
OWNER'S MANUAL SUPPLEMENT

ELECTRIC CHAIN HOIST ER2 and NER2 SERIES

8 Ton through 20 Ton Capacity

Code, Lot and Serial Number

WARNING

This equipment should not be installed, operated or maintained by any person who has not read and understood all the contents of this manual. Failure to read and comply with the contents of this manual can result in serious bodily injury or death, and/or property damage.

HARRINGTON
A KITO GROUP COMPANY

IMPORTANT INFORMATION ON HOW TO USE THIS MANUAL

This OWNER'S MANUAL SUPPLEMENT is intended for use *in combination* with the "Owner's Manual for Electric Chain Hoist ER2 and NER2 Series 1/8 through 5 Ton Capacity". Refer to the Table of Contents below to determine the location(s) of information pertaining to your hoist. References to the "Owner's Manual for Electric Chain Hoist ER2 and NER2 Series 1/8 through 5 Ton Capacity" will be designated by the use of the acronym "ER2OM".

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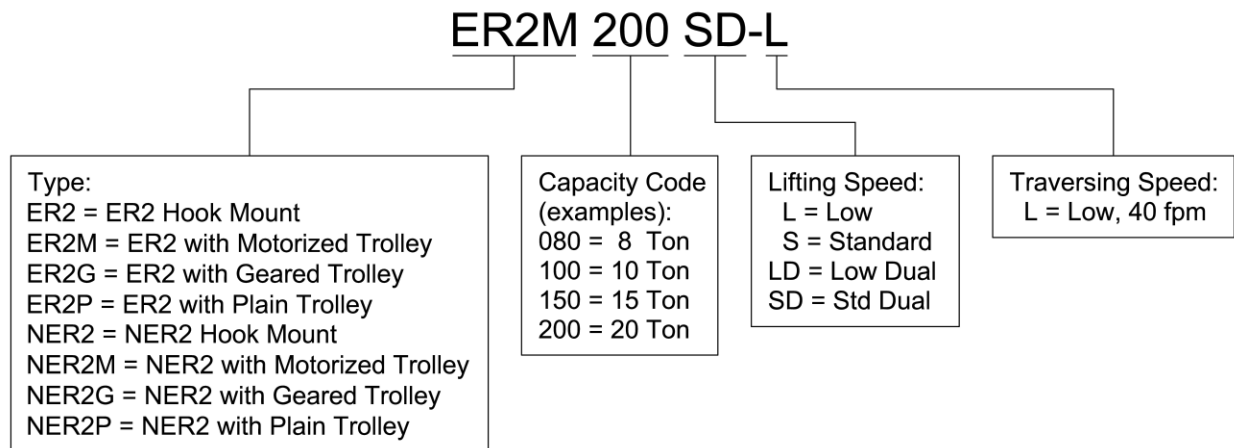
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2.0 Technical Information

2.1 Specifications

2.1.1 Product Code



2.1.2 Operating Conditions and Environment

- Temperature range: -4° to +104°F (-20° to +40°C)
 Relative Humidity: 85% or less
 Noise Level: 85 dB or less (A scale: measured 1 meter away from electric chain hoist)
 Enclosure Rating: Hoist Meets IP 55, Pendant Meets IP65
 Supply Voltage: Single Speed Standard: Reconnectable 208/230 & 460V-3-60
 Single Speed Optional: 575V-3-60 or Special Voltages/Frequencies Available
 Dual Speed Standard: 208/230V-3-60 or 460V-3-60
 Dual Speed Optional: 575V-3-60 or Voltages/Frequencies Voltages Available

	Single Speed	Dual Speed
Hoist Duty Rating:	ISO M4; FEM 2M; ASME H4	
Intermittent Duty Rating:	60% ED 360 starts per hour	40/20% ED 120/240 starts per hour
Short Time Duty Rating:	60 min.	30/10 min.

Table 2-1 Hoist Specifications											
Cap. (Tons)	Product Code	Lifting Speed (ft/min)	Motor			Load Chain Diameter (mm) x Chain Fall Lines	Load Sheave Pockets	Net Weight (lbs)		Weight for Addnl. One Foot of Lift (lbs)	
			Output (Hp)	Rated Current (amps)				NER2	ER2		
				208V - 230V	460V						
Single Speed	8	(N)ER2080S*	7.5	4.7	16.4	7.9	11.2 x 3	5	362	359	5.5
	10	(N)ER2100L	5.5				11.2 x 4	5	617	615	7.4
	10	(N)ER2100L-LG		5	573	571	7.4				
	10	(N)ER2100S	11	4.7 x 2	16.4 x 2	7.9 x 2	11.2 x 4	5	668	666	7.4
	15	(N)ER2150S	7.5	4.7 x 2	16.4 x 2	7.9 x 2	11.2 x 6	5	891	886	11.4
	20	(N)ER2200S	5.5	4.7 x 2	16.4 x 2	7.9 x 2	11.2 x 8	5	1049	1045	14.8
Dual Speed	8	(N)ER2080SD*	7.5/2.5	4.7	17.3	8.3	11.2 x 3	5	358	366	5.5
	10	(N)ER2100LD	5.5/2	4.7	17.3	8.3	11.2 x 4	5	609	622	7.4
	10	(N)ER2100LD-LG	5.5/2	4.7	17.3	8.3	11.2 x 4	5	569	578	7.4
	10	(N)ER2100SD	11/3.5	4.7 x 2	17.3 x 2	8.3 x 2	11.2 x 4	5	650	677	7.4
	15	(N)ER2150SD	7.5/2.5	4.7 x 2	17.3 x 2	8.3 x 2	11.2 x 6	5	873	899	11.4
	20	(N)ER2200SD	5.5/2	4.7 x 2	17.3 x 2	8.3 x 2	11.2 x 8	5	1032	1058	14.8

*Available lug mount only. Push button cord dimension (L) is to center of lug hole.

Although both 208/230 & 460 Volts are shown together, the dual speed hoist motors are **NOT reconnectable.

2.2 Dimensions

Table 2-2 Hoist Dimensions													
Cap. (Tons)	Product Code	Headroom C (in)	a (in)		b (in)	d (in)		e (in)		g (in)	h (in)	i (in)	
			NER2	ER2		NER2	ER2	NER2	ER2				
Single Speed	8	(N)ER2080S	40.3	29.0	32.5	23.2	13.3	16.8	15.7	16.8	2.4	11.1	7.1
	10	(N)ER2100L	53.9	29.0	32.5	38.3	13.3	16.8	15.7	16.8	3.2	13.3	20.0
	10	(N)ER2100L-LG	40.9	29.0	32.5	26.9	13.3	16.8	15.7	16.8	3.2	13.3	8.5
	10	(N)ER2100S	53.9	31.4	33.6	33.4	15.7	16.8	15.7	16.8	3.2	-	-
	15	(N)ER2150S	62.8	31.4	33.6	40.2	15.7	16.8	15.7	16.8	3.4	-	-
	20	(N)ER2200S	67.3	31.4	33.6	47.2	15.7	16.8	15.7	16.8	4.0	-	-
Dual Speed	8	(N)ER2080SD	40.3	31.5	32.5	23.2	15.8	16.8	15.7	15.7	2.4	11.1	7.1
	10	(N)ER2100LD	53.9	31.5	32.5	38.3	15.8	16.8	15.7	15.7	3.2	13.3	20.0
	10	(N)ER2100LD-LG	40.9	31.5	32.5	26.9	15.8	16.8	15.7	15.7	3.2	13.3	8.5
	10	(N)ER2100SD	53.9	31.5	33.6	33.4	15.8	16.8	15.8	16.8	3.2	-	-
	15	(N)ER2150SD	62.8	31.5	33.6	40.2	15.8	16.8	15.8	16.8	3.4	-	-
	20	(N)ER2200SD	67.3	31.5	33.6	47.2	15.8	16.8	15.8	16.8	4.0	-	-

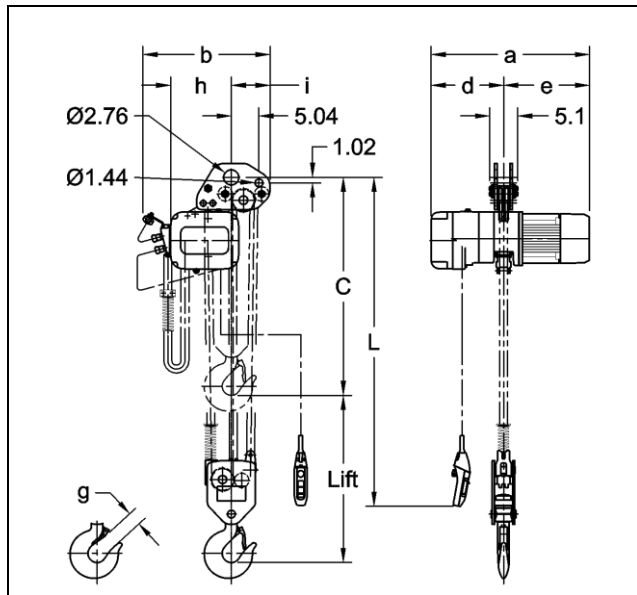


Figure 2-1 – NER2080S

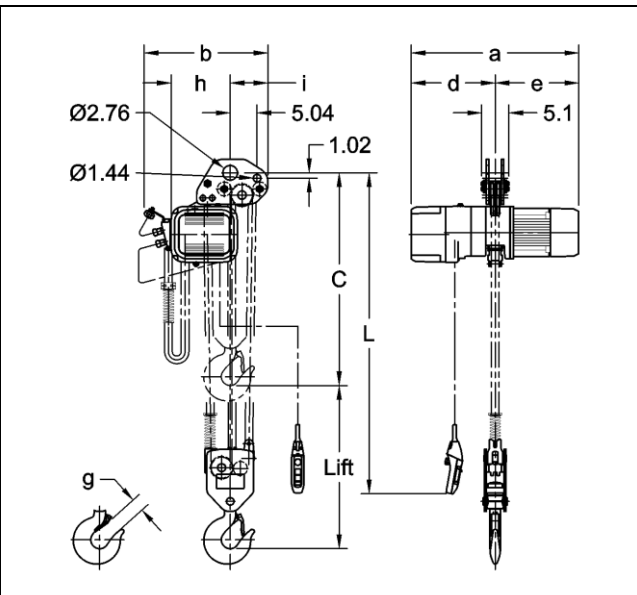


Figure 2-2 – NER2080SD

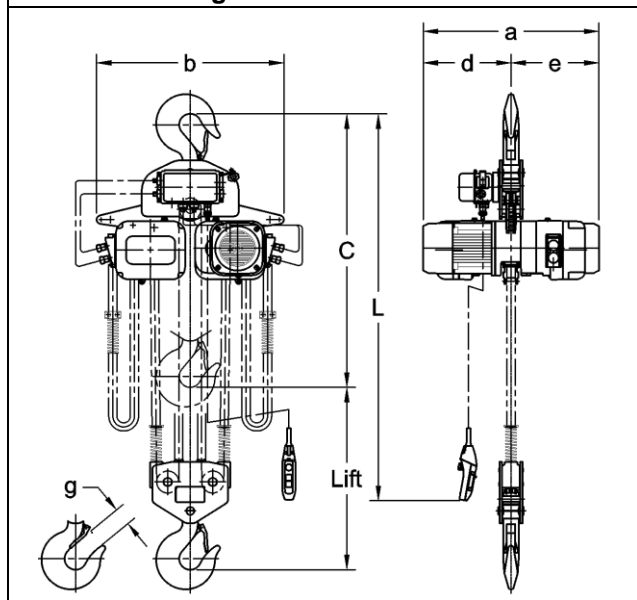


Figure 2-3 – NER2100S

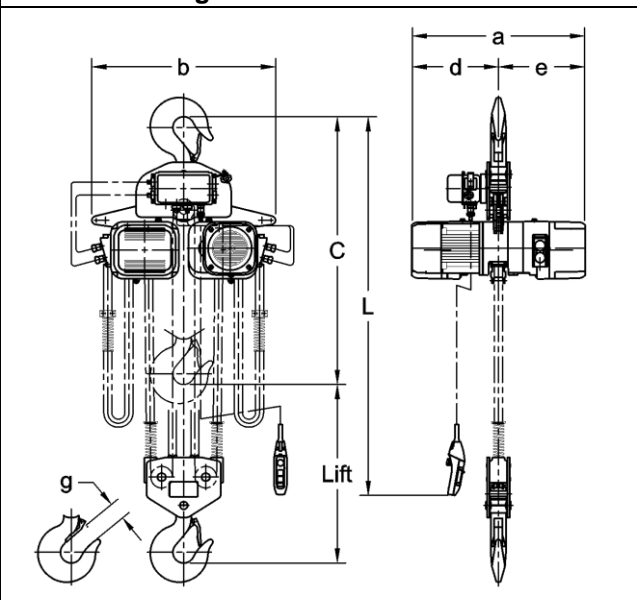
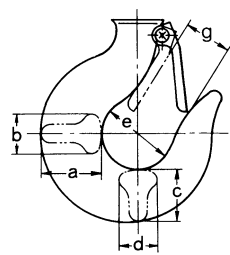


Figure 2-4 – NER2100SD

Table 2-3 Hook Dimensions*

	Capacity Code	Hook	a	b	c	d	e	g
	T = Top Hook B = Bottom Hook Units = in.(mm)	080S	B	3.3 (83.5)	2.2 (55.0)	2.9 (73.0)	1.9 (48.0)	3.3 (85.0)
	100L, 100S	T & B	4.1 (104.0)	2.8 (70.0)	3.4 (87.0)	2.4 (60.0)	3.9 (100.0)	3.1 (80.0)
	150S	T & B	4.6 (117.0)	3.3 (83.0)	3.9 (99.0)	2.8 (70.0)	4.3 (110.0)	3.4 (86.0)
	200S	T & B	5.2 (132.0)	3.3 (85.0)	4.4 (112.0)	2.8 (71.0)	4.9 (125.0)	4.0 (102.0)

*Refer to ER20M Section 5.7 for inspection dimensions and limits.

3.0 Preoperational Procedures

3.1 Gear Box

- 3.1.1 The gearbox is filled with the correct amount of oil at the time of shipment. The oil level must be verified prior to operation. The ER2 and NER2 hoists have different checking procedures. Refer to Section 6.3 of the ER2OM for specific checking procedures. Use the 050L Capacity Code to determine the correct "Check Distance" for the ER2 Large Capacity hoist.
- 3.1.2 Refer to Section 6.3 of the ER2OM when replacing the gear oil. Use the 050L Capacity Code to determine the correct amount of gear oil.
- 3.1.3 All ER2, mechanical load brake installed, hoists are shipped with a separate air vented oil cap. This vented oil cap must be installed prior to use. To install, remove an existing oil cap and replace with the vented oil cap (refer to Figure 3-1).
- 3.1.4 There are two oil fill holes located in the top of the gear case on the ER2 hoist. For ER2 coupled to MR2 trolley, there are some flange widths that make it necessary to relocate the oil cap assembly to the other oil fill hole. This will prevent interference with trolley side plate. Refer to Figure 3-1.

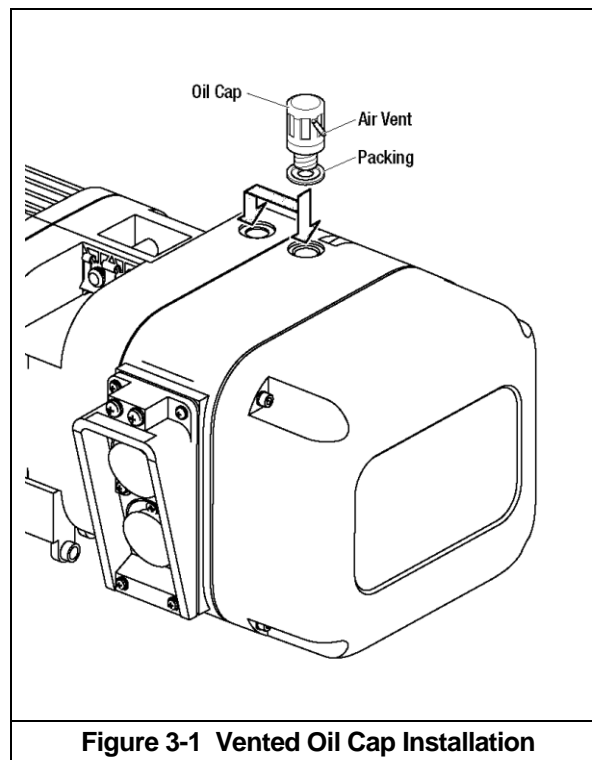


Figure 3-1 Vented Oil Cap Installation

3.2 Chain

- 3.2.1 The quantity and location of the chain components including chain springs and stoppers depends on the hoist model and capacity. Never operate the hoist with incorrect, missing or damaged chain components. Refer to the hoist's nameplate, Table 3-2, and Figure 3-2 and ensure that all chain components are in the correct location and properly installed.
- 3.2.2 When the hoist is used without a chain container, the free end of the chain is attached to the hoist body as shown in Figure 3-2. Connect the "no load" end of the chain to Chain Guide A and the pre-installed socket bolt and lock nut. Make sure the chain remains free of twists and the chain Stopper is installed on the correct link. Refer to Table 3-2 for proper placement of Stopper.

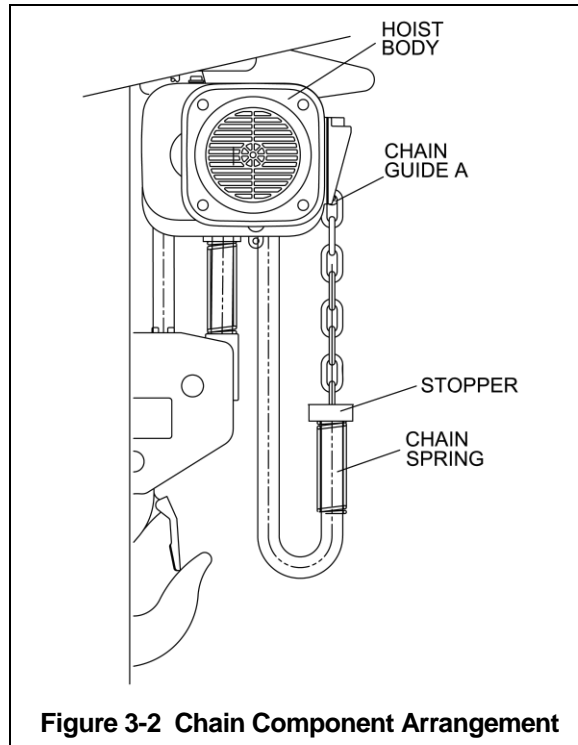


Table 3-2 Chain Stopper Placement		
Capacity Code	Without Chain Container	With Chain Container
080S, 100L, 100S, 150S, 200S	15 th link from the free end	3 rd link from the free end

*Tightening torque for the Stopper Bolt: 10 N-m (7 lb-ft)

- 3.2.3 When the optional canvas chain container(s) is used, unfold it fully and install it on the hoist body(ies) as shown in Figure 3-3. In this case the free end of the chain is not attached to the hoist body and the chain stopper is installed on the third link from the free end. To place the chain into the chain container(s), feed the chain into the chain container(s) beginning with the free end. Take care to avoid twisting or tangling the chain. NEVER put all the chain into the container(s) at once. Lumped or twisted chain may activate the down limit switch and stop the hoist during lowering.
- 3.2.4 **CAUTION** Each chain container indicates the maximum length of the load chain that can be stored in the container. The amount of chain the container must hold is equal to the lift on the hoist. DO NOT use a chain container with a storage capacity less than the lift length on the hoist. If all of the chain can not be stored in the container, the limit switch will not operate properly.

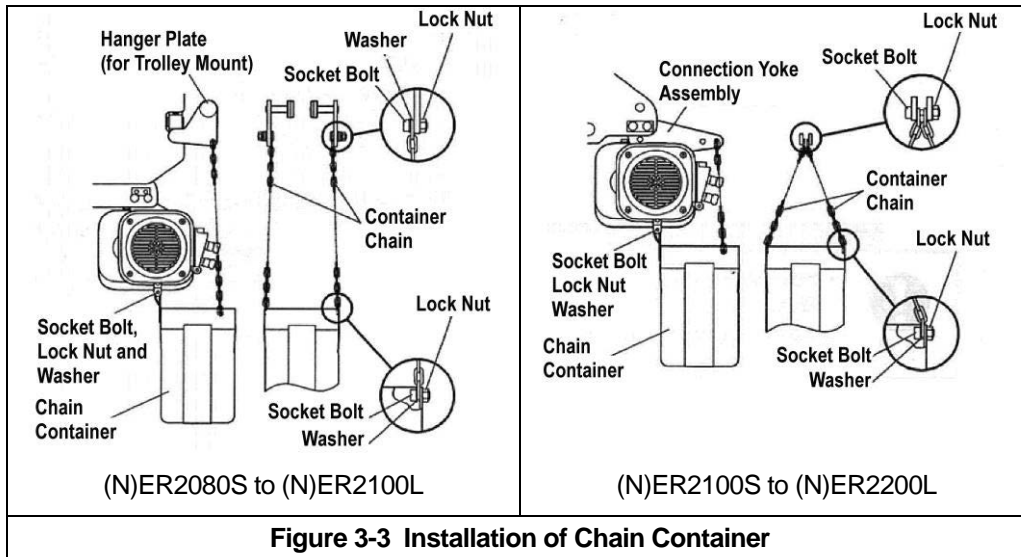


Figure 3-3 Installation of Chain Container

3.2.5 When using an optional steel chain container, refer to the instructions and/or assembly drawing(s) provided with the container for correct assembly and attachment.

3.2.6 **⚠ WARNING** Verify that the load chain is not twisted or tangled prior to operating the hoist. Make sure the bottom hook is not capsized. See Figure 3-4. Correct all chain irregularities before conducting the first hoist operation.

3.2.7 Lubricate the entire length of the load chain with the supplied tube(s) of grease per the instructions in Section 6.2.1.

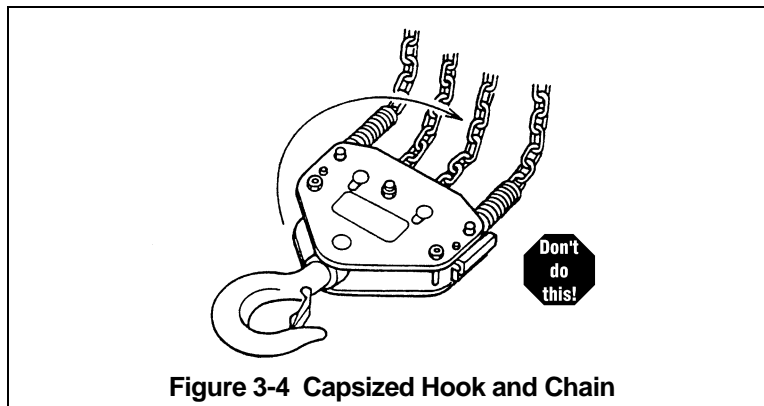


Figure 3-4 Capsized Hook and Chain

3.3 Mounting Location

3.3.1 **⚠ WARNING** Prior to mounting the hoist ensure that the suspension and the supporting structure are adequate to support the hoist and its loads. If necessary consult a professional that is qualified to evaluate the adequacy of the suspension location and its supporting structure.

3.3.2 **NOTICE** See Section 6.8 of the **ER20M** for outdoor installation considerations.

3.4 Mounting the Hoist

3.4.1 Manual Trolley - Follow instructions in Owner's Manual provided with the trolley.

3.4.2 Motorized Trolley - Follow instructions in Owner's Manual provided with the trolley.

3.4.3 Hook Mounted to a Fixed Location - Attach the hoist's top hook to the fixed suspension point.

3.4.4 Lug Mounted ER2080S and ER2100L-LG – To maintain proper balance when the hoist is not loaded, it is necessary to install a stabilizing shaft to prevent the hoist from pivoting on the main support shaft. Refer to Figure 2-1 and Figure 2-2 for the size and location of the main support and stabilizing holes in the hoist's top suspension plates.

3.4.5 **⚠ WARNING** Ensure that the fixed suspension point rests on the center of the hook's saddle and that the hook's latch is engaged.

3.5 Electrical Connections

3.5.1 **⚠ CAUTION** Ensure that the voltage of the electric power supply is proper for the hoist or trolley.

3.5.2 **⚠ CAUTION** Do NOT apply electronic soft-start control or voltage varying controls to the ER2 or NER2 hoist. Use of such devices may cause the motor brake and other electrical components to malfunction. Variable frequency drives MAY be used with the single speed ER2/NER2 hoists, contact Harrington Hoists, Inc. for more information.

3.5.3 **⚠ DANGER** Before proceeding, ensure that the electrical supply for the hoist or trolley has been de-energized (disconnected). Lock out and tag out in accordance with ANSI Z244.1 "Personnel Protection -Lockout/Tagout of Energy Sources".

3.5.4 **⚠ DANGER** To avoid a shock hazard, **DO NOT** perform **ANY** mechanical or electrical maintenance on the dual speed (VFD control) trolley or hoist within 5 minutes of de-energizing (disconnecting) the trolley or hoist. This time allows the internal VFD capacitor to safely discharge.

3.5.5 **⚠ DANGER** Do NOT remove power to the dual speed (VFD control) hoist or trolley during operation.

3.5.6 **⚠ CAUTION** All dual speed hoists are equipped with a VFD. The VFD is used to control the high and low lifting speeds. The speeds come preset from the factory (See Table 3-6, ER2OM). Speed (frequency) can be customized. Refer to Section 3.6.10 of ER2OM, for hoist specific speed ranges and instructions.

3.5.7 The following instructions apply when the hoist is hook mounted to a fixed suspension point or installed on a manual trolley. The hoist is controlled by a pendant with two push buttons – one for lifting and one for lowering. Refer to the appropriate trolley Owner's Manual if the hoist is installed on a motorized trolley. Special wiring considerations must be taken if the trolley is used with a trolley other than an MR2 model.

Pendant Cord

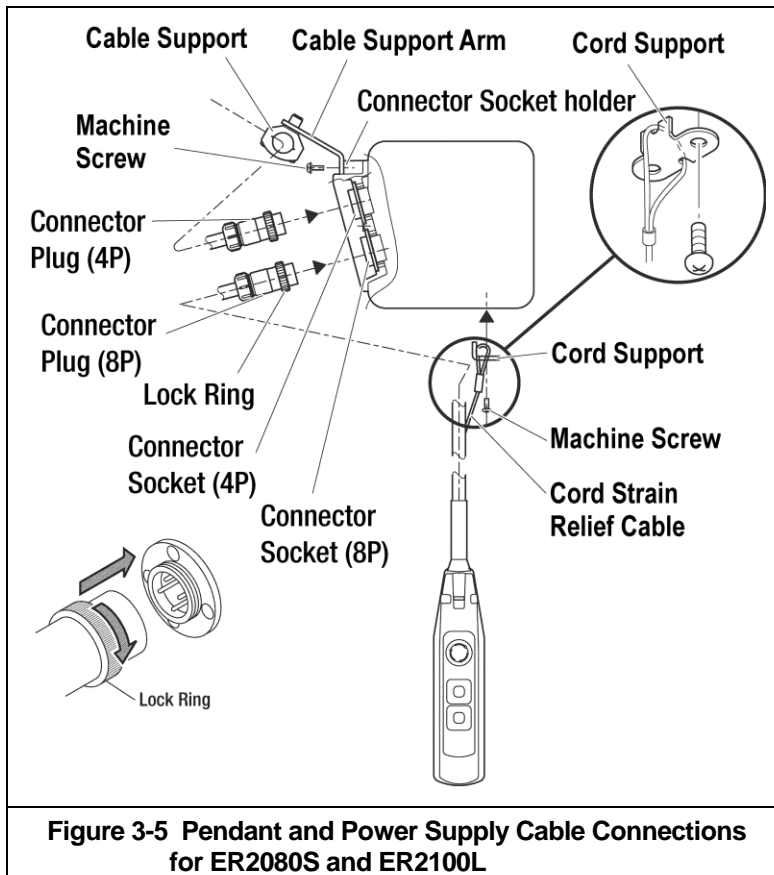
The Pendant Cord connects to the hoist via an 8-pin (8P) Plug and Socket. Make this connection as follows:

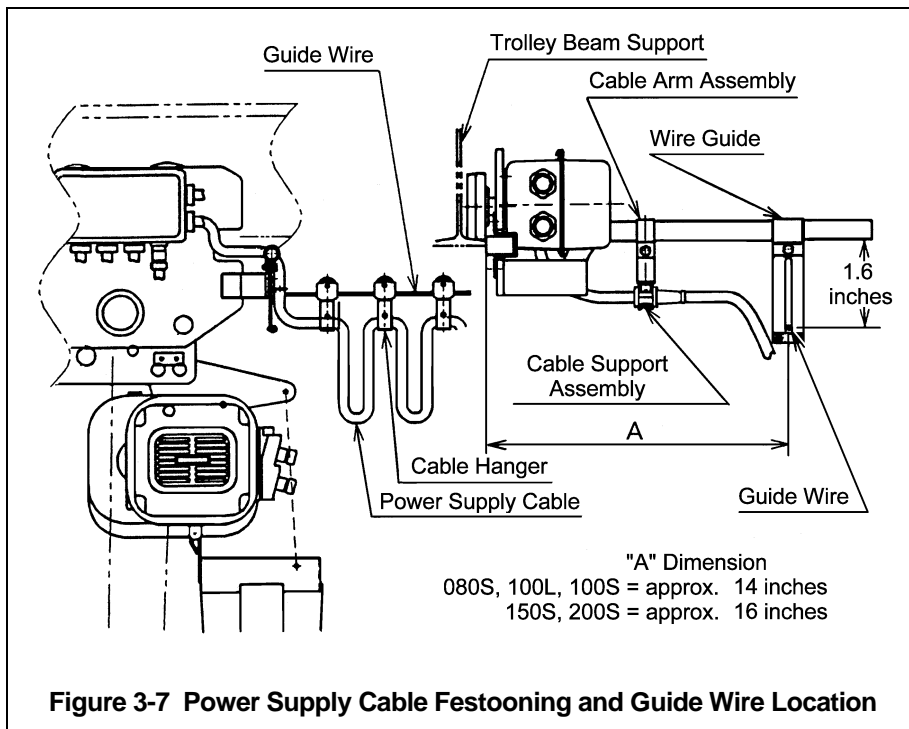
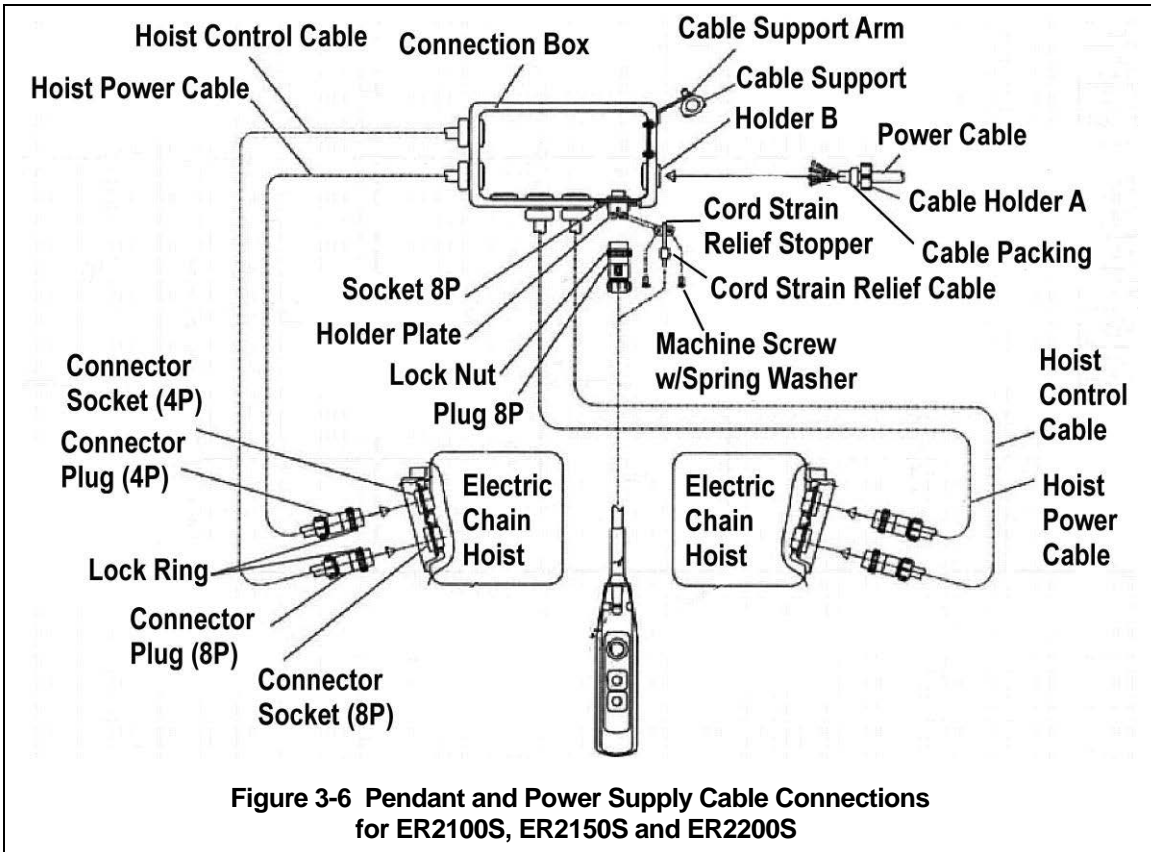
- Refer to Figure 3-5 or 3-6 depending on the Product Code.
- For ER2080S and ER2100L - Insert the 8P Plug into the 8P Socket on the hoist body and hand tighten the Lock Ring. Install the strain relief cable to the bottom of the hoist body.
- For ER2100S, ER2150S and ER2200S - Insert the 8P Plug into the 8P Socket on the switch box and hand tighten the Lock Ring. Install the strain relief cable onto the cord strain relief stopper located at the 8P socket.

Power Supply Cable - Hoist Connection

The Power Supply Cable connects to the hoist via a 4-pin (4P) plug and socket or a direct fitting depending on the product code. Make this connection as follows:

- Refer to Figure 3-5 or 3-6 depending on the product code.
- For ER2080S and ER2100L insert the 4P plug of the Power Supply Cable into the 4P Socket on the hoist and hand tighten the Lock Ring.
- For ER2100S, ER2150S, and ER2200S – The power supply cable should be pre-installed to the switch box and properly connected.
- Install the Cable Support Arm (pre-installed on the Power Supply Cable) on to the Socket Holder or Switch Box depending on the product code. Use the pre-installed Machine Screws and Lock Washers.
- Use care to avoid twisting or kinking the Power Supply Cable.
- Insert the 4P Plug into the 4P Socket on the hoist and hand-tighten the Lock Ring.






Power Supply Cable - Installation

If the hoist is hook mounted to a fixed support ensure that the Power Supply Cable is properly installed and supported between the hoist and the electrical power supply.

If the hoist is installed on a manual trolley, then the Power Supply Cable must be installed along the beam that the trolley runs on. For curved beams a special cable suspension system will be needed, and this instruction does not apply. For straight beams install the Power Supply Cable as follows:

- Refer to Figure 3-7.
- Install the Cable Hangers on to the Power Supply Cable spacing them every 5 feet.
- Install a Guide Wire system parallel to the Bridge Beam. Pass the Guide Wire through the Cable Hangers and the Wire Guide.
- Make sure the Guide Wire is properly tensioned and the Power Supply Cable is not twisted or kinked.

- 3.5.8 Connection to Electrical Power Source - The red, blue, and black wires of the Power Supply Cable should be connected to an Electric Power Disconnect Switch or Circuit Breaker. This connection should be made so that the hoist is phased properly. Refer to Section 3.6.11 for instructions on how to check for correct power supply phase connection.
- 3.5.9 Fuse/Breaker Capacity -The hoist's power supply should be equipped with overcurrent protection such as fuses, which should be selected for 110% to 120% of total listed full load amperage, and should be dual element time-delay fuses. Refer to the motor nameplate(s) for the full load amperage draw.
- 3.5.10  **DANGER** Grounding - An improper or insufficient ground connection creates an electrical shock hazard when touching any part of the hoist or trolley. In the Power Supply Cable the ground wire will be either Green with Yellow stripe or solid Green. It should always be connected to a suitable ground connection. Do not paint the trolley wheel running surfaces of the beam as this can affect grounding.

3.6 Preoperational Checks and Trial Operation

- 3.6.1 Refer to the hoist's nameplate and record the hoist's Code, Lot and Serial Number in the space provided on the cover of this manual.
- 3.6.2 **⚠️ WARNING** Confirm the adequacy of the rated capacity for all slings, chains, wire ropes and all other lifting attachments before use. Inspect all load suspension members for damage prior to use and replace or repair all damaged parts.
- 3.6.3 **⚠️ WARNING** Verify and correct all chain irregularities prior to operating the hoist. Refer to Section 3.2 of this manual.
- 3.6.4 Measure and record the “k” dimension of all hooks on hoist. See Table 5-4 under Section 5 “Inspection”, of this manual.
- 3.6.5 Ensure that the hoist is properly installed to either a fixed point, or trolley, whichever applies.
- 3.6.6 If hoist is installed on a trolley, ensure that
- trolley is properly installed on the beam, and
 - stops for the trolley are correctly positioned and securely installed on the beam.
- 3.6.7 Ensure that all nuts, bolts and split pins (cotter pins) are sufficiently fastened.
- 3.6.8 Pull down on the Pendant and ensure that the Cord Strain Relief Cable takes the force, not the Pendant Cord.
- 3.6.9 **⚠️ CAUTION** Check supply voltage before everyday use. If the voltage varies more than 10% of the rated value, electrical devices may not function normally.
- 3.6.10 Confirm proper operation.
- Before operating read and become familiar with Section 4 – Operation in the **ER20M**.
 - Before operating ensure that the hoist (and trolley) meets the Inspection, Testing and Maintenance requirements of ANSI/ASME B30.16.
 - Before operating ensure that nothing will interfere with the full range of the hoist's (and trolley's) operation.
- 3.6.11 Proceed with trial operation to confirm proper operation.
- Verify that the controls agree with hoist direction. Make sure that depression of the up button lifts the load chain and depression of the down button lowers the load chain hook. If the load chain does not move in the correct direction when the push buttons are pushed, the power supply is phased incorrectly. In this case, turn off the power source or breaker switch then reverse any two of the three wires at the power source. The hook will then move in accordance with the directions of the push button.
 - Perform inspections per Section 5.2, “Frequent Inspections” in the **ER20M**.

5.0 Inspection

NOTICE

The information listed in this section is intended to supplement Section 5.7 of the ER2OM.

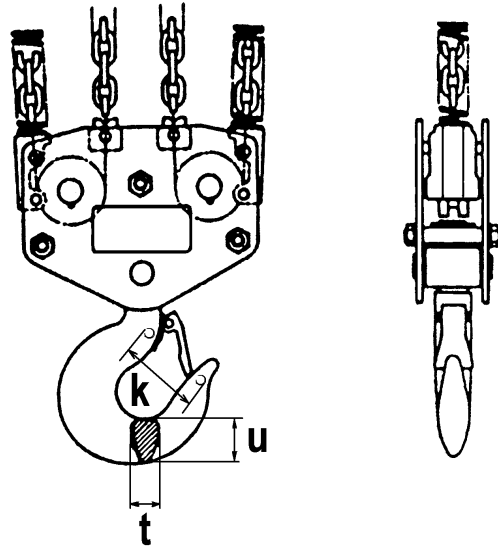
Table 5-3 Hoist Inspection Methods and Criteria Use this table in conjunction with Table 5-3 of the ER2OM. The entries in this table replace in their entirety the corresponding entries in Table 5-3 of the ER2OM.			
Item	Method	Criteria	Action
Hooks - Fretting wear	Measure	The "u" and "t" dimensions should not be less than discard value listed in Table 5-4	Replace.
Hooks - Stretch	Measure	The "k" dimension should not be greater than 1.15 times that measured and recorded at the time of purchase (See Section 3.6). If recorded "k" values are not available for hooks when new, use nominal "k" values from Table 5-4 .	Replace.
Load Chain - Pitch and Wire Diameter	Measure	The "P" dimension should not be greater than maximum value listed in Table 5-5 . The "d" dimension should not be less than minimum value listed in Table 5-5 .	Replace. Inspect Load and Idle Sheaves.
Load Chain – Reeving and Evening	Visual	Chain should be reeved properly through Load and Idle Sheaves - refer to Section 6.4 . Chain, Chain Springs, Stoppers, and Chain Pin should be installed properly - refer to Section 3.2 . For double body hoists, chain should be evenly distributed – equal length of chain in each chain container or equal lengths of chain on no-load side of each hoist body.	Reeve/Install chain properly. Lower hook until lower limit switch is activated on both hoist bodies.
Chain Springs	Visual	Chain springs should not be deformed or compressed. Refer to Table 5-6 for Chain Spring dimensions.	Replace.

Table 5-4 Top Hook & Bottom Hook Dimensions

"k" Measured When New:

Top: _____

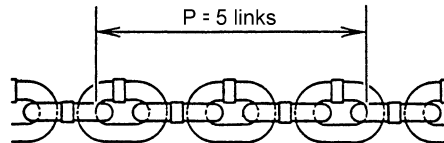
Bottom: _____



Capacity Code	Nominal "k" Dimension* inch (mm)	"u" Dimension inch (mm)		"t" Dimension inch (mm)	
		Standard	Discard	Standard	Discard
080S	4.76(121)	2.86(72.6)	2.72(69)	1.89(48)	1.8(45.6)
100L, 100S	5.16(131)	3.43(87)	3.26(82.7)	2.36(60)	2.24(57)
150S	5.6(142)	3.91(99.4)	3.72(94.5)	2.76(70)	2.62(66.5)
200S	7.13(181)	4.4(112)	4.19(106.4)	2.8(71)	2.66(67.5)

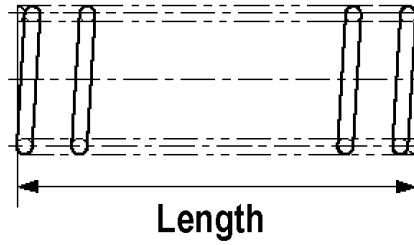
* These values are nominal since the dimension is not controlled to a tolerance. The "k" dimension should be measured when the hook is new - this becomes a reference measurement. Subsequent measurements are compared to this reference to make determinations about hook deformation/stretch. See Section 5.7 of ER2OM, "Hooks - Stretch".

Table 5-5 Chain Wear Dimensions



Capacity Code	"P" Dimension inch (mm)		"d" Dimension inch (mm)	
	Standard	Discard	Standard	Discard
080S, 100L, 100S, 150S, 200S	6.18 (157.0)	6.37 (161.7)	0.44 (11.2)	0.42 (10.6)

Table 5-6 Chain Spring Length Dimensions



Capacity Code	"Length" - inch (mm)	
	Standard	Discard
080S, 100L, 100S, 0150S, 200S	6.3 (160)	6.0 (152)

6.0 Maintenance and Handling

6.2 Lubrication

6.2.1 Load Chain

- Refer to 6.2.1 of the ER2OM.

6.2.2 Hooks and Suspension Components:

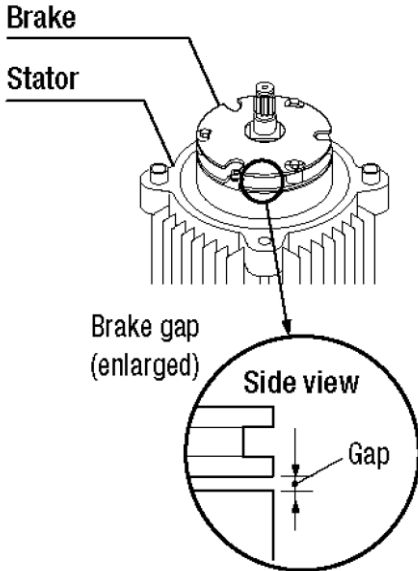
- Refer to 6.2.2 of the ER2OM.

6.2.3 Gear Box:

- Refer to 6.3 of the ER2OM except use the following table for checking oil level.

Capacity Code	Check Distance (inches)	Check Distance (millimeters)
080S, 100L, 100S, 0150S, 200S	5.12	130

6.3 Motor Brake - Use the table below in conjunction with Section 6.4 of the ER2OM.

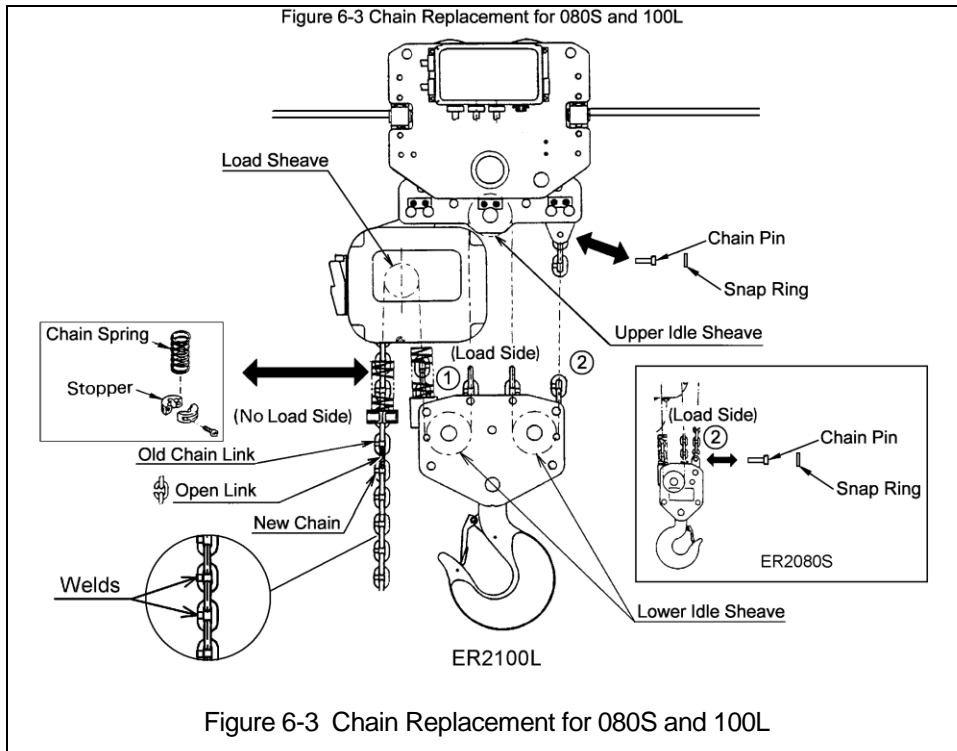
	
Capacity Code	"Gap" Discard Dimension - inch (mm)
080S, 100L, 100S, 150S, 200S	0.043 (1.1)

6.4 Load Chain

6.4.1 Lubrication and Cleaning – refer to Section 6.2 of **ER20M**.

6.4.2 Load Chain Replacement for ER2080S and ER2100L:

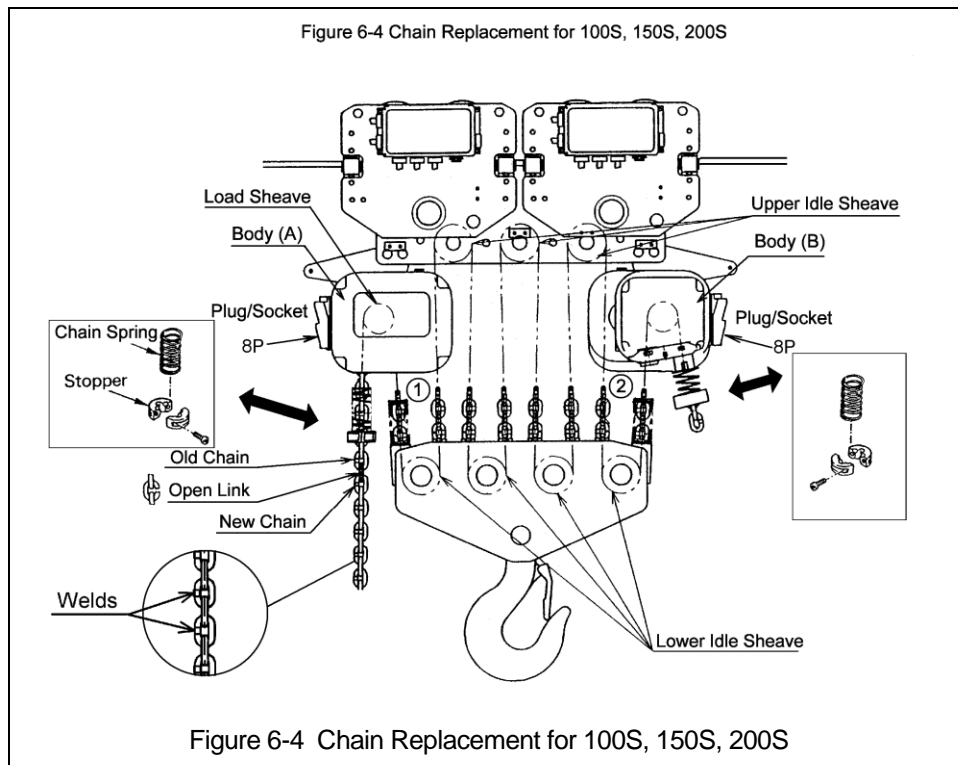
- 1) **⚠ CAUTION** The hoist must be properly powered and operational in order to perform the following procedures.
- 2) **⚠ WARNING** Be certain that the replacement chain is obtained from Harrington and is the exact size, grade and construction as the original chain. The new load chain must have an odd number of links so that both its end links have the same orientation. If the load chain is being replaced due to damage or wear out, destroy the old chain to prevent its reuse.
- 3) **⚠ CAUTION** When replacing load chain, check for wear on mating parts, i.e. Load Sheave, Chain Guides and Idle Sheaves, and replace parts if necessary.
- 4) For hoists without a chain container, remove the socket bolt, lock nut, and attach the no-load side of the chain to Chain Guide A.
- 5) Remove the Stopper and Chain Spring from the no-load side of the chain for reuse on the new chain. Inspect and replace any damaged or worn parts.
- 6) Using an open link, attach the new chain to the end link of the old chain on the no-load side. The end link of the new load chain should be connected so that the welded portions of the load chain's standing links are oriented to the outside as they pass over the Load Sheave. Refer to Figure 6-3.
- 7) Operate the hoist down to move the new chain through the hoist body. Stop when a sufficient amount of new chain is accumulated on the load side.
- 8) Complete reeving as follows:
 - For ER2080S pull down on Part ② until new chain is fed through the upper and lower idle sheaves. Secure the new chain at Part ② directly below the upper suspension plates to prevent the new chain from running back through the idle sheaves. Remove the open link attaching the new chain to the old chain.
 - For ER2100L pull up on Part ② until the new chain is fed through the upper and lower idle sheaves. Secure the new chain at Part ② directly above the lower idle sheave to prevent the new chain from running back through the idle sheaves. Remove the open link attaching the new chain to the old chain.
- 9) Remove the Snap Ring and Chain Pin that attach the old chain to the chain holder for use on the new chain. Inspect and replace any damaged or worn parts.
- 10) Connect the end link of the new chain to the chain holder with the Chain Pin and Snap Ring. Ensure that the chain remains free of twists. Attach the remaining chain components to the chain referring to Section 3.2 for the proper locations. For hoists without a chain container, attach the no-load side of the chain to Chain Guide A with the socket bolt, and lock nut. See Figure 3-2.
- 11) **⚠ WARNING** Make sure the Stopper and Chain Springs are properly installed. Refer to Section 3.2.
- 12) After installation has been completed, perform steps outlined in Section 3.6 "Preoperational Checks and Trial Operation".



6.4.3 Load Chain Replacement for ER2100S, ER2150S and ER2200S:

- 1) **⚠ CAUTION** The hoist must be properly powered and operational in order to perform the following procedures.
- 2) **⚠ WARNING** Be certain that the replacement chain is obtained from Harrington and is the exact size, grade and construction as the original chain. The new load chain must have an odd number of links so that both its end links have the same orientation. If the load chain is being replaced due to damage or wear out, destroy the old chain to prevent its reuse.
- 3) **⚠ CAUTION** When replacing load chain, check for wear on mating parts, i.e. Load Sheave, Chain Guides and Idle Sheaves, and replace parts if necessary.
- 4) For hoists without chain containers, remove the socket bolts, lock nuts, and attach the end links of the chain to Chain Guide A on both hoist bodies.
- 5) Remove the Stopper and Chain Spring from one end of the old chain. Inspect and replace any damaged or worn parts.
- 6) Using an open link, attach the new chain to the end link of the old chain where the Stopper and Chain Spring were removed. The end link of the new load chain should be connected so that the welded portions of the load chain's standing links are oriented to the outside as they pass over the Load Sheave. Refer to Figure 6-4.
- 7) Install the Stopper and Chain Spring to the free end of the new chain. Refer to Section 3.2 in this supplement for the correct location.
- 8) Disable Hoist Body B by unplugging its 8P plug. Operate Hoist Body A in the down direction to move the new chain through the hoist until a sufficient quantity of chain has accumulated between the hoist bodies. Re-enable Hoist Body B by re-inserting its 8P plug.
- 9) Disable Hoist Body A by unplugging its 8P plug. Operate Hoist Body B in the up direction to move the new chain through the hoist until a sufficient quantity of new chain has passed through Hoist Body B. Re-enable Hoist Body A by re-inserting its 8P plug.
- 10) Remove the open link attaching the new chain to the old chain.

- 11) Remove the remaining Stopper and Chain Spring from the old chain. Inspect and replace any damaged or worn parts. Install the Stopper and Chain Spring to the end of the new chain. Refer to Section 3.2 in this supplement for correct location.
- 12) For hoists without a chain container, attach the ends of the chain to Chain Guide A on each body with the socket bolt, and lock nut (see Figure 3-2). Ensure that all chain parts remain free of twists and correct any if found.
- 13) Even out the chain by operating the hoist down until the down Limit Switch on both hoist bodies is activated.
- 14) **⚠WARNING** Make sure the Stopper and Chain Springs are properly installed. Refer to Section 3.2 in this supplement.
- 15) After installation has been completed, perform steps outlined in Section 3.6 "Preoperational Checks and Trial Operation".

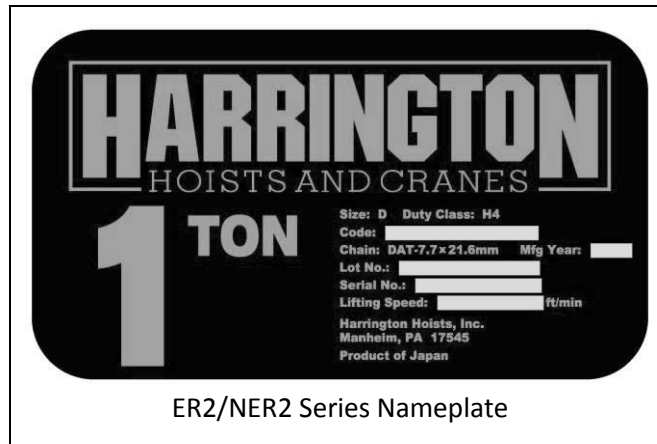


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9.0 Parts List

When ordering Parts, please provide the Hoist code number, lot number and serial number located on the Hoist nameplate (see fig. below).

Reminder: Per sections 1.1 and 3.7.4 to aid in ordering Parts and Product Support, record the Hoist code number, lot number and serial number in the space provided on the cover of this manual.



ER2/NER2 Series Nameplate

The parts list is arranged into the following sections:

Section	Page
9.1 Housing and Motor Parts.....	24
9.2 Gearing Parts.....	26
9.3 Chain Parts.....	28
9.4 Bottom Hook Parts.....	30
9.5 Electric Parts (Single Speed).....	34
9.6 Electric Parts (Dual Speed).....	36
9.7 Power Supply and Pendant Parts.....	38
9.8 Top Suspension Plate Parts.....	42
9.9 Top Hook Parts.....	46
9.10 Control Station Parts (Plate Suspension Type).....	52
9.11 Control Station Parts (Top Hook Type).....	54
9.12 Chain Container Parts.....	56

In the column "Parts Per Hoist" a designator is used for parts that apply only to a particular model or option. Refer to Section 2 for hoist model numbers and additional descriptions. The designators are:

- S = Single Speed
- D = Dual Speed
- F = NER2 Models
- M = ER2 Models
- 2V = 208/230 Volt Models
- 4V = 460 Volt Models

9.1 Housing and Motor Parts

**080S/SD, 100L/LD, 100S/SD,
150S/SD, 200S/SD**

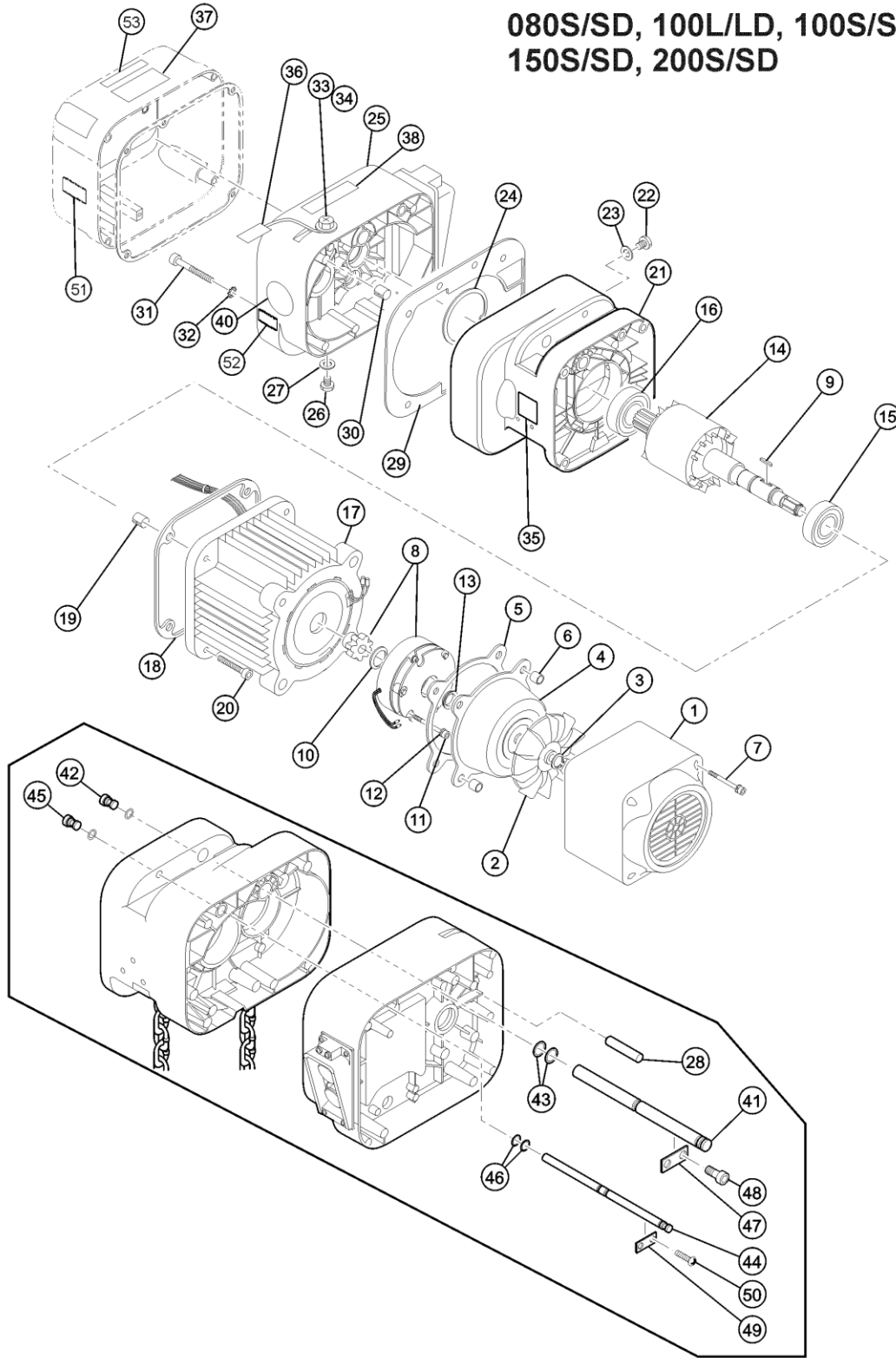


Figure 9-1-1 Housing and Motor Parts

9.1 Housing and Motor Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L	100S	150S	200S
1	Fan Cover	1 (2)			ER2ES9107		
2	Fan	1 (2)			ER2ES9108		
3	Snap Ring	1 (2)			9047122		
4	Brake Cover	1 (2)			ER2ES9115		
5	Packing B	1 (2)			ER2ES9119		
6	Set Pin S	2 (4)			ES120003		
7	Socket Bolt	4 (8)			9091255		
8	Electromagnetic Brake Assembly	1 (2)			MBABB35NA		
9	Key B	1 (2)			ER2ES9360		
10	Snap Ring	1 (2)			9047130		
11	Socket Bolt	3 (6)			9091278		
12	Spring Lock Washer	3 (6)			9012712		
13	V Ring	1 (2)			ER2ES9210		
14	Motor Shaft With Rotor	1 (2)			ER2FS5502		
15	Ball Bearing	1 (2)			9000907		
16	Ball Bearing	1 (2)			9000906		
17	Motor Frame With Stator	1 (2)			ER2BKV25S5A1		
18	Packing M	1 (2)			ER2FS9118		
19	Set Pin S	2 (4)			ER2ES9138		
20	Socket Bolt	4 (8)			90912116		
21	Body B	F	1 (2)		ER2FS6101		
	Body C	M			ER2FS6099		
22	Oil Plug	1 (2)			E3S111003		
23	Plug Packing	1 (2)			E3S112003		
24	Snap Ring	1 (2)			9047280		
25	Gear Case	F	1 (2)		ER2FS6103		
		M			ER2FS6102		
26	Oil Plug	1 (2)			E3S111003		
27	Plug Packing	1 (2)			E3S112003		
28	Spring Pin	1 (2)			E3S129005S		
29	Packing G	F	1 (2)		ER2FS9116		
		M	2 (4)				
30	Set Pin S	F	2 (4)		ES120010S		
		M	4 (8)				
31	Socket Bolt	F	5 (10)		9091286		
		M			90912155		
32	Toothed Lock Washer	5 (10)			9679711		
33	Oil Fill Plug	1 (2)			ER1BS9135		
34	Eyebolt Packing	1 (2)			ES127005S		
35	Name Plate Load Side	1 (2)			ER1BS9960		
36	Oil Full Tag	1 (2)			ER1BS9953		
37	Warning Sticker E (Disconnect Power)	1 (2)			ER2CS9936		
38	Name Plate OF (Correct Oil Required)	F	1 (2)		ER2CS9845		
	Name Plate OM (Correct Oil Required)	M			ER2CS9846		
40	Name Plate AD (Speed Letter)	1 (2)	ER1BS9868	ER1BL9868		ER1BS9868	
41	Connection Shaft Assembly	1 (2)			ER2FS6121		
42	Top Pin Plug Assembly	1 (2)			ER2FS6128		
43	O Ring	2 (4)			9013317		
44	Fixing Shaft Assembly	1 (2)			ER2FS6122		
45	Fixing Shaft Plug Assembly	1 (2)			ER2FS6131		
46	O Ring	2 (4)			9013307		
47	Connection Shaft Plate A	1 (2)			ER1ES9123		
48	Socket Bolt With Spring Washer	2 (4)			J1BG10601616		
49	Plate A	1 (2)			ER1BS9123		
50	Machine Screw With Spring Washer	2 (4)			M6F554010		
51	Check Voltage Label	S,2V	1		ECP99NVVB		
		S,4V			ECP99NVVA		
		D,2V			ECP99NVWB		
		D,4V			ECP99NVWA		
52	Name Plate AA (With Mechanical Brake)	M	1		ER1BS9893		
53	Warning Sticker HW (Hot Surface)	D	1		ER2CI9806		

*Quantities in "()" are for dual-body hoists.

9.2 Gearing Parts

**080S/SD, 100L/LD, 100S/SD,
150S/SD, 200S/SD**

**Parts for Friction Clutch
with Mechanical Brake
Specification**

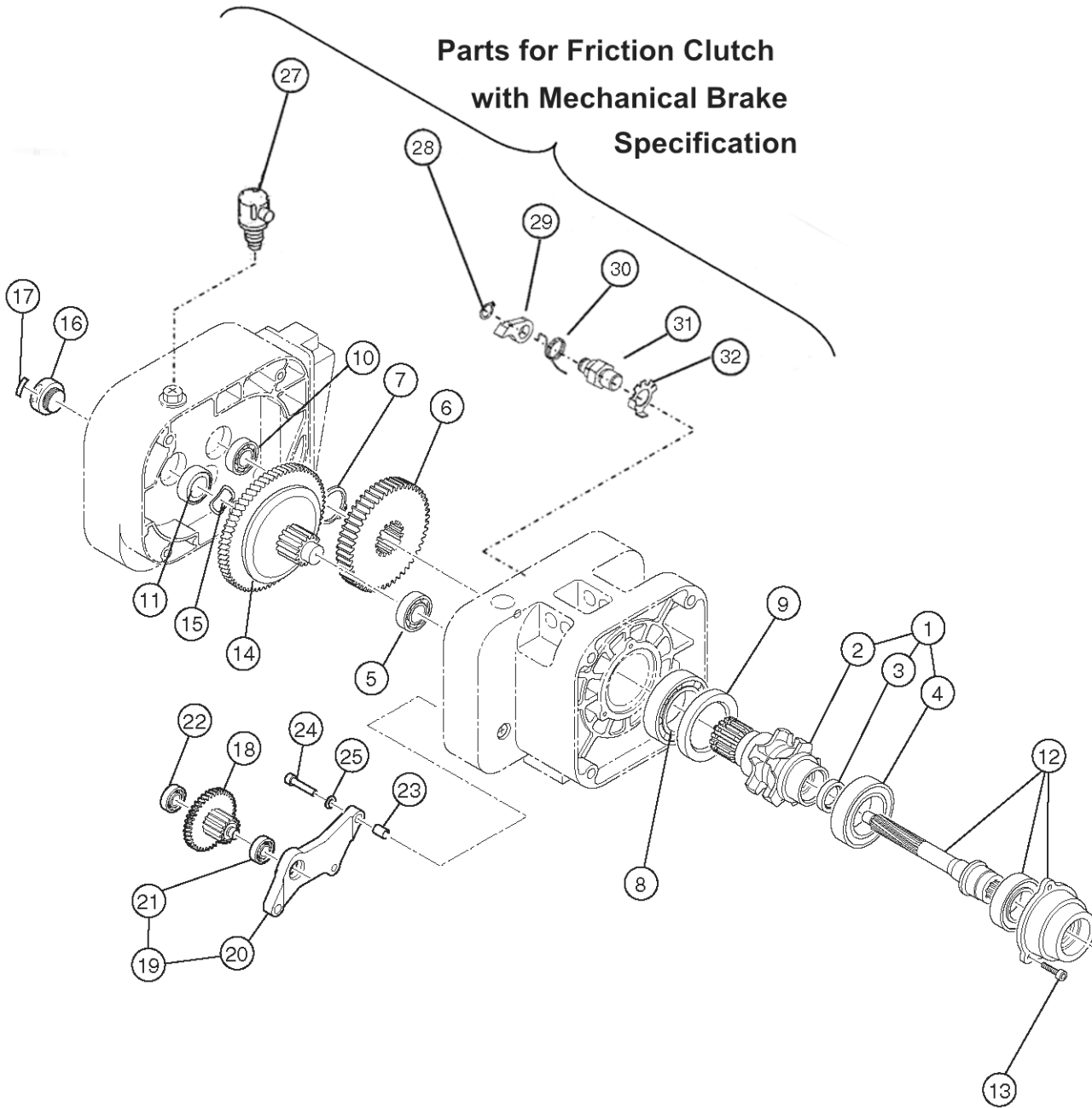


Figure 9-2-1 Gearing Parts

9.2 Gearing Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L	100S	150S	200S
1	Load Sheave Assembly				ER2FS6241		
2	Load Sheave				ER2FS9241		
3	Oil Seal				ER2ES9221		
4	Ball Bearing				9000610		
5	Ball Bearing				9000405		
6	Load Gear				ER2FS9240		
7	Snap Ring				9047150		
8	Ball Bearing				9000110		
9	Oil Seal				ER2ES9244		
10	Ball Bearing				9000303		
11	Oil Seal				ER1DS9233		
12	Pinion Assembly	F			ER2FS5220		
		M			ER2FS5304		
13	Socket Bolt				9091249		
14	Friction Clutch Complete Assembly	F	ER2HS1223	ER2IL1223	ER2FR1223	ER2HS1223	ER2IL1223
	Friction Clutch With Mechanical Brake Complete Assembly	M			ER2FS1274		
15	Wave Washer				ER2ES9234		
16	Nut Cover				ER2ES9235		
17	Name Plate FP (Adjustment Of Friction Clutch Prohibited)				ER1BS9892		
18	Gear B Assembly	F			ER2FS5262		
		M			ER2FS5306		
19	Gear Holder Plate Assembly				ER2FS6261		
20	Gear Holder Plate				ER2FS9261		
21	Ball Bearing				9000203		
22	Ball Bearing				9000202		
23	Set Pin S				ES120010S		
24	Socket Bolt				9091275		
25	Spring Lock Washer				9012711		
27	Vent Cap	M			ER1BS1175		
28	Snap Ring	M			9047111		
29	Pawl	M			L4155015		
30	Pawl Spring	M			ER1BS9290		
31	Pawl Shaft	M			ER2CS9289		
32	Pawl Shaft Washer	M			ER2CS9294		

*Quantities in "()" are for dual-body hoists.

9.3 Chain Parts

080S/SD, 100L/LD, 100S/SD,
150S/SD, 200S/SD

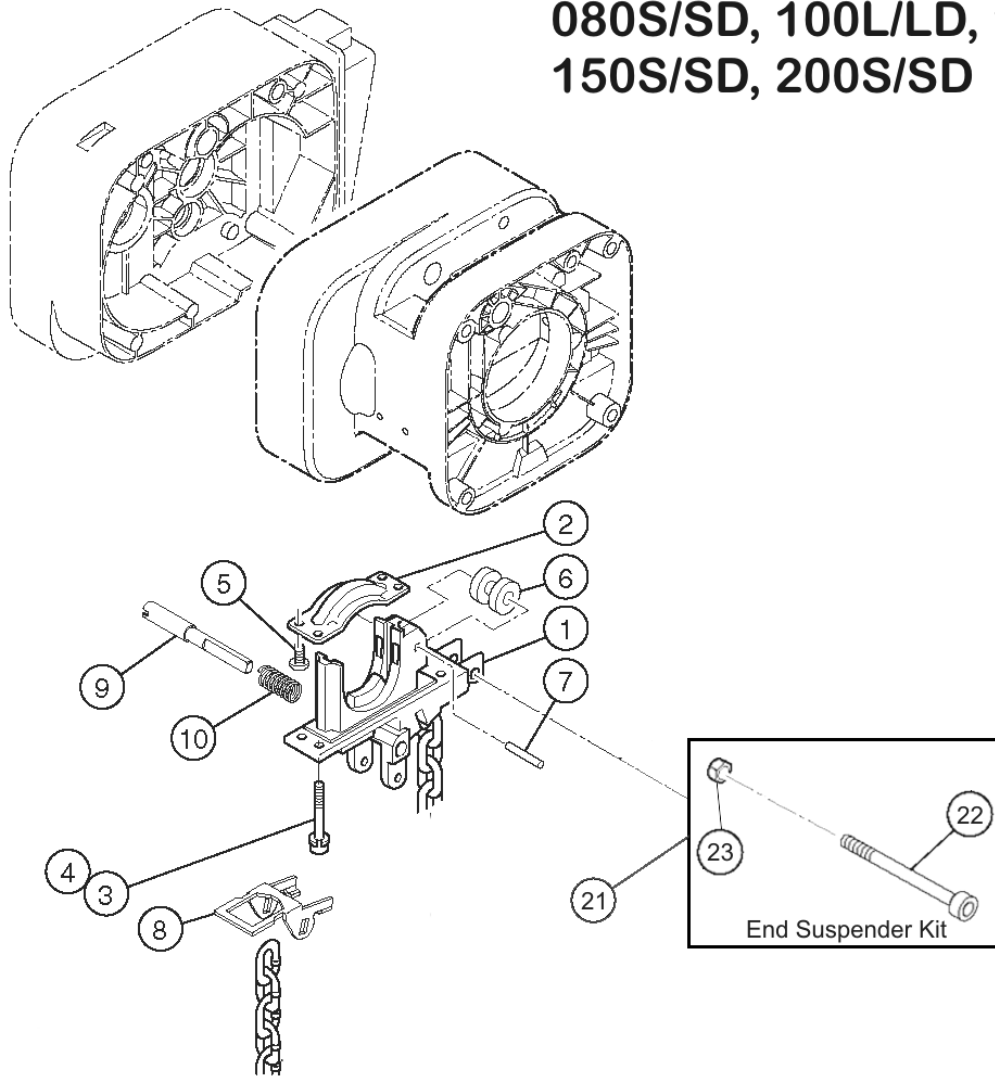


Figure 9-3-1 Chain Parts

9.3 Chain Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L	100S	150S	200S
1	Chain Guide A	1 (2)			ER2FS9331		
2	Chain Guide B	1 (2)			ER2FS9332		
3	Socket Bolt	4 (8)			9091274		
4	Spring Lock Washer	4 (8)			9012711		
5	Machine Screw With Spring Washer	4 (8)			E6F151003		
6	Guide Roller	1 (2)			ER1EM9333		
7	Roller Pin	1 (2)			ER2FS9334		
8	Limit Lever	1 (2)			ER2FS9337		
9	Limit Lever Pin	1 (2)			ER2FS9338		
10	Limit Lever Spring	1 (2)			ER2CS9357		
21	End Suspender Kit	1 (2)			ENDS2F2		
22	Socket Bolt	1 (2)			90912140		
23	Lever Nut	1 (2)			ES066075		

*Quantities in "()" are for dual-body hoists.

9.4 Bottom Hook Parts

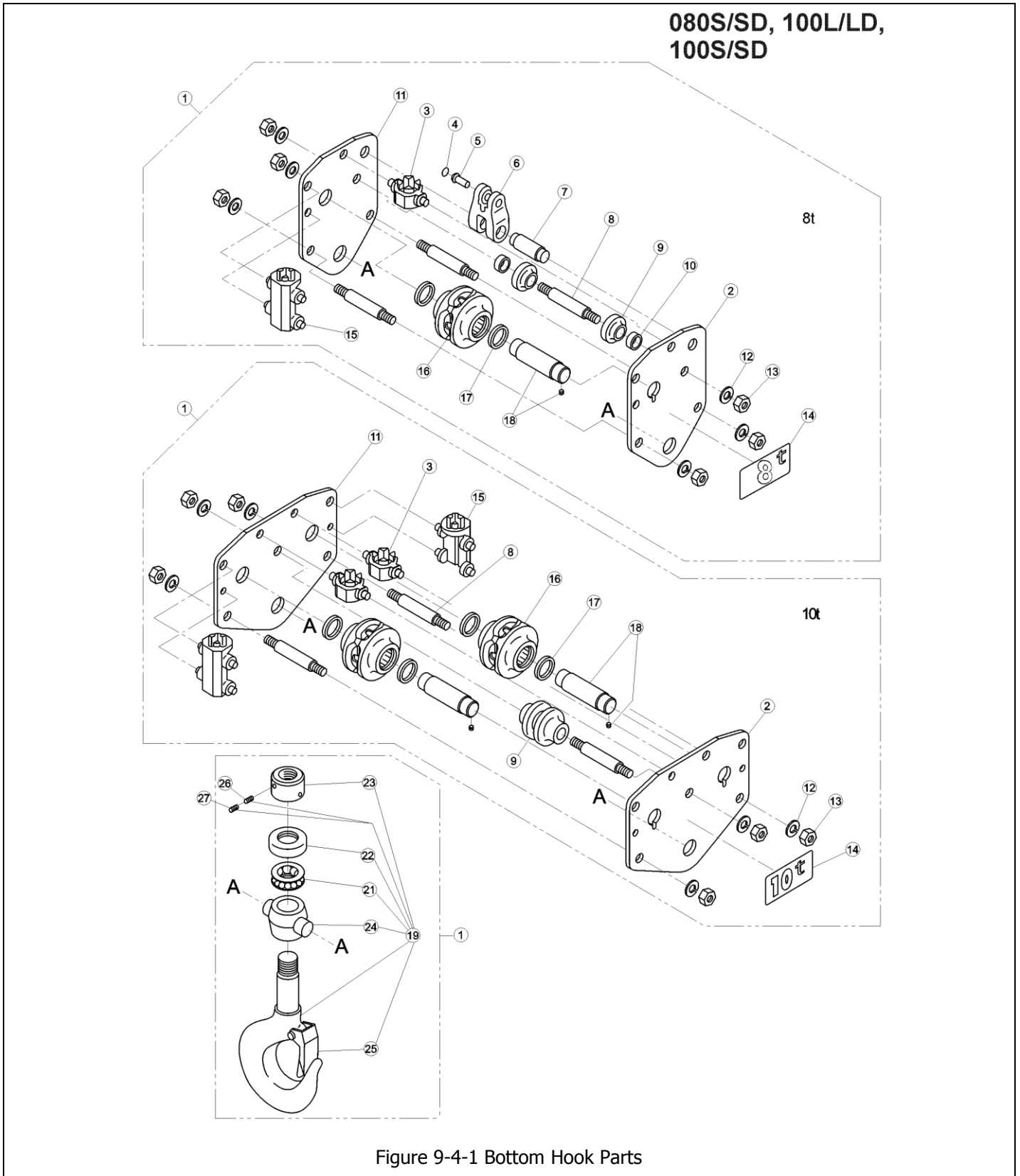


Figure 9-4-1 Bottom Hook Parts

9.4 Bottom Hook Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L	100S
1	Bottom Hook Complete Assembly	1	ER2HS1121	ER2IS1121	
2	Bottom Suspension Plate A	1	ER2HS9034	ER2IS9034	
3	Bottom Cross Guide	1 (2)	E6S067075		
4	Snap Ring	1	9047221		
5	Chain Pin	1	E6S041075		
6	Chain Holder	1	E6S039075		
7	Chain Holder Pin	1	E6S040075		
8	Bottom Stay Bolt	3	E6S038075		
9	Guide Roller	2	E6S062075		
	Bottom Guide Roller	1		E6S063100	
10	Bottom Collar	2	E6S065075		
11	Bottom Suspension Plate B	1	ER2HS9035	ER2IS9035	
12	Spring Washer	6	9012717		
13	Nut	6	9093445		
14	Name Plate A	1	80053	ER1IS9069	
15	Bottom Chain Guide	1 (2)	E6S066075		
16	Bottom Idle Sheave Assembly	1 (2)	ER2HSS052		
17	Thrust Needle Bearing	2 (4)	ER1HS9182		
18	Bottom Shaft Assembly	1 (2)	E6S5054075		
19	Top/Bottom Hook Assembly	1	ER2HS2121	ER2IS2121	
21	Thrust Bearing	1	ES022100		
22	Bearing Cover	1	E6S023100		
23	Hook Nut	1	ES024100		
24	Bottom Yoke	1	E6S030100		
25	Safety Latch Assembly	1	M2071100	C2BA1501071	
26	Stopper Screw A	1	J1TB01110016		
27	Stopper Screw B	1	J1TB01110008		

*Quantities in "()" are for 10 ton hoists.

9.4 Bottom Hook Parts

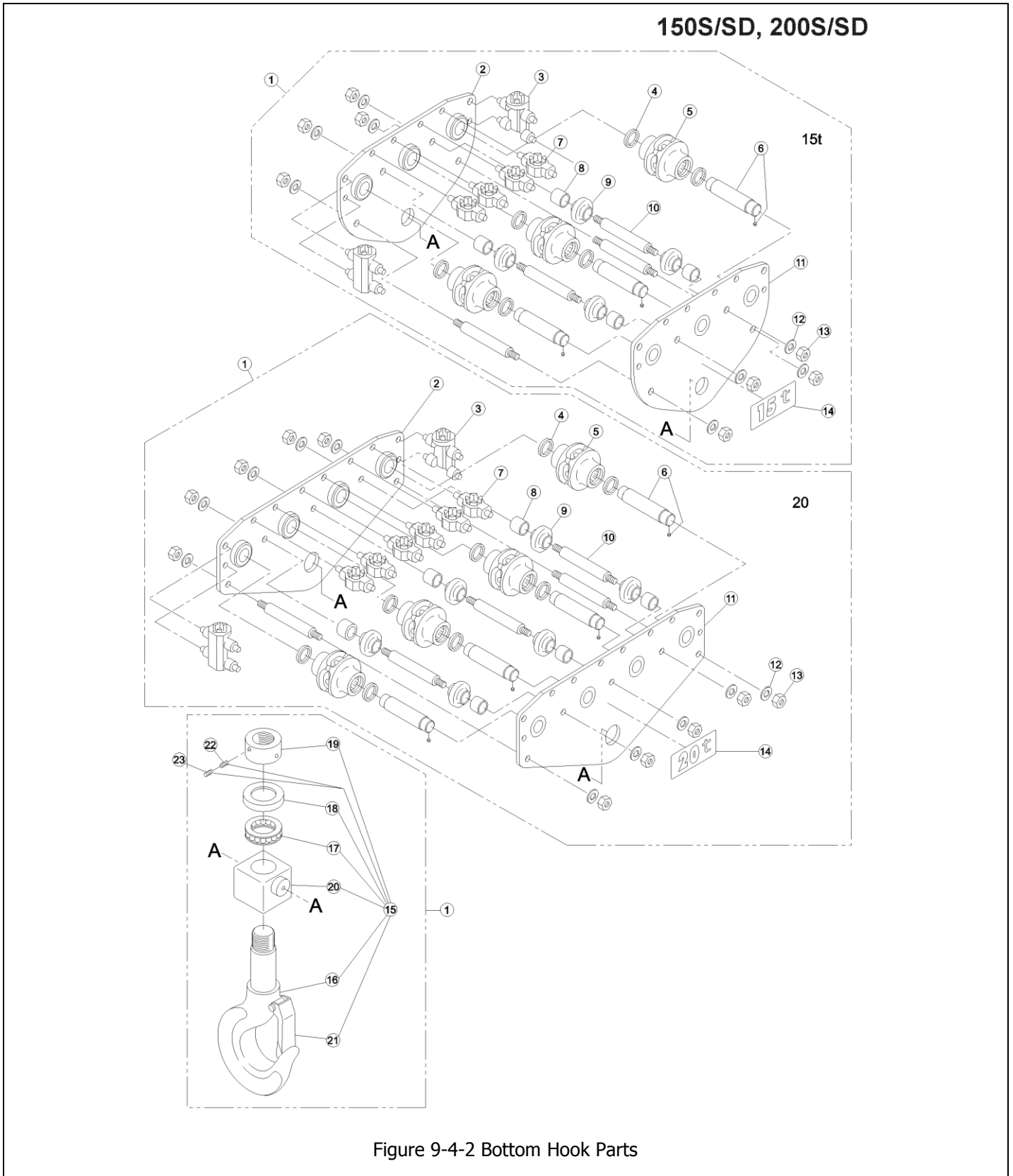


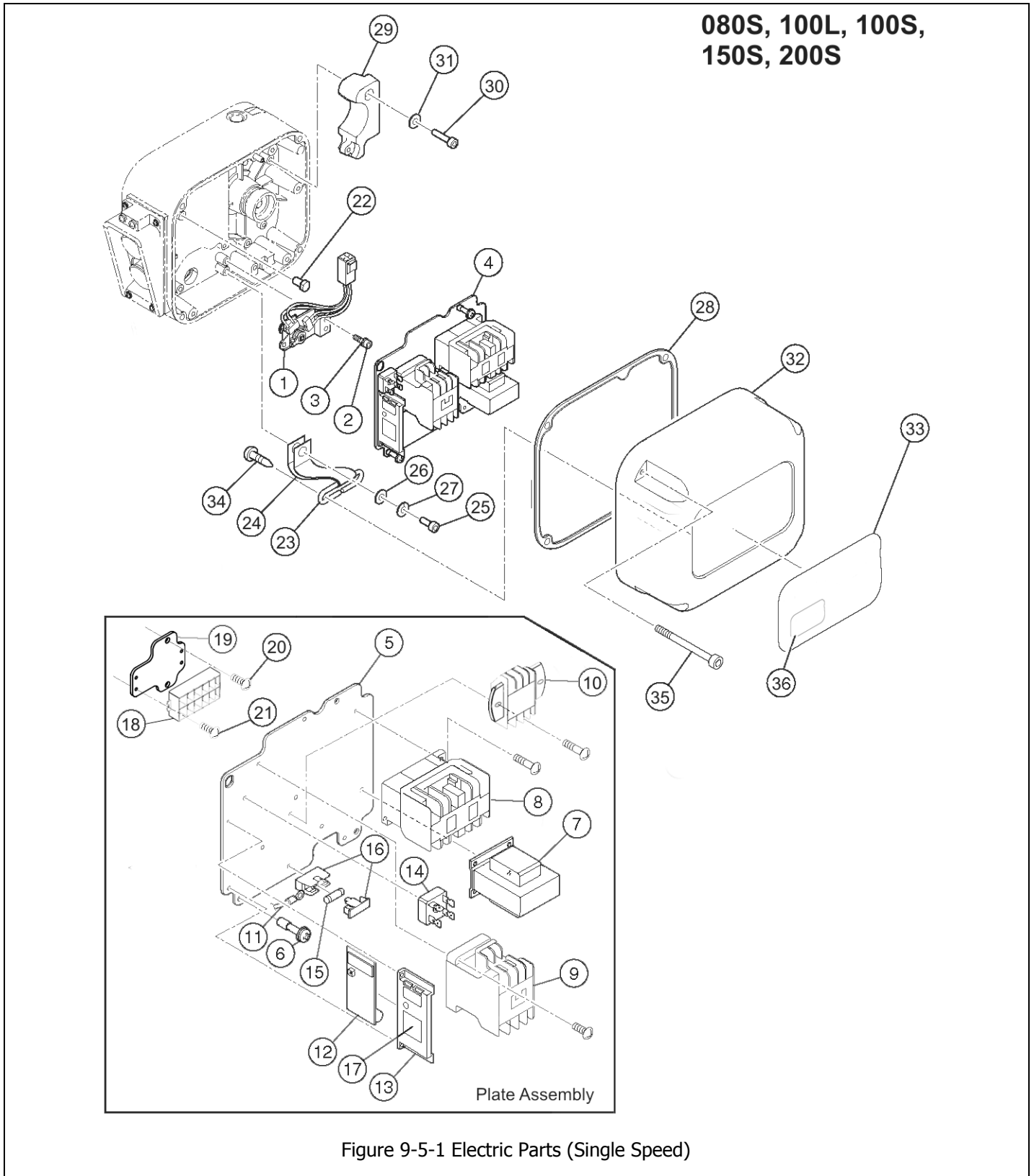
Figure 9-4-2 Bottom Hook Parts

9.4 Bottom Hook Parts

Figure No.	Part Name	Parts Per Hoist	150S	200S
1	Top/Bottom Hook Complete Assembly	1	ER2JS1121	ER2KS1121
2	Top/Bottom Suspension Plate B Assembly	1	ER2JS5035	ER2KS5035
3	Bottom Chain Guide	2	E6S066150	
4	Thrust Needle Bearing	6 (8)	ER1HS9182	
5	Bottom Idle Sheave Assembly	3 (4)	ER2HS5052	
6	Bottom Shaft Assembly	3 (4)	E6S5054075	
7	Bottom Cross Guide	4 (6)	E6S067150	
8	Bottom Collar	4 (6)	E6S065150	
9	Guide Roller	4 (6)	E6S062075	
10	Bottom Stay Bolt	4 (7)	E6S038150	
11	Bottom Suspension Plate A Assembly	1	ER2JS5034	ER2KS5034
12	Spring Washer	8 (14)	9012717	
13	Nut	8 (14)	9093445	
14	Name Plate A	1	ER1JS9069	ER1KS9069
15	Bottom Hook Assembly	1	ER2JS2121	ER2KS2121
16	Bottom Hook	1	ER2JS9121	ER2KS9121
17	Thrust Bearing	1	ES022150	ES022200
18	Bearing Cover	1	E6S023150	E6S023200
19	Hook Nut	1	E6S024150	E6S024200
20	Bottom Yoke	1	E6S030150	E6S030200
21	Safety Latch Assembly	1	M2071200	C2BA3001071
22	Stopper Screw A	1	J1TB01110016	
23	Stopper Screw B	1	J1TB01110010	

*Quantities in "()" are for 20 ton hoists.

9.5 Electric Parts (Single Speed)



9.5 Electric Parts (Single Speed)

Figure No.	Part Name	Parts Per Hoist	080S	100L	100S	150S	200S
1	Limit Switch Complete Assembly	1 (2)	ER2CI1060				
2	Socket Bolt	3 (6)	9091247				
3	Spring Lock Washer	3 (6)	9012709				
4	Plate Assembly	1 (2)	ER2GHM20S5A2				
5	Plate	1 (2)	ER2ES9441				
6	Plate Screw	3 (6)	ER1BS9445				
7	Transformer	1 (2)	TRF73V611				
8	Electromagnetic Contactor	1 (2)	MGC23406B				
9	E-Stop Contactor	1 (2)	MGC13306H				
10	Terminal Block 3P	1 (2)	ECP1303AB				
11	Lead Wire	1 (2)	ER2GHM020S9A2				
12	CH Meter	1 (2)	ECP91CHAE				
13	CH Meter Support	1 (2)	ECP99BKBA				
14	Rectifier	1 (2)	ECP94DIAA				
15	Fuse	1 (2)	9006275				
16	Fuse Holder	1 (2)	ECP92FZAA				
17	Name Plate CH	1 (2)	ECP99CHAA				
18	Terminal Block 6P	1 (2)	ECP1306AF				
19	Terminal Block Holder	1 (2)	ER2ES9466				
20	Flat Head Machine Screw	2 (4)	9096528				
21	Machine Screw	2 (4)	9798512				
22	Fulcrum Pin	1 (2)	ER2CS9449				
23	Cover Suspender	1 (2)	ER2CS9456				
24	Cover Belt	1 (2)	ER2CS9457				
25	Socket Bolt	1 (2)	9091249				
26	Plain Washer	1 (2)	ER1BS9436				
27	Spring Lock Washer	1 (2)	9012709				
28	Packing C	1 (2)	ER2FS9117				
29	Balancer	1 (2)	ER2FS9109				
30	Socket Bolt	3 (6)	9091273				
31	Spring Lock Washer	3 (6)	9012711				
32	Controller Cover	F	ER2FS9104				
		M	ER2FS2302				
33	Name Plate B	1 (2)	ER2BHM25S9A5				
34	Pan Head Machine Screw	2 (4)	9798534				
35	Machine Screw Socket Bolt	4 (8)	J1BG10504022				
36	Nameplate D	1 (2)	ER2BHM75S9A6	ER2BHM1QS9A6	ER2BHM1PS9A6	ER2BHM2QS9A6	

*Quantities in "()" are for dual-body hoists.

9.6 Electric Parts (Dual Speed)

080SD, 100LD, 100SD,
150SD, 200SD

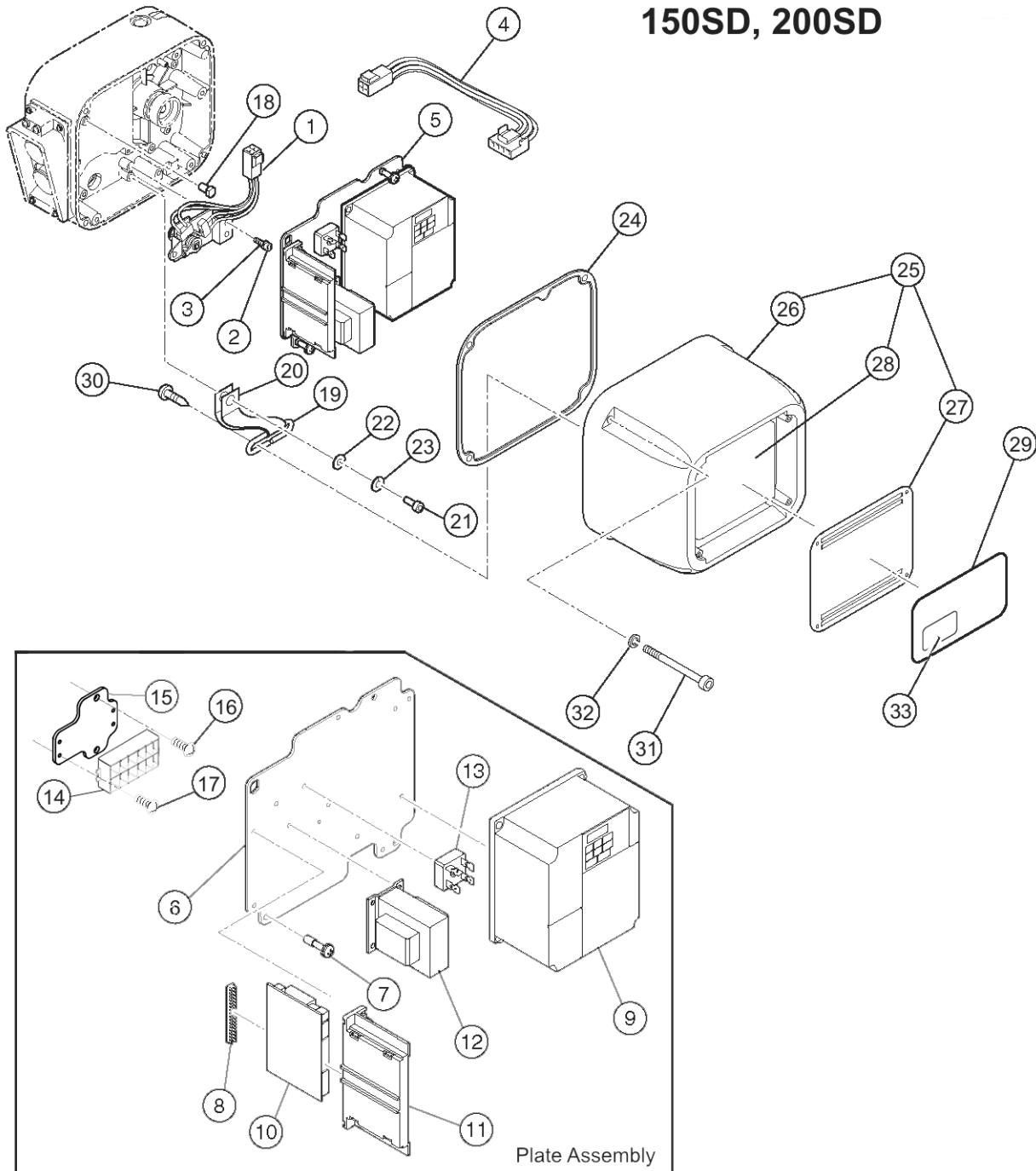


Figure 9-6-1 Electric Parts (Dual Speed)

9.6 Electric Parts (Dual Speed)

Figure No.	Part Name	Parts Per Hoist	080SD	100LD	100SD	150SD	200SD
1	Limit Switch Complete Assembly	1 (2)	ER2CI1060				
2	Socket Bolt	3 (6)	9091247				
3	Spring Lock Washer	3 (6)	9012709				
4	LS Harness	1 (2)	ER2CI9554				
5	Plate Assembly	M, 2V	1 (2)	ER2LHE20I5A2			
		F, 2V	1 (2)	ER2BHE20I5A2			
		M, 4V	1 (2)	ER2LHN20I5A2			
		F, 4V	1 (2)	ER2BHN20I5A2			
6	Plate	1 (2)	ER2EI9441				
7	Plate Screw	3 (6)	ER1BS9445				
8	Bushing	1 (2)	ECP99JBAC				
9	Inverter Assembly	M, 2V	1 (2)	INV637E24			
		F, 2V		INV637E21			
		M, 4V		INV637N24			
		F, 4V		INV637N21			
10	Interface Board	1 (2)	ECP91KB02				
11	Board Support	1 (2)	ECP99BKAA				
12	Transformer	2V	1 (2)	TRF32C612			
		4V		TRF32N612			
13	Rectifier	1 (2)	ECP94DIAA				
14	Terminal Block 6P	1 (2)	ECP1306AF				
15	Terminal Block Holder	1 (2)	ER2ES9466				
16	Flat Head Machine Screw	2 (4)	9096528				
17	Machine Screw	2 (4)	9798512				
18	Fulcrum Pin	1 (2)	ER2CS9449				
19	Cover Suspender	1 (2)	ER2CS9456				
20	Cover Belt	1 (2)	ER2CS9457				
21	Socket Bolt	1 (2)	9091249				
22	Plain Washer	1 (2)	ER1BS9436				
23	Spring Lock Washer	1 (2)	9012709				
24	Packing C	1 (2)	ER2FS9117				
25	Controller Cover Assembly	2V	1 (2)	ER2FI2104			
		4V		ER2FI1104			
26	Controller Cover	1 (2)	ER2FI9104				
27	Resistor Cover	1 (2)	ER2EI9185				
28	Braking Resistor	2V	1 (2)	INV735E16			
		4V		INV735Y16			
29	Name Plate B	1 (2)	ER2BHM20I9A5				
30	Pan Head Machine Screw	2 (4)	9798534				
31	Socket Bolt	4 (8)	9091254				
32	Toothed Lock Washer	4 (8)	9679709				
33	Nameplate D	1 (2)	ER2BHM75I9A6	ER2BHM1QI9A6	ER2BHM1PI9A6	ER2BHM2QI9A6	

*Quantities in "()" are for dual-body hoists.

9.7 Power Supply and Pendant Parts

080S/SD, 100L/LD, 100S/SD, 150S/SD, 200S/SD

8t, 10t(L)

10t(S), 15t, 20t

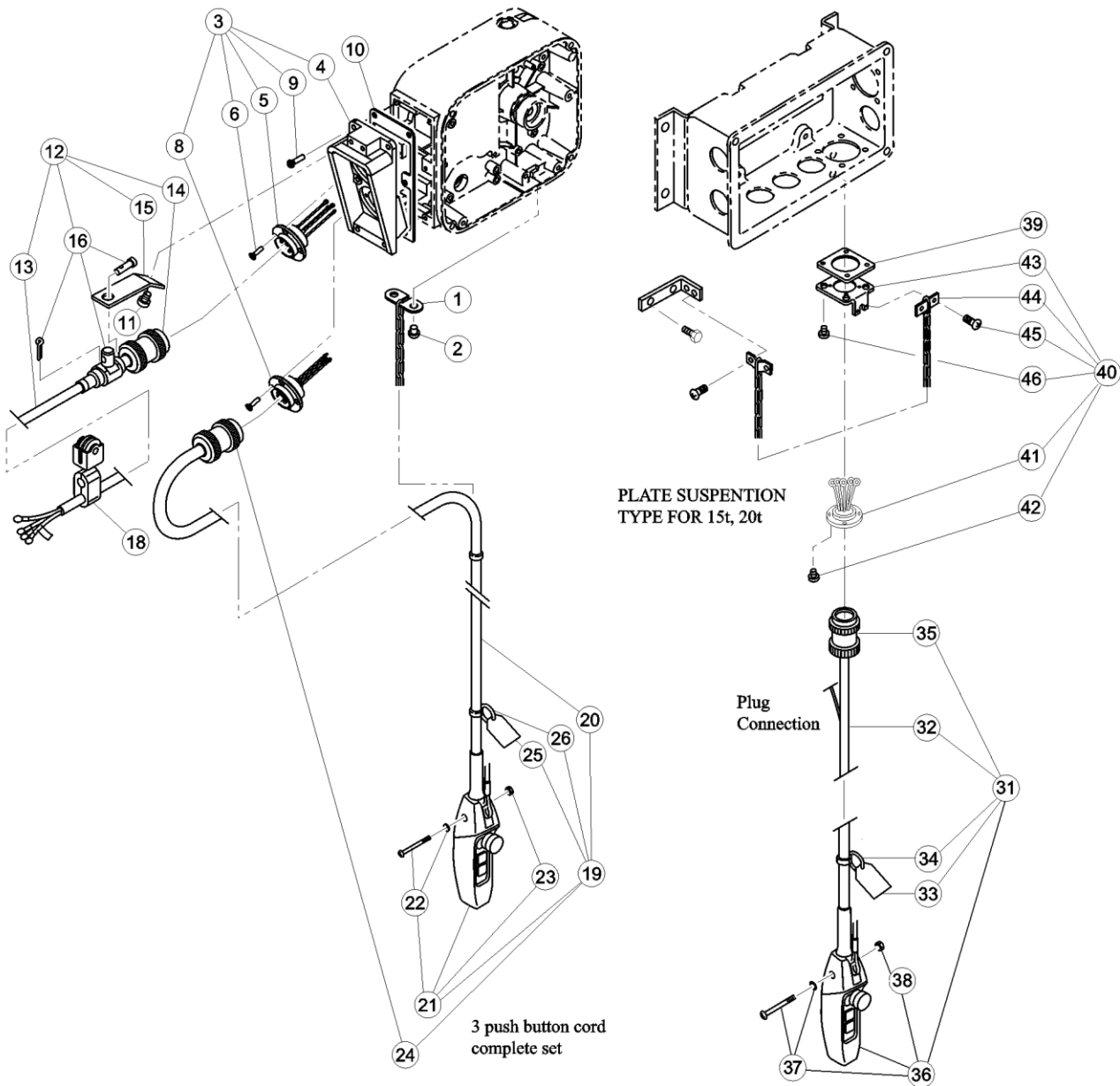


Figure 9-7-1 Power Supply and Pendant Parts (Plug Connection)

9.7 Power Supply and Pendant Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L
1	Cord Support (Wire Stop)	1		ER1BS9535
2	Machine Screw With Spring Washer	2		M6F554010
3	Socket Frame Complete Assembly	S	1	ER2ES4511
		D		ER2EI4511
4	Socket Frame	1		ER2CS9511
5	Socket 4P Assembly	S	1	ER2ES2523
		D		ER2EI2523
6	Tapping Flat Head Machine Screw	8		ES558003
8	Socket 8P Assembly	S	1	ER2CS2564
		D		ER2EI2564
9	Machine Screw With Spring Washer	6		MS561010
10	Socket Frame Packing	1		ER2CS9512
11	Machine Screw With Spring Washer	2		ES650005S
12	Power Supply Cable 4C Assembly	1		ZBZA12AH1000
13	Power Supply Cable 4C	1		14/4
14	Plug 4P	1		ECP2304AF
15	Cable Support Arm	1		ER1BS9541
16	Cable Support	1		M3ES0101724
18	Cable Hanger 14 Assembly	A/R		ES1527003
19	Pendant W/Cord Complete Assembly	S	1	ZB10025H1000
		D		ZB20025I1000
20	Pendant Cord	S	ft	16/4P
		D		16/6P
21	Pendent Assembly	S	1	SWD1100AA
		D		SWD2200AA
22	Machine Screw	1		J1AP24002608
23	Nut	1		J1NA00410040
24	Plug 8P	S	1	ECP2108AA
		D		ECP2108AB
25	Warning Tag PB	1		WTAG7
26	Tag Holder	1		E3S787003

Figure No.	Part Name	Parts Per Hoist	100S	150S	200S
31	Pendant W/Cord Complete Assembly	S	1	ZB10025H1000	
		D		ZB20025I1000	
32	Pendant Cord	S	ft	16/4P	
		D		16/6P	
33	Warning Tag PB	1		WTAG7	
34	Tag Holder	1		E3S787003	
35	Plug 8P	S	1	ECP2108AA	
		D		ECP2108AB	
36	Pendent Assembly	S	1	SWD1100AA	
		D		SWD2200AA	
37	Machine Screw With Spring Washer	1		J1AP24002608	
38	Nut	1		J1NA00410040	
39	Cord Cover Packing	1		MS527010	
40	Socket 8P Complete Assembly	S	1	ER2CS2564	
		D		ER2EI2564	
41	Socket 8P Assembly	S	1	ER2CS2564	
		D		ER2EI2564	
42	Tapping Flat Head Machine Screw	4		E3S658015	
43	Cord Holder Support	1		MS529010	
44	Cord Support (Wire Stop)	1		M6F530010	
45	Machine Screw With Spring Washer	2		MS554010	
46	Machine Screw With Spring Washer	4		MS554010	

9.7 Power Supply and Pendant Parts

**080S/SD, 100L/LD, 100S/SD,
150S/SD, 200S/SD**

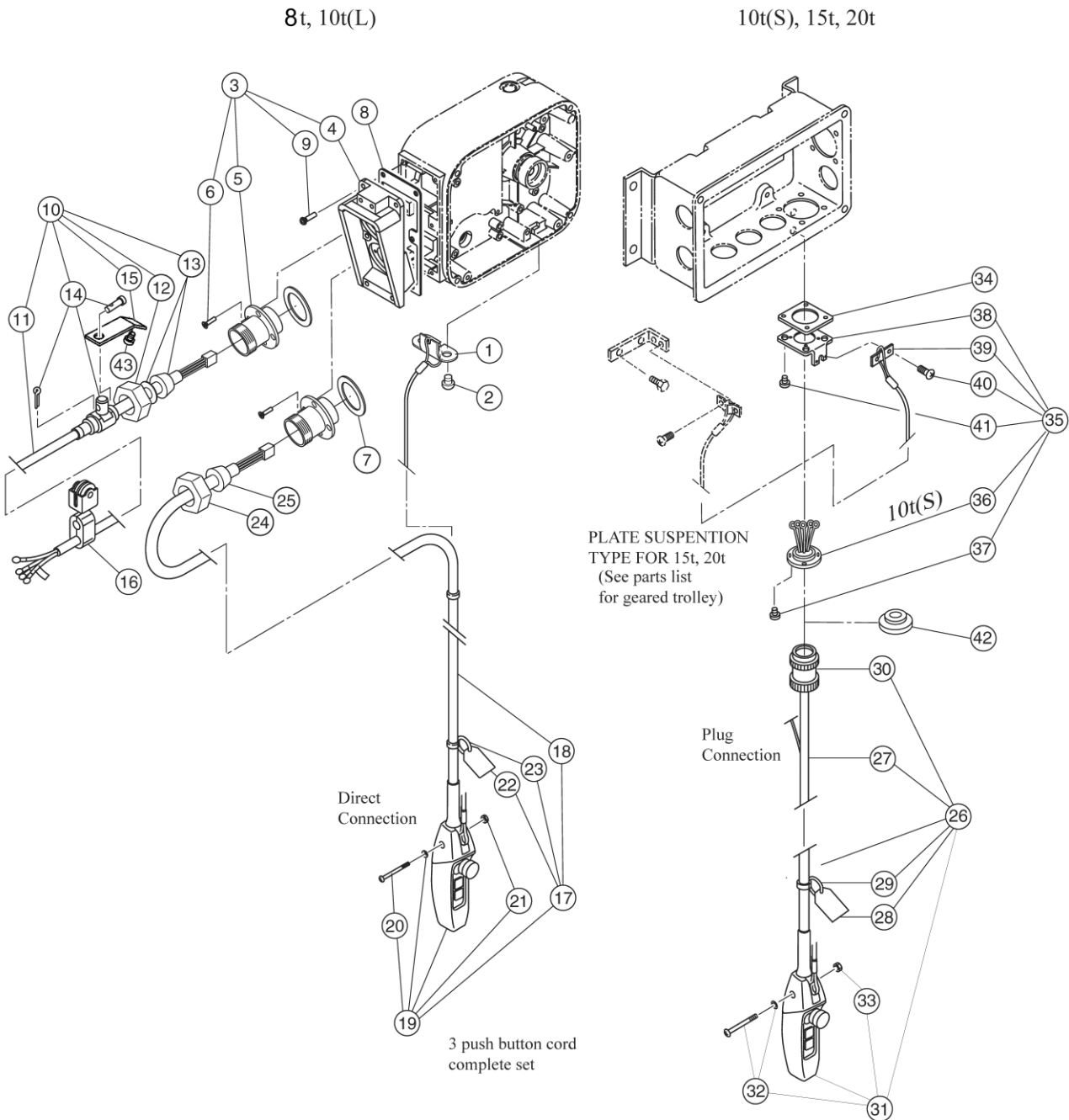


Figure 9-7-2 Power Supply and Pendant Parts (Direct Connection)

9.7 Power Supply and Pendant Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L
1	Cord Support (Wire Stop)	1		ER1BS9535
2	Machine Screw With Spring Washer	2		M6F554010
3	Socket Frame Complete Assembly	1		ER2CS2511
4	Socket Frame	1		ER2CS9511
5	Holder C	2		ECP5924AL
6	Tapping Flat Head Machine Screw	8		ER1BS9517
7	Holder Packing	2		ECP5924AM
8	Socket Frame Packing	1		ER2CS9512
9	Machine Screw With Spring Washer	6		ES650005S
10	Power Supply Cable 4C Assembly	1		ZBZA12AH1000DW
11	Power Supply Cable 4C	1		14/4
12	Holder A	1		ECP5924AA
13	Cable Packing	1		ECP6914AA
14	Cable Support 14 Assembly	1		M3ES0101724
15	Cable Support Arm	1		ER1BS9541
16	Cable Hanger 14 Assembly	A/R		ES1527003
17	Pendant W/Cord Complete Assembly	S	1	ZB10025H1000DW
		D		ZB20025I1000DW
18	Pendant Cord	S	ft	16/4P
		D		16/6P
19	Pendent Assembly	S	1	SWD2100AA
		D		SWD2200AA
20	Machine Screw	1		J1AP24002608
21	Nut	1		J1NA00410040
22	Warning Tag PB	1		WTAG7
23	Tag Holder	1		E3S787003
24	Holder A	1		ECP5924AA
25	Cable packing	1		ECP6912AA
43	Machine Screw With Spring Washer	2		ES650005S

Figure No.	Part Name	Parts Per Hoist	100S	150S	200S
26	Pendant W/Cord Complete Assembly	S	1	ZB10025H1000	
		D		ZB20025I1000	
27	Pendant Cord	S	ft	16/4P	
		D		16/6P	
28	Warning Tag PB	1		WTAG7	
29	Tag Holder	1		E3S787003	
30	Plug 8P	S	1	ECP2108AA	
		D		ECP2108AB	
31	Pendent Assembly	S	1	SWD1100AA	
		D		SWD2200AA	
32	Machine Screw With Spring Washer	1		J1AP24002608	
33	Nut	1		J1NA00410040	
34	Cord Cover Packing	1		MS527010	
35	Socket 8P Complete Assembly	S	1	ER2CS2564	
		D		ER2EI2564	
36	Socket 8P Assembly	S	1	ER2CS2564	
		D		ER2EI2564	
37	Tapping Flat Head Machine Screw	4		E3S658015	
38	Cord Holder Support	1		MS529010	
39	Cord Support (Wire Stop)	1		M6F530010	
40	Machine Screw With Spring Washer	2		MS554010	
41	Machine Screw With Spring Washer	4		MS554010	
42	Socket cover 4P	1		E0YS005-9973	

9.8 Top Suspension Plate Parts

080S/SD, 100L/LD, 100S/SD

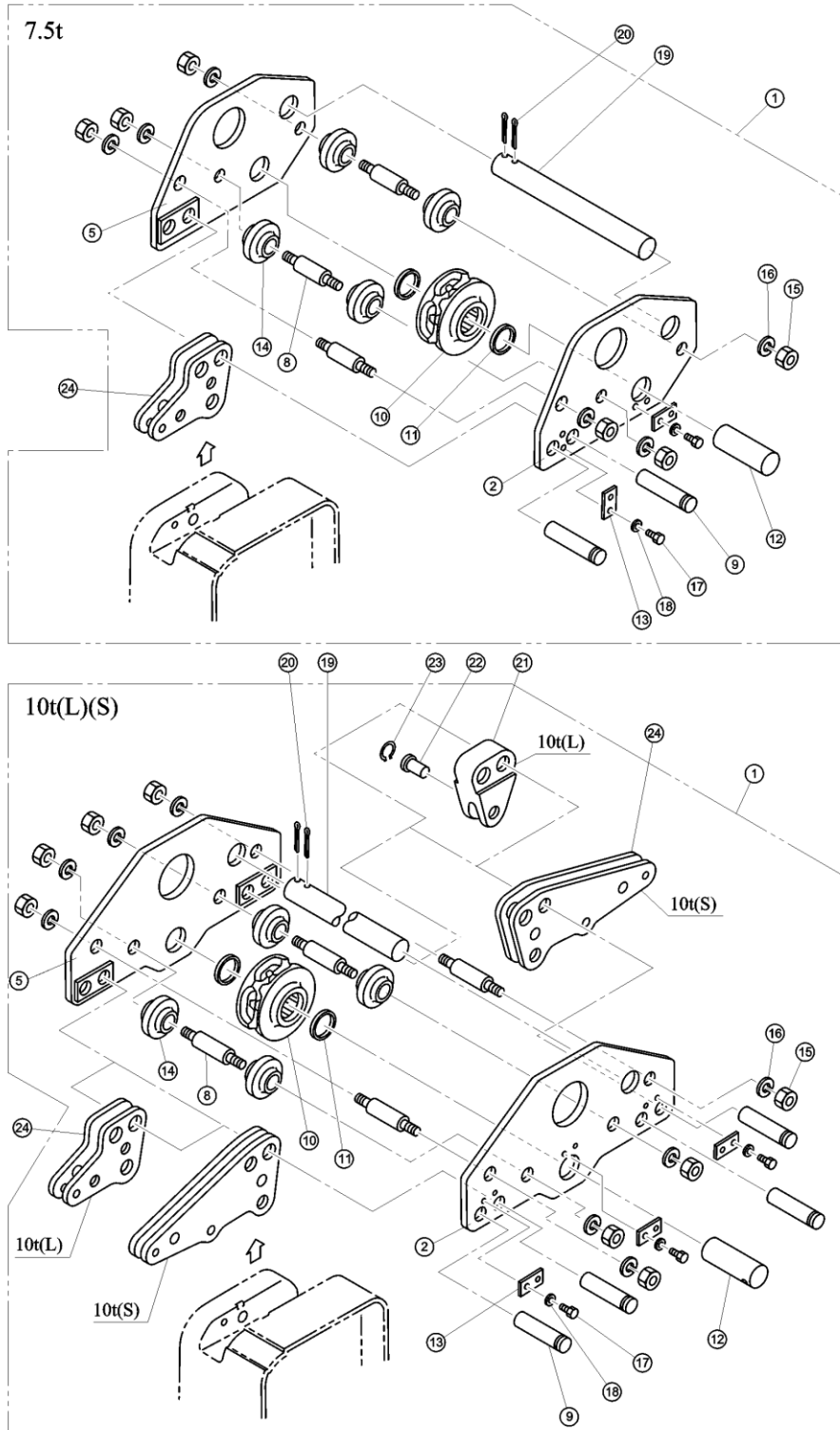


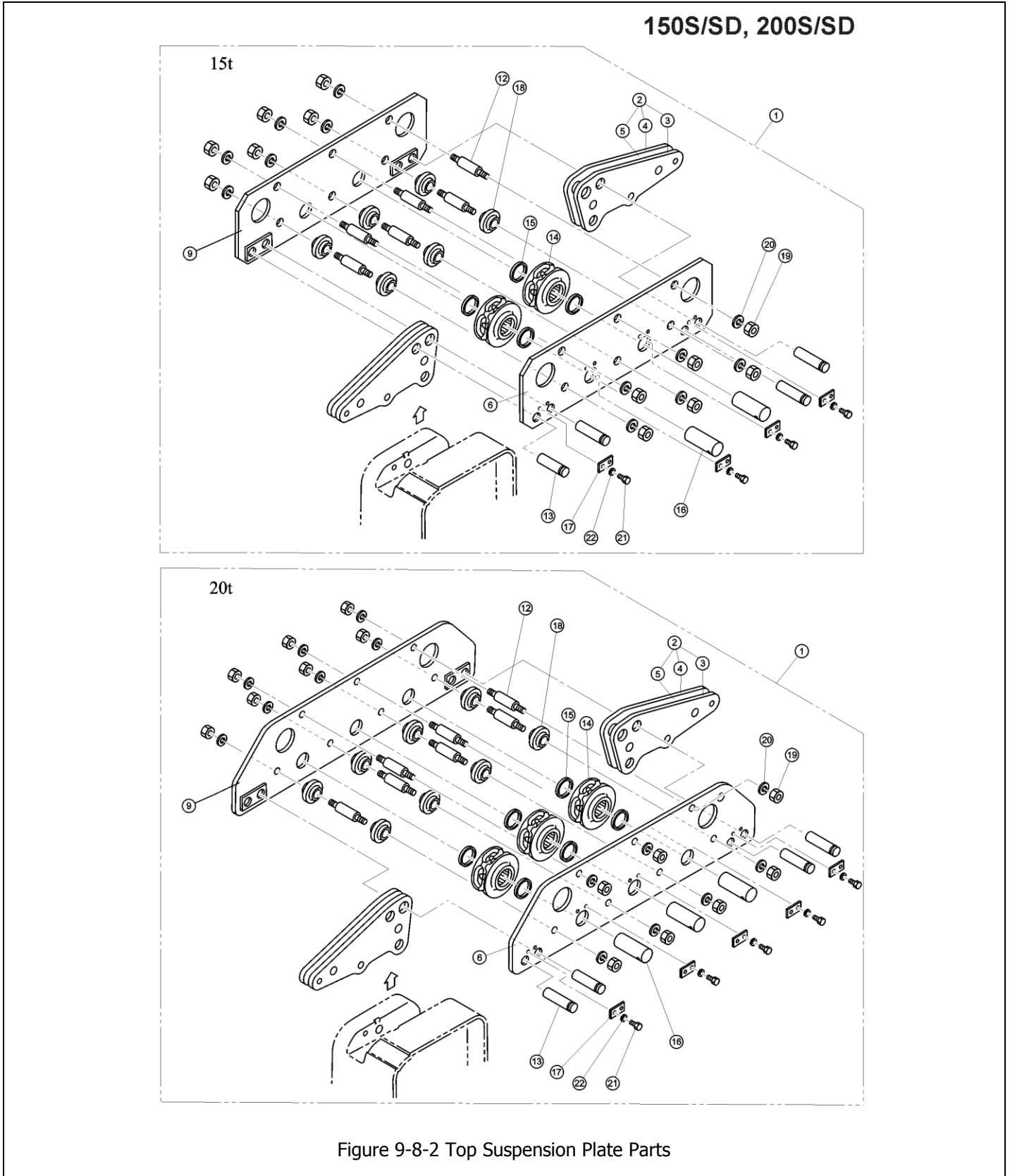
Figure 9-8-1 Top Suspension Plate Parts

9.8 Top Suspension Plate Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L	100S
1	Top Suspension Plate Assembly	1	ER2HS1003	ER2IS1003	
2	Top Suspension Plate A Assembly	1	ER2HS5003	ER2IS5003	
5	Top Suspension Plate B Assembly	1	ER2HS5004	ER2IS5004	
8	Top Stay Bolt	3 (4)	E6S007075		
9	Suspension Shaft	2 (4)	E6S008075		
10	Top Idle Sheave Assembly	1	ER2HS5051		
11	Thrust Needle Bearing	2	ER1HS9182		
12	Top Shaft	1	E6S053075		
13	Shaft Stopper A	2 (3)	ER1HS9056		
14	Guide Roller	4	E6S062075		
15	Nut	6 (8)	9093445		
16	Spring Washer	6 (8)	9012717		
17	Socket Bolt	4 (6)	9091271		
18	Spring Washer	4 (6)	9012711		
19	Stopper Shaft	1	E6SE075S9010		
	Stopper Shaft (300)	1	E7SE075S9019		
20	Split Pin	2	9009448		
21	Chain Holder	1		ER1IL9017	
22	Chain Pin	1		E6S041075	
23	Snap Ring	1		9047221	
24	Connection Yoke Assembly	1	ER2HS5005		ER2IS5005 (2 Required)

*Quantities in "()" are for 10 ton hoists.

9.8 Top Suspension Plate Parts



9.8 Top Suspension Plate Parts

Figure No.	Part Name	Parts Per Hoist	150S	200S
1	Top Suspension Plate Assembly	1	ER2JS1003	ER2KS1003
2	Connection Yoke Assembly	2	ER2IS5005	
3	Connection Yoke A	2	ER2IS9005	
4	Connection Yoke B	2	ER2IS9006	
5	Connection Yoke Pin	4	ER2HS9016	
6	Top Suspension Plate A Assembly	1	ER2JS5003	ER2KS5003
9	Top Suspension Plate B Assembly	1	ER2JS5004	ER2KS5004
12	Top Stay Bolt	6 (7)	E6S007075	
13	Suspension Shaft	4	E6S008075	
14	Top Idle Sheave Assembly	2 (3)	ER2HS5051	
15	Thrust Needle Bearing	4 (6)	ER1HS9182	
16	Top Shaft	2 (3)	E6S053075	
17	Shaft Stopper A	4 (5)	ER1HS9056	
18	Guide Roller	6 (8)	E6S062075	
19	Nut	12(14)	9093445	
20	Spring Washer	12 (14)	9012717	
21	Socket Bolt	8 (10)	9091271	
22	Spring Washer	8 (10)	9012711	

*Quantities in "()" are for 20 ton hoists.

9.9 Top Hook Parts

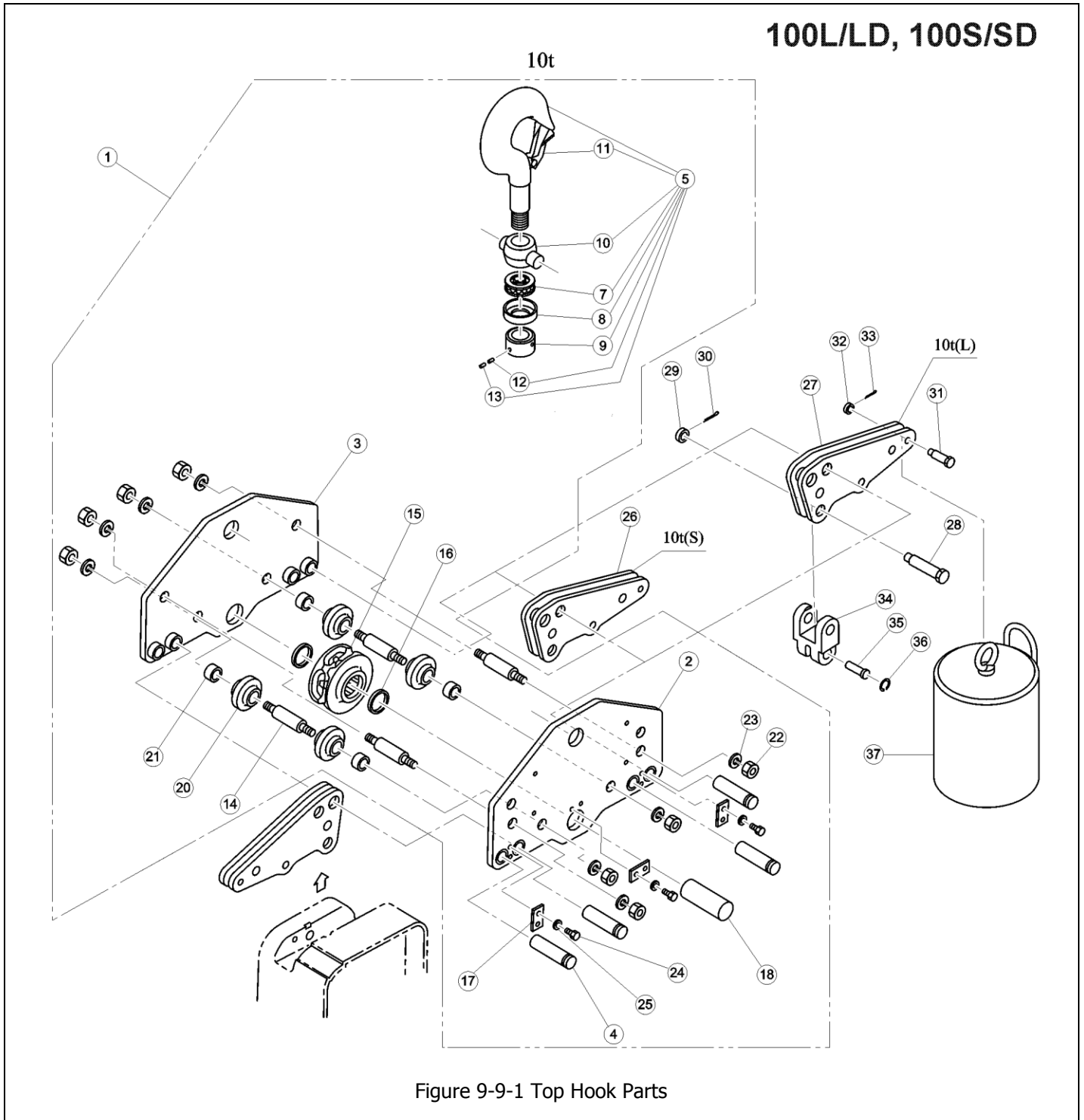


Figure 9-9-1 Top Hook Parts

9.9 Top Hook Parts

Figure No.	Part Name	Parts Per Hoist	100L	100S
1	Top Hook Complete Assembly	1	ER2IS1011	
2	Top Suspension Plate A Assembly	1	ER2IS5011	
3	Top Suspension Plate B Assembly	1	ER2IS5012	
4	Suspender Shaft B	4	E6S013100	
5	Top/Bottom Hook Assembly	1	ER2IS2121	
7	Thrust Bearing	1	ES022100	
8	Bearing Cover	1	E6S023100	
9	Hook Nut	1	ES024100	
10	Bottom Yoke	1	E6S030100	
11	Safety Latch Assembly	1	C2BA1501071	
12	Stopper Screw A	1	J1TB01110016	
13	Stopper Screw B	1	J1TB01110008	
14	Bottom Stay Bolt	4	E6S038075	
15	Bottom Idle Sheave Assembly	1	ER2HS5052	
16	Thrust Needle Bearing	2	ER1HS9182	
17	Shaft Stopper A	3	ER1IS9056	
18	Top Shaft B	1	E6S057100	
20	Guide Roller	4	E6S062075	
21	Bottom Collar	4	E6S065075	
22	Nut	8	9093445	
23	Spring Washer	8	9012717	
24	Socket Bolt	6	9091271	
25	Spring Washer	6	9012711	
26	Connection Yoke Assembly	2		ER2IS5005
27	Connection Yoke Assembly	1	ER2IL5155	
28	Yoke Bolt	1	ER1ES9032	
29	Slotted Nut	1	ES088020L	
30	Split Pin	1	9009436	
31	Chain Pin	1	ES041050	
32	Slotted Nut	1	M2049030	
33	Split Pin	1	9009424	
34	Chain Holder	1	ER1IL9171	
35	Chain Pin	1	E6S041075	
36	Snap Ring	1	9047221	
37	Balance Weight Assembly	1	7021002	

9.9 Top Hook Parts

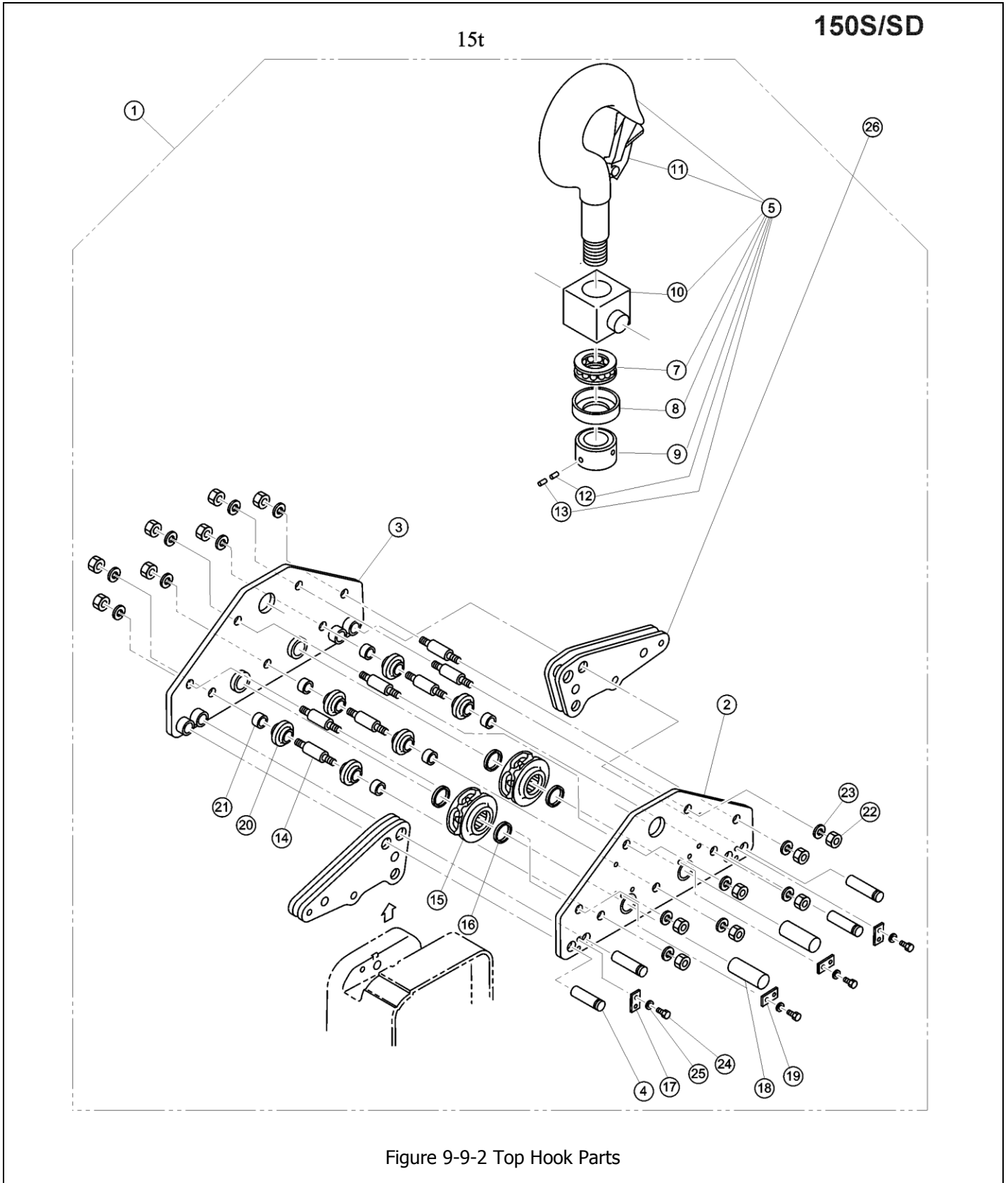
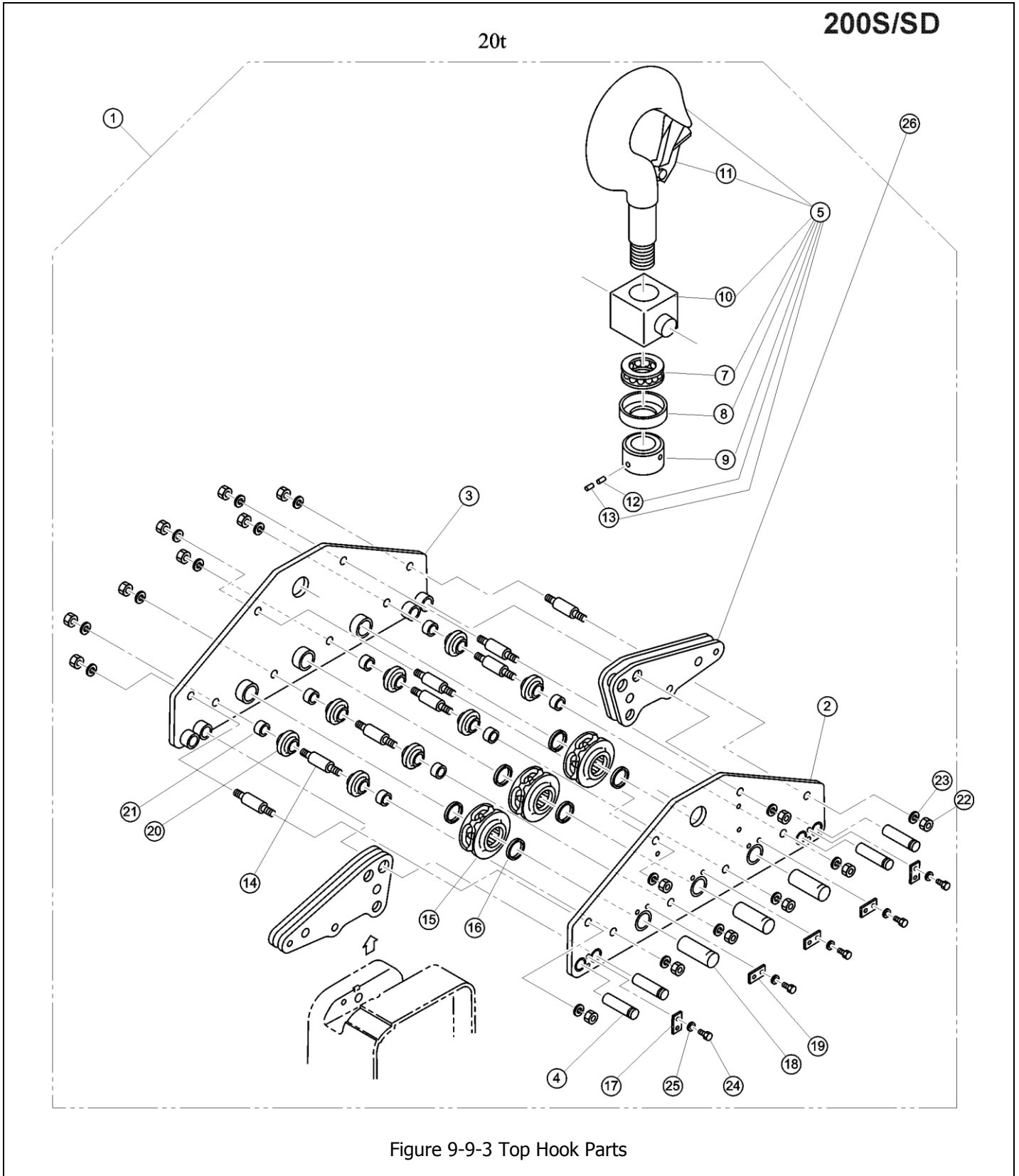


Figure 9-9-2 Top Hook Parts

9.9 Top Hook Parts

Figure No.	Part Name	Parts Per Hoist	150S
1	Top Hook Complete Assembly	1	ER2JS1011
2	Top Suspension Plate A Assembly	1	ER2JS5011
3	Top Suspension Plate B Assembly	1	ER2JS5012
4	Suspender Shaft B	4	E6S013150
5	Top/Bottom Hook Assembly	1	ER2JS2121
7	Thrust Bearing	1	ES022150
8	Bearing Cover	1	E6S023150
9	Hook Nut	1	E6S024150
10	Bottom Yoke	1	E6S030150
11	Safety Latch Assembly	1	M2071200
12	Stopper Screw A	1	J1TB01110016
13	Stopper Screw B	1	J1TB01110010
14	Bottom Stay Bolt	7	E6S038150
15	Bottom Idle Sheave Assembly	2	ER2HS5052
16	Thrust Needle Bearing	4	ER1HS9182
17	Shaft Stopper A	2	ER1IS9056
18	Top Shaft B	2	E6S057150
19	Shaft Stopper B	2	ER1JS9060
20	Guide Roller	6	E6S062075
21	Bottom Collar	6	E6S065150
22	Nut	14	9093445
23	Spring Washer	14	9012717
24	Socket Bolt	8	9091271
25	Spring Washer	8	9012711
26	Connection Yoke Assembly	2	ER2IS5005

9.9 Top Hook Parts



9.9 Top Hook Parts

Figure No.	Part Name	Parts Per Hoist	200S
1	Top Hook Complete Assembly	1	ER2KS1011
2	Top Suspension Plate A Assembly	1	ER2KS5011
3	Top Suspension Plate B Assembly	1	ER2KS5012
4	Suspender Shaft B	4	E6S013150
5	Top/Bottom Hook Assembly	1	ER2KS2121
7	Thrust Bearing	1	E6S038150
8	Bearing Cover	1	E6S023200
9	Hook Nut	1	E6S024200
10	Bottom Yoke	1	E6S030200
11	Safety Latch Assembly	1	C2BA3001071
12	Stopper Screw A	1	J1TB01110016
13	Stopper Screw B	1	J1TB01110010
14	Bottom Stay Bolt	8	E6S038150
15	Bottom Idle Sheave Assembly	3	ER2HS5052
16	Thrust Needle Bearing	6	ER1HS9182
17	Shaft Stopper A	2	ER1IS9056
18	Top Shaft B	3	E6S067150
19	Shaft Stopper B	3	ER1JS9060
20	Guide Roller	8	E6S062075
21	Bottom Collar	8	E6S065150
22	Nut	16	9093445
23	Spring Washer	16	9012717
24	Socket Bolt	10	9091271
25	Spring Washer	10	9012711
26	Connection Yoke Assembly	2	ER2IS5005

9.10 Control Station Parts (Plate Suspension Type)

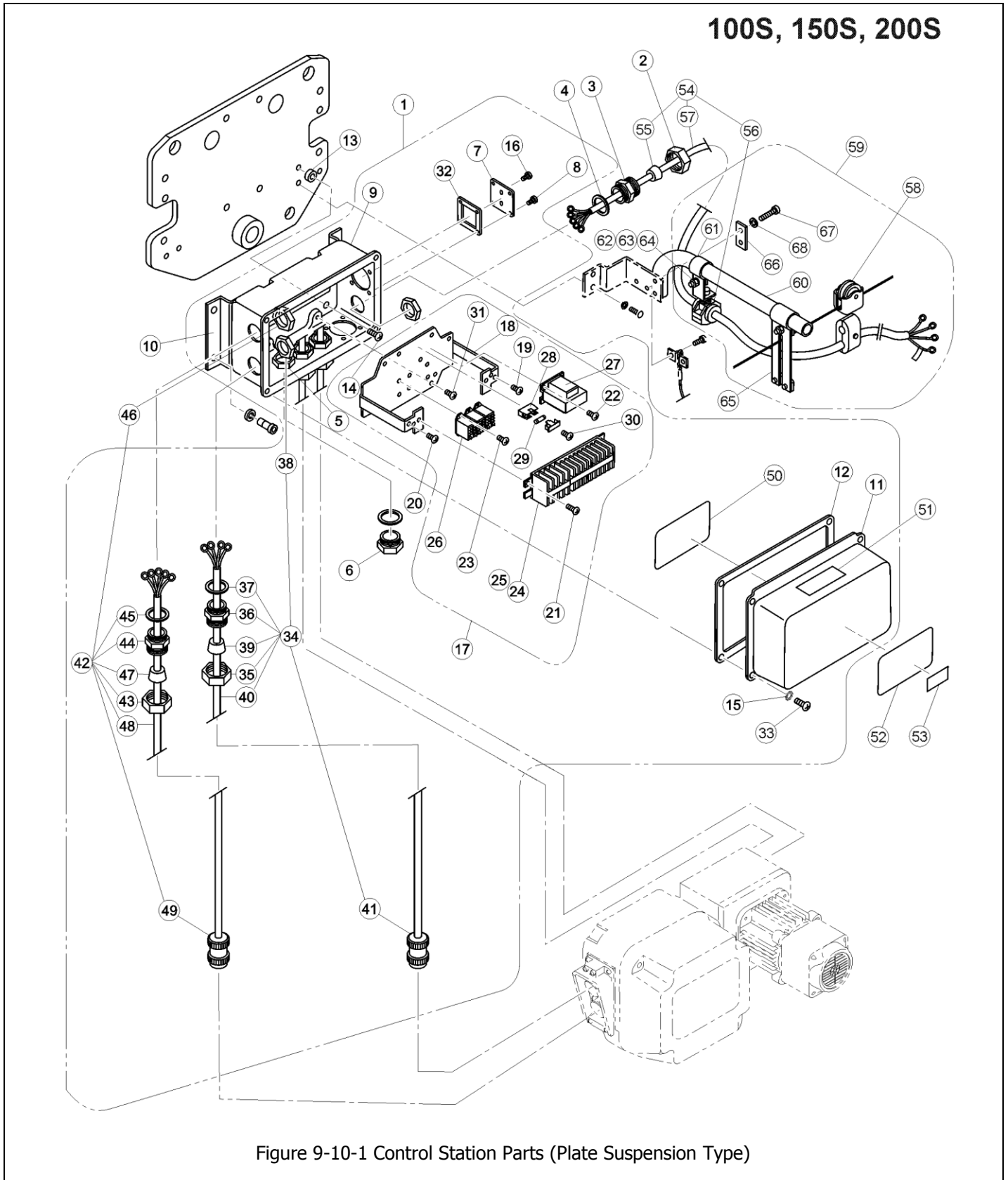


Figure 9-10-1 Control Station Parts (Plate Suspension Type)

9.10 Control Station Parts (Plate Suspension Type)

Figure No.	Part Name	Parts Per Hoist		100S	150S	200S
				7015601	7015602	
1	Connection Box Complete Assembly	S	1	7015701	7015702	
		D				
2	Holder A		1		ECP5924AA	
3	Holder B		1		ECP5924AB	
4	Packing		2		ECP5924AC	
5	Holder Nut		2		ECP5924AD	
6	Holder Cover		1		ECP5924AE	
7	Cord Cover		1		ER1IS9347	
8	Machine Screw With Spring Washer		4		MS554010	
9	Connection Box		1		MR1IS9401	
10	Connection Box Holder		1		MR1HS9405	
11	Connection Box Cover		1		MR1DS9411	
12	Connection Box Packing		1		MR1DS9421	
13	Spacer		4		MS517010	
14	Machine Screw With Spring Washer		4		J1AP28001414	
15	Toothed Lock Washer		4		9679708	
16	Machine Screw With Spring Washer		2		E6F151003	
17	Plate Complete Assembly	S	1		ER2GHM1QS1A8	
		D			ER2GHM1QI1A8	
18	Plate Assembly		1		MR2IS5445	
19	Machine Screw With Spring Washer		1		MS554010	
20	Machine Screw With Spring Washer		3		MS555010	
21	Machine Screw With Spring Washer		2		MS554010	
22	Machine Screw With Spring Washer		2		MS555010	
23	Machine Screw With Spring Washer		6		J1AW23000808	
24	Terminal 16P		1		ECP1610AA	
26	Relay	S	3		MGC42C26A	
		D	4			
27	Transformer		1		TRF32K611	
28	Fuse Holder		1		ECP92FZAA	
29	Fuse		1		ECP91FZ01	
30	Machine Screw With Spring Washer		1		E2D667125	
31	Machine Screw With Spring Washer		4		MS554010	
32	Cord Cover Packing		1		MS527010	
33	Machine Screw With Spring Washer		4		MS554010	
34	Cable 4C Assembly		2	MR2IS1759	MR2JS1759	
35	Holder A		2		ECP5924AA	
36	Holder B		2		ECP5924AB	
37	Packing		2		ECP5924AC	
38	Holder Nut		2		ECP5924AD	
39	Cable Packing		2		ECP6916AA	
40	Cable 4C		ft		14/4	
41	Plug 4P		2		ECP2304AF	
42	Cable 4C Assembly	S	2	MR2IS1768	MR2JS1768	
		D			MR2IS3768	MR2JS3768
43	Holder A		2		ECP5924AA	
44	Holder B		2		ECP5924AB	
45	Packing		2		ECP5924AC	
46	Holder Nut		2		ECP5924AD	
47	Cable Packing		2		ECP6916AA	
48	Cable 4C	S	ft		16/4P	
		D			16/6P	
49	Plug 4P		2		ECP2108AC	
50	Wiring Diagram	S	1		EWG3200H21	
		D			EWG3E00H21	
51	Warning Seal E (Electric Shock)		2		ER2CS9936	
52	Name Plate B		2		ER2BHM20I9A5	
53	Name Plate D		2	ER2BHM1QI9A6	ER2BHM1PI9A6	ER2BHM2QI9A6
54	Power Supply Cable 4C Assembly		2		ZBZC12BH2000	
55	Cable Packing		2		ECP6918AA	
56	Cable Support 19 Assembly		2		ECP5900CA	
57	Power Supply Cable 4C		ft		10/4	
58	Cable Hanger 15/17 Assembly		A/R		MS1733020	
59	Cable Support Bar Complete Assembly		1		MR1DS1491	
60	Cable Support Bar		1		MR1DS9491	
61	Cable Support Arm		1		MR1DS9492	
62	Bolt		2		9093328	
63	Spring Lock Washer		2		9012711	
64	Nut		2		9093424	
65	Wire Guide Assembly		1		MR1DS1493	
66	Support Bar Holder (Plate)		1		MR1DS9501	
67	Bolt		2		9093329	
68	Spring Lock Washer		2		9012711	

Note: A/R = As required, one every 5 ft. of Power Supply Cable.

9.11 Control Station Parts (Top Hook Type)

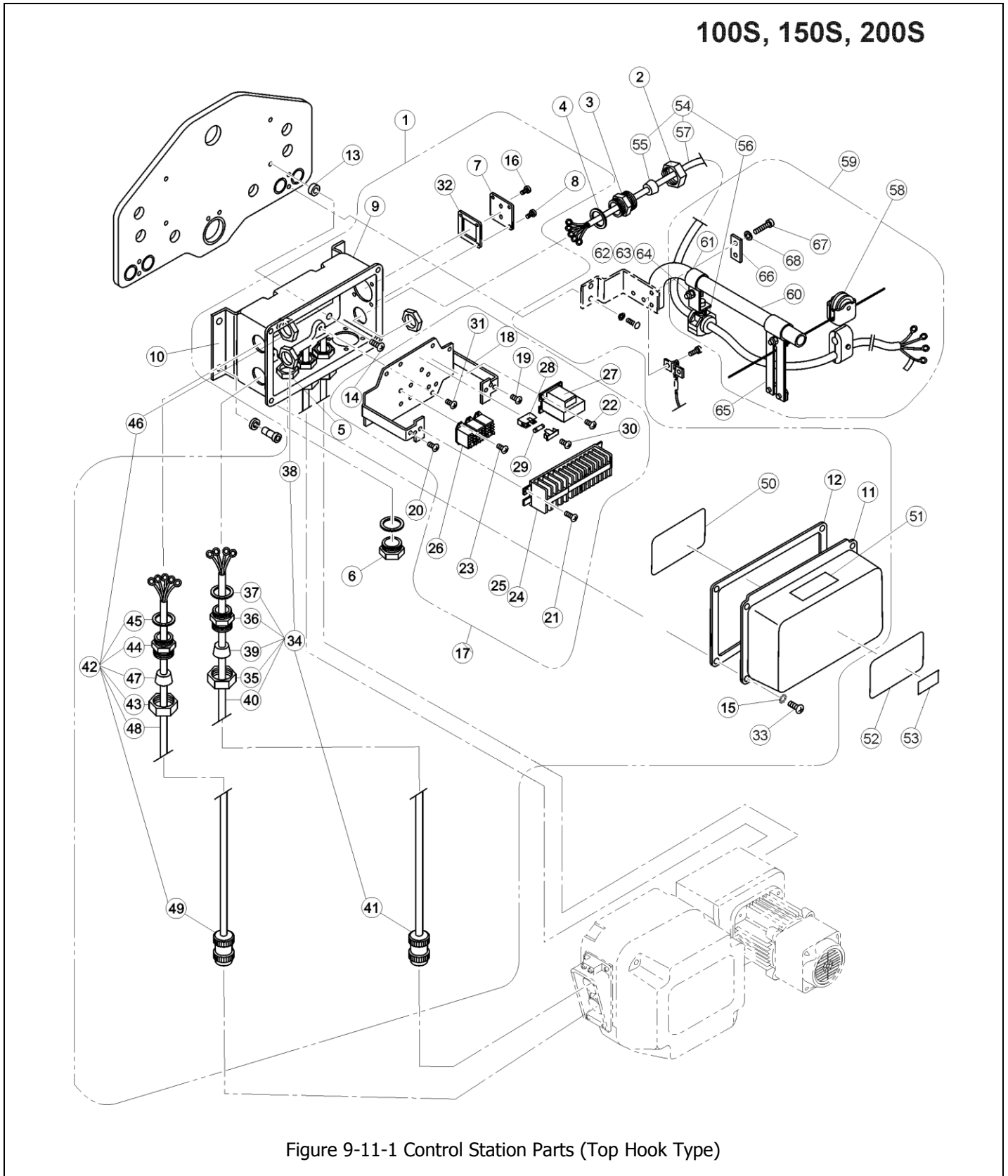


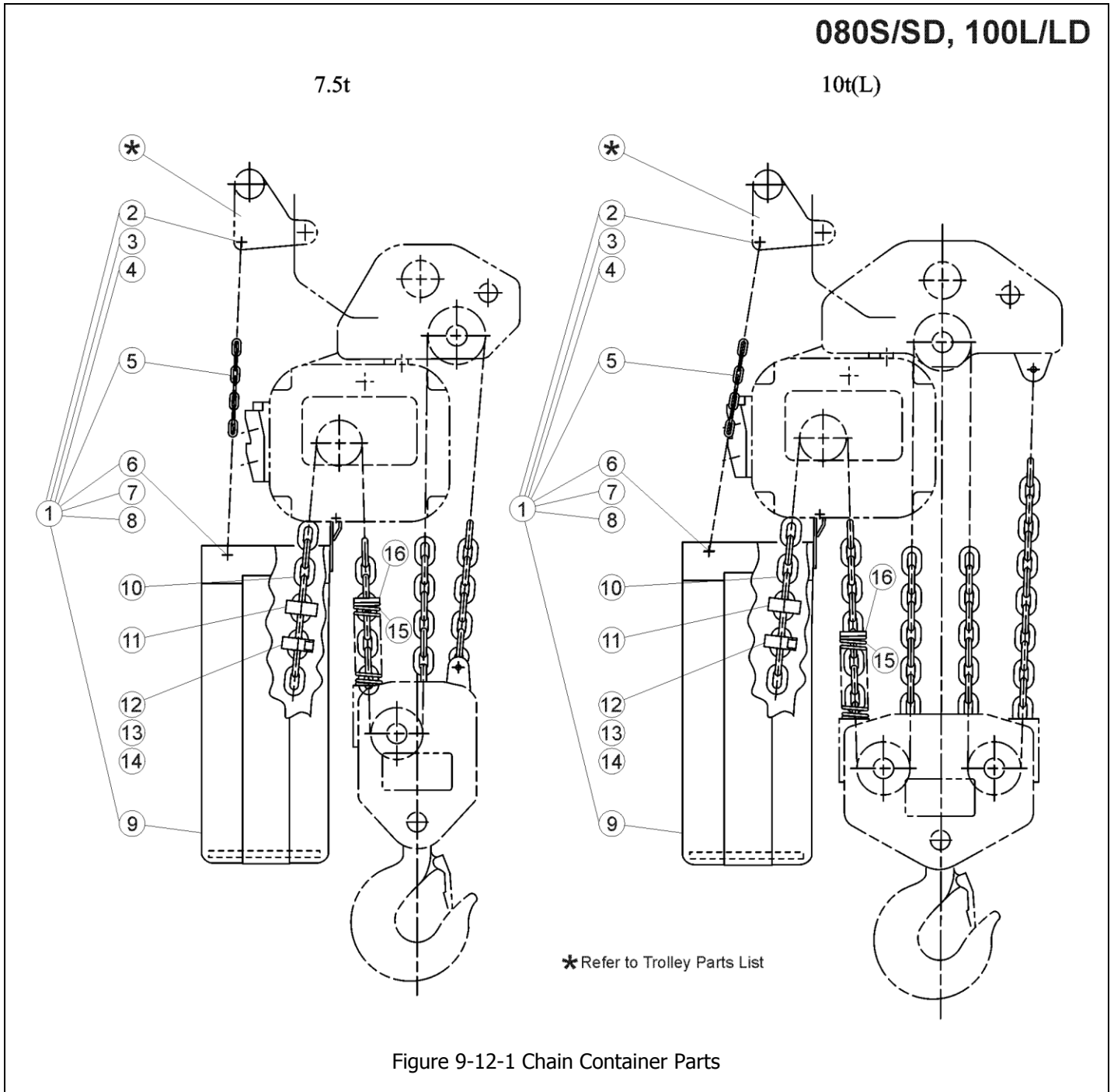
Figure 9-11-1 Control Station Parts (Top Hook Type)

9.11 Control Station Parts (Top Hook Type)

Figure No.	Part Name	Parts Per Hoist		100S	150S	200S
		S	D	7015601	7015602	7015602
1	Connection Box Complete Assembly		1	7015701		7015702
2	Holder A		1		ECP5924AA	
3	Holder B		1		ECP5924AB	
4	Packing		2		ECP5924AC	
5	Holder Nut		2		ECP5924AD	
6	Holder Cap		1		ECP5924AE	
7	Cord Cover		1		ER1IS9347	
8	Machine Screw With Spring Washer		4		MS554010	
9	Connection Box		1		MR1IS9401	
10	Connection Box Holder		1		MR1HS9405	
11	Connection Box Cover		1		MR1DS9411	
12	Connection Box Packing		1		MR1DS9421	
13	Spacer		4		MS517010	
14	Machine Screw With Spring Washer		4		J1AP28001414	
15	Toothed Lock Washer		4		9679708	
16	Machine Screw With Spring Washer		2		E6F151003	
17	Plate Complete Assembly	S	1	ER2GHM1QS1A8		
		D		ER2GHM1QI1A8		
18	Plate Assembly		1		MR2IS5445	
19	Machine Screw With Spring Washer		1		MS554010	
20	Machine Screw With Spring Washer		3		MS555010	
21	Machine Screw With Spring Washer		2		MS554010	
22	Machine Screw With Spring Washer		2		MS555010	
23	Machine Screw With Spring Washer		6		J1AW23000808	
24	Terminal 16P		1		ECP1610AA	
26	Relay	S	3	MGC42C26A		
		D	4			
27	Transformer		1		TRF32K611	
28	Fuse Holder		1		ECP92FZAA	
29	Fuse		1		ECP91FZ01	
30	Machine Screw With Spring Washer		1		E2D667125	
31	Machine Screw With Spring Washer		4		MS554010	
32	Cord Cover Packing		1		MS527010	
33	Machine Screw With Spring Washer		4		MS554010	
34	Cable 4C Assembly		2	MR2IS1759	MR2JS1759	
35	Holder A		2		ECP5924AA	
36	Holder B		2		ECP5924AB	
37	Packing		2		ECP5924AC	
38	Holder Nut		2		ECP5924AD	
39	Cable Packing		2		ECP6916AA	
40	Relay Cable 4C		ft		14/4	
41	Plug 4P		2		ECP2304AF	
42	Cable 4C Assembly	S	2	MR2IS1768	MR2JS1768	
	Cable 5C Assembly	D		MR2IS3768	MR2JS3768	
43	Holder A		2		ECP5924AA	
44	Holder B		2		ECP5924AB	
45	Packing		2		ECP5924AC	
46	Holder Nut		2		ECP5924AD	
47	Cable Packing		2		ECP6916AA	
48	Cable 4C	S	ft	16/4P		
	Cable 5C	D		16/6P		
49	Plug 4P		2		ECP2108AC	
50	Wiring Diagram	S	1	EWG3200H21		
		D		EWG3E00H21		
51	Warning Seal E (Electric Shock)		2		ER2CS9936	
52	Name Plate B		2		ER2BHM2019A5	
53	Name Plate D		2	ER2BHM1QI9A6	ER2BHM1PI9A6	ER2BHM2QI9A6
54	Power Supply Cable 4C Assembly		2		ZBZC12BH2000	
55	Cable Packing		2		ECP6918AA	
56	Cable Support 19 Assembly		2		ECP5900CA	
57	Power Supply Cable 4C		ft		10/4	
58	Cable Hanger 15/17 Assembly		A/R		MS1733020	
59	Cable Support Bar Complete Assembly		1		MR1DS1491	
60	Cable Support Bar		1		MR1DS9491	
61	Cable Support Arm		1		MR1DS9492	
62	Bolt		2		9093328	
63	Spring Lock Washer		2		9012711	
64	Nut		2		9093424	
65	Wire Guide Assembly		1		MR1DS1493	
66	Support Bar Holder (Plate)		1		MR1DS9501	
67	Bolt		2		9093329	
68	Spring Lock Washer		2		9012711	

Note: A/R = As required, one every 5 ft. of Power Supply Cable.

9.12 Chain Container Parts



9.12 Chain Container Parts

Figure No.	Part Name	Parts Per Hoist	080S	100L
1	Chain Container Kit	1	BK2075H2	
2	Socket Bolt	2	9091274	
3	Lever Nut	2	ES857005S	
4	Washer	2	ES247005S	
5	Container Chain	2	ES875075	
6	Socket Bolt	2	9091272	
7	Lever Nut	2	ES857005S	
8	Washer	2	ES247005S	
9	Chain container (H2) Assembly	1	ER2HS5931	
10	NP Load Chain	1	LCER2025NP	
11	Cushion Rubber	1	ER1EM9053	
12	Stopper	2	ER1ES1041	
13	Socket Bolt	2	9091273	
14	Spring Washer	2	9012711	
15	Chain Spring	1	ES047D025	
16	Limiting Plate	1	ER1FH9054	

9.12 Chain Container Parts

100S/SD, 150S/SD, 200S/SD

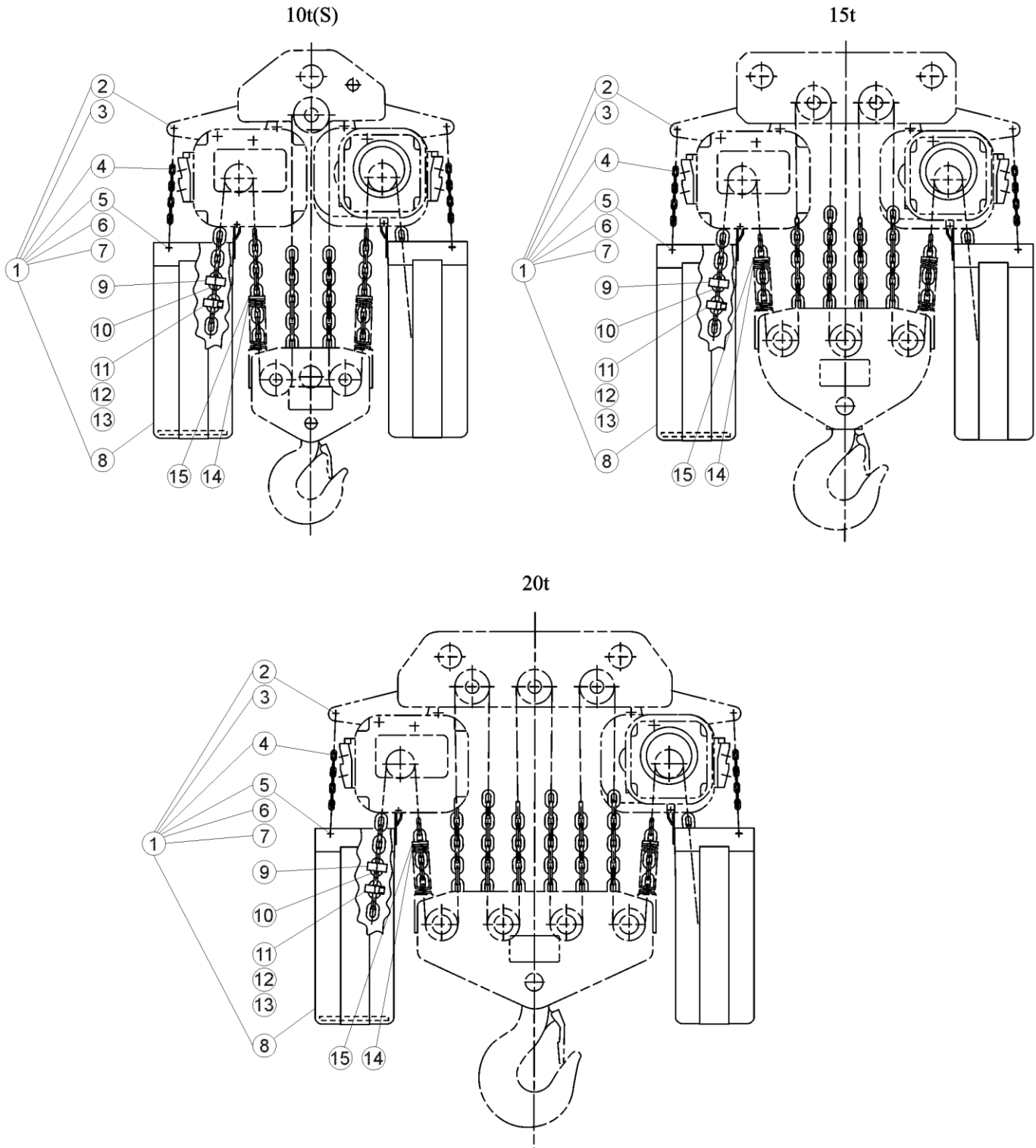


Figure 9-12-2 Chain Container Parts (Plate Suspension Type)

9.12 Chain Container Parts

Figure No.	Part Name	Parts Per Hoist	100S	150S	200S
1	Chain Container Kit	2	BK2100H2		
2	Socket Bolt	2	9091281		
3	Lever Nut	2	ES857005S		
4	Container Chain	4	ES875100		
5	Socket Bolt	4	9091272		
6	Lever Nut	4	ES857005S		
7	Washer	4	ES247005S		
8	Chain container (H2) Assembly	2	ER2HS5931		
9	Cushion Rubber	2	ER1EM9053		
10	NP Load Chain	1	LCER2025NP		
11	Stopper	4	ER1ES1041		
12	Socket Bolt	4	9091273		
13	Washer	4	9012711		
14	Chain Spring	2	ES047D025		
15	Limiting Plate	2	ER1FH9054		



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