



Operation Manual

Side Door Elevator

Type SLX, Type SX

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SAFETY

READ THIS MANUAL BEFORE USING EQUIPMENT

Equipment supplied by Texas International Oilfield Tools is intended for installation and use in controlled environments involving hazardous operations and situations.

Only authorized and trained personnel shall install, maintain, operate and/or repair equipment supplied by Texas International Oilfield Tools, LTD. Equipment shall be used only for the purpose for which it is intended.

The User is responsible for ensuring the equipment is in safe working order prior to use. Texas International Oilfield Tools, LTD is not responsible for injuries or equipment damage that arises from equipment neglect or misuse.

The User is responsible for ensuring the safety of all personnel within the vicinity of the equipment. Texas International Oilfield Tools recommends a hazard assessment be performed by qualified safety representatives prior to using equipment. All personnel shall possess and use Personal Protective Equipment (PPE) and must be trained at minimum on rig safety, rig procedures, and equipment operation.

Specific detailed instructions and information about shop practices or procedures, operation and service, and safety criteria are not included. Notes, cautions, warnings, explanations, and information are provided herein to advise readers to take deliberate action to prevent damage to or failure of equipment and protect personnel from potential injury or lethal conditions. The information provided does not cover all possible hazards or consequences.

Hazard Labels Used in this Manual



DANGER is represented by this hazard symbol and signifies the highest level of risk. Failure to observe and heed this information may result in serious bodily injury or death.



WARNING is represented by this hazard symbol and signifies potential hazards of medium risk. Failure to observe and heed this information may result in significant bodily injury, catastrophic equipment failure, and/or environmental contamination.



CAUTION is represented by this hazard symbol and signifies potential hazards of low risk. Failure to observe and heed this information may result in bodily injury and/or equipment damage.



NOTICE symbol denotes items of importance unrelated to personal injury which highlight additional information provided to aid the user during installation, commissioning, operating, and/or maintaining equipment.

Please pay close attention to these advisories.

INTRODUCTION

Texas International Oilfield Tools (TIOT) offers conventional side door elevators for hoisting casing and drill collars in two (2) different types: SLX and SX. (See Specifications Tables 1 & 2 on Page 6 for load capacity and size ranges.) SLX and SX elevators should only be used with tubulars having square shoulder connections or lifting plugs. These elevator types consist of a stationary body and hinged door that allows entry and exit of tubulars. The hinged door is secured using a latch and safety latch that simultaneously lock when the door is closed. A safety pin fixed with a lanyard onto the elevator is included as an added feature to further prevent accidental opening. Elevator ears are strategically placed to avoid picking up tubulars with the elevator inverted.

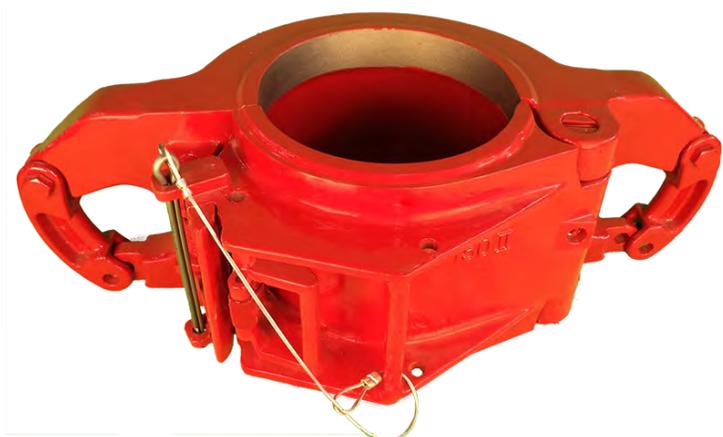


FIGURE 1

SLX elevators (Figure 1) are designed for all casing sizes up to 42” with load ratings from 100 to 500 tons.



FIGURE 2

SX elevators (Figure 2) are designed for handling large, collar type casing sizes up to 36” with load ratings of 350 and 500 tons.

SPECIFICATIONS

SLX Part Numbers		
Size Range	Frame Part No.	Load Rating
2-3/8" – 2-7/8"	T33693-XXX	100 Tons
3-1/2" – 5-3/4"	T33854-XXX	100 Tons
4-1/2" – 9"	T31239-XXX	150 Tons
9-5/8" – 10-3/4"	T33950-XXX	150 Tons
11-3/4" – 13-5/8"	T33982-XXX	150 Tons
14" – 16"	T34087-XXX	150 Tons
16" – 20"	T33632-XXX	150 Tons
4-1/2" – 7-3/4"	T41239-XXX	250 Tons
8-5/8" – 10-3/4"	T43950-XXX	250 Tons
11-3/4" – 14"	T43982-XXX	250 Tons
16" – 20"	T43632-XXX	250 Tons
22" – 24-1/2"	T642540-XXX	250 Tons
26" – 30"	T642580-XXX	250 Tons
4-1/2" – 6"	T51239-XXX	350 Tons
6-5/8" – 9-7/8"	T53950-XXX	350 Tons
10-3/4" – 14"	T53982-XXX	350 Tons
42"	42ELEV	500 Tons

XXX Denotes Bore Size Code

Table 1

SX Part Numbers		
Size Range	Frame Part No.	Load Rating
7" – 13-3/8"	T29965-XXX	350 Tons
14" – 18-5/8"	T29966-XXX	350 Tons
22" – 30"	*	350 Tons
36"	*	350 Tons
7" – 13-3/8"	T29964-XXX	500 Tons
14"-18-5/8"	*	500 Tons
22" – 30"	*	500 Tons

XXX Denotes Bore Size Code

*Contact TIOT

Table 2

DIMENSIONS - SLX

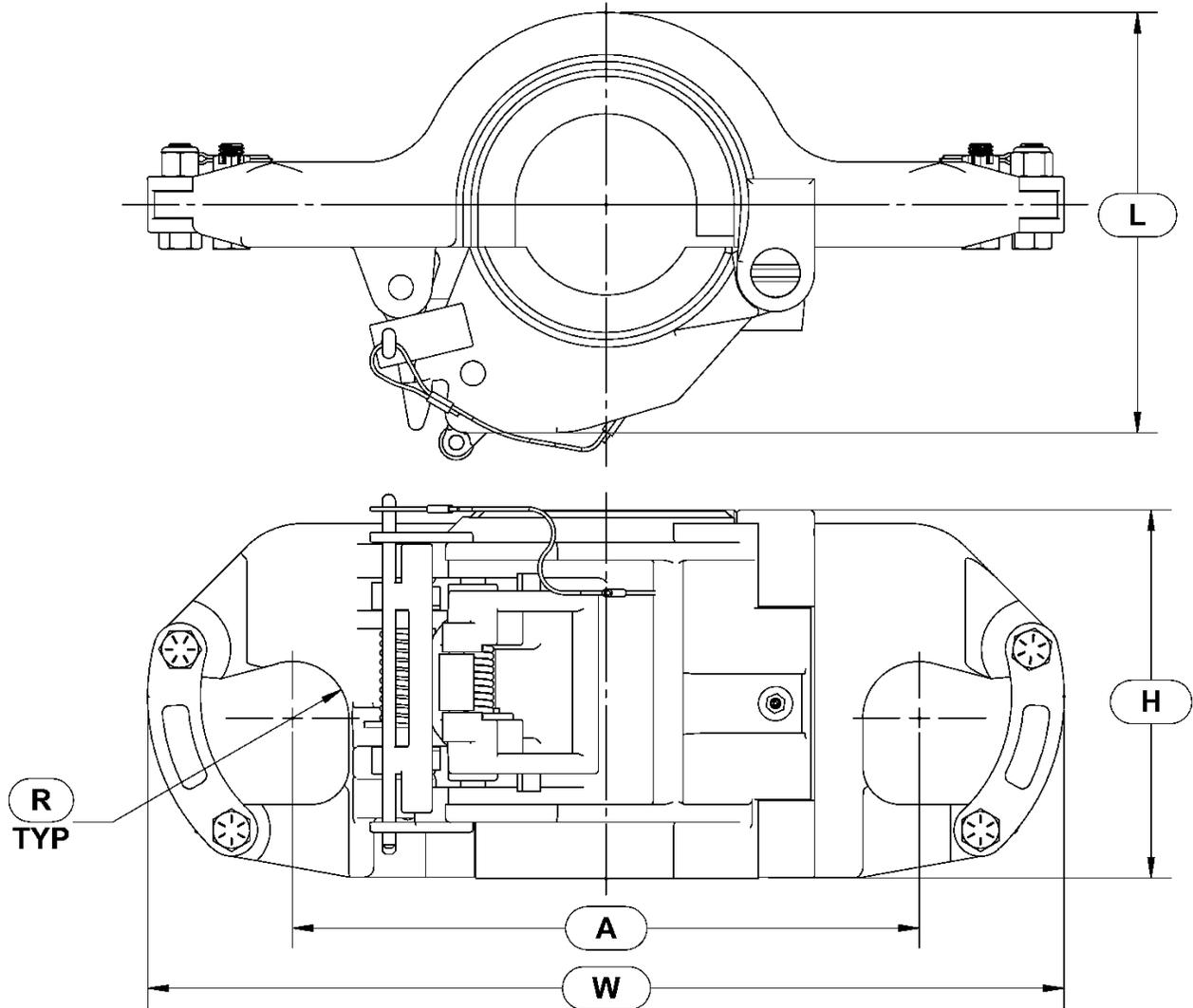


FIGURE 3

Size Range	Capacity	A (in/mm)	H (in/mm)	L (in/mm)	R (in/mm)	W (in/mm)
2-3/8" – 2-7/8"	100 Tons	11.81 / 300	9.25 / 235	8.66 / 220	1.42 / 36	20.08 / 510
3-1/2" – 5-3/4"	100 Tons	15.91 / 404	9.45 / 240	13.19 / 335	1.42 / 36	23.23 / 590
4-1/2" – 9"	150 Tons	20.91 / 531	11.22 / 285	15.35 / 390	1.89 / 48	30.71 / 780
9-5/8" – 10-3/4"	150 Tons	22.68 / 576	11.02 / 280	17.13 / 435	1.89 / 48	32.09 / 815
11-3/4" – 13-5/8"	150 Tons	27.01 / 686	11.69 / 297	19.21 / 488	1.89 / 48	36.93 / 938
14" – 16"	150 Tons	30.75 / 781	12.21 / 310	21.73 / 552	1.89 / 48	41.02 / 1042
16" – 20"	150 Tons	34.06 / 865	12.21 / 310	26.61 / 676	1.89 / 48	44.38 / 1127
4-1/2" – 7-3/4"	250 Tons	20.47 / 520	11.81 / 300	16.14 / 410	2.17 / 55	29.53 / 750
8-5/8" – 10-3/4"	250 Tons	23.23 / 720	11.81 / 300	18.11 / 460	2.17 / 55	32.28 / 820
11-3/4" – 14"	250 Tons	28.35 / 720	12.99 / 330	21.10 / 536	2.17 / 55	39.57 / 1005
16" – 20"	250 Tons	35.35 / 898	13.39 / 340	29.92 / 760	2.36 / 60	46.85 / 1190
22" – 24-1/2"	250 Tons	39.84 / 1012	13.78 / 350	34.69 / 881	2.36 / 60	51.18 / 1300
26" – 30"	250 Tons	45.35 / 1152	13.78 / 350	40.75 / 1035	2.36 / 60	56.69 / 1440
4-1/2" – 6"	350 Tons	19.29 / 490	13.78 / 350	12.99 / 330	2.36 / 60	29.33 / 745
6-5/8" – 9-7/8"	350 Tons	24.80 / 630	13.78 / 350	17.52 / 445	2.36 / 60	35.04 / 890
10-3/4" – 14"	350 Tons	29.92 / 760	14.96 / 380	22.24 / 565	2.36 / 60	39.96 / 1015

Dimensions are for reference only.

DIMENSIONS - SX

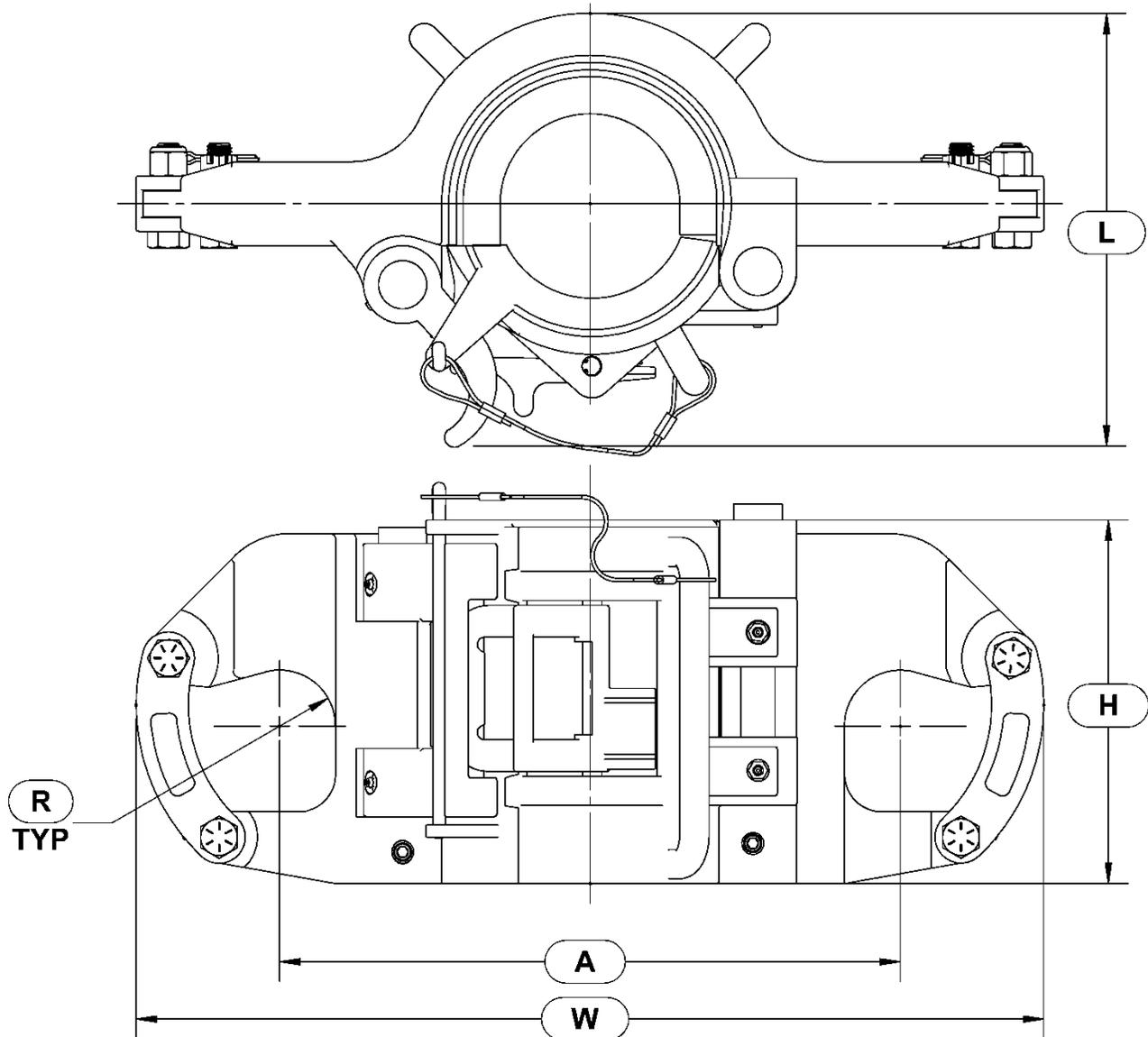


FIGURE 4

Size Range	Capacity	A (in/mm)	H (in/mm)	L (in/mm)	R (in/mm)	W (in/mm)
7" – 13-3/8"	350 Tons	26.51 / 673	15.31 / 389	25.43 / 646	2.01 / 51	40.79 / 1036
14" – 18-5/8"	350 Tons	33.48 / 851	15.35 / 390	32.68 / 830	2.05 / 52	47.83 / 1215
22" – 30"	350 Tons	44.88 / 1140	16.34 / 415	43.31 / 1100	2.17 / 55	59.84 / 1520
36"	350 Tons	51.81 / 1316	16.34 / 415	41.82 / 1240	2.56 / 65	69.09 / 1755
7" – 13-3/8"	500 Tons	26.51 / 673	15.31 / 389	25.43 / 646	2.01 / 51	40.79 / 1036
14"-18-5/8"	500 Tons	33.48 / 851	15.35 / 390	32.68 / 830	2.05 / 52	47.83 / 1215
22" – 30"	500 Tons	44.88 / 1140	16.34 / 415	43.31 / 1100	2.17 / 55	59.84 / 1520

Dimensions are for reference only.

INSPECTION & LUBRICATION



Normal wear during use will eventually reduce the elevator's capability. Cracks, wear beyond specified limits, or the appearance of damage indicates impending failure and must be replaced or repaired by an authorized TIOT service facility.



Elevators are manufactured from cast alloys that require special welding and heat treat procedures and must not be repaired in the field. Improper welding and heat treating can further damage the tool and increase the potential for equipment failure and bodily injury.



Elevators require load testing after manufacture and again after repairs. If the elevator is subjected to overloading, jarring, or impact, the elevator must be pulled from service, inspected for damage, repaired or scrapped, and must be load tested before and if returning the tool to service.



Remove the elevator from well center before performing any maintenance.



Routine lubrication and inspection are recommended, but criteria and frequency are only suggestions and should be adjusted according to the actual usage of the tool.



Lubricate the unit prior to and during use.



When using or storing the elevator, lubricate on a regular basis to protect the unit from conditions that can cause damage such as rust and corrosion.

Inspection Criteria with Checklist

PM1	Daily	Visual Inspection & Maintenance while tool is in use.
-----	-------	---

- | | | |
|--------------------------|----|--|
| <input type="checkbox"/> | 1. | Apply EP 4 grease to grease ports, springs, and ears, as needed. |
| <input type="checkbox"/> | 2. | Open and close the elevator and number of times slowly and several times quickly to check functionality. |
| <input type="checkbox"/> | 3. | Inspect the contact surface of the ears. If surfaces are flattened or metal is rolled, pull the elevator from operation for PM3 inspection (below) and contact TIOT for replacement or repair, as necessary. |
| <input type="checkbox"/> | 4. | Verify straightness of the safety pin – if bent, replace the pin. |
| <input type="checkbox"/> | 5. | Check for wear on hinge pin by checking the vertical play between latch, body, and door. |
| <input type="checkbox"/> | 6. | Visually check for damage and cracks – if found, pull from operation for PM3 inspection (below) and contact TIOT for replacement or repair, as necessary. |
| <input type="checkbox"/> | 7. | Check for corrosion on pins and springs – if found, replace the affected item(s). |
| <input type="checkbox"/> | 8. | Look for worn, damaged, loose, or missing parts – replace or tighten, as necessary. |

PM2 Bi-Annual Perform PM1 plus the following additional inspections:

- 1. Perform PM1.
- 2. Try to open the latch by prying the latch between body and latch with a steel bar or screwdriver – the latch lock prevents the latch from being opened (Figure 5 or Figure 6). If the elevator opens during pry test, pull from operation, and repair or replace, as necessary.
- 3. Verify bore dimension is within API specified limits (see Table 4, 5, or 6)
- 4. Disassemble and remove coating and debris from critical areas.
- 5. Perform Magnetic Particle Inspection (MPI) on critical areas as indicated in Figure 8 or Figure 9 and per API Specification 8C.
- 6. Contact TIOT for replacement or repair if indications are found.

PM3 Annual Perform PM1 and PM2 plus the following additional inspections:

- 1. Perform PM1 and PM2.
- 2. Disassemble and remove coating and debris from critical areas.
- 3. Perform proof load test.
- 4. Twenty-four (24) hours after proof load test, perform Magnetic Particle Inspection (MPI) on critical areas as indicated in Figure 7 or Figure 8 and per API Specification 8C.
- 5. Contact TIOT for replacement or repair if indications are found.



Proof load test and MPI are always required after refurbishment or a major weld repair.

Lubrication Checklist

Daily and prior to use:

- 1. Grease hinge, latch, and latch lock pins.
- 2. Grease underside of elevator ears.
- 3. Grease top bore.
- 4. Grease springs.
- 5. Grease link retainer fasteners.

Inspection and Lubrication Continued

SLX Pry Bar Latch Test

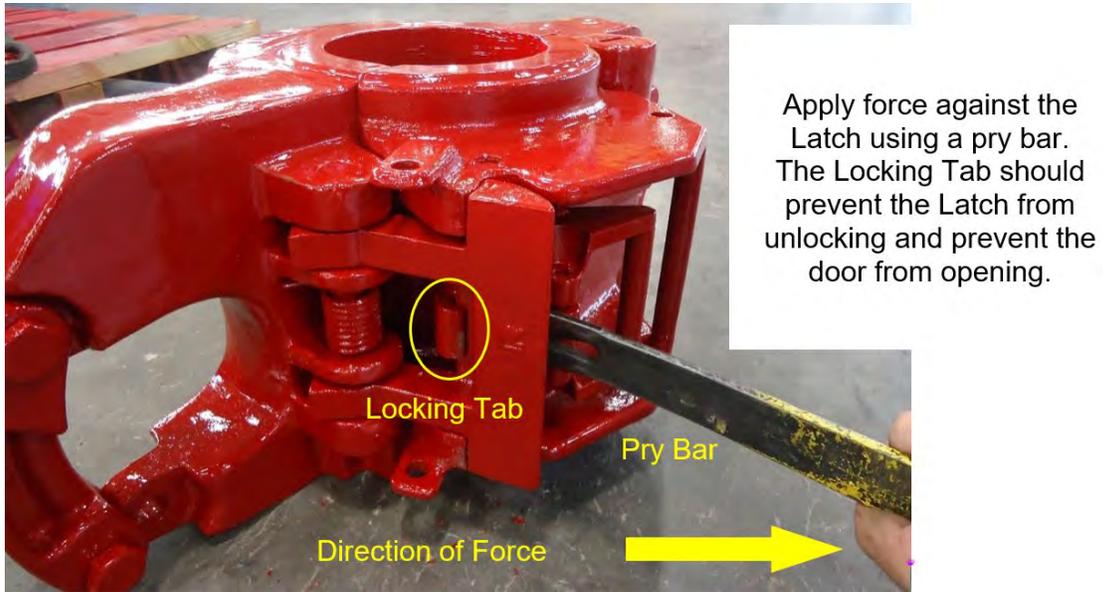


Figure 5

SX Pry Bar Latch Test

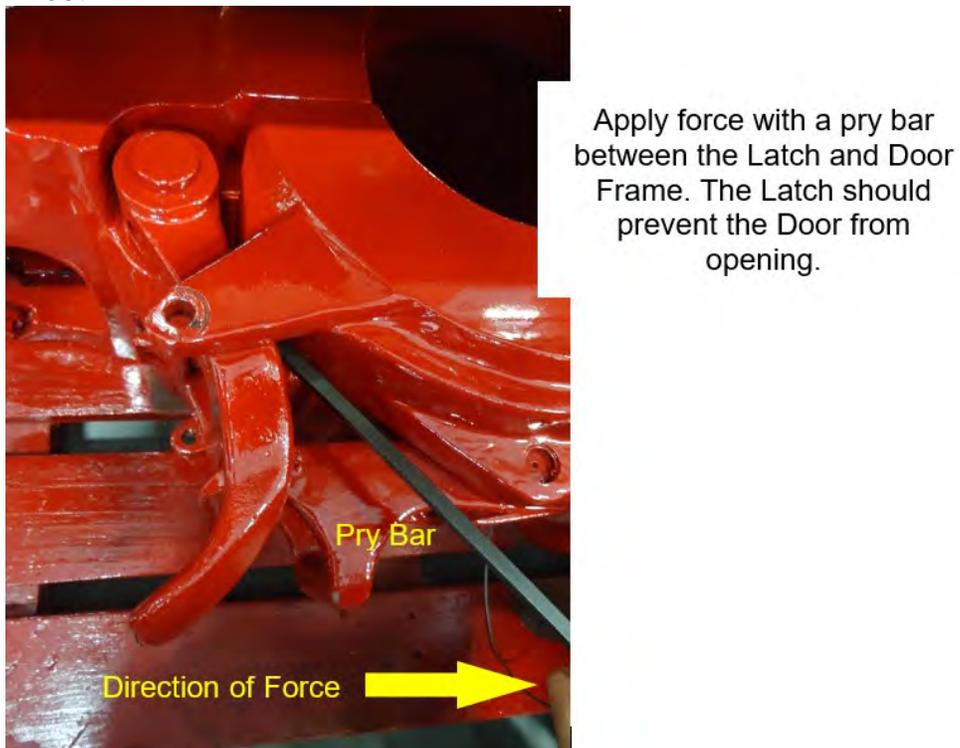


Figure 6

ELEVATOR WEAR DATA

Wear in the bore affects the elevator’s ability to support rated loads. Elevators with bore measurements exceeding “Max Bore Diameter” limits shown in Tables 4 thru 6 shall be either remanufactured or scrapped. Contact TIOT for assistance in determining wear results.

Maximum Allowable Wear Limit – Elevators for Drill Collar with Zip Lift Recess			
Collar OD	Bore Size Code	Max Allowable Bore Diameter	
		Inches	Millimeters
4-1/8"	177	3.844	97.6
4-3/4"	435	4.406	111.9
5-1/4"	179	4.906	124.6
5-1/2"	180	5.156	131.0
5-3/4"	181	5.313	134.9
6"	362	5.563	141.3
6-1/4"	337	5.813	147.6
6-1/2"	373	6.063	154.0
6-3/4"	387	6.250	158.8
7"	361	6.500	165.1
7-1/4"	357	6.750	171.5
7-1/2"	188	7.000	177.8
7-3/4"	339	7.250	184.2
8"	336	7.500	190.5
8-1/4"	422	7.750	196.9
8-1/2"	426	8.000	203.2
9"	427	8.438	214.3
9-1/2"	370	8.938	227.0
9-3/4"	367	9.188	233.4
10"	195	9.438	239.7
10-3/4"	527	10.188	258.8
11"	419	10.438	265.1
11-1/4"	196	10.688	271.5

Table 4

Elevator Wear Data Continued

Maximum Allowable Wear Limit -Elevators for Plain Drill Collar with Lift Plug			
Collar OD	Bore Size Code	Max Allowable Bore Diameter	
		Inches	Millimeters
3"	205	3.188	81.0
3-1/8"	206	3.313	84.2
3-1/4"	207	3.438	87.3
3-1/2"	209	3.688	93.7
3-3/4"	211	3.938	100.0
4"	213	4.188	106.4
4-1/8"	519	4.313	109.6
4-1/4"	548	4.438	112.7
4-1/2"	215	4.688	119.1
4-3/4"	354	4.969	126.2
5"	552	5.219	132.6
5-1/4"	219	5.469	138.9
5-1/2"	411	5.719	145.3
5-3/4"	222	6.031	153.2
6"	349	6.281	159.5
6-1/4"	348	6.531	165.9
6-3/8"	331	6.656	169.1
6-3/4"	338	7.063	179.4
7"	372	7.313	185.8
7-1/4"	335	7.563	192.1
7-1/2"	137	7.813	198.5
7-3/4"	550	8.063	204.8
8"	334	8.313	211.2
8-1/4"	347	8.563	217.5
8-1/2"	580	8.844	224.6
8-3/4"	226	9.094	231.0
9"	356	9.344	237.3
9-1/4"	227	9.594	243.7
9-1/2"	346	9.844	250.0
10"	228	10.406	264.3
10-1/2"	229	10.906	277.0
11"	230	11.406	289.7

Table 5

Maximum Allowable Wear Limit – Elevators for Casing			
Collar OD	Bore Size Code	Max Allowable Bore Diameter	
		Inches	Millimeters
2-3/8"	158	2.512	63.8
2-7/8"	160	3.013	76.5
3-1/2"	162	3.639	92.4
4-1/2"	129	4.659	118.3
4-3/4"	130	4.913	124.8
5"	131	5.168	131.3
5-1/2"	132	5.676	144.2
5-3/4"	133	5.931	150.6
6"	134	6.185	157.1
6-5/8"	135	6.821	173.3
7"	136	7.203	183.0
7-5/8"	137	7.838	199.1
8-5/8"	139	8.856	224.9
9"	140	9.238	234.6
9-5/8"	141	9.873	250.8
9-7/8"	649	10.128	257.3
10"	831	10.255	260.5
10-1/8"	846	10.382	263.7
10-3/4"	142	11.018	279.9
11-3/4"	143	12.036	305.7
13-3/8"	144	13.664	347.1
13-5/8"	596	13.918	353.5
16"	145	16.335	414.9
18"	723	18.370	466.6
18-5/8"	146	19.006	482.8
20"	147	20.405	518.3
21-1/2"	148	21.925	556.9
22"	688	22.431	569.7
24"	630	24.456	621.2
26"	650	26.481	672.6
28"	693	28.506	724.1
30"	644	30.531	775.5

Table 6

Elevator Wear Data Continued

Maximum Elevator Ear Radius (R)		
Elevator Capacity (Tons)	R Inch	R mm
100	1.00	25.4
150	1.50	38.1
250	1.88	47.6
350	1.88	47.6
500	2.00	50.8

Table 7

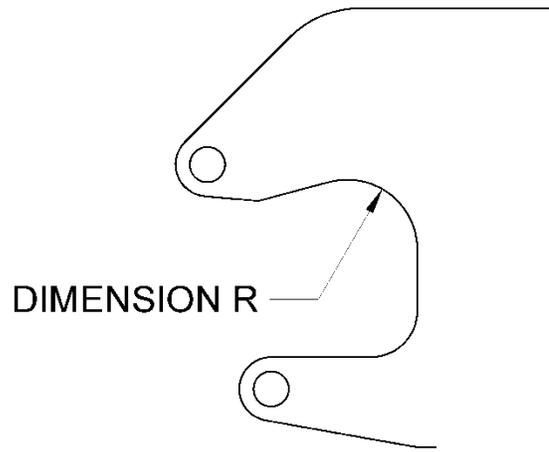


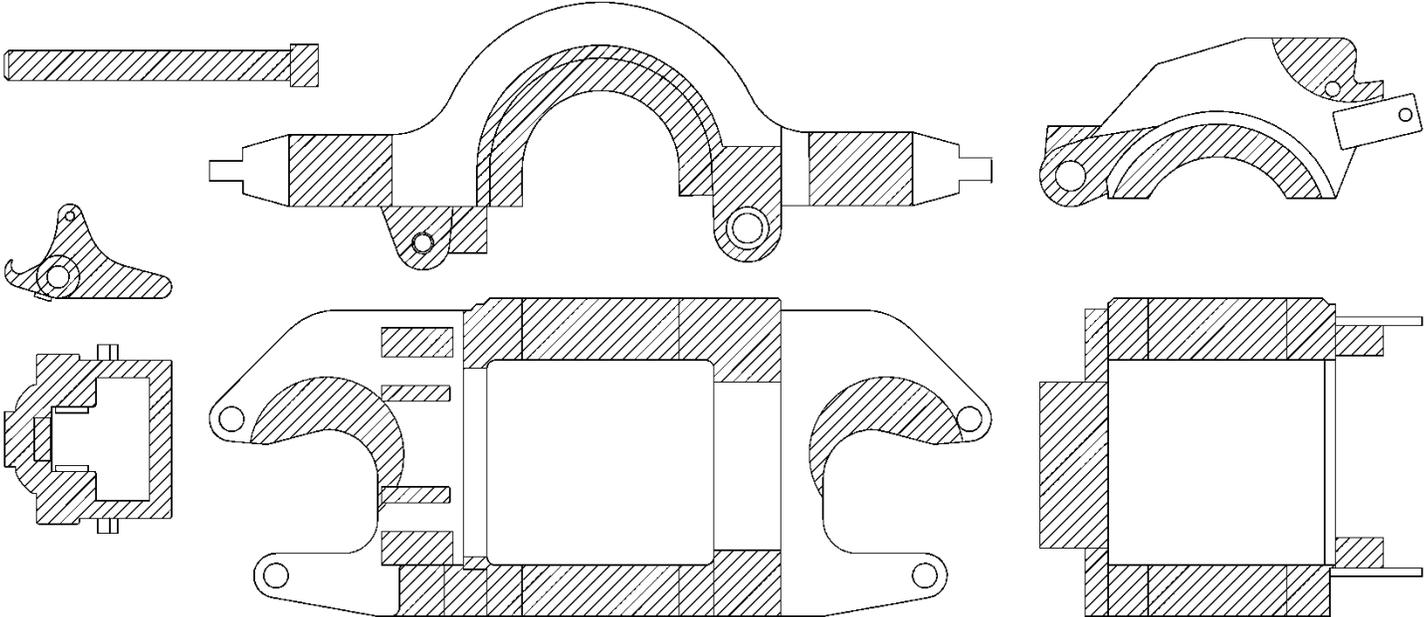
Figure 7

		Maximum Allowable Wear Limits for Elevator Hinge Pins / Latch Pins					
		SLX				SX	
Elevator Capacity (Tons)		100	150	250	350	350	500
Hinge Pin - Max Allowable Clearance Between Pin & Bore	Inch	0.020	0.035	0.035	0.030	0.030	0.030
	mm	0.5	0.9	0.9	0.8	0.8	0.8
Latch Pin - Max Allowable Clearance Between Pin & Bore	Inch	0.020	0.030	0.030	0.035	0.035	0.035
	mm	0.5	0.8	0.8	0.9	0.9	0.9

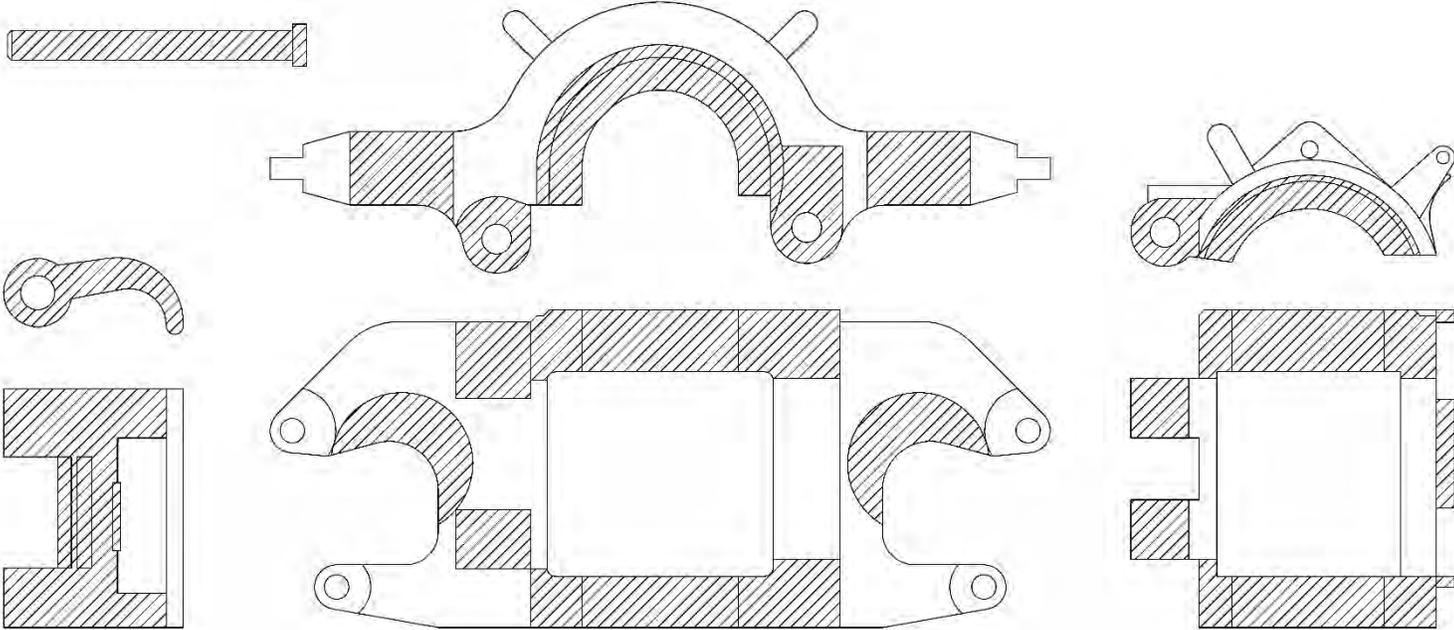
Table 8

CRITICAL AREA MAPS

Hatching denotes critical areas



**SLX
Figure 8**



**SX
Figure 9**

INSTALLATION



The elevator must be lifted by the ears only. Do not lift by the latch handles.

- Move the elevator to the rig floor lifting by the ears using a sling or chain. Secure the link retainer bolts with nuts before moving the elevator.
- Open the link retainers and remove the sling or chain.
- Move the elevator links into position on the ears.
- Close the link retainers and secure with the link retainer bolts, nuts, and new cotter pins.
- Lubricate the elevator as recommended in the Lubrication section.
- Open and close the elevator a few times to ensure it is operational and that the latch and safety latch perform as expected.
- Once the elevator is around the pipe and the latches are secured, install the safety pin before moving the elevator.

OPERATION



Do not lift or use the elevator in an inverted orientation. The elevator ears are designed and positioned to prevent inverted lifting.



Handles are provided for handling elevators. Keep hands away from pinch points or areas that are not designated for handling.



Use the elevator ears to lift the elevator. Do not use the elevator handles for lifting.



TIOT recommends a safety risk assessment be carried out prior to operation.

Elevator Operation

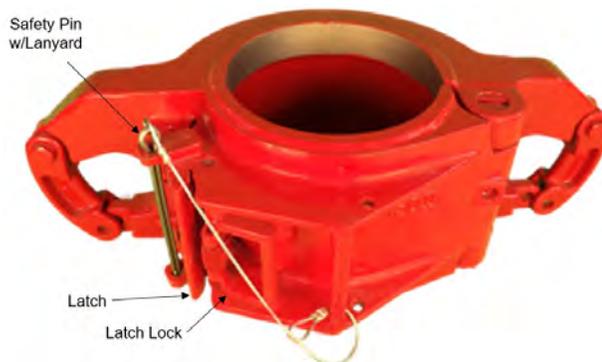


Figure 10 SLX Latch

A shielded safety latch prevents the latch from accidental opening. To operate, the safety pin is removed, the latch lock handle is pulled out which simultaneously releases the safety latch, and the elevator halves are pulled apart to open. The latch and safety latch operate from a single handle and automatically re-latch when the elevator door is closed. The safety pin must be reinstalled each time the elevator is closed.

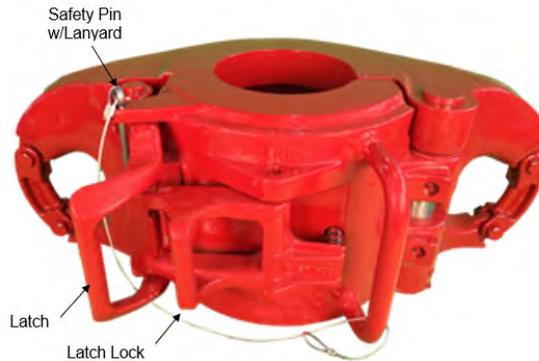


Figure 11 SX Latch

SX type elevators have a latch and safety latch requiring two (2) handed operation. To operate, the safety pin is removed, the safety latch handle is pulled out while the latch is simultaneously pulled, and the elevator halves are pulled apart to open. The latch and safety latch automatically re-latch when the elevator door is closed. The safety pin must be reinstalled each time the elevator door is closed.

ASSEMBLY & DISASSEMBLY



Only trained knowledgeable personnel should perform assembly or disassembly of equipment.



Use caution when handling springs under tension and when lifting parts.



All disassembly and assembly should be performed away from well center in a clean and dry area.

Assembly and Disassembly

- Assembly and disassembly should only be carried out for Inspection and Maintenance or for replacing non-load bearing parts.
- Welding, repairs, and replacement of load bearing parts should only be carried out by TIOT.

TROUBLESHOOTING

Issue	Possible Cause	Potential Solution
Elevator does not open.	Corrosion	Pry the elevator open, perform PM3. Scrap the tool.
	Overloading	Pull the elevator from service and perform PM3. Scrap the tool.
Elevator does not close.	Oversized tubular	Select a proper size elevator.
Elevator does not hang level.	Difference in link lengths.	Use matched sets of elevator links.
Deformed pin holes	Overloading	Pull the elevator from service and perform PM3.
	Wear	Verify pin clearances per the Wear Data in this manual. If the limits are exceeded, pull the elevator from service, and perform PM3.
Bent pins	Overloading	Pull the elevator from service and perform PM3.

Table 9

STORAGE AND TRANSPORTATION

- Unpainted surfaces should be coated with rust preventing agent.
- Prevent excessive exposure to water and moisture.
- Clean the tool after each use - steam clean as needed; remove mud, debris, and any other substances.
- Transport the unit on a suitable container or pallet.

PARTS LIST – SLX

SLX 100 PARTS				
Size Range			2-3/8" - 2-7/8"	3-1/2" - 5-3/4"
Frame			T33693	T33854
Item No.	Description	Qty	Part Number	
1	Hinge Pin	1	T32424-5	T34613
2	Hinge Pin Retainer	1	T34614	T32918
3	Latch	1	T33697	T33813
4	Latch Pin	1	T33700-4	T29980-3
5	Latch Spring	1	T33703	T33818
6	Latch Lock	1	T33696	T33812
7	Latch Lock Pin	1	T33700-4	T29980-3
8	Latch Lock Spring	1	T33701	T33816
9	Latch Lock Roller	1	T33702	T33817
10	Latch Lock Roller Pin	1	T33698	T31854
11	Link Block	2	T32430	T32430
12	Link Block Bolt	2	040044	040044
13	Link Block Lock Nut	2	040141	040141
14	Link Block Bolt Drilled	2	040382	040382
15	Link Block Slotted Nut	2	T50510-C	T50510-C
16	Link Block Cotter Pin	2	080058	080058
17	Safety Pin & Lanyard	1	080042	080042
18	Grease Fitting	1	080013	080013

Table 10

PARTS LIST – SLX (Cont.)

SLX 150 PARTS							
Size Range			4-1/2" – 9"	9-5/8" - 10-3/4"	11-3/4" - 13-5/8"	14" – 16"	16" – 20"
Frame			T31239	T33950	T33982	T34087	T33632
Item No.	Description	Qty	Part Number				
1	Hinge Pin	1	T34611	T33953	T33985	T33646	T33646
2	Hinge Pin Retainer	1	T32892	T32892	T32892	T32892	T32892
3	Latch	1	T31331	T31331	T31331	T33634	T33634
4	Latch Pin	1	T32424-3	T32424-3	T32424-3	T33645	T33645
5	Latch Spring	1	T31383	T31383	T31383	T33657	T33657
6	Latch Lock	1	T31332	T31332	T31332	T33635	T33635
7	Latch Lock Pin	1	T29980-4	T29980-4	T29980-4	T50713	T50713
8	Latch Lock Spring	1	T31404	T31404	T31404	T33658	T33658
9	Latch Lock Roller	1	T31407	T31407	T31407	T31407	T31407
10	Latch Lock Roller Pin	1	T31584	T31584	T31584	T31584	T31584
11	Link Block	2	T9519	T9519	T9519	T9519	T9519
12	Link Block Bolt	2	040044	040044	040044	040044	040044
13	Link Block Lock Nut	2	040141	040141	040141	040141	040141
14	Link Block Bolt Drilled	2	040382	040382	040382	040382	040382
15	Link Block Slotted Nut	2	T50510-C	T50510-C	T50510-C	T50510-C	T50510-C
16	Link Block Cotter Pin	2	080059	080060	080061	080062	080063
17	Safety Pin & Lanyard	1	080042	080042	080042	080042	080042
18	Grease Fitting	1	080013	080013	080013	080013	080013

Table 11

PARTS LIST – SLX (Cont.)

SLX 250 PARTS						
Size Range			4-1/2" - 7-3/4"	8-5/8" - 10-3/4"	11-3/4" – 14"	16" – 20"
Frame			T41239	T43950	T43982	T43632
Item No.	Description	Qty	Part Number			
1	Hinge Pin	1	T34611-1	T33953-1	T33985-1	T33346-1
2	Hinge Pin Retainer	1	T32892	T32892	T32892	T31074
3	Latch	1	T31331	T31331	T31331	T33634
4	Latch Pin	1	T32424-4	T32424-4	T32424-4	T33645
5	Latch Spring	1	T41383	T41383	T41383	T33657
6	Latch Lock	1	T31332	T31332	T31332	T33635
7	Latch Lock Pin	1	T29980-4-1	T29980-4-1	T50713-2-1	T32424-2-1
8	Latch Lock Spring	1	T41388	T41388	T41388	T43658
9	Latch Lock Roller	1	T31407	T31407	T31407	T31407
10	Latch Lock Roller Pin	1	T31584	T31584	T31584	T31584
11	Link Block	2	T9519	T9519	T9519	T9519
12	Link Block Bolt	2	040044	040044	040044	040044
13	Link Block Lock Nut	2	040141	040141	040141	040141
14	Link Block Bolt Drilled	2	040382	040382	040382	040382
15	Link Block Slotted Nut	2	T50510-C	T50510-C	T50510-C	T50510-C
16	Link Block Cotter Pin	2	080064	080065	080066	080067
17	Safety Pin & Lanyard	1	080042	080042	080042	080042
18	Grease Fitting	1	080013	080013	080013	080013

Table 12

PARTS LIST – SLX (Cont.)

SLX 350 PARTS				
Size Range		6-5/8" - 9-7/8"	10-3/4" – 14"	
Frame		T53950	T53982	
Item No.	Description	Qty	Part Number	
1	Hinge Pin	1	T35009	T35001
2	Hinge Pin Retainer	1	T35171	T35314
3	Latch	1	T33634	T33612
4	Latch Pin	1	T33645	T33613
5	Latch Spring	1	T33657	T33628
6	Latch Lock	1	T33635	T33642
7	Latch Lock Pin	1	T32424-2	T33643
8	Latch Lock Spring	1	T33658	T33623
9	Latch Lock Roller	1	*	T31407
10	Latch Lock Roller Pin	1	*	T31584
11	Link Block	2	T9519	T9519
12	Link Block Bolt	2	*	*
13	Link Block Lock Nut	2	*	*
14	Link Block Bolt Drilled	2	*	*
15	Link Block Slotted Nut	2	*	*
16	Link Block Cotter Pin	2	*	*
17	Safety Pin & Lanyard	1	*	*
18	Grease Fitting	1	080013	080013

*Contact TIOT

Table 13

PARTS DIAGRAM – SLX

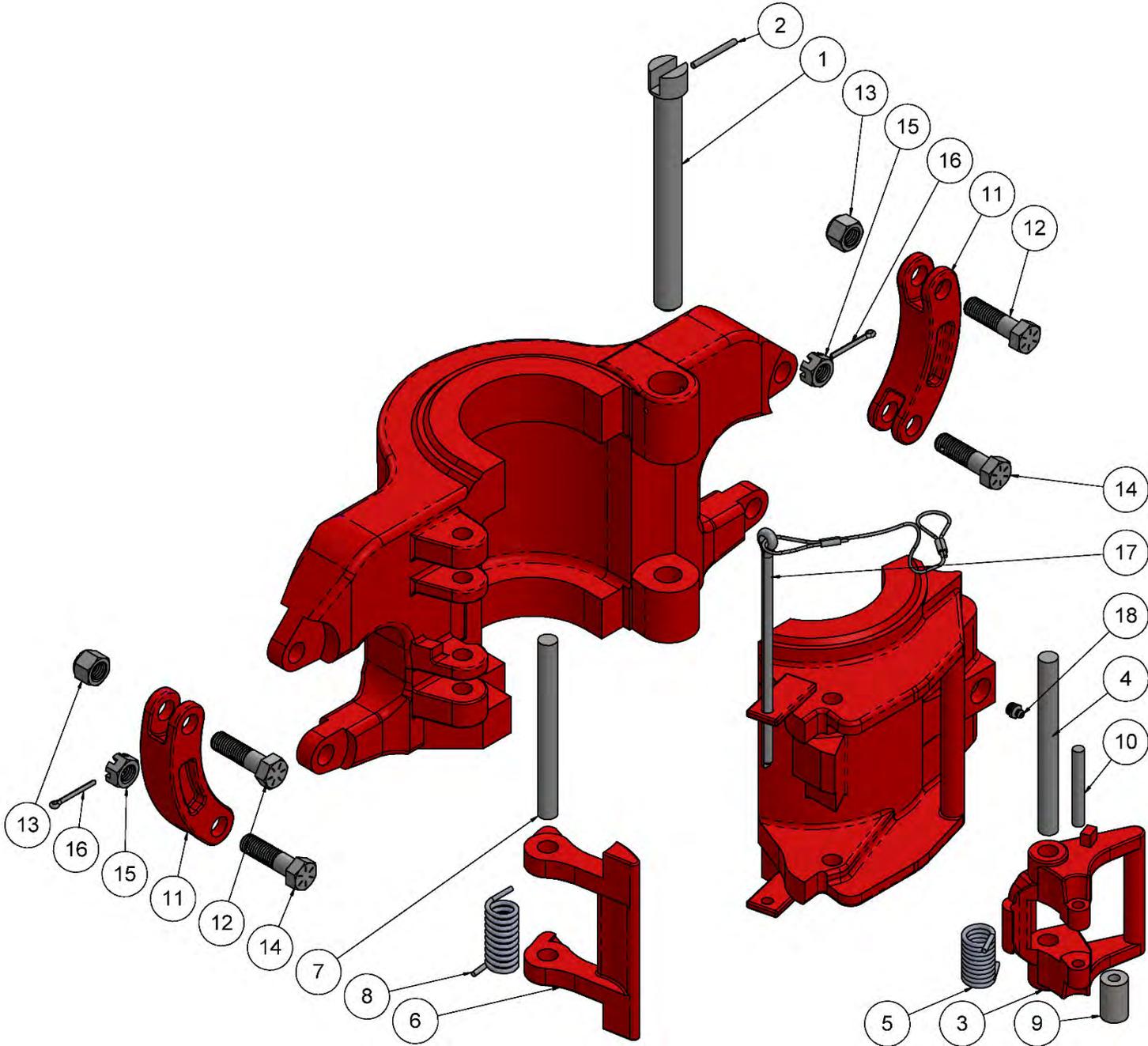


Figure 12 SLX

PARTS LIST – SX

SX PARTS					
Size Range			7" - 13-3/8"	14" - 18-5/8"	7" - 13-3/8"
Frame			T29965	T29966	T29964
Capacity			350 Tons	350 Tons	500 Tons
Item No.	Description	Qty	Part Number		
1	Hinge Pin	1	T29956	T29956	T29956
2	Hinge Pin Retainer	1	*	*	*
3	Latch	1	T29945	T20005	T30597
4	Latch Pin	1	T29951	T29951	T29951
5	Latch Pin Retainer	1	*	*	*
6	Latch Lock	1	T6021	T6021	T6021
7	Latch Lock Pin	1	T6027	T6027	T6027
8	Latch Lock Pin Retainer	1	T5302	T5302	T5302
9	Latch Lock Spring	2	T30657	T30657	T30657
10	Latch Lock Spring Plug	2	T8024	T8024	T8024
11	Link Block	2	T9519	T9519	T9519
12	Link Block Bolt	2	*	*	*
13	Link Block Lock Nut	2	*	*	*
14	Link Block Bolt Drilled	2	*	*	*
15	Link Block Slotted Nut	2	*	*	*
16	Link Block Cotter Pin	2	*	*	*
17	Safety Pin & Lanyard	1	080070	080070	080070
18	Grease Fitting	4	080013	080013	080013

*Contact TIOT

Table 14

PARTS DIAGRAM – SX

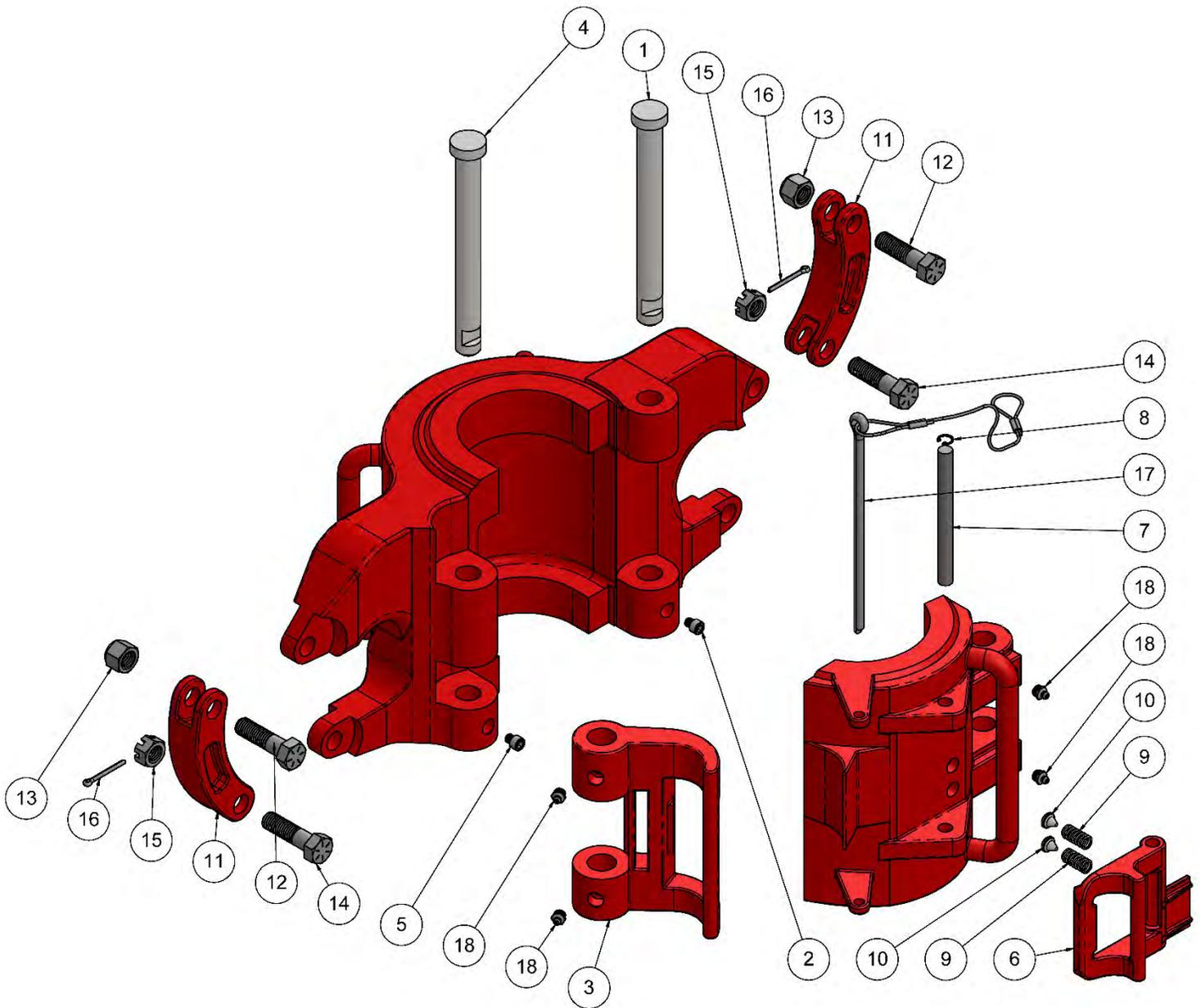


Figure 13 SX

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