



# Operating Instructions and Parts Manual VOLT™ Series Electric Chain Hoists




1/4 ton model shown

**Part No. M-182510**  
Revision F 06/2019



### 3.0 Safety warnings

1. Read and understand the entire owner's manual before attempting assembly or operation.
2. Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.
3. Replace warning labels if they become obscured or removed.
4. This chain hoist is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a chain hoist, do not use until proper training and knowledge have been obtained.
5. Do not use this chain hoist for other than its intended use. If used for other purposes, JET disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
6. Do not install this chain hoist where explosive hazards may exist.
7. Give your work undivided attention. Looking around, carrying on a conversation and "horse-play" are careless acts that can result in serious injury.
8. Do not use to lift people, or loads over people. Warn others in the vicinity when lifting or transporting a load. Avoid swinging load and hook.
9. Do not exceed the rated lift capacity of the chain hoist.
10. Make sure limit switches are operating properly. Do not use limit switches as routine operating stops; they are emergency devices only.
11. Verify that load chain is properly seated in load sheave before operating hoist.
12. Do not use the load chain as a sling or wrap load chain around the load.
13. Always inspect the chain hoist for damage prior to use. Do not use a chain hoist with twisted, kinked, worn or otherwise damaged chain. If the chain hoist is damaged, do not use until it has been repaired or replaced.
14. Do not use more than one chain hoist to lift or move a load. If this is unavoidable, *each* chain hoist must have the same capacity as the load to be moved.
15. Never allow the load chain to "set" over sharp edges. All lifts must be made with straight chain that is free of obstacles.
16. Do not use chain hoist unless load is centered between top and bottom hooks.
17. Protect load chain from weld splatter and other contaminants. Do not allow the hook or chain to be contacted by a live welding electrode.
18. Always take time to study the job to be performed and choose the safest method. Do not place yourself or other people in an unsafe position. Maintain constant awareness of the lifting environment.
19. Leave all internal maintenance to a qualified JET service center. Do not alter settings on the inverter. If its function is suspect, contact JET technical service for assistance.
20. Disconnect hoist from power source before performing maintenance or opening the housing.
21. Do not leave a suspended load unattended.
22. Replace the chain with factory replacement chain only. Do not use any other type of chain.
23. Never use the chain hoist if either hook is stretched, deformed, or has a broken or missing safety latch. Always replace the safety latch and/or the hook before placing the chain hoist back into service.
24. Keep safety guards in place at all times when the hoist is in use.
25. Do not operate this hoist while tired or under the influence of drugs, alcohol or any medication.
26. This hoist is not designed for exposure to outdoor elements.
27. Understand and follow all procedures as set forth in American National Standards titled *Overhead Hoists (Underhung)*, ANSI/ASME B30.16.

 **WARNING:** This product can expose you to chemicals including cadmium which is known to the State of California to cause cancer and birth defects or other reproductive harm.

**Familiarize yourself with the following safety notices used in this manual:**

**⚠CAUTION** This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.

**⚠WARNING** This means that if precautions are not heeded, it may result in serious injury or possibly even death.

### 3.1 Important notice

It is the responsibility of the owner/user to install, inspect, operate and maintain this hoist in accordance with OSHA regulations and ANSI/ASME B30.16, "Overhead Hoists (Underhung)", along with any state or local codes/ordinances as applicable. If hoist is installed as part of a total lifting system (trolley, crane, monorail, etc.), or if below-the-hook lifting devices will be used, it is the responsibility of the owner/user to comply with any standards or regulations involving those additional elements of the system.

## 4.0 Product introduction

Your JET variable speed hoist is designed and constructed to provide consistent, long-term operation if used in accordance with the instructions set forth in this manual.

JET VOLT hoists are available in 230 volt/dual phase; 230 volt/3-phase or 460 volt/3-phase configuration, as well as varied chain lengths.

The Variable Frequency Drive, or "inverter," offers variable speed within a pre-established range. This allows lifting or descent of loads at reduced speeds without having to toggle the up/down button, thus providing efficiency and reducing stress on control contactors.

The magnetic disc brake provides dependable and rapid stopping of chain movement without hook drift, and produces less wear on brake elements than standard mechanical braking systems, thus reducing maintenance. The hoist is also provided with thermal overload protection and limit switches.

**This hoist complies with ANSI/ASME B30.16 and HST-1 standards.**

## 5.0 About this manual

This manual is provided by JET covering the safe operation and maintenance procedures for the JET VOLT series hoists. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown for your hoist. It is not intended to be an exhaustive guide to the use of hoists or the broad subject of rigging, and cannot anticipate every system or lifting configuration in which this product may be used.

Retain all instructions and safety warnings for continued reference. If the hoist transfers ownership, the manual should accompany it.

If there are questions or comments, please contact either your local supplier or JET.

**⚠WARNING** Read and understand the entire contents of this manual before installing hoist or attempting operation, adjustment or maintenance. Failure to comply may cause serious injury.

## 6.0 Glossary

**Creep speed:** Slow, constant, fixed rate of motion of a hoist.

**Duty cycle:** The amount of work a hoist can perform in a given period of time, generally measured by maximum run time and number of starts within that period. Duty cycle *ratings* are designated H1 through H5.

**Duty class:** Identifies the type of service for which a hoist is designed, designated A through F.

**Headroom:** Minimum distance between saddle of top hook to saddle of load hook, measured when load hook is at upper travel limit. Smaller headroom allows a hoist to fit in tighter work spaces.

**Hook saddle:** The inside arc of the hook which contacts the beam (top hook) or where the load sling is seated (load hook).

**Toggle or “bump fire”:** Rapid press and release of a control button to raise or lower load in intermittent steps. (A variable frequency drive in lowest speed range often eliminates the need for toggling.)

**Overtravel limit device:** A device for limiting upward or downward travel of the load hook at the extremities of its lift. (If activation of the device alters the electrical circuit within the machine, it is often called a “limit switch.”)

**Load block:** The assembly of hook or shackle, swivel, bearing, pins, sheaves and frame suspended by the chain.

**Magnetic disc brake:** A stopping device controlled by the application of electrical current to the coil of an electromagnet, which draws away an armature allowing rotation of the shaft. When the magnet is de-energized, the armature moves back toward the brake face and squeezes together friction discs – the torque is applied to the hub and stops shaft rotation.

**Overload limit device:** A mechanical or electrical device that prevents the hoist from lifting when excessive load is applied.

**Rated Load, or Capacity:** The maximum load weight, usually labeled as tonnage, which the hoist is designed to handle as designated by the manufacturer.

**Reeving:** The system in which a chain or rope travels around a running sheave.

**Running Sheave:** A sheave which engages the chain/rope and rotates as the load block is raised or lowered. Also called “load sheave” or “load sprocket.”

**Variable frequency drive (“inverter”):** A control system that converts fixed line voltage and frequency into a three-phase system with infinitely variable voltage and frequency, in order to regulate motor speed.

## 7.0 Dimensions of VOLT series hoists

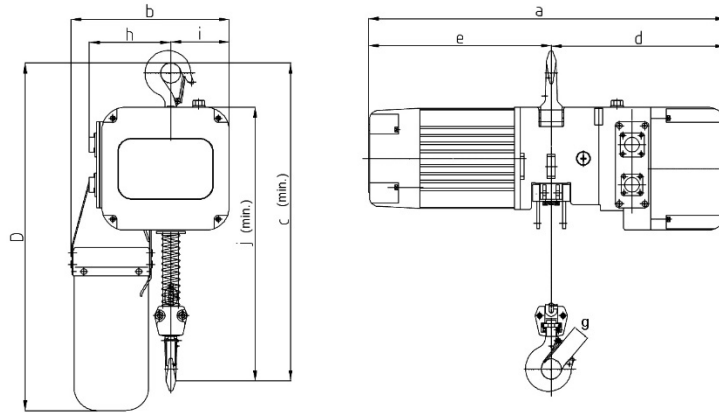


Figure 1: 1/4 ton to 5 ton hoists

		C	D	a	b	d	e	g	h	i	j
1/4 ton	mm	505	610	626	286	317	309	31	142	102	415
	in.	19.88	24.02	24.6	11.3	12.48	12.2	1.22	5.6	4.02	16.34
1/2 ton	mm	505	610	626	286	317	309	31	142	102	420
	in.	19.88	24.02	24.6	11.3	12.48	12.2	1.22	5.6	4.02	16.54
1 ton	mm	550	630	666	286	317	349	38	142	102	430
	in.	21.7	24.80	26.2	11.3	12.48	13.7	1.5	5.6	4.02	16.93
2 ton	mm	605	780	694	430	336	358	45	185	165	487
	in.	23.8	30.71	27.32	16.93	13.23	14.09	1.77	7.28	6.5	19.17
3 ton	mm	605	780	694	430	336	358	45	185	165	487
	in.	23.8	30.71	27.32	16.93	13.23	14.09	1.77	7.28	6.5	19.17
5 ton	mm	665	870	694	430	336	358	61	240	110	665
	in.	26.2	34.25	27.32	16.93	13.23	14.09	2.40	9.45	4.33	26.18

Table 1

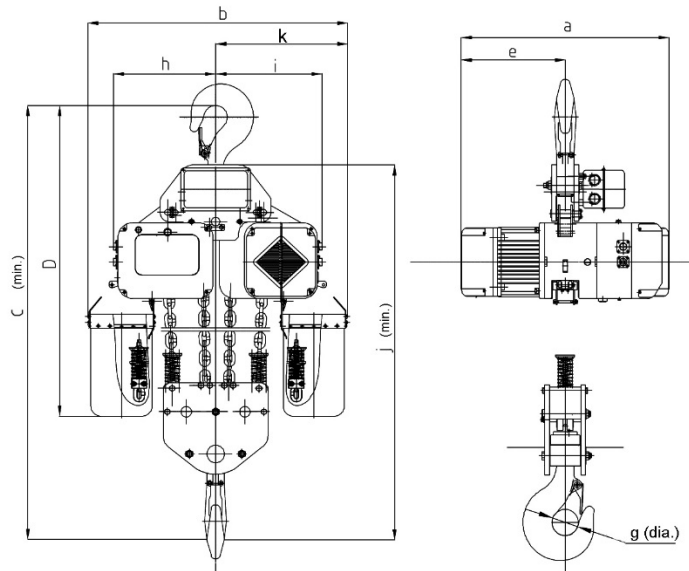


Figure 2: 10 ton hoist

		C	D	a	b	e	g	h	i	j	k
10 ton	mm	1330	1068	715	892	358	90	365	365	1050	453
	in.	52.4	42.05	28.15	35.12	14.09	3.54	14.37	14.37	41.34	17.83

Table 2

The specifications in this manual were current at time of publication, but because of our policy of continuous improvement, JET reserves the right to change specifications at any time and without prior notice, without incurring obligations.

## 8.0 Specifications of VOLT Series hoists

Table 3

Stock Number	Model Description	Capacity (ton)	Standard Lift (ft.) <sup>1</sup>	Lifting Speed (ft. per minute)	Push Button Control Cord Length		Duty Cycle Rating	Duty <sup>2</sup> Cycle	Motor				Load Chain (Dia. x Pitch) mm	No. of Falls	Headroom		Gross Weight <sup>3</sup>		Net Weight		Additional weight for 1 foot of lift	
									Current draw (amperage)													
									Motor (HP)	230V (1/3PH)	230V (3PH)	460V (3PH)										
182510	VOLT-025-13P-10	1/4	10	0-55	3	10	H4	50%	1.5	5A	-	-	5 x 15	1	505	19.88	53	117	48	106	0.17	0.37
182515	VOLT-025-13P-15	1/4	15	0-55	4.5	15	H4	50%	1.5	5A	-	-	5 x 15	1	505	19.88	55	121	50	110	0.17	0.37
182520	VOLT-025-13P-20	1/4	20	0-55	6	20	H4	50%	1.5	5A	-	-	5 x 15	1	505	19.88	57	125	52	114	0.17	0.37
182511	VOLT-025-03P-10	1/4	10	0-55	3	10	H4	50%	1.5	-	-	3A	5 x 15	1	505	19.88	53	117	48	106	0.17	0.37
182516	VOLT-025-03P-15	1/4	15	0-55	4.5	15	H4	50%	1.5	-	-	3A	5 x 15	1	505	19.88	55	121	50	110	0.17	0.37
182521	VOLT-025-03P-20	1/4	20	0-55	6	20	H4	50%	1.5	-	-	3A	5 x 15	1	505	19.88	57	125	52	114	0.17	0.37
185010	VOLT-050-13P-10	1/2	10	0-39	3	10	H4	50%	1.5	5A	-	-	6.3 x 19	1	505	19.88	55	121	50	110	0.26	0.57
185015	VOLT-050-13P-15	1/2	15	0-39	4.5	15	H4	50%	1.5	5A	-	-	6.3 x 19	1	505	19.88	57	125	52	114	0.26	0.57
185020	VOLT-050-13P-20	1/2	20	0-39	6	20	H4	50%	1.5	5A	-	-	6.3 x 19	1	505	19.88	59	130	54	119	0.26	0.57
185011	VOLT-050-03P-10	1/2	10	0-39	3	10	H4	50%	1.5	-	-	3A	6.3 x 19	1	505	19.88	55	121	50	110	0.26	0.57
185016	VOLT-050-03P-15	1/2	15	0-39	4.5	15	H4	50%	1.5	-	-	3A	6.3 x 19	1	505	19.88	57	125	52	114	0.26	0.57
185021	VOLT-050-03P-20	1/2	20	0-39	6	20	H4	50%	1.5	-	-	3A	6.3 x 19	1	505	19.88	59	130	54	119	0.26	0.57
181110	VOLT-100-13P-10	1	10	0-39	3	10	H4	40%	3	7A	-	-	8 x 24	1	550	21.7	70	154	65	143	0.41	0.9
180115	VOLT-100-13P-15	1	15	0-39	4.5	15	H4	40%	3	7A	-	-	8 x 24	1	550	21.7	73	161	68	150	0.41	0.9
180120	VOLT-100-13P-20	1	20	0-39	6	20	H4	40%	3	7A	-	-	8 x 24	1	550	21.7	76	167	71	156	0.41	0.9
180111	VOLT-100-03P-10	1	10	0-39	3	10	H4	40%	3	-	-	4A	8 x 24	1	550	21.7	70	154	65	143	0.41	0.9
180116	VOLT-100-03P-15	1	15	0-39	4.5	15	H4	40%	3	-	-	4A	8 x 24	1	550	21.7	73	161	68	150	0.41	0.9
180121	VOLT-100-03P-20	1	20	0-39	6	20	H4	40%	3	-	-	4A	8 x 24	1	550	21.7	76	167	71	156	0.41	0.9
183210	VOLT-200-13P-10	2	10	0-24	3	10	H4	50%	4	-	7A	-	11.2 x 34	1	605	23.8	130	286	122	268	0.81	1.78
183215	VOLT-200-13P-15	2	15	0-24	4.5	15	H4	50%	4	-	7A	-	11.2 x 34	1	605	23.8	134	295	126	277	0.81	1.78
183220	VOLT-200-13P-20	2	20	0-24	6	20	H4	50%	4	-	7A	-	11.2 x 34	1	605	23.8	138	304	130	286	0.81	1.78
180211	VOLT-200-03P-10	2	10	0-24	3	10	H4	50%	4	-	-	4A	11.2 x 34	1	605	23.8	130	286	122	268	0.81	1.78
180216	VOLT-200-03P-15	2	15	0-24	4.5	15	H4	50%	4	-	-	4A	11.2 x 34	1	605	23.8	134	295	126	277	0.81	1.78
180221	VOLT-200-03P-20	2	20	0-24	6	20	H4	50%	4	-	-	4A	11.2 x 34	1	605	23.8	138	304	130	286	0.81	1.78
183310	VOLT-300-13P-10	3	10	0-24	3	10	H4	40%	4	-	8A	-	11.2 x 34	1	605	23.8	130	286	122	268	0.81	1.78
183315	VOLT-300-13P-15	3	15	0-24	4.5	15	H4	40%	4	-	8A	-	11.2 x 34	1	605	23.8	134	295	126	277	0.81	1.78
183230	VOLT-300-13P-20	3	20	0-24	6	20	H4	40%	4	-	8A	-	11.2 x 34	1	605	23.8	138	304	130	286	0.81	1.78
180311	VOLT-300-03P-10	3	10	0-24	3	10	H4	40%	4	-	-	5A	11.2 x 34	1	605	23.8	130	286	122	268	0.81	1.78
180316	VOLT-300-03P-15	3	15	0-24	4.5	15	H4	40%	4	-	-	5A	11.2 x 34	1	605	23.8	134	295	126	277	0.81	1.78
180321	VOLT-300-03P-20	3	20	0-24	6	20	H4	40%	4	-	-	5A	11.2 x 34	1	605	23.8	138	304	130	286	0.81	1.78
183510	VOLT-500-13P-10	5	10	0-12	3	10	H4	40%	4	-	8A	-	11.2 x 34	2	665	26.2	152	334	144	317	1.62	3.56
183515	VOLT-500-13P-15	5	15	0-12	4.5	15	H4	40%	4	-	8A	-	11.2 x 34	2	665	26.2	160	352	152	334	1.62	3.56
183520	VOLT-500-13P-20	5	20	0-12	6	20	H4	40%	4	-	8A	-	11.2 x 34	2	665	26.2	168	370	160	352	1.62	3.56
180511	VOLT-500-03P-10	5	10	0-12	3	10	H4	40%	4	-	-	5A	11.2 x 34	2	665	26.2	152	334	144	317	1.62	3.56
180516	VOLT-500-03P-15	5	15	0-12	4.5	15	H4	40%	4	-	-	5A	11.2 x 34	2	665	26.2	160	352	152	334	1.62	3.56
180521	VOLT-500-03P-20	5	20	0-12	6	20	H4	40%	4	-	-	5A	11.2 x 34	2	665	26.2	168	370	160	352	1.62	3.56
183010	VOLT-1000-13P-10	10	10	0-12	3	10	H4	40%	4	-	8A	-	11.2 x 34	4	1430	56.4	368	810	352	774	3.24	7.13
183015	VOLT-1000-13P-15	10	15	0-12	4.5	15	H4	40%	4	-	8A	-	11.2 x 34	4	1430	56.4	384	845	368	810	3.24	7.13
183020	VOLT-1000-13P-20	10	20	0-12	6	20	H4	40%	4	-	8A	-	11.2 x 34	4	1430	56.4	400	880	384	845	3.24	7.13
181011	VOLT-1000-03P-10	10	10	0-12	3	10	H4	40%	4	-	-	5A	11.2 x 34	4	1430	56.4	368	810	352	774	3.24	7.13
181016	VOLT-1000-03P-15	10	15	0-12	4.5	15	H4	40%	4	-	-	5A	11.2 x 34	4	1430	56.4	384	845	368	810	3.24	7.13
181021	VOLT-1000-03P-20	10	20	0-12	6	20	H4	40%	4	-	-	5A	11.2 x 34	4	1430	56.4	400	880	384	845	3.24	7.13

<sup>1</sup> Above stock nos. are representative. Custom chain lengths may be available – contact your dealer or JET.

<sup>2</sup> 50% Duty Cycle = maximum on time: 30 min/hr.; maximum number of starts: 300/hr.

40% Duty Cycle = maximum on time: 24 min./hr.; maximum number of starts: 240/hr.

<sup>3</sup> Gross weight includes shipping/packaging materials.

## 9.0 Unpacking

Open shipping container and check for shipping damage. Report any damage immediately to your distributor and shipping agent. Do not discard any shipping material until hoist is installed and running properly.

### 9.1 Contents of shipping container

- 1 Electric chain hoist
- 1 Chain container with fasteners
- 1 Power supply cord
- 1 Pendant control cord
- 1 Operating instructions & parts manual
- 1 Product registration card
- 1 Test certificate

## 10.0 Installation

Support for the hoist may be hook, clevis pin, trolley, or beam clamp. Whatever method of suspension is chosen, the support components **must** be rated equal to, or greater than the capacity of the chain hoist. Supporting structures (such as I-Beams) should be installed by properly licensed professional installers.

If you are using the hoist with a trolley, refer to the trolley manual for instructions on securing the control cord and maintaining proper slack in the cord during operation. Optional pendant cords for use with a trolley system are shown in *section 13.4*.

Make sure the suspension system used is properly grounded, in addition to the grounding of the hoist.

### 10.1 Installing power and control cords

Attach the power supply cord and control cord to the hoist as follows (see *Figure 3*):

1. Remove any protective caps from the plugs on the power and control cords, and from the sockets on the hoist.
2. Insert the 4-pin (4P) plug of the power supply cord into the 4P socket on the hoist. Insert the 7P plug of the control cord into the 7P socket. Orient the plugs properly; match the numbers on the pins in each plug to those in the socket. (The longest pin is the grounding pin, and should insert into the socket hole with the grounding symbol:  $\perp$ ) Use sufficient force to ensure good connection.
3. Tighten the two cover nuts. *Hand-tighten only; do not use a wrench.*
4. The control cord has a cable loop to relieve strain upon the power cord connection. On **1/4- to 2-ton models**, secure this loop by inserting it into the grooves of the clip, then installing clip to bottom of hoist with the two

screws. See *Figure 4*. On **3- to 10-ton models**, secure the cable loop to the eyebolt on the side of the hoist.

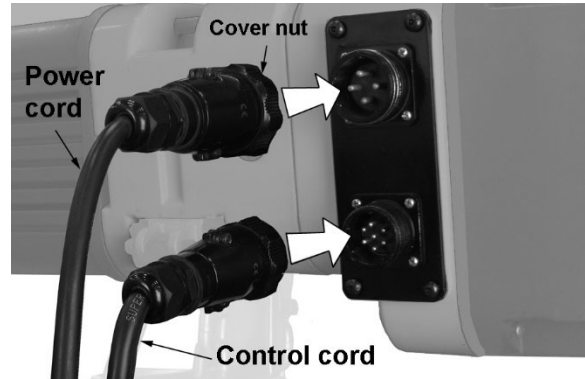


Figure 3

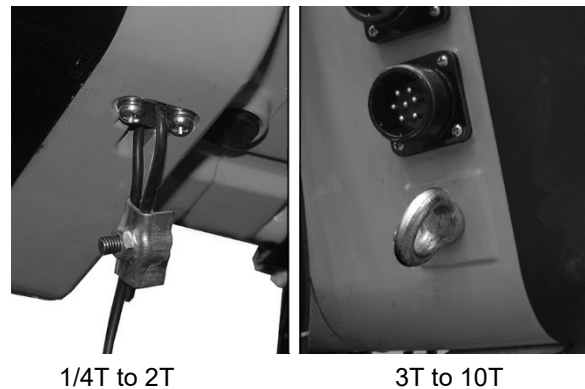


Figure 4

### 10.2 Lubrication

#### 10.2.1 Gear oil

Your hoist has been shipped with oil included in the gearbox. Before operating, verify the oil level by removing the plug on the *side* of the hoist (see *Figure 5*). The oil level should be just below the edge of the hole.

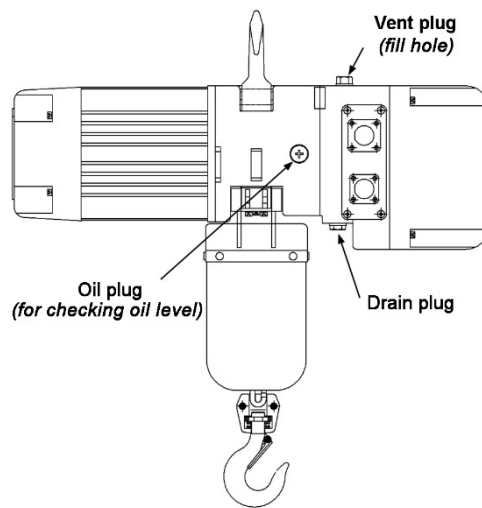


Figure 5

The oil in the gearbox should be changed annually, or more frequently under severe service, as follows.

Use either of these recommended oil brands:

Mobilgear XMP 100  
Shell Omala S2 G 100

#### Capacities:

**1/4T,1/2T,1T Hoists – 0.8 Liters (0.21 gal)**

**2T,3T,5T,10T Hoists – 1.5 Liters (0.4 gal)**

To drain and refill gearbox (refer to Figure 5):

1. Open vent plug on top of hoist.
2. Open drain plug and drain reservoir. Reinstall drain plug.
3. Pour oil into fill hole.
4. Check level by removing side plug.
5. Reinstall top and side plugs.

### 10.2.2 Chain lubrication

Periodically apply a light coat of 30W oil to the chain. This will create easier operation and prolong the chain's life. For optimum results, clean chain with an acid-free solution before oiling.

### 10.3 Chain container

Your hoist is supplied with a chain container designed to fit the particular length of chain. If a different length chain is ever installed on this hoist, the chain container must be replaced by one of proper size.

The chain container should be installed after the power supply is connected to hoist. Refer to *section 11.0*, then proceed with the below instructions on chain container installation.

**⚠WARNING** Do not overfill chain container. If chain should overfill and begin to fall, entire chain container may empty without warning, resulting in serious personal injury or property damage.

To assemble chain container to hoist:

1. Hang hoist in position on the I-Beam or trolley. Do not install chain container yet. Allow slack side and load side of chain to hang freely from hoist.
2. Apply power to hoist and press DOWN button until limit switch is tripped.
3. Mount chain container to hoist undercarriage, using a short and a long bolt with lock nuts. See Figure 6.
4. Place chain stop into container, and operate hoist to bring load hook up until upper limit switch is tripped.
5. Inspect chain to ensure that all non-loaded chain is completely in container.

**⚠CAUTION** Do not dump chain by hand into the chain container! By not following the above steps, the chain can become twisted or kinked and can damage the hoist.



Figure 6

## 11.0 Electrical instructions

**⚠WARNING** Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded to help prevent electrical shock and possible fatal injury.

The 230V hoists *up to 1-ton* are **prewired for 3-phase**, but can be operated on either single or 3-phase power supply. (The inverter will convert incoming single-phase power for proper delivery to the 3-phase induction motor.)

The 460V hoists and 230V *2-ton and larger* hoists, are **3-phase only**.

If an electrical plug (not provided) is installed on the hoist power cable, it must be appropriate for the phase used.

The hoist should be connected to a circuit with current overload protection, rated at 120% of the full load amperage listed on the hoist's nameplate. If fuses are used, they must be time-delay fuses rated "D". **Local codes take precedence over recommendations.**

### 11.1 Grounding

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

This hoist is not supplied with a power plug. Power supply cables may either be fitted with a UL/CSA-listed plug rated for the appropriate phase and voltage, or "hard-wired" directly to a control panel. If hard-wired, make sure a disconnect is available for the operator.

If a plug is installed, it must have an equipment-grounding conductor and a grounding prong. The plug must be plugged into a matching outlet that is



properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug – if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding connector.

If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Repair or replace damaged or worn cord immediately.

## 11.2 Variable frequency drive

**CAUTION** The inverter is not user-serviceable. Any programming or service must be performed by qualified personnel.

**WARNING** The inverter contains high voltage elements that may retain a significant charge for several minutes after power is shut off.

This hoist uses Variable Frequency Drive, also called an A.C. Inverter, to provide infinitely variable speeds within the specified range. The inverter controls motor speed by varying the frequency of voltage supplied to the motor. This is especially useful for slowing a load as it nears drop point.

The inverter does not require any programming; it has been pre-programmed from the factory. With the possible exception of the reset button, **the buttons on the face of the inverter should never be pushed at any time.** Use only the controls on the pendant cord.

**CAUTION** A lightning strike or power surge may cause inverter failure. When hoist is not in use, disconnect power plug, or have a 3- or 4-pole disconnect installed on the power side.

## 11.3 Inspecting hoist motion

1. Before closing circuit breaker and testing hoist, check that wiring has been complete. If hoist cannot be observed when circuit breaker is closed, station an observer within sight of hoist to report any movement when power is applied. Be prepared to disconnect power if

hoist motor starts when power is applied – the hoist must remain motionless when power is applied. Find and correct any problems before continuing.

2. With no load on load hook, press UP button very briefly and observe hoist action. The hook should move upward.
3. On hoists with 3-Phase power supply, if the hook moves in opposite direction to that shown on control button, or if no motion occurs when UP button is pressed, then the power supply wires are incorrectly positioned.  
**Disconnect hoist from power**, and switch any two of the three supply wires at the power source (excluding the ground wire). **Do not attempt to rewire the hoist circuit or pendant controls for this problem.** Use the same safety precautions when reversing two of the supply wires as was used when the wires were originally connected.
4. Reconnect power and test hoist movement again without load. Run hoist to maximum lifting height to ensure lift limiting devices are operating properly. Adjust speed knob throughout its range to test variable speed function.

## 12.0 Pre-operation inspection

### 12.1 Inspecting load chain

Clean chain with non-acidic solution, and carefully inspect entire load chain. Replace damaged chain before using hoist. See *section 17.2* for maximum pitch allowed for chain length. If the chain exceeds this amount, it must be replaced.

Also replace the load chain if any of the following are identified:

1. Seriously rusted or cracked.
2. Marks on the chain surface are deeper than 5% of the link's diameter.
3. Links are twisted or deformed.
4. Links are stretched too long or considerably worn on the surface, especially at points where links contact each other.

**Never** extend load chain by welding a second piece to the original.

**WARNING** Do not operate hoist with twisted, kinked or damaged load chain. Do not splice load chain.

Check that chain does not twist along its length from hoist to hook. If twist is present on units with multiple falls, the hook has been capsized; it must be passed back through the chain loop to remove all twist in the chain.

**⚠WARNING** The load chain supplied with your JET chain hoist is designed, manufactured, and tested for proper fit and durability. Over a period of time, the chain may need to be replaced. For your own safety, use factory replacement chain only. Use of other than factory replacement chain may cause serious injury and/or damage to hoist.

A light coat of 30W oil applied periodically to the chain will create easier operation and prolong chain life.

## 12.2 Inspecting hooks

It is important to check top and bottom hooks for proper opening and other signs of deformation or damage. Replace a hook immediately if any of the following problems are identified:

1. The safety latch is damaged or bent, or no longer has sufficient spring pressure to contact the hook tip.
2. The vertical angle at neck of the hook reaches  $10^\circ$  (see Figure 7).

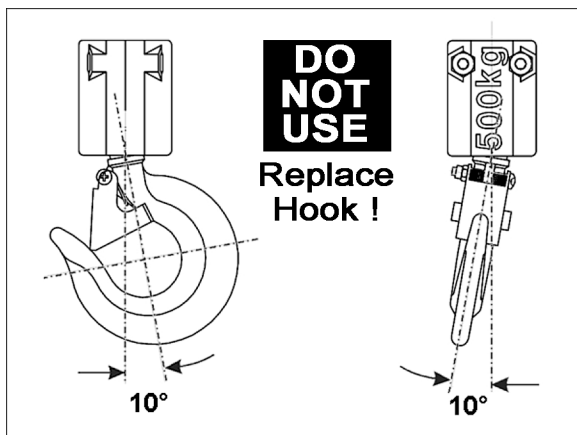


Figure 7

3. Chemical corrosion or cracks on the hook.
4. Excessive wear on the inside surface.
5. The throat opening has enlarged. (See section 17.1 for maximum allowable limits for the throat opening.)

**NOTE:** Excessive hook throat opening or twist indicates abuse or overloading of the hoist. If such deformation is discovered, inspect hoist, chain and all supporting members very carefully for additional indications of excessive hoist loading.

**⚠WARNING** Do not attempt repair of a hook by heat treating, bending or attaching anything by welding. Such procedures will weaken and may cause failure of the hook.

## 13.0 Operation

### 13.1 Controls

Refer to Figure 8.

**⚠CAUTION** Allow hoist to come to a full stop before changing direction. Rapidly reversing or catching a falling load can overload the hoist system and cause failure in hoist and/or chain, resulting in injury or property damage.



Figure 8

To lift a load, press and hold the UP button. To lower, press and hold the DOWN button. The speed dial may be rotated at any time while pressing one of the other buttons. Use low speed when beginning to lift a load, or when settling a load at the drop point.

If hoist is connected to a manual trolley, move hoist by pushing on the suspended load. Move an unloaded hoist by pulling on the empty hook. Do **NOT** move hoist by pulling on control cord.

Always keep hoist clean, and store in a clean, dry location.

Avoid lifting one load with two hoists. If this is unavoidable, apply equal weight to both hoists and use hoists with proper lift capacity. **Capacity of each hoist must be equal to the total load to be lifted.**

Follow this general procedure for hoisting loads:

1. Secure upper hook to the supporting structure.
2. Place load sling or chain in center of bottom hook, making sure the safety latch is secure. **Never load the hook in front of the safety latch.** See Figure 9.

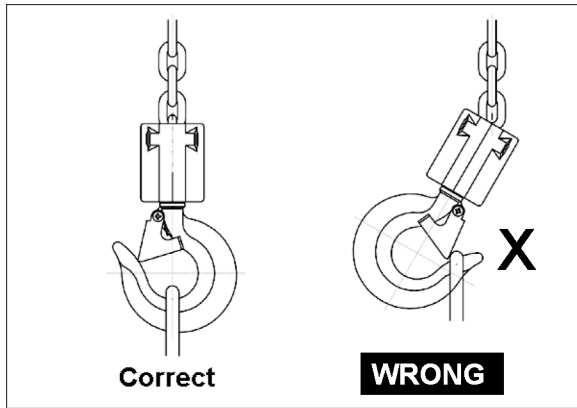


Figure 9

3. Press UP button and remove all slack in load chain. Increase tension in load chain until hoist is about to raise the load.
4. Check again that load is properly slung, is directly under hoist, and will not suddenly swing or twist.
5. Raise load an inch or two above ground and stop. Observe load for a few moments, looking for signs that load or hoist system is unstable, or other indications of a problem.
6. Check that chain is not twisted at bottom hook. All welds should face same direction (see Figure 13). For hoists with two or more falls of chain, make sure bottom hook is not capsized. This may cause the chain to twist.
7. Raise load to traveling height. Raise only to height necessary to safely clear all obstacles.
8. Lower load at destination. If both UP and DOWN commands must be used during lowering, pause for a moment between each reversal of load direction. Use the variable speed dial for gradual speed changes when needed.
9. Slowly allow weight to shift from hoist to ground or new support. Do not approach load until all tension is out of chain and load is stable.

### 13.2 Thermal overload protection

If the hoist has stopped working due to overloading and tripping of the thermal relay, there are two methods of resetting the hoist:

1. Lower hoist to operator's level, open cover on the inverter end, and push reset button (Figure 10). OR...
2. Shut off power supply to hoist. This will reset the hoist without having to lower it.

Analyze the possible reason for overloading and correct it. Make sure load is within rated capacity.



Figure 20

### 13.3 Magnetic brake function

The magnetic disc brake provides dependable and rapid stops, and produces less wear on parts than standard mechanical braking systems. It also provides an important safety measure – a power failure will result in immediate engagement of the brake. (See section 18.0 for maintenance and adjustments.)

### 13.4 Optional pendant controls

The 2-button pendant controls (shown in Table 4) are replacement parts for the pendant supplied with the hoist.

The 4-button controls are for use with an optional JET electric trolley. They possess buttons for both vertical lift and lateral travel, thus allowing one pendant control to be used for both hoist and trolley.

See your dealer or call JET to order.

Stock no.	Model no.	Description
162210	PBC-210VOLT	VOLT 2 BTN PNDDT 10' Lift
162215	PBC-215VOLT	VOLT 2 BTN PNDDT 15' Lift
162220	PBC-220VOLT	VOLT 2 BTN PNDDT 20' Lift
162230	PBC-230VOLT	VOLT 2 BTN PNDDT 30' Lift
162410	PBC-410VOLT	VOLT 4 BTN PNDDT 10' Lift
162415	PBC-415VOLT	VOLT 4 BTN PNDDT 15' Lift
162420	PBC-420VOLT	VOLT 4 BTN PNDDT 20' Lift
162430	PBC-430VOLT	VOLT 4 BTN PNDDT 30' Lift

Table 4

## 14.0 Adjustments

### 14.1 Replacing load chain

Over time, the load chain will wear or elongate. This can cause damage to hoist, breakage, or non-engagement of the load sheave. The following procedures describe replacing the load chain for single and multiple fall hoists. **These procedures should be performed by qualified persons only.**

It is recommended that after installing new chain, the first few lifts be limited to no more than 25-50% of rated load capacity. Thoroughly inspect new chain for twist before placing hoist into routine service.

### 14.2 Cutting chain

**⚠WARNING** Use eye/face protection when cutting chain.

Use a bolt cutter with special cutter jaws for cutting hardened chain. Cut only one side of the link at a time. When making the second cut, place a mat over the chain to catch the flying chain section.

### 14.3 Making a C-Link

Replacing load chain will require the use of a C-link (in some cases, two C-links), which you can easily make as follows:

1. Cut a link from the old chain.
2. Cut the weld from the link leaving an opening approximately 1.25 times the diameter of the link material. See Figure 11.
3. Grind the cut areas smooth and remove all burrs.

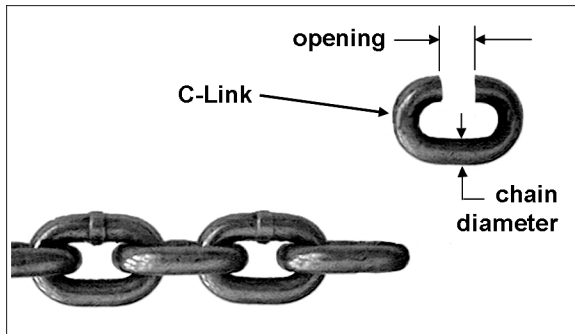


Figure 11

### 14.4 Single fall chain hoist

1. Lower the load hook until only 1 to 2 feet of slack chain remains in the chain container.
2. Remove chain container.
3. On the slack side of the chain, remove the chain stop, spring, and limit block (Figure 12). Keep these handy for later re-installing.
4. Using a C-link, connect the new chain to the old chain. Be sure vertical link welds face

away from load sheave (see Figure 13 and its accompanying text).

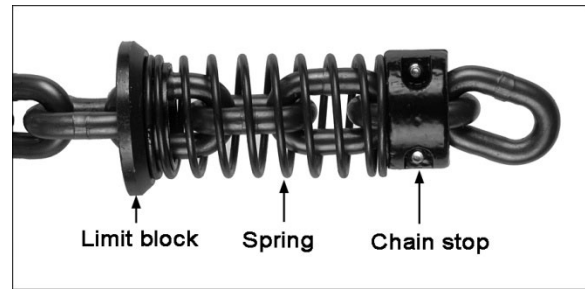


Figure 12

5. Keep tension on both sides of the chain and lower the load hook to pull the new chain through the hoist. Do not let the chain twist or bind as it is being pulled through the hoist.
6. Stop hoist when 1 to 2 feet of new chain remains on the slack side.
7. Install the limit block, spring and chain stop on the slack end of the chain.
8. Continue lowering the load hook until the new chain clears the load hook. Inspect condition of both spring and hook.
9. Lower load hook until the limit switch stops hoist movement. Inspect the chain for any signs of twist.
10. Install chain container, making sure to install the self-locking nut on the screw. *Do not fill chain container by hand.*

### 14.5 Vertical and horizontal links

Vertical and horizontal are determined by the relationship to the load chain sheave. Vertical links will be guided by the center slit in the sheave. Horizontal links will engage the oval pockets on the sheave. See Figure 13.

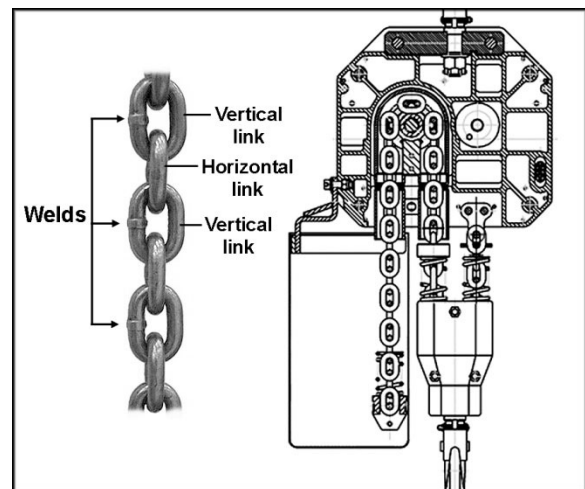


Figure 13

## 14.6 Dual/multiple fall chain hoists

**CAUTION** The link on the load side end must be a vertical link. If it is a horizontal link, the chain will have a twist in it.

1. Lower hook until only 1 to 2 feet of slack chain remains in the chain container.
2. Remove chain container.
3. On the slack side of the chain, remove the chain stop, spring and limit block (see Figure 12). Keep these handy for later re-installing.
4. Using a C-link(s), connect the new chain to the old chain. If the end link of the old chain is horizontal, use two C-links. If the end link of the old chain is vertical, use one C-link. See Figure 14. Using the correct number of C-links will properly orient the chain, and ensure that the first link on the load side end is a vertical link.

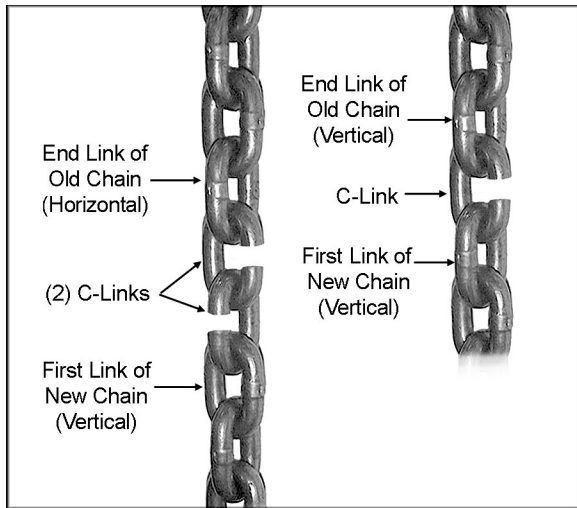


Figure 14

5. Install the limit block, spring, and chain stop on the opposite end of the new chain.

6. Support the load hook so that the load chain can pass through the chain sheaves smoothly.
7. Press the DOWN button to move the chain through the hoist. Keep tension on the chain as you pull it through to the load side, until the C-link(s) clears the hoist at the load side. Continue pressing DOWN until the new chain clears the load hook.
8. Place the first link of the new chain into the load side end holder (Figure 15). Be sure there is no twisting of chain between last chain sprocket and load side end holder.

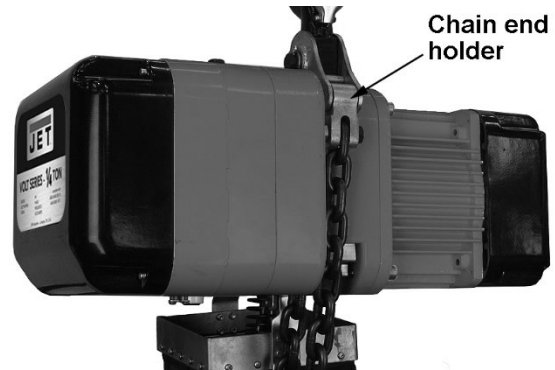


Figure 15

9. Install chain container, making sure to install the self-locking nut on the screw. *Do not fill chain container by hand.*
10. Lower hook until limit switch stops hoist movement, then raise hook until limit switch stops hoist movement. Inspect chain for any signs of twist and correct before continuing.

**Note:** On the 10-ton hoist, the above procedure is repeated for each of the 3-ton bodies.

It is recommended that after installing new chain, the first few lifts be limited to no more than 25% to 50% of rated load capacity. Inspect chain for twist before placing hoist into routine service.

## 15.0 Inspection and maintenance

**⚠WARNING** All repairs and adjustments are to be performed by qualified persons using procedures that are approved for the hoist system being serviced. All safety-related deficiencies discovered in the inspection are to be corrected before hoist is placed back into service. Check for internal damage whenever external damage has occurred.

Read and follow all relevant ANSI Inspection and Maintenance standards, particularly ANSI/ASME B30.16 *Overhead Hoists (Underhung)*. Know the meaning of Frequent Inspection, Periodic Inspection, Normal Service, Heavy Service, and Severe Service. It is the customer's responsibility to understand and follow all ANSI and JET inspection and maintenance instructions.

The following definitions are based upon ANSI/ASME B30.16.

**Normal Service:** Operation with randomly distributed loads within the rated load limit or uniform loads less than 65% of rated load for not more than 25% of the time.

**Heavy Service:** Operation within rated load limit, which exceeds normal service.

**Severe Service:** Normal or heavy service with abnormal operating conditions.

**Designated Person:** A person selected or assigned as being competent to perform the specific duties to which he/she is assigned.

**Qualified Person:** A person who, by a recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

**⚠WARNING** Avoid potential shock hazard. The inverter contains high voltage elements that may briefly retain charge after powering down. Do not perform any mechanical or electrical maintenance on the hoist for at least five minutes after hoist is disconnected from power, to allow de-energizing of the capacitor.

## 16.0 Inspection schedules

The VOLT series Hoist should be given an **initial inspection** upon installation and prior to use (see also *Pre-Operation Inspection* in this manual). Following that, it must be inspected by a designated person at the time interval noted below. Dated inspection and repair reports must be maintained. Copies of all reports must be available to service personnel.

Visual inspections are divided into two general classifications based upon frequency, then further categorized by type of service, as shown below.

More detailed information may be found in ANSI/ASME B30.16 standards publication.

### FREQUENT Inspection Schedule

Service Interval:

**Normal Service:** Monthly

**Heavy Service:** Weekly

**Severe Service:** Daily

1. Check oil level in gearbox.
2. Check braking system for slippage.
3. Check that pushbutton controls and variable speed dial operate properly.
4. Check that limit switches function properly. Without load, operate UP button control while observing limit spring. If limit spring becomes compressed and motor does not stop, STOP operation immediately. Limit switch is not operating properly. Repeat test with DOWN button control.
5. Check top hook and load hook for deformation, chemical damage, and cracks.
6. Check hook latch operation.
7. Check that load chain is clean and lightly lubricated, free of excessive wear or deformation at the contact points between links and link and hook (see *section 17.2* in this manual). This hoist uses special alloy hoisting chain and does not interchange with any other manufacturer.
8. Check that the chain passes smoothly through all sprockets while under load.
9. Check entire hoist system for signs of damage and loss of integrity. Listen for any abnormal sounds.

### PERIODIC Inspection Schedule

Service Interval:

**Normal Service:** Yearly

**Heavy Service:** Semi-Annually

**Severe Service:** Quarterly

1. Perform all of the Frequent Inspection items.
2. Drain and refill gearbox. (See *section 10.2.1* for details and capacities.)
3. Check entire unit for loose screws, bolts, nuts, rivets and pins.
4. Check for evidence of excessive wear, corrosion, cracks, or distortion in the following parts: hook parts, chain attachments, suspension bolts and shafts, housings, gears, bearings, pins, rollers, and locking and clamping devices.
5. Check for evidence of damage to hook parts including hook retaining nuts and collars and pins, and hook holding frame and parts used to secure the frame.
6. Check for evidence of damage or excessive wear of load gear, sheave and sprocket wheel. If the pockets are too deep, the chain may jam with corresponding failure of engagement between chain and sprocket or sheave.
7. Check for evidence of excessive load brake wear. Inspect clearance between brake components, and adjust if needed.
8. Check for evidence of pitting or other deterioration of visible controller contacts.
9. Check for evidence of deterioration of supporting structures and trolleys.
10. Check for visible deformation of limit switch coil springs.
11. Check that all warning labels are present and legible.

Note: In addition to the above inspections of the hoist, it is recommended that the inverter be inspected by a qualified person at appropriate intervals as designated by the inverter manufacturer, including an insulation resistance (Megger) test approximately every two years.

## 17.0 Allowable limits

### 17.1 Hook wear limits (top and bottom)

Replace the hook when the A, B, or C measurements, as shown in Figure 16, reach the limit shown in the tables below. Never heat-treat the hook or attach anything to the hook by welding.

**NOTE:** Excessive hook throat opening or twist indicates abuse or overloading of the hoist. If such deformation is discovered, inspect the hoist, chain and all supporting members very carefully for additional indications of excessive hoist loading.

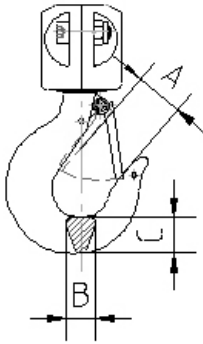


Figure 16

Hoist capacity (T)	Allowable Limits for Hooks					
	A Dimension (in)		B Dimension (in)		C Dimension (in)	
	Normal	Replace	Normal	Replace	Normal	Replace
1/4 - 1/2	1.18	>1.29	0.71	<0.64	0.84	<0.75
1	1.45	>1.61	0.78	<0.71	0.94	<0.85
2-3	1.61	>1.77	1.02	<0.92	1.65	<1.49
5	2.40	>2.63	1.37	<1.24	2.00	<1.80
10	2.79	>3.07	2.36	<2.20	3.30	<2.97

Table 5

### 17.2 Chain wear limits

Carefully inspect the entire load chain. Measure eleven consecutive links with calipers in the manner shown in Figure 17. Check every three feet and especially where excessive wear is indicated. Any load chain that shows noticeable deformation or heat influence must be replaced with a new one. Never extend load chain by welding a second piece to the original.

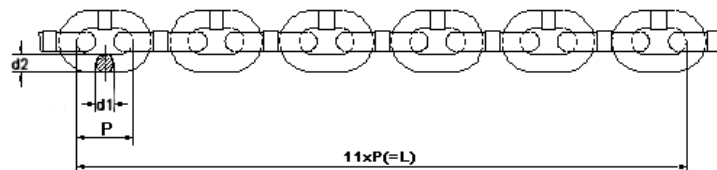


Figure 17

Hoist capacity (T)	Allowable Limits for Load Chain			
	$D=(d1+d2)/2$		11 Links L(in)	
	Normal	Replace	Normal	Replace
1/4	0.196	<0.177	6.527	>6.625
1/2	0.248	<0.224	8.267	>8.391
1	0.314	<0.283	10.444	>10.601
2-10	0.44	<0.394	14.795	>15.017

Table 6



## 18.0 Brake adjustment and maintenance

For normal brake operation, the following requirements must be met:

1. Location altitude must not exceed 2,000 meters (6500 feet) and relative humidity must be under 85%.
2. Brake is free of corrosion or dust.
3. Insulation grade is B, protection grade IP23, and voltage fluctuation remains between +5% and -15%.
4. Surrounding temperature must be between -5 to 40°C (23 to 104°F) and the fricative surface is free from oil.
5. The air gap must not exceed the maximum limit.

*Working principle:* The DZS3 magnetic brake is a fricative braking device which automatically engages if there is a power loss. The brake consists of a magnetic yoke, an exciter coil, springs, a brake lining, and an armature, a splint sheath, a manual release and fixing bolts. The brake has been installed on the cover plate of the motor and pre-adjusted to the required gap value.

When electricity passes through the exciter coil, a magnetic field is produced to pull the armature toward the magnetic yoke, disconnecting the armature and the brake lining to allow the hoist shaft to rotate. When an absence of electricity occurs, the magnetic field disappears and the armature is released, which results in the spring pressing against the armature. The armature then asserts a hard pressure on the fricative lining to produce a braking effect.

Turning the manual release (#5, Figure 18) or tightening the hollow bolt (#2, Figure 18) releases the armature for adjustment.

Hoist model	1/4T	1/2T, 1T	2T,3T,5T
Rated braking torque (Nm)	8	20	40
Regular working air gap (mm)	0.3	0.4	0.5
Max. working air gap (mm)	1.0	1.0	1.0
Rated voltage	207 V		

Table 7

### 18.1 Brake adjustment

Refer to Figure 18.

1. Turn the hollow bolt (2) into the magnetic yoke (7) to loosen it.
2. Tighten the fixing screws (8) and use a plug gauge to verify that the air gap meets the required value.
3. Turn the hollow bolt (2) so that it is fixed on the flange plate.

### 18.2 Periodic maintenance

- The brake lining is wearable and should be checked every four months to make sure the air gap remains within normal parameters.
- Check screws regularly to ensure tightness.
- Keep motor fan / brake area clean of dust.

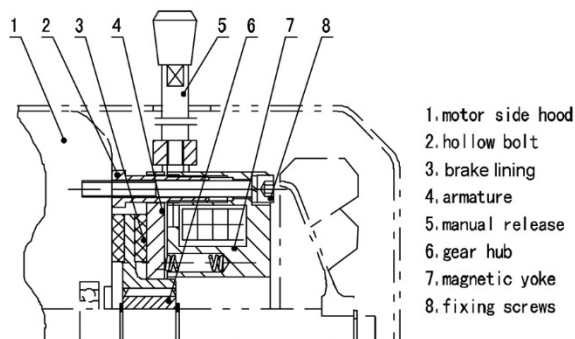


Figure 18

# 19.0 Chain Containers for VOLT series Hoist

VOLT tonnage	Model	Lift (feet)																		
		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
1/4T	VOLT-025-13P VOLT-025-03P	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B
1/2T	VOLT-050-13P VOLT-050-03P	A	A	A	A	A	A	A	B	B	B	B	C	C	C	C	C	C	C	C
1T	VOLT-100-13P VOLT-100-03P	A	A	A	A	A	B	B	C	C	C	C								
2T	VOLT-200-13P VOLT-200-03P	C	C	C	C	C														
3T	VOLT-300-13P VOLT-300-03P	C	C	C	C	C														
5T	VOLT-500-13P VOLT-500-03P	C	C	D	D	D														
10T	VOLT-1000-13P VOLT-1000-03P	C	C	D	D	D														

- A = Chain Container part no. **VOLT-CC-1** (container size 390 x 145 x 145 mm)
- B = Chain Container part no. **VOLT-CC-2** (container size 490 x 145 x 145 mm)
- C = Chain Container part no. **VOLT-CC-3** (container size 390 x 240 x 230 mm)
- D = Chain Container part no. **VOLT-CC-4** (container size 590 x 240 x 230 mm)

Table 8

## 20.0 Troubleshooting the VOLT series Hoist

Table 7

**Important:** Any servicing performed on the brake, inverter, or other electrical components must be done by qualified persons only.

Trouble	Probable Cause	Suggested Remedy
Hoist will not respond to controls.	Limit switch is tripped.	Move hook in opposite direction. If limit switches need adjustment, have qualified person inspect them.
	Hoist overloaded.	Reduce load to within rated capacity.
	No incoming power, or low voltage.	Check hoist connections to power source. If low voltage, have certified electrician check incoming power.
	Fuse blown or circuit breaker tripped.	Replace fuse/re-set circuit breaker.
	Incorrect phasing (230 volt model).	Switch any two of the three supply wires.
	Thermal overload relay is tripped.	See "Motor overheats" below.
	Brake won't release; or rectifier damaged in the phase protector.	Inspect continuity in brake; replace phase protector.
	VFD (inverter) malfunction.	Check fault codes. <i>Contact JET technical service.</i>
	Control contacts not opening/closing properly.	Check electrical continuity; replace any defective parts.
Hoist operates only intermittently.	Motor malfunction.	Have motor inspected by a qualified service technician; repair or replace as needed.
	Loose connectors; poor contacts; arcing.	Inspect all wiring and contacts.
Hoist lifts but will not lower.	Broken conductor in control cord	Test continuity of each conductor. Replace cable if needed.
	Broken conductor in control cord.	Test continuity of each conductor. Replace cable if needed.
	Up/down switch malfunctioning.	Repair or replace switch.
Hoist lowers but will not lift.	VFD malfunction.	Check fault codes. <i>Contact JET technical service.</i>
	Hoist overloaded.	Reduce load to within rated capacity.
	Up/down switch malfunction.	Repair or replace switch.
Load continues drifting down excessively when hoist is stopped.	VFD malfunction.	Check fault codes. <i>Contact JET technical service.</i>
	Hoist overloaded.	Reduce load to within rated capacity.
	Brake out of adjustment.	Adjust brake air gap. Replace brake lining if worn.
	Grease or oil on the lining.	Open hoist, disassemble brake and clean the lining (qualified persons only).
Hoist moves in wrong direction.	Brake springs are damaged.	Replace brake springs.
	Incorrect phasing (230V model).	Switch any two of the three supply wires
Variable speed dial not functioning.	See probable causes under "Hoist will not respond to controls."	See "Hoist will not respond to controls."
	VFD malfunction.	Check fault codes; repair or replace as needed. <i>Contact JET technical service.</i>
Motor overheats.	Excessive load or too frequent use; or affected by ambient temperature	Operate within rated load and according to duty cycle rating. Limit use of hoist in ambient temperatures over 104°.
Poor engagement of chain with sprocket/sheave.	Load chain is considerably worn.	Replace load chain.
	Sprocket wheel, sheave or chain guide is considerably worn.	Replace parts as needed.

<b>Trouble</b>	<b>Probable Cause</b>	<b>Suggested Remedy</b>
Limit switch failure.	Bad connection of limit switch leads.	Inspect contacts of leads and limit switches.
	Limit switch damaged.	Replace.
Abnormal sounds.	Brake out of adjustment.	Inspect and adjust/repair as needed.

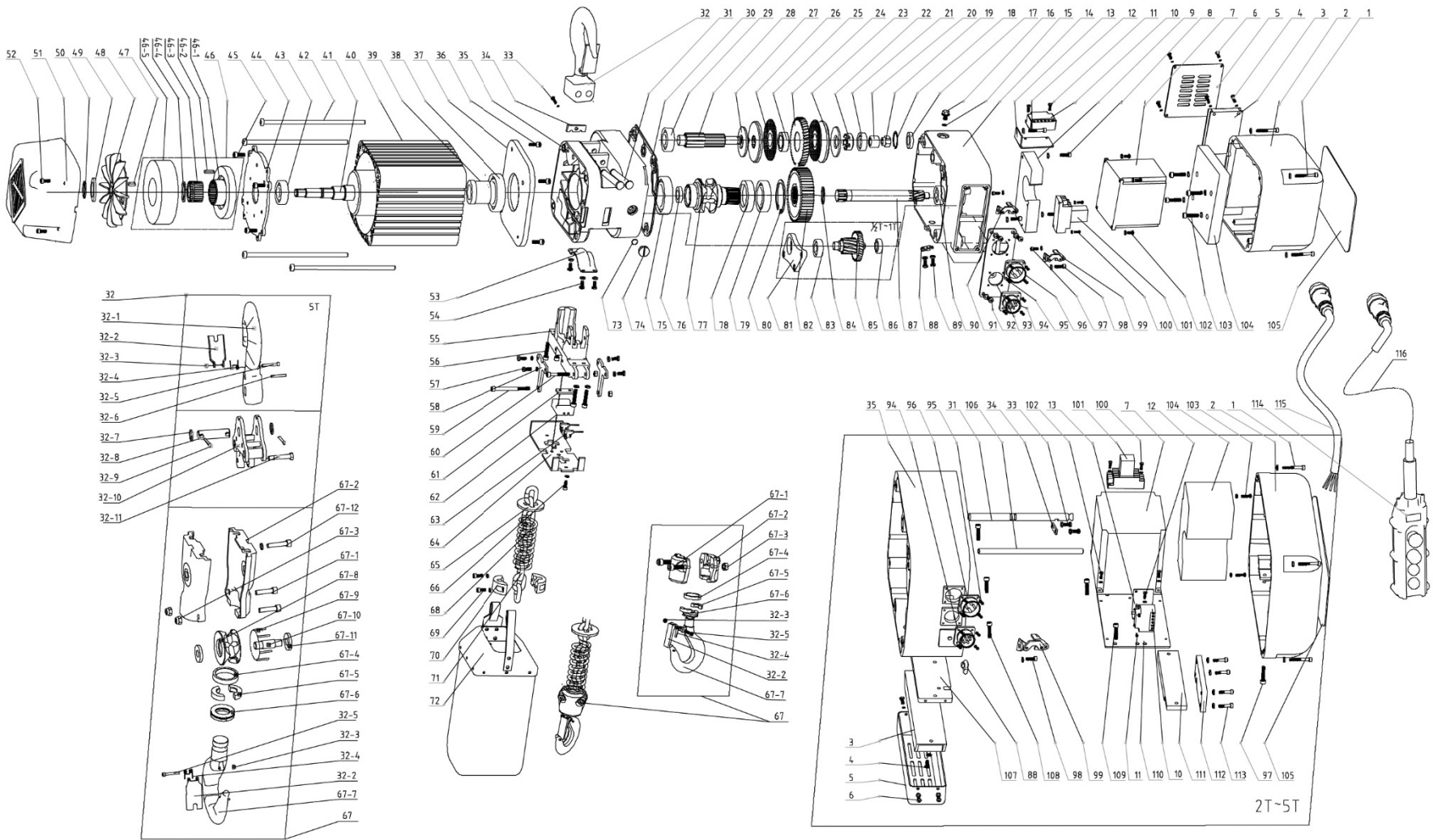
## 21.0 Replacement Parts

Replacement parts are listed on the following pages. Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

Non-proprietary parts, such as fasteners, can be found at local hardware stores, or may be ordered from JET.

Some parts are shown for reference only, and may not be available individually.

21.1.1 Exploded View for 0.25T to 5T Hoists (VOLT series)



## 21.1.2 Parts List for 0.25T to 5T Hoists (VOLT series)

Note: Items showing (5T) also pertain to the 10-ton model.

Index No.	Part No.	Description	Size	Qty
1	TS-1502091	Socket Head Cap Screw (1/4T~5T)	M5x40	4
2	VOLT-100-03P-2	Inverter Side Cover (1/4T,1/2T,1T)		1
	VOLT-300-03P-2	Inverter Side Cover (2T,3T,5T)		1
3	VOLT-050-13P-3	Brake Resistor (1/4T,1/2T)(230V 3PH, 230V 1PH)		1
	VOLT-050-03P-3	Brake Resistor (1/4T,1/2T)(460V 3PH)		1
	VOLT-100-13P-3	Brake Resistor (1T)(230V 3PH, 230V 1PH)		1
	VOLT-100-03P-3	Brake Resistor (1T)(460V 3PH)		1
	VOLT-300-13P-3	Brake Resistor (2T,3T,5T)(230V 3PH, 230V 1PH)		1
	VOLT-300-03P-3	Brake Resistor (2T,3T,5T)(460V 3PH)		1
4	VOLT-050-03P-4	Phillips Pan Hd Mach Screw (1/4T,1/2T)	M5x20	4
	VOLT-100-03P-4	Phillips Pan Hd Mach Screw (1T)	M5x35	4
	VOLT-300-03P-4	Phillips Pan Hd Mach Screw (2T,3T,5T)	M4x12	2
5	VOLT-100-03P-5	Brake Resistor Cover (1/4T,1/2T,1T)		1
	VOLT-300-03P-5	Brake Resistor Cover (2T,3T,5T)		1
6	TS-1502031	Socket Head Cap Screw (1/4T,1/2T,1T)	M5x12	2
	TS-1501031	Socket Head Cap Screw (2T,3T,5T)	M4x10	2
7	VOLT-025-03P-7	Inverter (1/4T)(460V 3PH)	WJ200-015(400V)	1
	VOLT-025-13P-7	Inverter (1/4T)(230V 3PH, 230V 1PH)	WJ200-015(200V)	1
	VOLT-050-03P-7	Inverter (1/2T)(460V 3PH)	WJ200-015(400V)	1
	VOLT-050-13P-7	Inverter (1/2T)(230V 3PH, 230V 1PH)	WJ200-015(200V)	1
	VOLT-100-03P-7	Inverter (1T)(460V 3PH)	WJ200-022(400V)	1
	VOLT-100-13P-7	Inverter (1T)(230V 3PH, 230V 1PH)	WJ200-022(200V)	1
	VOLT-200-03P-7	Inverter (2T,5T,10T)(460V 3PH)	WJ200-040(400V)	1
	VOLT-200-13P-7	Inverter (2T,5T,10T)(230V 3PH, 230V 1PH)	WJ200-040(200V)	1
	VOLT-300-03P-7	Inverter (3T)(460V 3PH)	WJ200-040(400V)	1
	VOLT-300-13P-7	Inverter (3T)(230V 3PH, 230V 1PH)	WJ200-040(200V)	1
8	TS-1503061	Socket Head Cap Screw (1/4T,1/2T,1T)	M6x25	2
9	VOLT-100-03P-9	Relay Bracket (1/4T,1/2T,1T)		1
10	VOLT-100-03P-10	Rectifier (1/4T~5T)	230V	1
	VOLT-100-03P-10B	Rectifier (1/4T~5T)	460V	1
11	VOLT-100-03P-11	Phillips Pan Hd Mach Screw (1/4T~5T)	M4x12	2
12	TS-1503061	Socket Head Cap Screw (1/4T,1/2T,1T)	M6x25	1
13	VOLT-100-03P-13	Rectifier Bracket (1/4T,1/2T,1T)		1
	VOLT-300-03P-13	Rectifier Bracket (2T,3T,5T)		1
14	VOLT-100-03P-14G	Gear Side Cover (1/4T,1/2T,1T)		1
	VOLT-300-03P-14G	Gear Side Cover (2T,3T,5T)		1
15	VOLT-100-03P-15	O-Ring (1/4T~5T)	Ø14mm	1
16	VOLT-100-03P-16	Vent Plug (1/4T~5T)		1
17	VOLT-100-03P-17	U-Packing (1/4T,1/2T,1T)	35x22x7mm	1
	VOLT-300-03P-17	U-Packing (2T,3T,5T)	47x28x7mm	1
18	VOLT-100-03P-18	Retainer Ring (1/4T,1/2T,1T)	Ø35mm	1
	VOLT-300-03P-18	Retainer Ring (2T,3T,5T)	Ø47mm	1
19	VOLT-100-03P-19	Nylon Lock Hex Nut (1/4T,1/2T,1T)	M12x1.25	1
	TS-2342161	Nylon Lock Hex Nut (2T,3T,5T)	M16	1
20	VOLT-100-03P-20	Spacer B (1/4T,1/2T,1T)		1
	VOLT-300-03P-20	Spacer B (2T,3T,5T)		1
21	BB-6202	Ball Bearing (1/4T,1/2T,1T)	6202	1
	BB-6204	Ball Bearing (2T,3T,5T)	6204	1
22	VOLT-025-03P-22	Spacer A (1/4T)		1
	VOLT-100-03P-22	Spacer A (1/2T,1T)		1
	VOLT-300-03P-22	Spacer A (2T,3T,5T)		1
23	VOLT-100-03P-23	Friction Pad (1/4T,1/2T,1T)		2
	VOLT-300-03P-23	Friction Pad (2T,3T,5T)		2
24	VOLT-025-03P-24	Big Gear 1 (1/4T)		1
	VOLT-100-03P-24	Big Gear 2 (1/2T,1T)		1
	VOLT-300-03P-24	Big Gear 1 (2T,3T,5T)		1
25	VOLT-025-03P-25	Collar (1/4T)		1
	VOLT-100-03P-25	Collar (1/2T,1T)		1
	VOLT-300-03P-25	Collar (2T,3T,5T)		1

Index No.	Part No.	Description	Size	Qty
26	VOLT-100-03P-26	Friction Disc Assembly (1/4T,1/2T,1T)		2
	VOLT-300-03P-26	Friction Disc Assembly (2T,3T,5T)		2
27	VOLT-025-03P-27	Dish Spring (1/4T,1/2T)		2
	VOLT-100-03P-27	Dish Spring (1T)		4
	VOLT-300-03P-27	Dish Spring (2T,3T,5T)		2
28	VOLT-025-03P-28	Small Gear Shaft 2 (1/4T)		1
	VOLT-100-03P-28	Small Gear Shaft 3 (1/2T,1T)		1
	VOLT-300-03P-28	Small Gear Shaft 2 (2T,3T,5T)		1
29	BB-6204	Ball Bearing (1/4T,1/2T,1T)	6204	1
	VOLT-300-03P-29	Ball Bearing (2T,3T,5T)	NJ305	1
30	VOLT-100-03P-30	Inside Seal (1/4T,1/2T,1T)		1
	VOLT-300-03P-30	Inside Seal (2T,3T,5T)		1
31	VOLT-100-03P-31	Hook Shaft (1/4T,1/2T,1T)		2
	VOLT-300-03P-31	Hook Shaft (2T,3T,5T)		1
32	VOLT-025-03P-32	Top Hook Assembly (1/4T)		1
	VOLT-050-03P-32	Top Hook Assembly (1/2T)		1
	VOLT-100-03P-32	Top Hook Assembly (1T)		1
	VOLT-300-03P-32	Top Hook Assembly (2T,3T)		1
	VOLT-500-03P-32	Top Hook Assembly (5T)		1
33	VOLT-100-03P-33	Phillips Pan Hd Mach Screw (1/4T,1/2T,1T)	M5x12	1
	VOLT-300-03P-33	Phillips Pan Hd Mach Screw (2T,3T,5T)	M5x12	2
34	VOLT-100-03P-34	Hook Shaft Baffle (1/4T,1/2T,1T)		1
	VOLT-300-03P-34	Hook Shaft Baffle (2T,3T,5T)		1
35	VOLT-100-03P-35G	Gear Box Housing (1/4T,1/2T,1T)		1
	VOLT-300-03P-35G	Gear Box Housing (2T,3T,5T)		1
36	TS-1503051	Socket Head Cap Screw (1/4T~5T)	M6x20	4
37	VOLT-100-03P-37	Motor Front Cover (1/4T,1/2T,1T)		1
	VOLT-300-03P-37	Motor Front Cover (2T,3T,5T)		1
38	BB-6007ZZ	Double Seal Ball Bearing (1/4T,1/2T,1T)	6007-2z	1
	BB-6009ZZ	Double Seal Ball Bearing (2T,3T,5T)	6009-2z	1
39	VOLT-100-03P-39	Motor Junction Collar (1/4T,1/2T,1T)		1
	VOLT-300-03P-39	Motor Junction Collar (2T,3T,5T)		1
	VOLT-050-13P-MAG	Motor Assembly 1/4T,1/2T (includes #40 thru 50)	230V	1
	VOLT-050-03P-MAG	Motor Assembly 1/4T,1/2T (includes #40 thru 50)	460V	1
	VOLT-100-13P-MAG	Motor Assembly 1T (includes #40 thru 50)	230V	1
	VOLT-100-03P-MAG	Motor Assembly 1T (includes #40 thru 50)	460V	1
	VOLT-300-13P-MAG	Motor Assembly 2T,3T,5T,10T (includes #40 thru 50)	230V	1
	VOLT-300-03P-MAG	Motor Assembly 2T,3T,5T,10T (includes #40 thru 50)	460V	1
40	VOLT-050-13P-40G	Stator (1/4T,1/2T)	230V	1
	VOLT-050-03P-40G	Stator (1/4T,1/2T)	460V	1
	VOLT-100-13P-40G	Stator (1T)	230V	1
	VOLT-100-03P-40G	Stator (1T)	460V	1
	VOLT-300-13P-40G	Stator (2T,3T,5T)	230V	1
	VOLT-300-03P-40G	Stator (2T,3T,5T)	460V	1
41	VOLT-050-03P-41	Rotor (1/4T,1/2T)		1
	VOLT-100-03P-41	Rotor (1T)		1
	VOLT-300-03P-41	Rotor (2T,3T,5T)		1
42	VOLT-050-03P-42G	Motor Stay Bolt (1/4T,1/2T)		4
	VOLT-100-03P-42G	Motor Stay Bolt (1T)		4
43	BB-6004ZZ	Double Seal Ball Bearing (1/4T,1/2T,1T)	6004-2z	1
	BB-6205ZZ	Double Seal Ball Bearing (2T,3T,5T)	6205-2z	1
44	VOLT-100-03P-44	Motor Rear Cover (1/4T,1/2T,1T)		1
	VOLT-300-03P-44	Motor Rear Cover (2T,3T,5T)		1
45	TS-1503051	Socket Head Cap Screw (1/4T,1/2T,1T)	M6x20	4
	TS-1505031	Socket Head Cap Screw (2T,3T,5T)	M10x25	4
46	VOLT-025-03P-46	Brake Assembly (1/4T,1/2T)	460V, 8 Nm	1
	VOLT-100-03P-46	Brake Assembly (1T)	460V, 20 Nm	1
	VOLT-300-03P-46	Brake Assembly (2T,3T,5T)	460V, 40 Nm	1
	VOLT-025-13P-46	Brake Assembly (1/4T,1/2T)	230V, 8 Nm	1
	VOLT-100-13P-46	Brake Assembly (1T)	230V, 20 Nm	1
	VOLT-300-13P-46	Brake Assembly (2T,3T,5T)	230V, 40 Nm	1

Index No.	Part No.	Description	Size	Qty
46-1	VOLT-025-03P-461	Friction Disc (1/4T,1/2T,1T)	460V	1
	VOLT-300-03P-461	Friction Disc (2T,3T,5T)	460V	1
	VOLT-025-13P-461	Friction Disc (1/4T,1/2T,1T)	230V	1
	VOLT-300-13P-461	Friction Disc (2T,3T,5T)	230V	1
46-2	VOLT-025-03P-462	Key (1/4T,1/2T,1T)		1
	VOLT-300-03P-462	Key (2T,3T,5T)		1
46-3	VOLT-025-03P-463	Spline Drive (1/4T,1/2T,1T)		1
	VOLT-300-03P-463	Spline Drive (2T,3T,5T)		1
46-4	VOLT-025-03P-464	Retainer Ring (1/4T,1/2T,1T)		1
	VOLT-300-03P-464	Retainer Ring (2T,3T,5T)		1
46-5	VOLT-025-03P-465	Electromagnetic Disc (1/4T)	460V, 8 Nm	1
	VOLT-050-03P-465	Electromagnetic Disc (1/2T,1T)	460V, 20 Nm	1
	VOLT-300-03P-465	Electromagnetic Disc (2T,3T,5T)	460V, 40 Nm	1
	VOLT-025-13P-465	Electromagnetic Disc (1/4T)	230V, 8 Nm	1
	VOLT-050-13P-465	Electromagnetic Disc (1/2T,1T)	230V, 20 Nm	1
	VOLT-300-13P-465	Electromagnetic Disc (2T,3T,5T)	230V, 40 Nm	1
47	VOLT-100-03P-47	Flat Key (1/4T,1/2T,1T)	5x14mm	1
48	VOLT-100-03P-48	Cooling Fan (1/4T,1/2T,1T)		1
	VOLT-300-03P-48	Cooling Fan (2T,3T,5T)		1
49	VOLT-100-03P-49	Collar (1/4T,1/2T,1T)		1
50	VOLT-100-03P-50	Stop Ring	Ø15mm	1
	VOLT-300-03P-50	Stop Ring	Ø30mm	1
51	VOLT-100-03P-51	Motor Rear Cover (1/4T,1/2T,1T)		1
	VOLT-300-03P-51	Motor Rear Cover (2T,3T,5T)		1
52	F005367	Socket Head Cap Screw (1/4T,1/2T,1T)	M5x25	4
	F005370	Socket Head Cap Screw (2T,3T,5T)	M5x40	4
53	VOLT-025-03P-53	Chain Guide (1/4T)		1
	VOLT-050-03P-53	Chain Guide (1/2T)		1
	VOLT-100-03P-53	Chain Guide (1T)		1
	VOLT-300-03P-53	Chain Guide (2T,3T,5T)		1
54	TS-1533042	Phillips Pan Hd Mach Screw (1/4T,1/2T,1T)	M5x12	4
	TS-1534042	Phillips Pan Hd Mach Screw (2T,3T,5T)	M6x12	4
55	VOLT-025-03P-55	Chain Guide Block (1/4T)		1
	VOLT-050-03P-55	Chain Guide Block (1/2T)		1
	VOLT-100-03P-55	Chain Guide Block (1T)		1
	VOLT-300-03P-55	Chain Guide Block (2T,3T,5T)		1
56	TS-1503071	Socket Head Cap Screw (1/4T,1/2T,1T)	M6x30	4
	TS-1504061	Socket Head Cap Screw (2T,3T,5T)	M8x30	4
57	VOLT-100-03P-57	Socket Head Cap Screw (1/4T,1/2T,1T)	M5x14	6
	TS-1503041	Socket Head Cap Screw (2T,3T,5T)	M6x16	7
58	VOLT-100-03P-58	Fixing Plate (1/4T,1/2T,1T)		2
	VOLT-300-03P-58	Fixing Plate (2T,3T,5T)		2
59	TS-1503141	Socket Head Cap Screw (1/4T,1/2T,1T)	M6x70	1
	VOLT-300-03P-59	Socket Head Cap Screw (2T,3T,5T)	M8x80	1
60	TS-1504091	Socket Head Cap Screw (1/4T,1/2T,1T)	M8x45	1
	TS-1504131	Socket Head Cap Screw (2T,3T,5T)	M8x70	1
61	VOLT-100-03P-61	Limit Switch Block (1/4T~5T)		1
62	VOLT-100-03P-62	Limit Switch Housing (1/4T~5T)		1
63	VOLT-100-03P-63	Limit Switch (1/4T~5T)		2
64	VOLT-025-03P-64	Limit Plate (1/4T)		1
	VOLT-050-03P-64	Limit Plate (1/2T)		1
	VOLT-100-03P-64	Limit Plate (1T)		1
	VOLT-300-03P-64	Limit Plate (2T,3T,5T)		1
65	VOLT-025-03P-65	Limit Block (1/4T)		2
	VOLT-050-03P-65	Limit Block (1/2T)		2
	VOLT-100-03P-65	Limit Block (1T)		2
	VOLT-300-03P-65	Limit Block (2T,3T,5T)		2
66	F005366	Socket Head Cap Screw (1/4T~5T)	M5x20	2



Index No.	Part No.	Description	Size	Qty
67	VOLT-025-03P-67	Bottom Hook Assembly (1/4T)		1
	VOLT-050-03P-67	Bottom Hook Assembly (1/2T)		1
	VOLT-100-03P-67	Bottom Hook Assembly (1T)		1
	VOLT-300-03P-67	Bottom Hook Assembly (2T,3T)		1
	VOLT-500-03P-67	Bottom Hook Assembly (5T)		1
68	VOLT-025-03P-68	Limit Spring (1/4T)		2
	VOLT-050-03P-68	Limit Spring (1/2T)		2
	VOLT-100-03P-68	Limit Spring (1T)		2
	VOLT-200-03P-68	Limit Spring (2T,3T,5T)		2
69	TS-1502041	Socket Head Cap Screw (1/4T,1/2T,1T)	M5x16	2
	TS-1503041	Socket Head Cap Screw (2T,3T,5T)	M6x16	2
70	VOLT-025-03P-70	Chain Stop (1/4T)(Set of 2 pcs)		1
	VOLT-050-03P-70	Chain Stop (1/2T)(Set of 2 pcs)		1
	VOLT-100-03P-70	Chain Stop (1T)(Set of 2 pcs)		1
	VOLT-300-03P-70	Chain Stop (2T,3T,5T)(Set of 2 pcs)		1
71	VOLT-025-03P-71	Load Chain (1/4T)	5x15mm	per ft.
	VOLT-050-03P-71	Load Chain (1/2T)	6.3x19mm	per ft.
	VOLT-100-03P-71	Load Chain (1T)	8x24mm	per ft.
	VOLT-300-03P-71	Load Chain (2T,3T,5T,10T)	11.2x34mm	per ft.
72	(refer to Table 8)	Canvas Chain Container		1
73	VOLT-100-03P-73	O-Ring (1/4T~5T)	Ø12mm	2
74	VOLT-100-03P-74	Oil Plug (1/4T~5T)		2
75	BB-6009ZZ	Double Seal Ball Bearing (1/4T,1/2T,1T)	6009-2z	1
	VOLT-300-03P-75	Double Seal Ball Bearing (2T,3T,5T)	6212-2z	1
76	VOLT-100-03P-76	U-Packing (1/4T,1/2T,1T)	35x22x7mm	1
	VOLT-300-03P-76	U-Packing (2T,3T,5T)	45x28x7mm	1
77	VOLT-025-03P-77	Chain Sheave (1/4T)		1
	VOLT-050-03P-77	Chain Sheave (1/2T)		1
	VOLT-100-03P-77	Chain Sheave (1T)		1
	VOLT-300-03P-77	Chain Sheave (2T,3T,5T)		1
78	VOLT-100-03P-78	U-Packing (1/4T,1/2T,1T)	62x45x8mm	1
	VOLT-300-03P-78	U-Packing (2T,3T,5T)	80x60x8mm	1
79	BB-6007	Ball Bearing (1/4T,1/2T,1T)	6007	1
	VOLT-300-03P-79	Ball Bearing (2T,3T,5T)	NJ1010	1
80	VOLT-100-03P-80	Retainer Ring (1/4T,1/2T,1T)	Ø62mm	1
	VOLT-300-03P-80	Retainer Ring (2T,3T,5T)	Ø80mm	1
81	VOLT-100-03P-81	Bearing Bracket (1/2T,1T)		1
82	VOLT-050-03P-82	Spline Gear (1/4T,1/2T)		1
	VOLT-100-03P-82	Spline Gear (1T)		1
	VOLT-300-03P-82	Spline Gear (2T,3T,5T)		1
83	VOLT-100-03P-83	Ball Bearing (1/2T,1T)	6203N	1
84	VOLT-100-03P-84	Stop Ring (1/4T,1/2T,1T)	Ø35mm	1
	VOLT-300-03P-84	Stop Ring (2T,3T,5T)	Ø50mm	1
85	VOLT-100-03P-85	Gear Shaft Assembly (1/2T,1T)		1
86	BB-6001	Ball Bearing (1/2T,1T)	6001	1
87	VOLT-025-03P-87	Small Gear Shaft 1(1/4T)		1
	VOLT-100-03P-87	Small Gear Shaft 1 (1/2T,1T)		1
	VOLT-300-03P-87	Small Gear Shaft 1(2T,3T,5T)		1
88	VOLT-100-03P-88	Cable Holder (1/4T,1/2T,1T)		1
	VOLT-300-03P-88	Eyebolt Cable Holder (2T,3T,5T)		1
89	TS-1502031	Socket Head Cap Screw (1/4T,1/2T,1T)	M5x12	2
90	BB-6301	Ball Bearing (1/4T,1/2T,1T)	6301	1
	BB-6303	Ball Bearing (2T,3T,5T)	6303	1
91	VOLT-100-03P-91	Hinge 1 (1/4T,1/2T,1T)		1
	VOLT-300-03P-91	Hinge 1 (2T,3T,5T)		1
92	F005365	Socket Head Cap Screw (1/4T,1/2T,1T)	M5x14	4
93	VOLT-100-03P-93	Female Connector Board (1/4T,1/2T,1T)		1
94	VOLT-100-03P-94	Female Connector for Pushbutton Cord (1/4T~5T)	YD28J7Z	1
95	VOLT-100-03P-95	Phillips Pan Hd Mach Screw (1/4T~5T)	M3x14	8
96	VOLT-100-03P-96	Female Connector for Power Cord (1/4T~5T)	YD32J4Z	1
97	TS-1502031	Socket Head Cap Screw (1/4T,1/2T,1T)	M5x12	2
	TS-1503071	Socket Head Cap Screw (2T,3T,5T)	M6x30	2

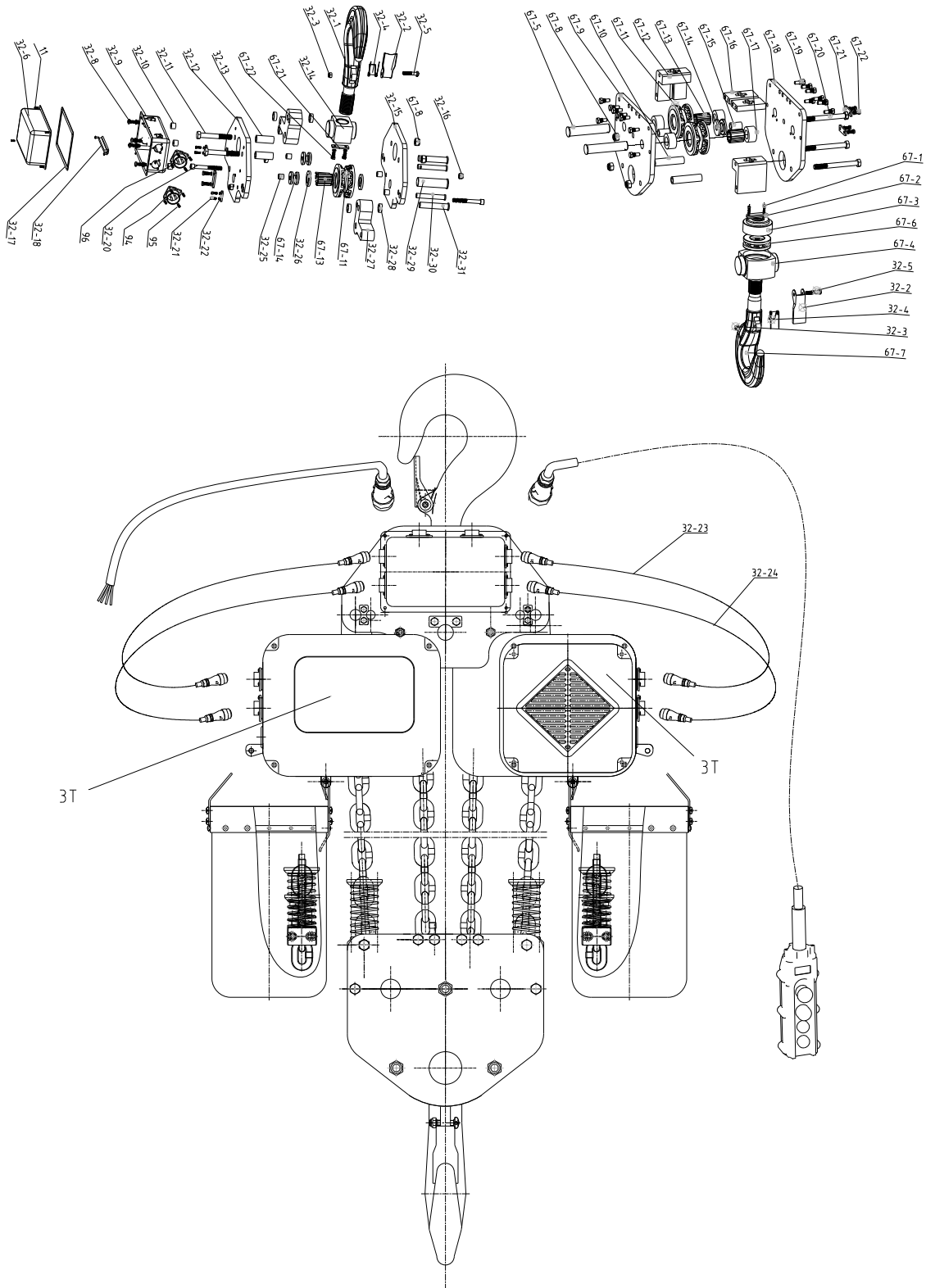
Index No.	Part No.	Description	Size	Qty
98	TS-1503041	Socket Head Cap Screw (1/4T~5T)	M6x16	2
99	VOLT-100-03P-99	Hinge 2 (1/4T,1/2T,1T)		1
	VOLT-300-03P-99	Hinge 2 (2T,3T,5T)		1
100	TS-1532042	Phillips Pan Hd Mach Screw (1/4T~5T)	M4x12	2
101	VOLT-100-03P-101	Relay (1/4T~5T)		1
102	TS-1532042	Phillips Pan Hd Mach Screw (1/4T~5T)	M4x12	2
103	TS-1503051	Socket Head Cap Screw (1/4T,1/2T,1T)	M6x20	4
	TS-1503051	Socket Head Cap Screw (2T,3T,5T)	M6x20	2
104	VOLT-050-03P-104	Ballast Weight (1/4T,1/2T)		1
	VOLT-100-03P-104	Ballast Weight (1T)		1
	VOLT-300-03P-104	Ballast Weight (2T,3T,5T)		1
105	VOLT-025-03P-105	Name Plate (1/4T,1/2T,1T)		1
	VOLT-200-03P-105	Name Plate (2T,3T,5T)		1
106	VOLT-300-03P-106	Ring Stay Bolt (2T,3T,5T)		1
107	VOLT-300-03P-107	Resistor Bracket (2T,3T,5T)		1
108	TS-1503051	Socket Head Cap Screw (2T,3T,5T)	M6x20	3
109	TS-1503051	Socket Head Cap Screw (2T,3T,5T)	M6x20	2
110	VOLT-300-03P-110	Inverter Bracket (2T,3T,5T)		1
111	VOLT-300-03P-111	Block (2T,3T,5T)		1
112	VOLT-300-03P-112	Bracket (2T,3T,5T)		1
113	TS-1503051	Socket Head Cap Screw (2T,3T,5T)	M6x20	4
114	162210	Pushbutton Control Assembly (1/4T~5T)	10ft	1
	162215	Pushbutton Control Assembly (1/4T~5T)	15ft	1
	162220	Pushbutton Control Assembly (1/4T~5T)	20ft	1
	162230	Pushbutton Control Assembly (1/4T~5T)	30ft	1
115	VOLT-100-03P-115	Power Cord Assembly (2T,3T,5T)	3x2.5/1x1mm <sup>2</sup> (>5A)	1
	VOLT-100-13P-115	Power Cord Assembly (1/4T,1/2T,1T)	3x1.5/1x1mm <sup>2</sup> (<5A)	1
116	VOLT-116	Pushbutton Cord		per ft.
	VOLT-100-13P-WL	Warning Label (not shown)	74 x 102mm	1
	VOLT-100-13P-WT	Pendant Warning Tag (not shown)	60 x 127mm	1
	JET-92	JET Logo (1/4T,1/2T,1T) (not shown)	92 x 38mm	1
	JET-113	JET Logo (2T,3T,5T) (not shown)	113 x 47mm	1

### 21.1.3 Parts List for Top & Bottom Hook Assemblies, 0.25T to 5T Hoists (VOLT)

Index No.	Part No.	Description	Size	Qty
32-1	VOLT-025-03P-32-1	Top Hook (1/4T)		1
	VOLT-050-03P-32-1	Top Hook (1/2T)		1
	VOLT-100-03P-32-1	Top Hook (1T)		1
	VOLT-300-03P-32-1	Top Hook (2T,3T)		1
	VOLT-500-03P-32-1	Top Hook (5T)		1
32-2	VOLT-025-03P-32-2	Safety Latch Assembly (1/4T) (includes #32-3,32-4,32-5)		1
	VOLT-050-03P-32-2	Safety Latch Assembly (1/2T) (includes #32-3,32-4,32-5)		1
	VOLT-100-03P-32-2	Safety Latch Assembly (1T) (includes #32-3,32-4,32-5)		1
	VOLT-300-03P-32-2	Safety Latch Assembly (2T,3T) (includes #32-3,32-4,32-5)		1
	VOLT-500-03P-32-2	Safety Latch Assembly (5T) (includes #32-3,32-4,32-5)		1
32-3	TS-1541021	Nylon Lock Hex Nut (1/4T,1/2T,1T)	M6	1
	TS-1541001	Nylon Lock Hex Nut (2T,3T,5T)	M4	1
32-4	VOLT-100-03P-32-4	Double Spring (1/4T,1/2T,1T)		1
	VOLT-300-03P-32-4	Double Spring (2T,3T)		1
	VOLT-500-03P-32-4	Double Spring (5T)		1
32-5	TS-1503071	Socket Head Cap Screw (1/4T,1/2T,1T)	M6x30	1
	TS-1501081	Socket Head Cap Screw (2T,3T,5T)	M4x30	1
32-6	VOLT-300-03P-32-6	HD Spring Pin (2T,3T)	Ø8x70mm	1
32-7	VOLT-500-03P-32-7	Stop Ring (5T)		2
32-8	VOLT-500-03P-32-8	Hook Shaft (5T)		1
32-9	VOLT-500-03P-32-9	Cotter Pin (5T)	Ø4x40mm	2
32-10	VOLT-500-03P-32-10	Top Hook Housing (5T)		1
32-11	VOLT-500-03P-32-11	Top Hook Pin (5T)		1
67-1	F005384	Socket Head Cap Screw (1/4T)	M6x25	2
	F005404	Socket Head Cap Screw (1/2T)	M8x25	2
	F005405	Socket Head Cap Screw (1T)	M8x30	2
	F005455	Socket Head Cap Screw (2T,3T,5T)	M12x45	2
67-2	VOLT-025-03P-67-2	Bottom Hook Housing (1/4T)		2
	VOLT-050-03P-67-2	Bottom Hook Housing (1/2T)		2
	VOLT-100-03P-67-2	Bottom Hook Housing (1T)		2
	VOLT-300-03P-67-2	Bottom Hook Housing (2T,3T)		2
	VOLT-500-03P-67-2	Bottom Hook Housing (5T)		2
67-3	TS-1541021	Nylon Lock Hex Nut (1/4T)	M6	2
	TS-1541031	Nylon Lock Hex Nut (1/2T,1T)	M8	2
	TS-2342121	Nylon Lock Hex Nut (2T,3T,5T)	M12	2
67-4	VOLT-025-03P-67-4	Bottom Hook Collar (1/4T)		1
	VOLT-050-03P-67-4	Bottom Hook Collar (1/2T)		1
	VOLT-100-03P-67-4	Bottom Hook Collar (1T)		1
	VOLT-300-03P-67-4	Bottom Hook Collar (2T,3T)		1
67-5	VOLT-025-03P-67-5	Bottom Hook Stop Ring (1/4T)		1
	VOLT-050-03P-67-5	Bottom Hook Stop Ring (1/2T)		1
	VOLT-100-03P-67-5	Bottom Hook Stop Ring (1T)		1
	VOLT-300-03P-67-5	Bottom Hook Stop Ring (2T,3T)		1
	VOLT-500-03P-67-5	Bottom Hook Stop Ring (5T)		1
67-6	BB-51102	Thrust Ball Bearing (1/4T)	51102	1
	BB-51103	Thrust Ball Bearing (1/2T)	51103	1
	BB-51104	Thrust Ball Bearing (1T)	51104	1
	BB-51106	Thrust Ball Bearing (2T,3T)	51106	1
	BB-51107	Thrust Ball Bearing (5T)	51307	1
67-7	VOLT-025-03P-67-7	Bottom Hook (1/4T)		1
	VOLT-050-03P-67-7	Bottom Hook (1/2T)		1
	VOLT-100-03P-67-7	Bottom Hook (1T)		1
	VOLT-300-03P-67-7	Bottom Hook (2T,3T)		1
	VOLT-500-03P-67-7	Bottom Hook (5T)		1
67-8	VOLT-500-03P-67-8	Sheave (5T)		1
67-9	VOLT-500-03P-67-9	Roller (5T)		20
67-10	VOLT-500-03P-67-10	Sheave Shaft (5T)		1
67-11	VOLT-500-03P-67-11	Washer (5T)		2

## 21.2.1 Exploded View for 10-Ton Hoist (VOLT series)

**Note:** The 10-Ton hoist consists of two hoist bodies which are also used on the 3- and 5-Ton models; consult the parts list and breakdown for the 3-Ton model. Top and Bottom Hook Assemblies for the 10-Ton are listed on the following pages.



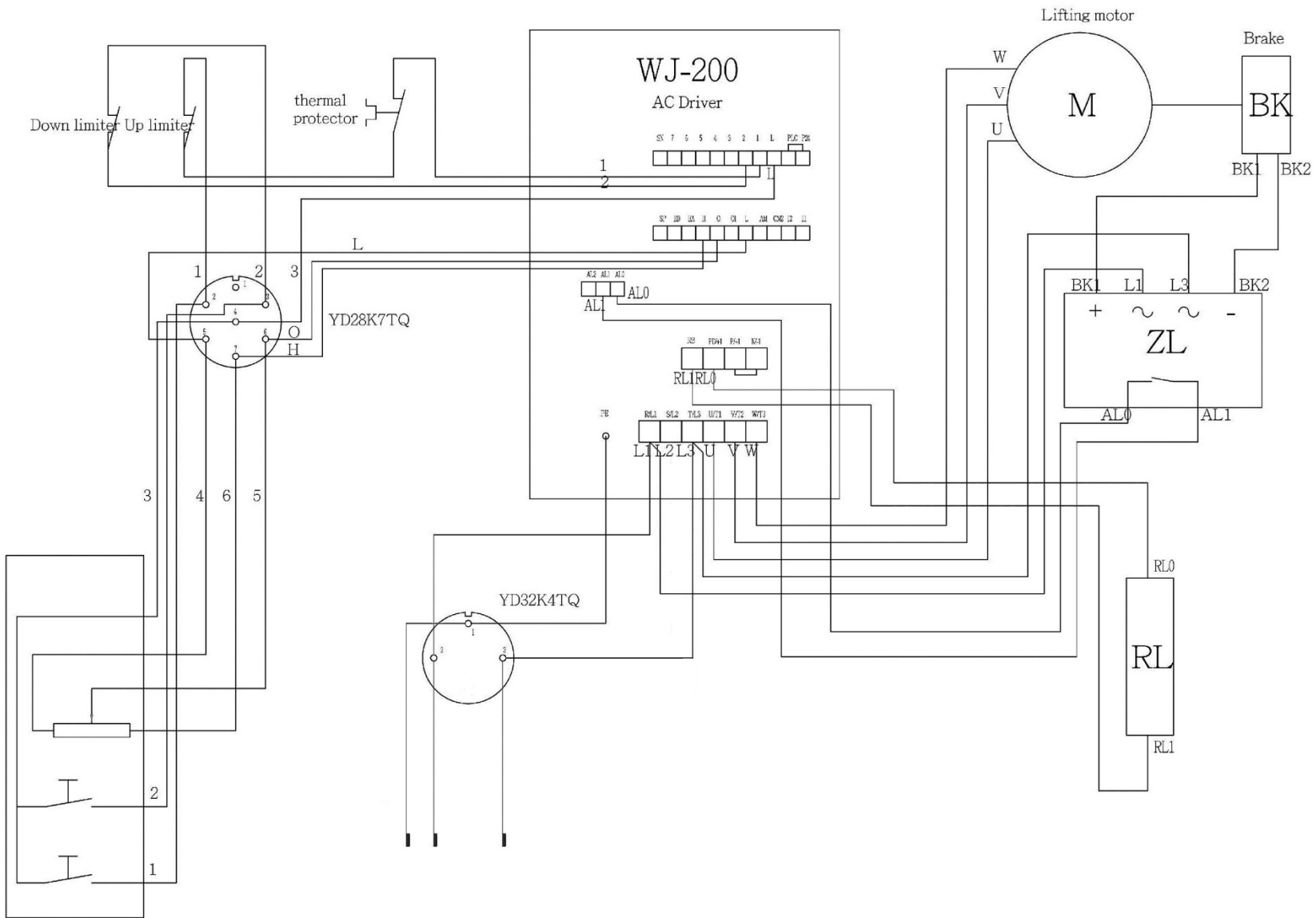
## 21.2.2 Parts List for Top and Bottom Hook Assemblies, 10-Ton Hoist (VOLT series)

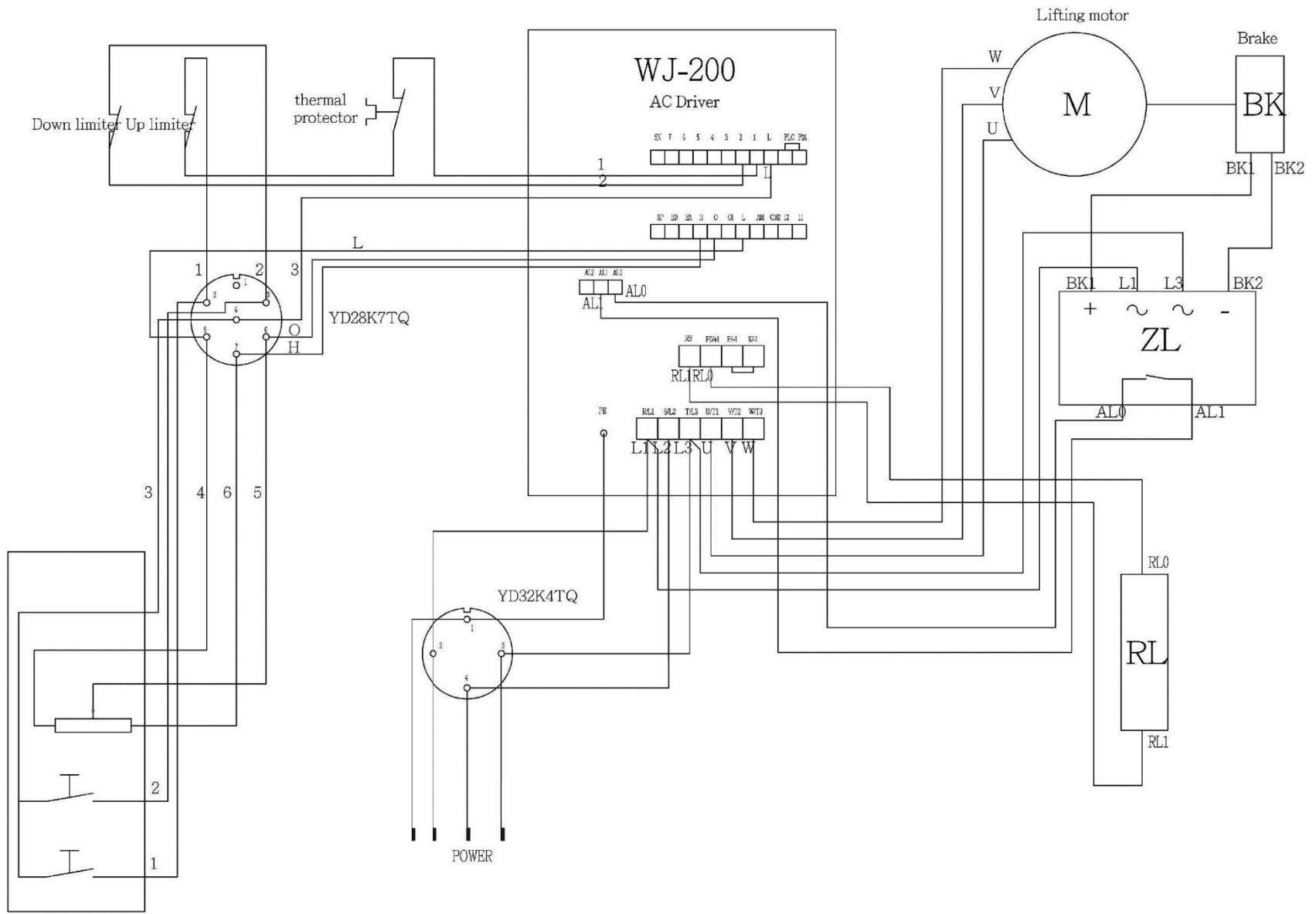
Index No.	Part No.	Description	Size	Qty
32-1	VOLT-1000-03P-32-1	Top Hook		1
32-2	VOLT-1000-03P-32-2	Safety Latch Assembly (includes #32-3,32-4,32-5)		1
32-3	TS-1541041	Nylon Lock Hex Nut	M10	1
32-4	VOLT-1000-03P-32-4	Double Spring		1
32-5	TS-1505081	Socket Head Cap Screw	M10x50	1
32-6	VOLT-1000-03P-32-6	Electrical Box 1		1
32-8	VOLT-1000-03P-32-8	Phillips Pan Hd Mach Screw	M8x35	4
32-9	VOLT-1000-03P-32-9	Electrical Box 2		1
32-10	VOLT-1000-03P-3210	Washer		4
32-11	VOLT-1000-03P-3211	Hex Bolt	M16x120	2
32-12	VOLT-1000-03P-3212	Top Hook Left Side Plate		1
32-13	VOLT-1000-03P-3213	Spacer 6		2
32-14	VOLT-1000-03P-3214	Top Hook Beam		1
32-15	VOLT-1000-03P-3215	Top Hook Right Side Plate		1
32-16	TS-2342121	Nylon Lock Hex Nut	M12	2
32-17	VOLT-1000-03P-3217	Rubber Pad for Electrical Box		1
32-18	VOLT-1000-03P-3218	Wiring Board		1
32-20	VOLT-1000-03P-3220	Socket Head Cap Screw	M12x110	2
32-21	TS-1503051	Socket Head Cap Screw	M6x20	4
32-22	VOLT-1000-03P-3222	Position Plate 1		2
32-23	VOLT-1000-03P-3223	Connection Cable 1		2
32-24	VOLT-1000-03P-3224	Connection Cable 2		2
32-25	VOLT-1000-03P-3225	Spacer 5		4
32-26	VOLT-1000-03P-3226	Washer		2
32-27	VOLT-1000-03P-3227	Top Hook Housing		2
32-28	VOLT-1000-03P-3228	Spacer 7		4
32-29	VOLT-1000-03P-3229	Top Sheave Shaft		1
32-30	VOLT-1000-03P-3230	Pin 1		2
32-31	VOLT-1000-03P-3231	Pin 2		2
11	TS-1532042	Phillips Pan Hd Mach Screw	M4x12	12
94	VOLT-100-03P-94	Female Connector for Pushbutton Cord	YD28J7Z	3
95	VOLT-100-03P-95	Phillips Pan Hd Mach Screw	M3x14	24
96	VOLT-100-03P-96	Female Connector for Pushbutton Cord	YD32J4Z	3
67-8	TS-2342161	Nylon Lock Hex Nut	M16	2
67-11	VOLT-1000-03P-6711	Sheave		1
67-13	VOLT-1000-03P-6713	Roller		20
67-14	VOLT-1000-03P-6714	Guide Wheel		2
67-21	VOLT-1000-03P-6721	Position Plate 2		2
67-22	TS-1504041	Socket Head Cap Screw	M8x20	4
67-1	GB70-M6x14	Socket Head Cap Screw	M6x14	2
67-2	VOLT-1000-03P-67-2	Bottom Hook Locking Plate		1
67-3	VOLT-1000-03P-67-3	Bottom Hook Nut		1
67-4	VOLT-1000-03P-67-4	Bottom Hook Beam		1
67-5	VOLT-1000-03P-67-5	Bottom Sheave Shaft		2
67-6	BB-81210	Thrust Ball Bearing	81210	1
67-7	VOLT-1000-03P-67-7	Bottom Hook		1
67-8	TS-2342161	Nylon Lock Hex Nut	M16	3
67-9	VOLT-1000-03P-67-9	Bottom Hook Left Side Plate		1
67-10	VOLT-1000-03P-6710	Spacer 3		2
67-11	VOLT-1000-03P-6711	Sheave		2
67-12	VOLT-1000-03P-6712	Chain Guide Block		2
67-13	VOLT-1000-03P-6713	Roller		20
67-14	VOLT-1000-03P-6714	Guide Wheel		1
67-15	VOLT-1000-03P-6715	Spacer 4		4
67-16	VOLT-1000-03P-6716	Chain Guide Plate		2
67-17	VOLT-1000-03P-6717	Washer		4
67-18	VOLT-1000-03P-6718	Bottom Hook Right Side Plate		1

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
67-19	VOLT-1000-03P-6719	Fixing Bolt		16
67-20	VOLT-1000-03P-6720	Hex Bolt	M16x160	3
67-21	VOLT-1000-03P-6721	Position Plate 2		2
67-22	TS-1490031	Hex Cap Screw	M8x20	4
32-2	VOLT-1000-03P-32-2	Safety Latch Assembly (includes #32-3,32-4,32-5)		1
32-3	TS-1541041	Nylon Lock Hex Nut	M10	1
32-4	VOLT-1000-03P-32-4	Double Spring		1
32-5	TS-1505081	Socket Head Cap Screw	M10x50	1

## 22.0 Electrical connections for VOLT series Hoist

### 22.1 VOLT Hoist – 230V Single Phase





22.2 VOLT Hoist – 230V Three Phase



22.3 VOLT Hoist – 460V Three Phase

