Pipe Lever Scale

All Capacities

Installation Manual

RICE LAKE WEIGHING SYSTEMS

Industrial Solutions on a Global Scale®

ISO 9001 REGISTERED

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Contents

1.0 Introduction

This manual contains assembly instructions for all capacities of the pipe lever scale. The figures and part numbers shown are for the standard pipe lever designs. Since pipe lever scales may be custom built, space is provided for entry of customized measurements.

Before installing the pipe lever scale, ensure the base on which the scale will be built is plumb and level. The base must be a suitable poured-concrete foundation according to standard construction practices. Full grouting is recommended under the fulcrum stands.

2.0 Assembly Instructions

1. Position the four fulcrum stands on the concrete base with gussets facing outward from the scale (see Figure 4, A). Ensure that the fulcrum stands are square and level with each other. If mounting the scale to a frame, be sure the frame is square and all stands are positioned squarely on the frame.
2. Assemble the load cell, ITCM hardware, and center connection shackle to support the nose irons (see Figure 1). Temporarily secure that assembly with the top and bottom jam nuts on the top plate of the load cell stand.
3. Loosely bolt nose irons to the ends of the main pipe levers (see Figure 4, B).

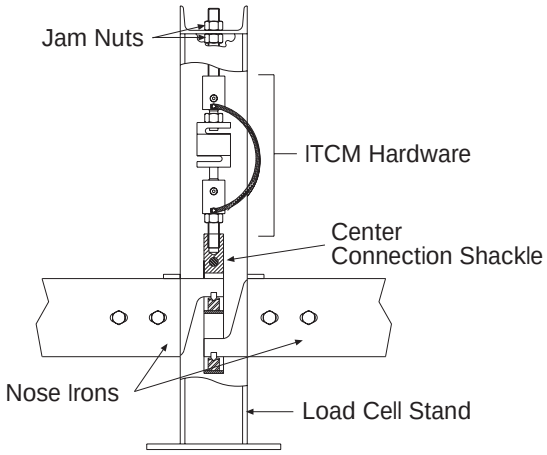

Figure 1: Load Cell Assembly

4. Set pipe levers in place with their outside pivots on the bearings of the fulcrum stands (see Figure 2) and their nose irons supported by the center connection shackle in the load cell stand (see Figure 4, C).
   Note: Center the load cell stand between the main levers. The levers must be level when suspended by the center connection shackle.
5. Locate the package of components for the four main lever loop assemblies. Attach the bearing to the two side plates for each loop assembly (see Figure 4, D). Place the loop assemblies over the inside (load) pivots, then assemble spools.
   Note: Bolt heads must face the fulcrum stands.

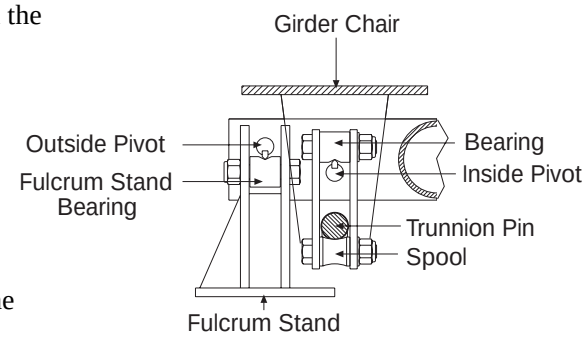

Figure 2: Fulcrum Stand Assembly

6. Hold the trunnion pins in place on the loop assemblies, and set the girder chairs on the trunnion pins (see Figure 2). Tilt the chairs inward against the main pipes to support the chairs until the hopper/tank is added.
7. Clamp or loosely bolt the hopper/tank to the top plates of the girder chairs.
8. Check each pivot to ensure that it is contacting its bearing. Shimming under the fulcrum stand or between the girder chair base plate and the hopper/tank may be necessary to obtain even pressure on all pivots.
   Note: For 25K, 30K, 40K, and 50K scales, also check that the anti-friction drive screws in the levers are not contacting the bearings but have an equal gap on both ends of each bearing (see Figure 4, E).
9. Secure the fulcrum stands to the concrete base. Bolt or weld the stands to the frame, if used.
10. Bolt or weld the girder chairs to the hopper/tank.
11. Adjust the nose irons in their bolt slots (see Figure 3) so the distance (X) from each nose iron pivot to the end of its lever is the same. Tighten the nose iron bolts securely.

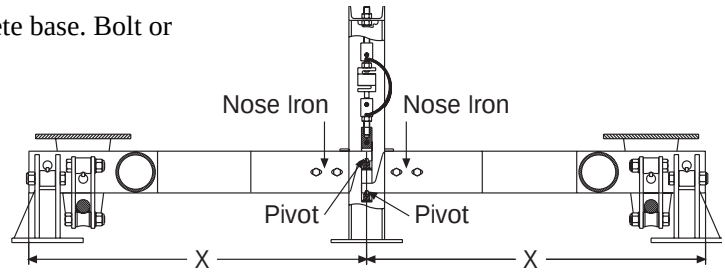

Figure 3: Nose Iron Adjustment

12. Position the load cell stand over the nose iron pivots so the load cell assembly hangs vertically. Anchor the load cell stand to concrete or bolt or weld the load cell stand to frame. Secure the jam nuts on the top plate of the load cell stand. The scale is now fully assembled.

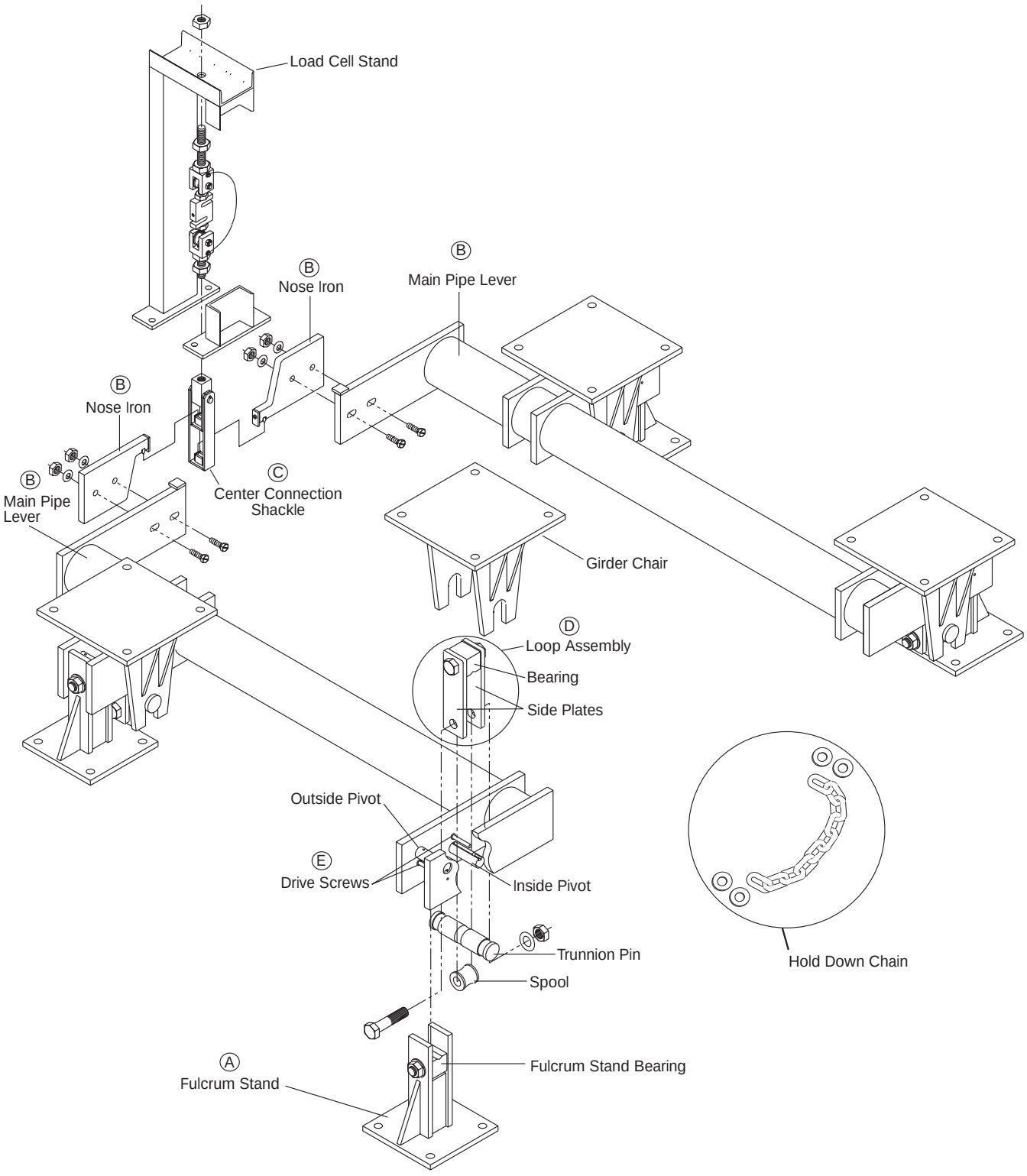

Figure 4: Pipe Lever Assembly

3.0 Pipe Lever Scale Dimensions

Figure 5 and Table 1 show the pipe lever scale dimensions. Each dimension has a standard and minimum measurement; however, each dimension can also be customized (see Section 3.1).

	5K		10K		25K		30K		40/50K	
Ref.	Standard	Minimum	Standard	Minimum	Standard	Minimum	Standard	Minimum	Standard	Minimum
A	—	36.00"	—	48.00"	—	48.00"	—	60.00"	—	60.00"
B	—	36.00"	—	48.00"	—	48.00"	—	60.00"	—	60.00"
C	12.25"	4.00"	12.25"	4.50"	15.50"	7.00"	15.62"	7.00"	18.00"	7.00"
D	5.50"	5.50"	6.00"	6.00"	9.50"	8.75"	9.50"	8.75"	13.00"	12.00"
E	5.50"	5.50"	6.00"	6.00"	9.50"	8.75"	9.50"	8.75"	13.00"	12.00"
F	7.25"	7.25"	8.62"	8.62"	13.56"	13.56"	13.81"	13.81"	18.18"	18.18"
G	3.50"	3.00"	4.50"	3.50"	6.50"	4.75"	6.50"	4.75"	9.25"	6.50"
H	3.50"	3.00"	4.50"	3.50"	6.50"	4.75"	6.50"	4.75"	9.25"	6.50"
J	24.00"	22.00"	24.00"	24.00"	32.25"	32.25"	32.25"	32.25"	37.25"	37.25"
M	2.5"	—	2.5"	—	4"	—	4"	—	6"	—
	A x B must be less than or equal to 25 sqaure feet (3600 in^2), or consult factory		A x B must be equal to or less than 64 square feet (9216 in^2), or consult factory		A x B must be equal to or less than 100 square feet (14400 in^2), or consult factory		A x B must be equal to or less than 100 square feet (14400 in^2), or consult factory		A x B must be equal to or less than 100 square feet (14400 in^2), or consult factory	

Table 1: Pipe Lever Standard/Minimum Dimensions

3.1 Custom Dimensions

Use the space below to record information specific to your pipe lever scale. This information will help when ordering replacement parts for custom-built scales (see Figure 5).

A	
B	
C	
D	
E	
F	
G	
H	
J	
M	Standard per capacity (see Table 1)

Table 2: Custom Dimensions

☐ 5K

☐ 10K

☐ 25K

☐ 30K

☐ 40K

☐ 50K

Material Type: _____

Finish: _____

NTEP: ☐ Yes ☐ No

Load Cell Model Number: _____

☐ Stainless Steel ☐ Mild Steel

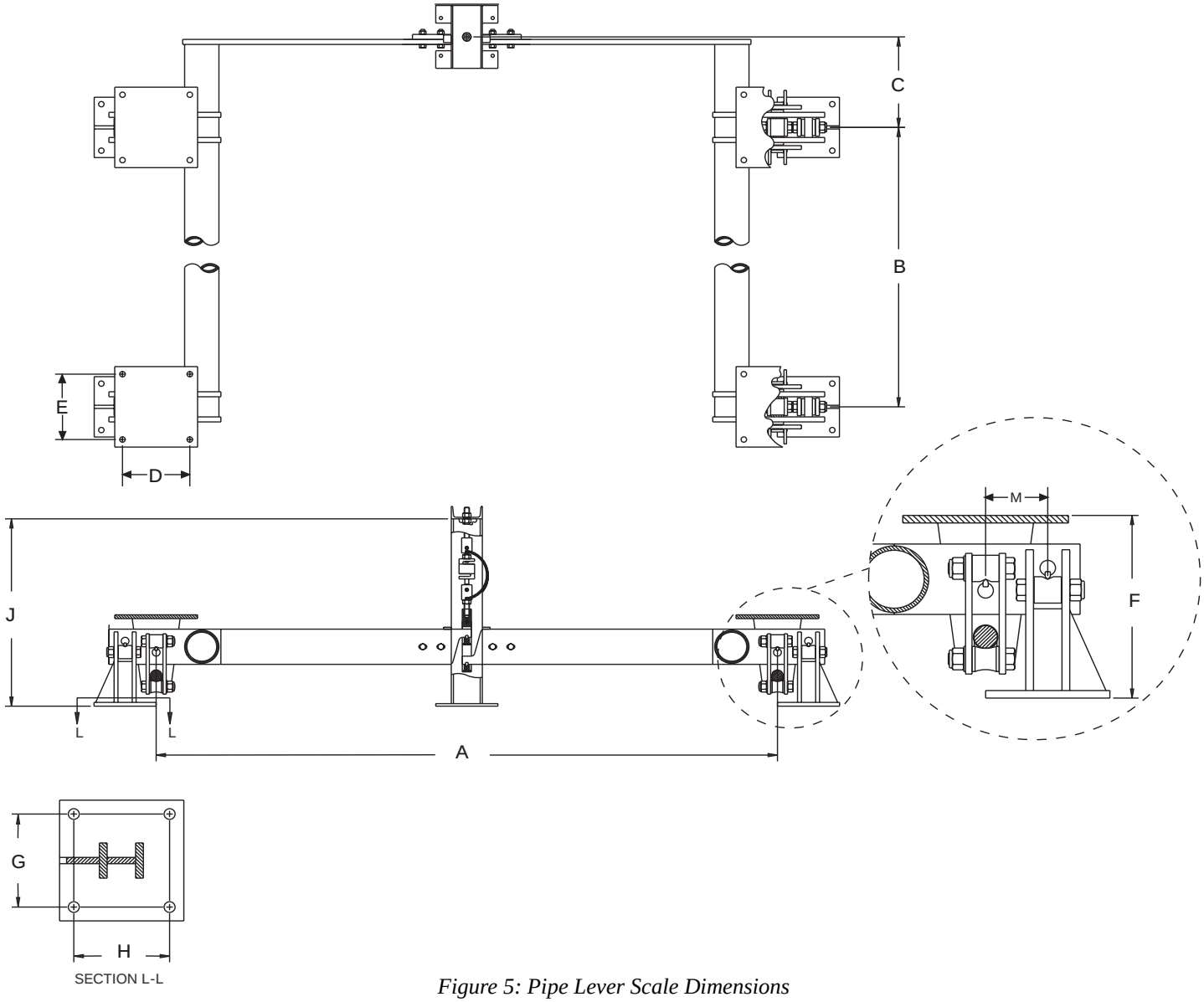

Figure 5: Pipe Lever Scale Dimensions

4.0 Replacement Parts

4.1 5K and 10K Pipe Lever Scales

Figure 6 and the tables below list replacement parts for the 5K and 10K pipe lever scales.

5K Pipe Lever Scale

Ref #	Qty	Part #	Description
1	4	39528	Bolt
2	4	26374	Washer
3	4	22072	Lock nut
4	4	F731	Bearing
5	4	39551	Spool
6	4	39523	Trunnion pin
7	8	T195P	Pivot
8	16	T204	Pivot wedge
9	4	39549	Loop assembly
	Components of Part #39549		
	2	39528	Bolt
	2	26374	Washer
	2	22072	Lock nut
	1	F731	Bearing
	1	39551	Spool
	2	39550	Loop side plate
10	8	39550	Loop side plate
11	4	22096	Cap screw
12	4	21937	Washer
13	4	14660	Lock nut
14	1	35048	Nose iron assembly, right
15	1	N110	Shackle assembly, nose iron connection
16	1	35049	Nose iron assembly, left
17	1	N109	Shackle support block, center connection
18	2	CM764	Bearing with friction plates
19	1	CM791-1	Large shackle loop, center connection
20	1	15244	Cotter pin
21	1	22102	Clevis pin
22	1	CM791-2	Small shackle loop, center connection
23	1	17896	ITCM mount, 2,000 lb, mild steel (See Section 4.3 for ITCM replacement parts)
24	1	21438	Load cell, RL20000-1,000 lb
25	4	*39529	Girder chair
26	4	*39524	Fulcrum stand assembly
*The standard part number is shown; however, this part can be customized. Please specify any customized parts when ordering replacements.			
27	1	42498	Hold-down chain option
	Components of Part #42498		
	16	21937	Washer, plain 1/2 Type A
	4	42097	Chain, 3/8 Grade 40

10K Pipe Lever Scale

Ref #	Qty	Part #	Description
1	4	14747	Bolt
1A	4	39528	Bolt
2	4	26374	Washer
3	4	22072	Lock nut
4	4	40460	Bearing
5	4	40459	Spool
6	4	39523	Trunnion pin
7	8	T197P	Pivot
8	16	T204	Pivot wedge
9	4	40457	Loop assembly
	Components of Part #40457		
	2	39528	Bolt
	2	26374	Washer
	2	22072	Lock nut
	1	40460	Bearing
	1	40459	Spool
	2	40458	Loop side plate
10	8	40458	Loop side plate
11	4	22096	Cap screw
12	4	21937	Washer
13	4	14660	Lock nut
14	1	35048	Nose iron assembly, right
15	1	N110	Shackle assembly, nose iron connection
16	1	35049	Nose iron assembly, left
17	1	N109	Shackle support block, center connection
18	2	CM764	Bearing with friction plates
19	1	CM791-1	Large shackle loop, center connection
20	1	15244	Cotter pin
21	1	22102	Clevis pin
22	1	CM791-2	Small shackle loop, center connection
23	1	17896	ITCM mount, 2,000 lb, mild steel (See Section 4.3 for ITCM replacement parts)
24	1	21438	Load cell, RL20000-1,000 lb
25	4	*40449	Girder chair
26	4	*40452	Fulcrum stand assembly
*The standard part number is shown; however, this part can be customized. Please specify any customized parts when ordering replacements.			
27	1	42498	Hold-down chain option
	Components of Part #42498		
	16	21937	Washer, plain 1/2 Type A
	4	42097	Chain, 3/8 Grade 40

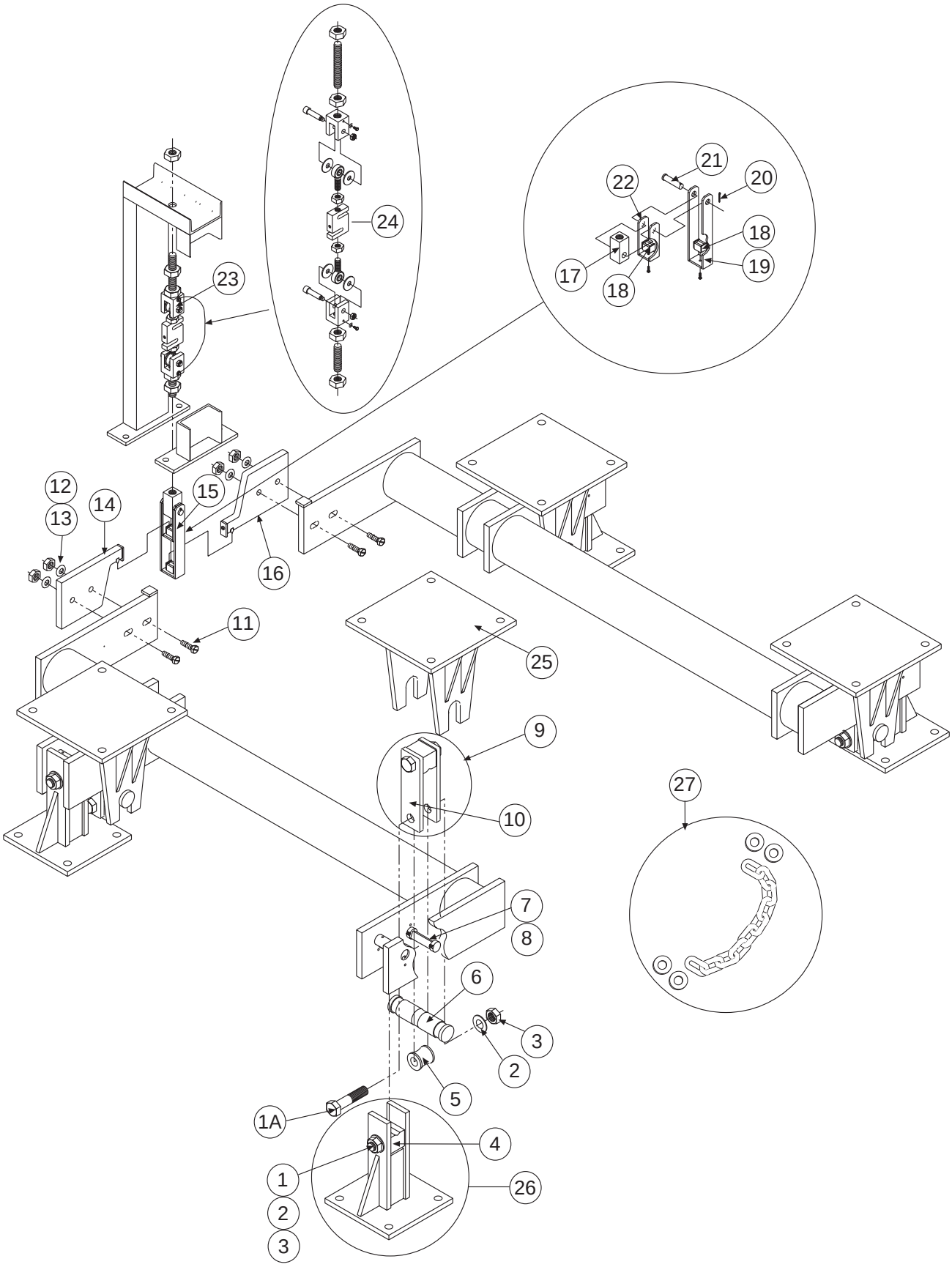

Figure 6: 5K & 10K Pipe Lever Parts

4.2 25K & 30K and 40K & 50K Pipe Lever Scales

Figure 7 and the tables below list replacement parts for the 25K & 30K and 40K & 50K pipe lever scales.

25K & 30K Pipe Lever Scale

Ref #	Qty	Part #	Description
1	4	40174	Bolt
2	4	15179	Washer
3	4	14697	Lock nut
4	4	39990	Bearing
5	4	39991	Spool
6	4	39993	Trunnion pin
7	8	0525-0056	Pivot
8	4	39988	Loop assembly
	Components of Part #39988		
	2	40174	Bolt
	2	15179	Washer
	2	14697	Lock nut
	1	39990	Bearing
	1	39991	Spool
	1	39989	Loop side plate
9	16	39101	Drive screw
10	8	39989	Loop side plate
11	4	26344	Cap screw
12	4	15177	Washer
13	4	40181	Lock nut
14	1	39975	Nose iron assembly, right
15	1	39969	Shackle assembly, nose iron connection
16	1	39972	Nose iron assembly, left
17	1	39963	Shackle support block, center connection
18	2	CM764	Bearing with friction plates
19	1	39971	Large shackle loop, center connection
20	1	15244	Cotter pin
21	1	22102	Clevis pin
22	1	39970	Small shackle loop, center connection
23	1	17899	ITCM mount, 5,000 lb, mild steel (See Section 4.3 for ITCM replacement parts)
24	2	39151	Screw
25	1	21442	Load cell, RL20000-3,000 lb
26	4	*39978	Girder chair
27	4	*39982	Fulcrum stand assembly
*The standard part number is shown; however, this part can be customized. Please specify any customized parts when ordering replacements.			
28	1	42499	Hold-down chain option
	Components of Part #42499		
	16	15179	Washer, plain 3/4 Type A
	4	42095	Chain, 5/8 Grade 40

40K & 50K Pipe Lever Scale

Ref #	Qty	Part #	Description
1	4	39164	Bolt
2	4	15190	Washer
3	4	22457	Lock nut
4	4	39134	Bearing
5	4	39135	Spool
6	4	39131	Trunnion pin
7	8	0525-0070	Pivot
8	4	39133	Loop assembly
	Components of Part #39133		
	2	39164	Bolt
	2	15190	Washer
	2	22457	Lock nut
	1	39134	Bearing
	1	39135	Spool
	1	39132	Loop side plate
9	16	39101	Drive screw
10	8	39132	Loop side plate
11	4	15097	Cap screw
12	4	15179	Washer
13	1	14697	Lock nut
14	1	39119	Nose iron assembly, right
15	1	39148	Shackle assembly, nose iron connection
16	1	39116	Nose iron assembly, left
17	1	39143	Shackle support block, center connection
18	2	39146	Bearing with friction plates
19	1	39144	Large shackle loop, center connection
20	1	39186	Cotter pin
21	1	39185	Clevis pin
22	1	39145	Small shackle loop, center connection
23	1	17900	ITCM mount, 5,000 lb, mild steel (See Section 4.3 for ITCM replacement parts)
24	2	39151	Screw
25	1	21444	Load cell, RL20000-10,000 lb
26	4	*39136	Girder chair
27	4	*39128	Fulcrum stand assembly
*The standard part number is shown; however, this part can be customized. Please specify any customized parts when ordering replacements.			
28	1	42500	Hold-down chain option
	Components of Part #42500		
	16	22138	Washer, plain 1 Type A
	4	42098	Chain, 3/4 Grade 40

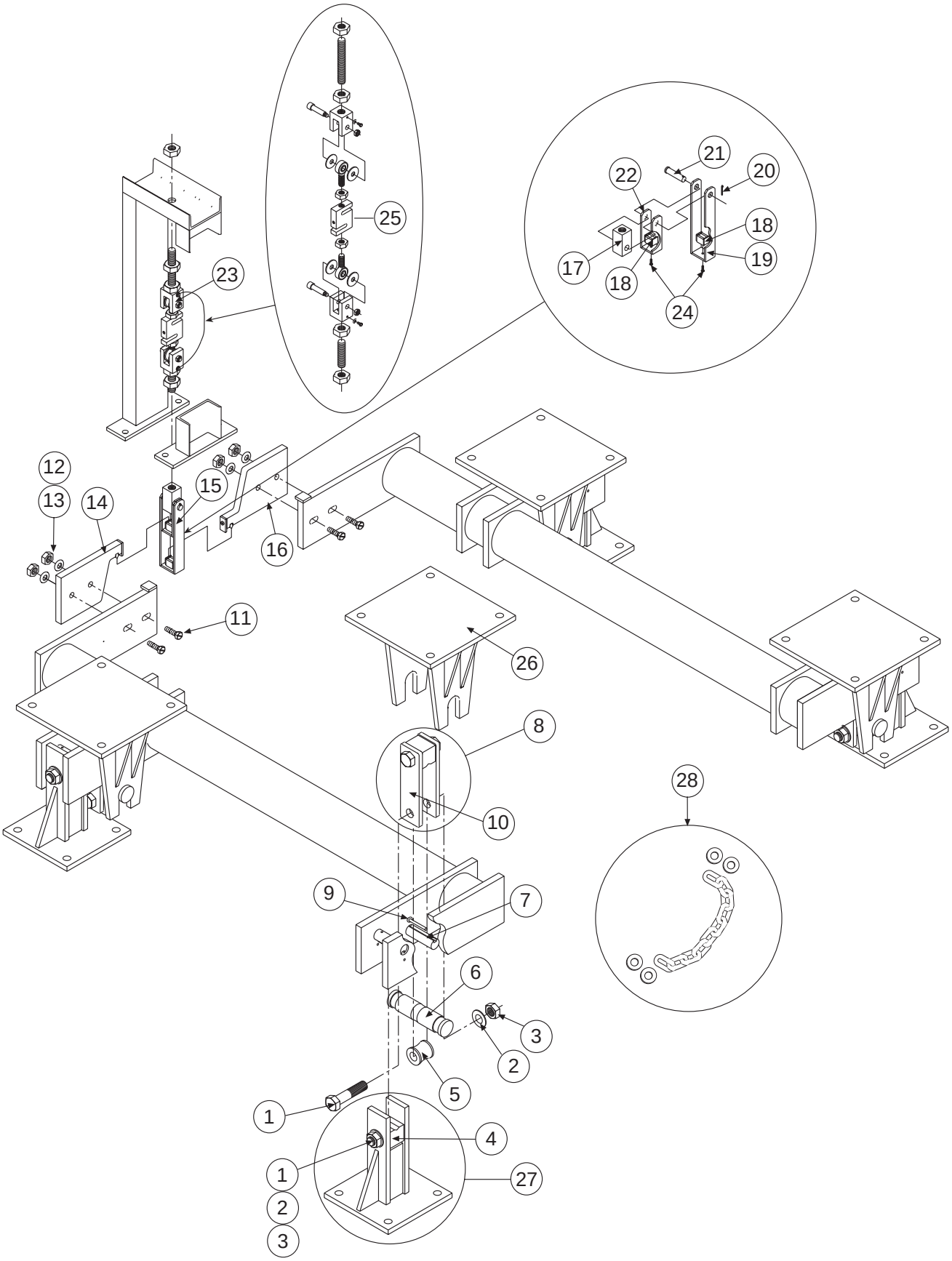

Figure 7: 25K, 30K, 40K, and 50K Pipe Lever Pats

4.3 ITCM Assembly

Figure 8 and the table below list replacement parts for the ITCM assembly.

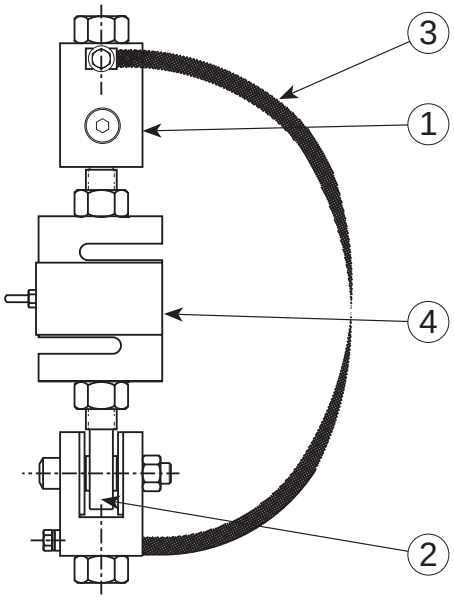

Figure 8: ITCM Assembly Parts

ITCM Assembly

Ref #	Part #	Description
	16962	Installation manual (all capacities)
Rated Capacity: 500–2,000 lb		
1	17787	Clevis assembly, 1/2"-13NC
	17788	Clevis assembly, 5/8"-11NC
	17784	Clevis assembly, 3/4"-10NC
2	17740	Rod end ball joint, 1/2"-20NF
3	17779	Bonding strap
4	21438	Load cell, RL20000-1,000 lb
Rated Capacity: 5,000 lb		
1	17789	Clevis assembly, 3/4"-11NC
	17785	Clevis assembly, 1"-8NC
2	17741	Rod end ball joint, 3/4"-16NF
3	17780	Bonding strap
4	21444	Load cell, RL20000-10,000 lb
Rated Capacity: 10,000 lb		
1	17785	Clevis assembly, 1"-8NC
2	17741	Rod end ball joint, 3/4"-16NF
3	17780	Bonding strap
4	21444	Load cell, RL20000-10,000 lb

5.0 Hold-down Chain Option Assembly Instructions

The hold-down chain option provides 4 chains and 16 washers used to anchor the hopper and girder chair to the pipe lever fulcrum stand. This helps prevent the hopper from tilting too far off the girder chair and becoming unstable. The chain option provides the chains and washers only. All other hardware (bolts, nuts, etc.) must be provided by the customer. Use the procedure below to install the chain option on your pipe lever scale.

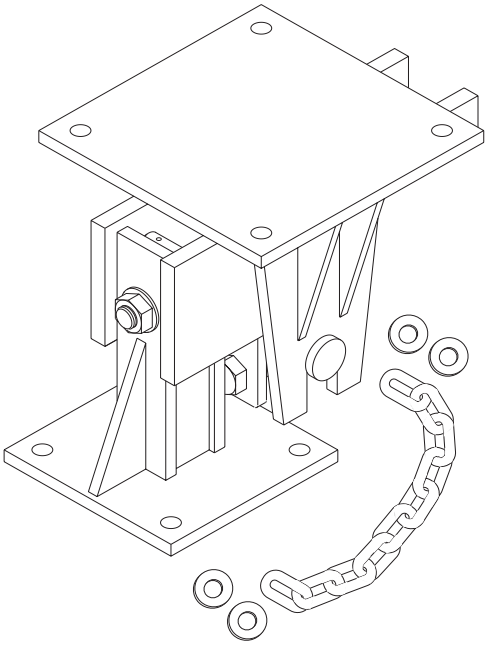

Figure 9

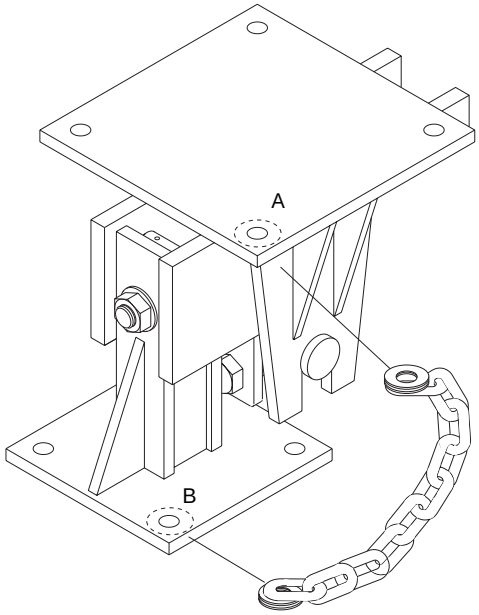

Figure 10

1. Separate the chains and washers so each of the four scale base corners have one chain and four washers (see Figure 9).
2. Place two stacked washers and the upper end link underneath the girder chair base plate, below bolt hole A (see Figure 10). Be sure the washers are positioned between the girder chair base plate and the end link.
3. Secure the washers and upper end link to the girder chair base plate with the customer-provided hardware.
4. Place the lower end link and two stacked washers over the fulcrum stand base plate, above bolt hole B (see Figure 10). Be sure the washers are positioned between the end link and the fulcrum stand base plate.
5. Secure the washers and lower end link to the fulcrum stand base plate with the customer-provided hardware.

6.0 Pipe Lever Scale Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for one year.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, "Protecting Your Components From Static Damage in Shipment," available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

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