEVER ASSY.
4	1		LOAD CELL STAND
5	4	0119-C009	MAIN LEVER STAND
6	2	0119-C012	TRANS. LEVER STAND
7	4	0119-D001	SUSPENSION SYSTEM ASSEMBLY
8	2	0119-B127-52	CENTER SHACKLE
9	1	–	LOAD CELL ASSY
10	2	0409-C084-2A	CB WEIGHT 60 LB
11	3	0409-B054	CB WEIGHT 20 LB
12	24	6007-0230	HEX HEAD BOLT, 5/8"-11 UNC-2A X 3" FULL THD
13	1	<i>Refer to Certified Scale Drawings</i>	FULC STD S/L
14	1		S HOOK 5"
15	1		CABLE L/C
16	1		SHELF LEVER ASSY
17	3	6007-0051	SCW HEX HEAD, 3/8"-16 UNC-2A X 2" FULL THD
18	2	6021-1816	SCW HEX HEAD, 3/8"-16 UNC-2A X 1" FULL THD
19	1	0119-B103-2	TIP LOOP
20	2	6007-0120	BOLT HEX HEAD, 1/2-13UNC-2A X 1 1/2
21	2	6013-0085	NUT HEX, 1/2-13UNC-2B
22	2	6024-0012	WASHER FLAT, 1/2
23	2	6024-0048	WASHER LOCK 1/2
24	1	3501-B158-08	EYE BOLT
25	1	6024-0033	WASHER LOCK #10
26	1	6013-0295	NUT HEX 10-32UNC-2B

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 WORKMANSHIP	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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04/24
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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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