

⚠ 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. Record the hoist code, lot and serial number in the space provided below.

Product Code:

Lot Number:

Serial Number:

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1.0 Important Information and Warnings

1.1 Terms and Summary

This manual provides important information for personnel involved with the installation, operation and maintenance of this product. Although you may be familiar with this or similar equipment, it is strongly recommended that you read this manual before installing, operating or maintaining the product.

Danger, Warning, Caution and Notice – Throughout this manual there are steps and procedures that can present hazardous situations. The following signal words are used to identify the degree or level of hazard seriousness.

⚠ DANGER

Danger indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious injury**, and property damage.

⚠ WARNING

Warning indicates an imminently hazardous situation which, if not avoided, **could** result in **death or serious injury**, and property damage.

⚠ CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, **may** result **minor or moderate injury** or property damage.

NOTICE

Notice is used to notify people of installation, operation, or maintenance information which is important but not directly hazard-related.

The operation of a hoist involves more than activating the hoist's controls. Per the ANSI/ASME B30 standards, the use of a hoist is subject to certain hazards that cannot be mitigated by engineered features, but only by the exercise of intelligence, care, common sense, and experience in anticipating the effects and results of activating the hoist's controls. Use this guidance in conjunction with other warnings, cautions, and notices in this manual to govern the operation and use of your hoist.

1.2 Shall's and Shall Not's for Operation

⚠ WARNING

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in **death or serious injury**, and substantial property damage. To avoid such a potentially hazardous situation **THE OPERATOR SHALL:**

- **NOT** use hoist before reading Owner's Manual.
- **NOT** lift more than rated load for the hoist.
- **NOT** operate hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
- **NOT** use hoist with twisted, kinked, damaged, or worn chain.
- **NOT** use damaged hoist or hoist that is not working properly.
- **NOT** use the hoist to lift, support, or transport people.
- **NOT** lift loads over people.
- **NOT** use hoist with extension on lever handle.
- **NOT** remove or obscure the warnings on the hoist.
- **NOT** use load chain as a sling or wrap load chain around load.
- **NOT** use in a way that causes either hook to be side loaded.
- **NOT** apply the load to the tip of the hook or to the hook latch.
- **NOT** use hoist if hook latch is missing or malfunctioning.
- **NOT** apply load unless load chain is properly seated in the load sheave.
- **NOT** use the hoist in such a way that could result in shock or impact loads being applied to the hoist.
- **NOT** attempt to lengthen the load chain or repair damaged load chain.
- **NOT** operate beyond the limits of the load chain travel.
- **NOT** operate hoist with missing/damaged chain stopper.
- **NOT** leave load supported by the hoist unattended unless specific precautions have been taken.
- **NOT** allow the chain, or hook to be used as an electrical or welding ground.
- **NOT** allow the chain, or hook to be touched by a live welding electrode.
- **NOT** operate a hoist on which the safety placards or decals are missing or illegible.
- Be familiar with operating controls, procedures, and warnings.
- Make sure the unit is securely attached to a suitable support before applying load.
- Make sure load slings or other approved single attachments are properly sized, rigged, and seated in the hook saddle.
- Take up slack carefully - make sure load is balanced and load-holding action is secure before continuing.
- Make sure all persons stay clear of the supported load.
- Protect the hoist's load chain from weld splatter or other damaging contaminants.
- Report Malfunctions or unusual performances (including unusual noises) of the hoist and remove the hoist from service until the malfunction or unusual performance is resolved.
- Warn personnel before lifting or moving a load.
- Warn personnel of an approaching load.

⚠ CAUTION

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage. To avoid such a potentially hazardous situation **THE OPERATOR SHALL:**

- Maintain a firm footing or be otherwise secured when operating the hoist.
- Check brake function by tensioning the hoist prior to each lift operation.
- Use hook latches. Latches are to retain slings, chains, etc. under slack conditions only.
- Make sure the hook latches are closed and not supporting any parts of the load.
- Make sure the load is free to move and will clear all obstructions.
- Avoid swinging the load or hook.
- Make sure hook travel is in the same direction as shown on controls.
- Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
- Use the hoist manufacturer's recommended parts when repairing the unit.
- Lubricate load chain per hoist manufacturer's recommendations.
- **NOT** allow your attention to be diverted from operating the hoist.
- **NOT** allow the hoist to be subjected to sharp contact with other hoists, structures, or objects through misuse.
- **NOT** adjust or repair the hoist unless qualified to perform such adjustments or repairs.

2.0 Technical Information

2.1 Specifications

2.2.1 Product Code: ¼ Ton capacity = LX003
½ Ton capacity = LX005

2.2.2 Hoist Models: LX1A and LX1B as identified on the nameplate. LX1B is the latest LX version. It has improved Free-Wheel function and bolted LX003 bottom hook yoke.

2.2.3 Operating Conditions and Environment
Temperature Range: -40° to +60°C (-40° to +140°F)
Humidity: 100% or less, this is not underwater device.
Material: No special materials such as spark resistant and asbestos.

2.2.4 Hoist Parts

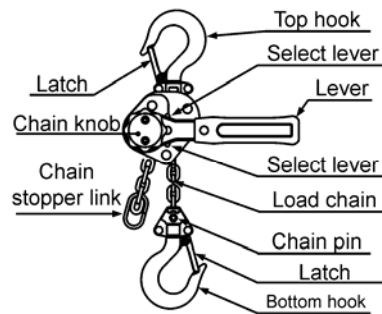


Table 2-1 Hoist Specifications

Capacity (Ton)	Product Code	Headroom C (in.)	Standard Lift (ft)	Pull to Lift Rated Load (lbs)	Load Chain Dia. x Pitch (mm)	Chain Fall Lines	Net Weight (lbs)
¼	LX003	8.1	5	40	3.2x9.0	1	3.5
½	LX005	9.7	5	62	4.3x12.0	1	5.7

3.0 Operation

3.1 Introduction

3.1.1 **⚠ WARNING** HOIST OPERATORS SHALL BE REQUIRED TO READ THE OPERATION SECTION OF THIS MANUAL, THE WARNINGS CONTAINED IN THIS MANUAL, INSTRUCTION AND WARNING LABELS ON THE HOIST OR LIFTING SYSTEM, AND THE OPERATION SECTIONS OF ANSI/ASME B30.21 and ANSI/ASME B30.10.

3.1.2 Measure and record the "k" dimension of the top and bottom hook. See Table 4-3 under Section 4, "Inspection".

3.1.3 **⚠ WARNING** For the LX1A model hoist, lifting a light load (approx. 11 lbs. or less) may not produce full braking performance and slippage can occur.

3.2 Free Chaining

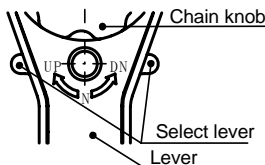
3.2.1 ⚠ DANGER

- Do not operate the hoist in free chain mode while a load is applied to the hoist.
- Set the select lever to the lifting ('UP') position before performing a lifting operation. Do not leave the lever in the neutral ('N') position.
- Do not pull the no-load-side chain with the select lever set in the lowering ('DN') position. This will cause the lever to rotate, which can be hazardous.

3.2.2 Free Chain Principle

- Free chaining allows the load chain to be moved freely because the brake is released under no load situations.
- An internal spring releases the mechanical brake allowing the load chain to be pulled in either direction to the desired length.
- The brake is engaged during lowering or lifting the load.

3.2.3 How to Operate



1. Move the select lever to the neutral ('N') position as shown in the left picture.
2. With the no-load side chain pulled lightly, turn the chain knob counterclockwise.
3. In this mode, the load chain can be pulled through the hoist to its required length.
If the hoist does not shift into free chaining mode, hold the no-load-side chain and make some lowering operations to release the brake.

3.2.4 **CAUTION** Do not pull the load chain suddenly in free chaining mode. Excessive pulling may set the brake and not allow the chain to be moved. If this occurs the hoist must be reset.

3.2.5 Free chaining with the chain knob on the top as shown in Figure 3.1 may cause a braking force. In this case, direct the top of the knob towards the horizontal side as shown in Figure 3.2 in free-chaining mode.

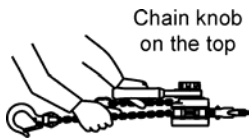


Figure 3-1



Figure 3-2

3.2.6 To reset the hoist for load operation, set the select lever to the lifting ('UP') or the lowering ('DN') position to eliminate the clearance to the friction plate and operate the lever.

3.3 Lifting and Lowering Operation

3.3.1 **DANGER** Do not operate the chain knob in lifting or lowering.

3.3.2 **CAUTION** Before operating, make sure that the hoist is not in free chaining mode and set the select lever to the direction of load movement desired, then ratchet the lever back and forth.

3.3.3 The following table shows select lever position and lever operation for lifting and lowering.

Table 3-1 Hoist Lever Operation		
Select Lever Position	Lever Rotation	Load Movement
UP	Clockwise	Lift
DN	Counterclockwise	Lower

3.3.4 **CAUTION**

- Under no-load or light load (approx. 6 ½ lbs.) conditions, if the load chain does not move, operate the lever while pulling slightly on the load-side of the load chain. (Normal Operation)
- If a lifting operation does not produce clicking sounds, the brake is released. Perform the lifting operation again with the load-side chain pulled firmly until clicking sounds are heard.

4.0 Inspection

4.1 **Initial Inspection** – prior to initial use, all new, altered, or modified hoists shall be inspected by a designated person to ensure compliance with the applicable provisions of this manual.

4.2 **Inspection Classification** – The inspection procedure herein is based on ANSI/ASME B30.21. Inspections for hoists in regular service are divided into FREQUENT and PERIODIC groups based upon the intervals at which inspection should be performed. The intervals in turn are dependent upon the degree of service and usage the hoists are subjected to. FREQUENT intervals range from monthly to daily and PERIODIC intervals range from quarterly to yearly. Consult Harrington or ANSI/ASME B30.21 for the exact interval criteria.

4.3 Frequent Inspection

4.3.1 Inspections should be made on a FREQUENT basis in accordance with Table 4-1, "Frequent Inspection." Included in these FREQUENT Inspections are observations made during operation for any defects or damage that might appear between Periodic Inspections. Evaluation and resolution of the results of FREQUENT Inspections shall be made by a designated person such that the hoist is maintained in safe working condition.

Table 4-1 Frequent Inspection
All functional operating mechanisms for proper operation and adjustment, maladjustment and unusual sounds.
Hoist braking system for proper operation
Hooks and latches in accordance with ANSI/ASME B30.10
Hook latch operation
Load chain in accordance with Section 4.5
Hoist lever for bends, cracks, etc,
Hoist support for damage

4.4 Periodic Inspection

- 4.4.1 Inspections should be made on a PERIODIC basis in accordance with Table 4-2, "Periodic Inspection." Evaluation and resolution of the results of PERIODIC Inspections shall be made by a designated person such that the hoist is maintained in safe working condition.
- 4.4.2 For inspections where load suspension parts of the hoist are disassembled, a load test per ANSI/ASME B30.21 must be performed on the hoist after it is re-assembled and prior to its return to service.

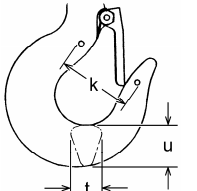
Table 4-2 Periodic Inspection
Requirements of frequent inspection.
Evidence of loose bolts, nuts, or rivets.
Evidence of worn, corroded, cracked, or distorted parts such as suspension housing, chain attachments, yokes, suspension bolts, shafts, gears, bearings, pins, rollers and locking and clamping devices.
Evidence of damage to hook retaining nuts or collars and pins, and welds or rivets used to secure the retaining members.
Evidence of damage or excessive wear of load sheave.
Evidence of worn, glazed or oil contaminated friction disks; worn pawls, cams or ratchet; corroded, stretched, or broken pawl springs in brake mechanism.
Evidence of damage to supporting structure.
Function label on hoist for legibility.
Warning label properly attached to the hoist and legible (see Section 7, Fig. No. 37).
End connections of load chain stopper link.

4.5 Inspection Methods and Criteria

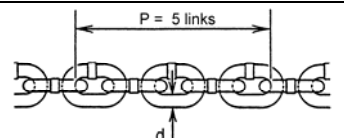
- 4.5.1 This section covers the inspection of specific items. The list of items in this section is based on those listed in ANSI/ASME B30.21 for the Frequent and Periodic Inspection.
- 4.5.2 Frequent Inspection - Not intended to involve disassembly of the hoist. Disassembly for further inspection would be required if only if frequent inspection results so indicate. Disassembly and further inspection should only be performed by a qualified person trained in the disassembly and re-assembly of the hoist.
- 4.5.3 Periodic Inspection - Disassembly of the hoist is required. Disassembly should only be performed by a qualified person trained in the disassembly and re-assembly of the hoist.

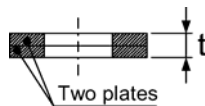
Table 4-3 Hoist Inspection Methods and Criteria			
Item	Method	Criteria	Action
Functional operating mechanisms.	Visual, Auditory	Mechanisms should be properly adjusted and should not produce unusual sounds when operated. Components should not be deformed, scarred or show significant wear.	Repair or replace as required.
Braking System – Components	Visual	Brake Pawl, Pawl Shaft, Pawl Spring, Friction Disc and Ratchet Disc should not be deformed scarred or show significant wear.	Replace
Braking System – Friction Plate	Visual, Measure	The surface of the friction plate should be free of grease, oil, scars, gouges and wear and have uniform thickness. The thickness of both plates together should not be less than the discard value listed in Table 4-6.	Replace
Housing Mechanical and Lifting System – Components	Visual, Auditory, Function	Hoist components including load blocks, suspension housing, chain attachments, clevises, yokes, suspension bolts, shafts, gears, bearings, pins and rollers should be free of cracks, distortion, significant wear and corrosion. Evidence of same can be detected visually or via detection of unusual sounds during operation.	Replace.
Hooks – Condition	Visual	Should be free of gouges, dents, weld splatter, significant corrosion, twists, deformations, significant wear, dirt and grime. Hook should swivel freely.	Replace.
Hooks – Fretting wear	Measure	The "u" and "t" dimensions should not be less than the discard value listed in Table 4-4.	Replace.
Hooks – Stretch	Measure	The "k" dimension should not be greater than 1.05 times that measured and recorded at the time of purchase (See Section 3.1). If recorded "k" values are not available for hooks when new, use nominal "k" values from Table 4-4.	Replace.
Hooks – Hook Latches	Visual, Function	Latch should not be deformed. Attachment of latch to hook should not be loose or stiff. Latch spring should not be missing and should not be weak.	Replace.
Hooks – Yoke Assembly	Visual	Should be free of significant rust, weld splatter, nicks, gouges. Holes should not be elongated, fasteners should not be loose (Refer to figure in Section 7.0), and there should be no gap between mating parts.	Torque or replace as required.
Yoke – Hole Deformation	Visual, Measure	The "d" dimension of the chain pin hole and "D" dimension of the top pin hole should not be greater than the discard value listed in Table 4-7.	Replace Hook Set
Chain Pin & Top Pin – Deformation	Visual, Measure	The chain pin and top pin should be free of scars or significant deformation. The "d" and "D" dimension should not be less than discard value listed in Table 4-8.	Replace
Load Chain – Surface Condition, Lubrication	Visual	Should be free of gouges, nicks, dents, weld splatter and corrosion. Links should not be deformed, and should not show signs of abrasion. Surfaces where links bear on one another should be free of significant wear. Entire surface should be coated with lubricant and should be free of dirt and grime.	Replace (only with load chain listed in parts list).
Load Chain – Pitch and Wire Diameter	Measure	The "P" dimension should not be greater than discard value listed in Table 4-5. The "d" dimension should not be less than discard value listed in Table 4-5.	Replace (see above). Inspect load sheave.

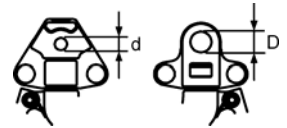
Item	Method	Criteria	Action
Bolts, Nuts and Rivets	Visual, Check with Proper Tool	Bolts, nuts and rivets should not be loose, deformed or corroded.	Tighten or replace as required.
Load Sheave	Visual	Pockets of Load Sheave should be clean and free of significant wear.	Replace.
Warning Labels	Visual	Warning Labels should be affixed to the hoist and they should be legible. (see Section 7, Figure Number 37)	Replace.
Hoist Capacity Label	Visual	The label that indicates the capacity of the hoist should be legible and securely attached to the hoist.	Replace.

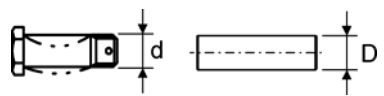
"k" Measured When New: Top: _____ Bottom: _____		Product Code	Nominal "k" Dimension* inch (mm)	"u" Dimension inch (mm)		"t" Dimension inch (mm)	
				Standard	Discard	Standard	Discard
				LX003	1.35 (34.4)	0.49 (12.5)	0.47 (11.9)
LX005	1.67 (42.5)	0.59 (15.0)	0.56 (14.3)	0.47 (12.0)	0.45 (11.4)		

* 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 4-5, "Hooks - Stretch".

	Product Code	"P" inch (mm)		"d" inch (mm)	
		Standard	Discard	Standard	Discard
		LX003	1.79 (45.5)	1.84 (46.8)	0.126 (3.2)
LX005	2.38 (60.5)	2.45 (62.5)	0.169 (4.3)	0.15 (3.9)	

	Product Code	Standard inch (mm)	Discard inch (mm)
	LX003 LX005	0.20 (5.0)	0.18 (4.5)

	Product Code	Chain Pin Hole "d" inch (mm)		Top Pin Hole, "D" inch (mm)	
		Standard	Discard	Standard	Discard
		LX003			0.33 (8.3)
LX005	0.20 (5.2)	0.22 (5.7)	0.41 (10.3)	4.25 (10.8)	

	Product Code	Chain Pin Hole "d" inch (mm)		Top Pin Hole, "D" inch (mm)	
		Standard	Discard	Standard	Discard
		LX003			0.33 (8.3)
LX005	0.20 (5.2)	0.22 (5.7)	0.41 (10.3)	4.25 (10.8)	

5.0 Maintenance

5.1 For hoist maintenance or storage, comply with the following points.

5.1.1 **⚠ DANGER** Do not lubricate the friction plate of the mechanical brake.

5.1.2 **⚠ CAUTION**

- Always ensure that lubricant is applied to the load chain, the chain pin, the top pin, the hook necks, the hook latches and the select lever. Refer to Section 2.2.2 "Hoist Parts".
- Do not store the hoist under a load.
- Remove any dirt or water on the hoist.
- Store the hoist in a dry and clean area.
- Perform all inspections given in "4.0 Inspection" if irregularity of the hoist is found after operation.

6.0 Warranty

All products sold by Harrington Hoists, Inc. are warranted to be free from defects in material and workmanship from date of shipment by Harrington for the following periods:

Manual Hoists & Trolleys - 2 years
Air and Electric Powered Hoists, Trolleys, and Crane Components - 1 year
Spare / Replacement Parts - 1 year

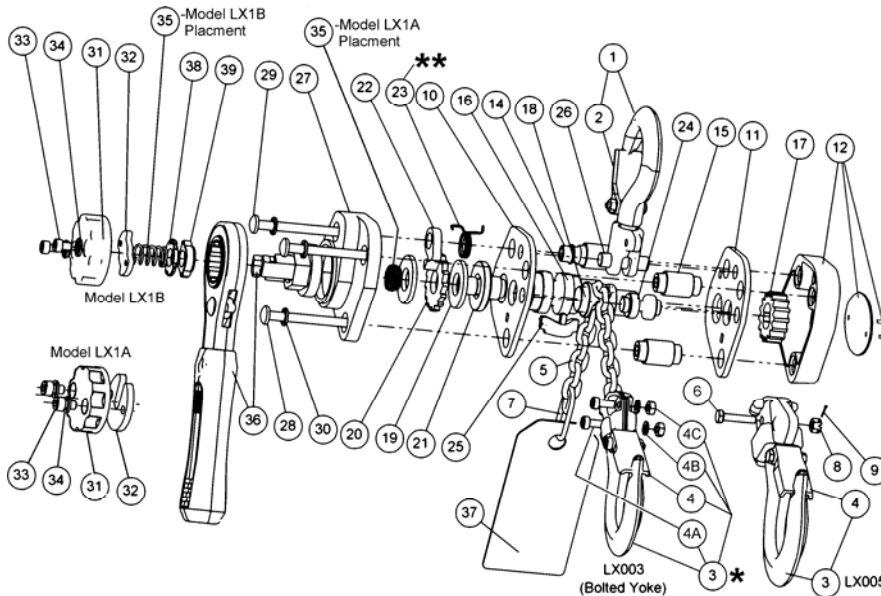
The product must be used in accordance with manufacturer's recommendations and must not have been subject to abuse, lack of maintenance, misuse, negligence, or unauthorized repairs or alterations.

Should any defect in material or workmanship occur during the above time period in any product, as determined by Harrington Hoist's inspection of the product, Harrington Hoists, Inc. agrees, at its discretion, either to replace (not including installation) or repair the part or product free of charge and deliver said item F.O.B. Harrington Hoists, Inc. place of business to customer.

Customer must obtain a Return Goods Authorization as directed by Harrington or Harrington's published repair center prior to shipping product for warranty evaluation. An explanation of the complaint must accompany the product. Product must be returned freight prepaid. Upon repair, the product will be covered for the remainder of the original warranty period. If it is determined there is no defect, or that the defect resulted from causes not within the scope of Harrington's warranty, the customer will be responsible for the costs of returning the product.

Harrington Hoists, Inc. disclaims any and all other warranties of any kind expressed or implied as to the product's merchantability or fitness for a particular application. Harrington will not be liable for death, injuries to persons or property or for incidental, contingent, special or consequential damages, loss or expense arising in connection with the use or inability whatever, regardless of whether damage, loss or expense results from any act or failure to act by Harrington, whether negligent or willful, or from any other reason.

7.0 Parts List



- * LX003 Bottom Hook:
- Refer to section 2.2.2 For technical information.
 - Fastener Assembly:
 - Torque to 40 – 48 lb_f-in.
 - Use Loctite® Threadlocker 241 or 242.

** Pawl Spring Assembly = 2 springs.

Figure No.	Part Name	Model	Parts Per Hoist	LX003 1/4 Ton	LX005 1/2 Ton
1	Top Hook Assembly		1	L1XA0031001	L1XA0051001
2	Latch Assembly		1	L1XA0031071	L1XA0051071
3*	Bottom Hook Assembly		1	L1XA0031021	L1XA0051021
4	Latch Assembly		1	L1XA0031071	L1XA0051071
4a	Spring Washer		2	9012707	
4b	Hex Nut		2	9093414	
4c	Socket Head Cap Screw		2	9091203	
5	Load Chain	FT		LCLX003NP	LCLX005NP
6	Chain Pin		1	L1LA0059041	
7	Chain Stopper Link		1	L1XA0039045	L1LA0059045
8	Slotted Nut		1	L1LA0059049	
9	Split Pin		1	9009401	
10	Frame A		1	L1XA0039101	L1XA0059101
11	Frame B		1	L1XA0039102	L1XA0059102
12	Gear Case with Nameplate		1	L1XA0035103	L1XA0055103
14	Stud A		2	L1XA0039104	L1XA0059104
15	Stud B		1	L1XA0039105	L1XA0059105
16	Pinion	LX1A L1XB	1	L1XA0039111 L1XA0039111R3	L1XA0059111 L1XA0059111R2
17	Load Gear		1	L1XA0039114	L1XA0059114
18	Load Sheave		1	L1XA0039116	L1XA0059116
19	Friction Plate		2	L1XA0039151	L1XA0059151
20	Ratchet Disc		1	L1XA0039152	L1XA0059152
21	Friction Disc		1	L1XA0039153	L1XA0059153

Figure No.	Part Name	Model	Parts Per Hoist	LX003 1/4 Ton	LX005 1/2 Ton
22	Pawl		1	L1XA0039155	
23	Pawl Spring Assembly**		1	L1XA0031158	
24	Guide Roller		1	L1XA0039161	L1XA0059161
25	Stripper		1	L1XA0039162	L1XA0059162
26	Top Pin		1	L1XA0039163	L1XA0059163
27	Brake Cover		1	L1XA0039172	L1XA0059172
28	Button Head Socket Screw		2	L1XA0039173	L1XA0039174
29	Button Head Socket Screw		1	L1XA0039174	L1XA0059174
30	Internal Tooth Lock Washer		3	96797J09	
31	Chain Knob	LX1A LX1B	1	L1XA0039201R1 L1XA0039201R2	L1XA0059201R1 L1XA0059201R2
32	Lever Clamping Plate	LX1A LX1B	1	L1XA0039202R1 L1XA0039202R2	L1XA0059202R1 L1XA0059202R2
33	Socket Bolt	LX1A LX1B	2	9091224	9091225
34	Conical Lock Washer	LX1A LX1B	2	L1XA0039204R1 L1XA0039204R2	
35	Free Chain Spring	LX1A LX1B	1	L1XA0039205	L1XA0059205
36	Lever Assembly	LX1A LX1B	1	L1XA0034211 L1XA0034211R2	L1XA0054211 L1XA0054211R2
37	Warning Tag		1	WTAG9	
38	Free Chain Plate	LX1B	1	L1XA0039209	
39	Cam Guide	LX1B	1	L1XA0039203	

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