

# ACCOLIFT® CLH

## ELECTRIC CHAIN HOIST INSTRUCTION MANUAL

for

**Installation / Operation / Maintenance / Parts**



SERIAL NUMBER

---

### **⚠ WARNING**

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

There are no other warranties which extend beyond the description on the Order Acknowledgement 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. Acco shall in no event be liable for any special, direct, indirect, incidental or consequential damages to anyone beyond the cost of replacement of the goods sold hereby.

**ACCOLIFT® GLH**

# Table of contents

Article no.	Description	
1.	<b>Features</b>	9
	1.1. Mechanism group	
	1.2. Working environment data	
	1.3. Hook Suspension Series, (three phase)	
	* Specification & Dimensions	
	1.3.1 Motor Trolley mounted series (three phase)	
	* Specification & Dimensions	
	1.4. Hook Suspension Series, (single phase)	
	* Specification & Dimensions	
	1.4.1 Motor Trolley mounted series (single phase)	
	* Specification & Dimensions	
	1.5. Low Headroom Series	
	* Specification & Dimensions	
2.	<b>General description of manual</b>	20
	2.1. Trolley series and Classification of electric wiring	
3.	<b>Safety precautions</b>	21
	3.1. Warning and Caution	
	3.2. Name plates and labels on products.	
4.	<b>Installation</b>	24
	4.1. Checking of product	
	4.2. Installation process	
	4.2.1. Checking of electricity	
	4.2.2. Installation of "Bolt with vent hole"	
	4.2.3. Installation of Chain Container to hoist body	
	4.2.4. Oil lubrication on load chain and onto chain container	
	* Maximum Chain-Lift-Length, according to each Chain Container	
	4.2.5. Checking Load Chain after installation	
	4.2.6. Incorrect Phase Checking	
	4.3 Installation of the motor trolley mounted series	
	4.3.1 How to install trolley on the runway I-Beam.	
	* parts to adjust i-beam width	
	* how to set up the i-beam width of motor trolley	
	* applied collar numbers for each trolley capacity on i-beam.	
	4.3.2 How to connect electric power source	
	4.4. Install start up	
5.	<b>Precaution during operation</b>	32
6.	<b>Maintenance and servicing</b>	34
	6.1. Electrical connection	
	6.2. Chain container	
	* How to install Chain Container	
	6.3. Chain stopper in the chain container	
	6.4. Chain stopper rubber bumper	
	6.5. Load chain	
	6.5.1. Measurement of Wear and Replacement of the chain	
	6.5.2. Checking chain alignment (the welded part outward from the center)	
	6.6. Hook	
	6.6.1. Measurement of the wear on the hooks	

	6.6.2. Chain fixing pin on the bottom hook	
	6.7. Load sheave and Chain guide	
	6.8. Brake operation.	
	6.9. Motor	
	6.9.1 Motor rating of hoist and Trolley	
	6.10. Double Action Over-winding Limiter (built-in inside)	
	6.11. Push Button Pendant Switch	
7.	<b>Preventive maintenance</b>	43
	7.1. Recommended periodic maintenance and inspection table	
	7.2. Lubrication	
	7.3. Recommended Technical Support for Various Spare Parts	
	7.4. Troubleshooting	
8.	<b>Parts illustration</b>	46
	8.1 Exploded View of CH Parts (2330010, 2330020, 2330040)	
	8-2 Exploded View of CH Parts (2230010, 2230020, 2230040 & 2230010-VFD, 2230020-VFD, 2230040-VFD)	
	8-3 Exploded View of CH Parts (2330010-VFD, 2330020-VFD, 2330040-VFD)	
	8-4 Exploded View of Trolley Parts (2230110, 2230120, 2230140 & 2230110-VFD, 2230120-VFD, 2230140-VFD) (2330110, 2330120, 2330140 & 2330110-VFD, 2330120-VFD, 2330140-VFD)	
	8-5 Exploded View of Low Headroom Series	
	8-6 Part list	
	- CH part & TROLLEY part	
	● Electric connection drawing	
9.	<b>Inverter(powerflex 523 adjustable frequency AC drive)</b>	76
	9-1 operating hoist	
	9-2 push button control for inverter hoist	
	9-3 trial operation.	
	9-4 inverter parameter settings	
	9-5 display and control keys	
	9-6 viewing and editing parameters	
	● electric connection drawing	
10.	<b>Motor Voltage change(important)</b>	91
11.	<b>Hour/Count Meter.</b>	92
12.	<b>Lug Mount Plain Trolley kit</b>	93
	12-1 How to install Lug Mount Plain trolley on the run way I-Beam	
	12-2 Applied Collar Numbers for Each Trolley Capacity on I-Beam	

## NOTICE

TO ORDER PARTS: Provide part number, part description, quantity required, and Product Number or Serial Number of Hoist.

## SAFETY ALERT SYMBOL



The Safety Alert Symbol is used in this manual to indicate hazards and to alert the reader to information that should be known, understood, and followed in order to avoid DEATH or SERIOUS INJURY.

Read and understand this manual before using the hoist.

Important issues to remember during operation are provided at the hoist control stations, at various locations on the hoist and in this manual by DANGER, WARNING, or CAUTION instructions or placards, that alert personnel to potential hazards, proper operation, load limitations, and more.

- ⚠ DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
- ⚠ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- ⚠ CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

### ⚠ 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 system, crane, or configuration that uses this equipment.

This manual includes instructions and parts information for a variety of hoist types. Therefore, all instructions and parts information may not apply to any one type or size of specific hoist. Disregard those portions of the instructions that do not apply.

Record hoist serial number on the front cover of this manual for identification and future reference to avoid referring to the wrong manual for information or instructions on installation, operation, maintenance, or parts.

Use only the authorized replacement parts in the service and maintenance of this hoist.

**⚠ WARNING**

Equipment described herein is not designed for and should not be used for lifting, supporting, or transporting humans.

Equipment described herein should not be used in conjunction with other equipment unless necessary and/or required safety devices applicable to the system or application are installed by the system designer, system manufacturer, crane manufacturer, installer, or user.

Modifications to upgrade, rerate, or otherwise alter this equipment shall be authorized only by the original equipment manufacturer or qualified professional engineer.

Equipment described herein may be used in the design and manufacture of cranes or monorails. Additional equipment or devices may be required for the crane or monorail to comply with applicable crane design and safety standards. The crane designer, crane manufacturer, or user is responsible to furnish these additional items for compliance. Refer to ASME B30.17, Safety Standard for Cranes and Monorails (with Underhung Trolley or Bridge); and ASME B30.2 Safety Standard for Top-Running Double Girder Cranes. If a below-the-hook lifting device or sling is used with a hoist, refer to ASME B30.9, Safety Standard for Slings, or ASME B30.20, Safety Standard for Below-the-Hook Lifting Device.

Hoists and Cranes, used to handle molten material may require additional equipment or devices. Refer to ANSI Z241.2, Safety Requirements for Melting and Pouring of Metals in the Metalcasting Industry

Electrical equipment described herein is designed and built in compliance with ACCO Material Handling Solutions interpretation of ANSI/NFPA 70, National Electrical Code. The system designer, system manufacturer, crane designer, crane manufacturer, installer, or user is responsible to assure that the installation and associated wiring of these electrical components is in compliance with ANSI/NFPA 70, and all applicable Federal, State, and Local Codes.

Failure to read and comply with any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.

**⚠ 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. Refer to ANSI Z244.1, Personnel Protection - Lockout/Tagout of Energy Sources.

**⚠ DANGER**

Do not operate the equipment without control enclosure cover or covers in place.  
Only trained and competent personnel should inspect and repair this equipment

**NOTICE**

It is the responsibility of the owner/user to install, inspect, test, maintain, and operate a hoist in accordance with ASME B30.16, Safety Standard for Overhead Hoists, OSHA Regulations, and ANSI/NFPA 70, National Electric Code. If the hoist is installed as part of a total lifting system, such as an overhead crane or monorail, it is also the responsibility of the owner/user to comply with the applicable ASME B30 volume that addresses that type of equipment.

It is the responsibility of the owner/user to have all personnel that will install, inspect, test, maintain, and operate a hoist read the contents of this manual and applicable portions of ASME B30.16, Safety Standard for Overhead Hoists, OSHA Regulations, and ANSI/NFPA 70, National Electrical Code. If the hoist is installed as part of a total lifting system, such as an overhead crane, the applicable ASME B30 volume that addresses that type of equipment must also be read by all personnel.

Any ANSI Standards referenced in this manual may be obtained from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

This manual contains information for safe operation of an overhead hoist. Taking precedence over any specific rule, however, is the most important rule of all - "USE COMMON SENSE." Operation of an overhead hoist involves more than operating the controls. The operator must consider and anticipate the motions and actions that will occur as a result of operating the controls.

If the hoist owner/user requires additional information, or if any information in the manual is not clear, contact Acco Material Handling Solutions York, Pennsylvania or the distributor of the hoist. Do not install, inspect, test, maintain, or operate this hoist unless this information is fully understood.

When contacting Acco Material Handling Solutions or the distributor of the hoist, always make reference to the serial number of the hoist.

A regular schedule of inspection of the hoist in accordance with the requirements of ASME B30.16 should be established and records maintained.

**⚠ WARNING**

Before installing, removing, inspecting, or performing any maintenance on a hoist, the main switch shall be de-energized. Lock and tag the main switch in the de-energized position in accordance with ANSI Z244.1. Follow other maintenance procedures outlined in this manual and applicable ASME B30 volumes.

Additional WARNINGS are listed in various portions of this manual. Personnel shall read and follow these WARNINGS. Failure to read and comply with these WARNINGS as well as other instructions or any limitations noted in this manual and applicable ASME B30 volumes could result in serious bodily injury or death, and/or property damage.



## 1. Features

**ACCOLIFT® GLH** hoists feature lower headroom than conventional hoists. Due to their compact size these hoists fit well into jib crane and light rail applications. These hoists are available for single-phase and three-phase applications. Careful consideration has been given to optimize performance.

All hoists are equipped with quality parts and mechanisms to provide proper lifting and traversing of the load. Components undergo numerous tests and inspections, while our production processes meet stringent quality requirements.

- Brake System ----- cone brake
- Upper Limit Switch ----- prevents over-lifting of chain
- Push Button Pendant Control Switch ----- with emergency stop button

### 1.1. Mechanism group

**ACCOLIFT® GLH** Electric Chain Hoists are allocated to mechanism groups in accordance with the following regulations. Under the allowance of the following mechanism groups, the hoist should be operated and should not exceed the nominal values. On each identification plate, the following is indicated.

**Hook suspension chain hoist <3 phase>** : FEM9.511(Hoist = FEM 2m 40% ED)

**Hook suspension chain hoist <1 phase>** : FEM9.511(Hoist = FEM 2m 30%ED)

\* FEM Mechanism Group 9.511 (Rules for Design of Serial Lifting Equipment : Classification of Mechanism)

Mechanism group	1 Bm	1 Am	2 m	3 m	4 m	5 m
Load group	Average operating period per day (h)					
Light k 0.50	2	2-4	4-8	8-16	16	-
Medium 0.50 k 0.63	1	1-2	2-4	4-8	8-16	16
Heavy 0.63 k 0.8	0.5	0.5-1	1-2	2-4	4-8	8-16
Very Heavy 0.8 k 1.00	0.25	0.5	0.5-1	1-2	2-4	4-8

**NOTICE**

**ACCOLIFT® CLH** electric chain hoists should be operated under the allowance of the above FEM determination. The above mechanism group is valid for the entire period of operation, and for reasons of operational safety, hoists shall not be operated outside these recommendations.

**1.2. Working environment data**

Ambient temperature: from -4F to 104F

Protection class: IP55

Side pulling angle: max. 3 degrees

Sound level: 80dB (A)

**⚠ WARNING**

**ACCOLIFT® CLH** electric chain hoists are designed for indoor use. For outdoor use, the hoist shall be located under roof to assure rainproof operation. The operator SHALL

- ▶ NOT expose the hoist to rain or condensation
- ▶ NOT store the hoist in a humid place.
- ▶ COVER the hoist or MOVE it back under roof after use, when it is used outdoors.
- ▶ HANG the hoist on a suitable beam or crane or from the ceiling.

**⚠ CAUTION**

If the above normal operation conditions are exceeded, or the electric hoist is operated often under adverse conditions, the information in the operating instructions must be adapted accordingly. In this case the manufacturer is to be consulted.

### 1.3. Hook Suspension Series (THREE PHASE)

#### Specifications

Model		VFD Control						Single Speed					
		2230010		2230020		2230040		2230010		2230020		2230040	
		VFD-230	VFD-460	VFD-230	VFD-460	VFD-230	VFD-460						
Capacity(WLL)	ton	1/2t		1t		2t		1/2t		1t		2t	
Standard lift	ft	20											
Pushbutton cord length	ft	18											
Lifting speed	fpm	27/9				13/4		17				9	
Lifting motor	V	208-230	460	208-230	460	208-230	460	208-230	460	208-230	460	208-230	460
	KW(HP)	1.8(2.4)						1.5(2.0)					
Load chain dia(inch)xChainfall Lines		0.280"x1				0.280"x2		0.280"x1				0.280"x2	
Net weight	lbs	148				181		134				168	
Weight for additional 1ft lift	lbs	0.67				1.34		0.67				1.34	

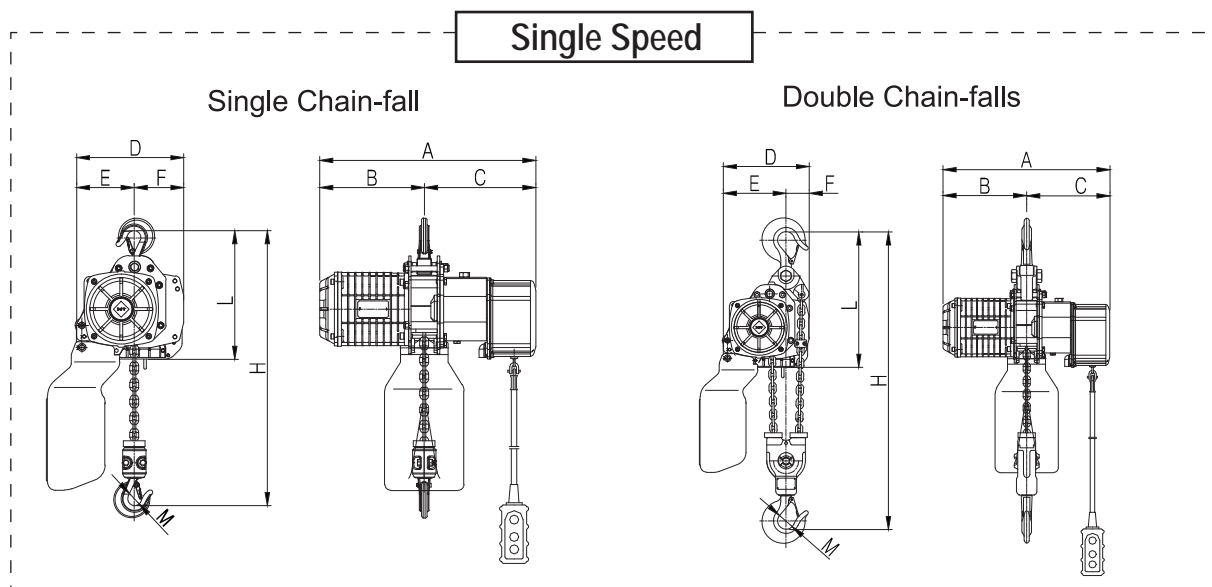
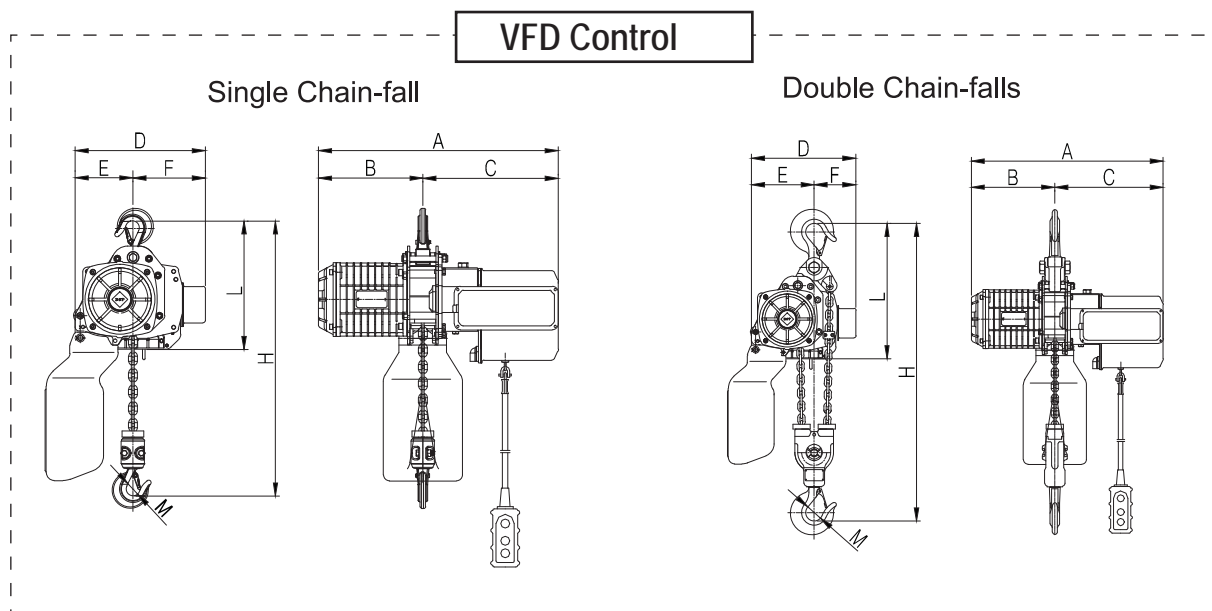
W.L.L.(working load limit): All units tested at 125% of the rated capacity.

Longer lifts affect the chain container size. Please contact the factory or the authorized distributor.



## Dimension (inch)

Model	VFD Control						Single Speed		
	2230010		2230020		2230040		2230010	2230020	2230040
	VFD-230	VFD-460	VFD-230	VFD-460	VFD-230	VFD-460			
A	23.9		23.9		23.9		20.7	20.7	
B	10.4		10.4		10.4		10.4	10.4	
C	13.5		13.5		13.5		10.3	10.3	
D	13		13		13		10.7	10.7	
* H : minimum headroom	E		F		G		5.8	7.8	
* Hook is produced by the hot forging process and has ±2% variation from nominal dimension.	F		G		H		7.2	5.2	4.9
	M		N		O		1.38	2.1	1.38
	H		I		J		15.8	26.8	15.8
	L		K		L		15.2	19.3	13.8



### 1.3.1 Motor Trolley Mounted Series(Three phase)

#### Specifications (Three phase)

Model	VFD CONTROL						SINGLE SPEED						
	2230110		2230120		2230140		2230110		2230120		2230140		
	VFD-230	VFD-460	VFD-230	VFD-460	VFD-230	VFD-460	2230110	2230120	2230110	2230120	2230110	2230120	
Capacity(WLL) ton	1/2t		1t		2t		1/2t		1t		2t		
Standard lift ft	20												
Pushbutton cord length ft	18												
Lifting speed fpm	27/9				13/4		17				9		
Traversing speed fpm	75/25						36						
Lifting motor	V	208-230	460	208-230	460	208-230	460	208-230	460	208-230	460	208-230	460
	KW(HP)	1.8(2.4)						1.5(2.0)					
Traversing motor	V	208-230	460	208-230	460	208-230	460	208-230	460	208-230	460	208-230	460
	KW(HP)	0.4(0.54)											
Load chain dia(inch)xChainfall Lines	0.280"x1				0.280"x2		0.280"x1				0.280"x2		
Net weight lbs	231				280		220.5				269		
I-beam flange width	3.25-12												
I-beam curve radius	31.5												
Weight for additional 1foot lift lbs	0.67				1.34		0.67				1.34		

W.L.L.(working load limit): All units tested at 125% of the rated capacity.

Longer lifts affect the chain container size. Please contact the factory or the authorized distributor.



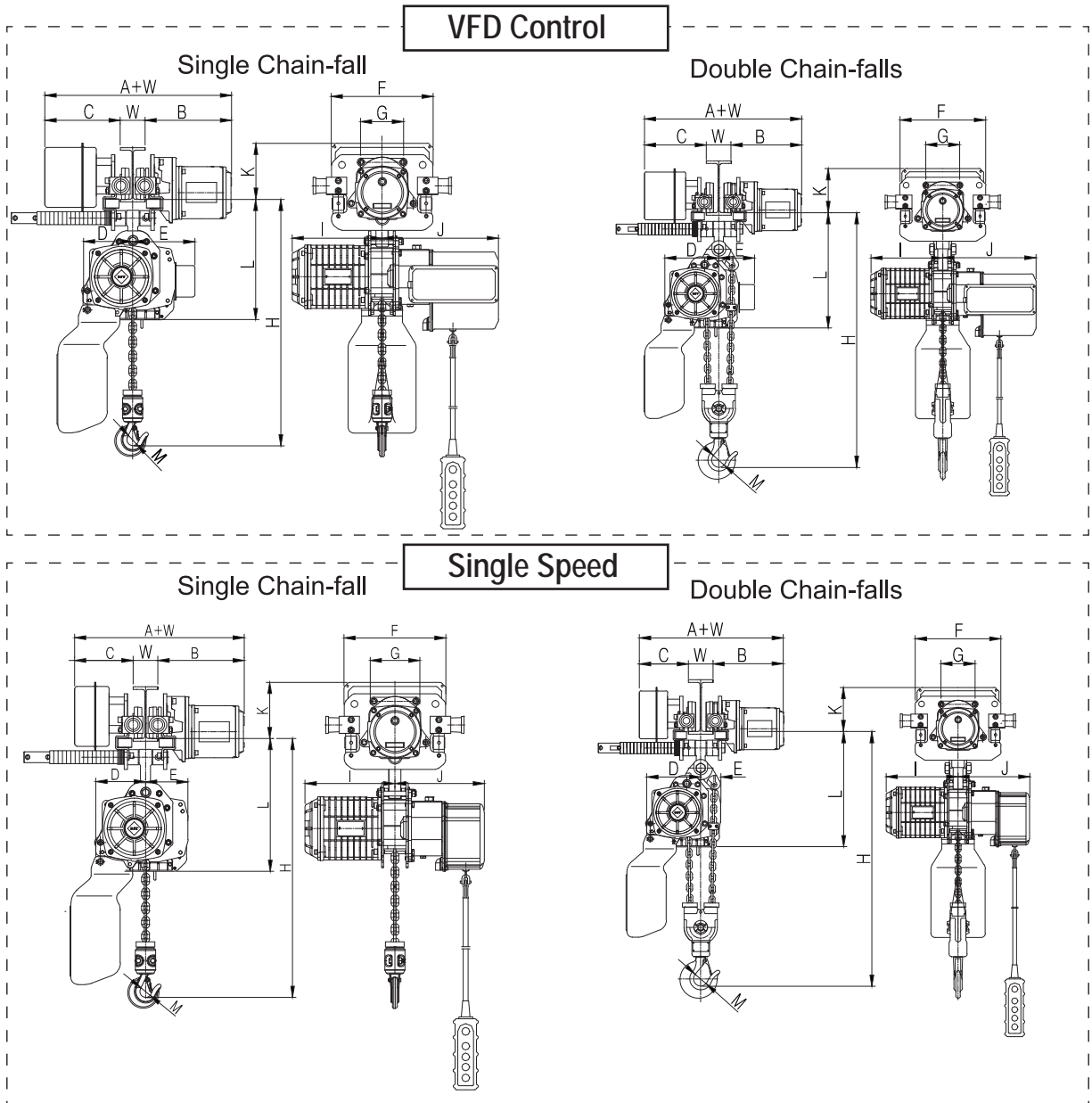
## Dimension (inch)

Model	VFD CONTROL						SINGLE SPEED		
	2230110		2230120		2230140		2230110	2230120	2230140
	VFD-230	VFD-460	VFD-230	VFD-460	VFD-230	VFD-460			
A	18.7+W			18.9+W			16.7+W		16.9+W
B	10			10.1			10		10.1
C	8.7			8.8			6.7		6.8
D	5.8			7.8			5.8		7.8
E	7.2			5.2			4.9		2.9
F	11.8			12.4			11.8		12.4
G	4.4			4.9			4.4		4.9
H	17.6			26			17.6		26
I	10.4			10.4			10.4		10.4
J	13.5			13.5			10.3		10.3
K	6.5			6.4			6.5		6.4
L	16.3			19.1			15		17.7
M	1.38			2.1			1.38		2.1

\* The figure B\* can be calculated  
 \* = 1/2X(width(mm) of the traversing rail)

\* H : minimum headroom

\* Hook is produced by the hot forging process and has ±2% variation from nominal dimension.



### 1.4. Hook Suspension Series (SINGLE PHASE)

#### Specifications

Model		VFD Control			Single Speed					
		2330010	2330020	2330040	2330010		2330020		2330040	
		VFD-230-1	VFD-230-1	VFD-230-1						
Capacity(WLL)	ton	1/2t	1t	2t	1/2t	1t	2t			
Standard lift	ft	20								
Pushbutton cord length	ft	18								
Lifting speed	fpm	27/9		13/4	14			7		
Lifting motor	V	230	230	230	115	230	115	230	115	230
	KW(HP)	1.8(2.4)			0.8(1.1)					
Load chain dia(inch)xChainfall Lines		0.280"x1		0.280"x2	0.280"x1			0.280"x2		
Net weight	lbs	148		181	139			172		
Weight for additional 1ft lift	lbs	0.67		1.34	0.67			1.34		

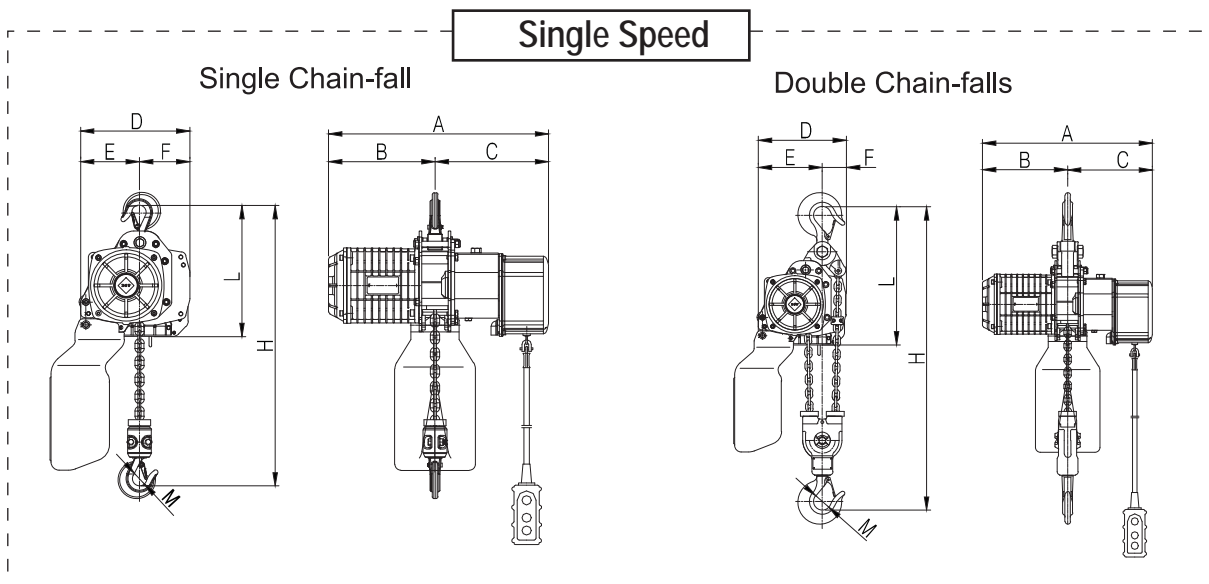
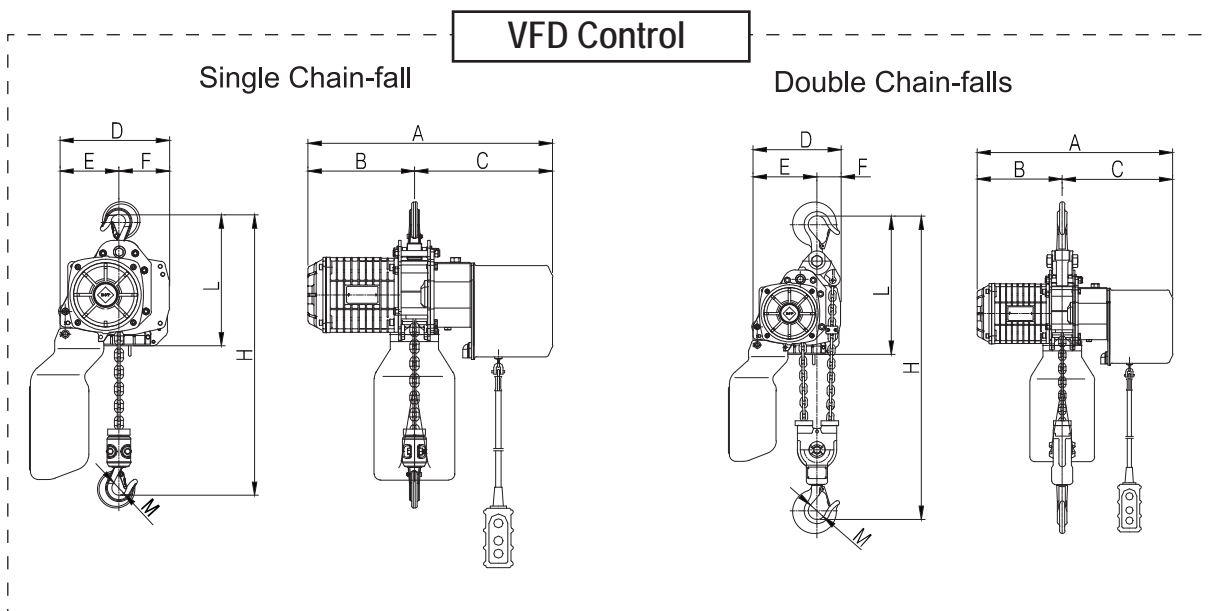
W.L.L.(working load limit): All units tested at 125% of the rated capacity.

Longer lifts affect the chain container size. Please contact the factory or the authorized distributor.



## Dimension (inch)

Model	VFD Control			Single Speed		
	2330010	2330020	2330040	2330010	2330020	2330040
	VFD-230	VFD-230	VFD-230			
A	23.9		23.9	21.5		21.5
B	10.4		10.4	10.4		10.4
C	13.5		13.5	11.1		11.1
D	10.7		10.7	10.7		10.7
* H : minimum headroom	E	5.8	7.8	5.8		7.8
* Hook is produced by the hot forging process and has $\pm 2\%$ variation from nominal dimension.	F	4.9	2.9	4.9		2.9
	M	1.38	2.1	1.38		2.1
	H	15.8	26.8	15.8		26.8
	L	15.2	19.3	13.8		17.9





**1.4.1 Motor Trolley Mounted Series(Single phase)**

**Specifications (single phase)**

Model	VFD CONTROL			SINGLE SPEED						
	2330110	2330120	2330140	2330110		2330120		2330140		
	VFD-230-1	VFD-230-1	VFD-230-1	1/2t		1t		2t		
Capacity(WLL) ton	1/2t	1t	2t	1/2t		1t		2t		
Standard lift ft	20									
Pushbutton cord length ft	18									
Lifting speed fpm	27/9		13/4	14			7			
Traversing speed fpm	75 / 25			36						
Lifting motor	V	230	230	230	115	230	115	230	115	230
	KW(HP)	1.8(2.4)			0.8(1.1)					
Traversing motor	V	230	230	230	115	230	115	230	115	230
	KW(HP)	0.4(0.54)			0.2(0.27)					
Load chain dia(inch)xChainfall Lines	0.280"x1		0.280"x2	0.280"x1			0.280"x2			
Net weight lbs	227		280	225			273			
I-beam flange width	3.25-12									
I-beam curve radius	31.5									
Weight for additional 1foot lift lbs	0.67		1.34	0.67			1.34			

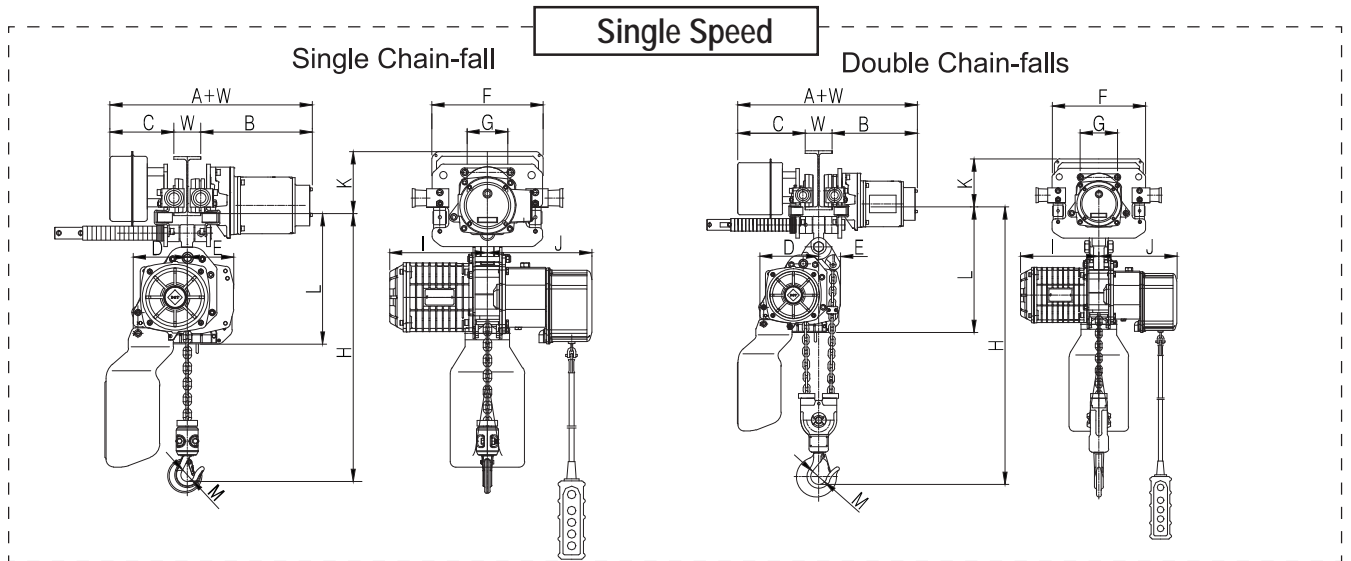
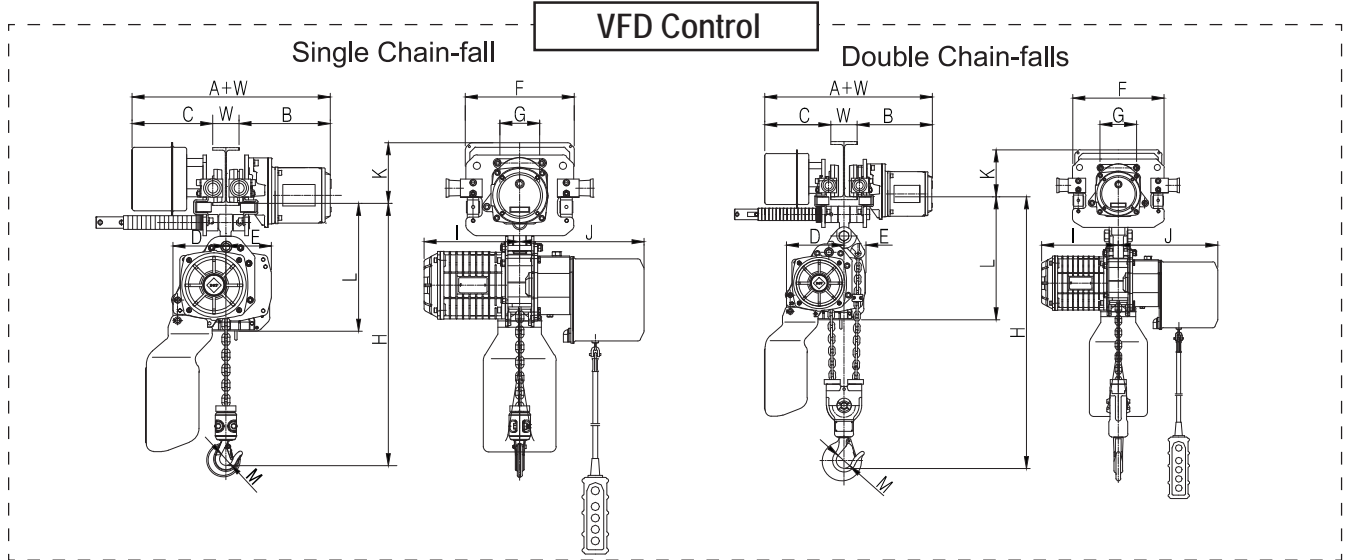


## Dimension (inch)

Model	VFD CONTROL			SINGLE SPEED		
	2330110	2330120	2330140	2330110	2330120	2330140
	VFD-230-1	VFD-230-1	VFD-230-1			
A	18.7+W			20.3+W		
B	10			11.6		
C	8.7			8.7		
D	5.8			5.8		
E	4.9			4.9		
F	11.8			11.8		
G	4.4			4.4		
H	17.6			17.6		
I	10.4			10.4		
J	13.5			11.1		
K	6.5			6.5		
L	16.3			15		
M	1.38			1.38		

\* The figure B\* can be calculated  
 \* = 1/2X(width(mm) of the traversing rail)  
 \* H : minimum headroom  
 \* Hook is produced by the hot forging process and has ±2% variation from nominal dimension.

W.L.L.(working load limit): All units tested at 125% of the rated capacity.  
 Longer lifts affect the chain container size. Please contact the factory or the authorized distributor.



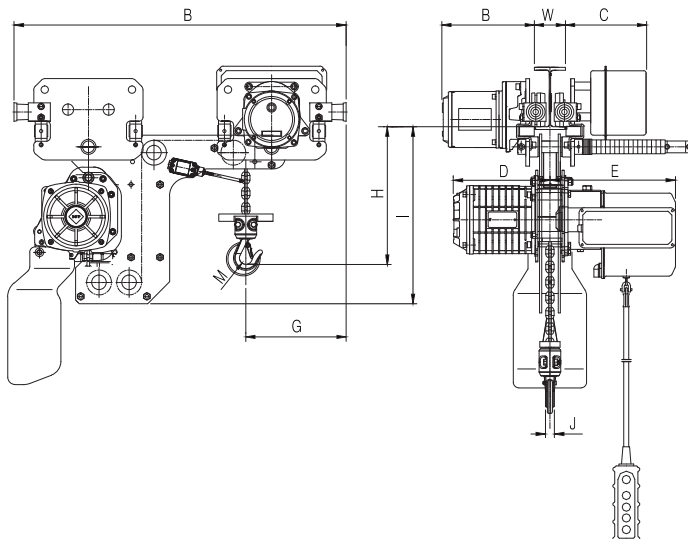
## 1.5. Low Headroom Series

### ■ Specifications

MODEL	DUAL SPEED	2230120-VFD-L	2230140-VFD-L
Capacity	ton	1	2
Chain falls	no	1	2
Standard lift	ft	20	20
Push button cord	ft	18	18
Lifting speed	fpm	17/6	9/3
Traversing speed	fpm	75/25	75/25
Hoist motor output	kw(HP)	1.5(2.0)	1.5(2.0)
Trolley motor output	kw(HP)	0,4(0.54)	0,4(0.54)
Load chain (diapitch)	inch	0.28x0.83	0.28x0.83
I-beam applied width	inch	3.25-12"	3.25-12"
I-beam min. curve radius	inch	N/A	N/A
Weight	lbs	330	378

### ■ Dimension(inch)

MODEL	DUAL SPEED	2230120-VFD-L	2230140-VFD-L
* The figure "B can be calculated as below. * $B = 1/2 \times \text{width of traversing rail}$ * $2B = 2 \times 1/2 \times \text{width of traversing rail}$ * H = minimum headroom * hook is produced by the hot forging process and has $\pm 2\%$ variation from nominal dimension	A	35.7	36.7
	B	10	10.2
	C	8.5	8.9
	D	10.4	10.4
	E	13.5	13.5
	G	10.8	9.5
	H	10.3	17.9
	I	19	20.2
	J	0.95	1.2
	M	1.38	2.1
W	3.25-12	3.25-12	



## 2. General description of manual

The product is supplied together with the manual that is important to keep readily accessible

- During installation or set-up
- For training operators & the maintenance of the equipment
- For "Safety Precautions" & Operation instructions

### 2.1. Trolley series and classification of electric wiring

**ACCOLIFT® CLH** trolleys are designed to form an integral hoist/trolley combination, keeping the load equally distributed for easy traversing and long life.

Hook suspension trolleys are available as push/pull and hand-gear versions. A lug mounted push/pull trolley is also available for easy mounting to the hoist by removing the top hook and bolting in the supplied lug connector.



Plain Trolley

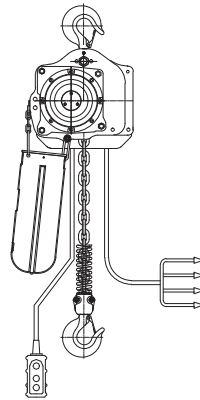


Geared Trolley



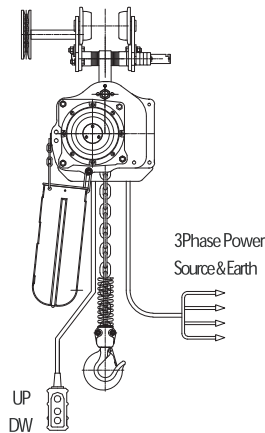
Lug mount plain trolley kit

Hook suspension hoist



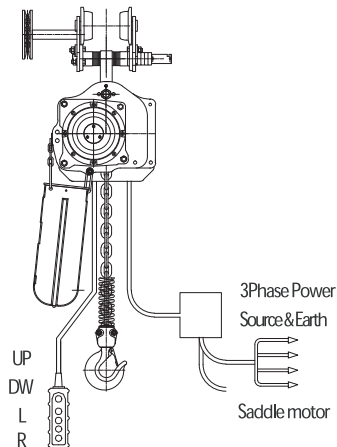
Plain trolley hoist

Geared trolley hoist



Plain trolley crane-mounted

Geared trolley crane-mounted



### 3. Safety precautions

#### 3.1. Warning and Caution

The Safety Alert Symbol is used in this manual to indicate hazards and to alert the reader to information that should be known, understood, and followed in order to avoid SERIOUS BODILY INJURY or DEATH and/or PROPERTY DAMAGE.

#### **WARNING**

WARNING symbol indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury. To avoid such a potentially hazardous situation, THE OPERATOR SHALL

- \* NOT operate a damaged, malfunctioning or unusually performing hoist.
- \* NOT operate the hoist until you have thoroughly read and understand the manual.
- \* NOT operate a hoist which has been modified without the manufacturer's approval.
- \* NOT lift more than rated load for the hoist.
- \* NOT use hoist with twisted, kinked, damaged, or worn load chain.
- \* NOT use the hoist to lift, support, or transport people, nor lift or transport loads over or near people.
- \* NOT operate unless load is centered under hoist.
- \* NOT attempt to lengthen the load chain or repair damaged load chain.
- \* Protect the hoist's load chain from weld splatter or other damaging contaminants.
- \* NOT operate hoist when it is difficult to form a straight line from hook to hook in the direction of loading.
- \* NOT use load chain as a sling, or wrap chain around the load.
- \* NOT apply the load to the tip of the hook or to the hook latch.
- \* NOT apply load unless load chain is properly seated in the chain sheave pockets.
- \* NOT apply load if bearing prevents equal loading on all load supporting chains.
- \* NOT operate beyond the limits of the load chain travel.
- \* NOT leave load supported by the hoist unattended unless specific precautions have been taken.
- \* NOT allow the load chain or hook to be used as an electrical or welding ground.
- \* NOT allow the load chain or hook to be touched by a live welding electrode.
- \* NOT remove or obscure the warnings on the hoist.
- \* NOT operate a hoist on which the safety placards or decals are missing or illegible.
- \* NOT operate a hoist unless it has been securely attached to a suitable support.
- \* NOT operate a hoist unless load slings or other approved single attachments are properly sized and seated in the hook saddle.
- \* Take up slack carefully - make sure load is balanced and load holding action is secure before continuing.

- \* Shut down a hoist that malfunctions or performs unusually and report such malfunction.
- \* Make sure hoist limit switches function properly.
- \* Warn personnel of an approaching load

### **⚠ CAUTION**

Read and understand this manual before using the hoist. Taking precedence over any specific rule, however, is the most important rule of all: "USE COMMON SENSE"

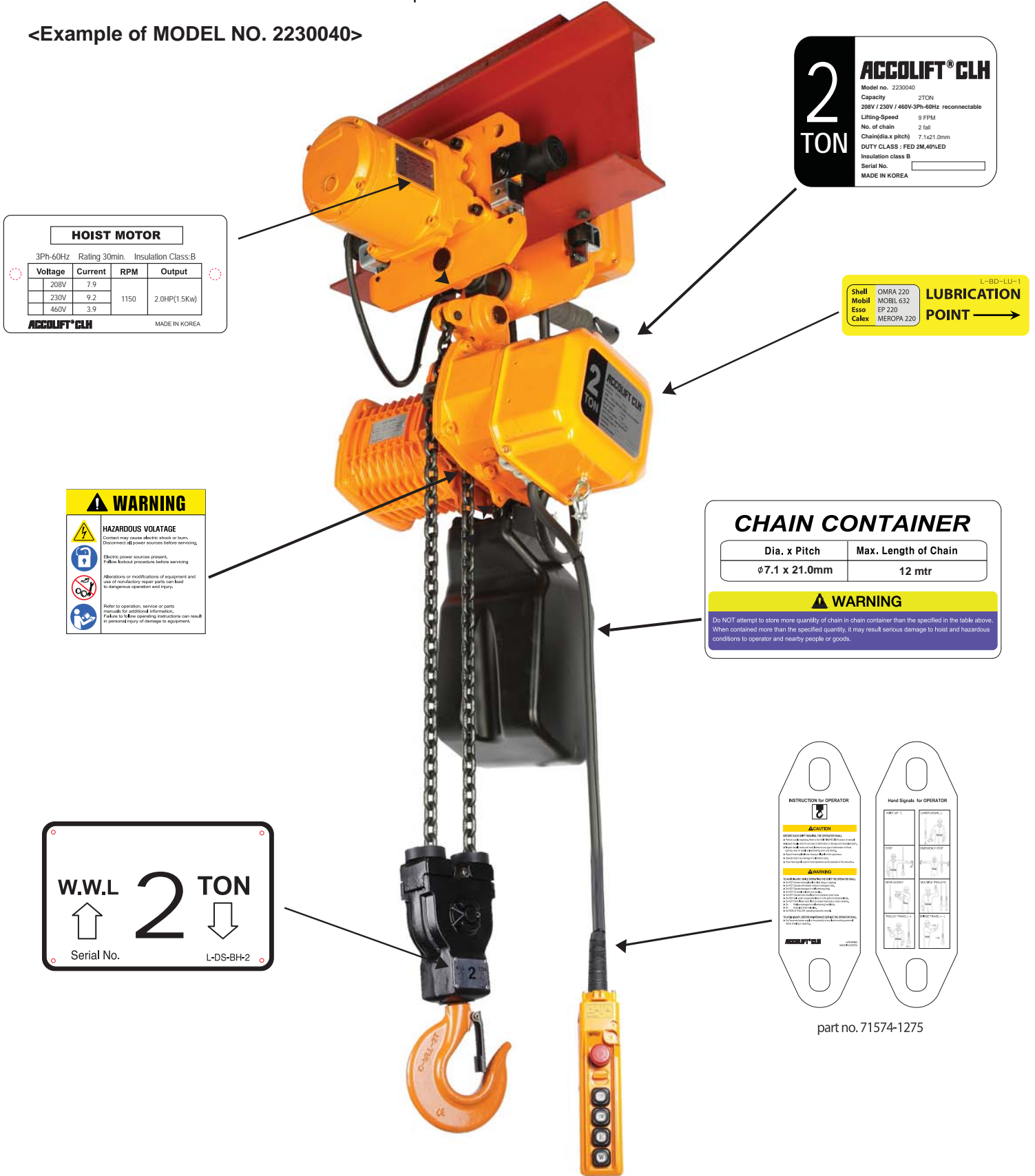
It is the responsibility of the owner / user to

1. Install, inspect, test, maintain, and operate the hoist in accordance with the instruction manual furnished by the manufacturer of the hoist...
2. Train and designate hoist operators, and
3. Train and designate hoist inspectors / maintenance personnel

**3.2. Name plate and labels on products.**

All labels and name plate shall be attached on the products at the same position where they were originally attached. Do not allow the labels and name plate to become obstructed or defaced.

<Example of MODEL NO. 2230040>



**HOIST MOTOR**

3Ph-60Hz Rating 30min. Insulation Class:B

Voltage	Current	RPM	Output
208V	7.9	1150	2.0HP(1.5kw)
230V	9.2		
460V	3.9		

ACCOLIFT® CLH MADE IN KOREA

**2 TON ACCOLIFT® CLH**

Model no. 2230040

Capacity 2TON

208V / 230V / 460V-3Ph-60Hz reconnectable

Lifting-Speed 9 FPM

No. of chain 2 fall

Chain(dia. x pitch) 7.1x21.0mm

DUTY CLASS : FED 2M,40%ED

Insulation class B

Serial No. \_\_\_\_\_

MADE IN KOREA

**LUBRICATION POINT**

L-BD-LU-1

Shell	OMRA 220
Mobil	MOBIL 532
Esso	EP 220
Calex	MEROPA 220

**CHAIN CONTAINER**

Dia. x Pitch	Max. Length of Chain
φ7.1 x 21.0mm	12 mtr

**WARNING**

Do NOT attempt to store more quantity of chain in chain container than the specified in the table above. When contained more than the specified quantity, it may result serious damage to hoist and hazardous conditions to operator and nearby people or goods.

**WARNING**

**HAZARDOUS VOLATAGE**  
Contact may cause electric shock or burn. Disconnect all power sources before servicing.

Electric power sources present. Follow lockout procedure before servicing.

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

Refer to operation, service or parts manuals for additional information. Failure to follow operating instructions can result in personal injury or damage to equipment.

**W.W.L. 2 TON**

Serial No. \_\_\_\_\_ L-DS-BH-2

**INSTRUCTION FOR OPERATOR**

**Hand Signals for OPERATOR**

part no. 71574-1275

## 4. Installation

Each complete electric chain hoist is load tested at the factory at 125% of the nameplate-rated capacity.

The service life of the hoist depends on the way it is installed.

Always keep this manual near the hoist, available to the operator and the person in charge of maintenance.

Make sure that all safety rules are followed.

### 4.1. Checking of product

1. Check the product if there is any damage or deformation during the transportation.
2. Check the specification of the hoist you purchase as listed below.
  - a. Model no.
  - b. Rated capacity (ton)
  - c. Lifting length of load chain (feet or meter)
  - d. Power supply
  - e. Push button pendant assembly (2button, 4button or 6button)
  - f. Specially ordered optional items
  - g. Beam width for trolley installation

Store the hoist in its normal operating position without load, away from aggressive atmospheres such as dust or humidity. Make sure that the hoist is always clean and protected from corrosion and is lubricated.

### 4.2. Installation process

Follow other maintenance procedures outlined in this manual.

1. Handle the hoist by its structure, or by the devices provided for this purpose, or in its original packing.
2. Review the nameplate and warning tags attached to the unit before the installation is started.
3. The hoist should be installed by the technician with the necessary competence.
4. Check that the voltage is in accordance with both the hoist and the voltage at the jobsite (115V,208V,230V,460V)
5. Make sure that the hoist attaching structure is rigid.
6. Make sure that the safety rules are followed for harness, clearance of work areas, posting of instructions to be followed in the area.



### 4.2.1. Checking of electricity

**⚠ WARNING**

Before installing, removing, inspection, or performing any maintenance on the hoist, the main switch shall be de-energized and locked out and tagged out in accordance with ANSI Z244.1. Do not use this equipment in hazardous locations.

- \* The electric chain hoists shall be connected to an earth ground.
- \* Lock-out and tag-out the main disconnect switch, in the de-energized position, before performing any service on the hoist.
- \* The customer must supply the power supply cable, the fuses and the main disconnect switch.
- \* Check that the supply voltage is the same as the nameplate voltage on the hoist.
- \* Check that the voltage does not vary by more than  $\pm 10\%$  from the nominal value.
- \* Do not use conductors smaller than those listed in the manual, to supply power to the hoist.
- \* Never bypass limit switches, remove limit switch stops, or otherwise defeat limit switch devices.

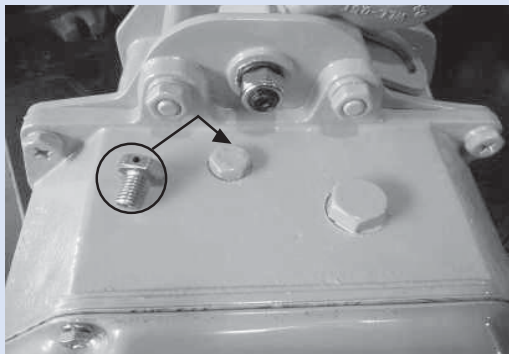
### 4.2.2. Installation of "BOLT with vent hole" (Vent Bolt)

**ACCOLIFT® CLH** Electric Chain Hoists are shipped with a "Bolt without Hole" (Solid Bolt) to prevent the possibility of oil leaking during the transportation of the product.

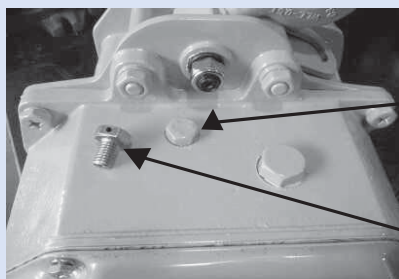
When the temperature of the gear assembly goes up with continued operation, the "BOLT with Vent Hole" (Vent Bolt) relieves the pressure in the gear assembly caused by the increase in temperature.

**⚠ WARNING**

#### Replacement of Solid Bolt with Vent Bolt



On the hoist, the Solid Bolt is located at the lubrication point. Before the installation of the hoist the customer shall change the bolt from "BEFORE installation" to "AFTER installation" as shown below. The Vent Bolt functions as the air ventilation device to relieve pressure created by the increase in temperature from operation of the gearing. It helps prevent damage to the seal packing from high pressure. if NOT changed to "Vent Bolt", a possible hazardous condition can result due to the high pressure in the gear assembly.



"BEFORE installation"

As shipped, the hoist has a Solid Bolt at the lubrication point to prevent the possibility of oil leaking due to movement in transportation.

"AFTER installation"

With Vent Bolt

**4.2.3. Installation of Chain Container to hoist body**

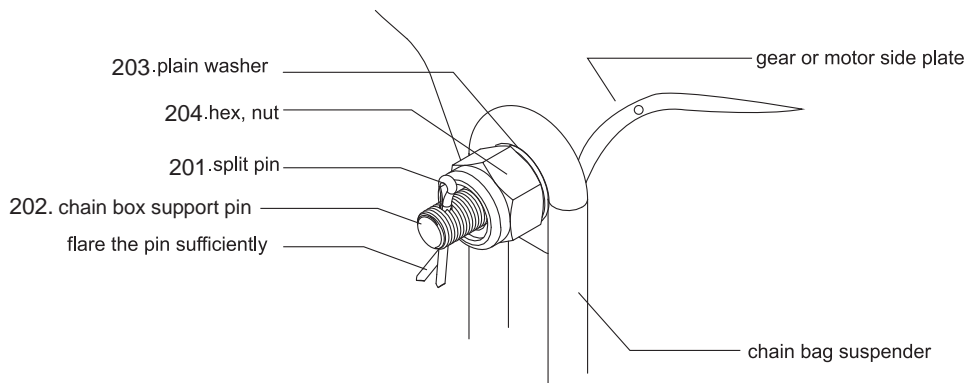
**Lifting height below or equal to 40ft(2ton 2chain fall hoist lifting height below 20ft)**

- 1) Place chain box hanger on staybolt (CH39)
- 2) Use the chain box hanger pin (CH134) to fix the chain box on gear and motor side plate hole.

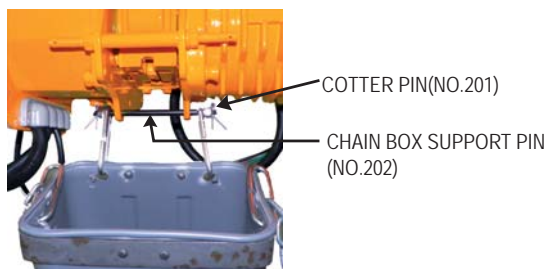


**Lifting height over 40ft(2ton 2chain fall hoist lifting height over 20ft)**

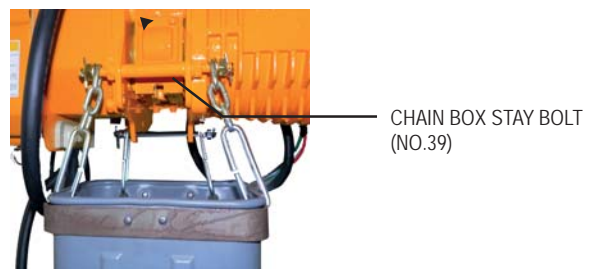
- 1) Insert the load chain into the chain container.
- 2) Place the container support chain on "CH202 Chain box support pin" of Chain Container to secure the container.
- 3) Insert "CH202. chain box support pin" and lock both ends with "CH201. cotter pin"



- 4) Line up chains straight so as not to be twisted.
- 5) Place the remaining container support chain on the CH39 Chain box stay bolt



**[2-1]**



**[2-2]**

\* **Chain container (chain box)**

**⚠ WARNING**

Do not attempt to store more quantity of chain in chain container than that specified in the table. When containing more than the maximum specified quantity, it may result in serious damage to hoist and hazardous conditions to the operator and nearby people or goods. For the hoist with double chain-falls, the chain container should be installed with the unloaded load chain projecting by about 20 inch (50cm). When the chain container is pushed to the sides by the loads, the load chain may gush out or may not smoothly go through the chain hoist body, posing a danger.

**4.2.4. Oil lubrication on load chain and into chain container**

Please lubricate the load chain, using the plastic oil bottle which is included with the hoist.

**NOTICE**

**Oil Lubrication into Chain Container**



After installing the hoist, the oil shall be placed onto the chain and into the chain container (chain bag) before startup.

- \* If the load chain is used when it's dry, abrasion and noise will result.
- \* Depending on the oil lubrication, the life of the load chain can vary up to 10 times compared to non-oiled load chain.
- \* If the load chain is used without oil lubrication before startup, the manufacturer will not be held responsible for possible damage to the load chain.

**Maximum Chain-Lift-Length, according to each Chain Container**

Longer lifts affect the chain container size. When exceeding the maximum lift specified for a Chain Container, it is strictly prohibited to operate the hoist. For a larger size chain container for longer lifts, please contact the factory or authorized dealer for the Steel Chain Container

Applied Load Chain : (Dia.xPitch)		0.280" x 0.827" (7.1mm x 21.0mm)		REMARK
Capacity (chain-fall reeving)		1ton (1fall)	2ton (2fall)	
Plastic chain container	PCCT	≤40ft lift	20ft lift	
	PCCA	≤52ft lift	≤26ft lift	
	PCCB	≤130ft lift	≤65ft lift	
Steel chain container	SCC 1-1	154ft lift <	77ft lift <	Order made
	SCC 2-1	269ft lift <	134ft lift <	

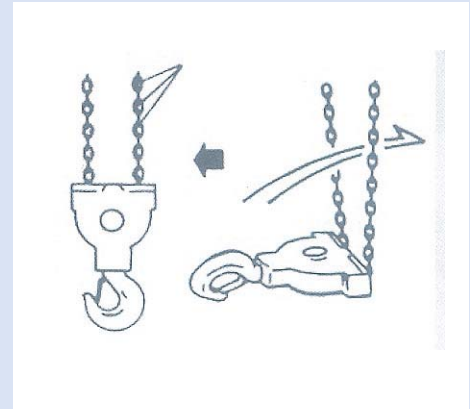
**⚠ WARNING**

DO NOT attempt to store a greater quantity of chain in the chain container than is specified in the table above. When containing more than the specified quantity, it may result in serious damage to the hoist and a hazard to the operator and nearby people or goods.

**4.2.5. Checking Load Chain after installation**

**⚠ CAUTION**

- \* Before start-up, the operator shall check the load chain. If it is twisted, it shall not be used until the twist is removed and the chain is straight in line.
- \* For double chain-falls, a capsized load chain shall not be used. When capsized, the operator shall turn over the bottom hook assembly as shown in the figure. If not, it will cause serious damage to the product.
- \* On load chain, oil lubrication shall be made with the oil bottle which is included with the hoist. When dry chain with no lubrication is used, it will cause shortened life of the load chain and a possible breakage of the load chain during operation, resulting in damage to the product and/or a hazardous condition to the operator and nearby people or goods.

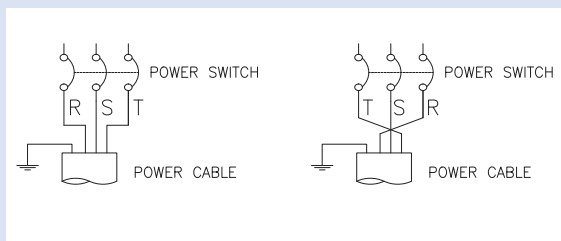


**4.2.6. Incorrect Phase Checking (by exchanging One of Three Black lines)**

After installation, the operator shall check UP/DOWN motions by pressing the Push Button Pendant Switch. If hoist does not operate in the proper UP/DOWN direction, it indicates incorrect phasing of input power supply lines.

**NOTICE**

Before operation under load, operator shall check hoist operation with push button control. If the hoist operates in the opposite direction of the push button control, phasing of the input power supply line is incorrect. In this case, reverse TWO of the THREE power supply phase lines as illustrated.

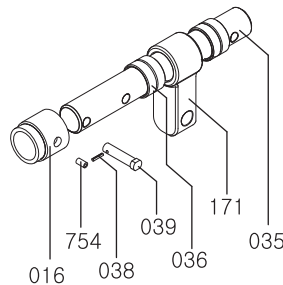


### 4.3. Installation of the Motorized Trolley Mounted Series

#### 4.3.1. How to install Trolley on the runway I-beam

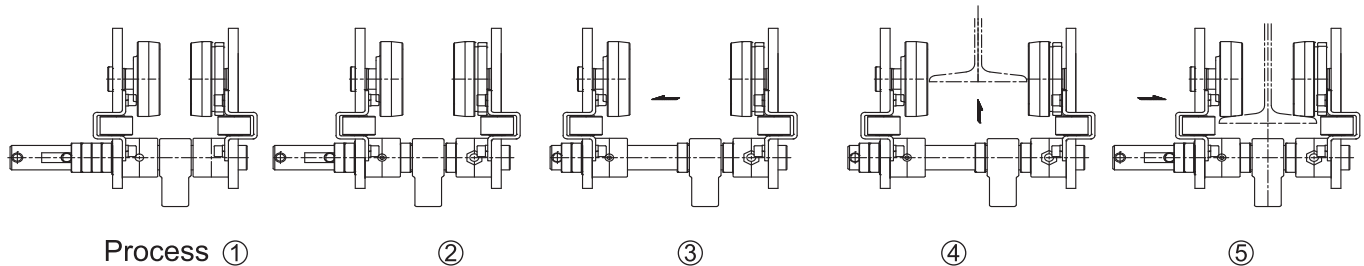
For Trolley, there are THREE types: Motorized trolley, Plain trolley, Geared trolley  
First, check the difference between beam flange width and guide roller spacing.

#### \* Parts to adjust I-Beam Width



- MT016. Bracket A
- MT035. Shaft
- MT036A. Adjusting Collar
- MT036B. Adjusting Washer
- MT038. Setting Pin
- MT039. Stopper Pin
- MT171. Connector
- MT754. Setting Screw

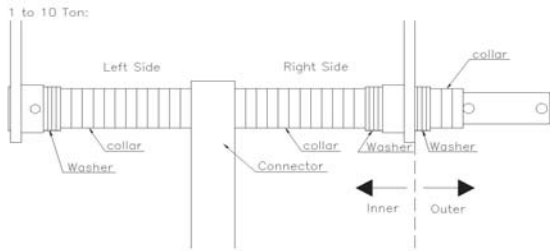
#### \* How to set up the I-Beam Width of Motorized Trolley



Motorized trolley can be used on I-beams different in width only by inserting adjusting collars (0 pcs to 6 pcs.)

- ① Pull out both "MT039. Stopper Pin" and "MT036. Adjusting Collar"
- ② Widen TROLLEY up to the maximum width by pulling out "MT035. Shaft"
- ③ In accordance with the following I-Beam width instruction, please Insert the applied number of collars and washers at the right end and push the trolley to the direction of arrow mark.
- ④ Insert TROLLEY on I-Beam.
- ⑤ Locate "MT171. Connector" on the center and line up "MT036. Adjusting Collar" by setting the same number of collars and washers at both ends.

**Applied Collar Numbers for Each Trolley Capacity on I-Beam.**



Each collar width per pcs: 0.492 inch (12.5mm)  
 Each washer width per pcs: 0.118 inch (3mm)

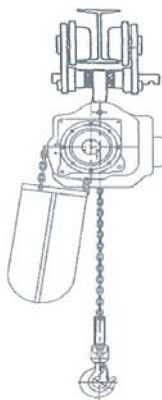
Beam Flange Width (in)			3 <sup>1</sup> / <sub>4</sub>	4	5	6	7	8	9	10	11	12	
Cap. (Ton)	Spacer Type	(mm)	85	102	127	153	178	203	229	254	279	305	
1	Washer	Inner	4	2	2	2	2	2	2	2	2	10	
		Outer	6	8	8	8	8	8	8	8	8	8	0
	collar	Inner	0	2	4	6	8	10	12	14	16	16	16
		Outer	16	14	12	10	8	6	4	2	0	0	0
2	Washer	Inner	2	0	0	0	0	0	0	0	0	88	
		Outer	6	8	8	8	8	8	8	8	8	8	0
	collar	Inner	0	2	4	6	8	10	12	14	16	16	16
		Outer	16	14	12	10	8	6	4	2	0	0	0
	Washer	Inner	2	0	0	0	0	0	0	0	0	0	8
		Outer	6	8	8	8	8	8	8	8	8	8	0

For Beam Flange Widths other than indicated, distribute collars and washers equally on Left Side and Right Side so that total clearance between Beam Flange Width and Trolley Side Guide Rollers is no less than 0.039 inch (1mm) and no more than 0.197 inch (5mm). A difference of one washer between Left Side and Right Side is permissible. No difference in quantity of collars between Left Side and Right Side is permissible.

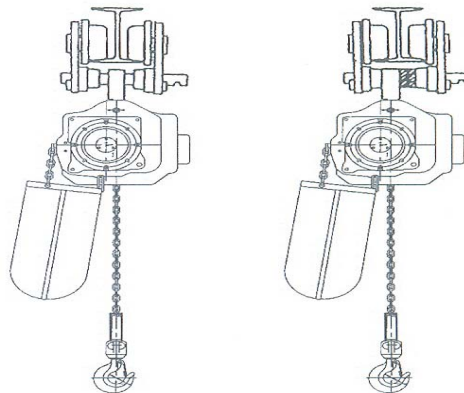
**⚠ WARNING**

**RIGHT installation:** Fit both sides of the connector with the same number of adjusting collars.  
**WRONG installation:** It can result in serious accidents.

**RIGHT Installation**



**WRONG Installation**

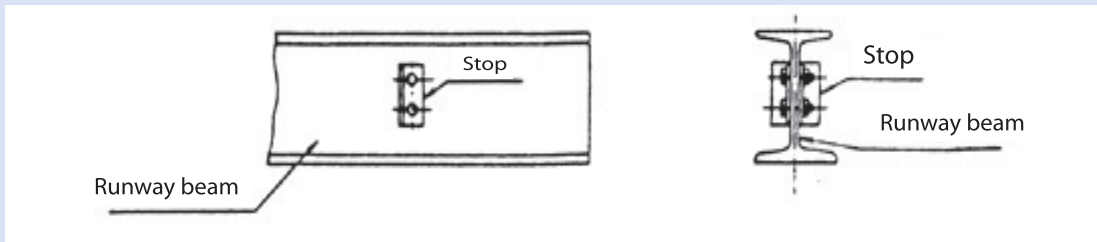


(A) Without collars, the setting of connector become loose and not secure.  
 (B) With One-sided setting of collars, it shall result in the un-balanced trolley installation.

**⚠ WARNING**

**(Customer scope for installation)**

1. Customer is strongly recommended to install END STOP as this is the customer's responsibility. To prevent possible falling of trolley from the runway beam, the customer shall install END STOP as follows.



2. For trolley limit switches used as a safety device, they shall be installed in parallel with I-beam at both ends to detect the runway limit of the end of trolley travel. Please refer to the figure for proper installation.

**4.3.2. How to connect electric power source** ("CIS": customer installation scope under customer responsibility)

- ① In parallel with I-beam, install the power cable to optimize the trolley movement.
- ② With each interval of 1.5 meter, the cable wheel shall be installed.
- ③ The minimum allowable curve radius of I-beam differs with each rated load of hoist.

Please refer to the specification of hoist in manual article no. 1.4. Motor Trolley Mounted Series, Single Speed

**4.4. Initial start-up**

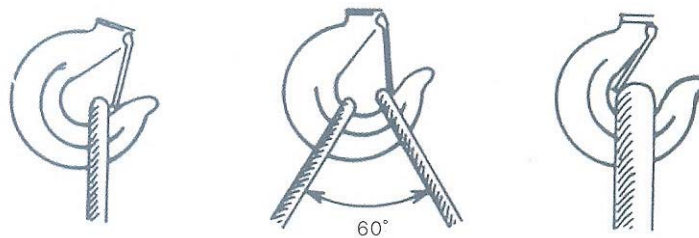
Once these checks have been completed, proceed as follows (be ready to press the emergency stop button at all times)

- 1. Start operating the hoist without a load.
- 2. Check, when not under load, that the movement of the hook corresponds to the direction of the arrows on the pushbutton station.
- 3. Check the operation of the hoist limit switch: operate the hoist, without a load, until it reaches the upper and lower hook positions and let the limiter slip briefly.
- 4. Check the operation of the brake: lift up a nominal load and then lower it.
- 5. Perform a load test with +10% of the nominal load and static tests with +25% of the nominal load on your installation equipped with our hoist.
- 6. The hoist which you have just purchased should only be used with a maximum load equal to the hoist's rated load. The length of its useful service life depends on the demands placed upon it, the average operating time, the number of start-stops and proper maintenance.

**5. Precautions during operation****⚠ CAUTION**

Indicates a potentially hazardous situation, which, if not avoided, MAY result in minor or moderate injury. To avoid such a potentially hazardous situation, THE OPERATOR SHALL

1. Perform a daily inspection according to the instruction manual.
2. Inspect the load chain for any type of deformation or damage and check the load chain lubrication.
3. Visually inspect hooks and hook latches for any type of deformation of throat opening, wear on saddle or load bearing point, and twisting.
4. Report missing or illegible warning labels to the supervisor.
5. Not Operate the hoist if any damage or malfunctions exist.
6. Know hand signals used for hoist operation as per instruction manual.
7. Always notify others when a load transport is about to begin.
8. Always make sure that the supporting structures are strong enough to support the weight of the load and hoist.
9. Maintain firm footing or be otherwise secured when operating the hoist.
10. Check brake function by tensioning the hoist prior to each lift operation.
11. Use hook latches. Latches are to retain slings, chains, etc. under slack conditions only.
12. Place slings balanced on the bottom hook. Avoid "Improper" slinging cases shown below.

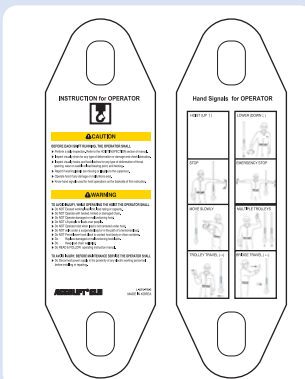
**"IMPROPER" SLINGING CASES**

13. Make sure the hook latches are closed and not supporting any parts of the load.
14. Make sure the load is free to move and will clear all obstructions.
15. Avoid swinging the load or hook.
16. Make sure hook travel is in the same direction as shown on the controls.
17. Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
18. Use only manufacturer's recommended parts when repairing the unit.
19. Lubricate load chain per hoist manufacturer's recommendations.
20. NOT use the hoist's overload limiting clutch to measure load.



21. NOT use limit switches as routine operating stops. They are emergency devices only.
22. NOT allow your attention to be diverted from operating the hoist.
23. NOT allow the hoist to be subjected to sharp contact with other hoists, structures, or objects through misuse.
24. NOT adjust or repair the hoist unless qualified to perform such adjustments or repairs.
25. The hoist should be maintained regularly, following the instructions in this manual.
26. Keep the moving components clean and oiled as indicated in this manual.
27. Make sure that the limit switch stops are in place, and that all limit switches are functioning properly...
28. Before operation, check that the load is correctly fastened and installed on the hook.
29. When moving the load, make sure that it is sufficiently raised and distant from the surrounding machines and other objects so as to avoid all obstacles during operation.
30. Make sure that the hoist is vertical to the load before moving it.
31. If manually moving the hoist, push the load.
32. Avoid rocking the load or the hook when using the traveling trolley or crane, by limiting the starting and braking jerks.
33. Use the material under normal working conditions with ambient temperature, atmosphere.
34. Use only for indoor operation of hoist. For outdoor operation, provide adequate protection to ensure a rainproof environment.
35. NOT operate the hoist if any damage or malfunctions exist; and SHALL report any damage or malfunctions to the supervisor.
36. NOT operate the hoist if tagged-out.
37. NOT lift, lower, or transport personnel by means of the hoist, hoist trolley, hoist hook, or load.

## NOTICE



Always read and follow the INSTRUCTION for OPERATOR, which contains the main CAUTION and WARNING instructions.

It shall be assembled onto the Push Button Switch Control regardless of working conditions.

For safer hoisting operation, please refer to the Hand Signals for OPERATOR on the backside.

Part number is 71574-1275.

Replace if lost or illegible.

## 6. Maintenance and servicing

### 6.1. Electrical connection

#### **⚠ CAUTION**

##### **(customer responsible scope for installation)**

Before removing the control box cover, check that the hoist power supply is disconnected and locked and tagged.

- \* The customer must supply the power supply cable, the fuses and the main disconnect switch (refer to the wiring diagram.)
- \* Check that the power supply voltage is correct for the hoist.
- \* Check that the voltage does not vary by more than  $\pm 10\%$  from the nominal value.
- \* Make sure that the main hoist power disconnect switch is de-energized.
- \* Do not use conductors smaller than those listed in the manual to supply power to the hoist.
- \* Never bypass limit switches, remove limit switch stops, or otherwise defeat limit switches.

#### **NOTICE**

##### **(WHEN INSTALLING SINGLE PHASE)**

This hoist is wired from the factory for 115-1-60 power supply- See wiring schematic inside enclosure lid for 230-1-60 reconnection instructions.

##### **RECOMMENDED POWER SUPPLY WIRE GAGE (COPPER AWG)**

	25FT	50FT	75FT	100FT	150FT	200FT	250FT	300FT
115V	12	10	8	6	6	4	-	-
230V	-	16	14	14	12	10	10	8

### 6.3. Chain stopper in the chain container.



The chain stopper for slack fall stop is a safety component, not a functional one. Make sure that the stop is correctly fitted. The chain stopper of non-loaded side must be fixed 6inch (15cm) from the load chain end as shown in the left figure.



At the time of product installation, check chain stopper bolts for tightness. Check chain stopper monthly and tighten socket bolts if required.

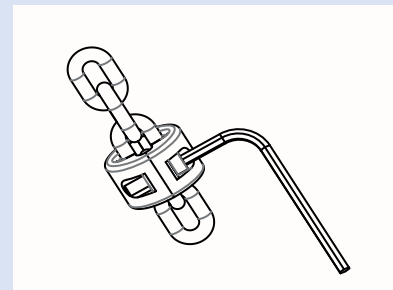
Securely fix using the wrench.

### 6.4. Chain stopper rubber bumper

**⚠ WARNING**

Replace and fix the chain stopper and rubber bumper if any of the below problems occur

- Damage of chain stopper on load or non-load side
- Socket bolts are loosened on load or non-load side
- Damage of rubber bumper on load or non-load side



Securely fix using the wrench.

Upper chain stopper is a device which shuts down the hoisting operation when the rubber bumper contact the limit switch in the maximum upper position. Lower chain stopper (non-loaded side of chain) must be fixed approximately 6" (15cm) from the end of the load chain as shown in the photo above. During installation, securely tighten the chain stopper. Check the tightness of the chain stopper bolts monthly and tighten as required.

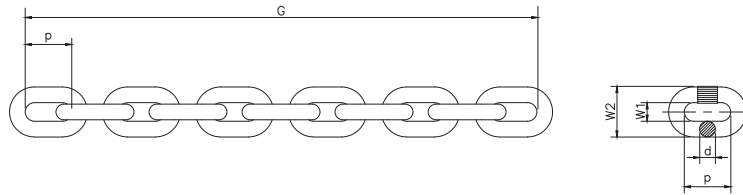
**6.5. Load chain**

**⚠ WARNING**

Check if the chain is twisted or not.  
 Never try to use the hoist when the load chains are entangled.  
 Pull the bottom hook to the normal vertical position before use.  
 Never use the lifting chain as a sling.  
 Never twist the lifting chain.  
 Do not bundle the chain into the chain bucket.  
 Always keep the chain clean and oiled and check that it is in good condition every day.  
 Only a genuine, manufacturer's chain may be used.

**\* Specification of Load Chain**

<b>Load chain: diameter x pitch</b>		<b>0.28" x 0.827"</b> (7.1mm x 21.0mm)
Class, Grade		DAT, HE G80 RS
Surface hardness		520-620 HV10(494-589 BHN)
Manuf. test force min.	KN	39.60
Breaking force min.	KN	63.50
Stress at breaking force	N/mm2	800
Breaking elongation min.	%	10
Working load Limit, 1 fall		2204lbs(1000kgs)
Weight per Meter		2.4lbs(1.11kgs)
Dimension (mm)	d	0.280" (7.1mm)
	p	0.827" (21.0mm)
	W1	0.331" (8.4mm)
	W2	0.929" (23.6mm)



**6.5.1. Measurement of Wear and Replacement of Load Chain**

<b>Dimension of load chain: Dia. x Pitch</b>	<b>0.28" x 0.827"</b> (7.1mm x 21.0mm)
Minimum link diameter allowed (d):	0.267" (6.8mm)
Maximum pitch allowed (p):	0.850" (21.6mm)
Maximum Gage Length allowed (G): (11links pitch measurement)	9.350" (237.5mm)

**NOTES:** For link diameter, when the wear has increased by more than 5% For pitch, when the wear has increased by more than 3%

Check the load chain for deformation or cracks. In this case, the wear on the chain guide and chain sheave should also be checked and they should be replaced if necessary. If a single link is defective in any way whatsoever, the chain must be replaced. If these limits are exceeded, the chain must be replaced immediately. The gage dimension to be checked shall be measured over 11 links from inside end of link to inside end of link (as shown in figure on previous page).

**To remove the chain for 1-fall chain:**

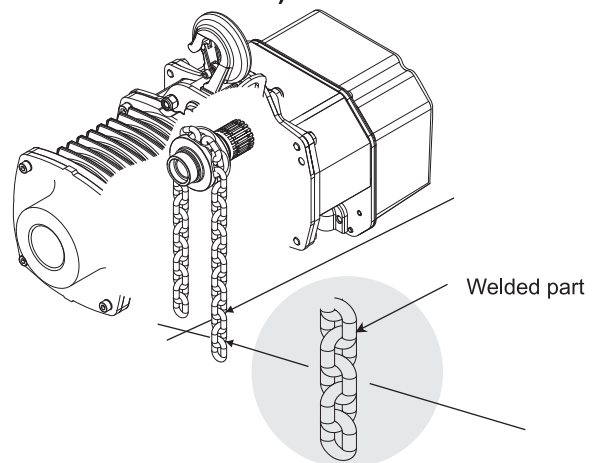
- a. Remove the load from the hook.
- b. Disassemble the hook block.
- c. Lower the chain into the chain container.
- d. Remove the chain container and unscrew and remove the lower chain guide.

**To remove the chain for 2-fall chain:**

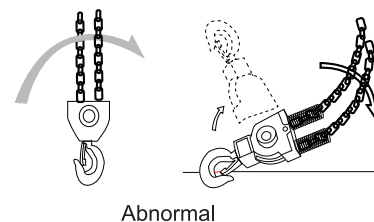
- a. Raise the hook block to about 20 inches (50cm) from the hoist body.
- b. Remove the chain bucket.
- c. Disassemble the fixed point of the chain.
- d. Let the rest of the chain slide through the chain sheave.

**6.5.2. Checking chain alignment (the welded part outward from the center)**

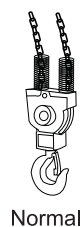
\* Before installation, the welded part position should be checked for safe operation. With the welded part of chain links outward from load sheave or hoist center, the load chain should be aligned before installation. If not aligned correctly outward, it can cause a hazardous condition.



\* For the safe operation of load chain, make sure that the bottom hook assembly is not upside down or capsized. In this case, the operator shall restore the chain to normal and make sure the welds on the chain links are in alignment. DO NOT use the hoist with twisted chain. For "Abnormal" case, please turn the bottom hook assembly between the chains to align the load chain.



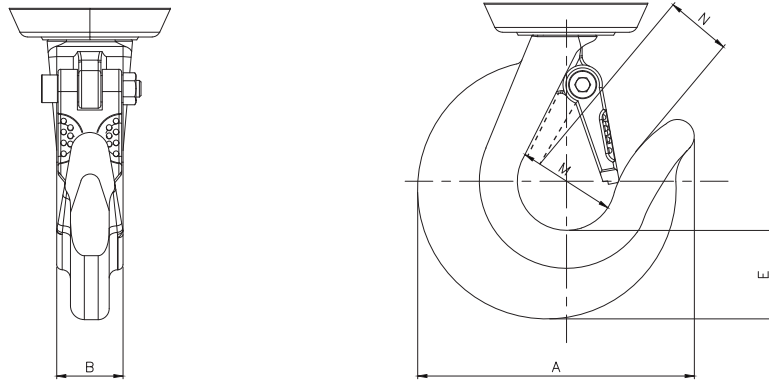
\* For the inspection of idler sheave of bottom hook assembly, turn idler sheave by lifting the load chain up and down as per the figure.



**6.6. Hook**

**6.6.1. Measurement of wear on the hook (inch)**

Capacity	Standard Hook Dimension					For Maintenance (Replacement required)	
	A	B	E	M	N	*Maximum Throat Opening = N x 105%	Minimum Depth = E x 90%
1ton(0.5t)	3.780	0.945	1.240	1.378	0.925	0.972	1.116
2ton	5.669	1.181	1.693	2.106	1.535	1.612	1.524



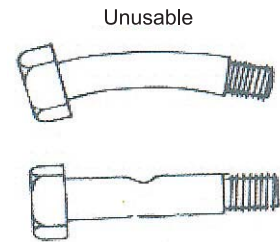
Check hooks for deformation or cracks. Hooks must be replaced if throat opening has increased by more than 5%, or throat opening has any twist from plane of straight hook, or if depth at load bearing point has worn more than 10% of original section dimension(E).

For the wear on the top hook and the load bottom hook, it shall be checked regularly. Measure the throat opening. if the throat opening exceeds the maximum opening allowed, replace the hook. Damaged safety latches shall be replaced immediately. Measure the section dimension E. If this measurement is less than the minimum allowed, replace the hook.

**6.6.2. Chain fixing pin on hook**

For the double chain-falls, the bottom hook assembly is fastened together with Chain Fixing Pin.

If any deformation is detected, it shall be replaced. Otherwise, the load chain and the hook assembly can fall.



Pin that is bent or pressed is to be replaced.

### 6.7. Load Sheave and Chain Guide

Load Sheave ensures perfect positioning of the chain with 5 pockets for distribution of the load. Load chain is to be geometrically lined up in accordance with the chain guide and load sheave. Chain guide assures proper engagement of the chain on the load sheave and minimize load chain wear.



### 6.8. Brake Operation

Please check the slip of chain with load and without load. If there is slip, brake is malfunctioning

## **⚠ WARNING**

Before replacing brake lining, make sure electric power is turned off and load on the hook is removed.

## **⚠ CAUTION**

After replacing the brake lining, operate the hoist in the order of without load, with light load and with rated load to check the brake function.

### ■ Inspection of brake lining

Immediately replace the brake lining if brake disc is :

- \* tainted with oil, grease or other foreign material
- \* cracked or damaged
- \* worn to the "to be replaced" figures => Hoist brake disc less than .079 inch (2mm).

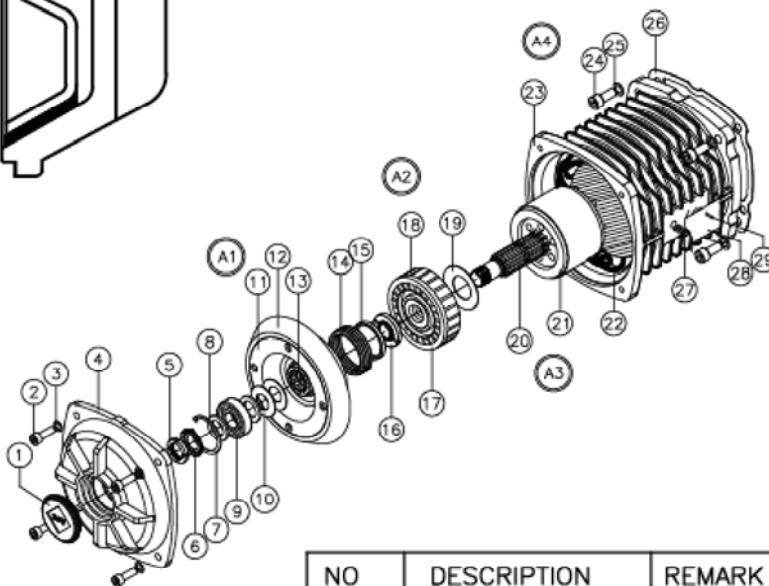
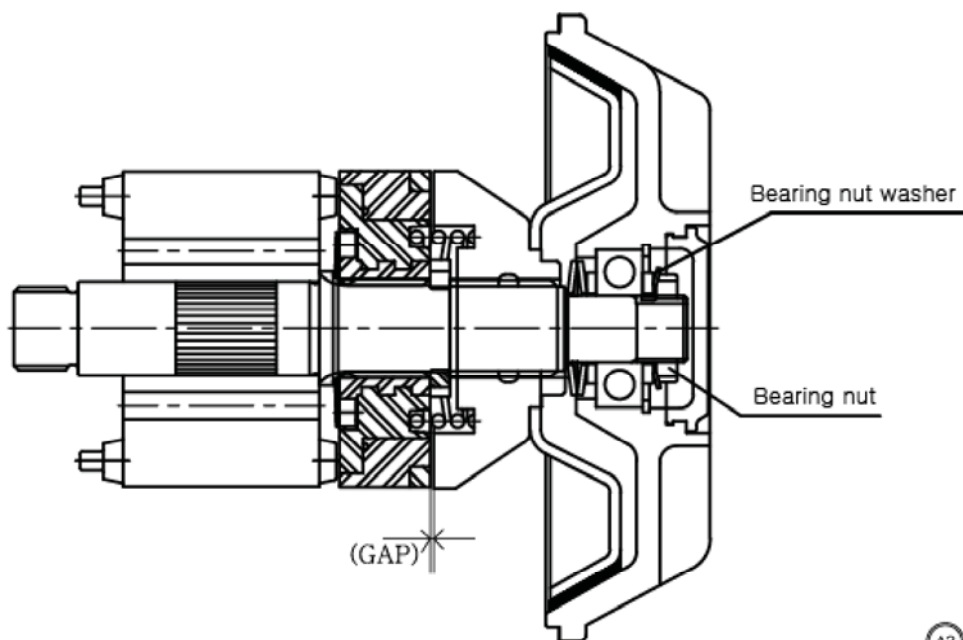
Original dimension of hoist brake disc is .118 inch (3mm).

## ■ How to adjust brake lining gap

Remove fixed pin from bearing nut washer and rotate the bearing nut to adjust the brake lining gap. Proper gap is per below chart. Check the reference picture. Rotating the bearing nut clockwise will reduce the gap and will increase the gap when rotated counter clockwise.

## ■ Procedure of replacing brake lining

Please refer to attached parts spread view. Loosen the wrench bolt (2) and remove the rotor and brake part. Loosen the bearing nut and disassemble A1 brake disc, A2 pull rotor assembly, and A3 rotor assembly. Replace A1 brake disc, assemble with A2 pull rotor assembly and adjust the gap between two parts to per below chart. Lubricate the brake disc's inside spline for smooth operation of brake disc. Make sure to check the brake disc operation after replacing.



BRAKE GAP	0.0315"(0.8mm)	0.0276"(0.7mm)
MODEL NO	2330010	2230010
	2330020	2230020
	2330040	2230040
		2230010-VFD
		2230020-VFD
		2230040-VFD
	2330010-VFD-230	
	2330020-VFD-230	
	2330040-VFD-230	

NO	DESCRIPTION	REMARK
A1	BRAKE DISC ASS'Y	11,12,13
A2	PULL ROTOR ASS'Y	17,18
A3	ROTOR ASS'Y	20,21
A4	MOTOR ASS'Y	22,23



## 6.9. Motor

### Heavy-duty Motor with Overheat Thermal Sensor

High torque and heavy duty hoist motor with insulation class "F". Frequent operation is efficient with 30min. rating (20 min. for single phase motor). With the built-in thermal sensor, it automatically stops the operation to cool down when the motor internal temperature exceeds 155°C.

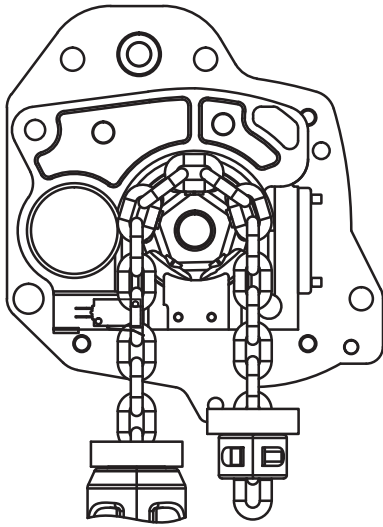


Type of motor enclosure: TENV

#### 6.9.1. Motor rating of Hoist and Trolley

Phase	ACCO NUMBER	TON	Load Chain Dai (inch)*(Chain Fall)	Lifting Speed (fpm)	CONTROL	Output(HP)&Poles	AMP DRAW(V=A)	
Three	2230010(-PT)	1/2T	0.28 X 1	17FPM	CONTACTOR	2.0x6P	208=8.8, 230=8.0, 460=4.0	
	2230020(-PT)	1T	0.28 X 1	17FPM				
	2230040(-PT)	2T	0.28 X 2	9FPM				
	Three	2230010-VFD(-PT)	1/2T	0.28 X 1	27/9FPM	INVERTER	2.4x4P	208=9.2, 230=8.4, 460=4.2
		2230020-VFD(-PT)	1T	0.28 X 1	27/9FPM			
		2230040-VFD(-PT)	2T	0.28 X 2	13/4FPM	INVERTER	2.0x6P	208=8.8, 230=8.0, 460=4.0
		2230120-VFD-L	1T	0.28 X 1	17/6FPM			
2230140-VFD-L	2T	0.28 X 2	9/3FPM					
Single	2330010(-PT)	1/2T	0.28 X 1	14FPM	CONTACTOR	1.1x4P	115=24.0, 208=13.1, 230=12.0	
	2330020(-PT)	1T	0.28 X 1	14FPM				
	2330040(-PT)	2T	0.28 X 2	7FPM				
	Single	2330010-VFD-230-1(-PT)	1/2T	0.28 X 1	27/9FPM	INVERTER	2.4x4P	208=9.2, 230=8.4, 460=4.2
		2330020-VFD-230-1(-PT)	1T	0.28 X 1	27/9FPM			
		2330040-VFD-230-1(-PT)	2T	0.28 X 2	13/4FPM			
Phase	ACCO NUMBER	TON	Travel Speed (fpm)	CONTROL	Output(HP)&Poles	AMP DRAW(V=A)		
Three	2230110	1/2T	36FPM	CONTACTOR	0.54x8P	208=3.3, 230=3.0, 460=1.5		
	2230120	1T						
	2230140	2T						
	Three	2230110-VFD	1/2T	75/25FPM	INVERTER	0.54x4P	208=3.3, 230=3.0, 460=1.5	
		2230120-VFD(-L)	1T					
		2230140-VFD(-L)	2T					
Single	2330110	1/2T	36FPM	CONTACTOR	0.27x8P	115=7.8, 208=4.3, 230=3.9		
	2330120	1T						
	2330140	2T						
	2330510	1T						
	Single	2330520	2T	75/25FPM	INVERTER	0.54x4P	208=3.3, 230=3.0	
		2330110-VFD-230-1	1/2T					
		2330120-VFD-230-1	1T					
		2330140-VFD-230-1	2T					

## 6.10. OVERWINDING & OVERLOAD LIMITER



- When the hoist reaches the upper limit position (high hook), the chain stopper will engage the upper limit switch, shutting down the lifting motion. The hoist will still be able to lower once this limit switch is activated.
- 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 assembly with a new, factory adjusted part.



MODEL NO. 2230010,2230020,2230040



MODEL NO. 2230010,2230020,2230040  
2230010VFD,2230020VFD,2230040VFD  
2230010VFD,2230020VFD,2230040VFD

## 6.11. Push Button Pendant Switch

Rain-proof, IP64 protection, with 2,4 or 6 buttons, All models are equipped with Emergency Stop function.

Easy to operate and designed with 110 VAC control voltage. It is compact to enable easy one-handed sure grip control. The push button cable is provided with built-in strain relief to help prevent cable damage.



## 7. Preventive maintenance

### 7.1. Recommended Periodic Maintenance and Inspection Table

Check	Interval	Qualification of the customer s personnel
Brake operation	Daily	Operator
Visual inspection of the chain	Daily	Operator
Suspension of the control box by the steel wire	Daily	Operator
Cleanness and lubrication of the chain	Monthly	Operator
Limiter operation	Monthly	Operator
Measuring of the wear on the chain	Every 3 months	Operator
Measuring of the wear on the hooks	Every 3 months	Operator
Tightening of the hook block screws	Every 3 months	Operator
Checking of the locking plate screws	Every 3 months	Operator
Lubrication of the idler sprocket	Annually	Operator
Checking of the screw tightening torques and checking for signs of corrosion	Annually	Qualified mechanic
Adjustment of the limiter and brake	Annually	Qualified mechanic
Lubrication of the gears	Please refer to page 65 of gear oil section	

### 7.2. Lubrication

Lubrication point	Possible brands	Quantity & Applied model no.	
Chain	Chain lubricating fluid	As required	
Gears	SHELL OMALA 220 MOBIL MOBILGEAR 630 ESSO SPARTAN EP 220 CALTEX MEROPA 220	0.8 liter	0.5ton(chain-fall reeving 1) 1ton (chain-fall reeving 1) 2ton (chain-fall reeving 2)

**7.3. Recommended Technical Support for Various Spare Parts**

<b>Spare part</b>	<b>To be replaced by</b>	<b>Qualification of the personnel</b>
Upper chain guide	Authorized manufacturer personnel	Qualified mechanic
Output shaft	Authorized manufacturer personnel	Qualified mechanic
Gearing (1st/2nd stage)	Authorized manufacturer personnel	Qualified mechanic
Other sealing and O-rings	Authorized manufacturer personnel	Qualified mechanic
Electric box	Authorized manufacturer personnel	Qualified electrician
PC-board	Authorized manufacturer personnel	Qualified electrician
brake system	Authorized manufacturer personnel	Qualified electrician
Chain	Customer	Qualified mechanic
Chain container (chain bag)	Customer	Qualified mechanic
Chain stopper	Customer	Qualified mechanic
Suspension hook	Customer	Qualified mechanic
Hook assembly	Customer	Qualified mechanic
Fuses	Customer	Qualified electrician

## 7.4. Troubleshooting

Problem	Cause	Solution
The chain hoist does not work	The emergency stop button is activated	Deactivate it
	Main switch is off	Turn it on
	Poor contactor of push button	Replace push button control
Hoist motor malfunction	Check power cable, terminal and push button switch contact	Repair or replace
	Noise on motor and over current flow	It is overloaded. Operate hoist within rated capacity
	Noise on motor and over heat	Check fuse, voltage, or connection of 3 phase power
The Travel direction does not correspond to that indicated on the push button	The power supply is incorrectly connected	Change two phases of the power supply
Brake Malfunction	Wear on brake lining	Check and replace brake lining
	Slip	Contact qualified technician
Electric Leakage	Electric flow on hoist body and chain	Check connection to an earth ground Check insulation resistance Check moisture on push button and dry
Abnormal noises while the load is being moved	The chain components are not lubricated	Lubricate the chain components
	Chain is worn	Replace it
	Load sheave or chain guide is worn	Replace the sheave or chain guide
	Idler sheave is worn	Replace it
	A supply phase is missing	Check the connection of the phases

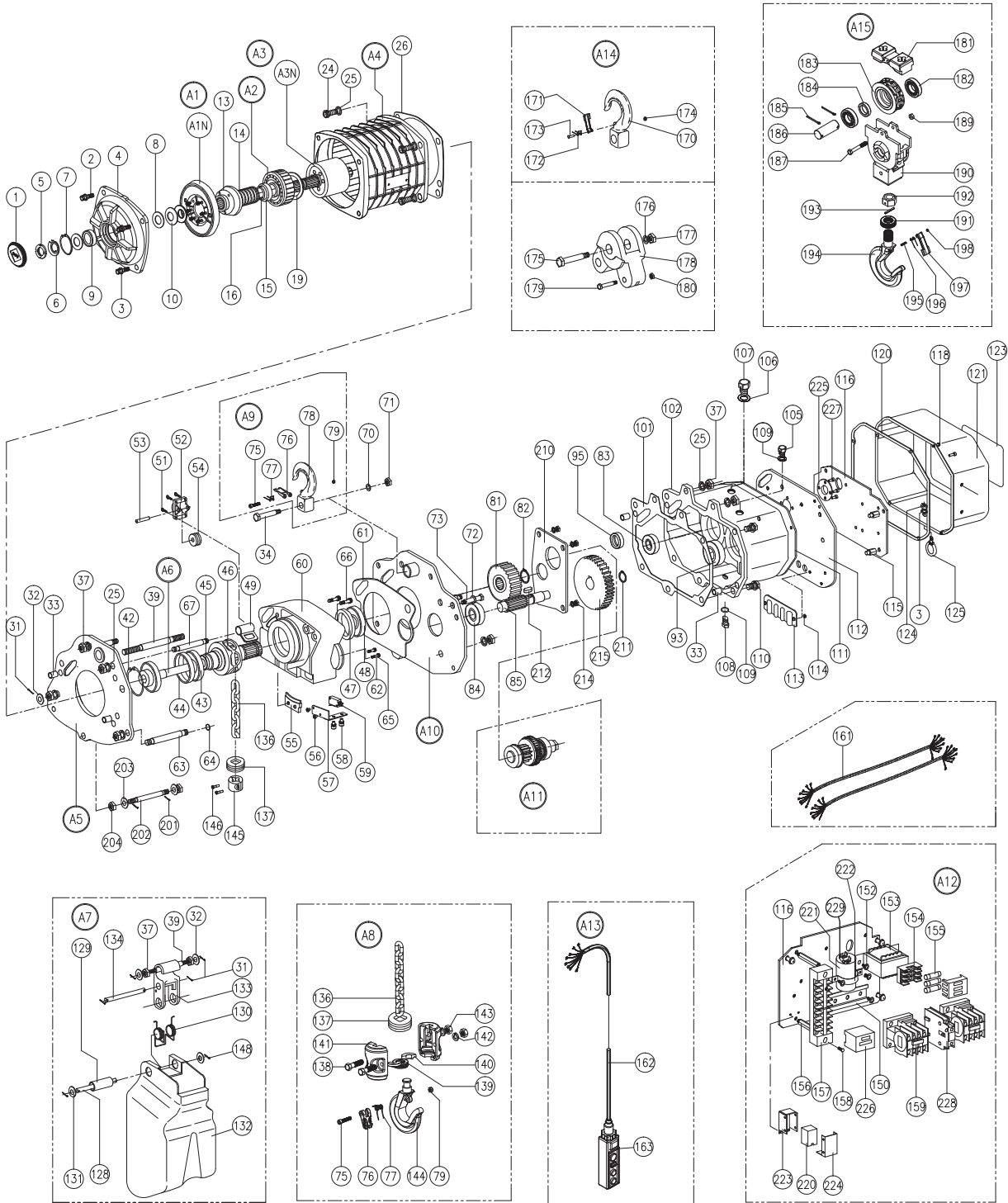
Once the hoist has been used for the FEM class duration, all of the components must be checked by an authorized agent or by the manufacturer. The hoist should no longer be used, unless agreement is obtained from the authorized agent or the manufacturer.

For discarding chain hoist, please remove all greases and oils from the hoist.

## 8. Parts illustrations

### 8.1. Exploded View of CH(chain hoist) Parts (2330010,2330020,2330040)

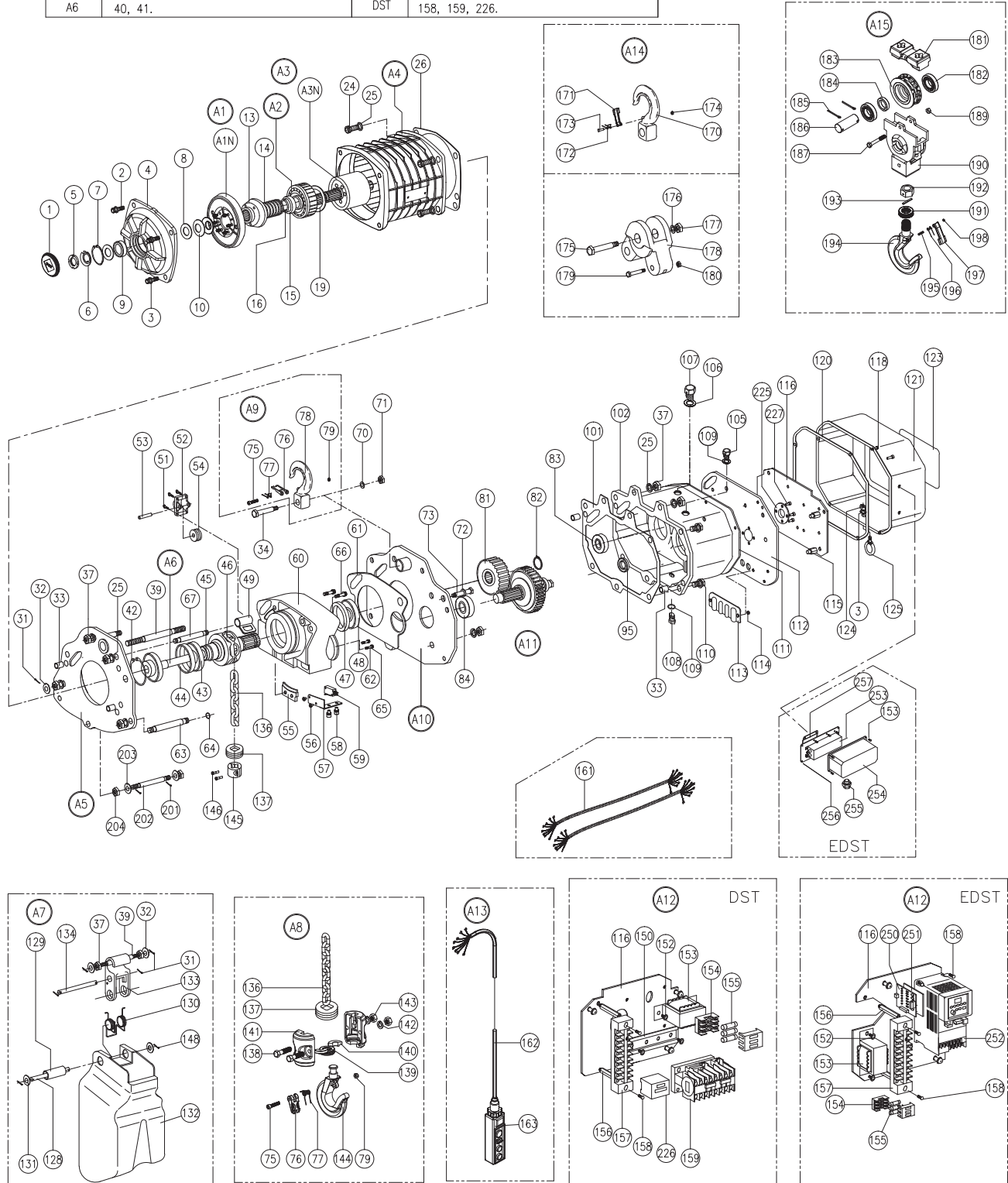
ASS'Y NO	ASSEMBLED PARTS	ASS'Y NO	ASSEMBLED PARTS	ASS'Y NO	ASSEMBLED PARTS
A1	A1N, 13, 30.	A7	31, 32, 128, 129,130,131,132,133,134,148.	A13	162, 163.
A1N		A8	75, 76, 77, 79, 138, 139, 140, 141, 142, 143, 144.	A14	170, 171, 172, 173, 174.
A2		A9	75, 76, 77, 78, 79.	A15	171, 172, 173, 174, 181, 182, 183, 184, 185, 186, 187, 189, 190, 191, 192, 193, 194.
A3	A2, 15, 16, 19, A3N	A10			
A3N		A11			
A4					
A5		A12	116,150,151,153,154,155,156,157,158,159, 220,221,222,223,224,226,228,229.		
A6	40, 41.				



### 8.2. Exploded View of CH(chain hoist) Parts

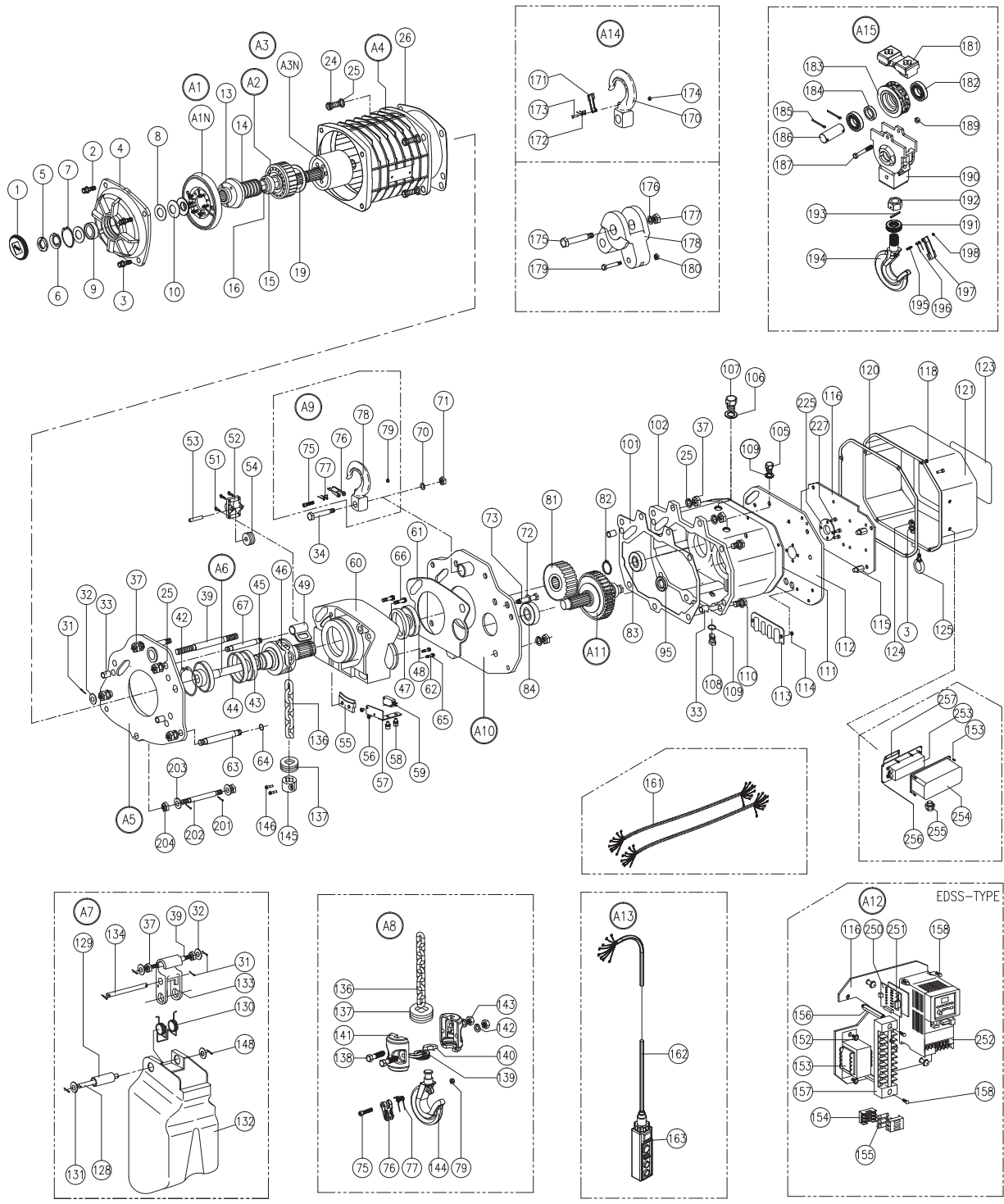
(2230010,2230020,2230040 & 2230010-VFD, 2230020-VFD, 2230040-VFD)

ASS'Y NO	ASSEMBLED PARTS	ASS'Y NO	ASSEMBLED PARTS	ASS'Y NO	ASSEMBLED PARTS
A1	A1N, 13, 30.	A7	31, 32, 128, 129,130,131,132,133,134,148.	A12	116, 152, 153, 154, 155, 156, 157, 158,
A1N		A8	75, 76, 77, 79, 138, 139, 140, 141, 142,	EDST	250, 251, 252.
A2			143, 144.	A13	162, 163.
A3	A2, 15, 16, 19, A3N	A9	75, 76, 77, 78, 79.	A14	170, 171, 172, 173, 174.
A3N		A10		A15	171, 172, 173, 174, 181, 182, 183, 184,
A4		A11			185, 186, 187, 189, 190, 191, 192, 193, 194
A5		A12	116, 150, 152, 153, 154, 155, 156, 157,		
A6	40, 41.	DST	158, 159, 226.		



## 8.3. Exploded View of CH(chain hoist) Parts (2330010-VFD-230,2330030-VFD-230,2330040-VFD-230)

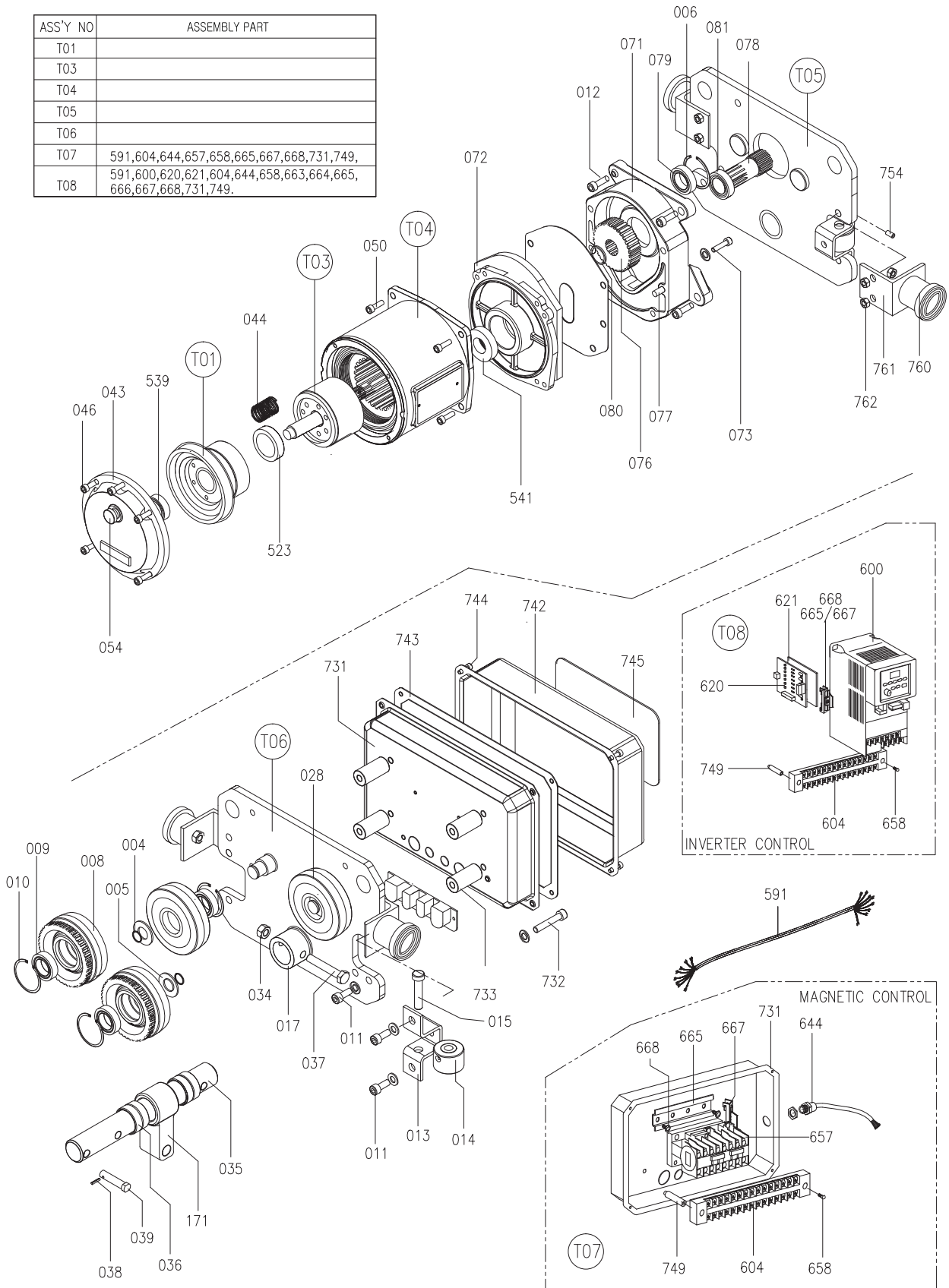
ASS'Y NO	ASSEMBLED PARTS	ASS'Y NO	ASSEMBLED PARTS	ASS'Y NO	ASSEMBLED PARTS
A1	A1N, 13, 30.	A7	31, 32, 128, 129,130,131,132,133,134,148.	A13	162, 163.
A1N		A8	75, 76, 77, 79, 138, 139, 140, 141, 142, 143, 144.	A14	170, 171, 172, 173, 174.
A2		A9	75, 76, 77, 78, 79.	A15	171, 172, 173, 174, 181, 182, 183, 184, 185, 186, 187, 189, 190, 191, 192, 193, 194
A3	A2, 15, 16, 19, A3N	A10			
A3N		A11			
A4		A12	116, 152, 153, 154, 155, 156, 157, 158, 250, 251, 252.		
A5					
A6	40, 41.				





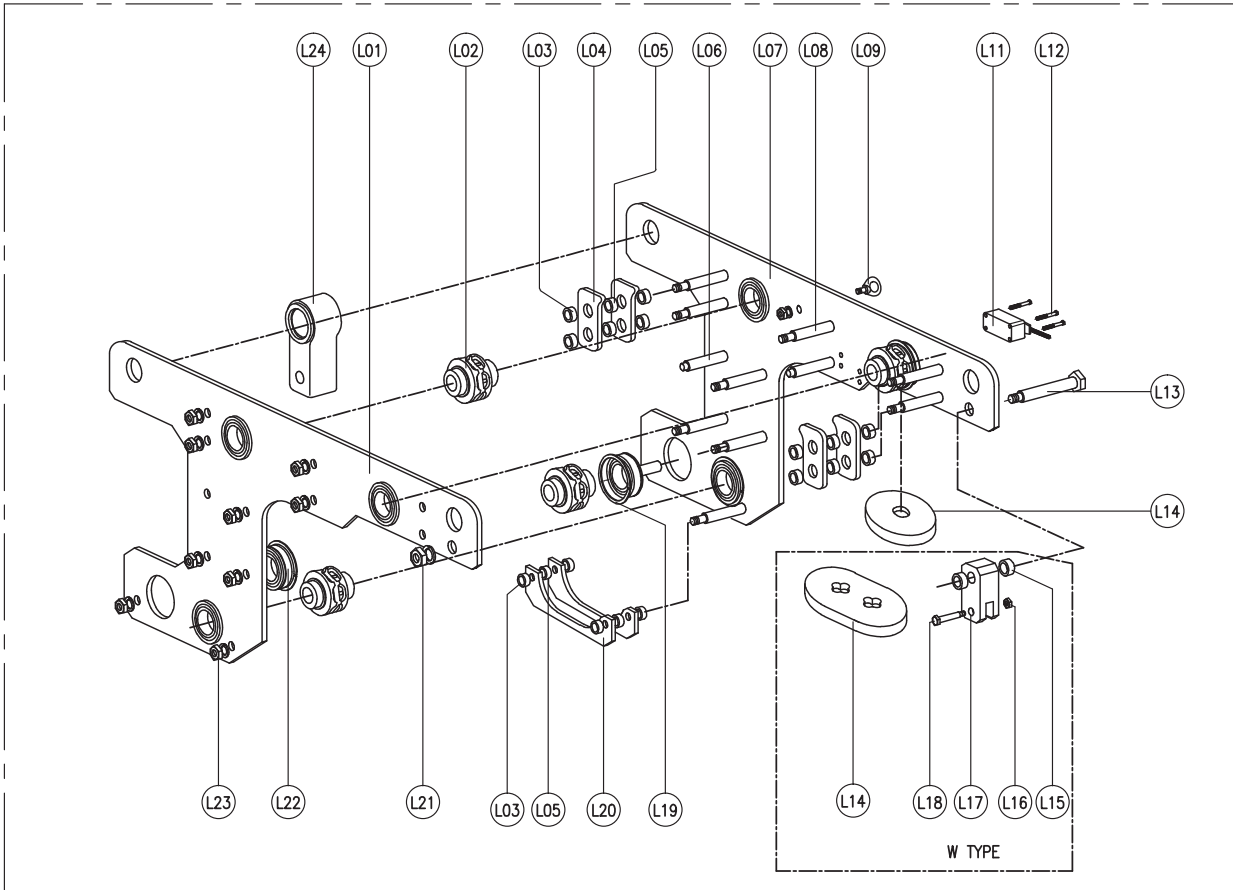
### 8.4. Exploded View of Trolley Parts

(2230110, 2230120, 2230140 & 2230110-VFD, 2230120-VFD, 2230140-VFD & 2330110-VFD, 2330120-VFD, 2330140-VFD)

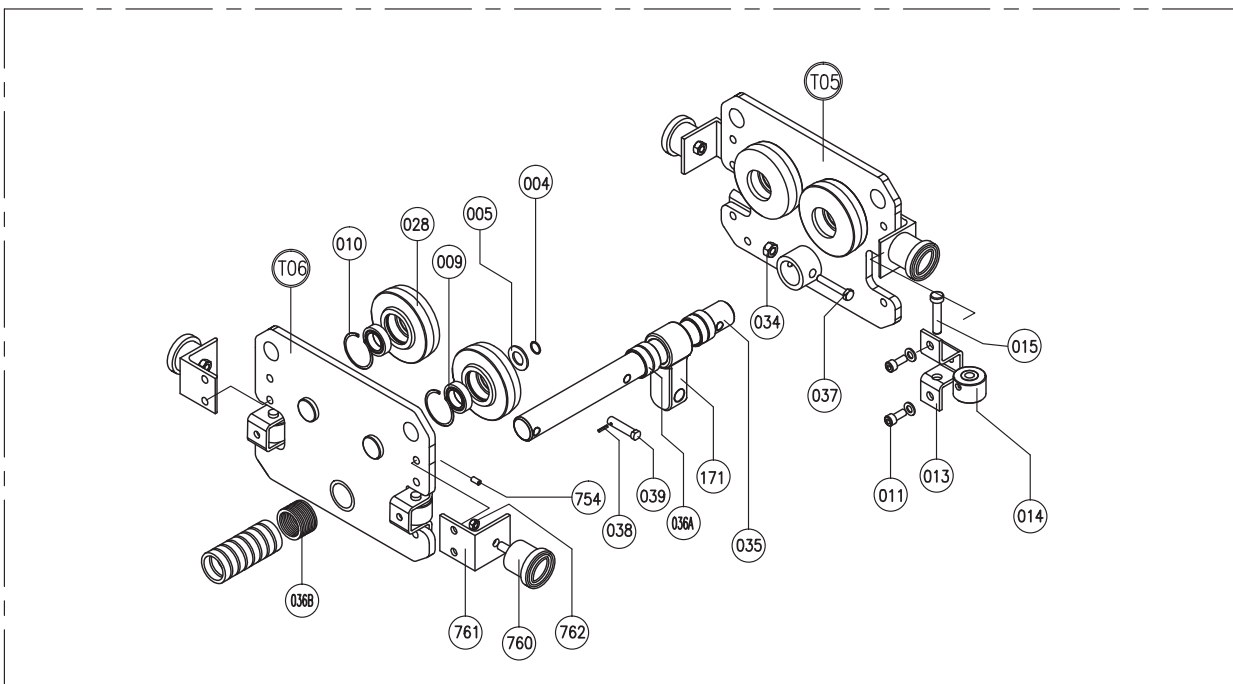




**8.5. Exploded View of Low Headroom Hoist (2230120-VFD-L, 2230140-VFD-L)**  
 (2230120-VFD-L,2230140-VFD-L)



**Exploded View of Lug Mount Plain Trolley Kit**  
 (2130410,2130420)



**8.6. PART LIST**

capacity-chain-falls (how to read out)		0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
		1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall
ACCOLIFT MODEL NO (HOOK SUSPENSION)		2230010	2230020	2230040	2230010 VFD	2230020 VFD	2230040 VFD	2330010	2330020	2330040	2330010 VFD	2330020 VFD	2330040 VFD
DESCRIPTION													
CHA1	BRAKE ASS'Y	71964-101											
CHA1N	BRAKE DISC ASS'Y	71964-101N											
CHA2	PULL ROTOR ASS'Y	71964-102											
CHA3	FULL ROTOR ASS'Y	71964-103											
CHA3N	ROTOR ASS'Y	71964-103N											
CHA4	MOTOR ASS'Y	71964-104		71964-204(230V) 71964-216(460V)			71964-304			71964-404			
CHA5	MOTOR SIDE PLATE ASS'Y	71964-105					71964-305			71964-105			
CHA6	1st GEAR ASS'Y	71964-106					71964-306			71964-106			
CHA7	CHAIN BOX ASS'Y(20FT LIFT)	71964-107											
CHA8	BOTTOM HOOK ASS'Y	71964-108	N/A	71964-108	N/A	71964-108	N/A	71964-108	N/A	71964-108	N/A	N/A	
CHA9	TOP HOOK ASS'Y	71964-109	N/A	71964-109	N/A	71964-109	N/A	71964-109	N/A	71964-109	N/A	N/A	
CHA10	GEAR SIDE PLATE ASS'Y	71964-110					71964-310			71964-110			
CHA11	FRICTION CLUTCH	71964-111					71964-311			71964-111			
CHA12	ELECTRIC ASS'Y	71964-112		71964-212(230V) 71964-217(460V)			71964-312			71964-412			
CHA13	PUSH BUTTON ASS'Y 2POINTS (U/DW)	71964-113		71964-213			71964-113			71964-213			
	PUSH BUTTON ASS'Y 4POINTS (U/DW/L/R)	71964-118		71964-218			71964-118			71964-218			
	PUSH BUTTON ASS'Y 6POINTS (U/DW/L/R/S/N)	71964-119		71964-219			71964-119			71964-219			
CHA14	TOP HOOK ASS'Y-2W	N/A	N/A	71964-214	N/A	N/A	71964-214	N/A	N/A	71964-214	N/A	N/A	71964-214
CHA15	BOTTOM HOOK ASS'Y-(2W)	N/A	N/A	71964-215	N/A	N/A	71964-215	N/A	N/A	71964-215	N/A	N/A	71964-215
CH001	PACKING CAP	71964-1001											
CH002	WRENCH BOLT	71964-1002											
CH003	SPRING WASHER	71964-1003											
CH004	BRAKE COVER	71964-1004											
CH005	LOCK NUT	71964-1005											
CH006	LOCK WASHER	71964-1006											
CH007	SNAP RING	71964-1007											
CH008	PLAIN WASHER	71964-1008											
CH009	BALL BEARING	71964-1009											
CH010	CLUTCH SPRING	71964-1010											
CH013	MOVING CORE	71964-1013											
CH014	BRAKE SPRING	71964-1014					71964-3014			71964-1014			
CH015	STOPPER RING	71964-1015											
CH016	SPLIT RING	71964-1016											
CH019	ROTOR CLUTCH SPRING	71964-1019											

capacity-chain-falls (how to read out)	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall
ACCOLIFT MODEL NO (HOOK SUSPENSION)	2230010	2230020	2230040	2230010 VFD	2230020 VFD	2230040 VFD	2330010	2330020	2330040	2330010 VFD	2330020 VFD	2330040 VFD
DESCRIPTION												
CH024 WRENCH BOLT	71964-1024											
CH025 SPRING WASHER	71964-1025											
CH026 PACKING MOTOR CASE	71964-1026											
CH030 WRENCH BOLT S/W	71964-1030											
CH031 COTTER PIN	71964-1031											
CH032 PLAIN WASHER	71964-1032											
CH033 SPRING PIN	71964-1033											
CH034 TOP HOOK PIN	71964-1034											
CH037 HEX NUT	71964-1037											
CH039 CHAIN BOX STAY BOLT	71964-1039											
CH042 SNAP RING	71964-1042											
CH043 BALL BEARING	71964-1043											
CH044 CHAIN GUIDE COLLAR	71964-1044											
CH045 OIL SEAL	71964-1045											
CH046 LOAD SHEAVE	71964-1046											
CH047 OIL SEAL	71964-1047											
CH048 BALL BEARING	71964-1048											
CH049 HANGER HOLDING METAL	71964-1049											
CH051 HEX WRENCH BOLT	71964-1051											
CH052 ROLLER COVER	71964-1052											
CH053 ROLLER PIN	71964-1053											
CH054 ROLLER	71964-1054											
CH055 STRIPPER	71964-1055											
CH056 TAP SCREW	71964-1056											
CH057 M/S BRACKET	71964-1057											
CH058 MACHINE SCREW S/W	71964-1058											
CH059 LIMIT SWITCH	71964-1059											

capacity-chain-falls (how to read out)	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall
ACCOLIFT MODEL NO (HOOK SUSPENSION)	2230010	2230020	2230040	2230010 VFD	2230020 VFD	2230040 VFD	2330010	2330020	2330040	2330010 VFD	2330020 VFD	2330040 VFD
DESCRIPTION												
CH060 CHAIN GUIDE	71964-1060											
CH061 PACKING CHAIN GUIDE	71964-1061											
CH062 WRENCH BOLT	71964-1062											
CH063 STAY BOLT A	71964-1063											
CH064 O-RING	71964-1064											
CH065 SPRING WASHER	71964-1065											
CH066 WRENCH BOLT	71964-1066											
CH067 STAY BOLT B	71964-1067											
CH070 SPRING WASHER	71964-1070											
CH071 U-NUT	71964-1071											
CH072 PACKING STOPPER BOLT	71964-1072											
CH073 STOPPER BOLT	71964-1073											
CH075 HEX WRENCH BOLT	71964-1075	N/A		71964-1075	N/A		71964-1075	N/A		71964-1075	N/A	
CH076 SAFETY LATCH	71964-1076	N/A		71964-1076	N/A		71964-1076	N/A		71964-1076	N/A	
CH077 SAFETY LATCH SPRING	71964-1077	N/A		71964-1077	N/A		71964-1077	N/A		71964-1077	N/A	
CH078 TOP HOOK	71964-1078	N/A		71964-1078	N/A		71964-1078	N/A		71964-1078	N/A	
CH079 U-NUT	71964-1079	N/A		71964-1079	N/A		71964-1079	N/A		71964-1079	N/A	
CH081 4th GEAR(6TH)	71964-1081											
CH082 SNAP RING	71964-1082											
CH083 BALL BEARING	71964-1083											
CH084 BALL BEARING	71964-1084											
CH085 3rd GEAR(5TH)	N/A						71964-3085			N/A		
CH093 BALL BEARING	N/A						71964-3093			N/A		
CH095 OIL SEAL	71964-1095						71964-3095			71964-1095		
CH101 PACKING GEAR CASE	71964-1101						71964-3101			71964-1101		
CH102 GEAR CASE	71964-1102						71964-3102			71964-1102		
CH105 AIR HOLE BOLT	71964-1105											
CH106 PACKING AIR BOLT	71964-1106											
CH107 AIR HOLE BOLT	71964-1107											
CH108 HEX BOLT	71964-1108											
CH109 O-RING	71964-1109											

capacity-chain-falls (how to read out)		0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
		1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall
ACCOLIFT MODEL NO (HOOK SUSPENSION)		2230010	2230020	2230040	2230010	2230020	2230040	2330010	2330020	2330040	2330010	2330020	2330040
DESCRIPTION													
CH110	HEX BOLT	71964-1110											
CH111	PACKING BOARD	71964-1111					71964-3111			71964-1111			
CH112	COMPONENT BOARD	71964-1112			71964-2112			71964-3112			71964-2112		
CH113	CORD HOLDER ASS'Y	71964-1113											
CH114	HEX NUT	71964-1114											
CH115	HEX STAY PIN	71964-1115											
CH116	ELECTRIC EQUIPMENT BOARD	71964-1116			71964-2116			71964-3116			71964-2116		
CH118	MACHINE SCREW S/W	71964-1118											
CH120	PACKING COMPONENT CASE	71964-1120			71964-2120			71964-1120			71964-2120		
CH121	ELECTRIC COMPONENT CASE	71964-1121			71964-2121			71964-1121			71964-2121		
CH123	NAME PLATE	71964-1123	71964-2123	71964-3123	71964-1123	71964-2123	71964-3123	71964-1123	71964-2123	71964-3123	71964-1123	71964-2123	71964-3123
CH124	NUT	71964-1124											
CH125	EYE BOLT	71964-1125											
CH128	CHAIN BOX HANGER PIN	71964-1128											
CH129	STAY PIPE	71964-1129											
CH130	RETURN SPRING	71964-1130											
CH131	PLAIN WASHER	71964-1131											
CH132	CHAIN BOX(20FT LIFT)	71964-1132											
CH133	CHAIN BOX HANGER SPRING	71964-1133											
CH134	CHAIN BOX HANGER PIN	71964-1134											
CH136	LOAD CHAIN	70011-9											
CH137	BUMPER ASS'Y	71964-1137											
CH138	HEX BOLT	71964-1138	N/A	71964-1138	N/A	71964-1138	N/A	71964-1138	N/A	71964-1138	N/A	71964-1138	N/A
CH139	THRUST BEARING	71964-1139	N/A	71964-1139	N/A	71964-1139	N/A	71964-1139	N/A	71964-1139	N/A	71964-1139	N/A
CH140	SPLIT RING	71964-1140	N/A	71964-1140	N/A	71964-1140	N/A	71964-1140	N/A	71964-1140	N/A	71964-1140	N/A
CH141	BOTTOM HOOK COVER	71964-1141	N/A	71964-1141	N/A	71964-1141	N/A	71964-1141	N/A	71964-1141	N/A	71964-1141	N/A
CH142	SPRING WASHER	71964-1142	N/A	71964-1142	N/A	71964-1142	N/A	71964-1142	N/A	71964-1142	N/A	71964-1142	N/A
CH143	HEX NUT	71964-1143	N/A	71964-1143	N/A	71964-1143	N/A	71964-1143	N/A	71964-1143	N/A	71964-1143	N/A
CH144	BOTTOM HOOK	71964-1144	N/A	71964-1144	N/A	71964-1144	N/A	71964-1144	N/A	71964-1144	N/A	71964-1144	N/A
CH145	CHAIN STOPPER	71964-1145											
CH146	WRENCH BOLT	71964-1146											
CH148	COTTER PIN	71964-1148											
CH150	CHANNEL	71964-1150			N/A			71964-1150			N/A		

capacity-chain-falls (how to read out)		0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
		1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall
ACCOLIFT MODEL NO (HOOK SUSPENSION)		2230010	2230020	2230040	2230010 VFD	2230020 VFD	2230040 VFD	2330010	2330020	2330040	2330010 VFD	2330020 VFD	2330040 VFD
DESCRIPTION													
CH151	CHANNEL STOPPER	71964-1151											
CH152	MACHINE SCREW S/W P/W	71964-1152											
CH153	TRANSFORMER	71964-1153					71964-3153			71964-1153			
CH154	FUSE HOLDER	71964-1154											
CH155	FUSE	71964-1155											
CH156	HEX STAY PIN	71964-1156			71964-2156			71964-1156			71964-2156		
CH157	TERMINAL BLOCK	71964-1157			71574-1197			71964-1157			71574-1197		
CH158	MACHINE SCREW S/W	71964-1158											
CH159	MAGNETIC CONTACTOR	71964-1159			N/A			71964-3159			N/A		
CH161	POWER CABLE ASS'Y	71964-1161											
CH162	PUSH BUTTON CABLE ASSY 0.030"(0.75m2)DIA. x 5COND FOR U/DW	71574-1116			N/A			71574-1116			N/A		
	PUSH BUTTON CABLE ASSY 0.030"(0.75m2)DIA. x 7CONDUCTOR FOR U/DW/L/R, FOR 2STEP U/DW	71574-1117											
	PUSH BUTTON CABLE ASSY 0.030"(0.75m2)DIA. x 9CONDUCTOR FOR U/DW/L/R/S/N, FOR 2STEP U/DW/L/R	71574-1118					N/A			71574-1118			
CH163	PUSH BUTTON,2POINTS(U/DW)	71574-1034			71574-1206			71574-1034			71574-1206		
	PUSH BUTTON,4POINTS(U/DW/L/R)	71574-1035			71574-1207			71574-1035			71574-1207		
	PUSH BUTTON,6POINTS(U/DW/L/R/S/N)	71574-1036			71574-1259			71574-1036			71574-1259		
CH170	TOP HOOK	N/A	N/A	71964-2170	N/A	N/A	71964-2170	N/A	N/A	71964-2170	N/A	N/A	71964-2170
CH171	SAFETY LATCH	N/A	N/A	71964-2171	N/A	N/A	71964-2171	N/A	N/A	71964-2171	N/A	N/A	71964-2171
CH172	SAFETY LATCH SPRING	N/A	N/A	71964-2172	N/A	N/A	71964-2172	N/A	N/A	71964-2172	N/A	N/A	71964-2172
CH173	HEX WRENCH BOLT	N/A	N/A	71964-2173	N/A	N/A	71964-2173	N/A	N/A	71964-2173	N/A	N/A	71964-2173
CH174	U-NUT	N/A	N/A	71964-2174	N/A	N/A	71964-2174	N/A	N/A	71964-2174	N/A	N/A	71964-2174
CH175	CONNECTING BOLT	N/A	N/A	71964-2175	N/A	N/A	71964-2175	N/A	N/A	71964-2175	N/A	N/A	71964-2175
CH176	PLAIN WASHER	N/A	N/A	71964-2176	N/A	N/A	71964-2176	N/A	N/A	71964-2176	N/A	N/A	71964-2176
CH177	U-NUT	N/A	N/A	71964-2177	N/A	N/A	71964-2177	N/A	N/A	71964-2177	N/A	N/A	71964-2177
CH178	ARM	N/A	N/A	71964-2178	N/A	N/A	71964-2178	N/A	N/A	71964-2178	N/A	N/A	71964-2178
CH179	HEX BOLT	N/A	N/A	71964-2179	N/A	N/A	71964-2179	N/A	N/A	71964-2179	N/A	N/A	71964-2179
CH180	U-NUT	N/A	N/A	71964-2180	N/A	N/A	71964-2180	N/A	N/A	71964-2180	N/A	N/A	71964-2180
CH181	BOTTOM HOOK CHAIN GUIDE	N/A	N/A	71964-2181	N/A	N/A	71964-2181	N/A	N/A	71964-2181	N/A	N/A	71964-2181
CH182	ROLLER BEARING	N/A	N/A	71964-2182	N/A	N/A	71964-2182	N/A	N/A	71964-2182	N/A	N/A	71964-2182
CH183	IDLE SHEAVE	N/A	N/A	71964-2183	N/A	N/A	71964-2183	N/A	N/A	71964-2183	N/A	N/A	71964-2183
CH184	IDLE SHEAVE COLLAR	N/A	N/A	71964-2184	N/A	N/A	71964-2184	N/A	N/A	71964-2184	N/A	N/A	71964-2184
CH185	COTTER PIN	N/A	N/A	71964-2185	N/A	N/A	71964-2185	N/A	N/A	71964-2185	N/A	N/A	71964-2185
CH186	IDLE SHEAVE PIN	N/A	N/A	71964-2186	N/A	N/A	71964-2186	N/A	N/A	71964-2186	N/A	N/A	71964-2186
CH187	HEX BOLT	N/A	N/A	71964-2187	N/A	N/A	71964-2187	N/A	N/A	71964-2187	N/A	N/A	71964-2187
CH189	HEX NUT	N/A	N/A	71964-2189	N/A	N/A	71964-2189	N/A	N/A	71964-2189	N/A	N/A	71964-2189
CH190	BOTTOM HOOK COVER	N/A	N/A	71964-2190	N/A	N/A	71964-2190	N/A	N/A	71964-2190	N/A	N/A	71964-2190
CH191	THRUST BEARING	N/A	N/A	71964-2191	N/A	N/A	71964-2191	N/A	N/A	71964-2191	N/A	N/A	71964-2191



capacity-chain-falls (how to read out)	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall	1chain-fall	1chain fall	2chain fall
ACCOLIFT MODEL NO (HOOK SUSPENSION)	2230010	2230020	2230040	2230010 VFD	2230020 VFD	2230040 VFD	2330010	2330020	2330040	2330010 VFD	2330020 VFD	2330040 VFD
DESCRIPTION												
CH192 BOTTOM HOOK NUT	N/A	N/A	71964-2192	N/A	N/A	71964-2192	N/A	N/A	71964-2192	N/A	N/A	71964-2192
CH193 SPRING PIN	N/A	N/A	71964-2193	N/A	N/A	71964-2193	N/A	N/A	71964-2193	N/A	N/A	71964-2193
CH194 BOTTOM HOOK	N/A	N/A	71964-2194	N/A	N/A	71964-2194	N/A	N/A	71964-2194	N/A	N/A	71964-2194
CH195 HEX WRENCH BOLT	N/A	N/A	71964-2195	N/A	N/A	71964-2195	N/A	N/A	71964-2195	N/A	N/A	71964-2195
CH196 SAFETY LATCH SPRING	N/A	N/A	71964-2196	N/A	N/A	71964-2196	N/A	N/A	71964-2196	N/A	N/A	71964-2196
CH197 SAFETY LATCH	N/A	N/A	71964-2197	N/A	N/A	71964-2197	N/A	N/A	71964-2197	N/A	N/A	71964-2197
CH198 U-NUT	N/A	N/A	71964-2198	N/A	N/A	71964-2198	N/A	N/A	71964-2198	N/A	N/A	71964-2198
CH201 COTTER PIN	N/A	N/A	71964-2201	N/A	N/A	71964-2201	N/A	N/A	71964-2201	N/A	N/A	71964-2201
CH202 CHAIN BOX SUPPORT PIN	N/A	N/A	71964-2202	N/A	N/A	71964-2202	N/A	N/A	71964-2202	N/A	N/A	71964-2202
CH203 PLAIN WASHER	N/A	N/A	71964-2203	N/A	N/A	71964-2203	N/A	N/A	71964-2203	N/A	N/A	71964-2203
CH204 HEX NUT	N/A	N/A	71964-2204	N/A	N/A	71964-2204	N/A	N/A	71964-2204	N/A	N/A	71964-2204
CH210 CENTER PLATE	NA						71964-3210			NA		
CH211 SNAP RING	NA						71964-3211			NA		
CH212 KEY	NA						71964-3212			NA		
CH213 STAY BOLT	NA						71964-3213			NA		
CH214 U NUT	NA						71964-3214			NA		
CH215 4TH GEAR	NA						71964-3215			NA		
CH220 START SWITCH	NA						71964-3220			NA		
CH221 CAPACITOR	NA						71964-3221			NA		
CH222 SADDLE	NA						71964-3222			NA		
CH223 START SWITCH HOUSING	NA						71964-3223			NA		
CH224 START SWITCH COVER	NA						71964-3224			NA		
CH225 BEARING COVER	71964-1225											
CH226 HOUR/COUNT METER	71964-1226			NA			71964-1226			NA		
CH227 MACHINE SCREW S/W	71964-1227											
CH228 INTERLOCK UNIT	NA			NA			71964-3228			NA		
CH229 RECHARGE RESISTOR	NA			NA			71964-3229			NA		
CH250 INTERFACE	NA			71964-2250			NA			71964-2250		
CH251 INTERFACE BOARD	NA			71964-2251			NA			71964-2251		
CH252 INVERTER	NA			71964-2252(230V) 71964-3252(460V)			NA			71964-4252		
CH253 BRAKING RESISTOR	NA			71964-2253			NA			71964-2253		
CH254 COVER	NA			71964-2254			NA			NA		
CH255 CABLE LOCKER	NA			71964-2255			NA			NA		
CH256 BASE PLATE	NA			71964-2256			NA			NA		
CH257 BRACKET	NA			71964-2257			NA			NA		

# ELECTRIC CHAIN HOIST

ACCOLIFT MODEL NO (MOTOR TROLLEY MOUNTED)		0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
		2230110	2230120	2230140	2230110 VFD	2230120 VFD	2230140 VFD	2330110	2330120	2330140	2330110 VFD	2330120 VFD	2330140 VFD
DESCRIPTION													
MTT01	BRAKE DISC ASS'Y	71574-1177						NA					
MTT03	ROTOR ASS'Y	71574-1166						71574-4166					
MTT04	MOTOR ASS'Y	71574-1156			71574-1267(230V) 71574-1268(460V)			71574-4156			71574-1267		
MTT05	GEAR SIDE PLATE ASS'Y	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133
MTT06	PLAIN SIDE PLATE ASS'Y	71574-1148	-2148	71574-1148	-2148	71574-1148	-2148	71574-1148	-2148	71574-1148	-2148	71574-1148	-2148
MTT07	ELECTRIC EQUIPMENT ASS'Y	71574-1191			NA			71574-4191			NA		
MTT08	ELECTRIC EQUIPMENT ASS'Y	NA			71574-1518(230V) 71574-1519(460V)			NA			71574-5524		
MTT09	BRAKE ASS'Y	NA			NA			71574-4319					
MT002	GEAR SIDE PLATE	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133	71574-1133	-2133
MT004	SNAP RING	71574-1134	-2134	71574-1134	-2134	71574-1134	-2134	71574-1134	-2134	71574-1134	-2134	71574-1134	-2134
MT005	PLAIN WASHER	71574-1135	-2135	71574-1135	-2135	71574-1135	-2135	71574-1135	-2135	71574-1135	-2135	71574-1135	-2135
MT006	SNAP RING	71574-1136											
MT008	GEAR ROLLER	71574-1137	-2137	71574-1137	-2137	71574-1137	-2137	71574-1137	-2137	71574-1137	-2137	71574-1137	-2137
MT009	BALL BEARING	71574-1138	-2138	71574-1138	-2138	71574-1138	-2138	71574-1138	-2138	71574-1138	-2138	71574-1138	-2138
MT010	SNAP RING	71574-1139	-2139	71574-1139	-2139	71574-1139	-2139	71574-1139	-2139	71574-1139	-2139	71574-1139	-2139
MT011	BOLT W/HEX, HOLE	71574-1140											
MT012	HEX NUT	71574-1141											
MT013	GUIDE ROLLER BODY	71574-1142											
MT014	GUIDE ROLLER	71574-1143											
MT015	GUIDE ROLLER PIN	71574-1144											
MT018	CORD HOLDER ASS'Y	71574-1147											
MT028	PLAIN ROLLER	71574-1150	-2150	71574-1150	-2150	71574-1150	-2150	71574-1150	-2150	71574-1150	-2150	71574-1150	-2150
MT034	U NUT	71574-1151	-2151	71574-1151	-2151	71574-1151	-2151	71574-1151	-2151	71574-1151	-2151	71574-1151	-2151
MT035	SHAFT	71574-1152	-2152	71574-1152	-2152	71574-1152	-2152	71574-1152	-2152	71574-1152	-2152	71574-1152	-2152
MT036A	ADJUSTING COLLAR	71574-1153	-2153	71574-1153	-2153	71574-1153	-2153	71574-1153	-2153	71574-1153	-2153	71574-1153	-2153
MT036A	ADJUSTING WASHER	71574-1227	-2227	71574-1227	-2227	71574-1227	-2227	71574-1227	-2227	71574-1227	-2227	71574-1227	-2227
MT037	STOPPER BOLT(WRENCH BOLT)	71574-1154	-2154	71574-1154	-2154	71574-1154	-2154	71574-1154	-2154	71574-1154	-2154	71574-1154	-2154
MT038	COTTER PIN	71574-1155											
MT039	STOPPER PIN	71574-1296	-2296	71574-1296	-2296	71574-1296	-2296	71574-1296	-2296	71574-1296	-2296	71574-1296	-2296
MT043	BRAKE COVER	71574-1157						NA					
MT044	BRAKE SPRING	71574-1158						NA					
MT045	NAME PLATE	71574-1159			71574-2159			71574-4159			71574-2159		
MT046	BOLT W/HEX, HOLE	71574-1160											
MT050	BOLT W/HEX, HOLE	71574-1162											
MT054	COVER PLUG	71574-1163						NA			71574-1163		
MT071	GEAR CASE	71574-1164											
MT072	FLANGE	71574-1165											
MT073	BOLT W/HEX, HOLE	71574-1320											
MT076	2'ND GEAR	71574-1167											
MT077	SPRING PIN	71574-1168											
MT078	3RD GEAR	71574-1169											
MT079	BALL BEARING	71574-1170											
MT080	SNAP RING	71574-1171											
MT081	COLLAR FOR 3RD GEAR	71574-1172											
MT082	PACKING FLANGE	71574-1173											
MT171	CONNECTOR-PARALLEL	71574-1174	-2174	71574-1174	-2174	71574-1174	-2174	71574-1174	-2174	71574-1174	-2174	71574-1174	-2174
MT171	CONNECTOR-CROSS	71574-1265	-2265	71574-1265	-2265	71574-1265	-2265	71574-1265	-2265	71574-1265	-2265	71574-1265	-2265

ACCOLIFT MODEL NO (MOTOR TROLLEY MOUNTED)		0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton	0.5Ton	1Ton	2Ton
		2230110	2230120	2230140	2230110 VFD	2230120 VFD	2230140 VFD	2330110	2330120	2330140	2330110 VFD	2330120 VFD	2330140 VFD
MT221	CONDENSER	NA						71574-4323			NA		
MT222	SADDLE	NA						71574-4324			NA		
MT223	RECHARGE RESISTOR	NA						71574-4325			NA		
MT224	ELECTRIC EQUIPMENT BOARD	NA						71574-4326			NA		
MT225	HEX STAY BOLT	NA						71574-4327			NA		
MT523	BUMPER RUBBER	71574-1175											
MT539	BALL BEARING	71574-1178											
MT541	BALL BEARING	71574-1179											
MT550	BRAKE STATOR	NA						71574-4331			NA		
MT551	BRAKE COIL	NA						71574-4332			NA		
MT552	BRAKE SPRING	NA						71574-4333			NA		
MT553	MOVING PLATE	NA						71574-4334			NA		
MT554	BRAKE COVER	NA						71574-4335			NA		
MT555	BRAKE LINING	NA						71574-4336			NA		
MT556	HEX HUB	NA						71574-4337			NA		
MT557	STAY PIPE	NA						71574-4338			NA		
MT558	HEX WRENCH BOLT S/W	NA						71574-4339			NA		
MT559	O RING	NA						71574-4340			NA		
MT591	POWER CORD	71574-1341											
MT600	INVERTER	NA			71574-1194(230V) 71574-1195(460V)			NA			71574-1194		
MT604	TERMINAL BLOCK	71574-1343											
MT620	INTERFACE	NA			71574-2344			NA			71574-2344		
MT621	INTERFACE BOARD	NA			71574-2345			NA			71574-2345		
MT640	RECTIFIER	NA			NA			71574-4346			NA		
MT644	CABLE HOLDER	71574-1347											
MT657	MAGNETIC CONTACTOR	71574-1180			NA			71574-4180			NA		
MT658	MACHINE SCREW S/W	71574-1348											
MT665	CHANNEL	71574-1351											
MT667	CHANNEL STOPPER	71574-1353											
MT642	MACHINE SCREW S/W, P/W	71574-1354											
MT731	CONTROL BOX	71574-1182			71574-2182			71574-1182			71574-2182		
MT732	BOLT W/HEX, HOLE	71574-1183											
MT733	SUPPORT BAR	71574-1184											
MT742	CONTROL BOX COVER	71574-1185			71574-1216								
MT743	CONTROL BOX COVER PACKING	71574-1186											
MT744	MACHINE SCREW	71574-1355											
MT745	NAME PLATE	71574-1187	-2187	71574-1187	-2187	71574-1187	-2187	71574-1187	-2187	71574-1187	-2187		
MT749	HEX STAY PIN	71574-1356											
MT754	SET SCREW	71574-1188											
MT755	RIVET	71574-1189											
MT756	LEAD PACKING	71574-1190						NA			71574-1190		
MT760	BUMPER STOPPER	71574-1313											
MT761	BUMPER BRACKET	71574-1314											
MT762	HEX NUT	71574-1357											

## PART OF LOW HEADROOM SERIES

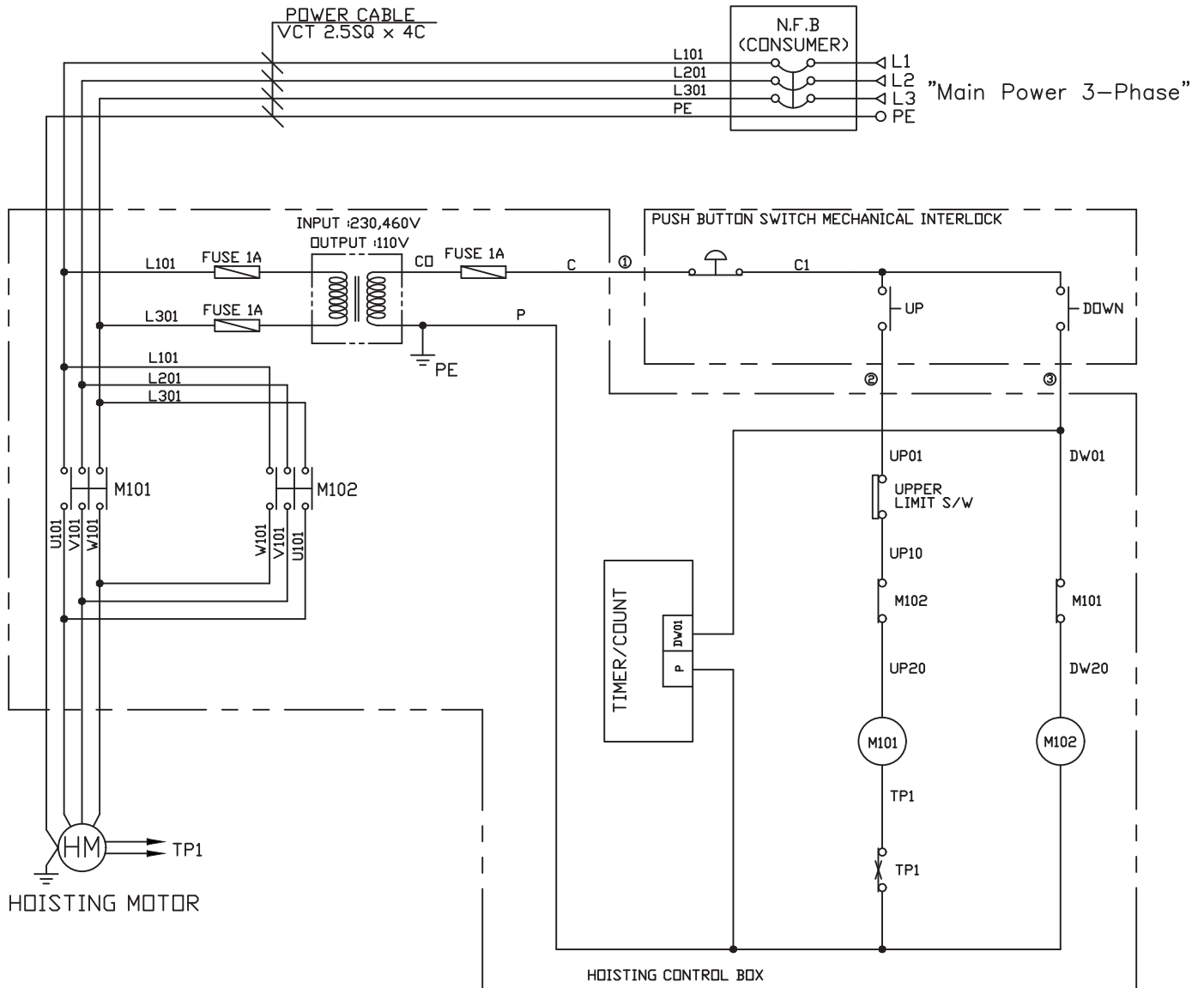
CAPACITY		1TON	2TON
ACCOLIFT MODEL NO		2230120-VFD-L	2230140-VFD-L
PART NO	DESCRIPTION		
LBL01	SIDE PLATE	71574-1467	71574-2467
LBL02	IDLE SHEAVE	71574-1468	
LBL03	GUIDE COLLAR A	71574-1479	71574-2479
LBL04	STRIP GUIDE	71574-1500	71574-2500
LBL05	GUIDE COLLAR B	71574-1480	
LBL06	STAT PIN	71574-1501	
LBL07	LIMIT SIDE PLATE	71574-1466	71574-2466
LBL08	STAY BOLT	71574-1475	
LBL09	EYE BOLT NIT S/W	71574-1502	
LBL11	LIMIT SWITCH	71574-1486	
LBL12	MACHINE SCREW	71574-1503	
LBL13	CONNECTING BOLT	N/A	71574-2489
LBL14	WEIGHT	71574-1504	71574-2504
LBL15	METAL COLLAR	N/A	71574-2488
LBL16	U NUT	N/A	71574-2495
LBL17	CHAIN ANCHORAGE METAL	N/A	71574-2490
LBL18	CHAIN ANCHORAGE BOLT	N/A	71574-2491
LBL19	SNAP RING	71574-1484	
LBL20	CHAIN GUIDE	71574-1478	
LBL21	HEX BOLT S/W	71574-1496	
LBL22	BALL BEARING	71574-1483	
LBL23	HEX NUT S/W	71574-1496	
LBL24	CONNECTOR	71574-1494	71574-2494

## PART OF LUG MOUNT PLAIN TROLLEY KIT

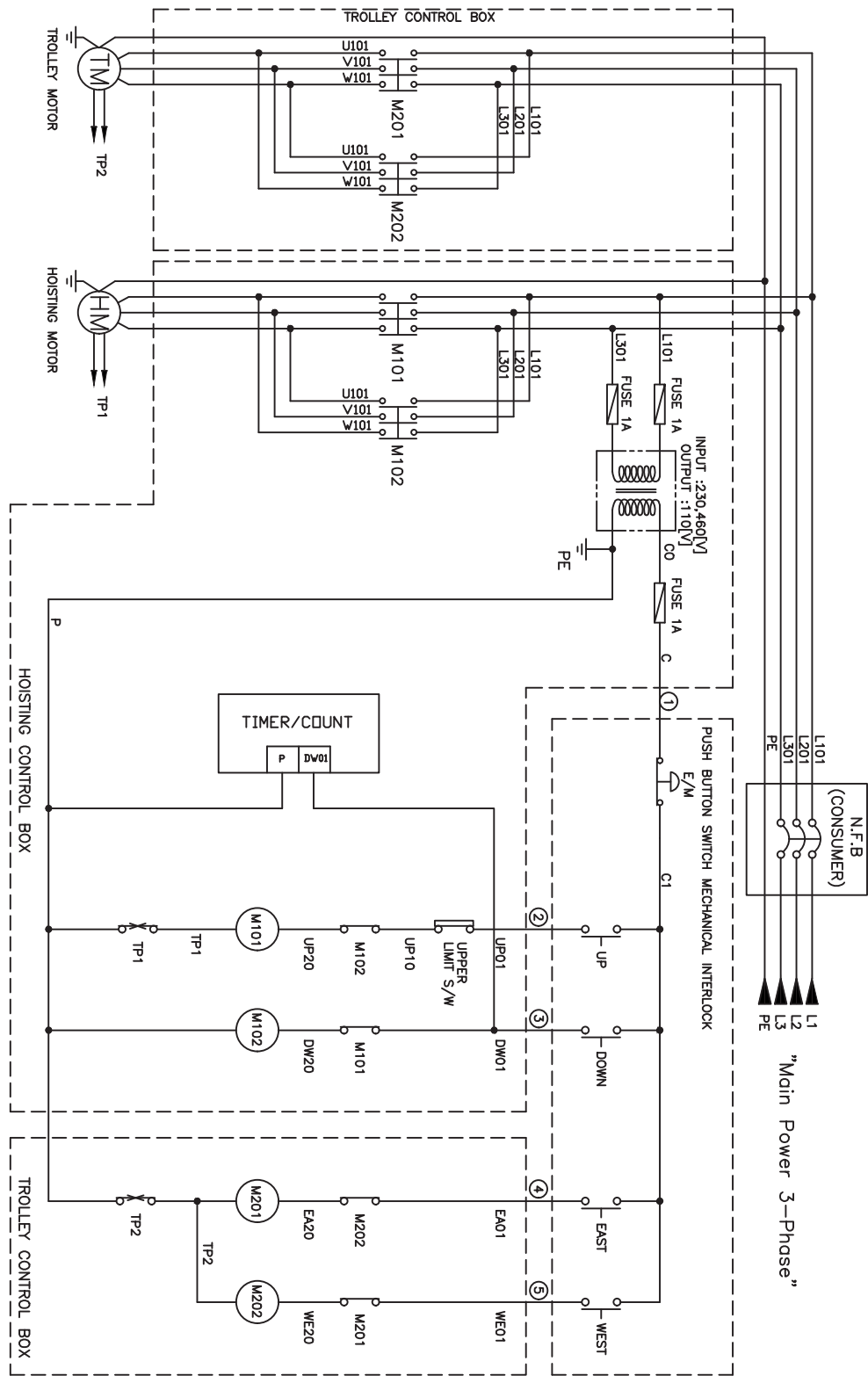
CAPACITY		0.5TON	1TON	2TON
ACCOLIFT MODEL NO		2130410		2130420
PART NO	DESCRIPTION			
PTT05	PLAIN SIDE PLATE ASS'Y A	71574-1497	71574-2497	
PTT06	PLAIN SIDE PLATE ASS'Y B	71574-1498	71574-2498	
PT004	SNAP RING	71574-1134	71574-2134	
PT005	PLAIN WASHER	71574-1135	71574-2135	
PT009	BALL BEARING	71574-1138	71574-2138	
PT010	SNAP RING	71574-1139	71574-2139	
PT011	HEX WRENCH BOLT S/W	71574-1140		
PT013	GUIDE ROLLER BODY	71574-1142		
PT014	GUIDE ROLLER	71574-1143		
PT015	GUIDE ROLELR PIN	71574-1142		
PT028	PLAIN ROLELR	71574-1150	71574-2150	
PT034	HEX NUT	71574-1151	71574-2151	
PT035	SHAFT	71574-1152	71574-2152	
PT036A	ADJUSTING COLLAR	71574-1153	71574-2153	
PT036B	ADJUSTING WASHER	71574-1227	71574-2227	
PT037	STOPPER BOLT	71574-1154	71574-2154	
PT038	COTTER PIN	71574-1156		
PT039	STOPPER PIN	71574-1228	71574-2228	
PT171	CONNECTOR-PARALLEL MOUNT	71574-1312	71574-2174	
PT171	CONNECTOR-CROSS MOUNT	71574-1315	71574-2265	
PT754	SET SCREW	71574-1188	71574-2188	
PT760	BUMPER STOPPER	71574-1313		
PT761	BUMPER BRACKET	71574-1314		
PT762	HEX NUT	71574-1499		

● Electric Connection Drawing

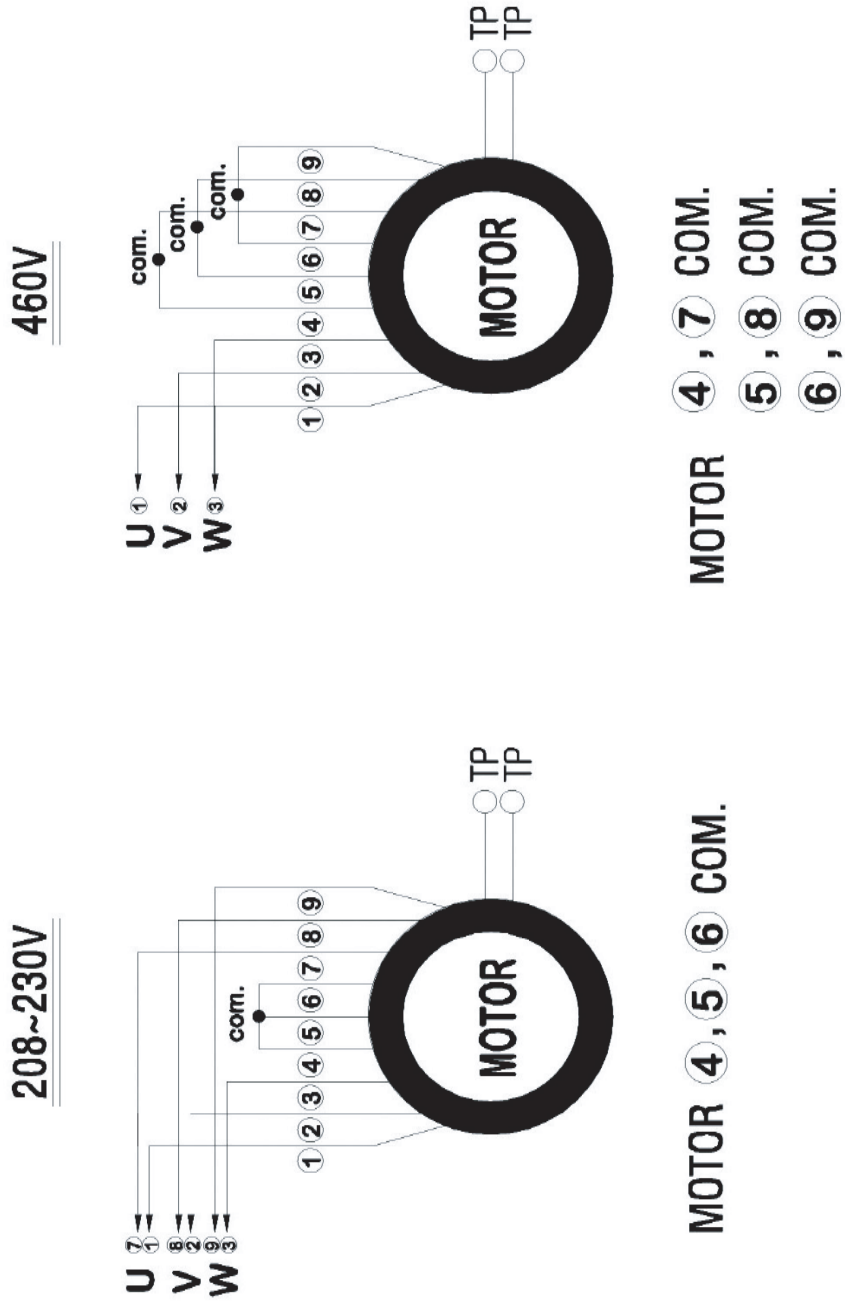
■ 2230010,2230020,2230040,2230010-PT,2230020-PT,2230040-PT



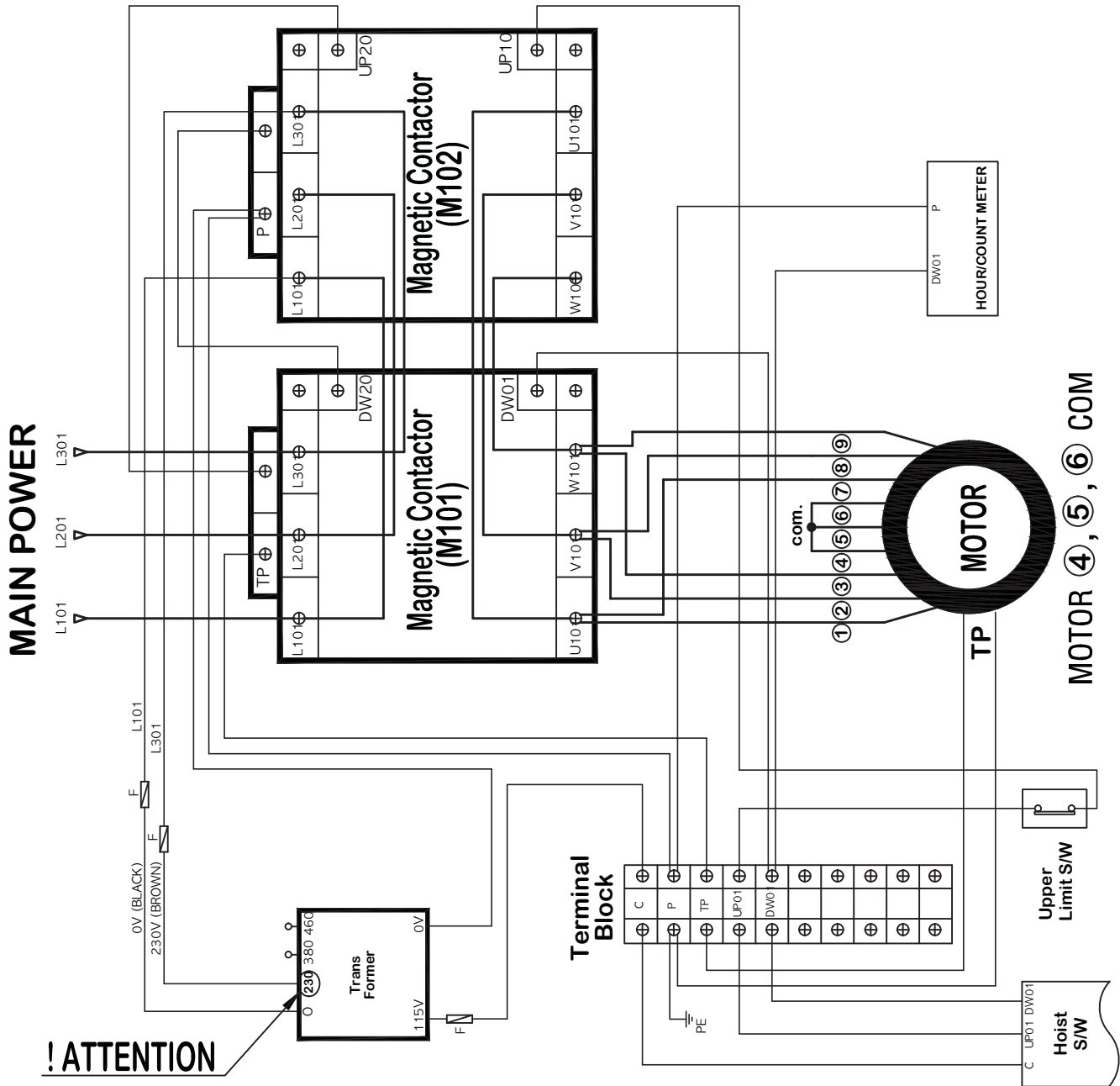
■ 2230110,2230120,2230140



■ Motor Diagram 208~230V/460V Combined

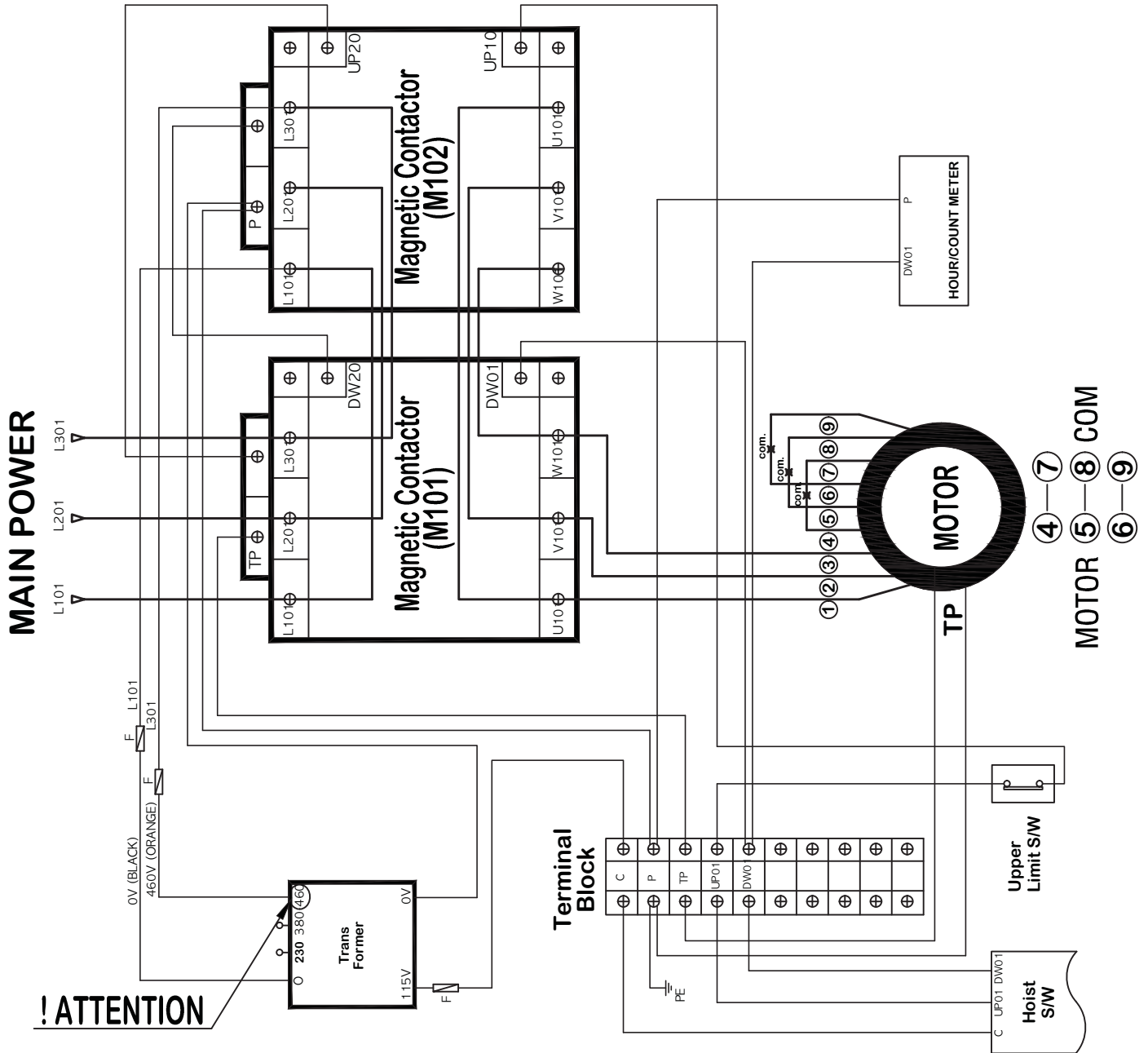


■ 2230010, 2230020, 2230040, 2230010-PT, 2230020-PT, 2230040-PT (208V~230V 60Hz)

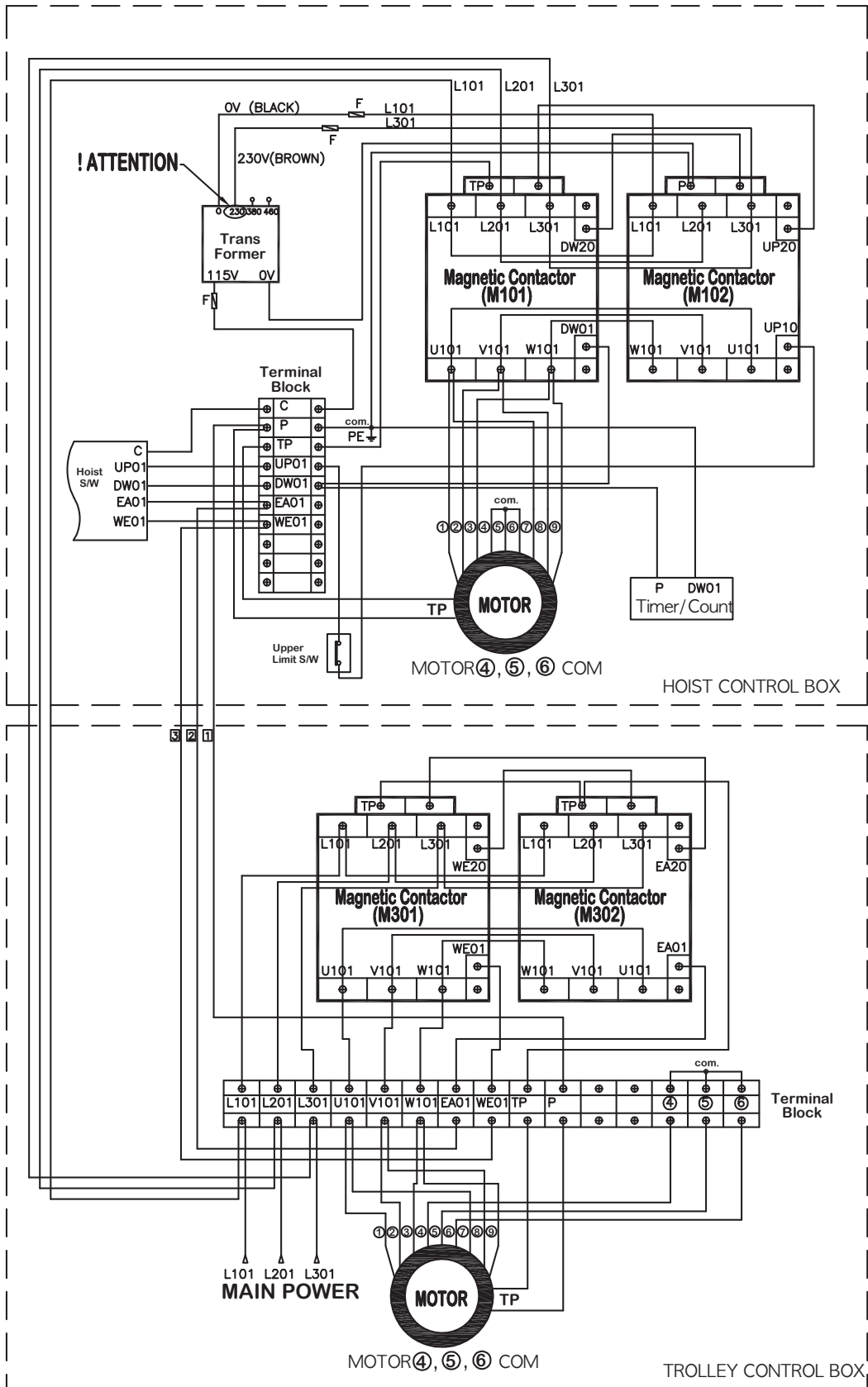




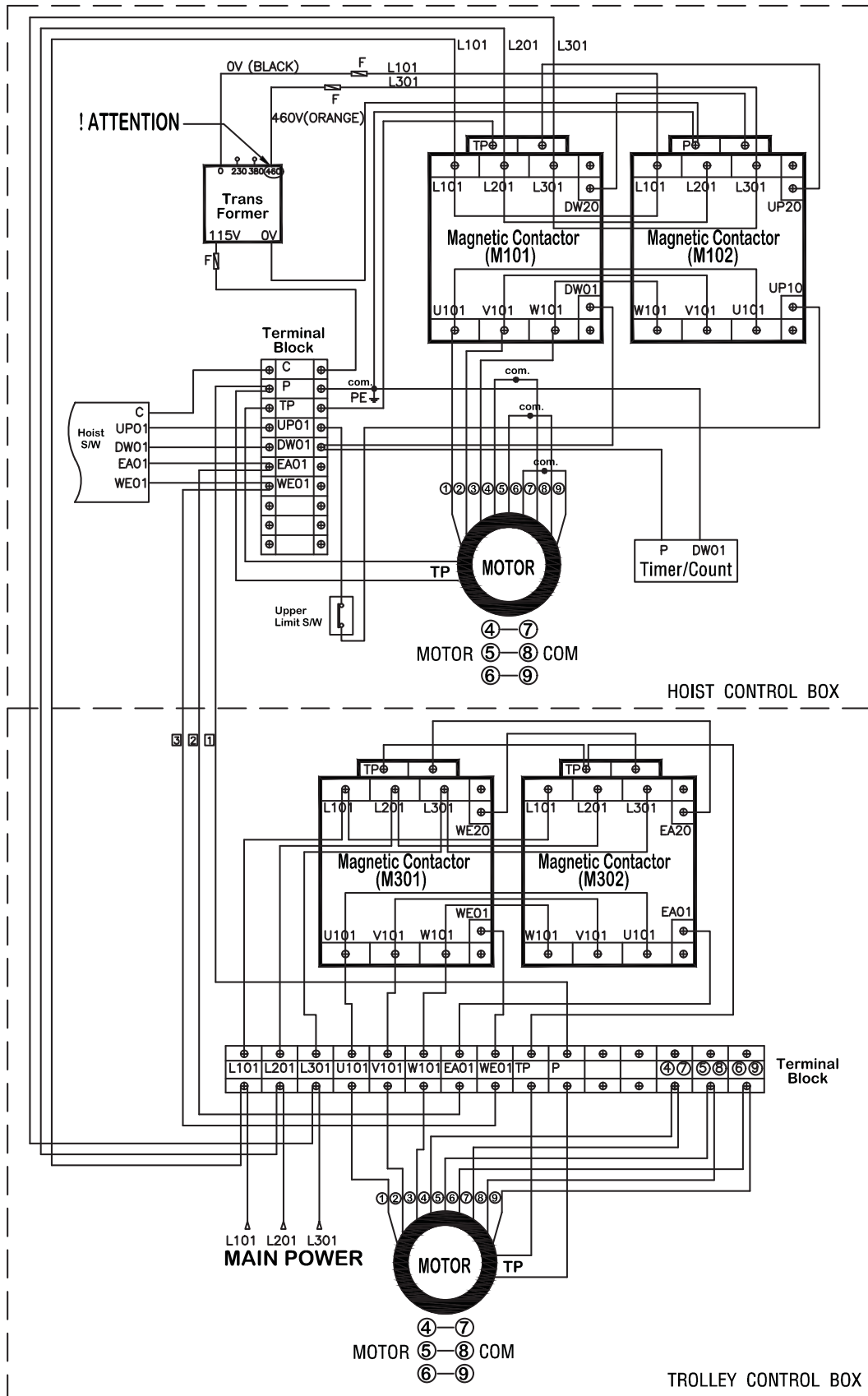
■ 2230010, 2230020, 2230040, 2230010-PT, 2230020-PT, 2230040-PT (460V 60Hz)



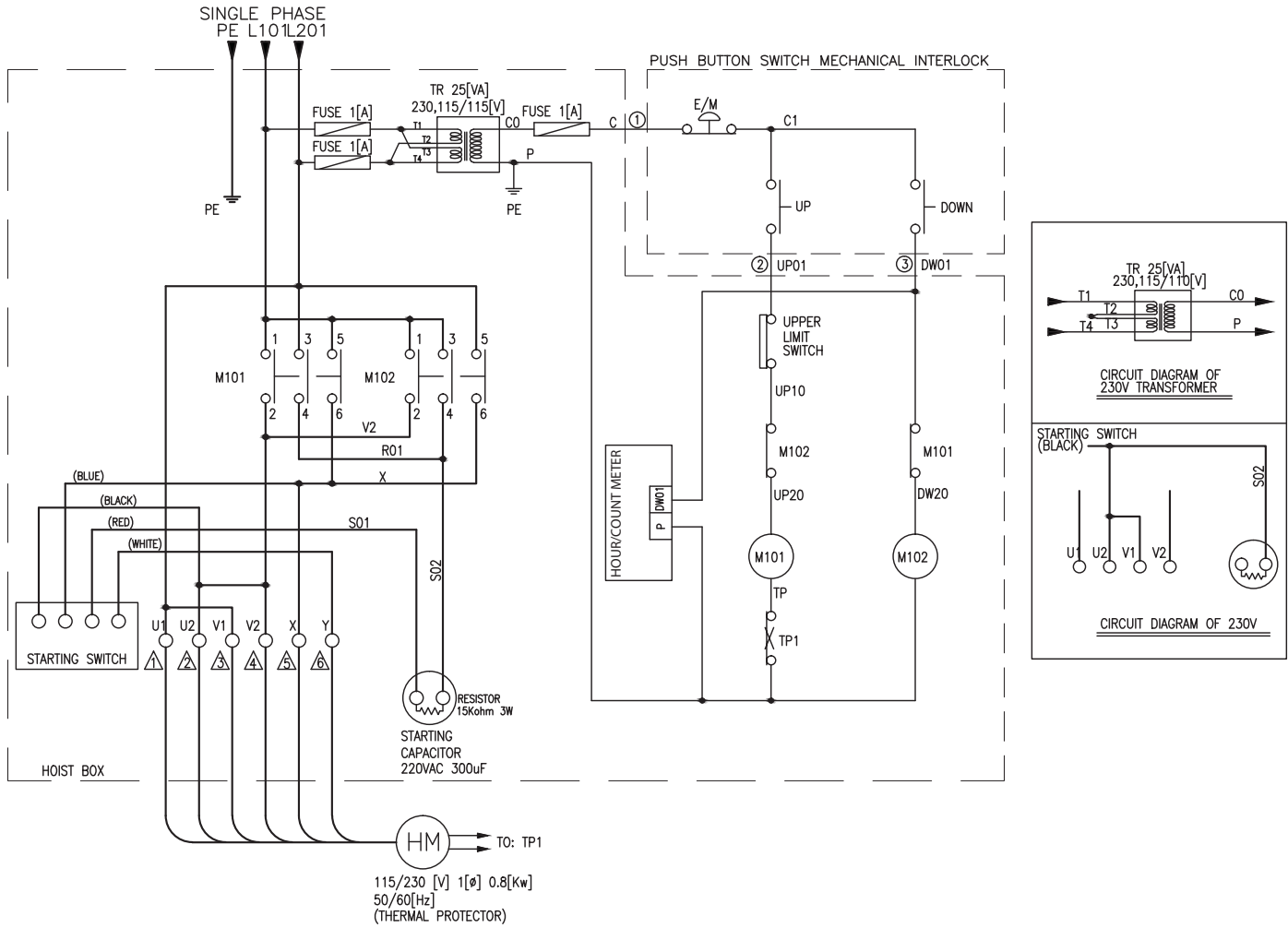
■ 2230110, 2230120, 2230140(208V-230V 60Hz)



■ 2230110, 2230120, 2230140(460V 60Hz)



■ 2330010, 2330020, 2330040, 2330010-PT, 2330020-PT, 2330040-PT (115V / 208~230V 60Hz)

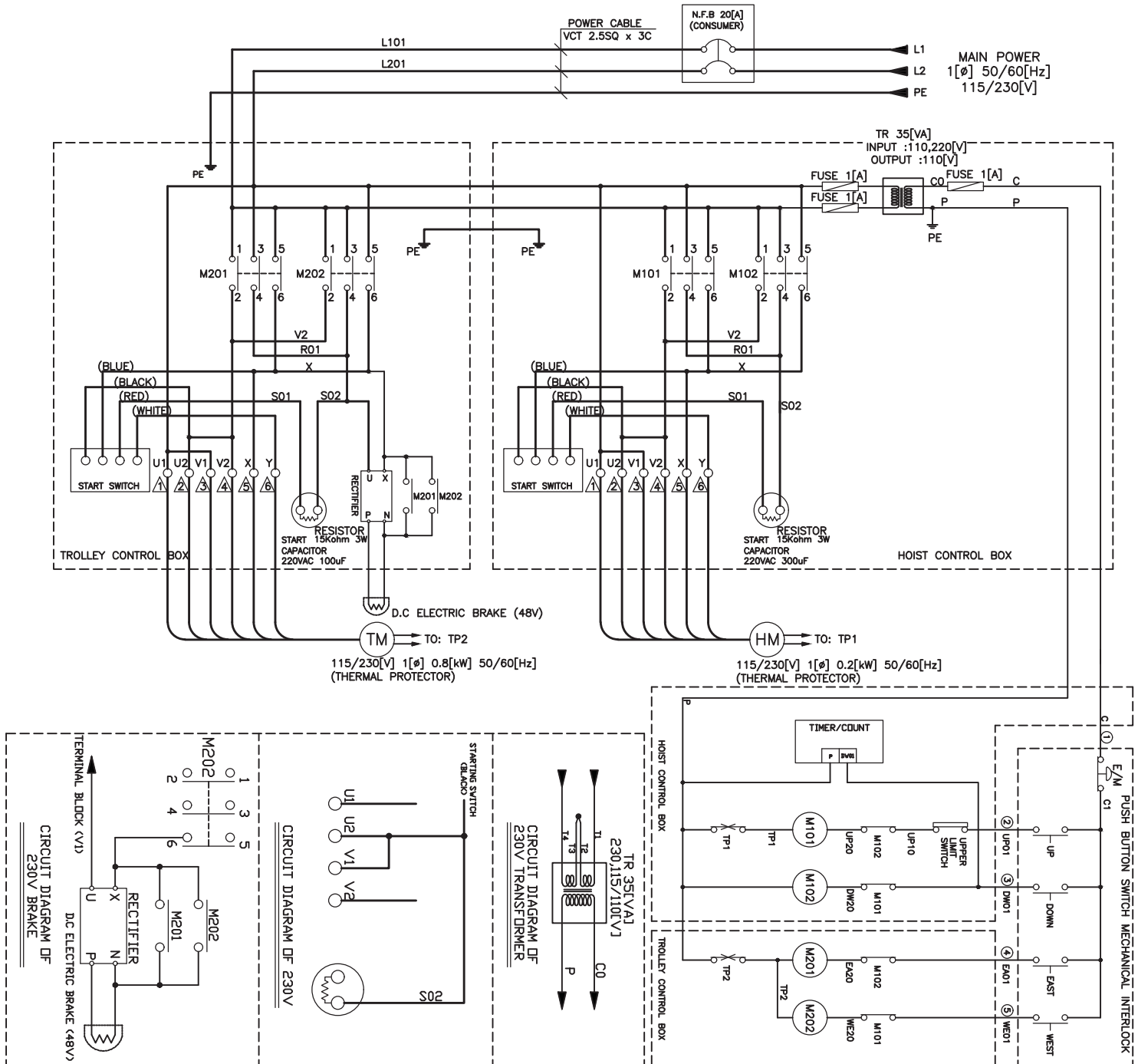


This hoist is wired from the factory for 115-1-60 power supply- See wiring schematic inside enclosure lid for 230-1-60 reconnection instructions.

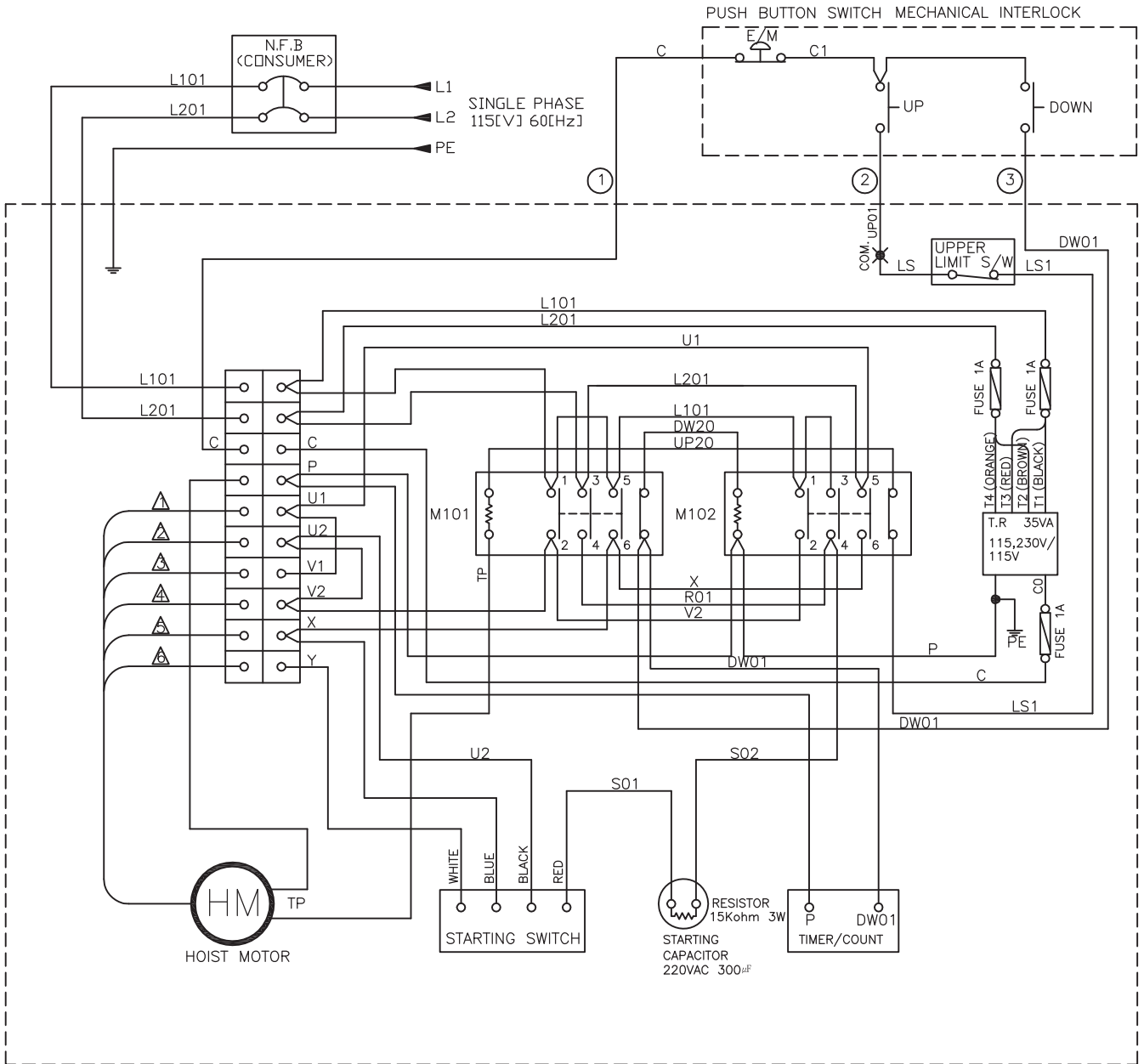
## RECOMMENDED POWER SUPPLY WIRE GAGE (COPPER AWG)

	25FT	50FT	75FT	100FT	150FT	200FT	250FT	300FT
115V	12	10	8	6	6	4	-	-
230V	-	16	14	14	12	10	10	8

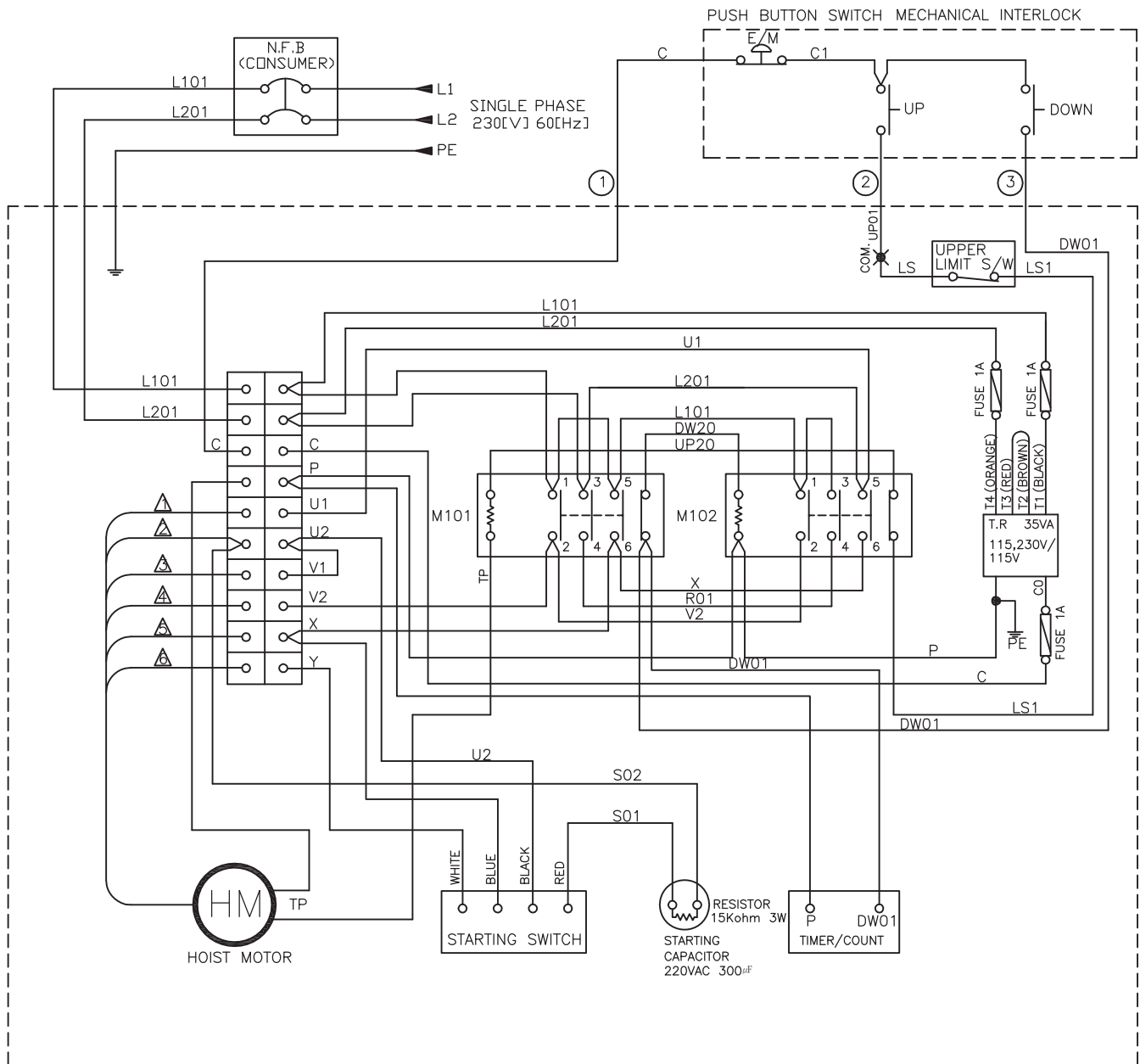
■ 2330110, 2330120, 2330140(115V / 208~230V 60Hz)



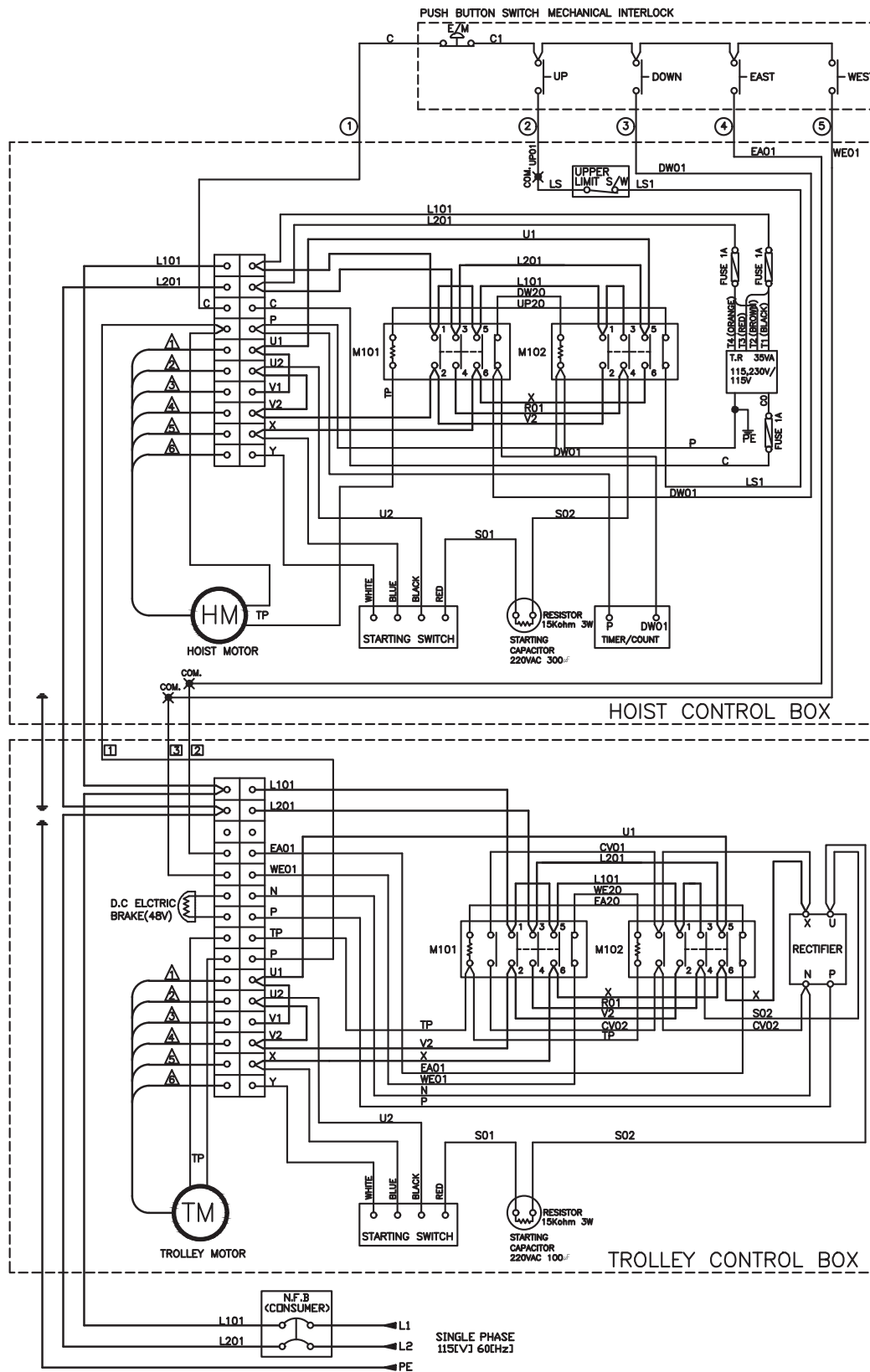
■ 2330010,2330020,2330040,2330010-PT,2330020-PT,2330040-PT(115V 60Hz)



■ 2330010, 2330020, 2330040, 2330010-PT, 2330020-PT, 2330040-PT (208~230V 60Hz)

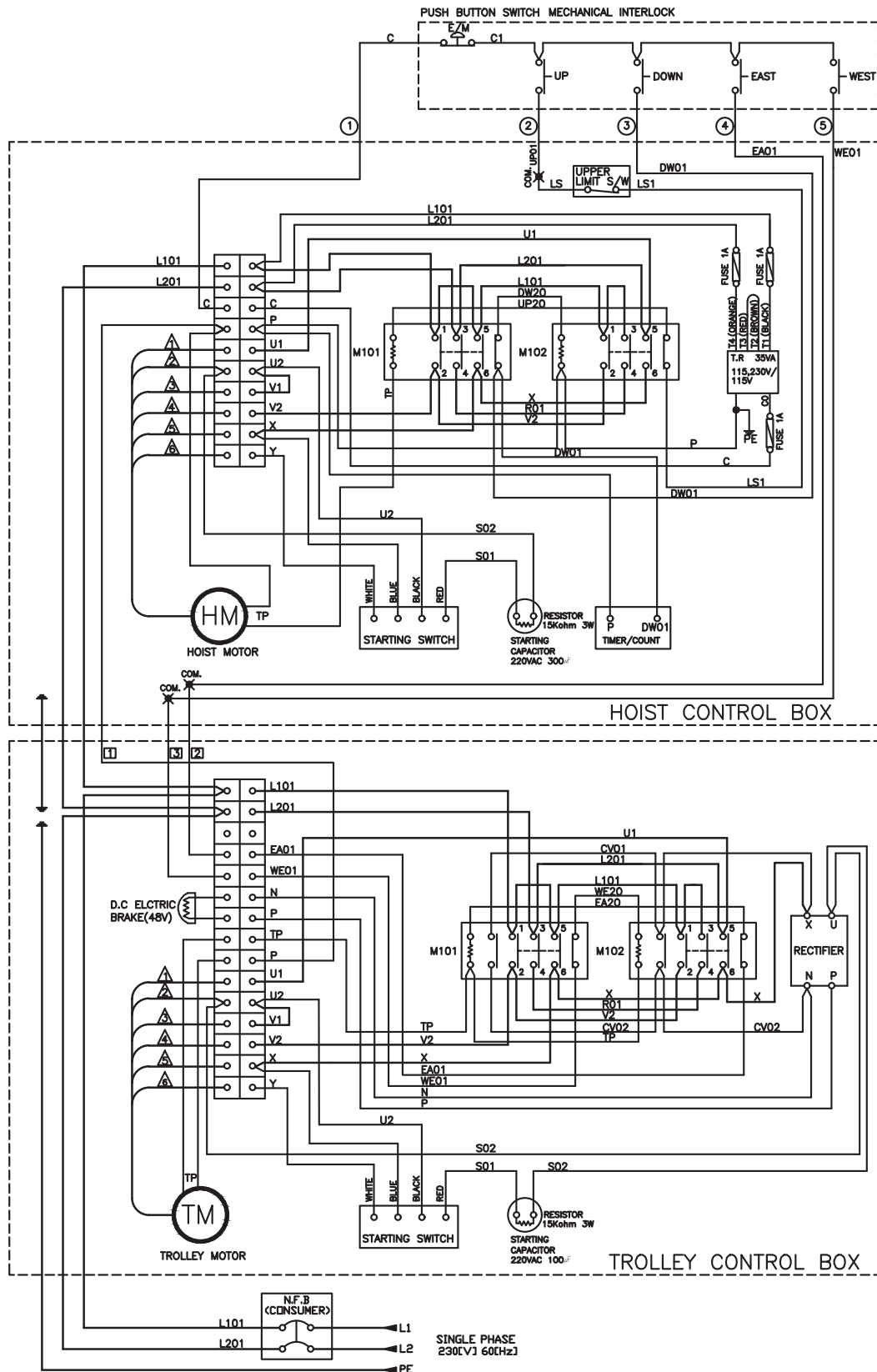


2330110, 2330120, 2330140(115V 60Hz)



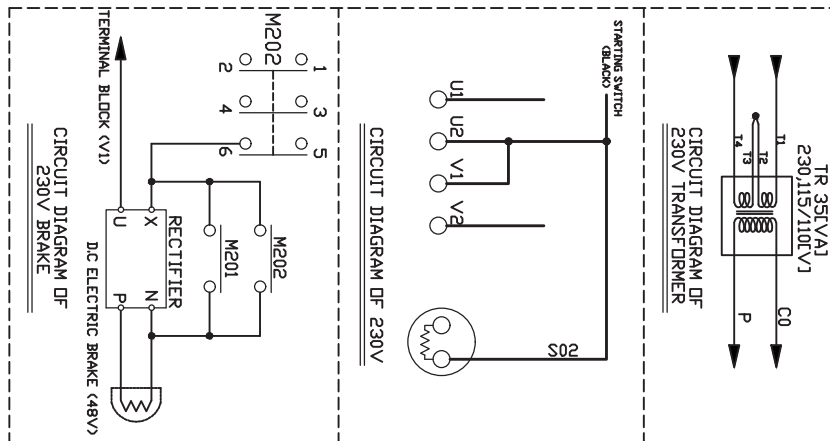
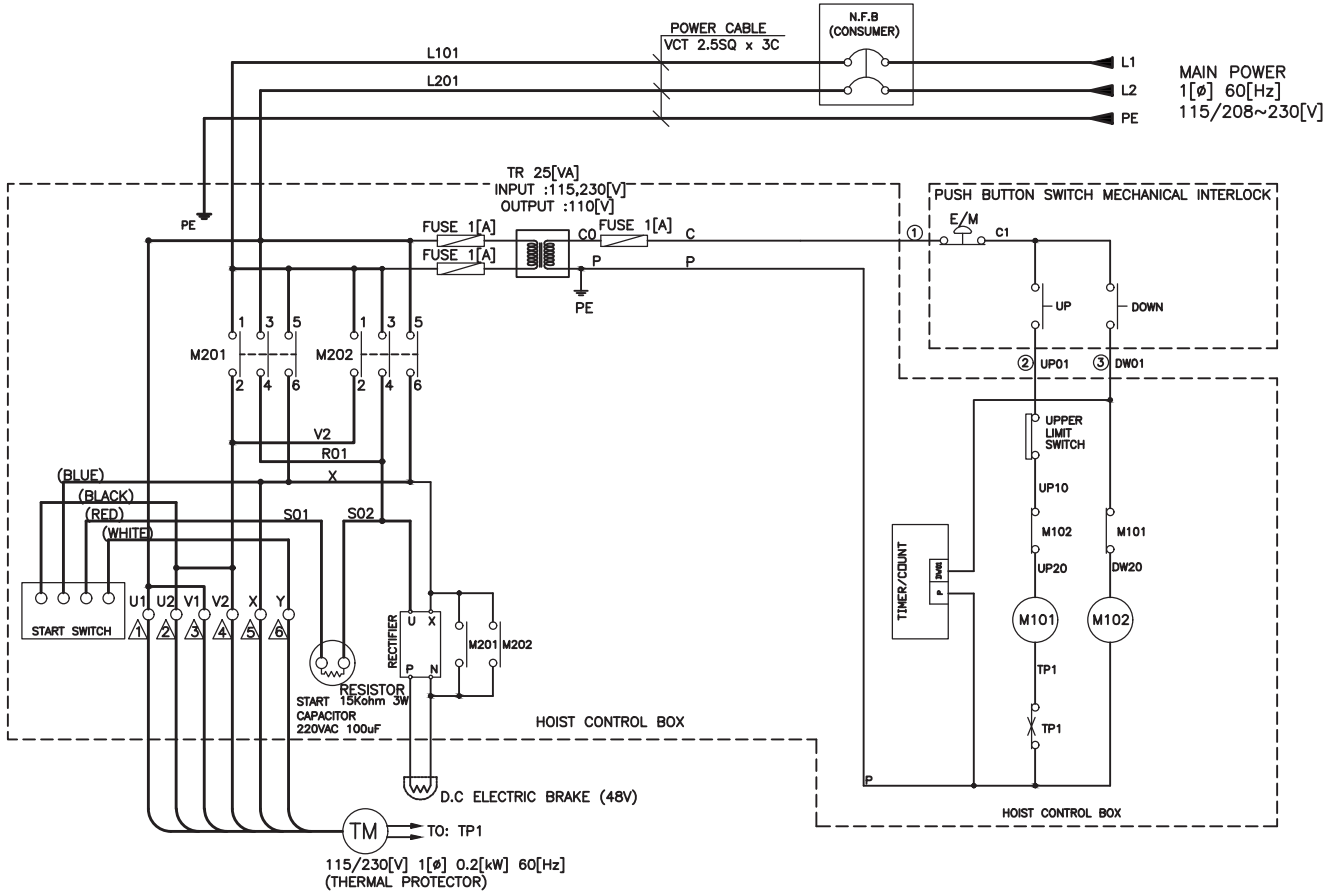


■ 2330110, 2330120, 2330140(208-230V 60Hz)



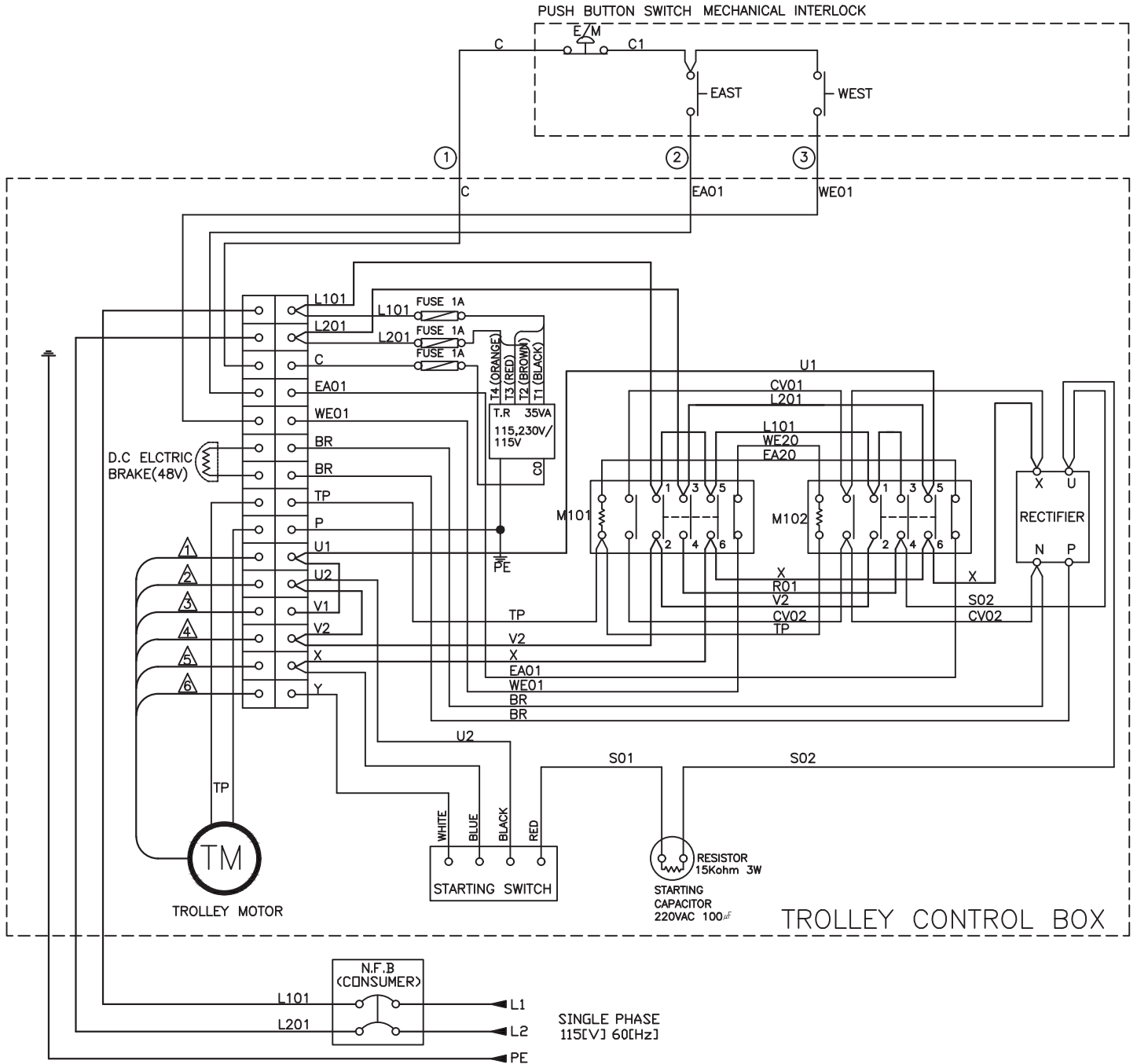
## MOTORIZED TROLLEY SUSPENSION 115/230V (SINGLE PHASE)

■ 2330510,2330520



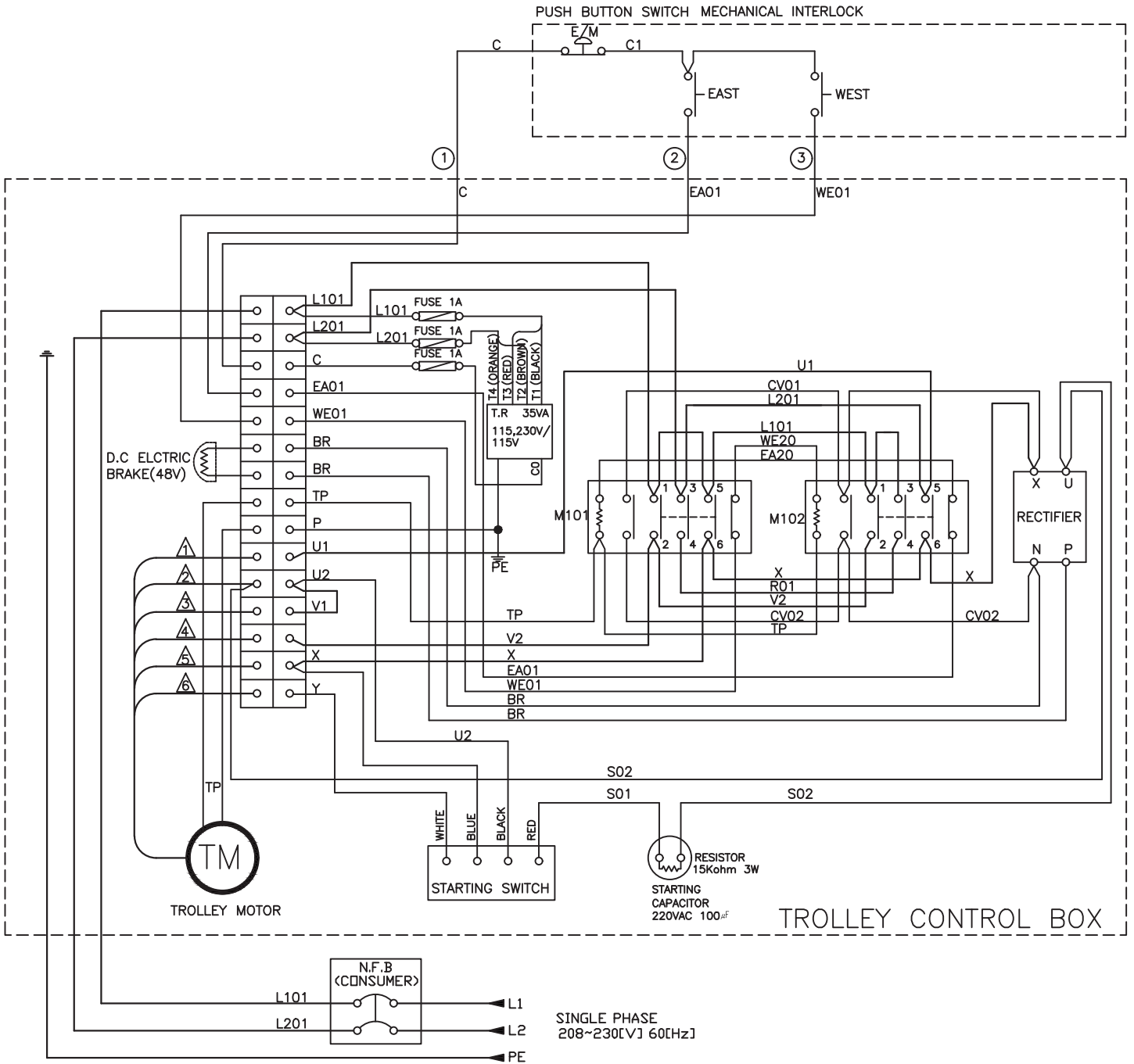
MOTORIZED TROLLEY SUSPENSION 115V(SINGLE PHASE)

■ 2330510,2330520



**MOTORIZED TROLLEY SUSPENSION 208~230V(SINGLE PHASE)**

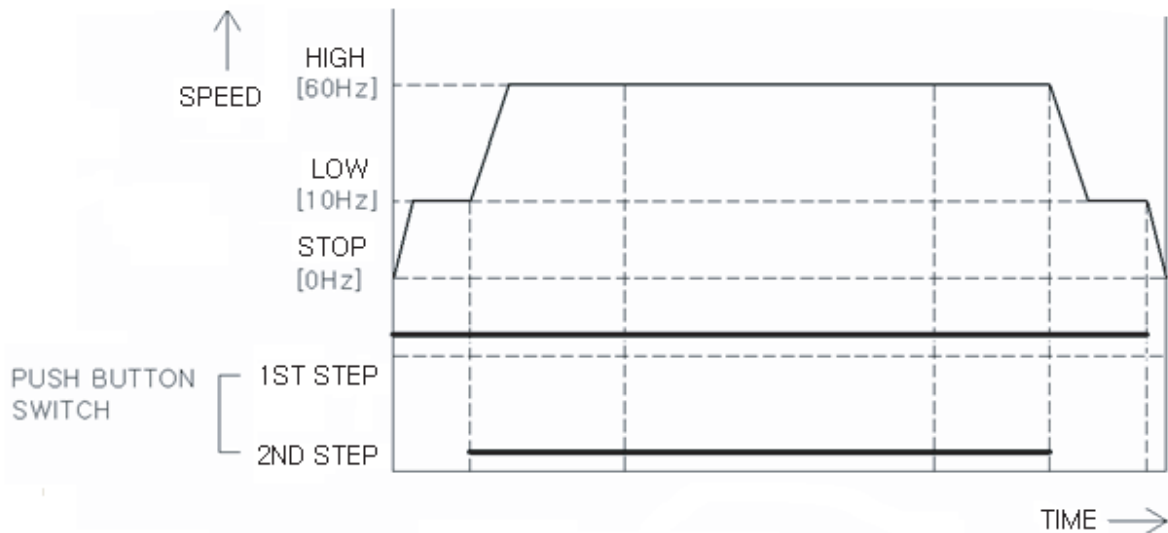
■ 2330510,2330520



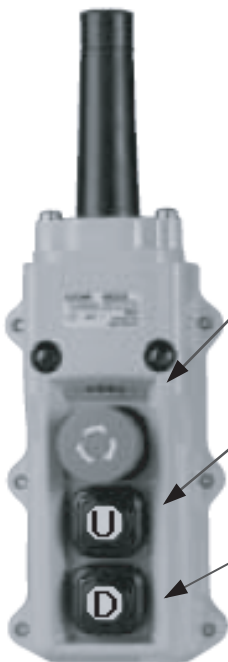
## 9. INVERTER(PowerFlex 523 Adjustable Frequency AC Drive)

### 9.1.Operating Hoist (Dual Speed)

- Low speed at the first step, high speed at the second step.
- Acceleration time of 3.0 seconds.



### 9.2.Push Button Control for Inverter Hoist



<ul style="list-style-type: none"> <li>■ Reset Button (Emergency Stop Button)</li> <li>■ To restore the tripped inverter, press this button</li> </ul>
<ul style="list-style-type: none"> <li>■ Hoist Up                             <ul style="list-style-type: none"> <li>- First Step : Slow Speed</li> <li>- Second Step : Fast Speed</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>■ Hoist Down                             <ul style="list-style-type: none"> <li>- First Step : Slow Speed</li> <li>- Second Step : Fast Speed</li> </ul> </li> </ul>

**9.3 TRIAL OPERATION**

**⚠ DANGER**

**DISCONNECT POWER AND LOCKOUT DISCONNECTING MEANS BEFORE PERFORMING SERVICE TO ELECTRICAL PARTS OF THIS EQUIPMENT.**

The inverter drive contains high voltage capacitors that take time to discharge after removal of power supply. Wait for 3 minutes for capacitors to discharge to safe voltage levels before proceeding with any check ups of electrical parts of this equipment after shutting down the power.

Failure to read and comply with any of the limitations noted herein will result in serious bodily injury or death, and/or property damage.

**⚠ WARNING**

- Check that all wiring has been completed before performing trial operation.
- Don't change wiring of push button switch.
- To change the acceleration or deceleration time, refer to inverter manual.
- Failure to comply with any of the limitations noted herein can result in serious bodily injury or death and/or property damage.

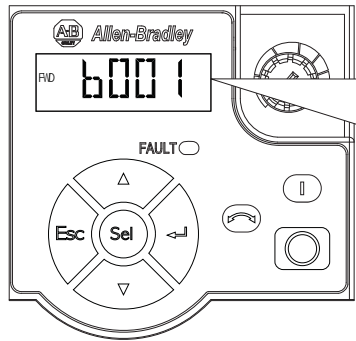
**9.4. INVERTER PARAMETER SETTINGS**

ACCOLIFT 2-STEP SPEED INVERTER SETTINGS

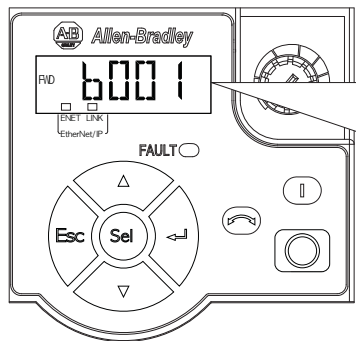
CAPACITY	HOIST HZ SETTING	HOIST ACCEL SETTING	HOIST DECEL SETTING
	SETP43 / P44 - LIFTING(up/down)	SET P041	SET P042
1TON(0.5T)	20 Hz (FPM 9) - 60 Hz (FPM27)	3.0 SEC	0.2 SEC
2TON	20 Hz (FPM 4) - 60 Hz (FPM 13)	3.0 SEC	0.2 SEC
LOW HEAD 1TON	20Hz(FPM6) - 60Hz(FPM17)	3.0 SEC	0.2 SEC
LOW HEAD 2TON	20Hz(FPM3) - 60Hz(FPM9)	3.0 SEC	0.2 SEC

## 9.5. DISPLAY AND CONTROL KEYS

PowerFlex 523



PowerFlex 525



Menu	Parameter Group and Description
<b>b</b>	<b>Basic Display</b> Commonly viewed drive operating conditions.
<b>P</b>	<b>Basic Program</b> Commonly used programmable functions.
<b>t</b>	<b>Terminal Blocks</b> Programmable terminal functions.
<b>C</b>	<b>Communications</b> Programmable communication functions.
<b>L</b>	<b>Logic (PowerFlex 525 only)</b> Programmable logic functions.
<b>d</b>	<b>Advanced Display</b> Advanced drive operating conditions.
<b>R</b>	<b>Advanced Program</b> Remaining programmable functions.
<b>N</b>	<b>Network</b> Network functions that are shown only when a comm card is used.
<b>M</b>	<b>Modified</b> Functions from the other groups with values changed from default.
<b>f</b>	<b>Fault and Diagnostic</b> Consists of list of codes for specific fault conditions.
<b>G</b>	<b>AppView and CustomView</b> Functions from the other groups organized for specific applications.






### Control and Navigation Keys

Display	Display State	Description
ENET (PowerFlex 525 only)	Off	Adapter is not connected to the network.
	Steady	Adapter is connected to the network and drive is controlled through Ethernet.
	Flashing	Adapter is connected to the network but drive is not controlled through Ethernet.
LINK (PowerFlex 525 only)	Off	Adapter is not connected to the network.
	Steady	Adapter is connected to the network but not transmitting data.
	Flashing	Adapter is connected to the network and transmitting data.





  

LED	LED State	Description
FAULT	Flashing Red	Indicates drive is faulted.









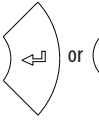

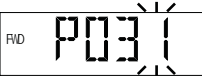


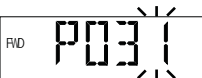
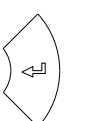
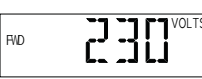
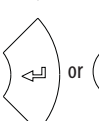

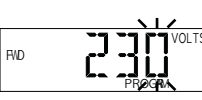



  

Key	Name	Description
 	Up Arrow Down Arrow	Scroll through user-selectable display parameters or groups. Increment values.
	Escape	Back one step in programming menu. Cancel a change to a parameter value and exit Program Mode.
	Select	Advance one step in programming menu. Select a digit when viewing parameter value.
	Enter	Advance one step in programming menu. Save a change to a parameter value.


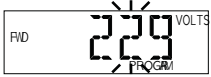


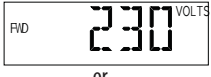
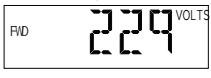


**9.6. VIEWING AND EDITING PARAMETERS**

Key	Name	Description
	Reverse	Used to reverse direction of the drive. Default is active. Controlled by parameters P046, P048 and P050 [Start Source x] and A544 [Reverse Disable].
	Start	Used to start the drive. Default is active. Controlled by parameters P046, P048 and P050 [Start Source x].
	Stop	Used to stop the drive or clear a fault. This key is always active. Controlled by parameter P045 [Stop Mode].
	Potentiometer	Used to control speed of drive. Default is active. Controlled by parameters P047, P049 and P051 [Speed Referencex].

The following is an example of basic integral keypad and display functions. This example provides basic navigation instructions and illustrates how to program a parameter.

Step	Key(s)	Example Display
1. When power is applied, the last user-selected Basic Display Group parameter number is briefly displayed with flashing characters. The display then defaults to that parameter's current value. (Example shows the value of b001 [Output Freq] with the drive stopped.)		
2. Press Esc to display the Basic Display Group parameter number shown on power-up. The parameter number will flash.		
3. Press Esc to enter the parameter group list. The parameter group letter will flash.		
4. Press the Up Arrow or Down Arrow to scroll through the group list (b, P, t, C, L, d, A, f and Gx).	 or 	
5. Press Enter or Sel to enter a group. The right digit of the last viewed parameter in that group will flash.	 or 	
6. Press the Up Arrow or Down Arrow to scroll through the parameter list.	 or 	
7. Press Enter to view the value of the parameter. Or Press Esc to return to the parameter list.		
8. Press Enter or Sel to enter Program Mode and edit the value. The right digit will flash and the word Program on the LCD display will light up.	 or 	
9. Press the Up Arrow or Down Arrow to change the parameter value.	 or 	



Step	Key(s)	Example Display
10. If desired, press Sel to move from digit to digit or bit to bit. The digit or bit that you can change will flash.		
11. Press Esc to cancel a change and exit Program Mode. Or Press Enter to save a change and exit Program Mode. The digit will stop flashing and the word Program on the LCD display will turn off.	 or 	 OR 
12. Press Esc to return to the parameter list. Continue to press Esc to back out of the programming menu. If pressing Esc does not change the display, then b001 [Output Freq] is displayed. Press Enter or Sel to enter the group list again.		

**⚠ WARNING**

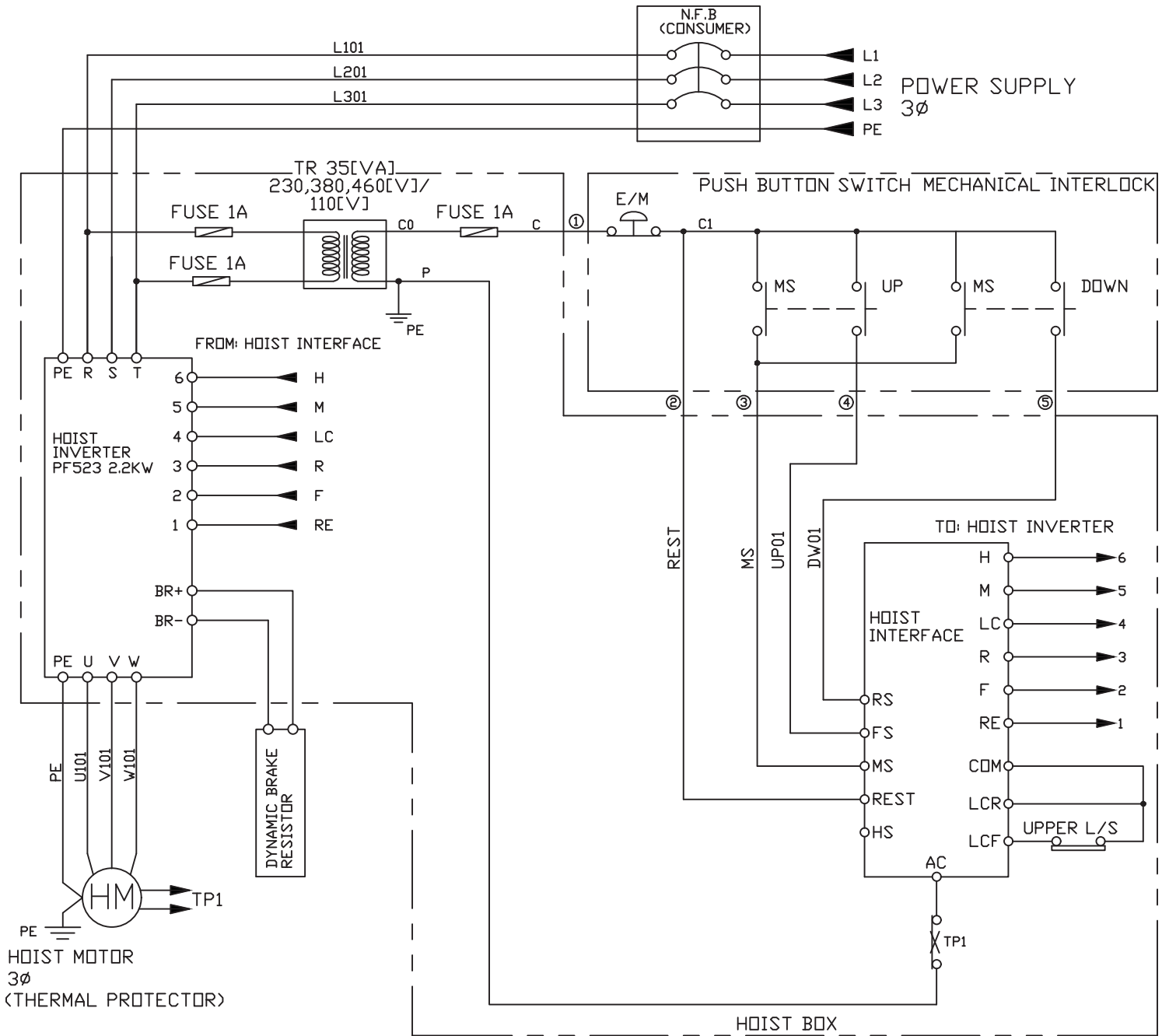
- Do not change any parameter value not indicated in this manual
- Do not set a value that exceeds a parameter range given in inverter manual
  
- Make sure to perform trial operation after changing a parameter value. If there is anything wrong, stop the operation immediately and check the values and correct them.

**NOTICE**

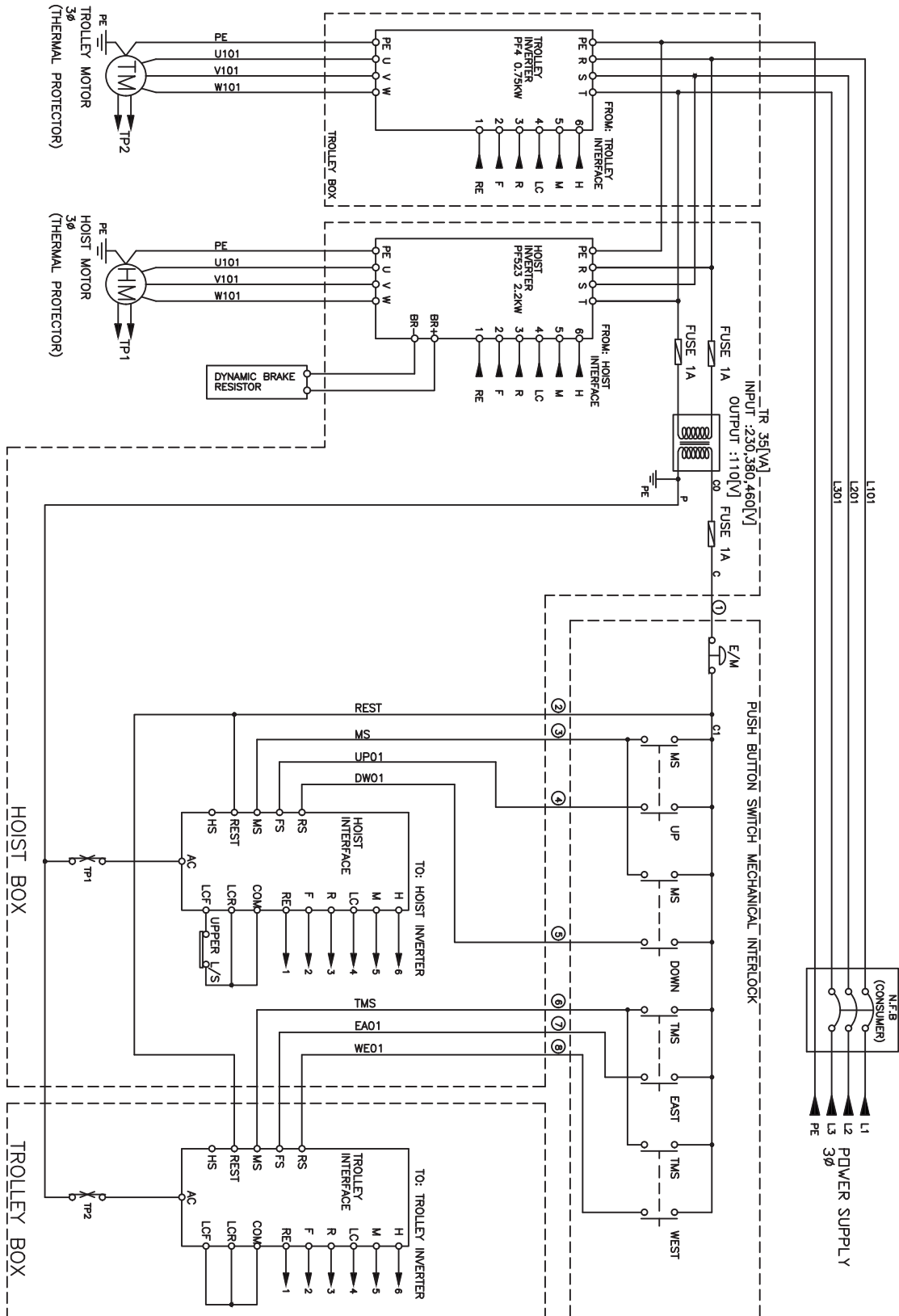
- To change the parameter value, refer to the inverter manual  
Before making any changes in the inverter, clear understanding of the inverter manual is required.

**● Electric Connection Drawing**

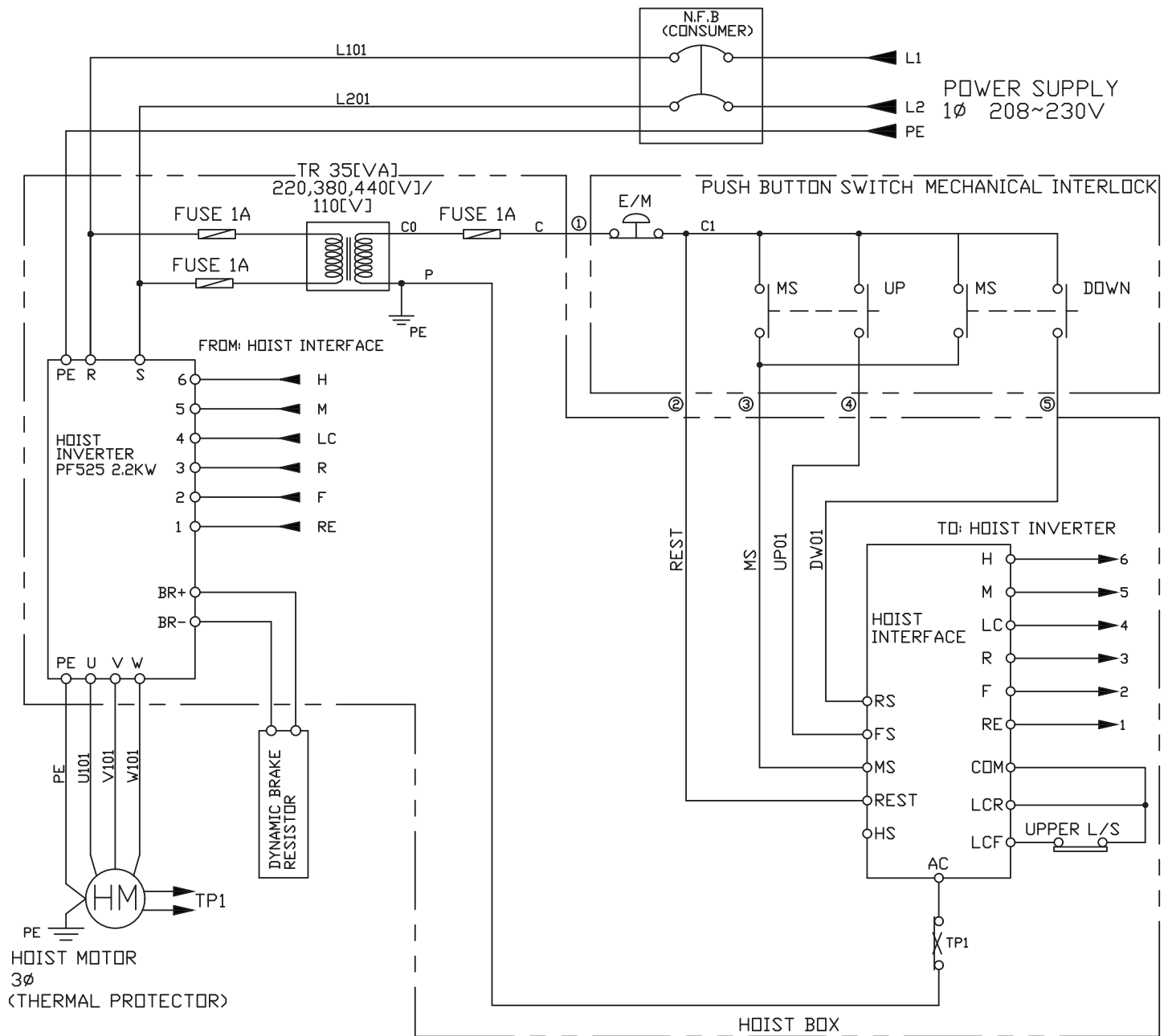
■ 2230010-VFD, 2230020-VFD, 2230040-VFD, 2230010-VFD-PT, 2230020-VFD-PT, 2230040-VFD-PT



■ 2230110-VFD, 2230120-VFD, 2230140-VFD



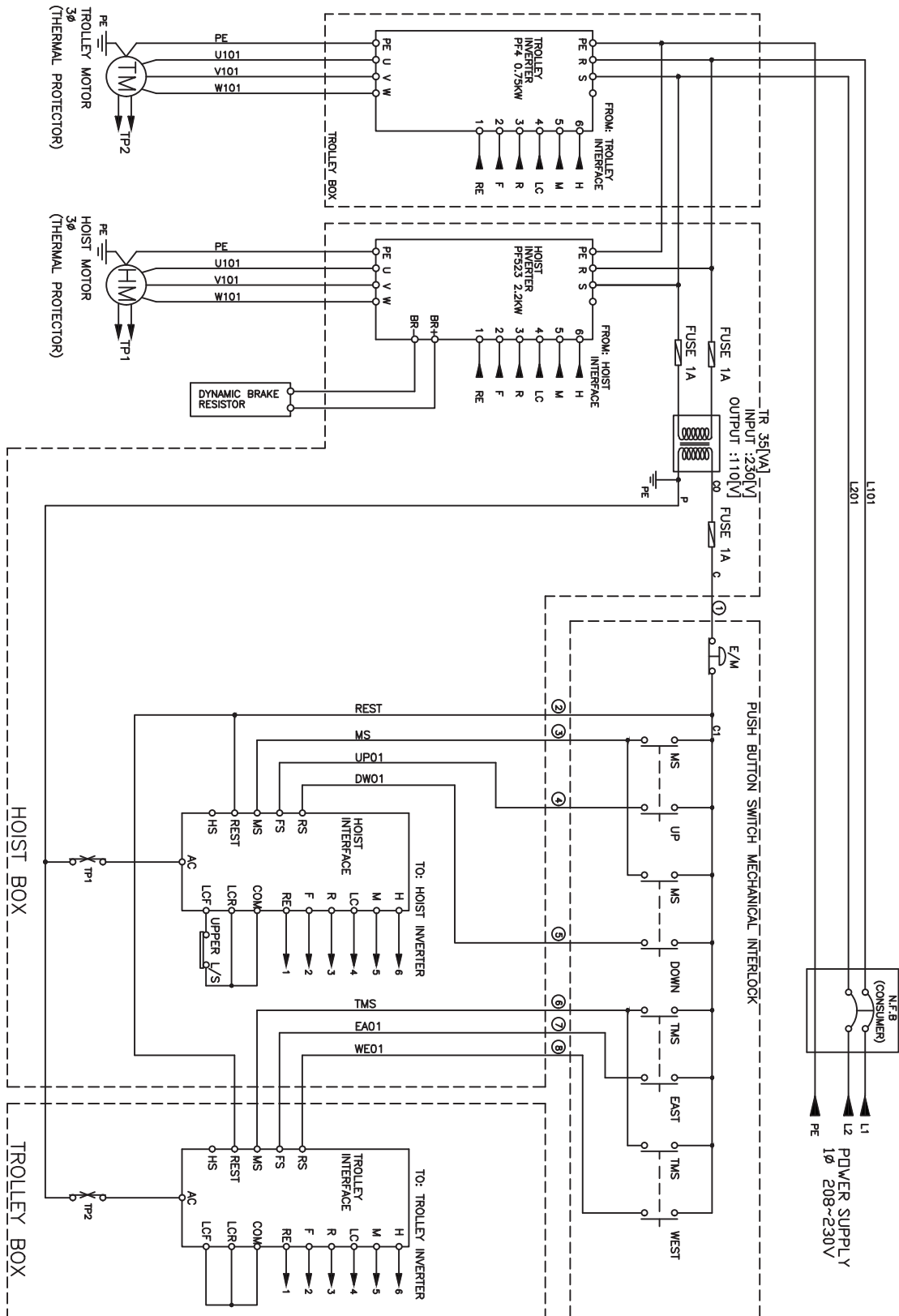
- 2330010-VFD-230-1, 2330020-VFD-230-1, 2330040-VFD-230-1, 2330010-VFD-230-1-PT, 2330020-VFD-230-1-PT, 2330040-VFD-230-1-PT



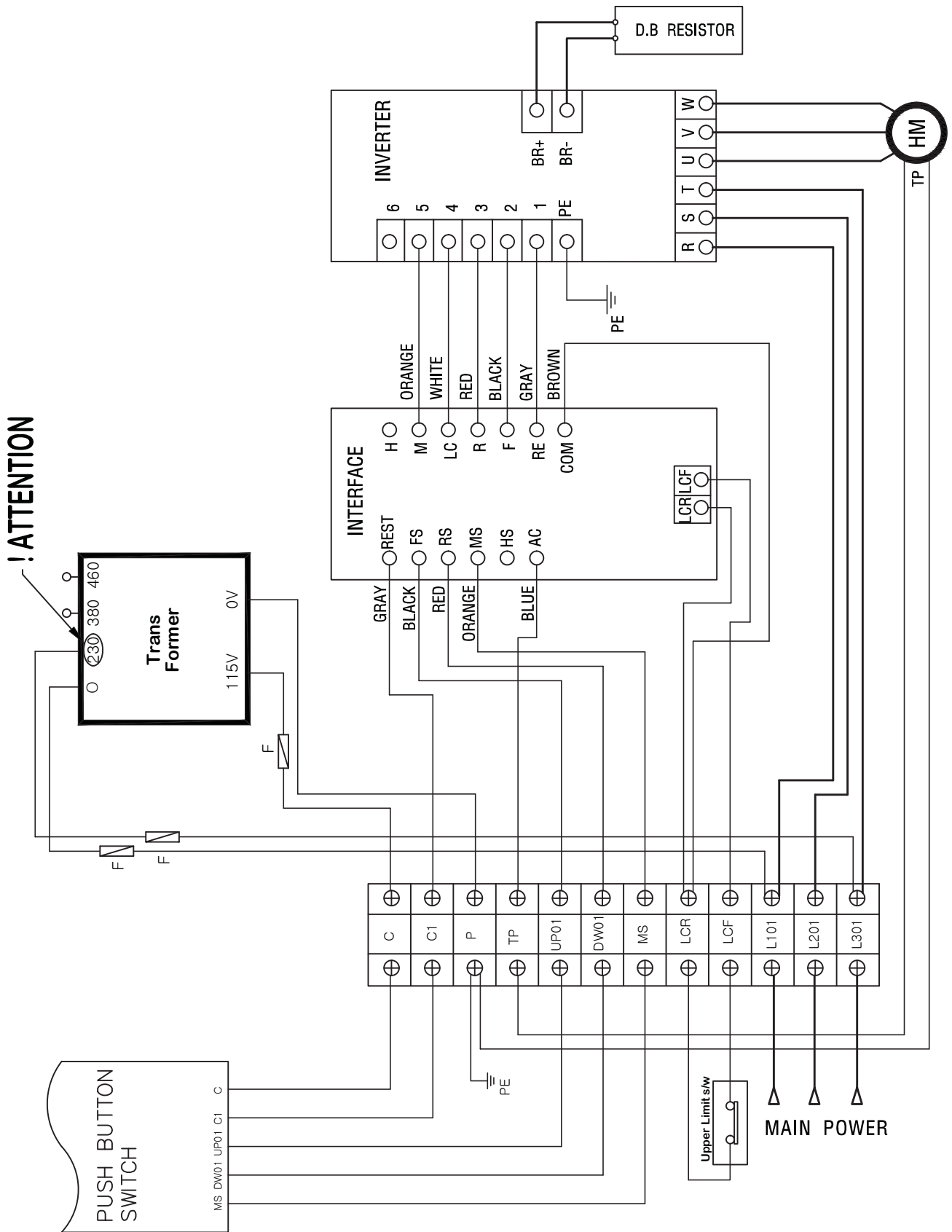
### RECOMMENDED POWER SUPPLY WIRE GAGE (COPPER AWG)

	25FT	50FT	75FT	100FT	150FT	200FT	250FT	300FT
230V	-	16	14	14	12	10	10	8

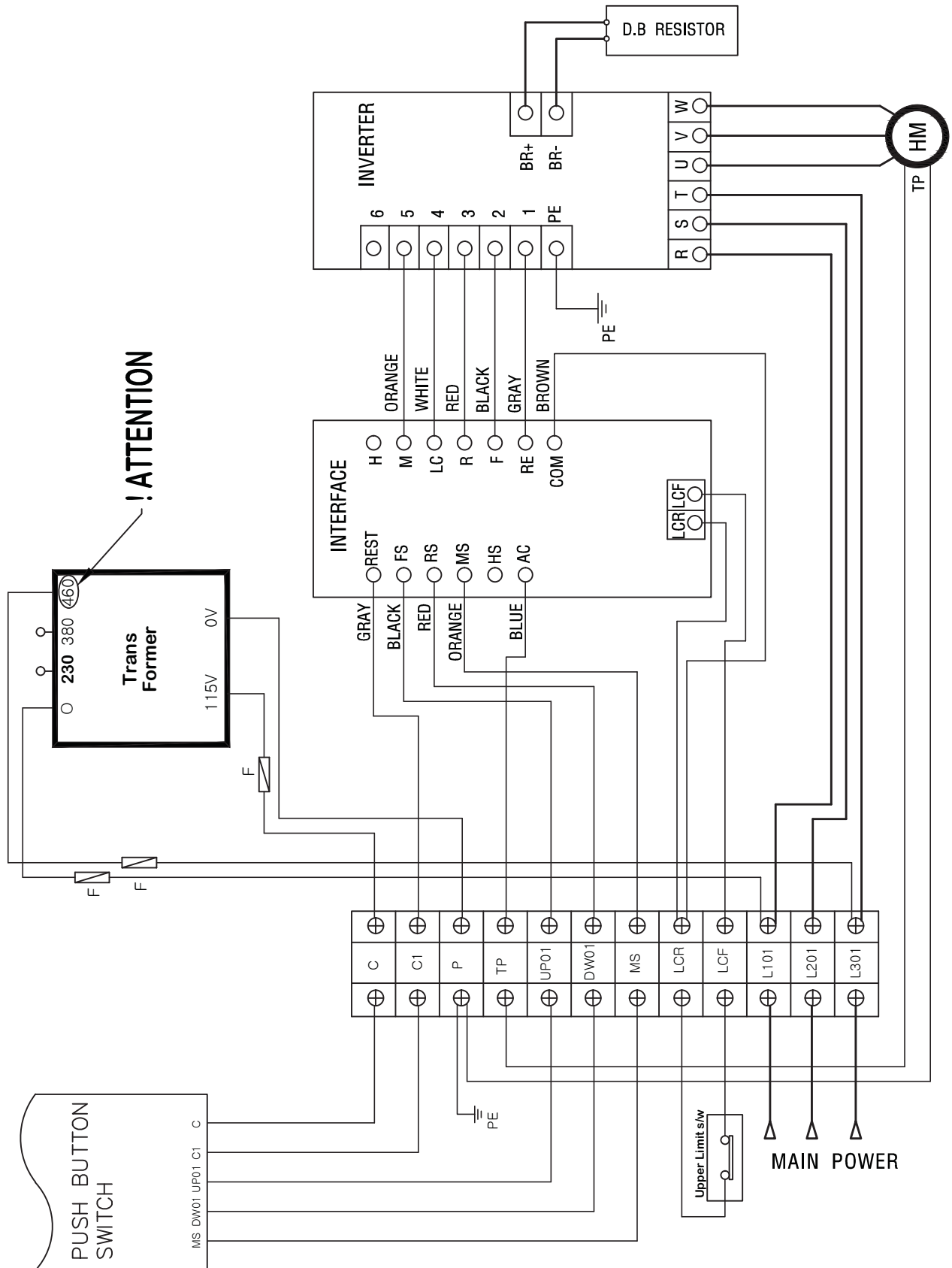
■ 2330110-VFD-230-1, 2330120-VFD-230-1, 2330140-VFD-230-1



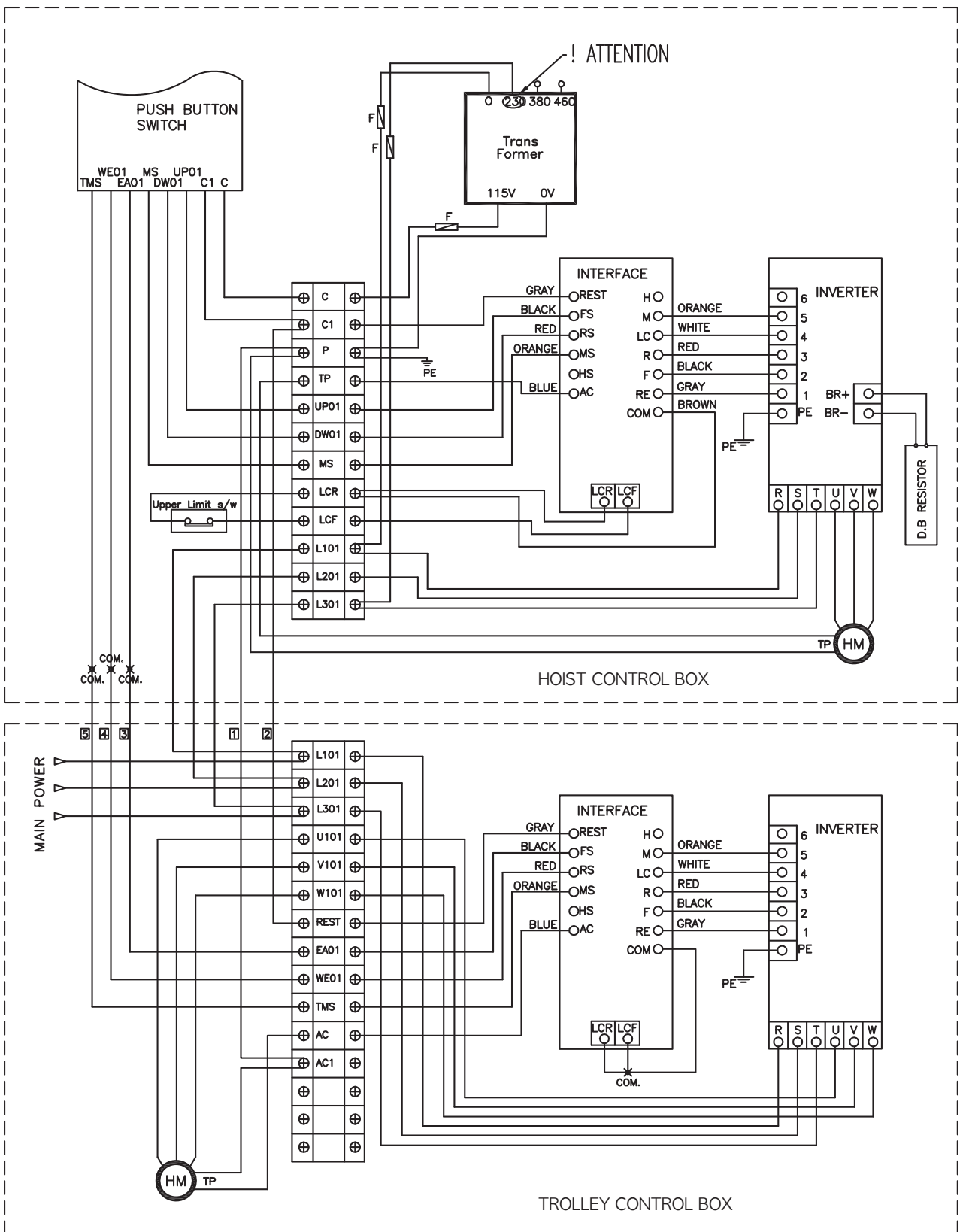
■ 2230010-VFD, 2230020-VFD, 2230040-VFD, 2230010-VFD-PT, 2230020-VFD-PT, 2230040-VFD-PT (208~230V 60Hz)



■ 2230010-VFD, 2230020-VFD, 2230040-VFD, 2230010-VFD-PT, 2230020-VFD-PT, 2230040-VFD-PT(460V 60Hz)

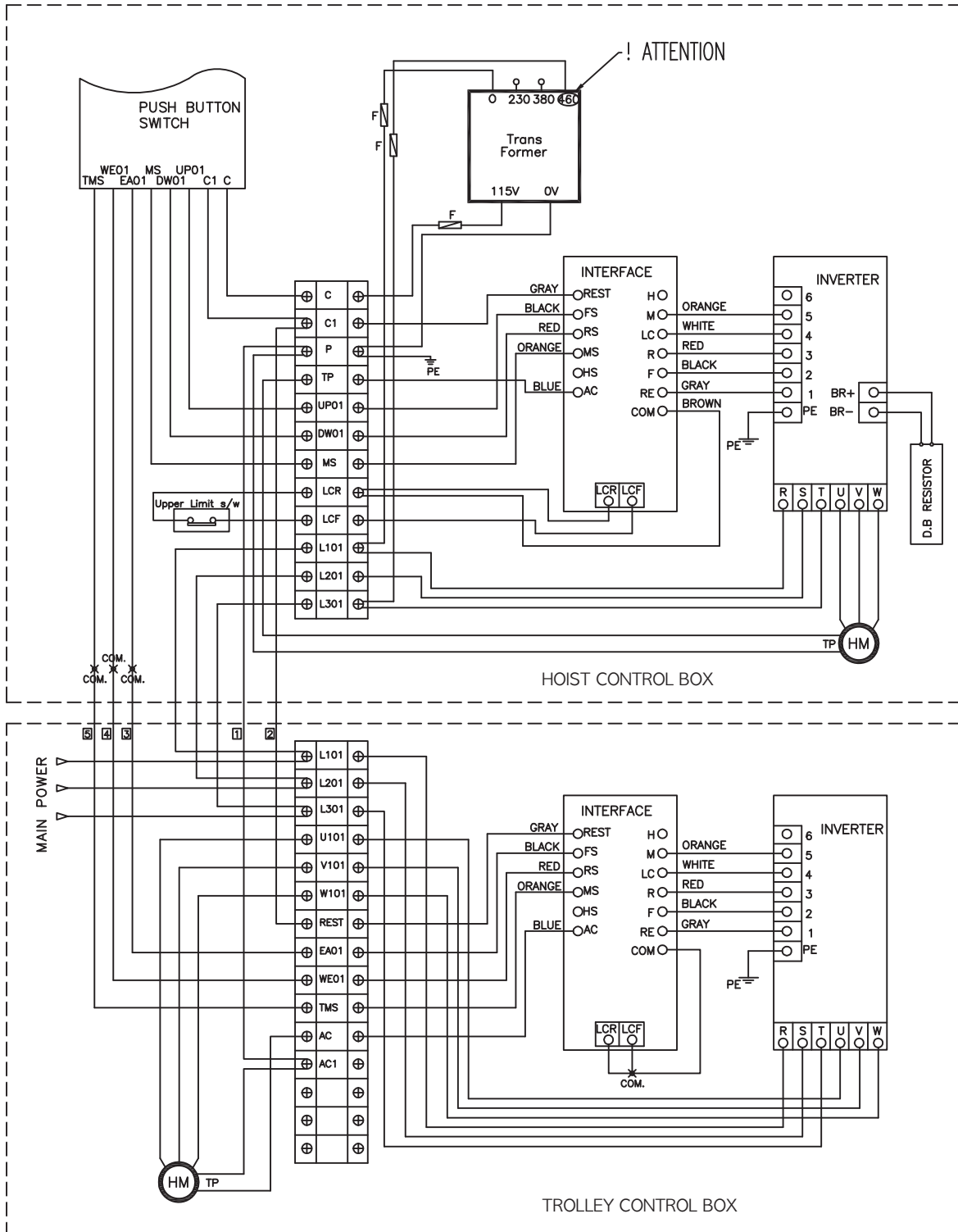


■ 2230110-VFD, 2230120-VFD, 2230140-VFD(208~230V 60Hz)

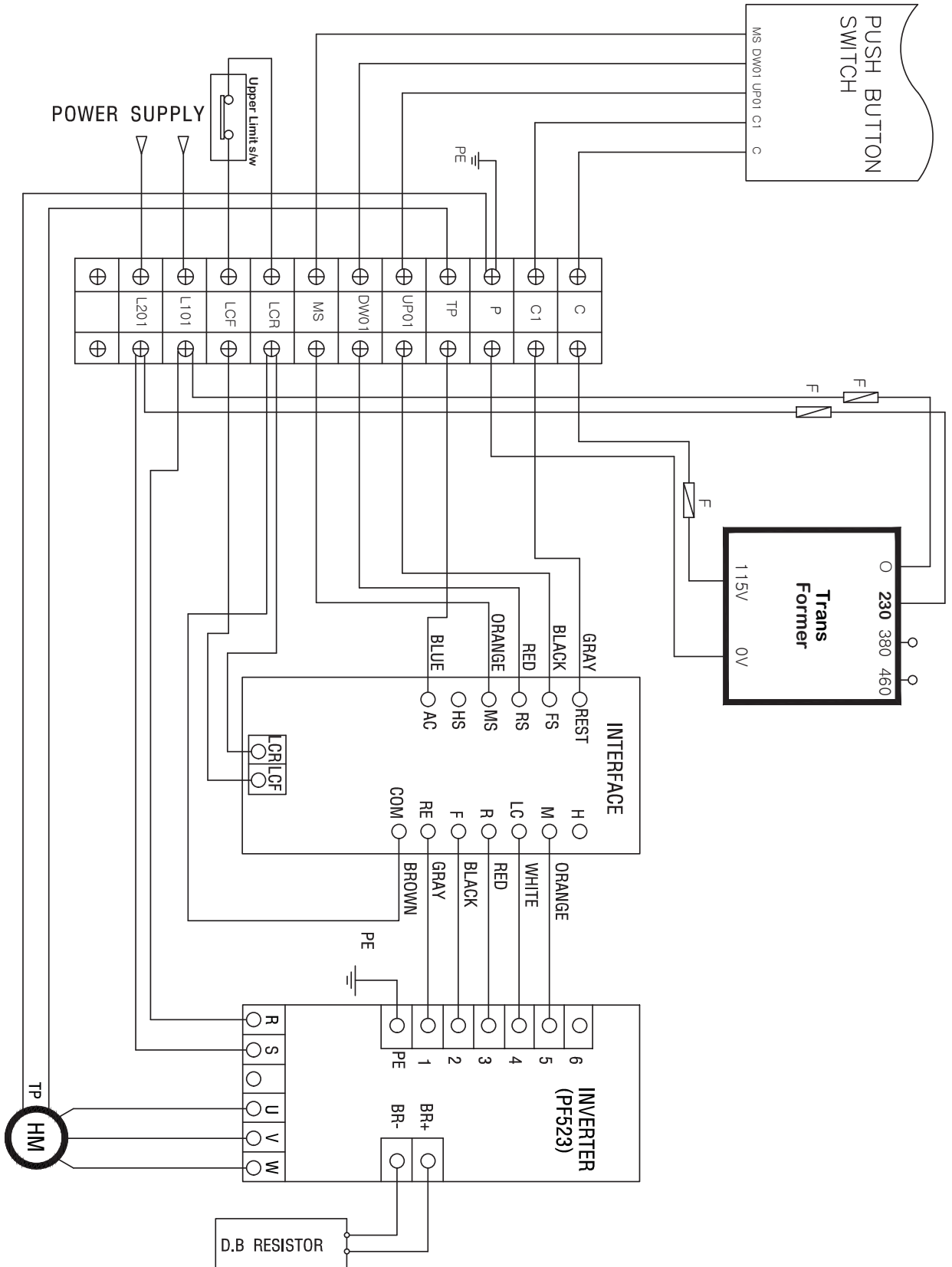




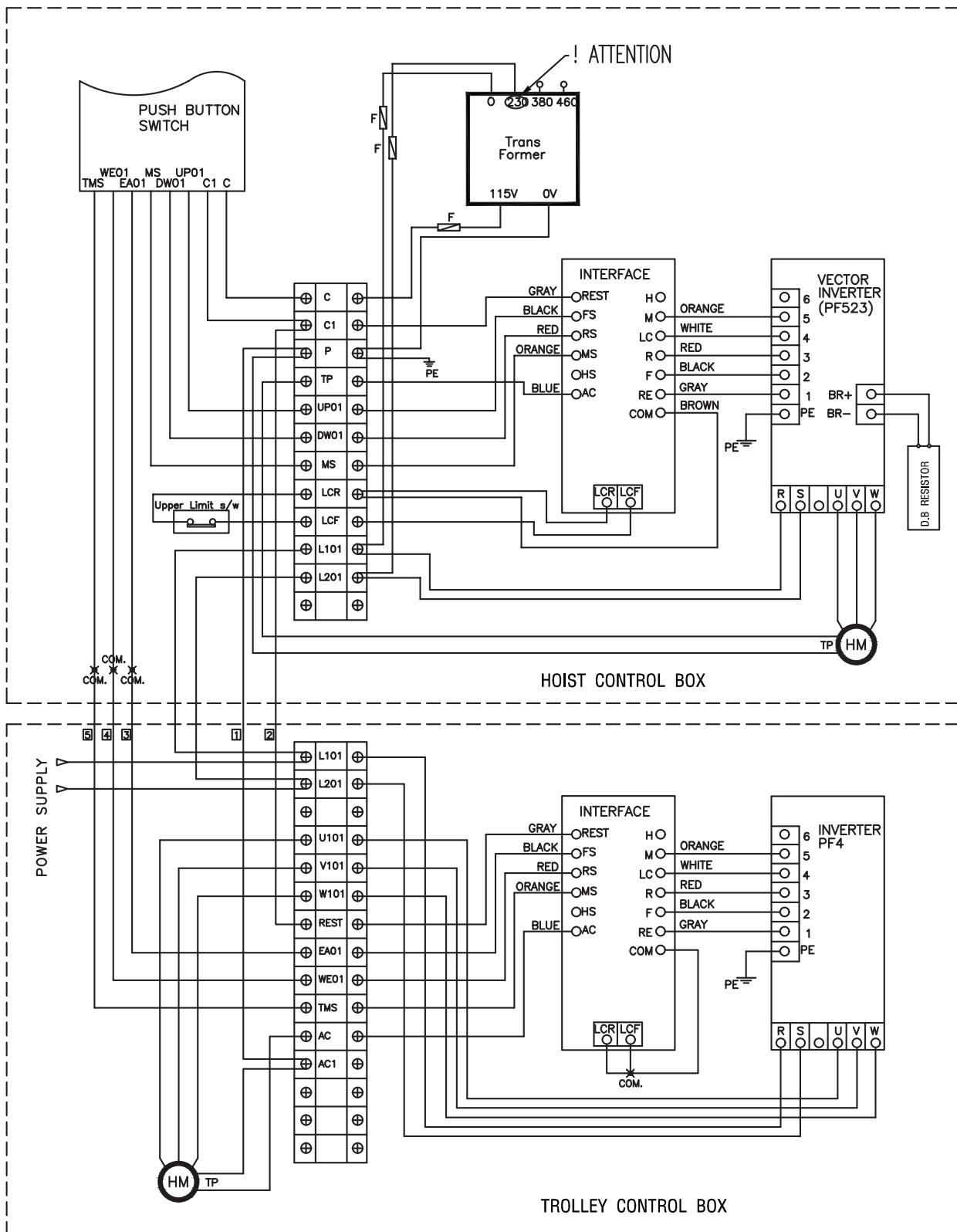
■ 2230110-VFD, 2230120-VFD, 2230140-VFD(460V 60Hz)



- 2330010-VFD-230-1, 2330020-VFD-230-1, 2330040-VFD-230-1
- 2330010-VFD-230-1-PT, 2330020-VFD-230-1-PT, 2330040-VFD-230-1-PT



■ 2330110-VFD-230-1 , 2330120-VFD-230-1 , 2330140-VFD-230-1



**10. Motor Voltage change(Important)**

**⚠WARNING**

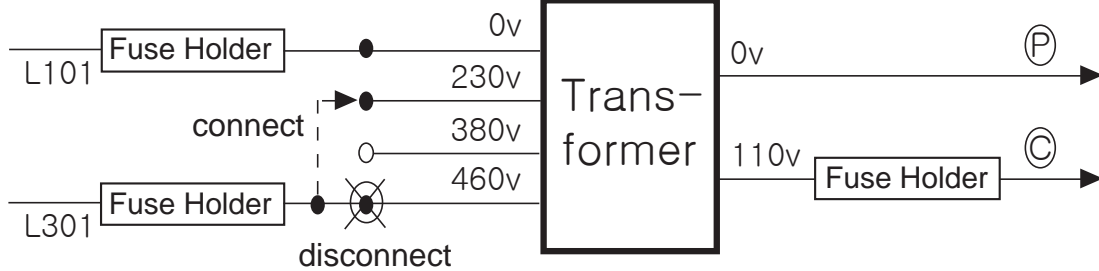
1. Please connect the wire according to the motor wiring drawing

- check the drawing from page 63 for the reference.

2. Transformer Voltage Change

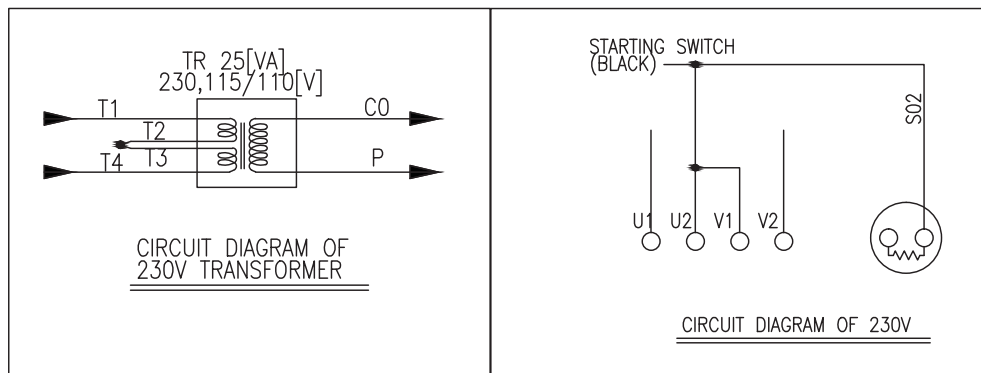
Example: Demonstrated below is changing a transformer that is wired for a 460V application to a 230V application. As shown below, disconnect the fuse holder wire, which is connected to 460V terminal of the transformer, and reconnect the fuse holder wire to 230V terminal of the transformer.

**\* Three Phase**



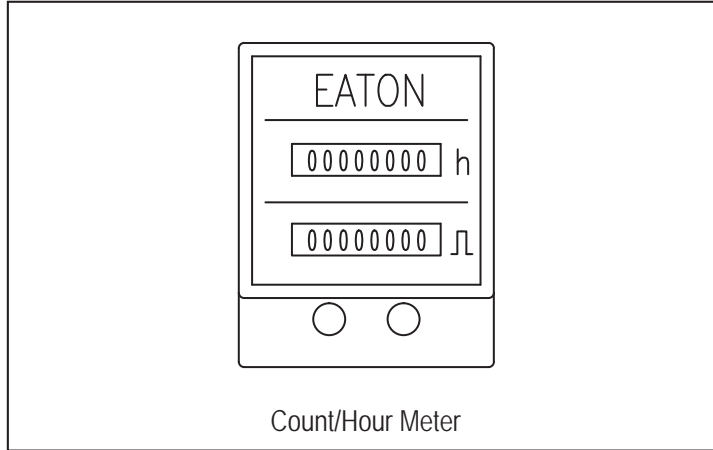
NOTE  
Fuse : 250v 1A

**\* Single Phase**



**11. Hour/Count Meter** (2230010,2230020,2230040,2330010,2330020,2330040)

The count/ Hour (C/H) Meter located in on the electrical control panel records the hoists on time and number of starts.



Contactor-The C/H Meter can be used in conjunction with the amount of jogging to estimate when the contactor(s) should be replaced. Jogging is when the pendant control buttons are pressed quickly and repetitively to move the hook in small increments. Refer to Table 1-1.

Table 1-1 Criteria for Recommended Contactor Replacement		
Jogging During Normal Operation		Change Contactor After (∩) (starts)
Rating	Approximate Jogging Frequency	
Low	Jogging is rare.	950,000
Medium	During 25% of operations/ lifts.	500,000
High	During 50% or more of operations/ lifts.	200,000

Gear Oil - The H/C meter can be used in conjunction with the average load lifted by the hoist to estimate when the gear oil should be changed. Refer to Table 1-2.

Table 1-2 Criteria for Recommended Gear Oil Replacement		
Loading During Normal Operation		Change Gear Oil After (h) (hours)
Rating	Average % of Rated Capacity	
Light	0 to 33%	360
Medium	33 to 67%	240
Heavy	67 to 100 %	120

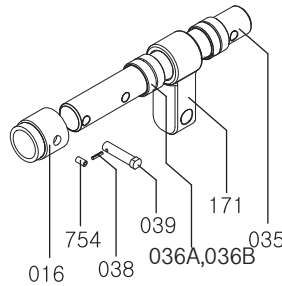
- To change gear oil of VFD hoist, check elapsed run time of the inverter which indicates hoist operation hour. Please refer to inverter manual(PF523) of ENGLISH SECTION.(b019-Elapsed Run Time) Refer to table 1-2 as well.

## 12. Lug Mount Plain Trolley kit

### 12.1. How to install Lug Mount Plain Trolley on the runway I-Beam

First, check the difference between beam flange width and guide roller spacing.

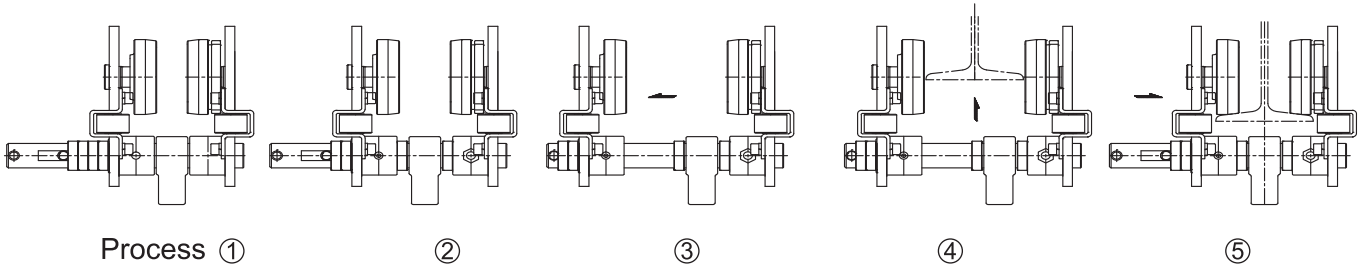
#### \* Parts to adjust I-Beam Width



- PT016. Bracket A
- PT035. Shaft
- PT036A. Adjusting Collar
- PT036B. Adjusting Washer
- PT038. Setting Pin
- PT039. Stopper Pin
- PT171. Connector (Orange color connector is for 1/2 & 1ton Accolift CLH hoist)
- PT754. Setting Screw

(\* MT171-Connector, Black Color is for all other Accolift and Accolift CLH hoists)

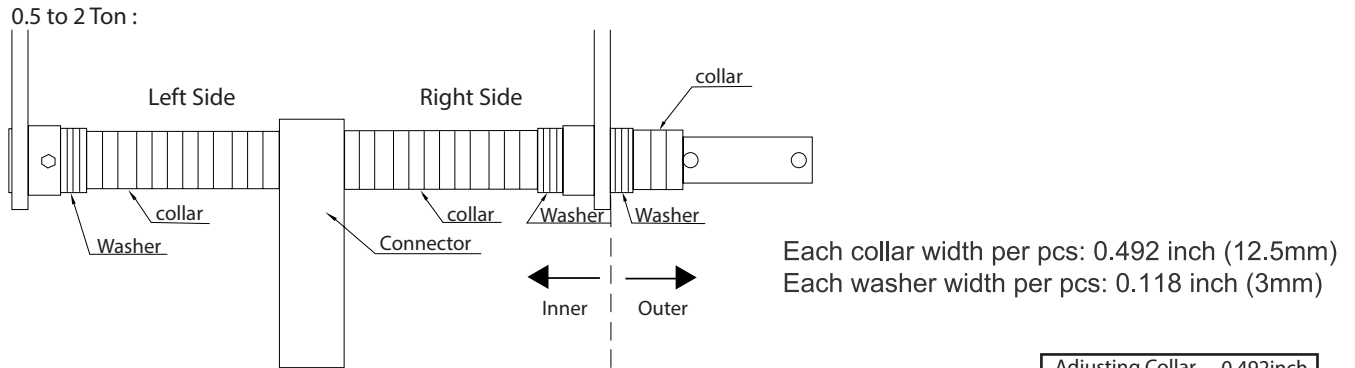
#### \* How to set up the I-Beam Width of Lug Mount Plain Trolley



Lug Mount Plain trolley can be used on I-beams different in width only by inserting adjusting collars (0 pcs to 6 pcs.)

- ① Pull out both "PT039. Stopper Pin" and "PT036. Adjusting Collar"
- ② Widen TROLLEY up to the maximum width by pulling out "PT035. Shaft"
- ③ In accordance with the following I-Beam width instruction, please Insert the applied number of collars and washers at the right end and push the trolley to the direction of arrow mark.
- ④ Insert TROLLEY on I-Beam.
- ⑤ Locate "PT171. Connector" on the center and line up "PT036. Adjusting Collar" by setting the same number of collars and washers at both ends. The orange connector is used for the Accolift CLH hoist and the black connector is used for the Accolift hoist.

## 12.2. Applied Collar Numbers for Each Trolley Capacity on I-Beam.



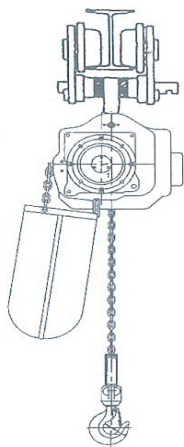
Beam Flange Width (in)			3 <sup>1</sup> / <sub>4</sub>	4	5	6	7	8	9	10	11	12
Cap. (Ton)	Spacer Type	(mm)	85	102	127	153	178	203	229	254	279	305
0.5 1	Washer	Inner	4	2	2	2	2	2	2	2	2	10
		Outer	6	8	8	8	8	8	8	8	8	0
	collar	Inner	0	2	4	6	8	10	12	14	16	16
		Outer	16	14	12	10	8	6	4	2	0	0
2	Washer	Inner	2	0	0	0	0	0	0	0	0	88
		Outer	6	8	8	8	8	8	8	8	8	0
	collar	Inner	0	2	4	6	8	10	12	14	16	16
		Outer	16	14	12	10	8	6	4	2	0	0

For Beam Flange Widths other than indicated, distribute collars and washers equally on Left Side and Right Side so that total clearance between Beam Flange Width and Trolley Side Guide Rollers is no less than 0.039 inch (1mm) and no more than 0.197 inch (5mm). A difference of one washer between Left Side and Right Side is permissible. No difference in quantity of collars between Left Side and Right Side is permissible.

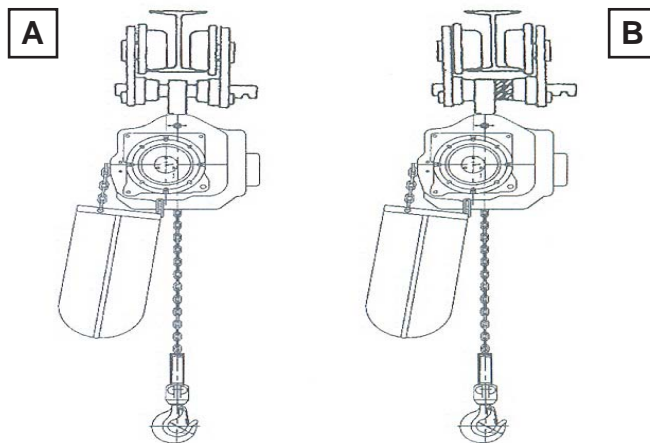
### ⚠ WARNING

**RIGHT installation:** Fit both sides of the connector with the same number of adjusting collars.  
**WRONG installation:** It can result in serious accidents.

#### RIGHT Installation



#### WRONG Installation



(A) Without collars, the setting of connector become loose and not secure.  
 (B) With One-sided setting of collars, it shall result in the un-balanced trolley installation.

**ACCOLIFT® GLH**





## GENERAL CONDITIONS OF WARRANTY

**WARRANTIES:** The seller warrants to the original using Buyer thereof that the goods sold under this Agreement are free from defects in workmanship and materials for a period of one year from the date of shipment to the original using Buyer. No other express warranties are given and no affirmation of Seller or Seller's agents, by word or action, shall constitute a warranty. No warranty is made for components and accessories made by others when such items are warranted by their respective manufacturers.

Installation or operation of the equipment in any manner other than as recommended by Seller, shall void the warranty.

Any variations in details between the goods furnished herein and those covered in Buyer's specifications are due to standards of manufacture not to be construed as exceptions to the specifications.

### **DISCLAIMER OF IMPLIED WARRANTIES:**

- (a) SELLER MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO THE GOODS SOLD UNDER THIS AGREEMENT.
- (b) This sale is made WITHOUT ANY WARRANTY BY SELLER THAT THE GOODS ARE SUITABLE FOR ANY PARTICULAR PURPOSE.
- (c) Buyer hereby waives all other warranties, guarantees, obligations, liabilities, rights, and remedies arising by law or otherwise including any obligation or liability of the Seller arising from tort, and Buyer shall indemnify Seller from any liability, loss, damage, or claim arising from Buyer's tortious use of the goods sold hereby.

### **REMEDIES:**

- (a) Under no conditions shall any goods be returned to Seller without its prior written consent.
- (b) The Buyer's sole and exclusive remedy for breach of any warranty is limited to Seller furnishing, at its expense, duplicate or repaired parts F.O.B. Seller's plant with installation at Buyer's expense if discovery of a claimed defect occurs during the allowable warranty period, and if Seller's inspection determines a defect exists.
- (c) The quantity of material shown by invoice shall in all cases govern settlement for shortages, unless notice of shortage, appropriately documented, is given to the carrier and the Seller upon delivery by the Carrier.
- (d) Claims for errors, deficiencies or imperfections shall be deemed waived by the Buyer unless Seller is notified in writing of the basis of such claims within 10 days after discovery of claimed defect and such discovery occurs within the warranted period.
- (e) Neither Buyer nor User shall be entitled under this Agreement to recover from Seller any incidental or consequential damages of any nature including but not limited to the cost of any labor expended by others in connection with the goods sold hereby by reason of any alleged nonconformity or breach of warranty on the part of the Seller, nor costs of material or account thereof, nor any lost profits whether determinable or speculative.



## **Acco Material Handling Solutions**

76 Acco Drive, York, Pennsylvania 17402  
717-741-4863 800-967-7333 FAX 800-715-8897  
Email : [info@accomhs.com](mailto:info@accomhs.com)  
[www.accomhs.com](http://www.accomhs.com)