

# ELECTRIC CHAIN HOIST OPERATING, MAINTENANCE, & PARTS MANUAL



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## 1.0: GENERAL INFORMATION

This manual provides important information for personnel involved with installation, operation and maintenance of the ACI Electric Chain Hoist. The operator and/or person maintaining the hoist should be familiar with this manual.

The person responsible for the installation, operation, and/or maintenance of the hoist equipment should be familiar with the American National Standard ANSI B30.16 for guidelines on the safe operation of hoist. That document contains rules on inspection requirements and records that may be required by some of the regulatory agencies.

Following the precautions, procedures and maintenance practices in this manual should ensure long and reliable operation for your hoist.

### 1.1: CONSTRUCTION

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

## 2.0: SAFETY PRECAUTIONS

### 2.1: TERMS & SUMMARY

Although you may be familiar with the product or similar equipment, it is strongly recommended that you read this manual before installing, operating or maintaining the hoist.

#### 2.1.1: DANGER, WARNING, CAUTION & NOTICE

Throughout this manual, are steps and procedures that can prevent hazardous situations. The following signals words are used to identify the degree or level of hazard seriousness.

 <b>DANGER</b> 
 <b>WARNING</b> 
 <b>CAUTION</b> 
<b>NOTICE</b>

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

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

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

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

 **WARNING** 

This equipment should not be installed, operated or maintained by any person who has not read all the contents to these instructions. Failure to read and comply with these instructions or any one of limitations noted herein can result in serious bodily injury and/or property damage.

Only competent engineering and fabrication personnel, familiar with standard machinery and crane design and fabrication practices, should be employed using this equipment because of the necessity of properly interpreting these instructions and for the purposes of determining appropriate compatible equipment and product applications. ACI disclaims any responsibility for the quality of design and workmanship employed in the design and fabrication of a crane or other system using this equipment or the sufficiency of the structure in which and to which this equipment is to be installed or the sufficiency of the machinery/crane or system to sustain any particular load that may be imposed upon it. Contact ACI or distributor for additional information if necessary.

There are no other warranties, which extend beyond the description on the order Acknowledgment and as it may apply to the specifications provided in this publication.

THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. ACI shall in no event be liable for special, direct, indirect, incidental or consequential damages to anyone beyond the cost of replacement of the goods sold hereby.

 **CAUTION** 

These general instructions deal with the normal installation, operation, and maintenance situations encountered with the equipment described herein. The instructions should not be interpreted to anticipate every possible contingency or to anticipate the final machinery/crane or system configuration that uses this equipment.

This manual includes instruction and parts information for a full range of HOIST for machinery or crane equipment. Therefore, all instructions and parts information not apply to any one type or size of equipment. Disregard those portions of the instructions, which do not apply. Use only ACI authorized replacement parts in the service and maintenance of this equipment.

 **DANGER** 

HAZARDOUS VOLTAGES ARE PRESENT IN THE CONTROL BOX, OTHER ELECTRICAL COMPONENTS, AND CONNECTIONS BETWEEN THESE COMPONENTS.

Before performing any mechanical or electrical maintenance on the equipment, de-energize (disconnect) the main switch supplying power to the equipment; and lock and tag the main switch in the de-energized position.

Only trained and competent personnel should inspect and repair this equipment.

## **2.2 SAFE HOISTING AND OSHA COMPLIANCE**

Many people have asked what they need to keep their equipment safe and reduce down time. Others worry about OSHA compliance. The following is a list of the minimum that should be done to keep your hoists and cranes operating properly, safely, and within OSHA regulations. The following should be done to all hoisting equipment including hand and ratchet hoists.

1. OPERATOR TRAINING: Like forklifts and trucks operator training is required for every operator of hoisting equipment (OSHA 1910.179 b.8). Improper lifts are a major cause of lost time accidents. People operating hoisting must know how to use the equipment safely.
  - ACI offers operator-training classes. Classes include; safe rigging, daily equipment inspection, safe operation, proper use and what can happen with improper use. Class typically lasts 1.5 to 2 hours and can be given in English or Spanish.
2. PREVENTATIVE MAINTENANCE: A preventative maintenance program shall be established based on the manufacturer's recommendations (ANSI B30.16 2.3.1a; OSHA 1910.179 L1).
  - ACI offers a PM program based on manufacturers recommendations. ACI has factory-trained technicians that use the proper equipment to do the job correctly, rapidly, and safely. Unlike many other companies we do not charge for rental of man lifts or forklifts that must be used to operate safely.
3. QUALIFIED REPAIR PERSONNEL: Adjustments and repairs should be performed by qualified personnel (ANSI B30.16 16-2.3.3 b).
  - The factory and continuing training on hoists and cranes qualify ACI personnel. Many electricians and mechanics assume they are qualified because they work on other electrical and mechanical equipment. This is no truer than them being qualified to work on a jet for the same reason.
4. DAILY INSPECTIONS: Many items must be checked on a daily basis. Written records do not need to be kept for these inspections (OSHA 1910.179 j 1; ANSI B30.16).
  - ACI provides operator training to perform these inspections. These inspections are a very quick inspection to verify the unit is safe to use prior to daily operation.
5. FREQUENT INSPECTIONS: These inspections are written inspections required on a monthly basis. (OSHA 1910.179 j 1; ANSI B30.16).
  - ACI can provide these inspections or provide training for your personnel to provide these inspections.
6. PERIODIC INSPECTIONS: These are complete inspections and preventative maintenance of the hoists and cranes. Qualified personnel should determine inspection interval. These should include brake adjustment, lubrication as well as a complete written inspection of your crane. (OSHA 1910.179 j 2; ANSI B30.16).
  - Based on your use and environment ACI can provide these inspections on anywhere from a monthly to an annual basis. Our inspections are not a loss leader but are a service designed to maintain your equipment and reduce your long-term maintenance costs.
7. RECORDS: Dated inspection records shall be kept for inspections and maintenance. (ANSI B30.16 16-2.1.1.2) Records should be kept where easily available. An external marking is acceptable in lieu of records.
  - ACI provides necessary records. We also keep a copy of all records for your convenience.
8. LOAD TEST: New equipment or equipment that has repairs or alterations to the load handling portion must be load tested to 125% of rated load. (ANSI B30.16 16-2.2.2). Load test should be performed at a minimum of every 4 years (CMAA 78 4.7.4). Load test records must be kept for the life of equipment.
  - ACI has certified test weights to test your hoists and cranes.

NOTE: There are many special requirements for hoisting systems that should be verified during the design and inspection of your equipment. It is extremely important for safe operation that you have your system designed and maintained by qualified personnel. We at ACI would be pleased to provide this service.

## **2.3: SAFETY RULES: WARNING TAGS & LABELS**

The warning tag illustrated below is supplied with each hoist shipped from the factory. If the tag is not attached to your hoist's pendant cord, call ACI Hoist & Crane immediately to receive it and install it. Read and obey all warnings attached to this hoist. Tag is not shown actual size:

**\*WARNING\***

**ONLY QUALIFIED PERSONNEL  
SHALL OPERATE THIS EQUIPMENT**

**DO NOT**

- Remove, deface or obscure this label.
- Operate malfunctioning equipment.

**BEFORE OPERATING**

**DO**

- **REPORT** condition for repair by qualified person.
- **READ** Mfr's. Instructions, applicable American National Safety Standards .
- **CHECK ROPE OR CHAIN**  
Must be seated in grooves, sheaves, or sprockets.  
Must not be twisted, kinked, or damaged in any way.
- **CHECK CONTROLS**  
All limit switches must function properly.  
Hook travel must be in same direction as shown on controls.
- **CLEAR** all personnel from service platform and path of load.

**WHILE OPERATING**

**DO NOT**

- Lift more than rated load.
- Lift people or loads over heads of people. **WARN** personnel of approaching loads.
- Make side pulls. Lift all loads vertically.
- Use limit switches as routine operating stops.  
**THESE ARE EMERGENCY DEVICES ONLY.**
- Operate if rope (or chain) slips from grooves (or sprockets). **REPLACE** in grooves (or sprockets) before continuing operation.

**BEFORE LEAVING OPERATING POSITION**

- **DO NOT** leave a load suspended and unattended.
- **ALWAYS** disconnect from power supply when equipment is not in use.

ACI  
Call:(954) 367-6116  
[WWW.ACIHOIST.COM](http://WWW.ACIHOIST.COM)

### **3.0: INSPECTION BEFORE INITIAL USE**

When the hoist is unpacked inspect carefully for any damage that may have occurred during shipping. Check for loose, missing or damaged parts.

### **3.1: INSTALLATION**

Be sure that the supporting structures for the hoist are strong enough to support the full rated load of the hoist with a low safety factor. The hoist body must be free to align between two hooks. Do not allow the hoist frame to rest against the supporting structure.

Installation MUST be performed by a qualified person in accordance with ACI Hoist & Crane. Severe injury, death and/or property damage can result if the hoist is not correctly installed. For service in this area, please contact:

ACI Hoist & Crane  
689 S.W. 7<sup>th</sup> Terrace  
Dania, FL 33004  
Phone: 954-367-6116  
Fax: 954-272-0334  
Toll Free: 1-866-424-6478

Make sure to check that the power supply where the hoist is to be connected matches the information shown on the identification plate located on the bottom of the hoist.

**Before using the hoist, fill in the information below:**

Model No.: \_\_\_\_\_  
Serial No.: \_\_\_\_\_  
Purchase Date: \_\_\_\_\_

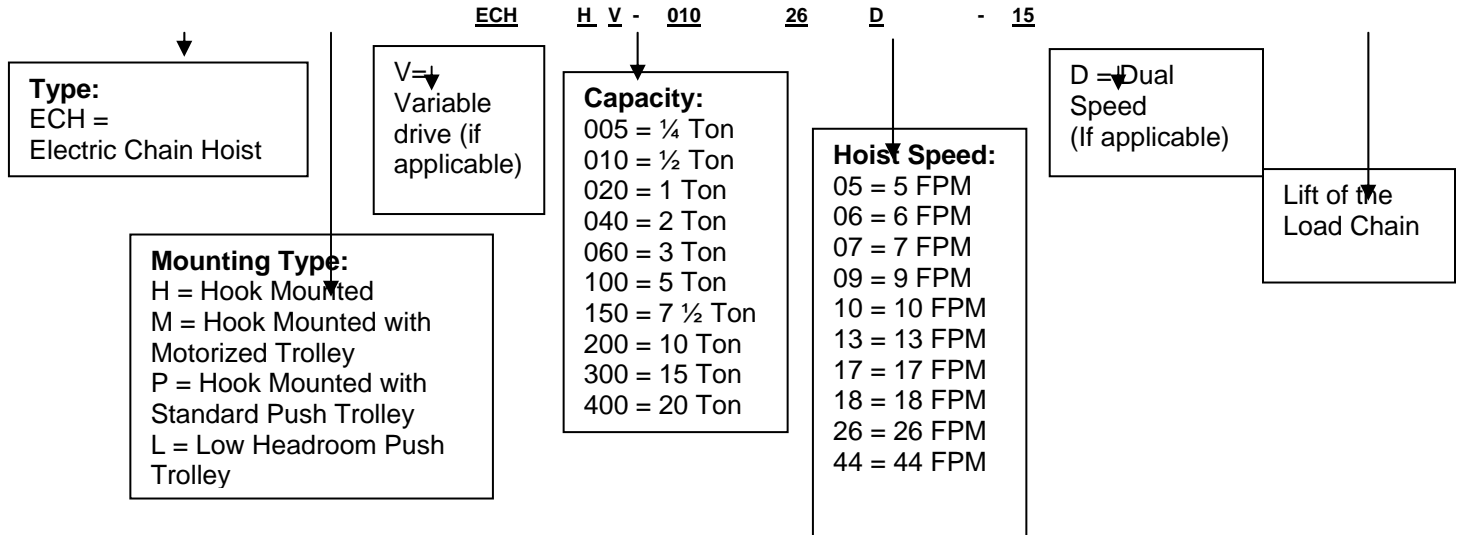
### **3.2: TESTING**

Lift a light load with the hoist to check for a smooth operation and proper braking. If the hoist works properly with the light load, connect the rated load to the hoist and lift the load just clear of the floor. Check that the brake is holding the load before lifting it any higher.

## 4.0: DRAWINGS, DIMENSIONS & SPECIFICATIONS

### 4.1: SPECIFICATIONS

Model Number



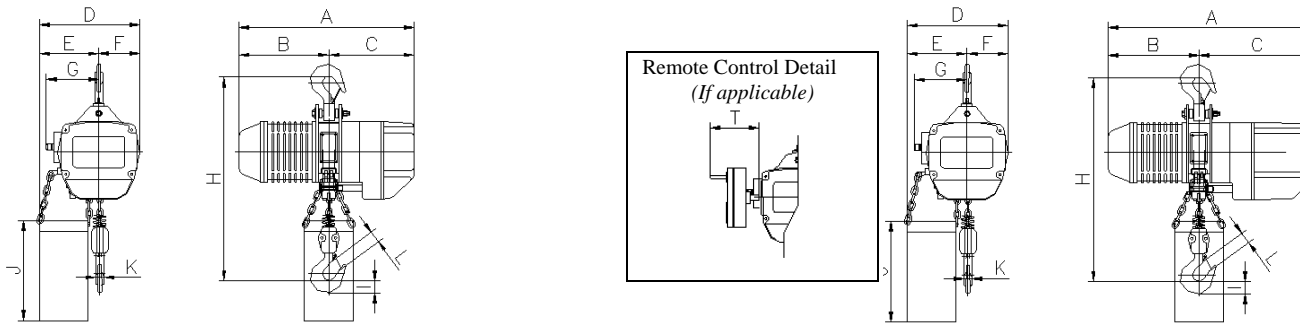
Example of Model Number: ECHH-01026D-15

Electric Chain Hoist, Hook Mounted, ½ Ton, 26/8 FPM, Dual Speed Operation, 15 ft Lift

#### Features & General Specifications

- Duty Cycle = H4 Duty
- Parts Availability = Order direct; No minimum order.
- Chain Guide = Provide quiet and smooth guiding of construction for improved wear and jam resistance.
- Rain Cover = Optional
- Load Sheave = Deep-grooved with five pockets. Reduces vibration and chain wear and provides a true vertical lift.
- Gears = Precision machined heat treated helical and spur gears. Oil bath lubrication for quiet, smooth and cool operation.
- Mechanical Load Brake = Secondary Weston type as an added safety feature located inside the gear box.
- Motor Brake = Pull-rotor type. An extremely durable and advanced design. Contains no brake coil to fail like conventional brakes. Standard feature.
- Overload Clutch = Long life friction clutch protects hoist from damage and prevents overloading.
- Motor = Aluminum die cast body is light weight with a baked paint finish. Increased performance through heavy duty H4 rating. Standard thermal protection.
- Limit Switches = Power upper and lower limit switch. Cuts power directly to the motor. This added safety device is required in hot metal and critical uses.
  - Hook = Forged carbon steel hook. Under excessive loads will open gradually and not fracture. Ball bearings produce smooth rotation. Boon hook will swivel 360
  - Load Chain = Heavy duty, heat-treated, wear-resistant load chain standard.
  - Chain Bag = Heavy-duty chain bag included as standard.
  - Lifting Eye = Standard. Required in many specifications for equipment over 40 pounds.
  - Trolley = Motorized trolley available
  - Trolley Bumper = Standard, Required on trolleys used for cranes/
  - Trolley Brake = Standard
  - Trolley Roller Guides = Trolley roller guides for smooth operation, especially on curves (on models equipped with trolley).

#### 4.2: ELECTRIC CHAIN HOIST, HOOK MOUNTED: DRAWINGS & DIMENSION



Single Speed/Dual Speed

Hoist Control Options

¼ Ton- 2 Ton (1 Chain)

#### 4.2.1: SPECIFICATION & DIMENSIONS:

Capacity (ton)	Model Number	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz			Dimension (in)									Special Dim. (in)	Approx. Gross Weight 1-sp Hoist (lbs)
					Hp	Rated Current		H Headroom*	D	E*	F	G	I	J*	K	L		
						230 V (amps)	460 V (amps)											
1/4	ECHH-00518	18	1	0.28	1.3	8.0	4.0	22.0	11.8	7.0	4.8	6.3	1.4	11.2	0.9	1.3	Table 1	138
	ECHH-00526	26			1.3	8.0	4.0	22.0	11.8	7.0	4.8	6.3	1.4	11.2	0.9	1.3	Table 1	138
	ECHH-00544	44			2.0	8.0	4.0	22.0	11.8	7.0	4.8	6.3	1.4	11.2	0.9	1.3	Table 2	138
1/2	ECHH-01018	18			1.3	8.0	4.0	22.0	11.8	7.0	4.8	6.3	1.4	11.2	0.9	1.3	Table 1	138
	ECHH-01026	26			1.3	8.0	4.0	22.0	11.8	7.0	4.8	6.3	1.4	11.2	0.9	1.3	Table 1	138
	ECHH-01044	44			2.0	8.0	4.0	22.0	11.8	7.0	4.8	6.3	1.4	11.2	0.9	1.3	Table 2	138
1	ECHH-02018	18			1.3	8.0	4.0	22.0	11.8	7.0	4.8	6.3	1.5	11.2	0.9	1.3	Table 1	138
	ECHH-02026	26			2.0	10.0	5.0	22.0	11.8	7.0	4.8	6.3	1.5	11.2	0.9	1.3	Table 2	138

Table 1	Dimensions (in)			
	A	B	C	T
1-Sp Hoist	20.8	10.7	10.1	6.0
2-Sp Hoist	20.8	10.7	10.1	6.0
VFD Hoist	24.3	10.7	13.6	6.0

Table 2	Dimensions (in)			
	A	B	C	T
1-Sp Hoist	20.8	10.7	10.1	6.0
2-Sp Hoist	21.6	11.5	10.1	6.0
VFD Hoist	24.3	10.7	13.6	6.0

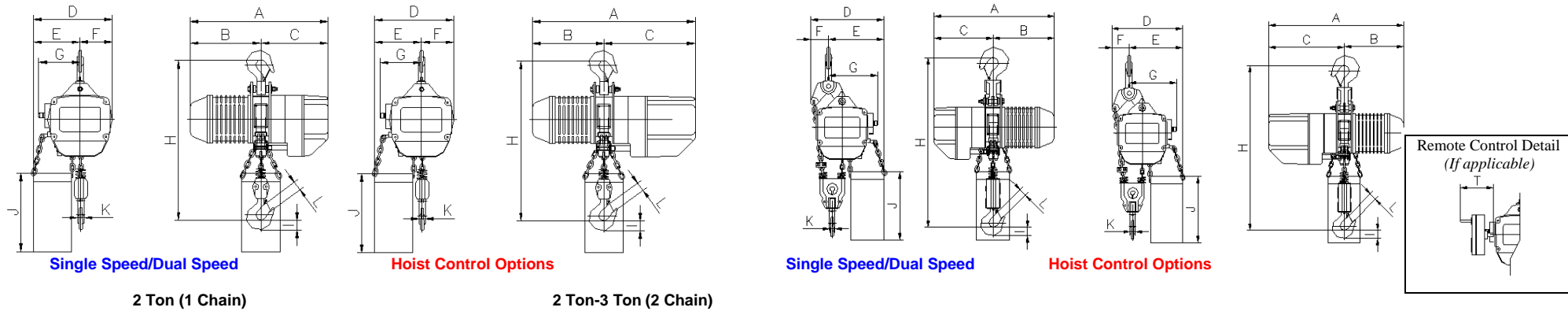
**Hoist Speed:**

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**Special Notes:**

\* Dimensions are based on 10 ft Lift.  
 † Contact us for additional flange width

**4.2.2: SPECIFICATION & DIMENSIONS:**



Capacity (ton)	Model Number	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz			Dimension (in)									Special Dim. (in)	Approx. Gross Weight 1-sp Hoist (lbs)
					Hp	Rated Current		H Headroom*	D	E*	F	G	I	J*	K	L		
						230 V (amps)	460 V (amps)											
2	ECHH-04009	9	2	0.28	1.3	8.0	4.0	27.6	12.5	9.4	3.2	8.6	1.5	11.2	0.9	1.3	Table 1	168
	ECHH-04013	13	2		2.0	10.0	5.0	30.1	12.5	9.4	3.2	8.6	1.5	11.2	0.9	1.3	Table 2	168
	ECHH-04026	26	1	0.39	4.0	20.0	10.0	30.1	16.3	10.1	6.2	7.5	2.0	14.0	1.4	1.9	Table 3	270
ECHH-06017	17	2	4.0		20.0	10.0	35.1	16.5	12.4	2.9	9.6	2.0	14.0	1.4	1.9	Table 3	335	
5	ECHH-10010	10	2	0.43	4.0	19.0	10.0	36.6	16.5	12.4	3.7	9.6	2.5	14.0	1.8	2.2	Table 3	335

Table 1	Dimensions (in)			
	A	B	C	T
1-Sp Hoist	20.8	10.7	10.1	6.0
2-Sp Hoist	20.8	10.7	10.1	6.0

Table 2	Dimensions (in)			
	A	B	C	T
1-Sp Hoist	20.8	10.7	10.1	6.0
2-Sp Hoist	21.6	11.5	10.1	6.0

Table 3	Dimensions (in)			
	A	B	C	T
1-Sp Hoist	24.5	11.9	12.6	6.0
2-Sp Hoist	25.5	12.9	12.6	6.0
VFD Hoi		11.9	12.6	6.0

Special Notes:

\* Dimensions are based on 10 ft Lift.

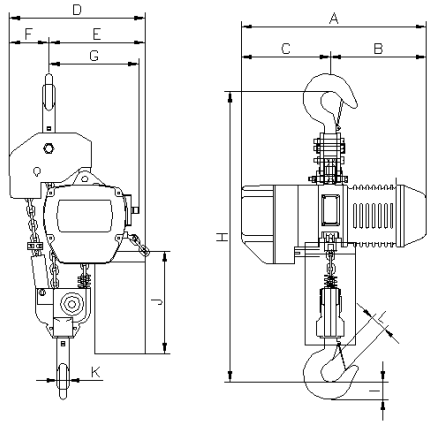
† Contact us for additional flange width

t

Hoist Speed:

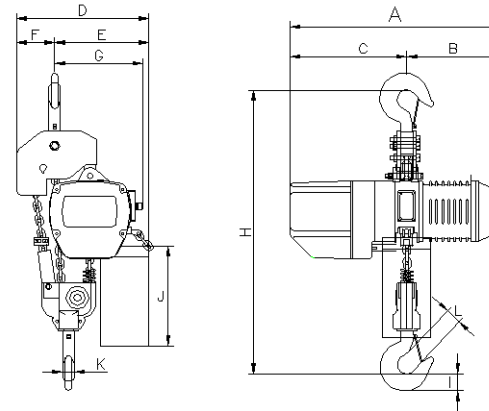
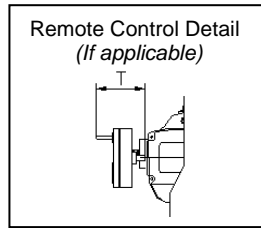
- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**4.2.3 SPECIFICATION & DIMENSIONS:**



Single Speed/Dual Speed

3 Ton (3 Chain)



Hoist Control Options

Capacity (ton)	Model Number	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz			Dimension (in)										Special Dim. (in)	Approx. Gross Weight 1-sp Hoist (lbs)
					Hp	Rated Current		H Headroom*	D	E*	F	G	I	J*	K	L			
						230 V (amps)	460 V (amps)												
3	ECHH-06006	6	3	0.28	1.3	10.0	5.0	31.6	15.8	11.2	4.6	10.4	2.0	14.0	1.4	1.8	Table 1	240	
3	ECHH-06009	9	3	0.28	2.0	10.0	5.0	31.6	15.8	11.2	4.6	10.4	2.0	14.0	1.4	1.8	Table 2	240	

Table 1	Dimensions (in)			
	A	B	C	T
1-Sp Hoist	20.8	10.7	10.1	6.0
2-Sp Hoist	20.8	10.7	10.1	6.0
VFD Hoist	24.3	10.7	13.6	6.0

Table 2	Dimensions (in)			
	A	B	C	T
1-Sp Hoist	20.8	10.7	10.1	6.0
2-Sp Hoist	21.6	11.5	10.1	6.0
VFD Hoist	24.3	10.7	13.6	6.0

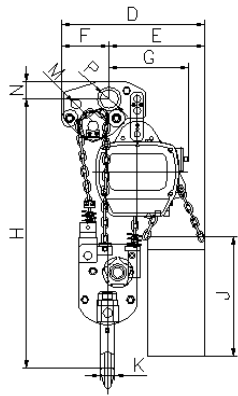
**Special Notes:**

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

**Hoist Speed:**

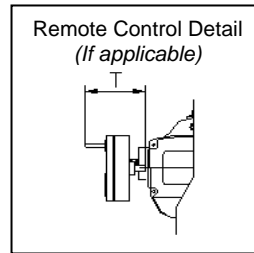
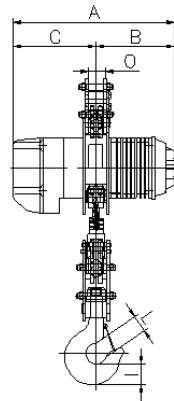
- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**4.2.4: SPECIFICATION & DIMENSIONS:**

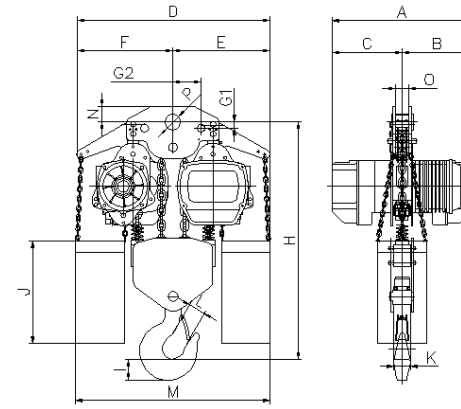


Single Speed/Dual Speed  
Hoist Control Options

7 1/2 Ton (2 Chain)



10 Ton (4 Chain)



Single Speed/Dual Speed  
Hoist Control Options

Capacity (ton)	Model Number	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz			Dimension (in)										Special Dim. (in)	Approx. Gross Weight 1-sp Hoist (lbs)
					Hp	Rated Current		H Headroom m*	D	E*	F	I	J*	K	L	N	O		
						230 V (amps)	460 V (amps)												
7 1/2	ECHH-15007	7	2	0.43	4.0	19.0	10.0	38.6	21.7	14.4	7.3	3.1	14.0	2.2	2.8	2.6	38.6	Table 1	480
10	ECHH-20010	10	4	0.43	2 x 4.0	2 x 10.0	2 x 10.0	42.1	34.4	17.2	17.2	3.8	14.0	3.1	2.9	2.7	2.3	Table 2	810

Table 1	Dimensions (in)						
	A	B	C	G	M	P	T
1-Sp Hoist	24.5	11.9	12.6	11.7	1.3	2.5	5.9
2-Sp Hoist	25.5	12.9	12.6	11.7	1.3	2.5	5.9
VFD Hoist	24.5	11.9	12.6	11.7	1.3	2.5	5.9

Table 2	Dimensions (in)						
	A	B	C	G1/G2	M(*)	P	T
1-Sp Hoist	25.2	12.6	12.6	1.0/5.0	34.6	2.7	5.9
2-Sp Hoist	25.8	12.9	12.9	1.0/5.0	34.6	2.7	5.9
VFD Hoist	25.2	12.6	12.6	1.0/5.0	34.6	2.7	5.9

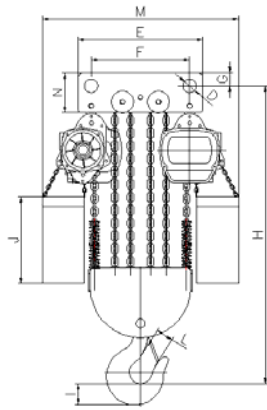
**Special Notes:**

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width & Yoke dimensional drawing.

**Hoist Speed:**

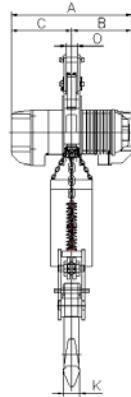
- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**4.2.5: SPECIFICATION & DIMENSIONS:**

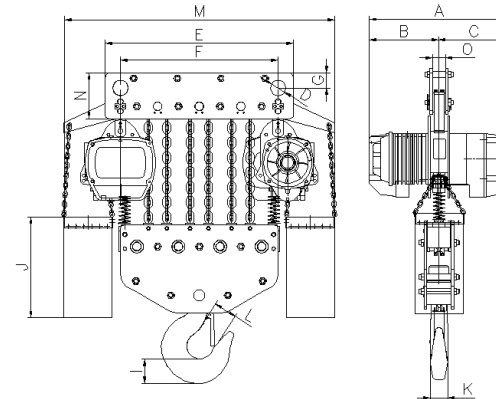
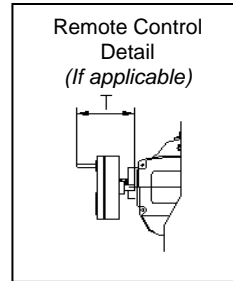


Single Speed/Dual Speed  
Hoist Control Options

15 Ton (6 Chain)



20 Ton (8 Chain)



Single Speed/Dual Speed  
Hoist Control Options

Capacity (ton)	Model Number	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz			Dimension (in)										Special Dim. (in)	Approx. Gross Weight 1-sp Hoist (lbs)
					Hp	Rated Current		H Headroom*	D	E*	F	I	J*	K	L	N	O		
						230 V (amps)	460 V (amps)												
15	ECHH-30007	7	6	0.43	2 x 4.0	2 x 19.0	2 x 19.0	47.8	2.7	26.0	20.5	4.4	19.1	3.3	3.6	8.3	2.3	Table 1	1025
20	ECCH-40005	5	8	0.43	2 x 4.0	2 x 19.0	2 x 19.0	48.6	2.8	33.8	28.3	4.4	19.1	3.1	4.1	8.3	5.1	Table 2	1580

Table 1	Dimensions (in)					
	A	B	C	G	M(*)	T
1-Sp Hoist	25.2	12.6	12.6	2.8	40.8	5.9
2-Sp Hoist	25.8	12.9	12.9	2.8	40.8	5.9
VFD Hoist	25.2	12.6	12.6	2.8	40.8	5.9

**Special Notes:**

\* Dimensions are based on 10 ft Lift.

† Contact us for additional flange width & Yoke dimensional drawing.

Table 2	Dimensions (in)					
	A	B	C	G	M(*)	T
1-Sp Hoist	25.2	12.6	12.6	2.8	48.6	5.9
2-Sp Hoist	25.8	12.9	12.9	2.8	48.6	5.9
VFD Hoist	25.2	12.6	12.6	2.8	48.6	5.9

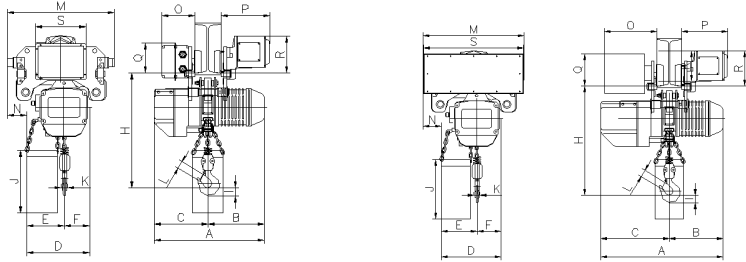
**Hoist Speed:**

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

### 4.3: ELECTRIC CHAIN HOIST WITH MOTORIZED TROLLEY

#### 4.3.1: ELECTRIC CHAIN HOIST WITH MOTORIZED TROLLEY: DIMENSIONS & SPECIFICATION: *Headroom (H) is based on 10 ft lift*

ECHM-00518, ECHM-00526, ECHM-00544 (1/4 TON)  
 ECHM-01018, ECHM-01026, ECHM-01044 (1/2 TON)  
 ECHM-02018, ECHM-02026 (1 Ton)



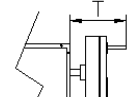
Single Speed/Dual Speed

Hoist Control Options (VD, Main line, fuses, etc.)

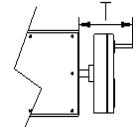
#### Specifications & Dimensions:

Type	Dimensions (in)						
	A	B	C	O	Q	S	T
1-Sp Hoist/ 1-Sp Trolley	20.8	10.7	10.1	6.2	5.7	9.5	6.0
2-Sp Hoist/ 1-Sp Trolley	20.8	10.7	10.1	6.2	5.7	9.5	6.0
VFD Hoist/ 1-Sp Trolley	24.3	10.7	13.6	6.2	5.7	9.5	6.0
VFD Hoist/ VFD Trolley/ Other configurations	24.3	10.7	13.6	10.6	6.4	20.0	6.0

Single/Dual Speed:  
Remote Control  
Detail  
(If applicable)



Hoist Control Options:  
Remote Control Detail  
(If applicable)



Model Number	Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz		Trolley Motor 3ph / 60 Hz 50 ft/min		Dimensions (in)												P† Flange Width Range (in)	Weight ^ (lbs)		
						HP	Rated Current		HP	Rated Current		H Headroom	D*	E*	F	I	J*	K	L	M	N			P	R
							230V (amps)	460V (amps)		230V (amps)	460 (amps)														
ECHM-00518	10.0	18	50	1	0.28	1.3	8.0	4.0	0.5	1.36	0.68	19.5	11.8	7.0	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	265
ECHM-00526	10.0	18	50	1	0.28	1.3	8.0	4.0	0.5	1.36	0.68	19.5	11.8	7.0	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	265
ECHM-00544	10.0	18	50	1	0.28	1.3	8.0	4.0	0.5	1.36	0.68	19.5	11.8	7.0	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	265
ECHM-01018	10	18	50	1	0.28	1.3	8	4	0.5	1.36	0.68	19.5	11.8	7	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	265
ECHM-01026	10	26	50	1	0.28	1.3	8	4	0.5	1.36	0.68	19.5	11.8	7	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	265
ECHM-01044	10	44	50	1	0.28	1.3	8	4	0.5	1.36	0.68	19.5	11.8	7	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	266
ECHM-02018	10	18	50	1	0.28	1.3	8	4	0.5	1.36	0.68	19.5	11.8	7	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	266
ECHM-02026	10	26	50	1	0.28	1.3	8	4	0.5	1.36	0.68	19.5	11.8	7	4.8	1.4	11.2	0.9	1.3	19.9	2.5	9.3	7.1	4.0-8.0	266

#### Special Notes:

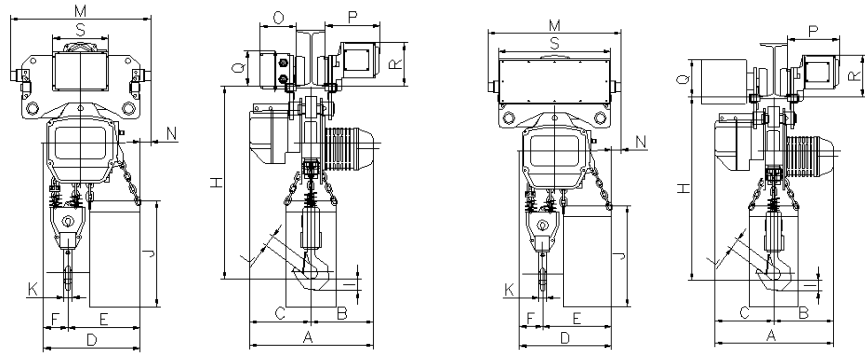
- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width
- ^ Gross weight (standard): 1sp hoist/1 sp trolley

#### Hoist Speed:

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**\*\*VFD Trolley: 100 FPM (infinitely variable) recommended:**  
 Trolley Motor: 100 ft/min  
 HP: 0.5  
 @230V (amps): 1.52  
 @460V (amps): 0.76

**ECHM-04009, ECHM-04013 (2 TON)**



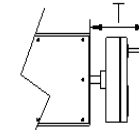
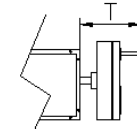
*Single Speed/Dual Speed*

*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)						
	A	B	C	O	Q	S	T
1-Sp Hoist/ 1-Sp Trolley	20.8	10.7	10.1	6.2	5.7	9.5	6.0
2-Sp Hoist/ 1-Sp Trolley	20.8	10.7	10.1	6.2	5.7	9.5	6.0
VFD Hoist/ 1-Sp Trolley	24.3	10.7	13.6	6.2	5.7	9.5	6.0
VFD Hoist/ VFD Trolley/ other configurations	24.3	10.7	13.6	10.6	6.4	20.0	6.0

Single/Dual Speed:  
Remote Control Detail  
(If applicable)

Hoist Control Options:  
Remote Control Detail  
(If applicable)



**Specifications & Dimensions:**

Model Number	Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz		Trolley Motor 3ph / 60 Hz 50 ft/min		Dimensions (in)											P† Flange Width Range (in)	Weight ^ (lbs)			
						HP	Rated Current		HP	Rated Current		H Headroom	D*	E*	F	I	J*	K	L	M			N	P	R
							230V (amps)	460V (amps)		230V (amps)	460 (amps)														
ECHM-04009	10	9	50	2	0.28	1.3	8	4	0.5	1.36	0.68	22.0	12.5	9.4	3.2	1.5	11.2	0.9	1.3	20.8	4.0	9.3	7.1	4.0-8.0	304
ECHM-04013	10	13	50	2	0.28	2.0	10.0	5.0	0.5	1.36	.68	22.0	12.5	9.4	3.2	1.5	11.2	0.9	1.3	20.8	4.0	9.3	7.1	4.0-8.0	304

**Special Notes:**

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width
- ^ Gross weight (standard): 1sp hoist/1 sp trolley

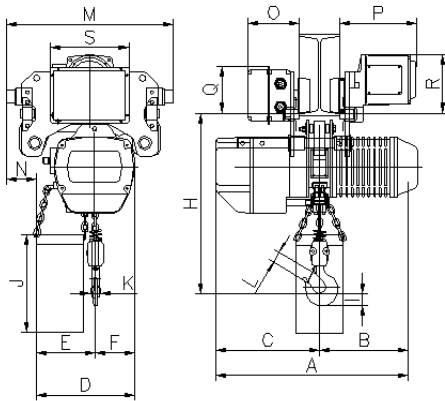
**Hoist Speed:**

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

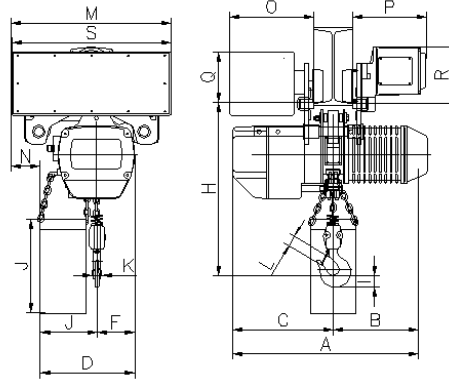
**\*\* VFD Trolley: 100 FPM (infinitely variable) recommended:**

Trolley Motor: 100 ft/min		
HP	Rated Current	
	@ 230V (amps)	@ 460V (amps)
0.5	1.52	0.76

**ECHM-04026 (2 TON)**



*Single Speed/Dual Speed*

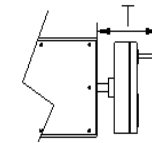
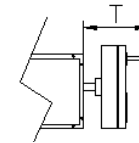


*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)						
	A	B	C	O	Q	S	T
1-Sp Hoist/ 1-Sp Trolley	24.5	11.9	12.6	6.2	5.7	9.5	6.0
2-Sp Hoist/ 1-Sp Trolley	25.5	12.9	12.6	6.2	5.7	9.5	6.0
VFD Hoist/ 1-Sp Trolley	24.5	11.9	12.6	6.2	5.7	9.5	6.0
VFD Hoist/ VFD Trolley/ other configurations	24.5	11.9	12.6	10.6	6.4	20.0	6.0

Single/Dual Speed:  
Remote Control Detail  
(If applicable)

Hoist Control Options:  
Remote Control Detail  
(If applicable)



**Specifications & Dimensions:**

Model Number	Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz		Trolley Motor 3ph / 60 Hz 50 ft/min		Dimensions (in)											P† Flange Width Range (in)	Weight ^ (lbs)			
						HP	Rated Current		HP	Rated Current		H Headroom	D*	E*	F	I	J*	K	L	M			N	P	R
							230V (amps)	460V (amps)		230V (amps)	460 (amps)														
ECHM-04026	10	26	50	1	0.39	4.0	19.0	10.0	0.5	1.36	0.38	26.4	16.3	10.1	6.2	2.0	14.0	1.4	1.9	19.9	2.4	9.3	7.1	4.0-8.0	451

**Special Notes:**

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width
- ^ Gross weight (standard): 1sp hoist/1 sp trolley

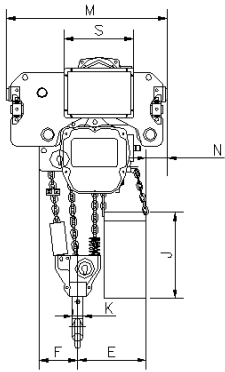
**Hoist Speed:**

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

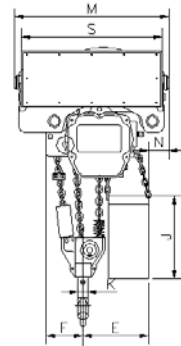
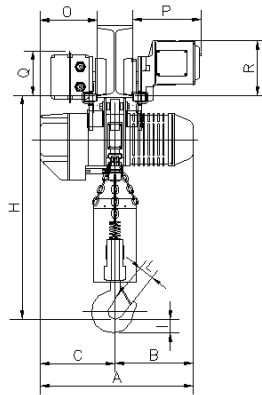
**\*\* VFD Trolley: 100 FPM (infinitely variable) recommended:**

Trolley Motor: 100 ft/min		
HP	Rated Current	
	@ 230V (amps)	@ 460V (amps)
1.0	2.14	1.07

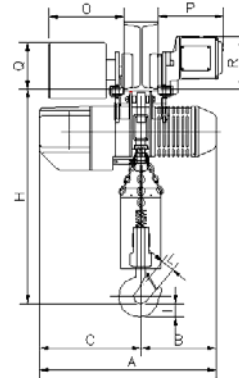
**ECHM-06006, ECHM-06009 (3 TON)**



*Single Speed/Dual Speed*



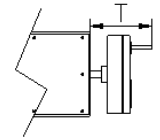
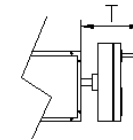
*Hoist Control Options (VD, Main line, fuses, etc.)*



Type	Dimensions (in)						
	A	B	C	O	Q	S	T
1-Sp Hoist/ 1-Sp Trolley	20.8	10.7	10.1	6.2	5.7	9.5	6.0
2-Sp Hoist/ 1-Sp Trolley	20.8	10.7	10.1	6.2	5.7	9.5	6.0
VFD Hoist/ 1-Sp Trolley	24.3	10.7	13.6	6.2	5.7	9.5	6.0
VFD Hoist/ VFD Trolley/Other configurations	24.3	10.7	13.6	10.4	6.4	20.0	6.0

Single/Dual Speed:  
Remote Control Detail  
(If applicable)

Hoist Control Options:  
Remote Control Detail  
(If applicable)



**Specifications & Dimensions:**

Model Number	Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz		Trolley Motor 3ph / 60 Hz 50 ft/min				Dimensions (in)											P† Flange Width Range (in)	Weight ^ (lbs)	
						HP	Rated Current		HP	Rated Current		H Headroom	D*	E*	F	I	J*	K	L	M	N	P			R
							230V (amps)	460V (amps)		230V (amps)	460 (amps)														
ECHM-06006	10	6	50	3	0.28	1.3	10.0	5.0	0.5	1.36	0.68	28.7	14.6	9.4	5.2	2.0	14.0	1.4	1.8	24.1	4.0	9.3	7.1	4.0-9.0	399
ECHM-06009	10	9	50	3	0.28	2.0	10.0	5.0	0.5	1.36	0.68	28.7	14.6	9.4	5.2	2.0	14.0	1.4	1.8	24.1	4.0	9.3	7.1	4.0-9.0	399

**\*\* VFD Trolley: 100 FPM (infinitely variable) recommended:**

**Special Notes:**

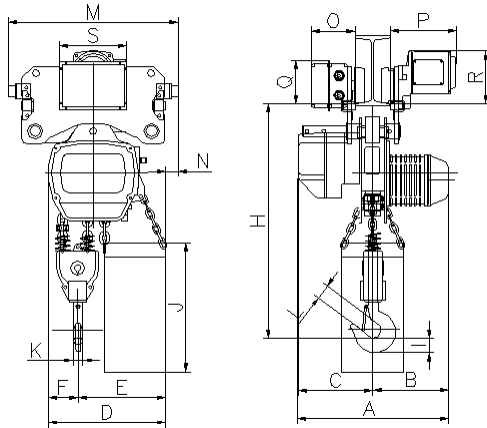
- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width
- ^ Gross weight ( standard ) : 1sp hoist/ 1 sp trolley

**Hoist Speed:**

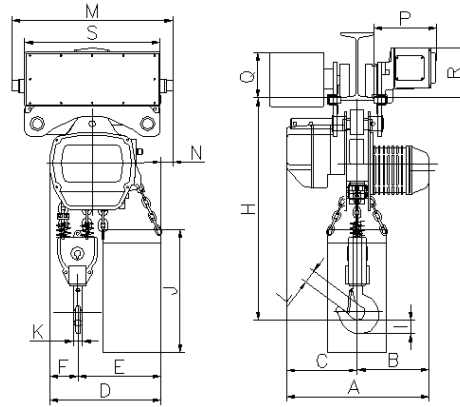
- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

Trolley Motor: 100 FPM		
HP	Rated Current	
	@ 230V (amps)	@ 460V (amps)
1.0	2.14	1.07

**ECHM-06017 (3 TON)**  
**ECHM-10010 (5 TON)**



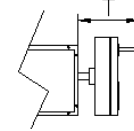
Single Speed/Dual Speed



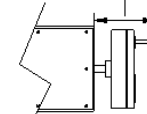
Hoist Control Options (VD, Main line, fuses, etc.)

Type	Dimensions (in)						
	A	B	C	O	Q	S	T
1-Sp Hoist/ 1-Sp Trolley	24.5	11.9	12.6	6.2	5.7	9.5	6.0
2-Sp Hoist/ 1-Sp Trolley	25.5	12.9	12.6	6.2	5.7	9.5	6.0
VFD Hoist/ 1-Sp Trolley	24.5	11.9	12.6	6.2	5.7	9.5	6.0
VFD Hoist/ VFD Trolley/ Other configurations	24.5	11.9	12.6	10.6	6.4	20.0	6.0

Single/Dual Speed:  
Remote Control Detail  
(if applicable)



Hoist Control Options:  
Remote Control Detail  
(if applicable)



**Specifications & Dimensions:**

Model Number	Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz		Trolley Motor 3ph / 60 Hz 50 ft/min		Dimensions (in)											P† Flange Width Range (in)	Weight ^ (lbs)			
						HP	Rated Current		HP	Rated Current		H Headroom	D*	E*	F	I	J*	K	L	M			N	P	R
							230V (amps)	460V (amps)		230V (amps)	460 (amps)														
ECHM-06017	10	17	50	2	0.39	4.0	20.0	10.0	0.5	1.36	0.68	32.0	16.3	10.1	6.2	2.0	14.0	1.4	1.9	23.6	1.8	9.3	7.1	5.0-10.0	516
ECHM-10010	10	10	50	2	0.43	4.0	20.0	10.0	0.5	1.36	0.68	33.8	16.5	12.8	3.7	2.5	14.0	1.8	2.2	24.0	1.8	9.3	7.1	5.0-10.0	700

**Special Notes:**

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width
- ^ Gross weight ( standard ) : 1sp hoist/ 1 sp trolley

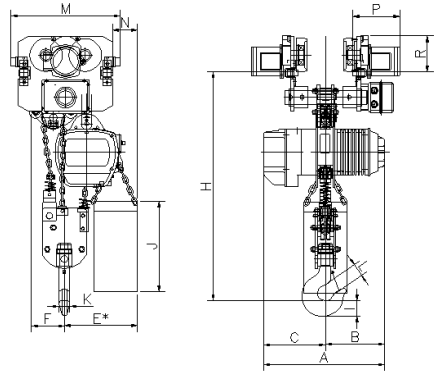
**Hoist Speed:**

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

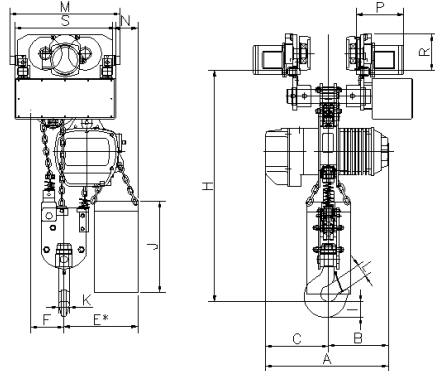
**\*\* VFD Trolley: 100 FPM (infinitely variable) recommended:**

Trolley Motor: 100 FPM		
HP	Rated Current	
	@ 230V (amps)	@ 460V (amps)
1.0	2.14	1.07

**ECHM-15007 (7 1/2 TON)**



Single Speed/Dual Speed

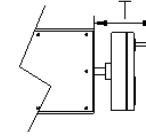
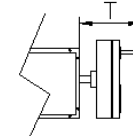


Hoist Control Options (VD, Main line, fuses, etc.)

Type	Dimensions (in)				
	A	B	C	S	T
1-Sp Hoist/ 1-Sp Trolley	24.5	11.9	12.6	3.5	6.0
2-Sp Hoist/ 1-Sp Trolley	25.5	12.9	12.6	3.5	6.0
VFD Hoist/ 1-Sp Trolley	24.5	11.9	12.6	3.5	6.0
VFD Hoist/ VFD Trolley	24.5	11.9	12.6	3.5	6.0

Single/Dual Speed:  
Remote Control Detail  
(if applicable)

Hoist Control Options:  
Remote Control Detail  
(if applicable)



**Specifications & Dimensions:**

Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Dia. (in)	Hoist Motor 3 Ph / 60 Hz		Trolley Motor 3ph / 60 Hz 50 ft/min			Dimensions (in)											p† Flange Width Range (in)	Weigh t^(lbs)	
					HP	Rated Current		HP	Rated Current		H Headro om	E*	F	I	J*	K	L	M	N	P			R
						@ 230V (amps)	@ 460V (amps)		@ 230V (amp s)	@ 460V (amps )													
10.0	7	50	3	0.43	4.0	20.0	10.0	2 x 0.5	2x 1.36	2 x 0.68	43.4	14.4	7.3	3. 1	14.0	2.2	2.8	24	n/a	9	12	5.0 - 10.0	840.0

\*\* VFD Trolley: 100 FPM (infinitely variable) recommended:

*Special Notes:*

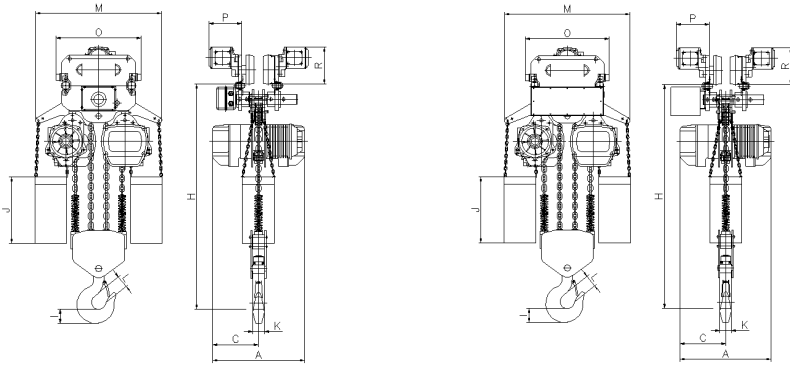
- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width
- ^ Gross weight (standard): 1sp hoist/1 sp trolley

*Hoist Speed:*

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

Trolley Motor: 100 FPM		
HP	Rated Current	
	@ 230V (amps)	@ 460V (amps)
2 x 1.0	2 x 2.14	2 x 1.07

## ECHM-20010 (10 TON)



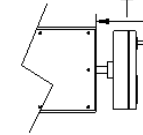
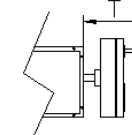
Single Speed/Dual Speed

Hoist Control Options (VD, Main line, fuses, etc.)

Type	Dimensions (in)		
	C	O	T
1-Sp Hoist/ VFD Trolley	14	23.5	5.9

Single/Dual Speed:  
Remote Control Detail

Hoist Control Options:  
Remote Control Detail



### Specifications & Dimensions:

Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter (in)	Hoist Motor		Trolley Motor: 50 FPM			Dimensions (in)								p† Flange Width Range (in)	Approx. Weight (lb)		
					HP	Rated Current		HP	Rated Current		H Headroom	A	I	J*	K	L	M			P	R
						@ 230V (amp s)	@ 460V (amp s)		@ 230V (amp s)	@ 460V (amp s)											
10.0	10	50	4.0	0.43	4.0	19.0	10.0	0.5	1.3	0.7	52	25.5	3.8	14	3.7 5	2. 9	35	10	5. 5	6-10.25	lbs

#### Special Notes:

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

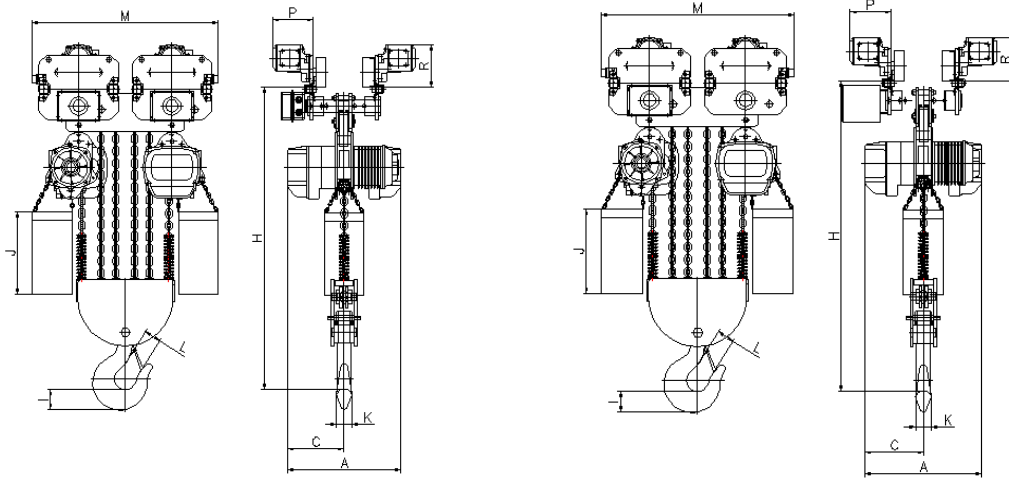
#### Hoist Speed:

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

\*\* VFD Trolley: 100 FPM (infinitely variable) recommended:

Trolley Motor: 100 FPM		
HP	Rated Current	
	@ 230V (amps)	@ 460V (amps)
0.5	1.5	0.8

**ECHM-30007 (15 TON)**



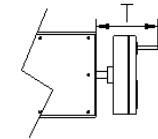
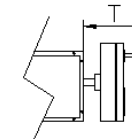
*Single Speed/Dual Speed*

*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)					
	B	C	O	Q	S	T
1-Sp Hoist/ 1-Sp Trolley						
2-Sp Hoist/ 1-Sp Trolley						
VFD Hoist/ 1-Sp Trolley						
VFD Hoist/ VFD Trolley						
Remote Control						

Single/Dual Speed:  
Remote Control Detail

Hoist Control Options:  
Remote Control Detail



**Specifications & Dimensions:**

Lift (ft)	Hoist Lift Speed (ft/min)	Trolley Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter (in)	Hoist Motor		Trolley Motor: 50 FPM			Dimensions (in)											p† Flange Width Range (in)	Approx. Weight (lb)						
					HP	Rated Current		HP	Rated Current		H Headroom	A	D	E*	F	I	J*	K	L	M			N	P	R			
						@ 230V (amps)	@ 460V (amps)		@ 230V (amps)	@ 460V (amps)																		
10.0	7	50	6.0	0.43	4.0	19.0	10.0	0.5	1.3	0.7																		lbs

**\*\* VFD Trolley: 100 FPM (infinitely variable) recommended:**

**Special Notes:**

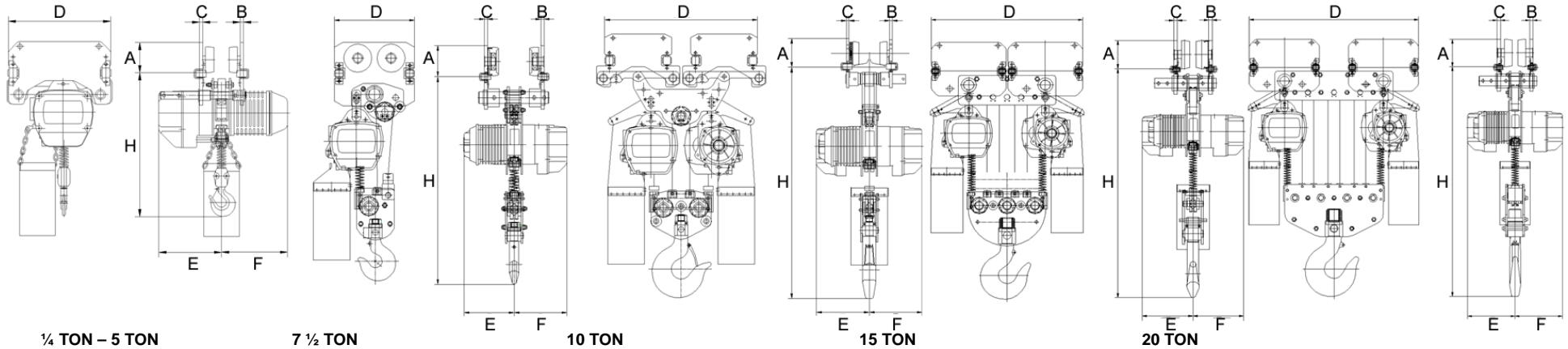
- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

**Hoist Speed:**

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

Trolley Motor: 100 FPM		
HP	Rated Current	
	@ 230V (amps)	@ 460V (amps)
0.5	1.5	0.8



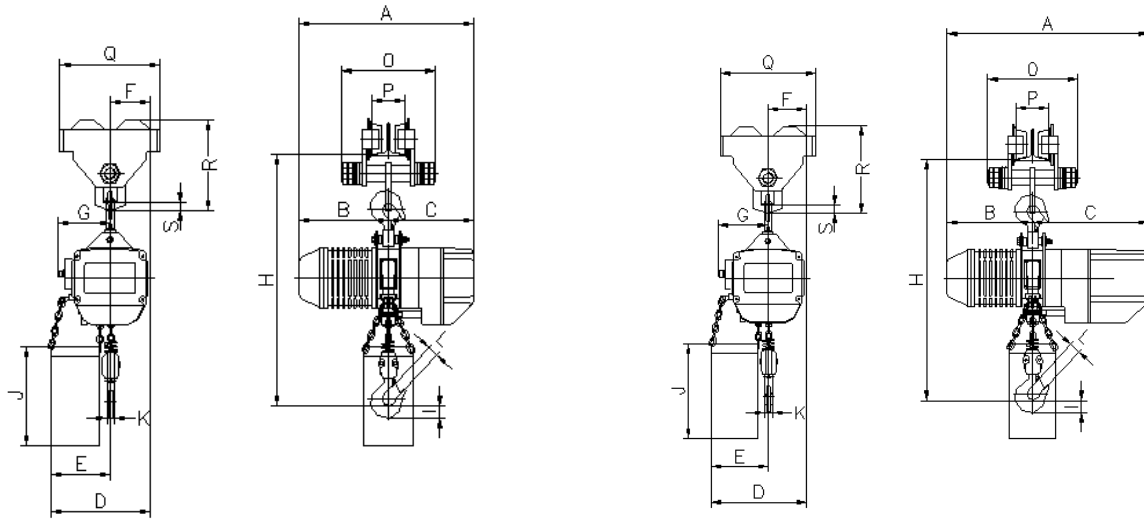


**4.4.1: ELECTRIC CHAIN HOIST WITH LOW HEADROOM PUSH TROLLEY:** *Headroom (H) is based on 10 ft lift*

Capacity (ton)	Model Number	Standard Lift (ft)	Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter (in)	Hoist Motor			H Headroom (in) <sup>(*)</sup>	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Flange Width Range (in)
						HP	Rated Current									
							@ 230V (amps)	@ 460V (amps)								
1/4	ECHL-00518	10	18	1	0.28	1.3	8	4	22.0	4.2	0.5	0.5	17	11	11	3 - 5
	ECHL-00526		26	1	0.28	1.3	8	4	22.0	4.2	0.5	0.5	17	11	11	3 - 5
	ECHL-00544		44	1	0.28	2	8	4	22.0	4.2	0.5	0.5	17	11	11	3 - 5
1/2	ECHL-01018		18	1	0.28	1.3	8	4	22.0	4.2	0.5	0.5	17	11	11	3 - 5
	ECHL-01026		26	1	0.28	1.3	8	4	22.0	4.2	0.5	0.5	17	11	11	3 - 5
	ECHL-01044		44	1	0.28	2	8	4	22.0	4.2	0.5	0.5	17	11	11	3 - 5
1	ECHL-02018		18	1	0.28	1.3	8	4	22.0	4.2	0.5	0.5	17	11	11	3 - 5
	ECHL-02026		26	1	0.28	2	10	5	22.0	4.2	0.5	0.5	17	11	11	3 - 5
2	ECHL-04009		9	2	0.28	1.3	8	4	27.6	4.2	0.5	0.5	17	11	11	4 - 6
	ECHL-04013		13	2	0.28	2	10	5	30.1	4.2	0.5	0.5	17	11	11	4 - 6
	ECHL-04026		26	1	0.39	4	19	10	30.1	4.2	0.5	0.5	17	12	14	4 - 6
3	ECHL-06006		6	3	0.28	1.3	10	5	31.6	4.2	0.5	0.5	21	11	11	5 - 7
	ECHL-06009		9	3	0.28	2	10	5	31.6	4.2	0.5	0.5	20	12	14	5 - 7
	ECHL-06017		17	2	0.39	4	19	10	35.1	4.9	0.6	0.6	20	12	14	5 - 7
5	ECHL-10010		10	2	0.43	4	19	10	36.6	5.5	0.6	0.6	21	12	13.6	5 - 7

**4.5: ELECTRIC CHAIN HOIST WITH STANDARD PUSH TROLLEY: DRAWINGS**

**ECHP-00518 (1/4 TON)**

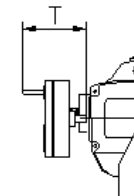


*Single Speed/Dual Speed*

*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)			
	A	B	C	T
1-Sp Hoist				
2-Sp Hoist				
VFD Hoist				
Remote Control				

Remote Control Detail



**Specifications & Dimensions:**

Lift (ft)	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter (in)	Hoist Motor		Dimensions (in)														P <sup>†</sup> Flange Width Range (in)	Approx. Weight (lb)					
				HP	Rated Current		H Headroom	D	E*	F	G	H	I	J*	K	L	O	Q	R			S				
					@ 230V (amps)	@ 460V (amps)																				
10.0	18	1.0	0.28	1.3	8.0	4.0																			4.0 - 8.0	

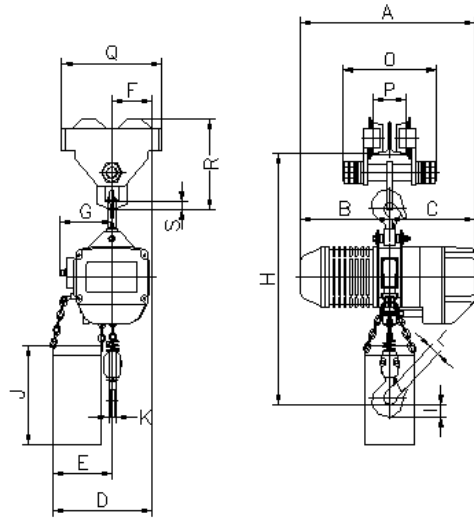
**Special Notes:**

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

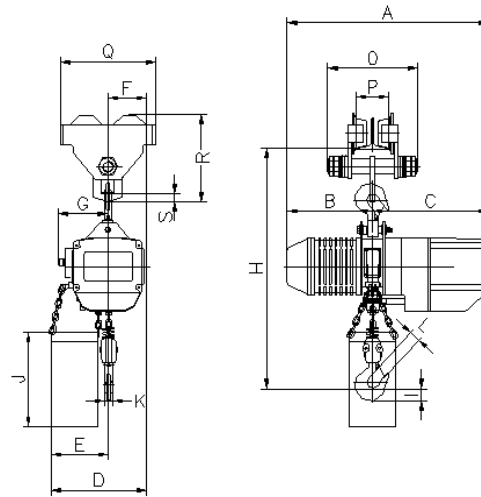
**Hoist Speed:**

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**ECHP-00526 (1/4 TON)**



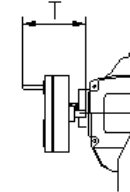
*Single Speed/Dual Speed*



*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)			
	A	B	C	T
1-Sp Hoist				
2-Sp Hoist				
VFD Hoist				
Remote Control				

Remote Control Detail



**Specifications & Dimensions:**

Lift (ft)	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter (in)	Hoist Motor			Dimensions (in)														p† Flange Width Range (in)	Approx. Weight (lb)			
				HP	Rated Current		H Headroom	D	E*	F	G	H	I	J*	K	L	O	Q	R	S					
					@ 230V (amp s)	@ 460V (amp s)																			
10.0	26	1.0	0.28	1.3	8.0	4.0																		4.0 - 8.0	

*Special Notes:*

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

*Hoist Speed:*

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

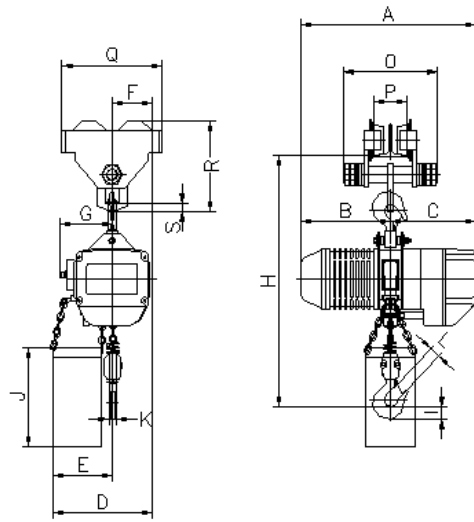




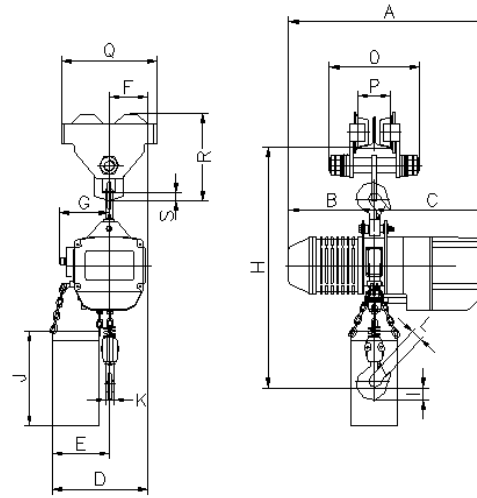




**ECHP-02018 (1 TON)**



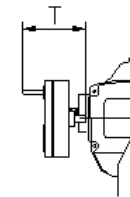
*Single Speed/Dual Speed*



*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)			
	A	B	C	T
1-Sp Hoist				
2-Sp Hoist				
VFD Hoist				
Remote Control				

Remote Control Detail



**Specifications & Dimensions:**

Lift (ft)	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter r (in)	Hoist Motor			Dimensions (in)														p† Flange Width Range (in)	Approx. Weight (lb)				
				HP	Rated Current		H Headroom	D	E*	F	G	H	I	J*	K	L	O	Q	R	S						
					@ 230V (amp s)	@ 460V (amp s)																				
10.0	18	1.0	0.28	1.3	8.0	4.0																			4.0 - 8.0	

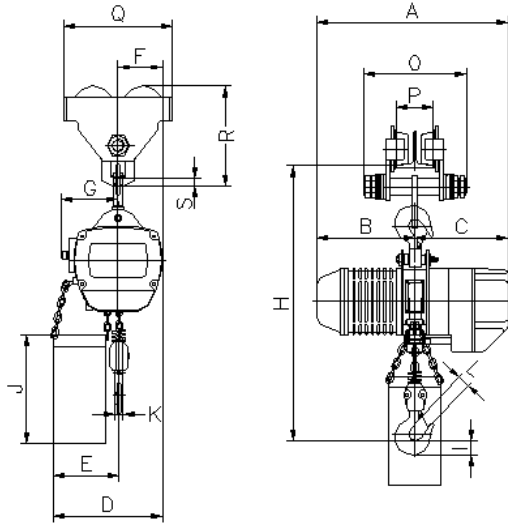
*Special Notes:*

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

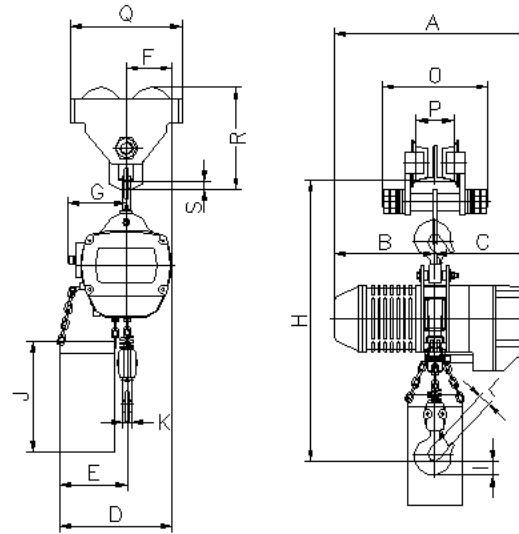
*Hoist Speed:*

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**ECHP-04026 (2 TON)**



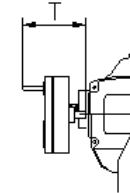
*Single Speed/Dual Speed*



*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)			
	A	B	C	T
1-Sp Hoist				
2-Sp Hoist				
VFD Hoist				
Remote Control				

Remote Control Detail



**Specifications & Dimensions:**

Lift (ft)	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter (in)	Hoist Motor			Dimensions (in)														p† Flange Width Range (in)	Approx. Weight (lb)				
				HP	Rated Current		H Headroom	D	E*	F	G	H	I	J*	K	L	O	Q	R	S						
					@ 230V (amps)	@ 460V (amps)																				
10.0	26	1.0	0.39	4.0	19.0	10.0																			4.0 - 8.0	

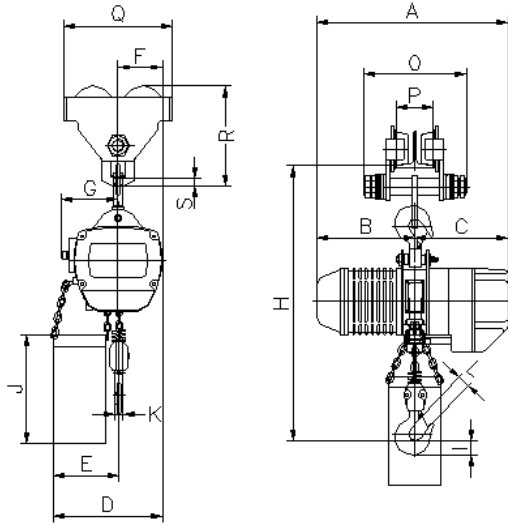
*Special Notes:*

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

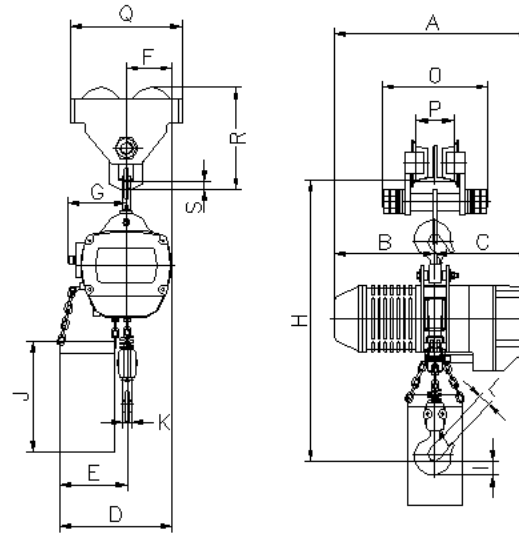
*Hoist Speed:*

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

**ECHP-06017 (3 TON) change picture**



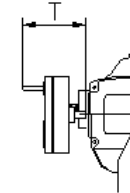
*Single Speed/Dual Speed*



*Hoist Control Options (VD, Main line, fuses, etc.)*

Type	Dimensions (in)			
	A	B	C	T
1-Sp Hoist				
2-Sp Hoist				
VFD Hoist				
Remote Control				

Remote Control Detail



**Specifications & Dimensions:**

Lift (ft)	Hoist Lift Speed (ft/min)	No. of Chain Falls	Load Chain Diameter (in)	Hoist Motor		Dimensions (in)															p† Flange Width Range (in)	Approx. Weight (lb)	
				HP	Rated Current		H Headroom	D	E*	F	G	H	I	J*	K	L	O	Q	R	S			
					@ 230V (amp s)	@ 460V (amp s)																	
10.0	17	2.0	0.39																			4.0 - 8.0	

*Special Notes:*

- \* Dimensions are based on 10 ft Lift.
- † Contact us for additional flange width

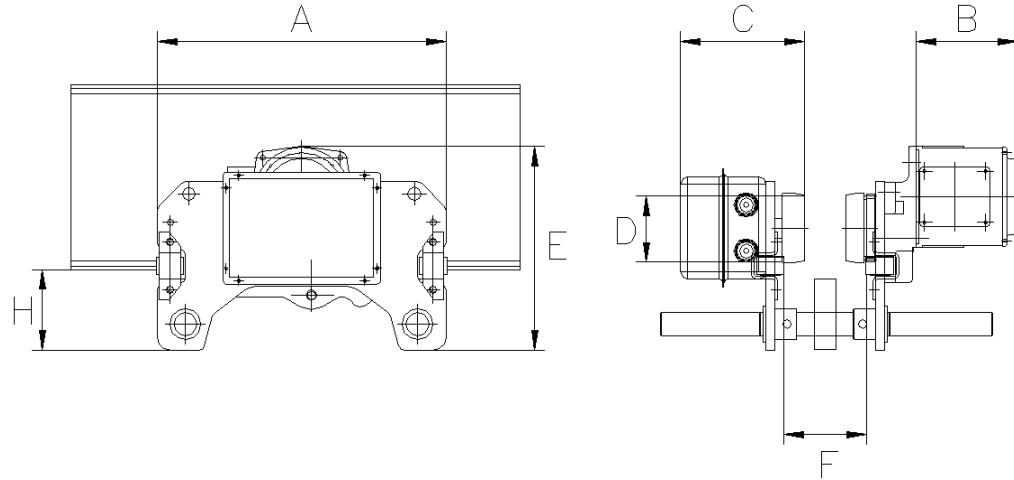
*Hoist Speed:*

- Dual Speed (2-Speed, 3:1 Ratio)
- Variable Frequency Drive (2-Speed, 6:1 Ratio)
- Other configurations available upon request

#### 4.6: TROLLEYS: GENERAL INFORMATION

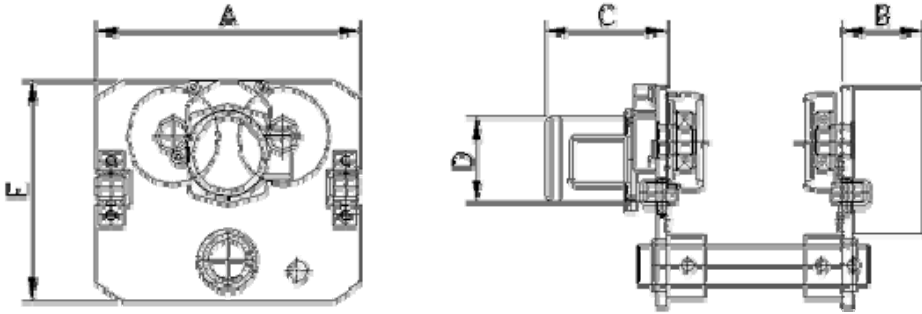
The Motorized Trolleys are designed for use with the Electric Chain Hoists. The trolleys have rugged steel side plates with anti-drop fins, steel wheel axles, steel suspension bolts, construction steel load plate seated in the middle of two suspension bolts for top hook of hoist to hook onto. The carbon steel traveling wheels suit both the I-beams and flat beams. Hardened steel gears are attached to two tack wheels and driven by a hardened steel pinion. The pinion is driven by gear reducer in high quality grease. A weather proof motor drives the gear reducer. The electric housing contains a reversing contactor and terminal boards. The 3-phase motor is always equipped with a magnetic brake over the end of the driven motor.

#### 4.6.1: LOW HEADROOM MOTORIZED TROLLEY



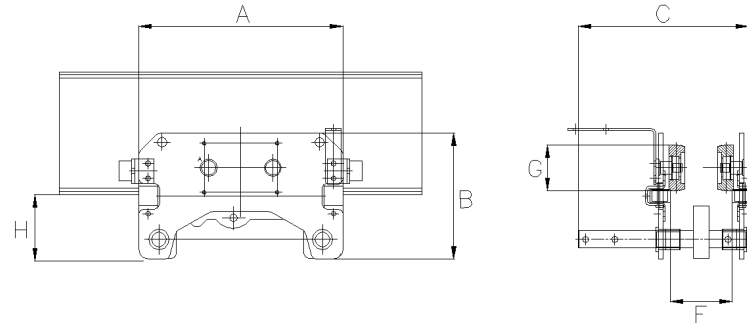
Capacity (ton)	Model Number	No. of Chain Falls	Trolley Motor						A (in)	B (in)	C (in)	D (in)	E (in)	F Flange Width Range (in)	H (in)
			50 fpm			100 fpm									
			HP	Rated Current		HP	Rated Current								
				@ 230V (amp)	@ 460V (amp)		@ 230V (amp)	@ 460V (amp)							
1/4	MT-020-1	1	0.5	1.34	0.68	0.5	1.53	0.76	16.5	11.3	8.7	4.1	12.5	4-8	5.23
1/2	MT-020-1	1	0.5	1.34	0.68	0.5	1.53	0.76	16.5	11.3	8.7	4.1	12.5	4-8	5.23
1	MT-020-1	1	0.5	1.34	0.68	0.5	1.53	0.76	16.5	11.3	8.7	4.1	12.5	4-8	5.23
2	MT-040-2	2	0.5	1.34	0.68	0.5	1.53	0.76	17.3	11.3	8.7	4.1	12.5	4-8	5.23
	MT-040-1	1	1	1.34	0.68	1	2.13	1.07	17.3	11.6	8.7	4.1	12.5	4-8	5.23
3	MT-060-3	3	1	1.34	0.68	1	2.13	1.07	20.6	11.3	8.7	4.1	12.5	4-9	5.23
	MT-060-2	2	1	1.34	0.68	1	2.13	1.07	20.0	11.4	8.7	4.9	15.2	5-10	5.72
5	MT-100-2	2	1	1.34	0.68	1	2.13	1.07	20.4	13.3	10.5	5.5	15.2	5-10	6.47

**4.6.2: STANDARD MOTORIZED TROLLEY**



Capacity (ton)	Model Number	No. of Chain Falls	Trolley Motor						A (in)	B (in)	C (in)	D (in)	E (in)	Flange Width Range (in)
			50 fpm			100 fpm								
			HP	Rated Current		HP	Rated Current							
				@ 230V (amp)	@ 460V (amp)		@ 230V (amp)	@ 460V (amp)						
7.5	MT-150-3	3	1	1.34	0.68	1	2.13	1.07	17.7	12.4	10.6	6.7	14.2	6 - 11
10	MT-200-4	4	2 x (1)	2 x (1.34)	2 x (0.68)	2 x (1)	2 x (2.13)	2 x (1.07)	20.1	14.7	10.9	7.9	15.1	6 - 11
15	2 x (MT-150-3)	6	2 x (1)	2 x (1.34)	2 x (0.68)	2 x (1)	2 x (2.13)	2 x (1.07)	n/a	n/a	n/a	n/a	n/a	n/a
20	2 x (MT-200-4)	8	4 x (1)	4 x (1.34)	4 x (0.68)	4 x (1)	4 x (2.13)	4 x (1.07)	n/a	n/a	n/a	n/a	n/a	n/a

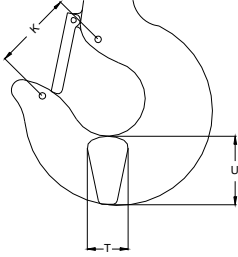
**4.6.3: LOW HEADROOM PUSH TROLLEY**



Capacity (ton)	Model Number	Dimension (in)							
		A	B	C	D	E	F	G	H
1/4	PT-005-1	16.54	10.12	13.78	6.08	5	4-8	4.17	5.23
1/2	PT-010-1	16.54	10.12	13.78	6.08	5	4-8	4.17	5.23
1	PT-020-1	16.54	10.12	13.78	6.08	5	4-8	4.17	5.23
2	PT-040-2	17.32	10.12	13.78	6.08	5	4-8	4.17	5.23
	PT-040-1	20.00	10.87	16.93	6.08	5	4-8	4.92	5.23
3	PT-060-3	20.67	10.12	13.78	6.08	5	4-9	4.17	5.23
	PT-060-2	20.00	10.87	16.93	6.08	5	5-10	4.92	5.72
5	PT-100-2	20.47	12.68	16.93	6.46	5	5-10	5.47	6.47

#### 4.7: TOP HOOK & BOTTOM HOOK DIMENSIONS

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.

Top Hook & Bottom Hook Dimensions						
"K" Measured When New:						
Top:						
Bottom:						
Capacity (Ton)	Nominal "K" Dimension (In)		"U" Dimension (In)		"T" Dimension (In)	
	Standard	Discard	Standard	Discard	Standard	Discard
1/4, 1/2, 1	2.52	2.14	1.14	1.2	0.91	0.97
2	3.11	2.64	1.61	1.7	1.22	1.28
3	3.5	2.98	1.89	1.98	1.34	1.41
5	4.41	3.75	2.36	2.48	1.77	1.86
10	5.12	4.35	3.74	3.93	2.36	2.48

#### 4.8: CHAIN WEAR DIMENSIONS

Chain Wear Dimension							
Model	Capacity (Ton)	Chain Dim (In)	"P" Dimension (In)		"D" Dimension (In)		
			Standard	Discard	Standard	Discard	
ECH-00518	1/4	0.28	4.13	4.34	0.28	0.25	
ECH-00526							
ECH-00544							
ECH-01018	1/2						
ECH-01026							
ECH-01044							
ECH-02018	1						
ECH-02026							
ECH-04009		2					
ECH-04013							
ECH-04026							
ECH-06006	3	0.39	5.91	6.2	0.39	0.35	
ECH-06009							
ECH-06017							
ECH-10010	5	0.44	6.69	7.03	0.44	0.4	
ECH-15007							7 1/2
ECH-20010							10
ECH-30007	15						
ECH-40005	20						

**5.0: PREOPERATIONAL PROCEDURES**

**5.1: FILL GEAR BOX WITH OIL**



Use SAE 80W/90W brand oil. The oil is specially blended.

- For a new hoist, the correct quantity and type of oil is pre-supplied with the hoist in the gear box.
- Refer to Section 8.0 Maintenance & Handling when replacing the gear oil or checking the gear oil level (refer to *Table 5.1* for the correct amounts of Oil that each Hoist should have).

<b>Table 5.1: Amount of Gear Oil</b>			
<b>Capacity-Model</b>		<b>Liters</b>	<b>Quarts</b>
¼	ECH-00518	1.1	1.06
	ECH-00526		
	ECH-00544		
½	ECH-01018		
	ECH-01026		
	ECH-01044		
1	ECH-02018		
	ECH-02026		
2	ECH-04009		
	ECH-04013		
	ECH-04026		
3	ECH-06006		
	ECH-06009		
	ECH-06017		
5	ECH-10010	1.1	1.06
7 ½	ECH-15007	2.3	2.43
10	ECH-20010		
15	ECH-30007		
20	ECH-40005		
		2 x 2.3	2 x 2.43

## **5.2: CHAIN**

*With Chain Container:* When the standard chain container is used, unfold it fully and install it on the hoist body. To place the chain into the chain container, feed the chain into the container beginning with the free end. Take care to avoid twisting or tangling the chain.

*Without Chain Container:* When the hoist is used without a chain container, the free end of the chain is attached to the body. In connecting the free end of the chain to the hoist body, ensure that the chain remains free of twists.

Never operate the hoist with incorrect, missing or damaged chain components; ensure that all chain components are in the correct location and properly installed.

### **5.2.1: LIMIT SWITCH**

Lumped or twisted chain may:

- Upper Limit Switch Only: jam against the hoist body activating the friction clutch and potentially damaging the chain.
- Upper and Lower Limit Switch (Optional): activate the down limit switch and stop the hoist during lowering.

### **5.2.2: CHAIN CONTAINER**

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 (number of chain falls and the lift determine the total amount of chain).



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.

### **5.2.3: CHAIN**

Verify that the load chain is not twisted or tangled prior to operating the hoist. Make sure the bottom hook on the double falls models are not capsized, giving a twist in the load. If the bottom hook has capsized, restore it to normal. Never try to suspend a load on a unit with twisted chain. If the load chain is not twisted, the welded parts of the chain links are in alignment. Correct all chain irregularities before conducting the first hoist operation.

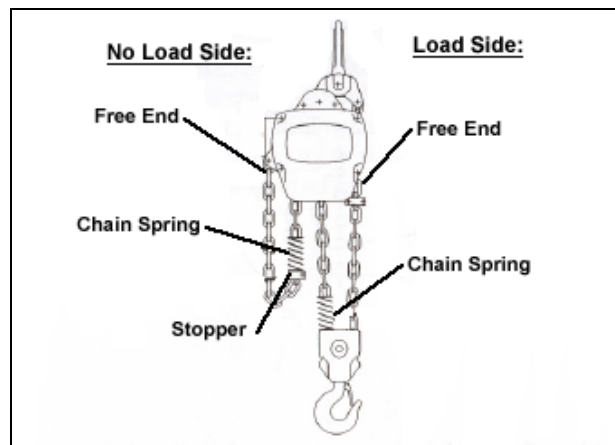
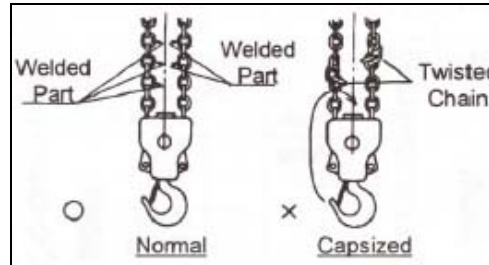
### **5.2.4: LUBRICATION**

For longer life, lightly coat the chain with machine or gear oil. Ensure that the oil is applied to the bearing surfaces of the chain links. For applications in dusty environments it is acceptable to substitute a dry lube. In any case, the load chain must be inspected and maintained at regular intervals see Section 8.0.

### 5.2.5: PREVENT TWIST IN DOUBLE CHAIN HOISTS

If your hoist is a double chain hoist capacity, the bottom hook is suspended by two falls of the load chain. Check to be sure the bottom hook has not capsized, giving a twist in the load chain shown on *Figure 5.2.6* below. If the bottom hook has not capsized, restore it to normal. Never try to suspend a load on a unit with twisted chain. If the load chain is not twisted, the welded parts of the chain links are in alignment. See *Figure 5.2.6* below.

Figure 5.2.6: Capsized Bottom Hook on Hoist with Two Falls of Load Chain



### 5.2.6: TROLLEY INSTALLATION

"I" Beam Adjustment: Adjustment for "I" beam sizes and tolerance is done by locating the spacer washers. Beam Manufacturing tolerances allow wide variations from handbook flange widths, and slight changes to recommended washer. The specific beam on which the hoist is to be installed should be measured and trolley spacer washers adjusted as required achieving a clearance of 3/32" to 1/8".

### **5.3: MOUNTING LOCATION**

Prior to mounting the hoist, ensure that the suspension and its 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.

### **5.4: ELECTRICAL CONNECTIONS**



Ensure that the voltage of the electric power supply is correct for the hoist & trolley.



Before proceeding, ensure that the electrical supply for the hoist or trolley has been de-energized (disconnected) and locked and tagged. Lock out and tag out in accordance with ANSI Z24.1.

- Make sure all power supply components (plugs, wires, breakers, fuses, etc.) are adequately rated for the voltage and amperage draw of the hoist.
- These instructions apply to installations where the hoist is hook mounted to a fixed suspension point or installed on a manual trolley.

#### **5.4.1: POWER SUPPLY CABLE TO TROLLEY CONTROL BOX**

Connection- The connection of the Power Supply Cable to the Trolley Control Box does not use a plug and socket connector. Rather, the wires of the Power Supply Cable are hardwired to the Trolley Control Box. For specific termination information refer to the wiring diagram.

Installation- With the hoist installed on a motorized trolley 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 Power Supply Cable as follow:

- Install a guide wire system parallel to the beam.

If a longer Power Supply Cable is required, the cable used must be selected and sized properly. This is to ensure that the motor terminal voltage remains within  $\pm 5\%$  of the motor's nameplate data.

#### **5.4.2: CONNECTION TO ELECTRICAL POWER SOURCE**

This instruction applies to the connection of the Power Supply Cable to the Electrical Power Source.

##### Wiring:

The red, white, and black wires of the Power Supply Cable should be connected to the Electrical Power Disconnect Switch. This connection should be made so that the hoist is phased properly. **If the phasing of the power to the hoist is not correct, the hoist will not operate. If this happens, disconnect and swap any two of the three wires, then re-connect.**

##### 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 and Yellow striped 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.

## 5.5: Frequency Drive Setup (VFD)



**DANGER**

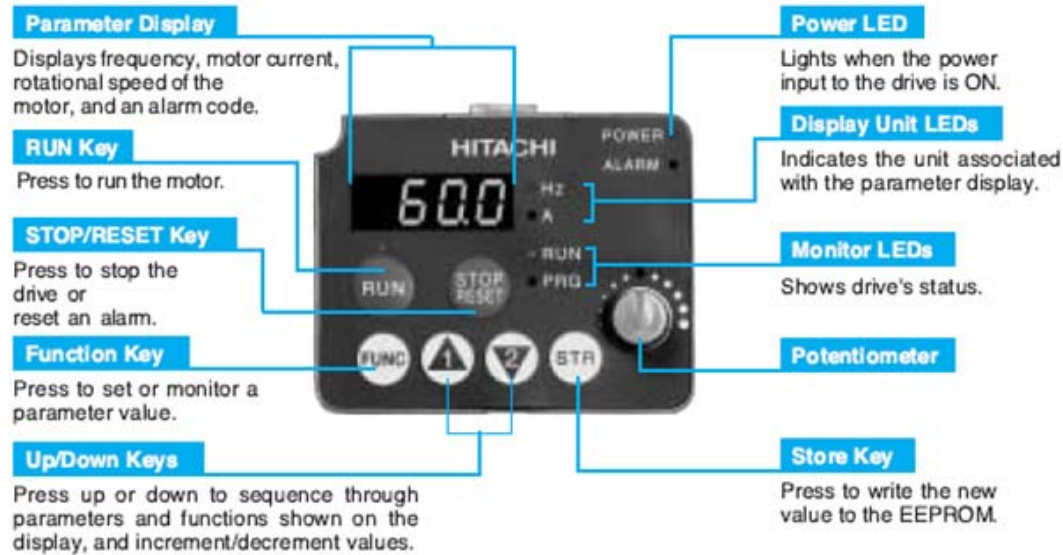
To avoid a shock hazard, **DO NOT** perform **ANY** mechanical or electrical maintenance on the dual speed (VFD Control) trolley or hoist within 5 minutes of de-energizing (disconnecting) the trolley or hoist. This time allows the interval VFD capacitor to safely discharge.



**WARNING**

DO NOT remove power to the dual speed VFD Control hoist or trolley during operation.

- Some dual speed hoists could be equipped with VFD. The VFD is used to control the high and low lifting speeds. The speeds come preset from the factory (Speed Ratio: 6:1). Speed (frequency) can be customized.
- Some trolleys could be equipped with a VFD. The VFD will be set up for infinitely speed control.
- The VFD is controlled by a Keypad/Display Interface. Refer to *Figure 5-5* for Keypad/Display Interface functions and descriptions.



## **5.6: PREOPERATIONAL CHECKS & TRIAL OPERATION**

- 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.
- Verify and correct all chain irregularities prior to operating the hoist.
- Record the hoist's Model Number & Serial Number from the tag plate on the hoist, in the space provided in this manual under: Ordering Spare Parts
- Ensure that the hoist is properly installed to either a fixed point, or trolley, whichever applies.
- 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.
- Ensure that all nuts, bolts and split pins (cotter pins) are sufficiently fastened.
- Pull down the Pendant and ensure that the Strain Relief Cable take the force, not the Pendant Cord.
- Check supply voltage before everyday use. If the voltage varies more than 10% of the rated value, electrical devices may not function normally.
- Confirm proper operation:
  - 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 will the full range of the hoist's (and trolley's) operation.
- The hoist MUST be connected to the power source such that its direction of operation corresponds to the up-and-down commands issued from the pendant control; i.e. pushing the up button must cause the hoist to rise. If the hoist does not operate correctly, shut off and lockout/tag out the main power source to correct the hoist's motor phasing.

## **6.0: OPERATION**

### **6.1: GENERAL**

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

 **DANGER**   
**DO NOT WALK UNDER A SUSPENDED LOAD**

 **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 B30.16 and ANSI/ASME B30.10. The operator shall also be required to be familiar with the hoist and hoist controls before being authorized to operate the hoist or lifting system.

Hoist operators should be trained in proper rigging procedures for the attachment of loads to the hoist hook.

Hoist operators should be trained to be aware of potential malfunctions of the equipment that require adjustment or repair, and to be instructed to stop operation if such malfunctions occur, and to immediately advise their supervisor so corrective action be taken.

Hoist operators should have normal depth perception, field of vision, reaction time, manual dexterity, and coordination.

Hoist operators should not have a history of or be prone to seizures, loss of physical control, physical defects, or emotional instability that could result in actions of the operator being a hazard to the operator or to others.

Hoist operators should not operate a hoist or lifting system when under the influence of alcohol, drugs, or medication.

**Note:** Overhead hoists are intended only for vertical lifting service of freely suspended unguided loads, do not use hoist for loads that are not lifted vertically, loads that are not freely suspended, or loads that are guided.

### **NOTICE**

Read ANSI/ASME B30.16 and ANSI/ASME B30.10.  
Read the hoist manufacturer's operating and maintenance instructions.  
Read all labels attached to equipment

## 6.2: DO'S AND DO NOT'S FOR OPERATION



### WARNING

Improper operation of a hoist and/or trolley 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 lift more than rated load for the hoist and trolley.
- NOT operate unless load is centered under hoist and trolley.
- NOT use damaged hoist or trolley that is not working properly.
- NOT use hoist with twisted, kinked, damaged, or worn chain.
- NOT use hoist if the bottom hook is capsized.
- NOT use the hoist to lift, support, or transport people.
- NOT lift loads over people.
- NOT apply load unless load chain is properly seated in the load sheave (and idle sheave for hoist with two chain falls).
- NOT use the hoist or trolley in such a way that could result in shock or impact loads being applied to the hoist or trolley.
- NOT attempt to lengthen the load chain or repair damaged load chain.
- NOT operate hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
- NOT use load chain as a sling or wrap load chain around load.
- NOT operate a hoist or trolley on which the safety placards or decals are missing or illegible.
- NOT apply the load to the tip of the hook or to the hook latch.
- NOT apply load if binding prevents equal loading on all load-supporting chains.
- NOT operate beyond the limits of the load chain travel.
- Maintain a firm footing or be otherwise secured when
- NOT operate hoist with missing/damaged chain spring, cushion rubber, stoppers or striker plates.
- 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 remove or obscure the warnings on the hoist or trolley.
- Be familiar with operating controls, procedures, and warning.
- Make sure the unit is securely attached to a suitable support before applying load.
- Take up slack carefully – make sure load is balanced and load-holding action is secure before continuing.
- Anticipate the stopping point and allow trolley to coast to a smooth stop. Reversing or plugging to stop trolley causes overheating of motor and swaying of the load.
- 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/trolley and remove the hoist/trolley from service until the malfunction or unusual performance is resolved.
- Make sure hoist limit switches function properly.
- Warn personnel before lifting or moving a load.
- Warn personnel of an approaching load.
- Inspect the hoist regularly, replace damaged or worn

- operating the hoist.
- Check brake function by tensioning the hoist prior to each lift operation.
- Make sure hook travel is in the same direction as shown on controls.
- 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.
- Use the hoist manufacture's recommended parts when repairing the unit.
- Use hook latches. Latches are to retain slings, chains, etc. under slack conditions only.
- parts, and keep appropriate records of maintenance.
- Avoid swinging the load or hook.
- Lubricate load chain per hoist manufacturer's recommendations.
- NOT use limit switches as routine operating stops. They are emergency devices only.
- NOT use the hoist load limiting or warning device to measure load.
- NOT allow your attention to be diverted to sharp contact with other hoists, structures, or objects through misuse.
- NOT adjust or repair the hoist and/or trolley unless qualified to perform such adjustments or repairs.



**IMPROPER OPERATION OF A HOIST CAN CREATE A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN MINOR OR MODERATE INJURY.**

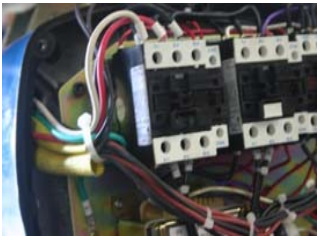
**6.3 How to put Power to the Hoist**



1. Prior to proceeding, make sure the voltage (the power supply) of service for the unit is proper for the hoist:

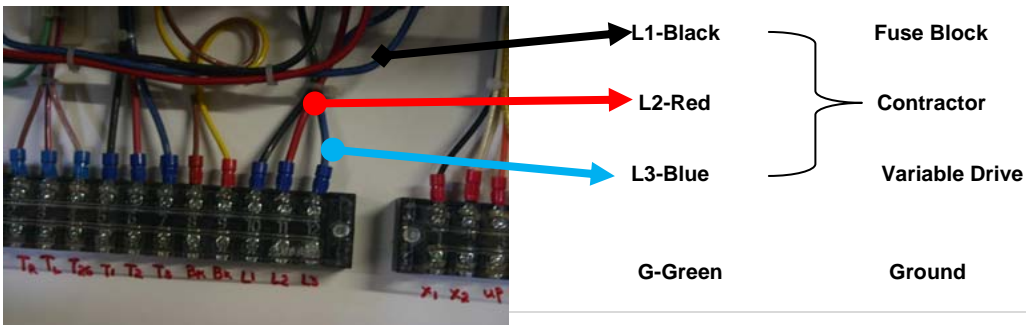
3 phase, 230V  
Or  
3 phase, 460V

2. The 'Pig tail' cable hanging at the hoist comes with 4 wires, (See image A) identified as follows:



Power Supply	Cable Pig Tail	Hoist(see Image B on left) Contractor or VD
3 Phase 230 Or 460	Green	Ground (chassis)
	R White	L1
	S Red	L2
	T Black	L3

**Note:**  
Some ECH (Electrical Chain Hoist) come with prewired control box panel to meet the customer's requirements. The standard wiring for this case is as followed:

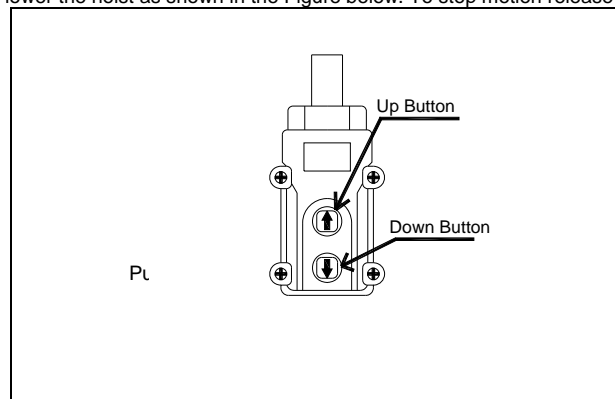


### Testing after installation

Push the “UP” button to see the direction of the hook. If it rises, the phasing is Correct. If the hook goes down release the button immediately. Since the limit switch will not operate to protect the hoist from over traveling. Reverse any two wires at the 3 phase cable.

### 6.4: HOIST CONTROLS

- For hoists mounted to motorized trolleys follow the control instructions.
- *Single Speed Pendant Control*- When using the pendant control depresses the up button to raise the hoist or the down button to lower the hoist as shown in the Figure below. To stop motion, release the buttons.
- *Dual Speed Control*- Pendant controls supplied with dual speed hoists have two-step control buttons. For low speed depress the button to the first step and for high speed depress the button fully to the second step. Use the up button to raise the hoist or the down button to lower the hoist as shown in the Figure below. To stop motion release the buttons.



## **7.0: INSPECTION**

### **7.1: GENERAL**

The inspection procedure herein is based on ANSI/ASME B30.16. The following definitions are from ANSI/ASME B30.16 and pertain to the inspection procedure below.

- *Designated Person* – a person selected or assigned as being competent to perform the specific duties to which he/she is assigned.
- *Qualified Person* – a person who, by possession of recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.
- *Normal Service* – Service which involves operating at less than a certain percentage of rated load and less than an unspecified frequency. Refer to the ANSI/ASME 30 volume for the specific definition of your application.
- *Heavy Service* – Service which involves operation within the rated load limit which exceeds normal service.
- *Severe Service* – Service which involves normal to heavy service with abnormal operating conditions.

### **7.2: INSPECTION CLASSIFICATION**

*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.

*Inspection Classification:* the inspection procedure for hoists in regular service is divided into two general classifications based upon the intervals at which inspection should be performed. The intervals in turn are dependant upon the nature of the critical components of the hoist and degree of their exposure to wear, deterioration, or malfunction.

The two general classifications are herein designated as FREQUENT and PERIODIC, with respective intervals between inspections as defined below.

#### **7.2.1: FREQUENT INSPECTIONS**

*Frequent/Daily inspections* are visual examinations by the operator or other designated personnel with interval per the following criteria.

- Normal Service – Monthly
- Heavy Service – Weekly to Monthly
- Severe Service – Daily to Weekly
- Special or Infrequent Service – As recommended by a qualified person before and after each occurrence.

#### **7.2.3: PERIODIC INSPECTIONS**

*Periodic Inspections* are visual inspection by a designated person with intervals per the following criteria:

- Normal Service – Yearly
- Heavy Service – Semiannually
- Severe Service – Quarterly
- Special or Infrequent Service – As recommended by a qualified person before the first such occurrence and as directed by the qualified person for any subsequent occurrences.

### **7.3: FREQUENT INSPECTION**

**Frequency Inspection:** Inspection should be made on a frequent basis in accordance with *Table 7.3* "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 a designated person such that the crane is maintained in safe working condition.

<b>Table 7.3: Frequent Inspection</b>
All functional operating mechanisms for maladjustment, and unusual sounds.
Operation of limit switch and associate components
Hoist braking system for proper operation
Hoist(s) in accordance with ANSI/ASME B30.10
Hook latch operation
Load chain in accordance with the Inspection Methods and Criteria Chart
Load chain reeving for compliance

### **7.4: PERIODIC INSPECTION**

**Periodic Inspection:** Inspection should be made on periodic basis in accordance with *Table 7.4* "Periodic Inspections". Evaluations and the result of the result of periodic inspection shall be made by a certified person such that the crane is maintained in safe working condition. For inspection where load suspension parts of the hoists are disassembled, a load test per ANSI/ASME B30.16 must be performed on the hoist after it is re-assembled and prior to its return to service.

<b>Table 7.4: Periodic Inspection</b>
Requirement of frequent inspection.
Evidence of loose bolts, nuts, or rivets
Evidence of worn, corroded, cracked, or distorted part such as load blocks, suspension housing, chain attachments, devises, yokes, suspension bolts, shafts, gears, bearings, pins, and rollers.
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 and idler sheaves.
Evidence of excessive wear on motor or load brake
Electrical apparatus for signs of pitting or any deterioration of visible controller contacts.
Evidence of damage of supporting structure or trolley, is used.
Function labels on pedant control station for legibility.
Warning label properly attached to the hoist and legible.
End connections of load chain.

## **7.5: DAILY INSPECTION**

<b>DAILY INSPECTION</b>	
<b>INSPECTION ITEM</b>	<b>DESCRIPTION OF INSPECTION CHECK POINTS</b>
Tagged Hoist/Trolley	Check that hoist/trolley is not tagged with an out of order sign.
Control Devices	Check that all travel motions agree with control device markings. When checking hoist travel motion, always use the lifting or up control first.
Brakes	Check that all travel motions do not have excessive drift and that stopping distances are normal.
Hook	Check for damage, cracks, nicks, gouges, deformation of the throat opening, wear on saddle or load bearing point, and twist.
Hook Latch	Check that hook latch, if provided, is not missing and that it operates properly.
Load Chain	Check for nicks gouges, and any type of deformation or damage to the chain. Check for lubrication of load chain.
Reeving	Check that load chain is properly reeved, that load chain is not kinked or twisted, and that load chain parts are not twisted about each other.
Limit Devices	Check that primary upper limit device stops lifting motion of the hoist load block at the upper limit of travel.
Oil or Grease Leakage	Check for any sign of oil or grease leakage on the hoist and on the floor area beneath the hoist.
Unusual Sounds	Check for any unusual sounds from the hoist and hoist mechanism while operating the hoist.
Capacity, Warning and Safety	Check the capacity, warning and other safety labels are not missing and safety labels that they are legible.

## **7.6: OCCASIONALLY USED HOISTS**

Hoists that are used frequently shall be inspected as follows prior to placing in service:

- Hoist Idle more than 1 month, less than 1 year: Inspect per FREQUENT inspection criteria.
- Hoist Idle more than 1 year: Inspect per PERIODIC Inspection criteria.

## **7.7: INSPECTION RECORDS**

Dated inspection reports and records should be maintained at time intervals corresponding to those that apply for the hoist's PERIODIC interval. These records should be stored where they are available to personnel involved with the inspection, maintenance, or operation of the hoist.

A long-range chain inspection program should be established and should include records of examination of chains removed from service so a connection can be established between visual observation and actual condition of the chain.

## 7.8: INSPECTION METHODS & CRITERIA

This section covers the inspection of specific items. The list of items in this section is based on those listed in ANSI/ASME B30.16 for the Frequent and Periodic Inspection. In accordance with ANSI/ASME B30.16, these inspections are not intended to involve disassembly of the hoist. Rather, disassembly for further inspection would be required if frequent or periodic inspection results indicated to do so. A qualified person, trained in the disassembly and re-assembly of the hoist, should only perform such disassembly and further inspection.

Hoist Inspection Methods and Criteria			
Item	Method	Criteria	Action
Functional operating mechanisms.	Visual, Auditory	Mechanisms should be properly adjusted when operated and should not produce unusual sounds	Repair or replace as required.
Limit Switch	Function	Proper operation. Actuation of limit switch should stop hoist.	Repair or replace as required
Limit Lever Assembly	Visual, Function	Lever should not be bent or significantly worn and should be able to move freely.	Replace
Braking System Operation	Function	Braking distance with rated capacity exceed 3% of the lifting speed (approximately two chain links)	Repair or replace as required.
Hooks - Surface Condition	Visual	Should be free of significant rust; weld splatter, deep nicks, or gouges.	Replace.
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 Table 5-4)	Replace.
Hooks - Bent Shank or Neck	Visual	Shank and neck portions of hook should be free of deformations.	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, and there should be no gap between mating parts.	Tighten or replace as required
Hooks- Swivel Bearing	Visual, Function	Bearing parts and surfaces should not show significant wear, and should be free of dirt, grime and deformations. Hook should rotate freely with no roughness.	Clean/ lubricate, or replace as required
Hooks - Idle Sheave and Axle (Bottom Hook on Double Fall Hoist)	Visual, Function	Pockets of idle sheave should be free of significant wear. Idle sheave surfaces should be free of nicks, gouges, dirt and grime. Bearing parts and surfaces of idle sheave and axle should not show significant wear. Idle sheave should rotate freely with no roughness or significant free play.	Clean/ lubricate, or replace as required
Hooks – Hook latches	Visual, Function	Latch should not be deformed. Attachment of latch to hook should not be loose. Latch spring should not be missing and should not be weak. latch movement should not be stiff - when depressed and released latch should snap smartly to its closed position	Replace

Hoist Inspection Methods and Criteria			
Item	Method	Criteria	Action
Load Chain surface Condition	Visual	Chain should be free of rust, nicks, gouges, dents and weld splatter. 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	Replace
Load Chain- Pitch and Wire Diameter	Measure	The "P" dimension should not be greater <i>than</i> maximum value listed in Table 5-5. The dimension should not be less than minimum value listed in Table 5-5.	Replace. Inspect load Sheave and idle Sheave for double fall hoists
Load Chain Lubrication	Visual, Auditory	Entire surface of each chain link should be free of dirt and grime. Chain should not emit cracking noise when hoisting a load	Clean/ Lubricate (See Section 2.4)
Load Chain- Revving	Visual	Chain should be revved through load sheave (and idle sheave for double fall hoist. Chain, chain springs, cushion rubbers, striker plates and stoppers should be installed properly	Reeve/ Install chain properly
Housing and Mechanical Components	Visual, Auditory, Vibration 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 or corrosion. Evidence of it can be detected visually or via detection of unusual sounds. Or vibration during operation	Replace
Bolts, Nuts Rivets	Visual, Check with Proper Tool	Bolts, nuts and rivets should not be loose.	Tighten and as required or replace
Motor Brake	Measure, Visual	Motor brake gap should be adjusted to the distance before measuring the brake wear. Brake lining dimension A should not be less than discard value listed. Procedures. Breaking surfaces should be clean, free of grease/oil and should not be glazed	Adjust, Repair or Replace as required.
Contactors Contacts	Visual	Contacts should be free of significant pitting or deterioration.	Replace.
Load Sheave	Visual	Pockets of Load Sheave should be free of significant wear.	Replace.
Cushion Rubber	Visual	Should be free of significant deformation	Replace.
Chain Springs	Visual	Chain springs should not be deformed or compressed.	Replace.
Pendant - Switches	Function	Depressing and releasing push buttons should make and break contacts in switch contact block and result in corresponding electrical continuity or open circuit. Push buttons should be interlocked either mechanically or electrically to prevent simultaneous energizing of circuits for opposing motions (e.g. up and down).	Repair or replace as necessary.
Pendant - Housing	Visual	Pendant housing should be free of cracks and mating surfaces of parts should seal without gaps	Replace.
Pendant - Wiring	Visual	Wire connections to switches in pendant should not be loose or damaged.	Tighten or repair
Pendant - Cord	Visual, Electrical Continuity	Surface of cord should be free from nicks, gouges, and abrasions. Each conductor in cord should have 100% electrical continuity even when cord is flexed back-and-forth. Pendant Cord Strain Relief Cable should absorb the entire load associated with forces applied to the pendant.	Replace.
Pendant - Labels	Visual	Labels denoting functions should be legible	Replace.
Warning Labels	Visual	Warning Labels should be affixed to the hoist and they should be legible.	Replace.
Hoist Capacity Label	Visual	The label that indicates the capacity of the hoist should be legible and securely attached to the hoist.	Replace.

## **8.0: MAINTENANCE & HANDLING**

### **8.1: LUBRICATION**

Whenever the hoist shows evidence of an oil leak, the oil level must be checked and brought to proper level. The cause of the leak should also be investigated and resolved.

<b>Lubrication Chart</b>		
<i>Description</i>	<i>Lubrication</i>	<i>How Often</i>
Trolley Motor Reducing Gearbox	Lubricate with Cosmo No. 3 grease (equivalent to: Shell Unedo 3, Exxon Eastan 3, Mobil Cup Grease 3) for good maintenance. <b>Note:</b> Change after first 100 hours of operation.	Change every 6 months or 2500 hours.
Trolley Track Wheel and Pinion	Lubricate track wheel gear and pinion with grease or graphite grease.	Once a month
Load Chain	Lubricate lightly with Lubriplate Bar and Chain Oil 10-R. <b>Note:</b> Do not use grease to lubricate the chain.	Weekly or more frequently depending on severity of service.
Hoist Motor Gearbox	Fill with SAE 80W/90W lubricating oil. <b>Note:</b> Change after first 500 hours of operation. Do not fill above oil level hole as this will cause leakage.	Check oil level and top off every 6 months. Change oil at least every 3 years.

#### **8.1.1: LOAD CHAIN**

- For a longer life, the load chain should be lubricated.
- The load chain lubrication should be accomplished after cleaning the load chain with an acid free cleaning solution.
- Apply industrial general lithium grease, NLGI No. 0, to the bearing surfaces of the load chain links. Also apply the grease to the areas of the load chain that contact the load sheave. Insure that the grease is applied to the contact areas in the load sheave pockets.
- Machine or gear oil may be used as an alternative lubricant but must be applied more frequently.
- The chain should be lubricated every 3 months (more frequently for heavier usage or severe conditions).
- For dusty environments, it is acceptable to substitute a dry lubricant.

#### **8.1.2: HOOKS AND SUSPENSION COMPONENTS**

- *Hooks* – Bearings should be cleaned and lubricate at least once per year for normal usage. Clean and lubricate more frequently for heavier usage or severe conditions.
- *Suspension Pins* – Lubricate at least twice per year for normal usage; more frequently for heavier usage or severe conditions.

#### **8.1.3: GEAR BOX**

- Using an incorrect type/grade of gearbox oil or wrong quantity of oil may prevent the friction clutch from working properly and may affect the ability of the hoist to hold the load.
- The oil level hole is in the side of the casing. The oil drain plug is the bolt in the underside of the gearbox casing. The oil plug is the eye bolt in the upper side of the gearbox casing. Do not fill above oil level hole, as this will cause oil leakage.
- Change the oil after the first 500 operating hours. Thereafter, check oil level every six months and top up as necessary. The oil should be changed at least every 3 years.
- The oil should be changed more frequently depending on the hoist's usage and operating environment.
- Replace the drain plug and refill the gear case with the correct quantity of new oil or unit the oil.
- Dispose of the used oil in accordance with local regulations.

## **8.2: MOTOR BRAKE**

### **8.2.1 HOIST MOTOR BRAKE**

To keep your hoist working in optimum condition and prevent possible down time, it is recommended to check your motor brake lining and adjustment at regular intervals.

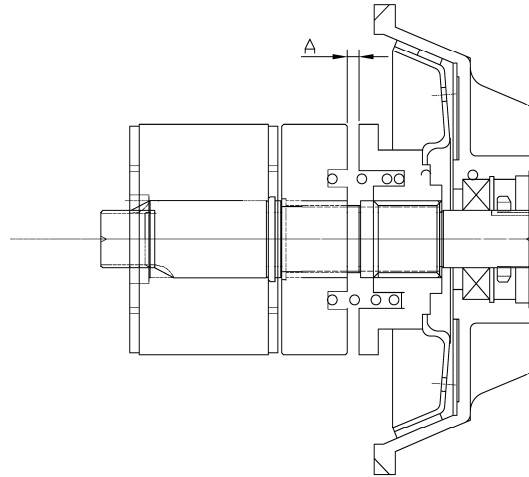
Inspection and adjustment of the motor brake requires removal of the motor brake unit from the hoist as an assembly. But first, be sure the power is off, the hoist is unloaded and the load chain is secured.



Before proceeding disconnect the power supply and make sure the hoist is unloaded. To keep the load chain from moving, secure it by tying together the load and no-load sides directly under the hoist using a cord or wire.

- *Motor Brake Unit Removal:* Adjustment and inspection of the motor brake requires removal of the motor brake unit from the hoist as an assembly.
  - Remove the four Fan Cover Bolts, Fan Cover, Fan snap ring and Fan washer.
  - Pull the Fan off the motor shaft off the motor shaft using a wheel puller is necessary.
  - Remove the four Motor Cover Assembly bolts and carefully pull the motor brake unit out of the hoist.
  
- *Brake Gap:* The brake gap should be measured between the Brake Drum and Pull Rotor. Adjustment of the Brake Gap is accomplished by turning the Adjustment Nut in the center of the Motor Cover.

### Motor Brake Gap (Hoist Motor)

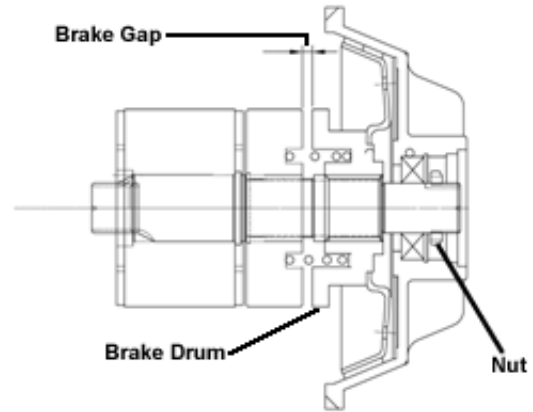


**Brake must be properly adjusted the gap "A"**

Hp	"A" Dimension – (In)	Brake Disc Thickness	
	Adjustment Range	Nominal	Replace
1.3	0.03-0.05	0.14	0.09
2.0		0.23	0.19
4.0		0.23	0.19

- Remove the four Fan Cover Bolts, Fan Cover, Fan snap ring and Fan washer.
- Bend the tab of the Lock Washer away from the Adjusting Nut so that the Adjusting Nut can be rotated.
- Using a spanner wrench and a feeler gauge, rotate the Adjusting Nut to attain the proper Brake Gap.
- After Brake Gap is set, secure the Adjusting Nut by bending one of the tabs of the Lock Washer into a slot in the Adjusting Nut. If necessary rotate the Adjusting Nut clockwise (tightening) to line up the tab with the slot.
- If the proper brake adjustment cannot be achieved, disassemble the motor brake and inspect all motor brake parts. Replace the Brake Drum and/or Motor Cover if necessary.

Figure 8.2.-B: Brake Gap



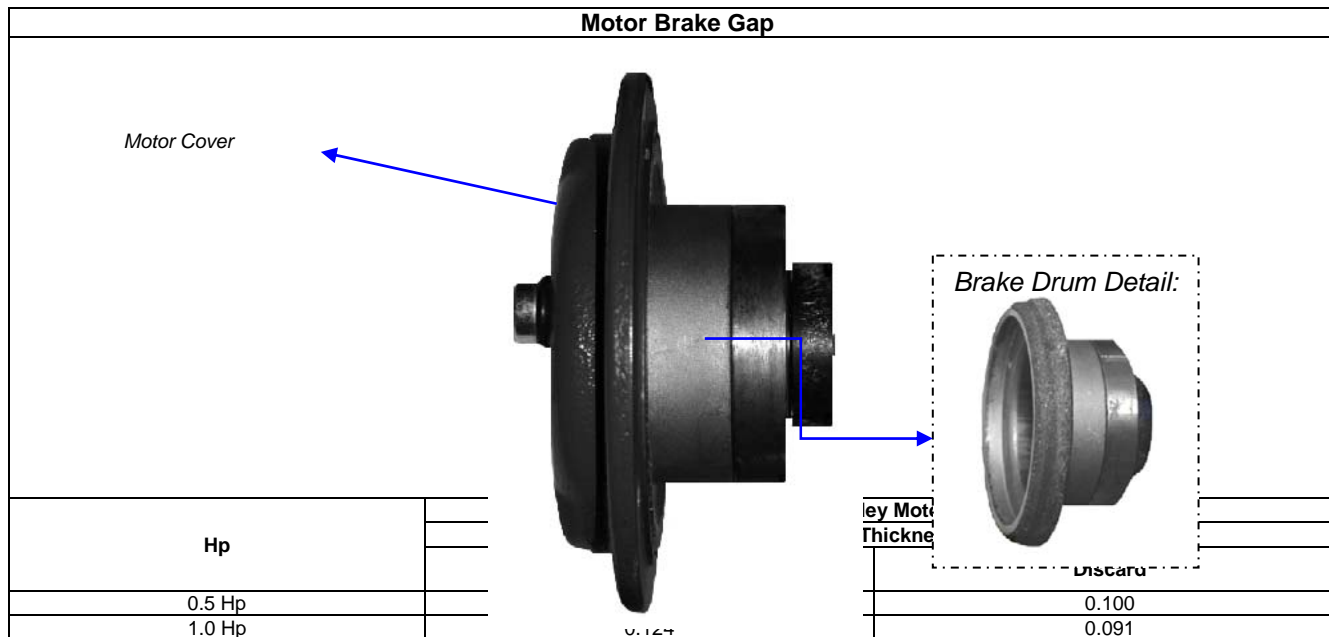
- *Brake Lining inspection:* the brake lining is designed for a long life and should provide years of trouble-free service. If the brake lining is being inspected due to excessive load chain drift during operation, disassemble the motor brake and inspect all motor brake parts. Braking surfaces should be clean, free of grease/oil and should not be glazed. Replace the Brake Drum and/or Motor cover if necessary. For normal inspections, the Brake Lining and Motor Cover wear should be measured.
- *Motor Brake Unit Installation:* After the brake is properly adjusted and inspected, carefully replace the motor brake unit back into the hoist. Be sure to reseal the motor Cover to motor frame surface using a small bead of liquid (hi-temperature) sealant or use a gasket.

## 8.2.2 TROLLEY MOTOR BRAKE



Before proceeding disconnect the power supply and make sure the hoist/trolley is unloaded. To keep the load chain from moving, secure it by tying together the load and no-load sides directly under the hoist using a cord or wire.

- **Motor Brake Unit Removal:** Inspection of the motor brake requires removal of the motor brake unit from the trolley as an assembly.
  - Remove the four bolts that attach the motor cover to the motor frame.
  - Remove the Motor Cover, brake components and stator.
- **Brake Lining Inspection:** The brake lining is designed for a long life and should provide years of trouble-free service. If the brake lining is being inspected due to excessive trolley drift during operation, disassemble the motor brake and inspect all motor brake parts. Braking surfaces should be clean, free of grease/oil and should not be glazed. Replace the brake drum and/or motor cover if necessary. For normal inspection, the brake lining and motor cover wear should be measure as follows
  - Refer to following table



- Measure the distance "A" using caliper and a straight edge. Make sure the brake drum is square against the motor cover. Place the straight edge of the brake drum and measure from the straight edge to the mounting face of the Remove the Motor Cover
- Compare the measurement with the values listed in above table. Replace the brake drum and/or motor cover if "A" is smaller than the discard limit.
- Trolley brake is not adjustable

- *Motor brake installation:* After the brake is inspected, carefully place the stator and brake components into the motor frame. Be sure to put back the gasket. Install the motor cover attachment bolts.

### **8.3: LOAD CHAIN REPLACEMENT**



The hoist must be properly installed and operational in order to perform the following procedures.

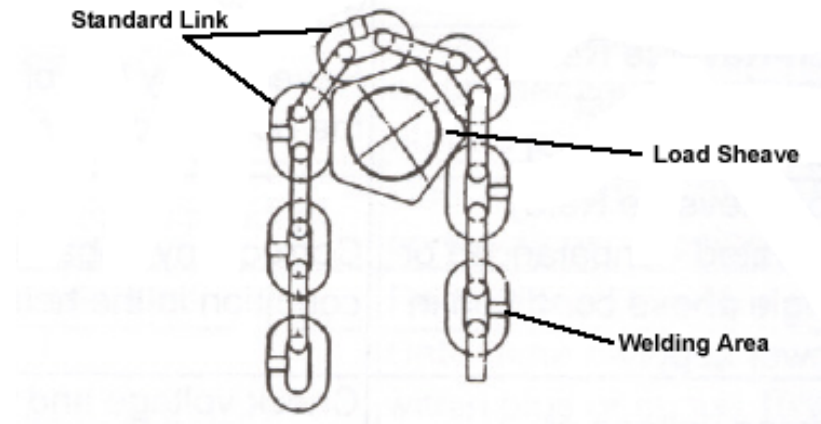
- Load chain and hand chain should be kept clean. Clean the chain with acid-free cleaning solution.
- Lubrication- for normal use coat load chain lightly with machine oil or gear oil. Under dusty or abrasive conditions, use a dry lubricant.



Be certain that the replacement chain is obtained from ACI Hoist & Crane and is 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.

- When replacing the load chain, check for wear on mating parts, i.e. Load Sheave, Chain Guides and Idle Sheave, and replace parts if necessary.
- Remove all chain components including the Bottom Hook Assembly, Stoppers, Cushion Rubbers, Chain Springs, Striker Plates, Chain pin and End Wire from the chain for reuse on new chain. Inspect and replace any damaged or worn parts.
- 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 sheave.
- Operate the hoist down to move the chain through the hoist body. Stop when a sufficient amount of new chain is accumulated on the load side.
- Single fall hoists: Attach the chain components to the chain.
- Double falls: Feed the end link on the load side of the new chain through the required chain components and the bottom hook's Idle Sheave. Attach the remaining chain components to the chain. Connect the end link to the top connection yoke with the chain pin, slotted nut and cotter pin. Ensure that chain remains free of twists.
- Threading the load chain on to the hoist's load sheave is made easier by using a short length of chain with an open link on one end. This short length of chain (pilot chain) is first placed on the hoist's load sheave during reassembly of the hoist. It must be oriented so that the open link is NOT a standing link (see *Figure 8.3-A*). The load chain must have an odd number of links so that both its end links have the same orientation. After the hoist reassembly is complete the pilot chain can be used to thread the load chain on to the load sheave. The end link of the load chain is connected to the open link of the pilot chain so that the welded portions of the load chain's standing link are oriented to the outside as they pass over the sheave-refer to *Figure 8.3-A*. The pilot chain is then used to pull the load chain through the hoist and on to the hoist's load sheave. The pilot chain is then disconnected from the load chain and discarded.

**Figure 8.3-A: Threading Chain through Hoist's Load Sheave**



**WARNING**

Make sure Stoppers, springs and Plates are properly installed.

- After installation has been completed, perform steps outlined in "Pre-Operational Checks".

### **8.3.1 How to Replace a Load Chain:**

1. Remove chain end stop bolt located on trolley (see Fig. A)



Figure A

2. Remove hook block and set aside.
3. Remove chain and stop bolt that is holding the end of chain and chain bag (Fig. B.)



Figure B

4. Remove chain end stop block, rubber stopper and chain bag. Set aside.

Note: Make sure to remember the position of these parts. You will need to put them back to the same place they were before.

5. Use the provided chain-link and place it with the open groove facing outward on the last link of currently installed chain (Fig. E).



Figure E

6. Place first link of new chain to the provide chain-link:

Note: You are in the step linking new and old chain together. It is important the new chain welds on links are facing outward.

7. Run Hoist (using down button on pendant) till new chain is reeved through.

Note: The purpose of this is to use the old chain to pull new chain through the “hoist sheave”

8. Run enough chain through so you will have enough chain to reeve the hook block and reach the end stop on the trolley (Fig. A).



Figure A

Note: You need to place rubber stopper between hook block and limit switch assembly (Fig. C). Use a piece of cable to reeve the chain through the hook block (Fig. D)



Figure C



Figure D

9. Place the other rubber stopper on other side of chain between the limit switch and chain end stop. (Fig. F)



Figure F

10. Put chain and chain bag back on the hoist end stop (Fig. F)

Note: On this end you are allowed to ½ turn the chain if chain links is not aligned to the end stop.

11. Put chain end stop block back on chain. Place around 9 or 10 links from end of chain (Fig. G)



Figure G

12. Run hoist back (up position on pendant) to run the chain back into chain bag.

#### **8.4: FRICTION CLUTCH**

*Friction Clutch:* If abnormal operation or slippage occurs do NOT attempt to disassemble or adjust the Friction Clutch. Replace the worn or malfunctioning Friction Clutch as an assembly with a new, factory adjusted part.

#### **8.5: STORAGE**

The storage location should be clean and dry.

#### **8.6: OUTDOOR INSTALLATION**

- For hoist installations that are outdoors, the hoist should be covered when not in use. Rain covers, sealed (Nema 4) push button and zinc plated load chain could be recommended for specific cases. Consult ACI for further information.
- Possibility of corrosion on components of the hoist increases for installations where salt air and high humidity are present. Make frequent and regular inspections of the unit's condition and operation.

**9.0: TROUBLESHOOTING**



**DANGER**

Before proceeding, ensure that the electrical supply for the hoist or trolley has been de-energized (disconnected) and locked and tagged. Refer to ANSI Z244.1, Personal Protection- Lockout/Tag out of Energy Sources. Only qualified electrician should perform these steps.

Troubleshooting and Remedial Action		
SITUATION	CAUSE	REMEDY
Hoist will not operate	<input type="checkbox"/> Blown power fuses or tripped power circuit breaker. <input type="checkbox"/> Blown control circuit fuses. <input type="checkbox"/> Broken/disconnected power or control circuit wire. <input type="checkbox"/> Low supply voltage.  <input type="checkbox"/> Motor hums but does not rotate. <input type="checkbox"/> Faulty contactor.  <input type="checkbox"/> Faulty VFD (dual speed, if applicable)	<input type="checkbox"/> Check supply requirements and refuse/reset breaker to meet requirements. <input type="checkbox"/> Check fuses for correct rating and replace <input type="checkbox"/> Locate and repair/reconnect.  <input type="checkbox"/> Check if 10% reduction in voltage has mains supply checked. <input type="checkbox"/> Check phases to motor- insulate and repair. <input type="checkbox"/> Operate manually if hoist runs then control circuit/coil is faulty- locate fault and repair. If hoist does not run then check main supply. If input supply is correct but there is a faulty output supply then replace the contactor. <input type="checkbox"/> Check fault codes (see Section 12: Appendix A). Replace as needed.
Hoist will not stop	<input type="checkbox"/> Welded contacts in contactor <input type="checkbox"/> Faulty VFD (dual speed, if applicable)	<input type="checkbox"/> Replace contactor <input type="checkbox"/> Check fault codes (see Section 12: Appendix A). Replace as needed.
Brake slips	Brake needs adjustment	See table 4-6
Hoist runs but does not lift	<input type="checkbox"/> Clutch slipping <input type="checkbox"/> Faulty VFD (dual speed, if applicable)	<input type="checkbox"/> Contact ACI Hoist & Crane; this adjustment needs to be carried out on a test rig. <input type="checkbox"/> Check fault codes (see Section 12: Appendix A). Replace as needed.
Trolley does not operate in either direction	<input type="checkbox"/> Power failure at trolley  <input type="checkbox"/> Phase error (single phase)  <input type="checkbox"/> Control circuit  <input type="checkbox"/> Wrong voltage or frequency <input type="checkbox"/> Low voltage  <input type="checkbox"/> Excessive load <input type="checkbox"/> Faulty VFD (indefinitely speed setup, if applicable)	<input type="checkbox"/> Main line or branch circuit fuses blown or tripped. Check for ground or connect supply lines or current collectors. Replace or reset. <input type="checkbox"/> Grounded or connected one line of supply system (collectors, trolley wiring, reversing contactor, motor leads or windings). Check for electrical continuity. <input type="checkbox"/> Check for shorted windings in transformer or reversing contactor coil. A loose connection or broken wire in circuit. Mechanical binding in contactor. The control station switch contacts not making contact. Check continuity and repair or replace defective parts. <input type="checkbox"/> Check that the voltage and frequency are the same as shown on the trolley control box. <input type="checkbox"/> Check the control power supply. Standard not to exceed $\pm 10\%$ can cause damage to the motor. <input type="checkbox"/> Prevent overloading the rated load of the trolley. <input type="checkbox"/> Check fault codes (see Section 12: Appendix A). Replace as needed.

Troubleshooting and Remedial Action		
SITUATION	CAUSE	REMEDY
Trolley operates in one direction only	<input type="checkbox"/> Control circuit  <input type="checkbox"/> Faulty VFD (infinitely speed setup, if applicable)	<input type="checkbox"/> Check for shorted windings in transformer or reversing contactor coil. A loose connection or broken wire in circuit. Mechanical binding in contactor. The control station switch contacts not making contact. Check continuity and repair or replace defective parts. <input type="checkbox"/> Check fault codes (see Section 12: Appendix A). Replace as needed.
Trolley operates sluggishly	<input type="checkbox"/> Excessive load  <input type="checkbox"/> Low voltage  <input type="checkbox"/> Worn or dirty rail <input type="checkbox"/> Faulty VFD (infinitely speed setup, if applicable)	<input type="checkbox"/> Prevent overloading the rated load of the trolley. <input type="checkbox"/> Check the control power supply. Standard not to exceed $\pm 10\%$ can cause damage to the motor. <input type="checkbox"/> Clean rails and inspect for worn spots. <input type="checkbox"/> Check fault codes (see Section 12: Appendix A). Replace as needed.
Trolley motor overheats	<input type="checkbox"/> Excessive load  <input type="checkbox"/> Low voltage  <input type="checkbox"/> Extreme external heating  <input type="checkbox"/> Frequent starting or reversing <input type="checkbox"/> Phase error  <input type="checkbox"/> Faulty VFD (infinitely speed setup, if applicable)	<input type="checkbox"/> Prevent overloading the rated load of the trolley. <input type="checkbox"/> Check the control power supply. Standard not to exceed $\pm 10\%$ can cause damage to the motor. <input type="checkbox"/> Keep above an ambient temperature of 40°C. Check to ensure proper space ventilation and shield the trolley from heat radiation. <input type="checkbox"/> Avoid excessive inching, jogging or plugging. <input type="checkbox"/> Grounded or connected one line of supply system (collectors, trolley wiring, reversing contactor, motor leads or windings). Check for electrical continuity. <input type="checkbox"/> Check fault codes (see Section 12: Appendix A). Replace as needed.
Electric shock	<input type="checkbox"/> Poor earth connection <input type="checkbox"/> Accumulated foreign matter/moisture on electrical parts	<input type="checkbox"/> Provide correct earth connection. <input type="checkbox"/> Remove matter/dry electrical parts.
Abnormal sound on load chain/chain sprocket	<input type="checkbox"/> Chain dry <input type="checkbox"/> Worn chain sprocket	<input type="checkbox"/> Lubricate. <input type="checkbox"/> Replace load chain and chain sprocket.
Oil leak	<input type="checkbox"/> No oil plug <input type="checkbox"/> Loose lifting of oil plug <input type="checkbox"/> No plug packing <input type="checkbox"/> Worn or deteriorated oil packing	<input type="checkbox"/> Attach the normal oil plug. <input type="checkbox"/> Fasten the plug tightly. <input type="checkbox"/> Attach normal packing. <input type="checkbox"/> Attach the new packing.

## 10.0: WARRANTY

Every hoist is thoroughly inspected and tested before it is shipped from the factory. If any problem develops within one-year return the complete hoist prepaid to the factory. If an inspection reveals that the problem is caused by defective workmanship or material, repairs will be made without charge and the hoist will be returned, transportation prepaid.

This warranty does not cover: (a) deterioration caused by normal wear, abuse, eccentric or side loading, overloading, chemical or abrasive actions, improper maintenance or excessive heat; (b) problems resulting from repairs, modifications or alterations made by people other than factory or ACI representative; (c) the hoist has been abused or damaged due to an accident; (4) repair parts or accessories other than ACI equipment are used on the hoist. Equipment and accessories not of the seller's manufacture are warranted only to extent that they are warranted by the manufacturer.

EXCEPT AS STATED HERE, ACI MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES FOR A PARTICULAR PURPOSE.



Alterations or modifications of equipment and use of non-factory repair parts can lead to dangerous operation and injury.

**To avoid injury:**

**Do not** alter or modify equipment.

**Do not** use equipment to lift, support or otherwise transport people.

**Do not** suspend unattended loads over people.

## **11.0: SPARE PARTS LIST**

### **11.1: HOW TO ORDER**

This parts and instruction manual contains information required to install and maintain your Hoist and Trolley. To ensure prompt service, each repair parts order should be placed with ACI Hoist & Crane, and must contain the following information:

When ordering Parts, please provide the following:

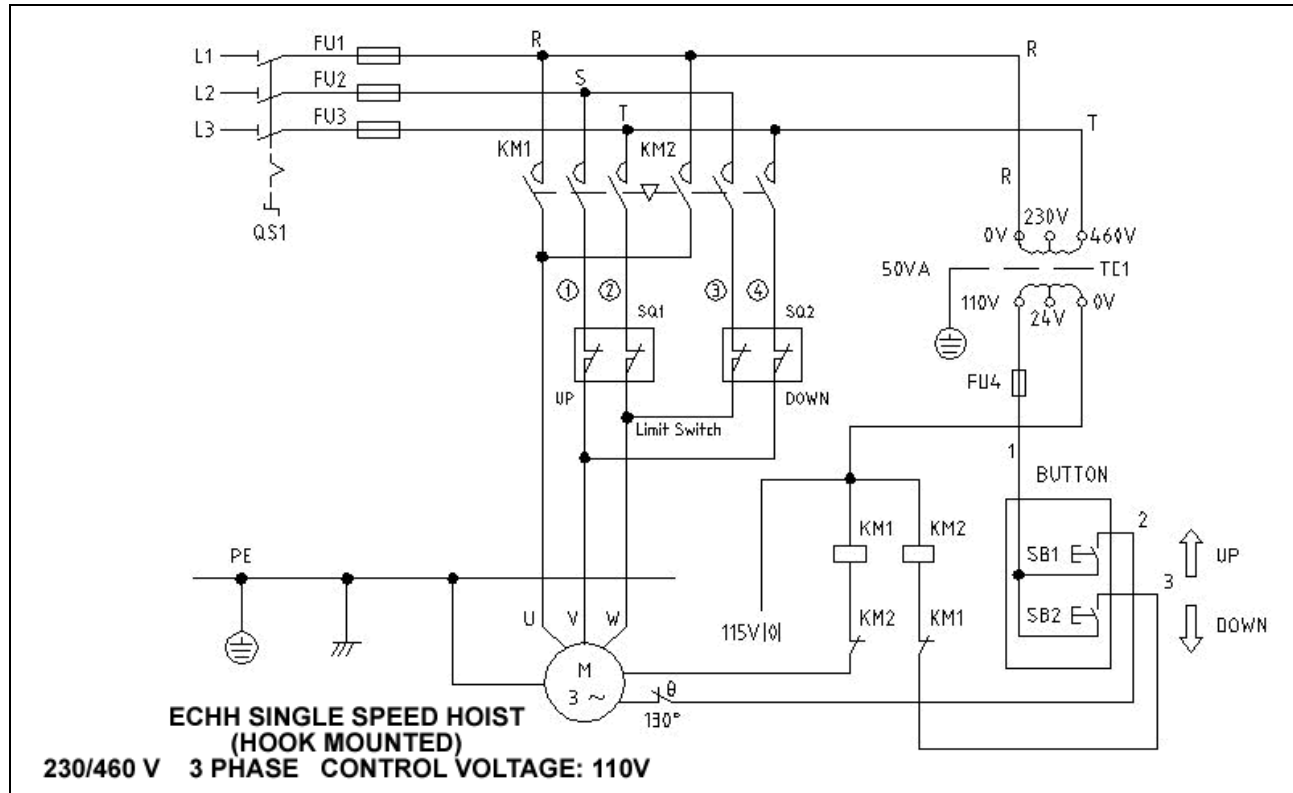
1. Give complete data from Hoist/Trolley nameplate, including Hoist/Trolley serial number, model number, voltage, frequency and hertz.
2. Give part numbers, description and quantity of parts required.
3. Give correct shipping destination.
4. For ordering motor repair parts, give all data on the Hoist/Trolley motor nameplates.

*Reminder:* Record the Hoist Model & Serial Number in the space provided in Section 3.1 "Installation" of this manual.

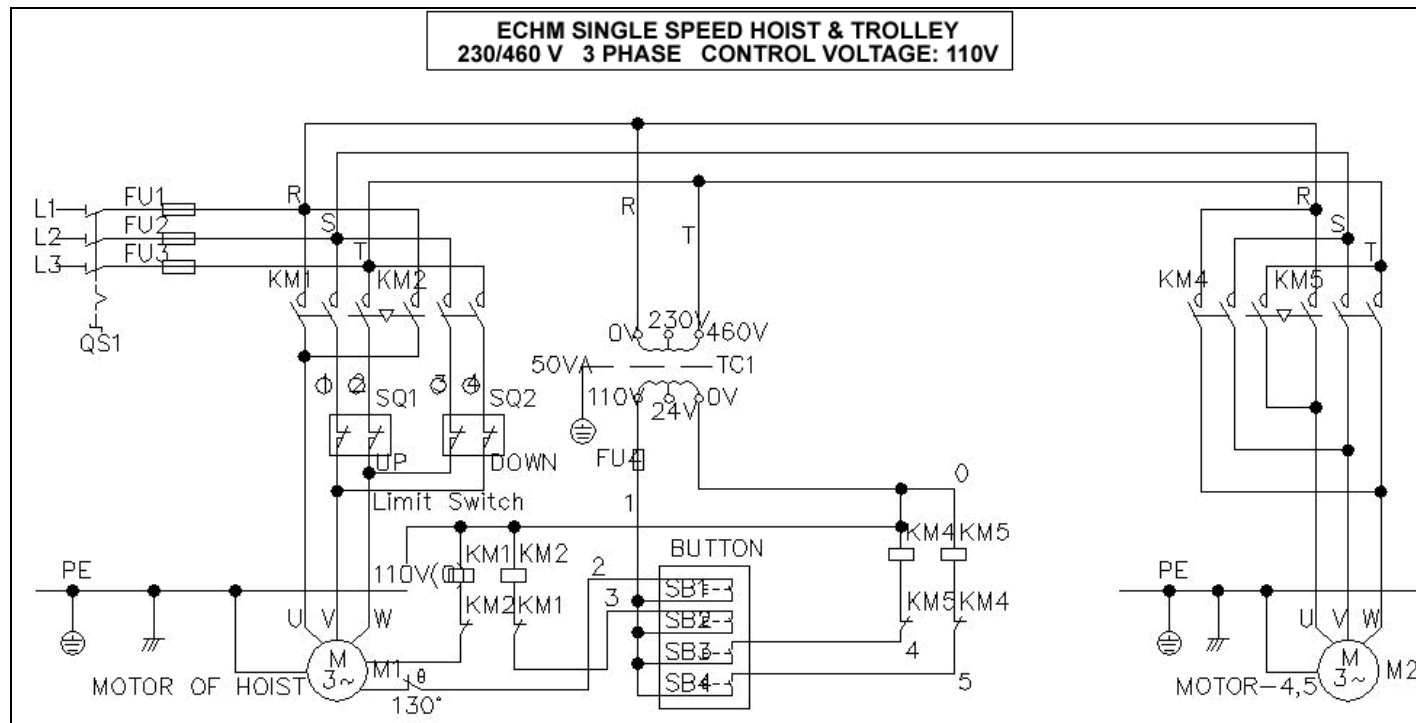
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## 11.2: WIRING DIAGRAMS

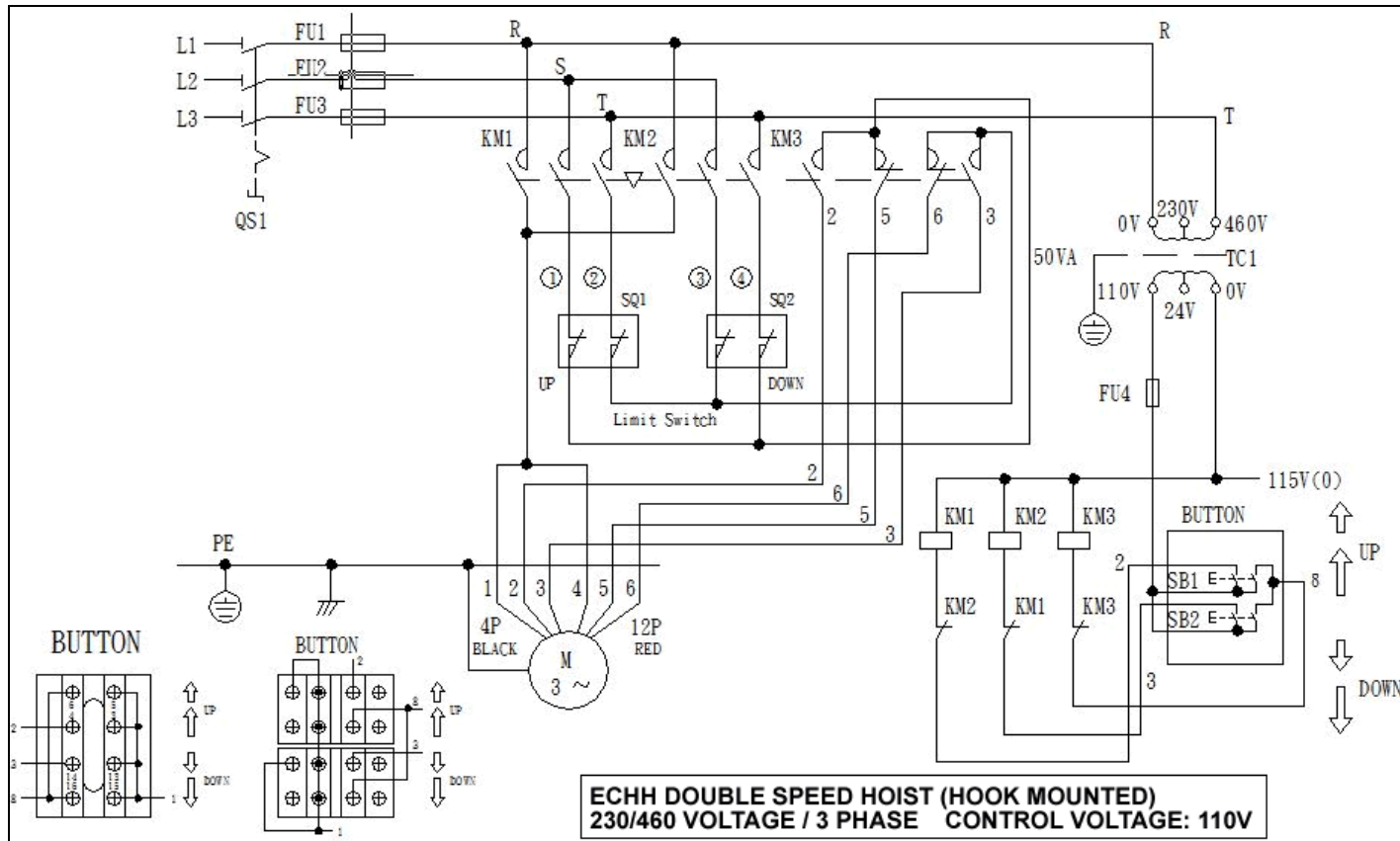
### ECHH: ELECTRIC CHAIN HOIST, HOOK MOUNTED (SINGLE SPEED)



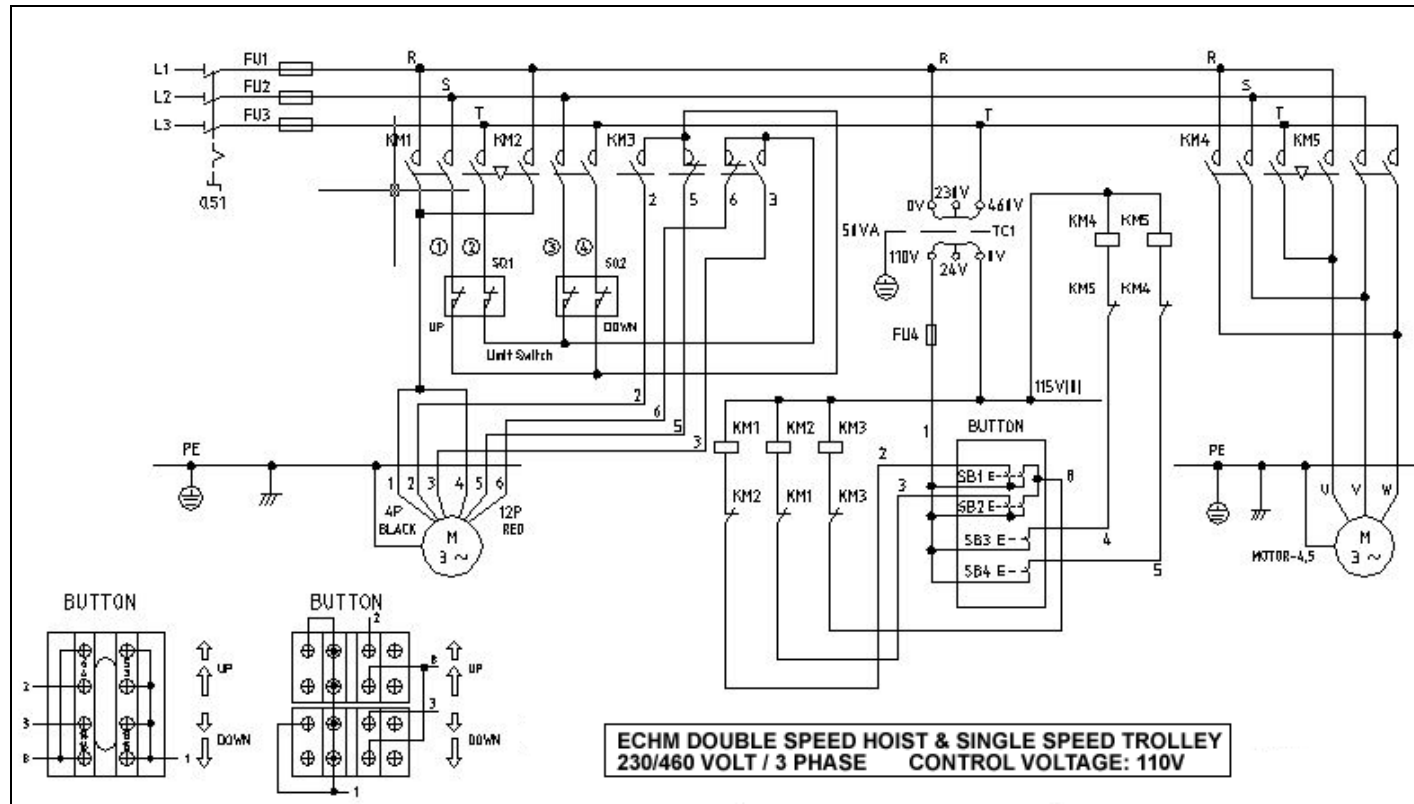
**ECHM: ELECTRIC CHAIN HOIST WITH TROLLEY (SINGLE SPEED)**



**ECHH: ELECTRIC CHIAN HOIST. HOOK MOUNTED (DOUBLE SPEED)**

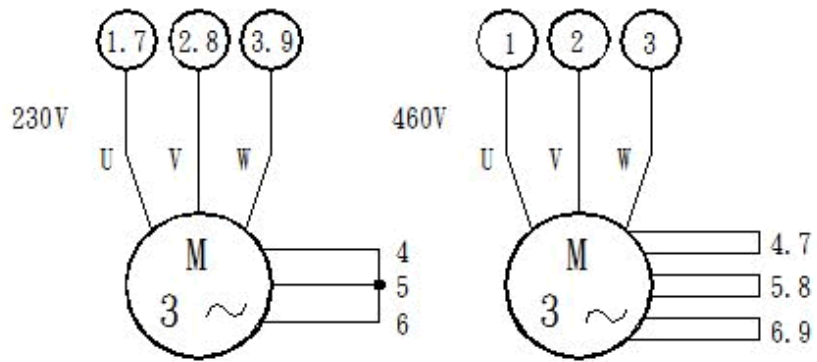


**ECHM: ELECTRIC CHAIN HOIST WITH MOTORIZED TROLLEY (DOUBLE SPEED)**

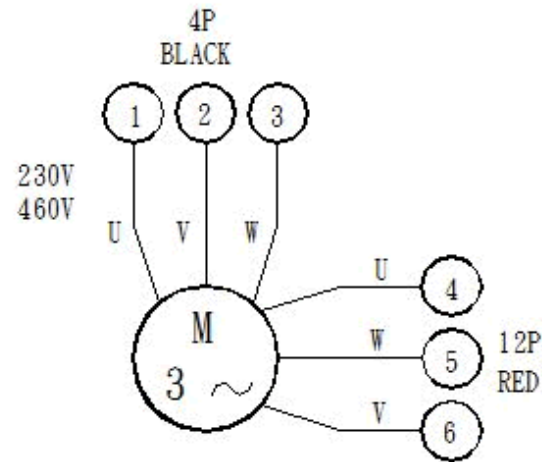


**MOTOR CONNECTIONS**

**MOTOR CONNECTIONS**  
**3 PH 230/460 V**

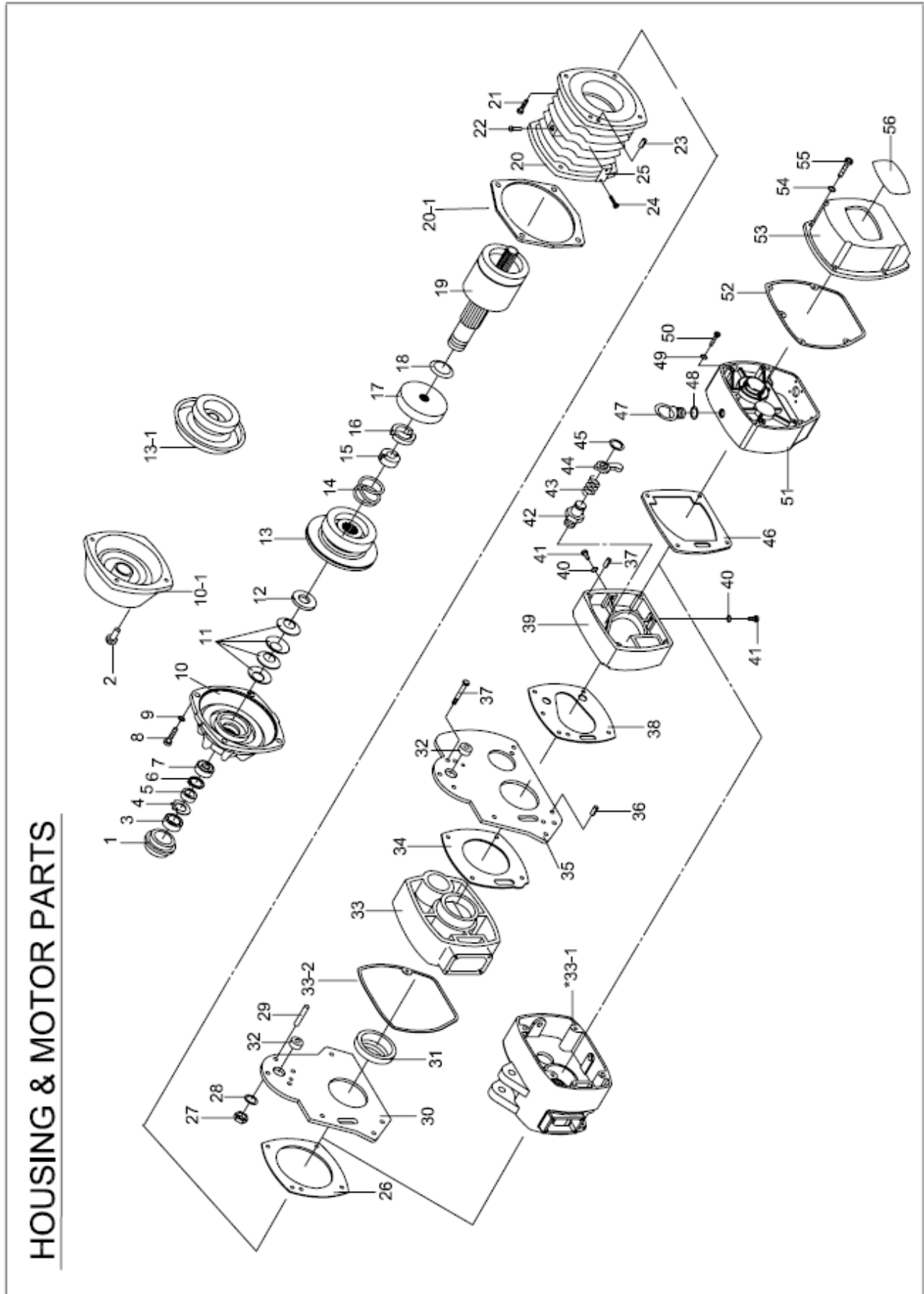


**SINGLE SPEED**



**DOUBLE SPEED**

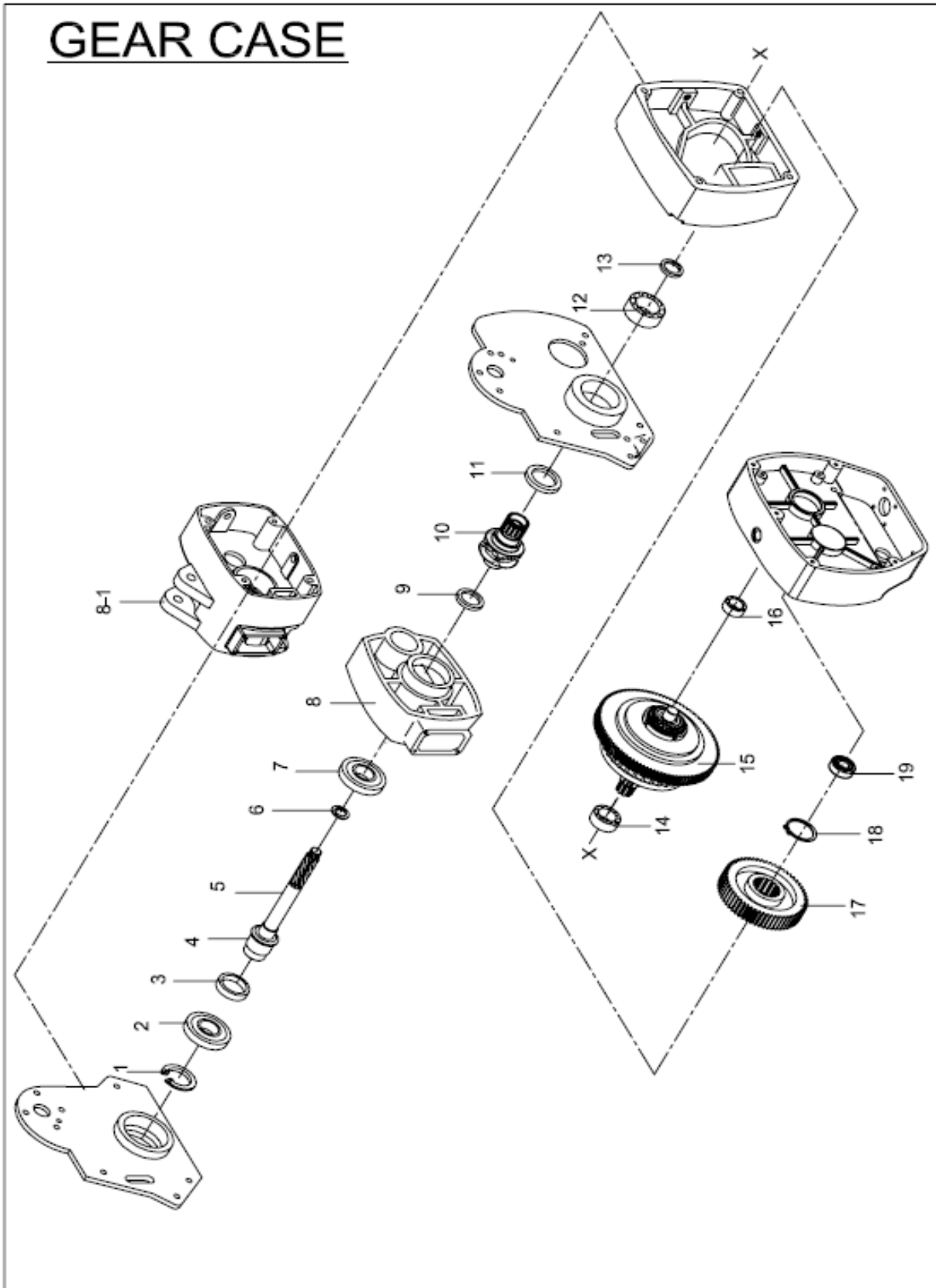
11.3: EXPLODED VIEW OF THE HOIST



Housing and Case		Model No. (Single Speed Hoist)														
		ECH-00518	ECH-00526	ECH-00544	ECH-01018	ECH-01026	ECH-01044	ECH-02018	ECH-02026	ECH-04009	ECH-04013	ECH-04026	ECH-06009	ECH-06017	ECH-10010	ECH-15007
1	Dust cover	101SKA										101SKB	101SKA	101SKB		101SKB*2
2	Dust cap	102SKA										102SKB	102SKA	102SKB		102SKB*2
3	Bearing nut	103SKA										103SKB	103SKA	103SKB		103SKB*2
4	External toothed washer	104SKA										104SKB	104SKA	104SKB		104SKB*2
5	Bush	105SKA										105SKB	105SKA	105SKB		105SKB*2
6	Cir clip	106SKA										106SKB	106SKA	106SKB		106SKB*2
7	Ball bearing	107SKA										107SKB	107SKA	107SKB		107SKB*2
8	Hex socket cap bolt	108SKA*4										108SKB*4	108SKA*4	108SKB*4		108SKB*8
9	Spring washer	109SKA*4										109SKB*4	109SKA*4	109SKB*4		109SKB*8
10	Brake cover (cast iron)	508SKA										508SKB	508SKA	508SKB		508SKB*2
10-1	Brake cover (aluminum)	-	D110SL	D110SH	-	D110SL	D110SH	D110SL	D110SH	D110SL	D110SH	D110SB	D110SH	D110SB		D110SB*2
11	Cone springs	113SKA*4										113SKB*4	113SKA*4	113SKB*4		113SKB*8
12	Thrust washer	114SKA										114SKB	114SKA	114SKB		114SKB*2
13	Brake drum cast iron	507SKA										507SKB	507SKA	507SKB		507SKB*2
13-1	Brake drum aluminum	-	D115SA		-	D115SA					D115SB	D115SA	D115SB		D115SB*2	
14	Brake spring	116SKA										116SKB	116SKA	116SKB		116SKB*2
15	Brake magnet locking sleeve	117SKA										117SKB	117SKA	117SKB		117SKB*2
16	Brake magnet split ring	118SKA*2										118SKB*2	118SKA*2	118SKB*2		118SKB*2
17	Brake magnet coil	119SKA										119SKB	119SKA	119SKB		119SKB*2
18	Cone spring	120SKA										120SKB	120SKA	120SKB		120SKB*2
19	Motor rotor and primary shaft	121SKA										121SKB	121SKA	121SKB		121SKB*2
20	Motor casing and stator	122SKC	122SAL	122SAH	122SKC	122SAL	122SAH	122SAL	122SAH	122SAL	122SAH	122SKB	122SAH	122SKB		122SKB*2
			D122SL	D122SH		D122SL	D122SH	D122SL	D122SH	D122SL	D122SH	D122SB	D122SH	D122SB		D122SB*2
20-1	Gasket	500SKA										500SKB				
21	Hex socket cap bolt	123SKA*4										123SKB*4	123SKA*4	123SKB*4		123SKB*8
22	Spring pin	124SKA										124SKB	124SKA	124SKB		124SKB*2
23	Locating spring pin	125SKA*2										125SKB*2	125SKA*2	125SKB*2		125SKB*4
24	Name plate rivet	126SKA*2										126SKB*2	126SKA*2	126SKB*2		126SKB*4
25	Motor name plate rivet	127SKA										127SKB	127SKA	127SKB		127SKB*2
26	Gasket B	131SKA										131SKB	131SKA	131SKB		131SKB*2
27	Hex nut	-										132SKB*4	-	132SKB*4		132SKB*8
28	Spring washer	-										133SKB*4	-	133SKB*4		133SKB*8
29	Sleeve	-										134SKB*4	-	134SKB*4		134SKB*8
30	Yoke plate B	-										135SKB	-	135SKB		135SKB*2
31	Bearing seat B	-										136SKB	-	136SKB		136SKB*2
32	Upper hook bearing bush	-										137SKB*2	-	137SKB*2		137SKB*4
33	Chain wheel case	-										138SKB	-	138SKB		138SKB*2
33-1	Chain wheel case	506SKA										-	506SKA	-		-
33-2	Gasket	600SKB														
34	Gasket C	-										139SKB	-	139SKB		139SKB*2
35	Yoke plate A	-										140SKB	-	140SKB		140SKB*2
36	Locating spring pin	-										125SKB*2	-	125SKB*2		125SKB*4
37	Hex head bolt	-										143SKB*6	-	143SKB*6		143SKB*12
38	Gasket D	-										144SKB	-	144SKB		144SKB*2
39	Gear case B	-										145SKB	-	145SKB		145SKB*2

Housing and Case		Model No. (Dual Speed Hoist)															
		ECH-00518D	ECH-00526D	ECH-00544D	ECH-01018D	ECH-01026D	ECH-01044D	ECH-02018D	ECH-02026D	ECH-04009D	ECH-04013D	ECH-04026D	ECH-06009D	ECH-06017D	ECH-10010D	ECH-15007D	ECH-20010D
No.	Description																
1	Dust cover	101SKA										101SKB	101SKA	101SKB		101SKB*2	
2	Dust cap	102SKA										102SKB	102SKA	102SKB		102SKB*2	
3	Bearing nut	103SKA										103SKB	103SKA	103SKB		103SKB*2	
4	External toothed washer	104SKA										104SKB	104SKA	104SKB		104SKB*2	
5	Bush	105SKA										105SKB	105SKA	105SKB		105SKB*2	
6	Cir clip	106SKA										106SKB	106SKA	106SKB		106SKB*2	
7	Ball bearing	107SKA										107SKB	107SKA	107SKB		107SKB*2	
8	Hex socket cap bolt	108SKA*4										108SKB*4	108SKA*4	108SKB*4		108SKB*8	
9	Spring washer	109SKA*4										109SKB*4	109SKA*4	109SKB*4		109SKB*8	
10	Brake cover (cast iron)	508SKA										508SKB	508SKA	508SKB		508SKB*2	
10-1	Brake cover (aluminum)	-	D110SL	D110SH	-	D110SL	D110SH	D110SL	D110SH	D110SL	D110SH	D110SB	D110SH	D110SB		D110SB*2	
11	Cone springs	113SKA*4										113SKB*4	113SKA*4	113SKB*4		113SKB*8	
12	Thrust washer	114SKA										114SKB	114SKA	114SKB		114SKB*2	
13	Brake drum cast iron	507SKA										507SKB	507SKA	507SKB		507SKB*2	
13-1	Brake drum aluminum	-	D115SA		-	D115SA					D115SB	D115SA	D115SB		D115SB*2		
14	Brake spring	116SKA										116SKB	116SKA	116SKB		116SKB*2	
15	Brake magnet locking sleeve	117SKA										117SKB	117SKA	117SKB		117SKB*2	
16	Brake magnet split ring	118SKA*2										118SKB*2	118SKA*2	118SKB*2		118SKB*2	
17	Brake magnet coil	119SKA										119SKB	119SKA	119SKB		119SKB*2	
18	Cone spring	120SKA										120SKB	120SKA	120SKB		120SKB*2	
19	Motor rotor and primary shaft	121SKA										121SKB	121SKA	121SKB		121SKB*2	
20	Motor casing and stator	122SKC	122SAL	122SAH	122SKC	122SAL	122SAH	122SAL	122SAH	122SAL	122SAH	122SKB	122SAH	122SKB		122SKB*2	
			D122SL	D122SH		D122SL	D122SH	D122SL	D122SH	D122SL	D122SH	D122SB	D122SH	D122SB		D122SB*2	
20-1	Gasket	500SKA										500SKB					
21	Hex socket cap bolt	123SKA*4										123SKB*4	123SKA*4	123SKB*4		123SKB*8	
22	Spring pin	124SKA										124SKB	124SKA	124SKB		124SKB*2	
23	Locating spring pin	125SKA*2										125SKB*2	125SKA*2	125SKB*2		125SKB*4	
24	Name plate rivet	126SKA*2										126SKB*2	126SKA*2	126SKB*2		126SKB*4	
25	Motor name plate rivet	127SKA										127SKB	127SKA	127SKB		127SKB*2	
26	Gasket B	131SKA										131SKB	131SKA	131SKB		131SKB*2	
27	Hex nut	-										132SKB*4	-	132SKB*4		132SKB*8	
28	Spring washer	-										133SKB*4	-	133SKB*4		133SKB*8	
29	Sleeve	-										134SKB*4	-	134SKB*4		134SKB*8	
30	Yoke plate B	-										135SKB	-	135SKB		135SKB*2	
31	Bearing seat B	-										136SKB	-	136SKB		136SKB*2	
32	Upper hook bearing bush	-										137SKB*2	-	137SKB*2		137SKB*4	
33	Chain wheel case	-										138SKB	-	138SKB		138SKB*2	
33-1	Chain wheel case	506SKA										-	506SKA	-		-	
33-2	Gasket	600SKB															
34	Gasket C	-										139SKB	-	139SKB		139SKB*2	
35	Yoke plate A	-										140SKB	-	140SKB		140SKB*2	
36	Locating spring pin	-										125SKB*2	-	125SKB*2		125SKB*4	
37	Hex head bolt	-										143SKB*6	-	143SKB*6		143SKB*12	
38	Gasket D	-										144SKB	-	144SKB		144SKB*2	
39	Gear case B	-										145SKB	-	145SKB		145SKB*2	

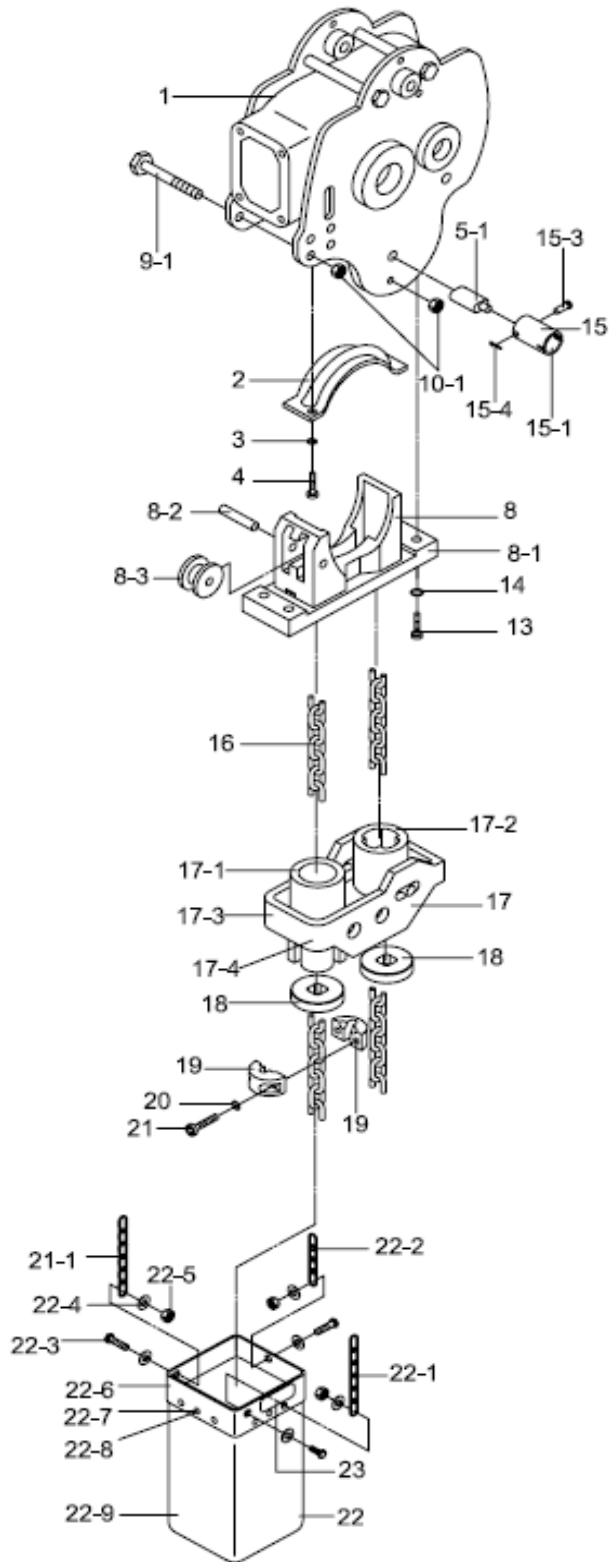
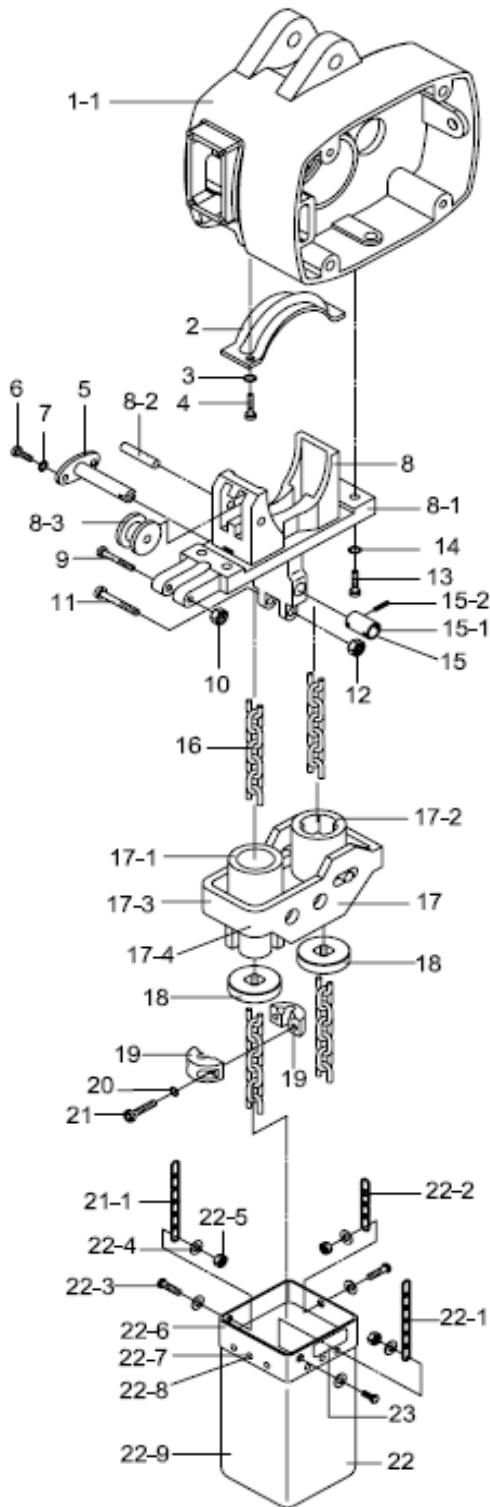
Housing and Case		Model No. (Dual Speed Hoist)															
		ECH-00518D	ECH-00526D	ECH-00544D	ECH-01018D	ECH-01026D	ECH-01044D	ECH-02018D	ECH-02026D	ECH-04009D	ECH-04013D	ECH-04026D	ECH-06009D	ECH-06017D	ECH-10010D	ECH-15007D	ECH-20010D
No.	Description																
40	O-ring	146SKA*2														146SKA*4	
41	Oil plug (slotted head)	147SKA*2														147SKA*4	
42	Ratchet pawl spindle	150SKA						150SKB		150SKA		150SKB				150SKB*2	
43	Torsion spring	151SKA						151SKB		151SKA		151SKB				151SKB*2	
44	Ratchet pawl	152SKA						152SKB		152SKA		152SKB				152SKB*2	
45	Cir clip	153SKA						153SKB		153SKA		153SKB				153SKB*2	
46	Gasket E	154SKA						154SKB		154SKA		154SKB				154SKB*2	
47	Eye bolt & pressure vale	155SKA						155SKB		155SKA		155SKB				155SKB*2	
48	O-ring	157SKA						157SKB		157SKA		157SKB				157SKB*2	
49	External toothed washer	158SKA*4						158SKB*4		158SKA*4		158SKB*4				158SKB*8	
50	Hex socket cap bolt	159SKA*4						159SKB*4		159SKA*4		159SKB*4				159SKB*8	
51	Gear case A	510SKA						510SKB		510SKA		510SKB				510SKB*2	
52	Gasket F	161SKA						161SKB		161SKA		161SKB				161SKB*2	
53	Electrical section cover	162SKA						162SKB		162SKA		162SKB				162SKB*2	
54	Spring washer	163SKA*4						163SKB*4		163SKA*4		163SKB*4				163SKB*8	
55	Hex socket cap bolt	164SKA*4						164SKB*4		164SKA*4		164SKB*4				164SKB*8	
56	Hoist name plate	165SKA						165SKB		165SKA		165SKB				165SKB*2	



Gear Case		Model No. (Single Speed Hoist)															
		ECH-00518	ECH-00526	ECH-00544	ECH-01018	ECH-01026	ECH-01044	ECH-02018	ECH-02026	ECH-04009	ECH-04013	ECH-04026	ECH-06009	ECH-06017	ECH-10010	ECH-15007	ECH-20010
No.	Description											166SK B	166SKA	166SKB		166SKB* 2	
1	Cir clip	166SKA										166SK B	166SKA	166SKB		166SKB* 2	
2	Ball bearing	167SKA										167SK B	167SKA	167SKB		167SKB* 2	
3	Spacer	502SKA										502SK B	502SKA	502SKB		502SKB* 2	
4	Connecting sleeve	168SKA										168SK B	168SKA	168SKB		168SKB* 2	
5	Secondary shaft	169SKA										169SK B	169SKA	169SKB		169SKB* 2	
6	O-ring	170SKA										170SK B	170SKA	170SKB		170SKB* 2	
7	Ball bearing	171SKA										171SK B	171SKA	171SKB		171SKB* 2	
8	Chain wheel case	-										138SK B	-	138SKB		138SKB* 2	
8-1	Chain wheel case	506SKA										-	506SKA	-		-	
9	Oil seal	172SKA										172SK B	172SKA	172SKB		172SKB* 2	
10	Load chain wheel	173SKA										173SK B	173SKA	173SKB		173SKB* 2	
11	Oil seal	174SKA										174SK B	174SKA	174SKB		174SKB* 2	
12	Ball bearing	175SKA										175SK B	175SKA	175SKB		175SKB* 2	
13	Oil seal	176SKA										176SK B	176SKA	176SKB		176SKB* 2	
14	Ball bearing	177SKA										177SK B	177SKA	177SKB		177SKB* 2	
15	Load brake & clutch Assembly	178SAH	178SA L	178SA H	178SA H	178SA L	178SA H	178SAL	178SA H	178SAL	178SA H	178SK B	178SAH	178SKB		178SKB* 2	
16	Ball bearing	501SKA										501SK B	501SKA	501SKB		501SKB* 2	
17	Main drive gear	186SAH	186SA L	186SA H	186SA H	186SA L	186SA H	186SAL	186SA H	186SAL	186SA H	168SK B	168SAH	168SKB		168SKB* 2	
18	Cir clip	187SKA										187SK B	187SKA	187SKB		187SKB* 2	
19	Ball bearing	188SKA										188SK B	188SKA	188SKB		188SKB* 2	

Gear Case		Model No. (Dual Speed Hoist)														
		ECH-00518D	ECH-00526D	ECH-00544D	ECH-01018D	ECH-01026D	ECH-01044D	ECH-02018D	ECH-02026D	ECH-04009D	ECH-04013D	ECH-04026D	ECH-06009D	ECH-06017D	ECH-10010D	ECH-15007D
No.	Description															
1	Cir clip	166SKA										166SKB	166SKA	166SKB		166SKB*2
2	Ball bearing	167SKA										167SKB	167SKA	167SKB		167SKB*2
3	Spacer	502SKA										502SKB	502SKA	502SKB		502SKB*2
4	Connecting sleeve	168SKA										168SKB	168SKA	168SKB		168SKB*2
5	Secondary shaft	169SKA										169SKB	169SKA	169SKB		169SKB*2
6	O-ring	170SKA										170SKB	170SKA	170SKB		170SKB*2
7	Ball bearing	171SKA										171SKB	171SKA	171SKB		171SKB*2
8	Chain wheel case	-										138SKB	-	138SKB		138SKB*2
8-1	Chain wheel case	506SKA										-	506SKA	-		-
9	Oil seal	172SKA										172SKB	172SKA	172SKB		172SKB*2
10	Load chain wheel	173SKA										173SKB	173SKA	173SKB		173SKB*2
11	Oil seal	174SKA										174SKB	174SKA	174SKB		174SKB*2
12	Ball bearing	175SKA										175SKB	175SKA	175SKB		175SKB*2
13	Oil seal	176SKA										176SKB	176SKA	176SKB		176SKB*2
14	Ball bearing	177SKA										177SKB	177SKA	177SKB		177SKB*2
15	Load brake & clutch Assembly	178SAH	178SAL	178SAH	178SAH	178SAL	178SAH	178SAL	178SAH	178SAL	178SAH	178SKB	178SAH	178SKB		178SKB*2
16	Ball bearing	501SKA										501SKB	501SKA	501SKB		501SKB*2
17	Main drive gear	186SAH	186SAL	186SAH	186SAH	186SAL	186SAH	186SAL	186SAH	186SAL	186SAH	168SKB	168SAH	168SKB		168SKB*2
18	Cir clip	187SKA										187SKB	187SKA	187SKB		187SKB*2
19	Ball bearing	188SKA										188SKB	188SKA	188SKB		188SKB*2

# CHAINING PARTS

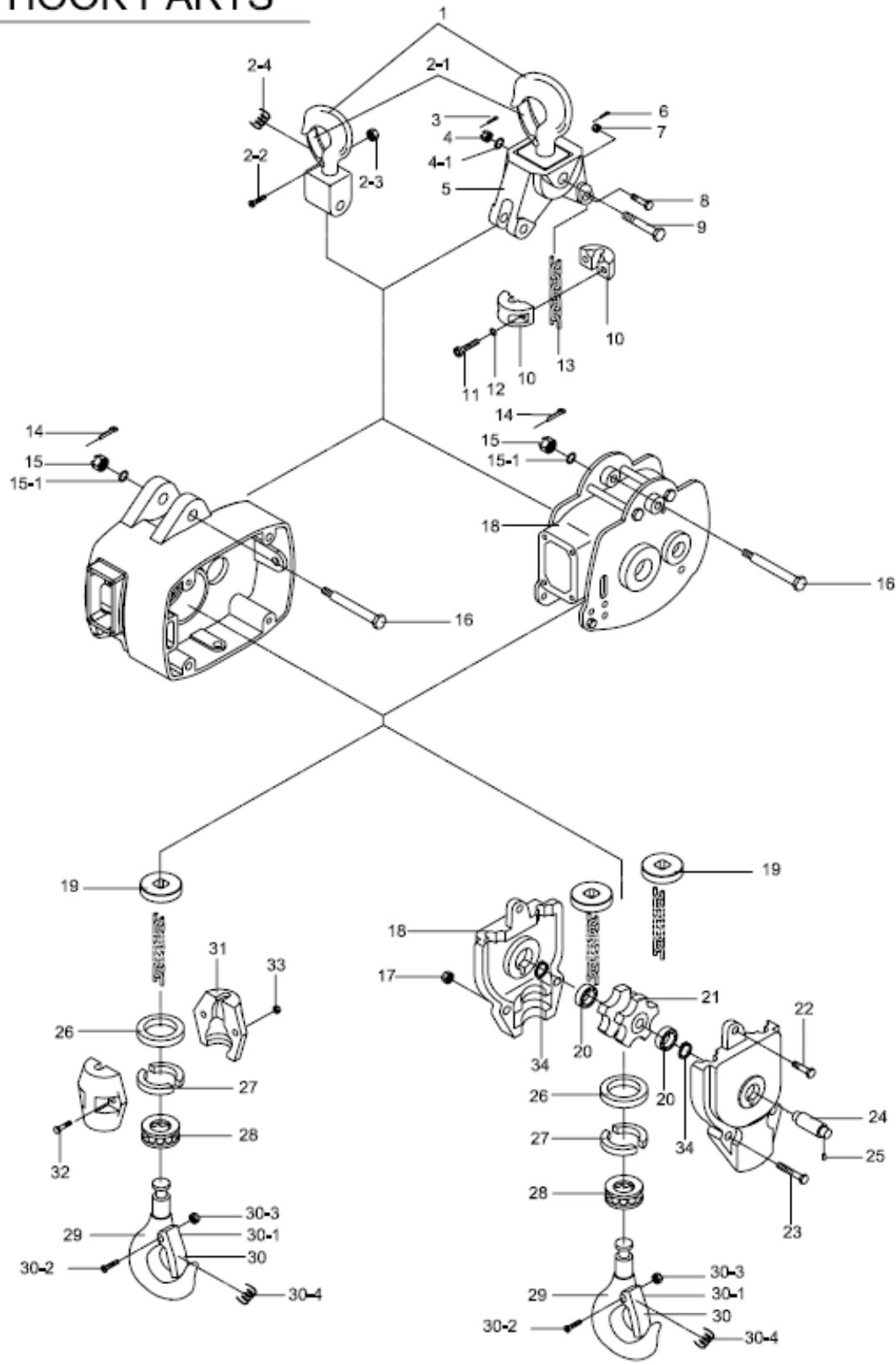


Chaining Parts		Model No. (Single Speed Hoist)															
		ECH-00518	ECH-00526	ECH-00544	ECH-01018	ECH-01026	ECH-01044	ECH-02018	ECH-02026	ECH-04009	ECH-04013	ECH-04026	ECH-06009	ECH-06017	ECH-10010	ECH-15007	ECH-20010
No.	Description																
1	Chain wheel case	-										138SKB	-	138SKB		138SKB*2	
1-1	Chain wheel case	506SKA										-	506SKA	-		-	
2	Chain guide cover	189SKA										189SKB	189SKA	189SKB	189SKC	189SKC*2	
3	Spring washer	237SKA*2										237SKB*2	237SKA*2	237SKB*2		237SKB*4	
4	Cross slot round head bolt	190SKA*2										190SKB*2	190SKA*2	190SKB*2		190SKB*4	
5	Limit switch actuator assembly B	191SKA										232SKB	191SKA	232SKB		232SKB*2	
6	Hex socket cap bolt	194SKA*2										-	194SKA*2	-		-	
7	Spring washer	195SKA*2										-	195SKA*2	-		-	
8	Chain limit plate assembly	196SKA										196SKB	196SKA	196SKB	196SKC	196SKC*2	
8-1	Chain limit plate	197SKA										197SKB	197SKA	197SKB	197SKC	197SKC*2	
8-2	Guide wheel spindle	198SKA										198SKB	198SKA	198SKB	198SKC	198SKC*2	
8-3	Guide wheel	199SKA										199SKB	199SKA	199SKB	199SKC	199SKC*2	
9	Hex head bolt	200SKA										-	200SKA	-		-	
9-1	Hex head bolt	-										230SKB*2		230SKB*2		230SKB*4	
10	Nylon nut	201SKA										-	201SKA	-		-	
10-1	Nylon nut	-										231SKB*2	-	231SKB*2		231SKB*4	
11	Hex head bolt	202SKA										-	202SKA	-		-	
12	Nylon nut	203SKA										-	203SKA	-		-	
13	Hex socket cap bolt	204SKA*4										204SKB*4	204SKA*4	204SKB*4		204SKB*8	
14	Spring washer	205SKA*4										205SKB*4	205SKA*4	205SKB*4		205SKB*8	
15	Limit switch actuator assembly A (*)	206SKA										206SKB	206SKA	206SKB		206SKB*2	
16	Chain	209SKA										209SKB	209SKA	209SKB	209SKC		
17	Chain guide assembly (*)	210SKA										210SKB	210SKA	210SKB	210SKC	210SKC*2	
18	Rubber stopper	472SKA*2										472SKB*2	472SKA*2	472SKB*2	472SKC*2	472SKC*4	
19	Chain end-stop block	216SKA*2								216SKA*4		216SKB*2	216SKA*2	216SKB*4	216SKB*2	216SKB*4	
20	Spring washer	217SKA*2								217SKA*4		217SKB*2	217SKA*2	217SKB*4	217SKB*2	217SKB*4	
21	Hex socket cap bolt	218SKA*2								218SKA*4		218SKB*2	218SKA*2	218SKB*4	218SKB*2	218SKB*4	
22	Chain bag assembly (*)	219SKA															219SKA*2
23	Chain bag name plate	254SKA															254SKA*2

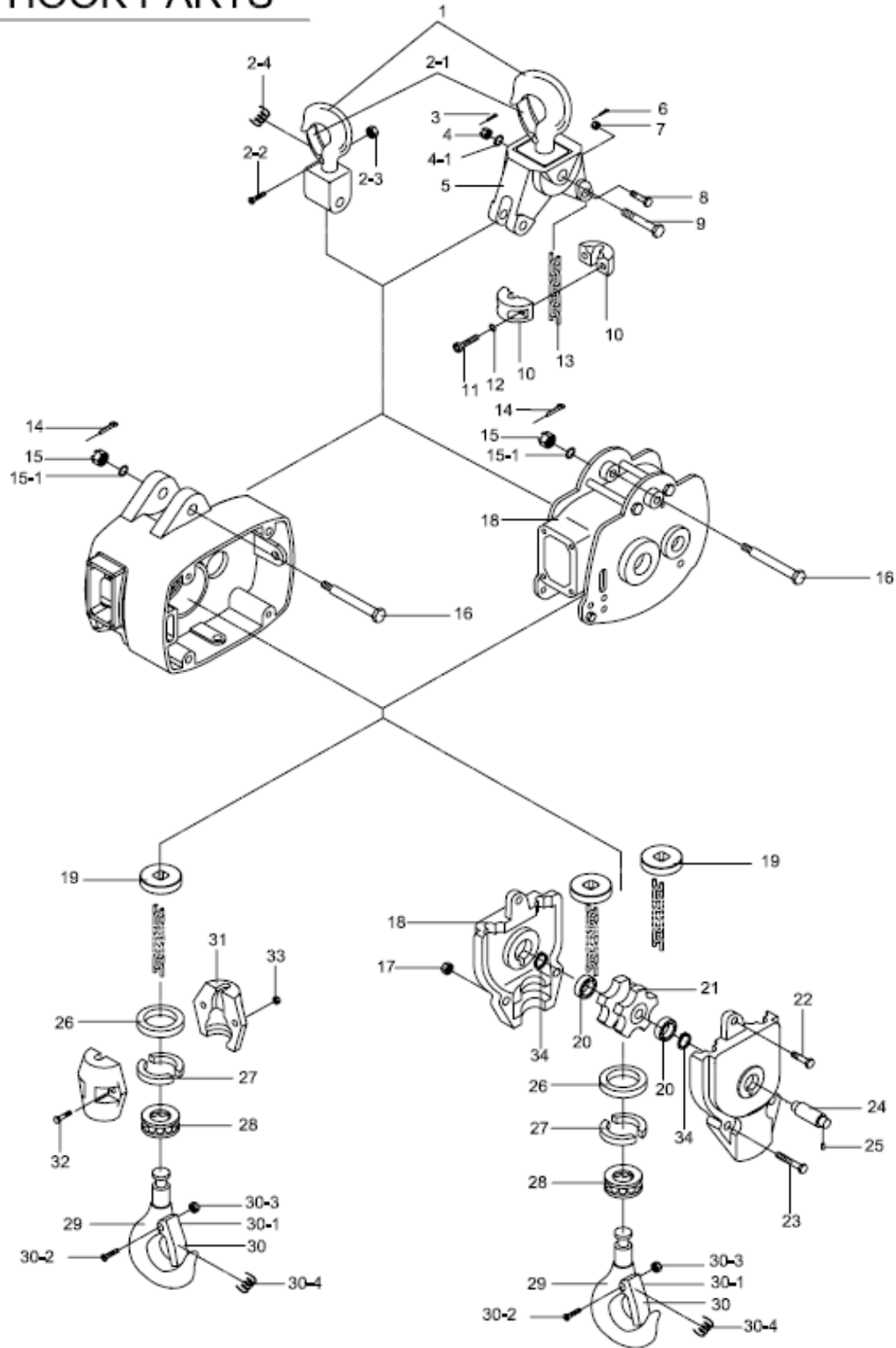
Chaining Parts		Model No. (Dual Speed Hoist)															
		ECH-00518D	ECH-00526D	ECH-00544D	ECH-01018D	ECH-01026D	ECH-01044D	ECH-02018D	ECH-02026D	ECH-04009D	ECH-04013D	ECH-04026D	ECH-06009D	ECH-06017D	ECH-10010D	ECH-15007D	ECH-20010D
No.	Description											ECH-04026D	ECH-06009D	ECH-06017D	ECH-10010D	ECH-15007D	ECH-20010D
1	Chain wheel case	-										138SKB	-	138SKB		138SKB*2	
1-1	Chain wheel case	506SKA										-	506SKA	-		-	
2	Chain guide cover	189SKA										189SKB	189SKA	189SKB	189SKC	189SKC*2	
3	Spring washer	237SKA*2										237SKB*2	237SKA*2	237SKB*2		237SKB*4	
4	Cross slot round head bolt	190SKA*2										190SKB*2	190SKA*2	190SKB*2		190SKB*4	
5	Limit switch actuator assembly B	191SKA										232SKB	191SKA	232SKB		232SKB*2	
6	Hex socket cap bolt	194SKA*2										-	194SKA*2	-		-	
7	Spring washer	195SKA*2										-	195SKA*2	-		-	
8	Chain limit plate assembly	196SKA										196SKB	196SKA	196SKB	196SKC	196SKC*2	
8-1	Chain limit plate	197SKA										197SKB	197SKA	197SKB	197SKC	197SKC*2	
8-2	Guide wheel spindle	198SKA										198SKB	198SKA	198SKB	198SKC	198SKC*2	
8-3	Guide wheel	199SKA										199SKB	199SKA	199SKB	199SKC	199SKC*2	
9	Hex head bolt	200SKA										-	200SKA	-		-	
9-1	Hex head bolt	-										230SKB*2		230SKB*2		230SKB*4	
10	Nylon nut	201SKA										-	201SKA	-		-	
10-1	Nylon nut	-										231SKB*2	-	231SKB*2		231SKB*4	
11	Hex head bolt	202SKA										-	202SKA	-		-	
12	Nylon nut	203SKA										-	203SKA	-		-	
13	Hex socket cap bolt	204SKA*4										204SKB*4	204SKA*4	204SKB*4		204SKB*8	
14	Spring washer	205SKA*4										205SKB*4	205SKA*4	205SKB*4		205SKB*8	
15	Limit switch actuator assembly A (*)	206SKA										206SKB	206SKA	206SKB		206SKB*2	
16	Chain	209SKA										209SKB	209SKA	209SKB	209SKC		
17	Chain guide assembly (*)	210SKA										210SKB	210SKA	210SKB	210SKC	210SKC*2	
18	Rubber stopper	472SKA*2										472SKB*2	472SKA*2	472SKB*2	472SKC*2	472SKC*4	
19	Chain end-stop block	216SKA*2								216SKA*4		216SKB*2	216SKA*2	216SKB*4	216SKB*2	216SKB*4	
20	Spring washer	217SKA*2								217SKA*4		217SKB*2	217SKA*2	217SKB*4	217SKB*2	217SKB*4	
21	Hex socket cap bolt	218SKA*2								218SKA*4		218SKB*2	218SKA*2	218SKB*4	218SKB*2	218SKB*4	
22	Chain bag assembly (*)	219SKA															219SKA*2
23	Chain bag name plate	254SKA															254SKA*2

11.6: HOOK PARTS

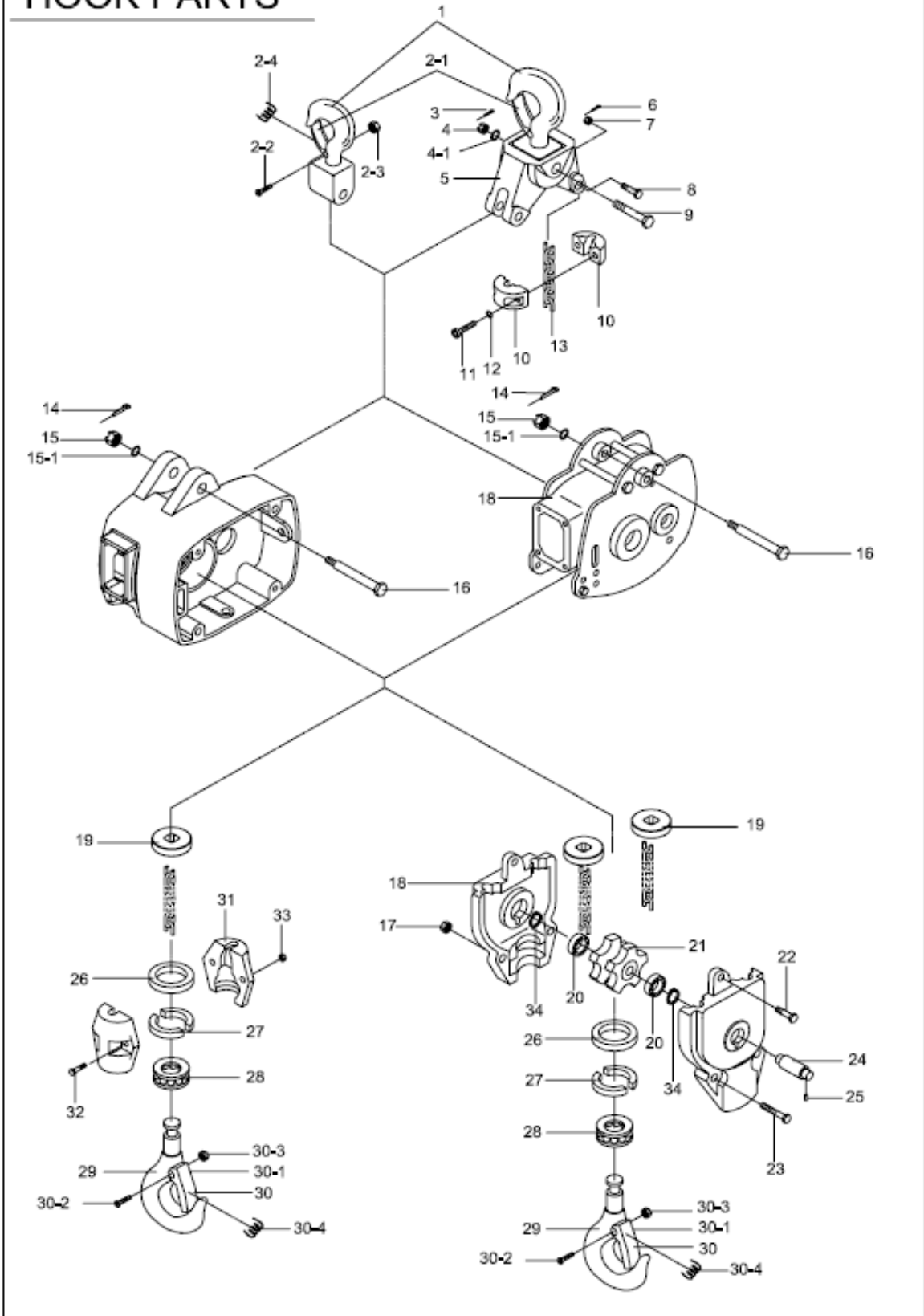
# HOOK PARTS



# HOOK PARTS



# HOOK PARTS

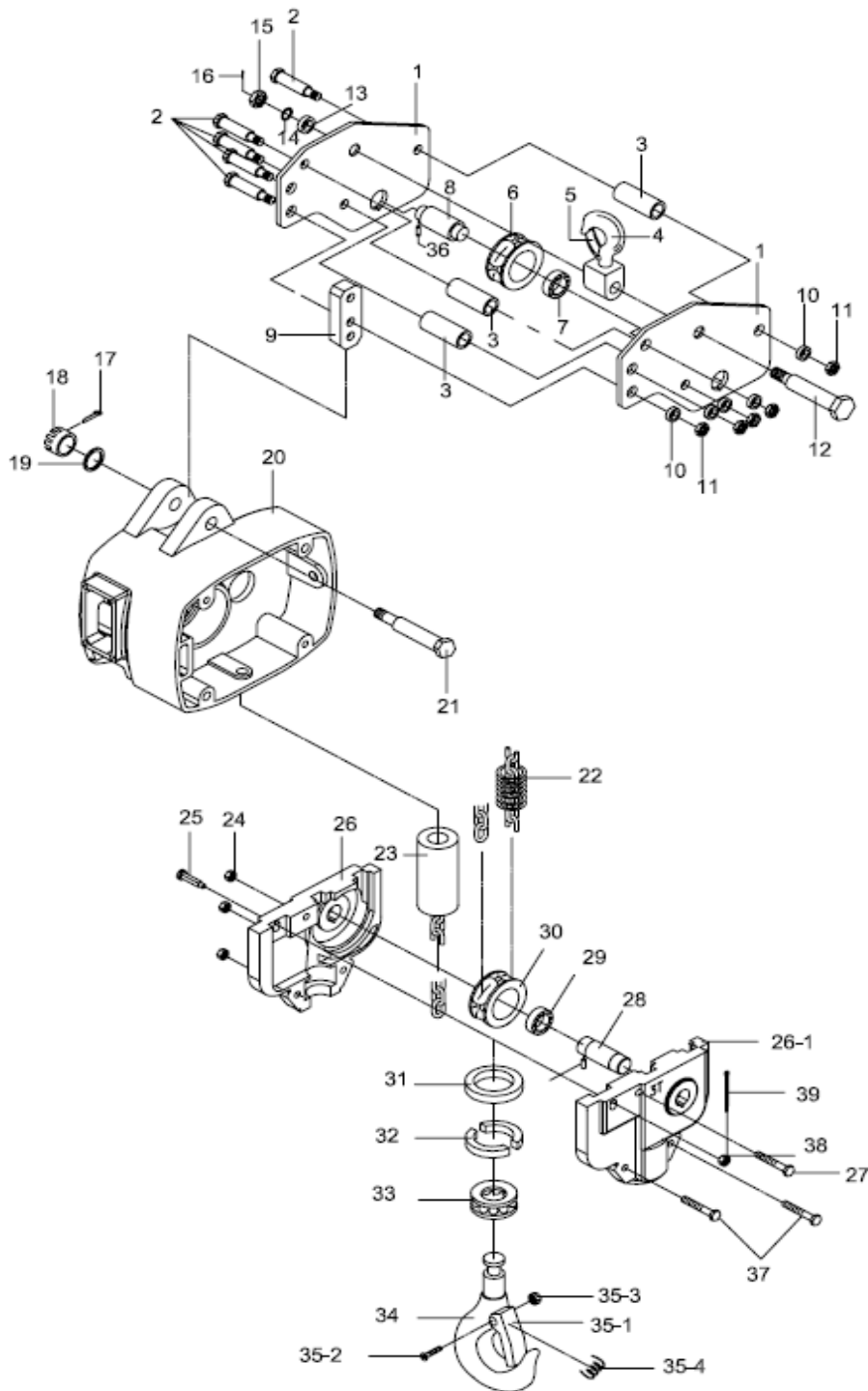


Load Block		Model No. (Single Speed Hoist)													
		ECH-00518	ECH-00526	ECH-00544	ECH-01018	ECH-01026	ECH-01044	ECH-02018	ECH-02026	ECH-04009	ECH-04013	ECH-04026	ECH-06017	ECH-10010	
No.	Description														
1	Upper hook	270SKA						270SKB		270SKC		270SKD		270SKE	
2-1	Safety latch	272SKA						272SKB		272SKC		272SKD		272SKE	
2-2	Philip round head bolt	273SKA						273SKB		273SKC		273SKD		273SKE	
2-3	Nylon nut	274SKA						274SKB		274SKC		274SKD		274SKE	
2-4	Torsion spring	275SKA						275SKB		275SKC		275SKD		275SKE	
3	Split pin	276SKA								276SKB		276SKB			
4	Slotted nut	277SKA								277SKB					
4-1	Spring washer	475SKA								475SKB					
5	Upper hook yoke	278SKA								278SKB					
6	Split pin	279SKA								279SKB					
7	Slotted nut	480SKA								480SKB					
8	Upper hook yoke leg bolt	281SKA								281SKB					
9	Upper hook yoke cross bolt	282SKA								282SKB					
10	Chain end-stop block	216SKA*2						216SKA*4		216SKB*2		216SKB*4			
11	Hex socket cap bolt	218SKA*2						218SKA*4		218SKB*2		218SKB*4			
12	Spring washer	217SKA*2						217SKA*4		217SKB*2		217SKB*4			
13	Chain	209SKA								209SKB		209SKB		209SKC	
14	Split pin	287SKA								287SKB		287SKB			
15	Slotted nut	288SKA								288SKB		288SKB			
15-1	Spring washer	475SKA								475SKB		475SKB			
16	Upper hook cross bolt	289SKA								289SKB		289SKB			
17	Nylon nut	290SKA								290SKB		290SKB			
18	Lower hook block shell	291SKA*2						291SKB*2		291SKC*2		291SKD*2		291SKE*2	
19	Rubber stopper	472SKA								472SKB*2		472SKB*2		472SKC*2	
20	Needle bearing	-								-		293SKB		293SKC	
21	Lower hook block chain wheel	-								-		294SKB		294SKC	
22	Hex socket cap bolt	-								-		295SKB		295SKC	
23	Hex socket cap bolt	-								-		296SKB		296SKC	
24	Lower hook block chain wheel spindle	-								-		297SKB*2		297SKC*2	
25	Spring pin	-								-		298SKB		298SKC	
26	Lower hook locking sleeve	299SKA								299SKB		299SKC		299SKD	
27	Lower hook split ring	300SKA								300SKB		300SKC		300SKD	
28	Thrust ball bearing	301SKA								301SKB		301SKC		301SKD	
29	Lower hook	302SKA								302SKB		302SKC		302SKD	
30	Safety latch assembly	303SKA								303SKB		303SKC		303SKD	
30-1	Safety latch	304SKA								304SKB		304SKC		304SKD	
30-2	Hex socket round head bolt	305SKA								305SKB		305SKC		305SKD	
30-3	Nylon nut	306SKA								306SKB		306SKC		306SKD	
30-4	Torsion spring	307SKA								307SKB		307SKC		307SKD	
31	Lower hook block shell	291SKA*2						291SKB*2		291SKC*2		291SKD*2		291SKE*2	
32	Hex socket cap bolt	309SKA*2								-		-		-	
33	Nylon nut	310SKA*2								-		-		-	
34	Cir clip	-								-		505SKB*2		505SKC*2	

Load Block		Model No. (Dual Speed Hoist)												
		ECH-00518 D	ECH-00526 D	ECH-00544 D	ECH-01018 D	ECH-01026 D	ECH-01044 D	ECH-02018 D	ECH-02026 D	ECH-04009 D	ECH-04013D	ECH-04026D	ECH-06017D	ECH-10010D
No.	Description													
1	Upper hook	270SKA								270SKB	270SKC	270SKD	270SKE	
2-1	Safety latch	272SKA								272SKB	272SKC	272SKD	272SKE	
2-2	Philip round head bolt	273SKA								273SKB	273SKC	273SKD	273SKE	
2-3	Nylon nut	274SKA								274SKB	274SKC	274SKD	274SKE	
2-4	Torsion spring	275SKA								275SKB	275SKC	275SKD	275SKE	
3	Split pin	276SKA								276SKB	276SKB			
4	Slotted nut	277SKA								277SKB				
4-1	Spring washer	475SKA								475SKB				
5	Upper hook yoke	278SKA								278SKB				
6	Split pin	279SKA								279SKB				
7	Slotted nut	480SKA								480SKB				
8	Upper hook yoke leg bolt	281SKA								281SKB				
9	Upper hook yoke cross bolt	282SKA								282SKB				
10	Chain end-stop block	216SKA*2								216SKA*4	216SKB*2	216SKB*4		
11	Hex socket cap bolt	218SKA*2								218SKA*4	218SKB*2	218SKB*4		
12	Spring washer	217SKA*2								217SKA*4	217SKB*2	217SKB*4		
13	Chain	209SKA								209SKB	209SKB	209SKC		
14	Split pin	287SKA								287SKB	287SKB			
15	Slotted nut	288SKA								288SKB	288SKB			
15-1	Spring washer	475SKA								475SKB	475SKB			
16	Upper hook cross bolt	289SKA								289SKB	289SKB			
17	Nylon nut	290SKA								290SKB	290SKB			
18	Lower hook block shell	291SKA*2								291SKB*2	291SKC*2	291SKD*2	291SKE*2	
19	Rubber stopper	472SKA								472SKB*2	472SKB*2	472SKC*2		
20	Needle bearing	-								-	293SKB	293SKC		
21	Lower hook block chain wheel	-								-	294SKB	294SKC		
22	Hex socket cap bolt	-								-	295SKB	295SKC		
23	Hex socket cap bolt	-								-	296SKB	296SKC		
24	Lower hook block chain wheel spindle	-								-	297SKB*2	297SKC*2		
25	Spring pin	-								-	298SKB	298SKC		
26	Lower hook locking sleeve	299SKA								299SKB	299SKC	299SKD		
27	Lower hook split ring	300SKA								300SKB	300SKC	300SKD		
28	Thrust ball bearing	301SKA								301SKB	301SKC	301SKD		
29	Lower hook	302SKA								302SKB	302SKC	302SKD		
30	Safety latch assembly	303SKA								303SKB	303SKC	303SKD		
30-1	Safety latch	304SKA								304SKB	304SKC	304SKD		
30-2	Hex socket round head bolt	305SKA								305SKB	305SKC	305SKD		
30-3	Nylon nut	306SKA								306SKB	306SKC	306SKD		
30-4	Torsion spring	307SKA								307SKB	307SKC	307SKD		
31	Lower hook block shell	291SKA*2								291SKB*2	291SKC*2	291SKD*2	291SKE*2	
32	Hex socket cap bolt	309SKA*2								-	-	-		
33	Nylon nut	310SKA*2								-	-	-		
34	Cir clip	-								-	505SKB*2	505SKC*2		

11.7: HOOK PARTS

HOOK PARTS: 3 TON 3 CHAIN

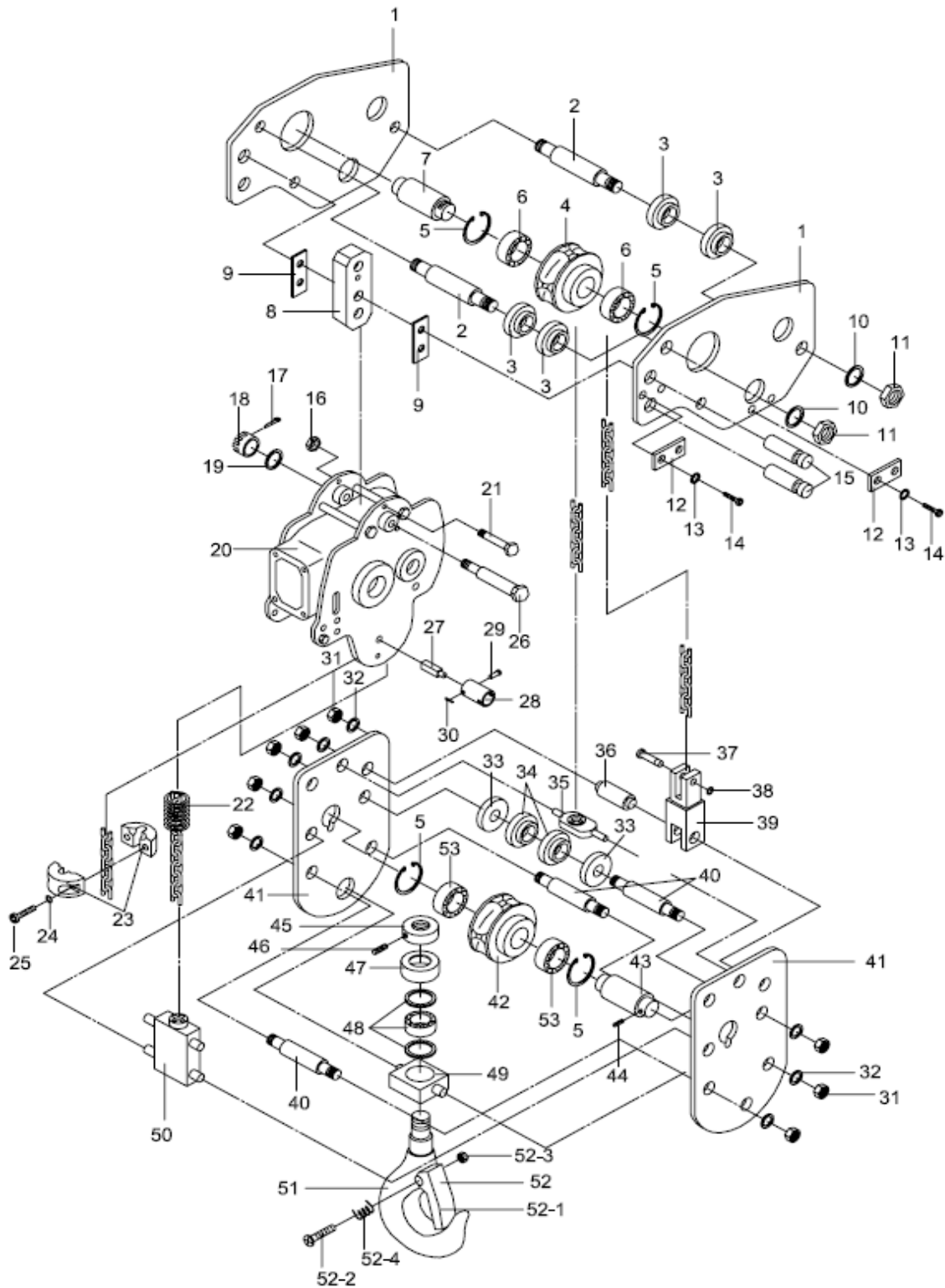


3Ton U/L Hook Block		Model No. (Dual speed)	
		ECH-06006	ECH-06009
No.	Description		
1	Upper hook block side plate	243SKA*2	243SKA*2
2	Stay bolt	244SKA*5	244SKA*5
3	Upper hook block spacer	245SKA*3	245SKA*3
4	Upper hook	240SKA	240SKA
5	Safety latch	487SKA	487SKA
6	Upper hook block chain wheel	250SKA	250SKA
7	Needle bearing	477SKA	477SKA
8	Upper chain wheel spindle	251SKA	251SKA
9	Hook block attachment piece	246SKA	246SKA
10	Washer B	440SKA*5	440SKA*5
11	Nylon nut	441SKA*5	441SKA*5
12	Upper hook block cross bolt	478SKA	478SKA
13	Washer A	242SKA	242SKA
14	Spring washer	479SKA	479SKA
15	Slotted nut	480SKA	480SKA
16	Split pin	276SKA	276SKA
17	Split pin	287SKA	287SKA
18	Slotted nut	481SKA	481SKA
19	Spring washer	442SKA	442SKA
20	Chain wheel case	506SKA	506SKA
21	Upper hook cross bolt	289SKA	289SKA
22	Rubber stopper	472SKA*3	472SKA*3
23	Spacer tube	247SKA	247SKA
24	Nylon nut	482SKA*3	482SKA*3
25	Lower hook block swivel shell side bolt	446SKA	446SKA
26	Lower hook block swivel shell (left)	248SKA	248SKA
26-1	Lower hook block swivel shell (right)	249SKA	249SKA
27	Hex socket cap bolt	444SKA	444SKA
28	Lower chain wheel spindle	251SKA	251SKA
29	Needle bearing	477SKA	477SKA
30	Lower hook block chain wheel	250SKA	250SKA
31	Lower hook locking sleeve	483SKA	483SKA
32	Lower hook split ring	284SKA*2	484SKA*2
33	Thrust ball bearing	485SKA	485SKA
34	Lower hook	486SKA	486SKA

3Ton U/L Hook Block		Model No. (Single Speed Hoist)	
		ECH-06006	ECH-06009
No.	Description		
1	Upper hook block side plate	243SKA*2	243SKA*2
2	Stay bolt	244SKA*5	244SKA*5
3	Upper hook block spacer	245SKA*3	245SKA*3
4	Upper hook	240SKA	240SKA
5	Safety latch	487SKA	487SKA
6	Upper hook block chain wheel	250SKA	250SKA
7	Needle bearing	477SKA	477SKA
8	Upper chain wheel spindle	251SKA	251SKA
9	Hook block attachment piece	246SKA	246SKA
10	Washer B	440SKA*5	440SKA*5
11	Nylon nut	441SKA*5	441SKA*5
12	Upper hook block cross bolt	478SKA	478SKA
13	Washer A	242SKA	242SKA
14	Spring washer	479SKA	479SKA
15	Slotted nut	480SKA	480SKA
16	Split pin	276SKA	276SKA
17	Split pin	287SKA	287SKA
18	Slotted nut	481SKA	481SKA
19	Spring washer	442SKA	442SKA
20	Chain wheel case	506SKA	506SKA
21	Upper hook cross bolt	289SKA	289SKA
22	Rubber stopper	472SKA*3	472SKA*3
23	Spacer tube	247SKA	247SKA
24	Nylon nut	482SKA*3	482SKA*3
25	Lower hook block swivel shell side bolt	446SKA	446SKA
26	Lower hook block swivel shell (left)	248SKA	248SKA
26-1	Lower hook block swivel shell (right)	249SKA	249SKA
27	Hex socket cap bolt	444SKA	444SKA
28	Lower chain wheel spindle	251SKA	251SKA
29	Needle bearing	477SKA	477SKA
30	Lower hook block chain wheel	250SKA	250SKA
31	Lower hook locking sleeve	483SKA	483SKA
32	Lower hook split ring	284SKA*2	484SKA*2
33	Thrust ball bearing	485SKA	485SKA
34	Lower hook	486SKA	486SKA
35	Safety latch assembly	487SKA	487SKA
35-1	Safety latch	488SKA	488SKA
35-2	Cross slot round head bolt	489SKA	489SKA
35-3	Nylon nut	490SKA	490SKA
35-4	Torsion spring	491SKA	491SKA
36	Spring pin	492SKA*2	492SKA*2
37	Hex socket cap bolt	445SKA*2	445SKA*2
38	Slotted nut	480SKA	480SKA

**LOAD BLOCK 7 1/2**

**LOAD BLOCK: 7 1/2 TON (UPPER & LOWER BLOCK)**



7-1/2Ton U/L Hook Block		Model No. (Single Speed Hoist)
		ECH-15007
No.	Description	
1	Upper load block side plate	311SKB*2
2	Stay bolt	312SKB*3
3	Flanged guide wheel	313SKB*4
4	Upper load block chain wheel	314SKB
5	C-retaining ring	315SKB*4
6	Needle bearing	316SKB*2
7	Upper chain wheel spindle	317SKB
8	Load block attachment piece	318SKB
9	Attachment piece spacer	319SKB*2
10	Spring washer	320SKB*6
11	Nut	321SKB*6
12	Lock plate	322SKB*2
13	Spring washer	323SKB*4
14	Hex socket cap bolt	324SKB*4
15	Attachment piece cross pin	325SKB*2
16	Nylon nut	326SKB
17	Split pin	327SKB
18	Slotted nut	328SKB
19	Spring washer	329SKB
20	Chain wheel case	138SKB
21	Hex head bolt	330SKB
22	Rubber stopper	472SKB*2
23	Chain end-stop block	332SKB*2
24	Spring washer	333SKB*2
25	Hex socket cap bolt	334SKB*2
26	Upper load block cross bolt	289SKB
27	Limit switch actuator B	232SKB
28	Limit switch actuator A	207SKB
29	Hex socket cap bolt	234SKB
30	Nylon nut	235SKB
31	Nut	335SKB*6
32	Spring washer	336SKB*6
33	Guide wheel thrust washer	337SKB*4
34	Flanged guide wheel	338SKB*4
35	Chain guide piece	339SKB

<b>No.</b>	<b>Description</b>	<b>ECH-15007</b>
36	Clevis pin	340SKB
37	Chain attachment pin	341SKB
38	Cir clip	342SKB
39	Chain attachment clevis	343SKB
40	Side plate stay bolt	344SKB*3
41	Lower hook block side plate	345SKB*2
42	Lower hook block chain wheel	346SKB
43	Lower chain wheel spindle	347SKB
44	Spring pin	348SKB
45	Lower hook retaining nut	349SKB
46	Set screw	350SKB
47	Bearing cover	351SKB
48	Thrust ball bearing	352SKB
49	Lower hook mounting block	353SKB
50	Chain guide block	354SKB
51	Lower hook	355SKB
52	Safety latch assembly	356SKB
52-1	Safety latch	357SKB
52-2	Cross slot round head bolt	358SKB
52-3	Nylon nut	359SKB
52-4	Torsion spring	360SKB
53	Needle bearing	447SKB*2

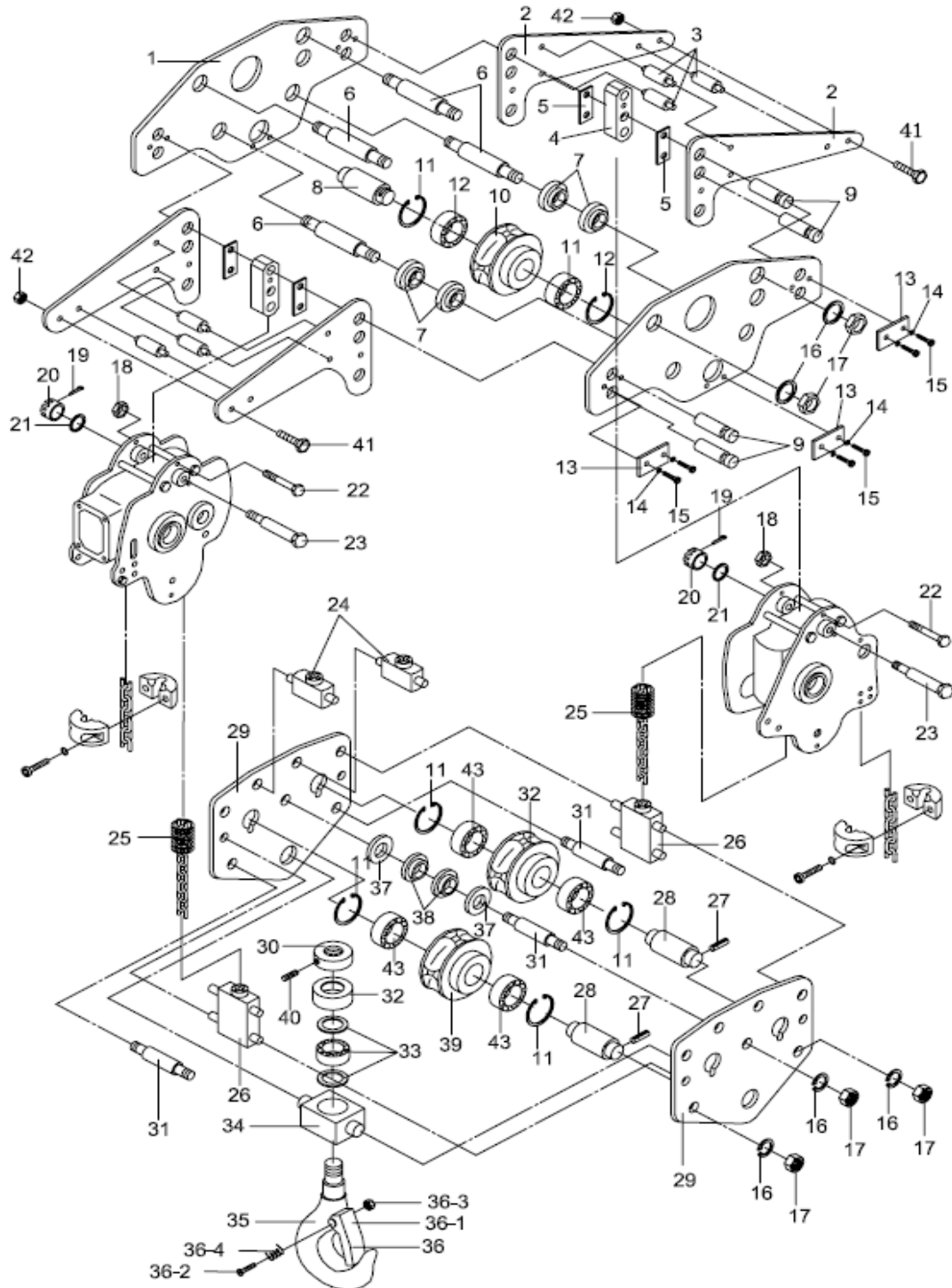
10 Ton U/L Hook Block		Model No. 20010 (Single Speed Hoist)	Model No.20010D (Dual Speed Hoist)
Description		ECH-20010	ECH-20010D
1	Upper load block side plate	361SKB*2	361SKB*2
2	Chain bag hanger arm	362SKB*4	362SKB*4
3	Hanger arm stay pin	363SKB*6	363SKB*6
4	Upper block attachment piece	318SKB*2	318SKB*2
5	Attachment piece spacer	319SKB*4	319SKB*4
6	Slide plate stay bolt	312SKB*4	312SKB*4
7	Flanged guide wheel	313SKB*4	313SKB*4
8	Upper chain wheel spindle	317SKB	317SKB
9	Attachment piece cross pin	325SJB*4	325SKB*4
10	Upper load block chain wheel	314SKB	314SKB
11	Cir Clip	315SKB*6	315SKB*6
12	Needle Bearing	316KB*2	316SKB*2
13	Lock Plate	322SKB*3	322SKB*3
14	Spring washer	323SKB*6	323SKB*6
15	Hex socket cap bolt	324SKB*6	324SKB*6
16	Spring washer	320SKB*14	320SKB*14
17	Nut	321SKB*14	321SKB*14
18	Nylon nut	326SKB*2	326SKB*2
19	Split pin	327SKB*2	327SKB*2
20	Slotted nut	328SKB*2	328SKB*2
21	Spring washer	329SKB*2	329SKB*2
22	Hex socket cap bolt	330SKB*2	330SKB*2
23	Upper load block cross bolt	289SKB*2	289SKB*2
24	Chain guide piece	339SKB*2	339SKB*2
25	Robber stopper	472SKB*4	472SKB*4
26	Chain guide block	354SKB*2	354SKB*2
27	Spring pin	348SKB*2	348SKB*2
28	Lower chain wheel spindle	347SKB*2	347SKB*2
29	Lower hook block side plate	347SKB*2	347SKB*2
30	Lower hook retaining nut	365SKB	365SKB
31	Side plate stay bolt	344SKB*3	344SKB*3
32	Bearing cover	351SKB	351SKB
33	Thrust ball bearing	352SKB	352SKB
34	Lower hook mounting block	353SKB	353SKB
35	Lower hook	366SKB	366SKB
36-1	Safety latch	368SKB	368SKB
36-2	Cross slot round head bolt	369SKB	369SKB
36-3	Nylon nut	370SKB	370SKB
36-4	Torsion spring	371SKB	371SKB
37	Guide wheel thrust washer	337SKB*6	337SKB*6
38	Flanged guide wheel	338SKB*6	338SKB*6
39	Lower hook block chain wheel	346SKB*2	346SKB*2
40	Set screw	350SKB	350SKB
41	Hex head bolt	513SKB*2	513SKB*2
42	Nylon nut	231SKB*2	231SKB*2
43	Needle bearing	447SKB*4	447SKB*4

7-1/2Ton U/L Hook Block		Model No. (Dual Speed Hoist)
		ECH-15007D
No.	Description	
1	Upper load block side plate	311SKB*2
2	Stay bolt	312SKB*3
3	Flanged guide wheel	313SKB*4
4	Upper load block chain wheel	314SKB
5	C-retaining ring	315SKB*4
6	Needle bearing	316SKB*2
7	Upper chain wheel spindle	317SKB
8	Load block attachment piece	318SKB
9	Attachment piece spacer	319SKB*2
10	Spring washer	320SKB*6
11	Nut	321SKB*6
12	Lock plate	322SKB*2
13	Spring washer	323SKB*4
14	Hex socket cap bolt	324SKB*4
15	Attachment piece cross pin	325SKB*2
16	Nylon nut	326SKB
17	Split pin	327SKB
18	Slotted nut	328SKB
19	Spring washer	329SKB
20	Chain wheel case	138SKB
21	Hex head bolt	330SKB
22	Rubber stopper	472SKB*2
23	Chain end-stop block	332SKB*2
24	Spring washer	333SKB*2
25	Hex socket cap bolt	334SKB*2
26	Upper load block cross bolt	289SKB
27	Limit switch actuator B	232SKB
28	Limit switch actuator A	207SKB
29	Hex socket cap bolt	234SKB
30	Nylon nut	235SKB
31	Nut	335SKB*6
32	Spring washer	336SKB*6
33	Guide wheel thrust washer	337SKB*4
34	Flanged guide wheel	338SKB*4
35	Chain guide piece	339SKB
36	Clevis pin	340SKB
37	Chain attachment pin	341SKB
38	Cir clip	342SKB
39	Chain attachment clevis	343SKB
40	Side plate stay bolt	344SKB*3
41	Lower hook block side plate	345SKB*2
42	Lower hook block chain wheel	346SKB
43	Lower chain wheel spindle	347SKB
44	Spring pin	348SKB
45	Lower hook retaining nut	349SKB

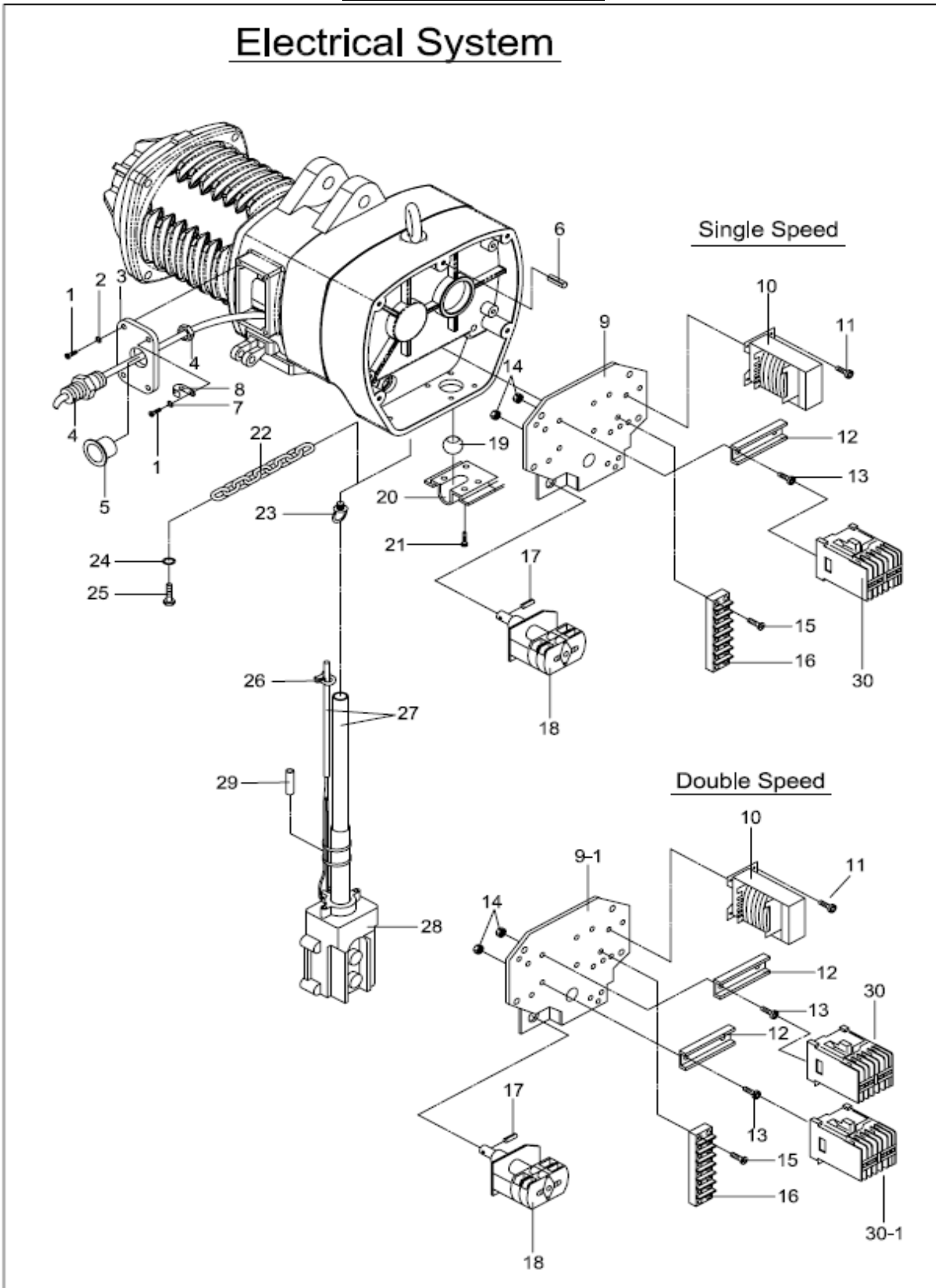
<b>7-1/2Ton U/L Hook Block</b>		<b>Model No. (Dual Speed Hoist)</b>
		ECH-
No.	00518D	20010D
46	Set screw	350SKB
47	Bearing cover	351SKB
48	Thrust ball bearing	352SKB
49	Lower hook mounting block	353SKB
50	Chain guide block	354SKB
51	Lower hook	355SKB
52	Safety latch assembly	356SKB
52-1	Safety latch	357SKB
52-2	Cross slot round head bolt	358SKB
52-3	Nylon nut	359SKB
52-4	Torsion spring	360SKB
53	Needle bearing	447SKB*2

11.9: LOAD BLOCK 10 TON

LOAD BLOCK: 10 TON (UPPER & LOWER BLOCK)

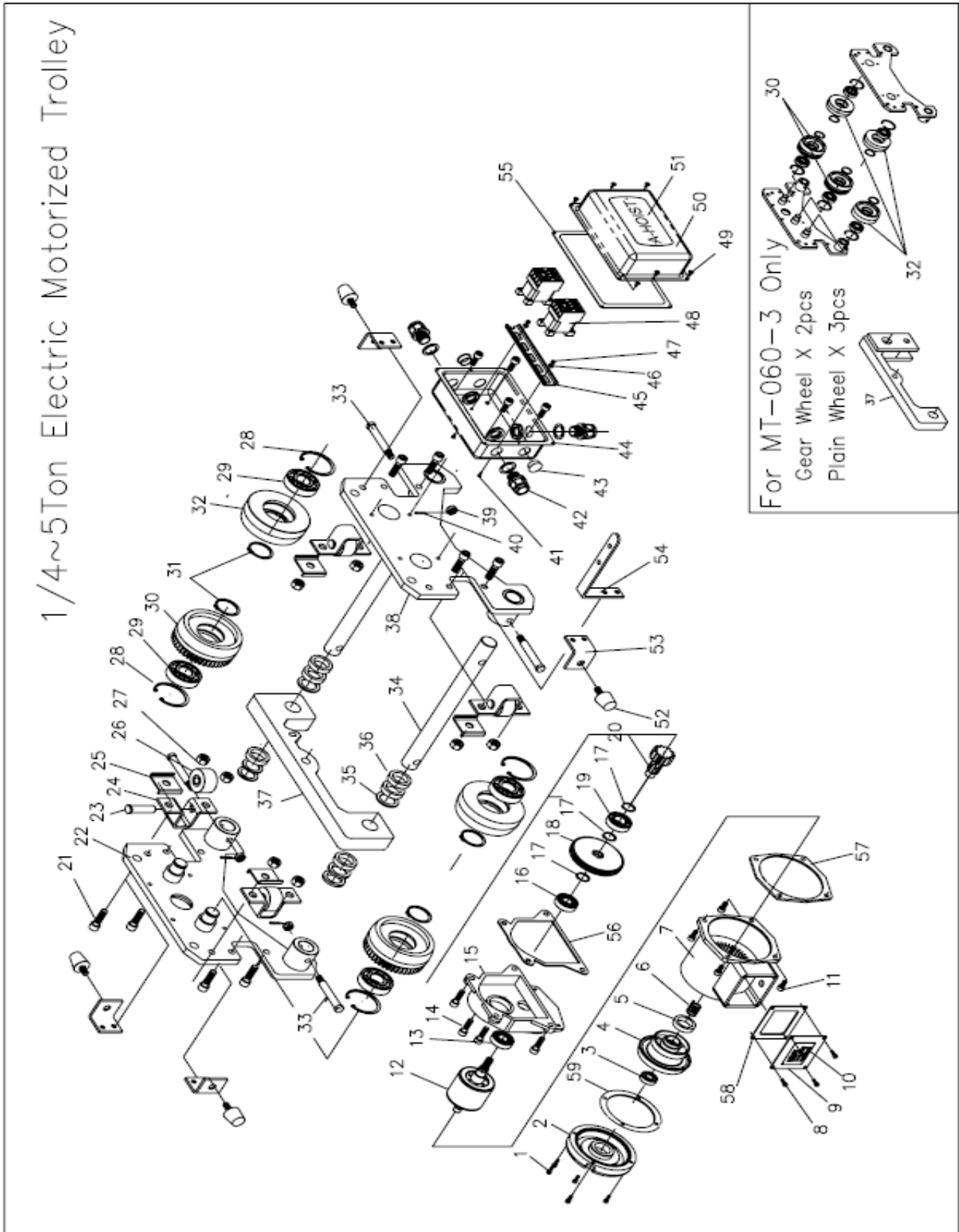


# Electrical System



Electrical System		Model No. (Single Speed Hoist)															
		ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	
No.	Description	00518	00526	00544	01018	01026	01044	02018	02026	04009	04013	04026	06009	06017	10010	15007	20010
1	Philip round head bolt	372SKA*4															372SKA*8
2	Spring washer	373SKA*4															373SKA*8
3	Power cable inlet cover	374SKA															374SKA*2
4	Cable gland	375SKA															375SKA*2
5	Hole plug	376SKA															376SKA*2
6	Spring pin	377SKA															377SKA*2
7	Plain washer	378SKA															378SKA*2
8	Cable clamp	379SKA															379SKA*2
9	Mounting panel	380SKA										380SKB	380SKA	380SKB	380SKB*2		
10	Transformer	381SKA															381SKA*2
11	Philip round head bolt	382SKA*4															382SKA*8
12	Mounting rail	383SKA															383SKA*2
13	Philip pan head bolt	384SKA*2															384SKA*4
14	Nylon nut	385SKA*2															385SKA*4
15	Philip round head bolt	386SKA*2															386SKA*4
16	Terminal block	387SKA															387SKA*2
17	Spring pin	392SKA															392SKA*2
18	Limit switch	393SKA															393SKA*2
19	PG32 Cable gland nut	394SKA															394SKA*2
20	Cable gland rubble washer	395SKA															395SKA*2
21	PG32 Cable gland body	372SKA															372SKA*2
22	Connecting chain	396SKA															396SKA*2
23	Hex socket cap bolt	399SKA															399SKA*2
24	Plain washer	398SKA*2															398SK*4
25	Hex socket cap bolt	399SKA															399SK*2
26	Pendant control support wire clamp	400SKA															400SK
27	Electric cable and support wire	401SKA															401SK
28	Pendant control unit	402SKA															402SK
29	Sleeve	403SKA															403SK
30	Relay block	404SKA*2															404SK*4
30-1	Relay block	D404SKA*3															404SK*6

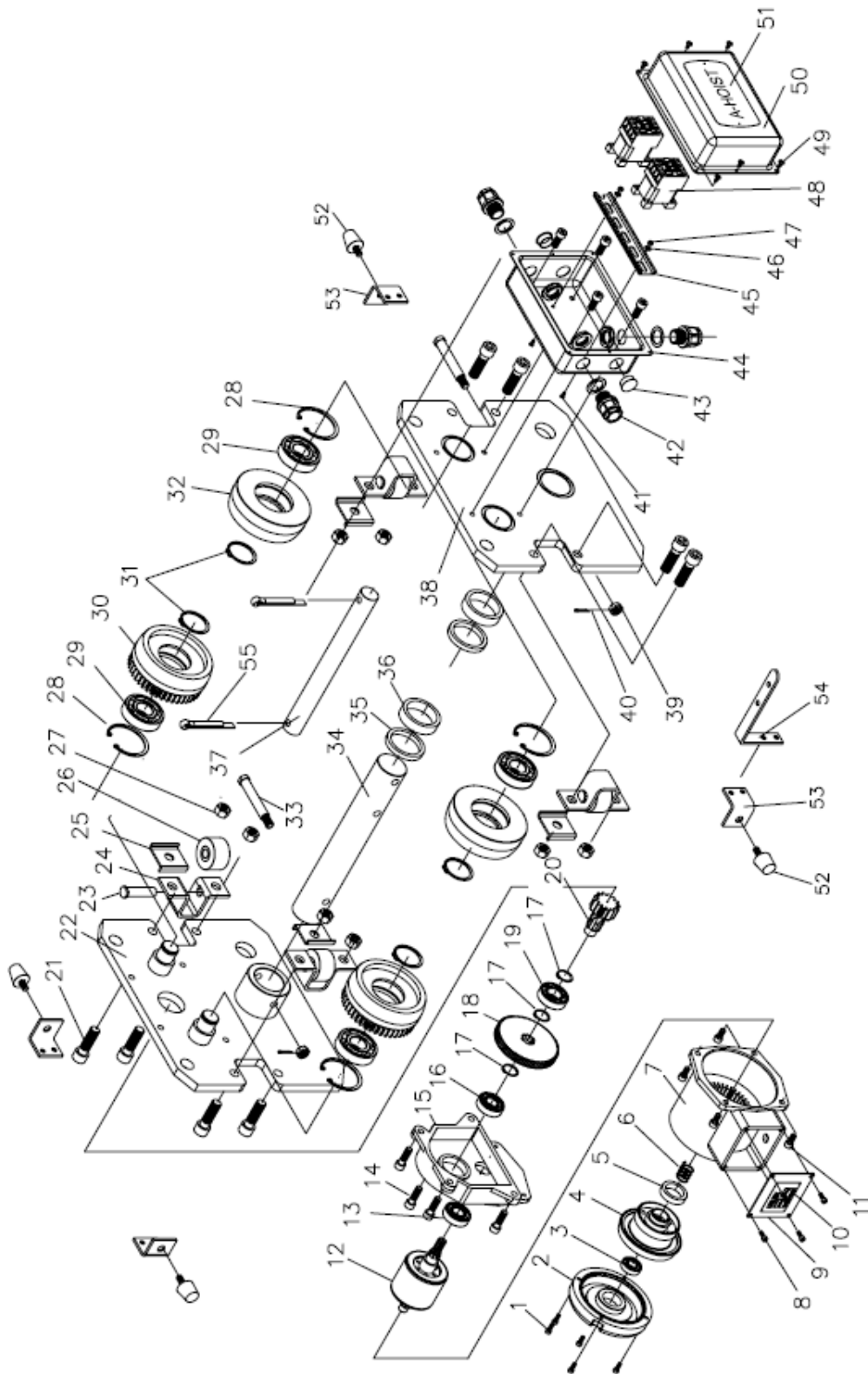
Electrical System		Model No. (Dual Speed Hoist)															
		ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	ECH-	
No	Description	00518D	00526D	00544D	01018D	01026D	01044D	02018D	02026D	04009D	04013D	04026D	06009D	06017D	10010D	15007D	20010D
1	Philip round head bolt	372SKA*4															372SKA*8
2	Spring washer	373SKA*4															373SKA*8
3	Power cable inlet cover	374SKA															374SKA*2
4	Cable gland	375SKA															375SKA*2
5	Hole plug	376SKA															376SKA*2
6	Spring pin	377SKA															377SKA*2
7	Plain washer	378SKA															378SKA*2
8	Cable clamp	379SKA															379SKA*2
9	Mounting panel	380SKA											380SKB	380SKA	380SKB	380SKB*2	
10	Transformer	381SKA															381SKA*2
11	Philip round head bolt	382SKA*4															382SKA*8
12	Mounting rail	383SKA															383SKA*2
13	Philip pan head bolt	384SKA*2															384SKA*4
14	Nylon nut	385SKA*2															385SKA*4
15	Philip round head bolt	386SKA*2															386SKA*4
16	Terminal block	387SKA															387SKA*2
17	Spring pin	392SKA															392SKA*2
18	Limit switch	393SKA															393SKA*2
19	PG32 Cable gland nut	394SKA															394SKA*2
20	Cable gland rubble washer	395SKA															395SKA*2
21	PG32 Cable gland body	372SKA															372SKA*2
22	Connecting chain	396SKA															396SKA*2
23	Hex socket cap bolt	399SKA															399SKA*2
24	Plain washer	398SKA*2															398SK*4
25	Hex socket cap bolt	399SKA															399SK*2
26	Pendant control support wire clamp	400SKA															400SK
27	Electric cable and support wire	401SKA															401SK
28	Pendant control unit	402SKA															402SK
29	Sleeve	403SKA															403SK
30	Relay block	404SKA*2															404SK*4
30-1	Relay block	D404SKA*3															404SK*6



Electric Motorized Trolley Parts List									
No.	Description	Model No.							
		MT-005	MT-010	MT-020	MT-040-1	MT-040-2	MT-060-2	MT-060-3	MT-100
1	Hex Socket Cap Bolt	T107A							
2	Brake Cover	T106A							
3	Ball Bearing	T105A							
4	Brake Disk Assembly	T104A							
5	Rubber Collar	T103A							
6	Brake Spring	T102A							
7	Motor Casing and Stator	T101A							
8	Hex Socket Cap Bolt	T109A*4							
9	Power Cable Inlet Cover	T108A							
10	Motor Name Plate	T171A							
11	Hex Socket Cap Bolt	T110A*4							
12	Motor Rotor & Primary Shaft	T111A				T111B			
13	Ball Bearing	T113A							
14	Hex Socket Cap Bolt	T112A*4							
15	Gear Reducer Case	T114A							
16	Ball Bearing	T115A							
17	C Retaining Ring	T116A*3							
18	Driving Gear	T117A							
19	Ball Bearing	T118A							T118B
20	Pinion	T119A							
21	Hex Socket Cap Bolt	T128A*8							T128B*8
22	Side Plate A	T159A				T159B			T159C
23	Guide Wheel Shaft	T135A*4							T135B*4
24	Guide Wheel Seat	T136A*4							T136B*4
25	Guide Wheel Press Plate	T133A*4							T133B*4
26	Guide Wheel	T137A*4							T137B*4
27	Hex Nut	T134A*8							T134B*8
28	C Retaining Ring	T120A*4				T120B*5			T120B*4
29	Ball Bearing	T121A*4				T121B*5			T121B*4
30	Gear Wheel	T125A*2				T125B*2			T125B*2
31	C Retaining Ring	T123A*4				T123B*5			T123B*4
32	Plain Wheel	T122A*2				T122B*3			T122B*2
33	Position Bolt	T126A*2							
34	Suspension Shaft	T158A*2				T158B*2			
35	Thin Spacer	T148A*16				T148B*16			
36	Thick Spacer	T149A*16				T149B*16			
37	Support Yoke	T161A		T161B	T161C	T161D	T161E	T161F	
38	Side Plate B	T160A				T160B			T160C
39	Castle Nut	T130A*2							

No.	Description	MT-005	MT-010	MT-020	MT-040-1	MT-040-2	MT-060-2	MT-060-3	MT-100
40	Cotter Pin	T139A*2							
41	Phil Round Hd Screw	T140A*4							
42	Cable Gland	T143A*3							
43	Plastic Cap	T145A*3							
44	Electric Case	T144A							
45	Rail	T153A							
46	Washer	T154A*2							
47	Hex Socket Cap Bolt	T132A*2							
48	Magnetic Contactor	T156A*2							
49	Hex Socket Cap Bolt	T152A*4							
50	Electric Case Cover	T146A							
51	Trolley Name Plate	T127A	T127B	T127C	T127D	T127E	T127F	T127G	T127I
52	Rubber Bumper	T172A*4							
53	Anti-Drop Fin	T173A*4							
54	Cable Arm	T174A							
55	Gasket Mt-01	T175							
56	Gasket Mt-02	T176							
57	Gasket Mt-03	T177							
58	Gasket Mt-04	T178							
59	Gasket	T179							

7.5-10Ton Electric Motorized Trolley



Electric Motorized Trolley Parts List			
No.	Description	Model No.	
		MT-150	MT-200
1	Hex Socket Cap Bolt		T107A
2	Brake Cover		T106A
3	Ball Bearing		T105A
4	Brake Disk Assembly		T104A
5	Rubber Collar		T103A
6	Brake Spring		T102A
7	Motor Casing and Stator		T101A
8	Hex Socket Cap Bolt		T109A*4
9	Power Cable Inlet Cover		T108A
10	Motor Name Plate		T171A
11	Hex Socket Cap Bolt		T110A*4
12	Motor Rotor & Primary Shaft		T111B
13	Ball Bearing		T113A
14	Hex Socket Cap Bolt		T112A*4
15	Gear Reducer Case		T114A
16	Ball Bearing		T115A
17	C Retaining Ring		T116A*3
18	Driving Gear		T117A
19	Ball Bearing		T118B
20	Pinion		T119B
21	Hex Socket Cap Bolt		T128B*8
22	Side Plate A	T159D	T159E
23	Guide Wheel Shaft		T135B*4
24	Guide Wheel Seat		T136B*4
25	Guide Wheel Press Plate		T133B*4
26	Guide Wheel		T137B*4
27	Hex Nut		T134B*8
28	C Retaining Ring	T120C*4	T120D*4
29	Ball Bearing	T121C*2	T121D*2
30	Gear Wheel	T125C*4	T125D*4
31	C Retaining Ring	T123C*4	T123D*4
32	Plain Wheel	T122C*2	T122D*2
33	Position Bolt		T126B*2
34	Suspension Shaft-A		T158C
35	Thin Spacer		T148C*16
36	Thick Spacer		T149C*16
37	Suspension Shaft-B		T158D
38	Side Plate B	T160D	T160E
39	Castle Nut		T130B*2
40	Cotter Pin		T139B*2
41	Phil Round Hd Screw		T140A*4
42	Cable Gland		T143A*3
43	Plastic Cap		T145A*3
44	Electric Case		T144A
45	Rail		T153A
46	Washer		T154A*2
47	Hex Socket Cap Bolt		T132A*2
48	Magnetic Contactor		T156A*2
49	Hex Socket Cap Bolt		T152A*4
50	Electric Case Cover		T146A
51	Trolley Name Plate	T127H	T127J
52	Rubber Bumper		T172A*4
53	Anti-Drop Fin		T173A*4
54	Cable Arm		T174A
55	Cotter Pin		T175A*2

# **APPENDIX A (attached)**

