



ELECTRIC CHAIN HOIST



OPERATION MANUAL & PART LIST

SERIES:

- ADVANTAGE 300
- ADVANTAGE 500

ACE WORLD COMPANIES

SAFETY-IMPORTANT

The use of any hoist and trolley presents some risk of personal injury or property damage.

That risk is greatly increased if proper instructions and warnings are not followed. Before using this hoist, each user should become thoroughly familiar with all warnings, instructions and recommendations herein.



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH IF NOT FOLLOWED COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL AND ANY PROVIDED WITH THE EQUIPMENT BEFORE ATTEMPTING TO OPERATE YOUR "ACE" ELECTRIC CHAIN HOIST.



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1. FOREWORD

This manual contains important information to help you properly install, operate and maintain the ACE electric chain hoist for maximum performance, economy and safety.

Please study its contents thoroughly before putting the electric chain hoist into operation. By practicing correct operation, procedures and by carrying out the preventative maintenance recommendations, you will be assured of dependable service. In order to help us to supply correct spare parts quickly, please always specify,

(1) Hoist Model

(2) Serial Number

(3) Part Number, plus the description.

We trust that you will find this “ACE” electric chain hoist will give you many years of satisfactory service.

Should you have any queries, please contact:

ACE WORLD COMPANIES
10200 JACKSBORO HWY.
FORT WORTH, TX 76135
817-237-7700

2. MAIN SPECIFICATION

2.1

Specification

The following

Table 2-1 Specifications

specifications are common to all ACE

Item	Detail		
Working temperature range(°C)	-5 to +40		
Working humidity range (%)	85 or less		
Protection(Optional)	Hoist	IP 42	
	Push button	IP65	
Electric power supply	Three Phase, 460V, 60 Hz		
Noise Level (dB)	Single speed hoist	81	
Chain size	WLL (working load limit) (t)	Nominal diameter (mm)	Pitch (mm)
	3T	10.0	30
	5T	11.2	34

electric chain hoists.

Remarks: (1) Contact an authorized ACE dealer for information on using the hoist outside the working temperature or humidity range.

(2) Intended use: This hoist has been designed for vertically lifting and lowering load under normal atmospheric conditions of work place.

(3) Noise levels were measured at a distance of 1m horizontally from- the hoists during normal operation.

(4) Push button protection grade IP 65 available.

2.2 Mechanical Classification (Grade) and Life

Safety and life for electric chain hoists are guaranteed only when the said equipment is operated in accordance with the prescribed grade.

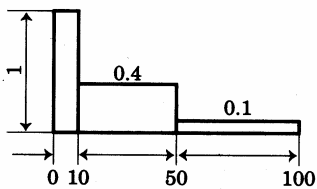
ACE electric chain hoists have been designed for grade 2m except YSF-series 1Am in the FEM regulations (FEM 9.511).

Details are provided in Table 2-2.

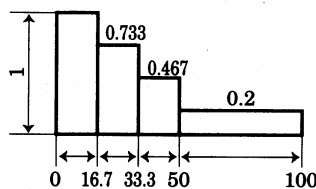
Average daily operating time and total operating time are determined by load distribution.

Table 2-2 Mechanical classifications

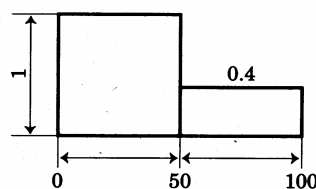
Load Spectrum (Load distribution)	Definitions	Cubic mean value	Average daily operating time (h)					
			0.25-0.5	0.5-1	1-2	2-4	4-8	8-16
1 (light)	Mechanisms or parts thereof, usually subject to very small loads and in exceptional cases only to maximum loads.	$k \leq 0.50$	0.25-0.5	0.5-1	1-2	2-4	4-8	8-16
2 (medium)	Mechanisms or parts thereof, usually subject to small loads but rather often to maximum loads.	$0.50 < k \leq 0.63$	0.12-0.25	0.25-0.5	0.5-1	1-2	2-4	4-8
3 (heavy)	Mechanisms or parts thereof, usually subject to medium loads but frequently to maximum loads.	$0.63 < k \leq 0.80$	≤ 0.12	0.12-0.25	0.25-0.5	0.5-1	1-2	2-4
4 (very heavy)	Mechanisms or parts thereof, usually subject to maximum or almost maximum loads.	$0.80 < k \leq 1.00$	-	≤ 0.12	0.12-0.25	0.25-0.5	0.5-1	1-2
Mechanical Classifications due to DIN 15020 or FEM 9.511			1Dm	1Cm	1Bm	1Am	2m	3m



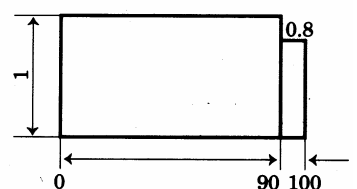
% operating time
Load spectrum 1



% operating time
Load spectrum 2



% operating time
Load spectrum 3



% operating time
Load spectrum 4

2.3 Safety Devices

(1) Motor brake

"Electro-Magnetic Brake" is of a unique design in its field. It features simultaneous motor braking upon switching off power even under full load condition.

(2) Mechanical load brake

The mechanical load brake can hold a full capacity load independent of motor brake.

This brake assures that load does not accelerate while being lowered.

(3) Hook and hook latch

The hook is drop - forged from high tensile steel and heat treated for strength and toughness. The bottom hook is capable of 360°swivel and fitted with safety latch to ensure safe lifting.

(4) Phase error relay

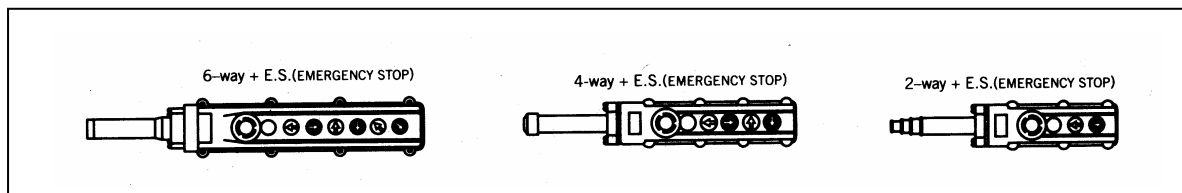
The phase error relay circuit has been exclusively developed to prevent motor from running when the phases are incorrectly connected.

(5) Limit Switches

Upper and lower limit switches are fitted for switching off power automatically in case of over lifting or over lowering.

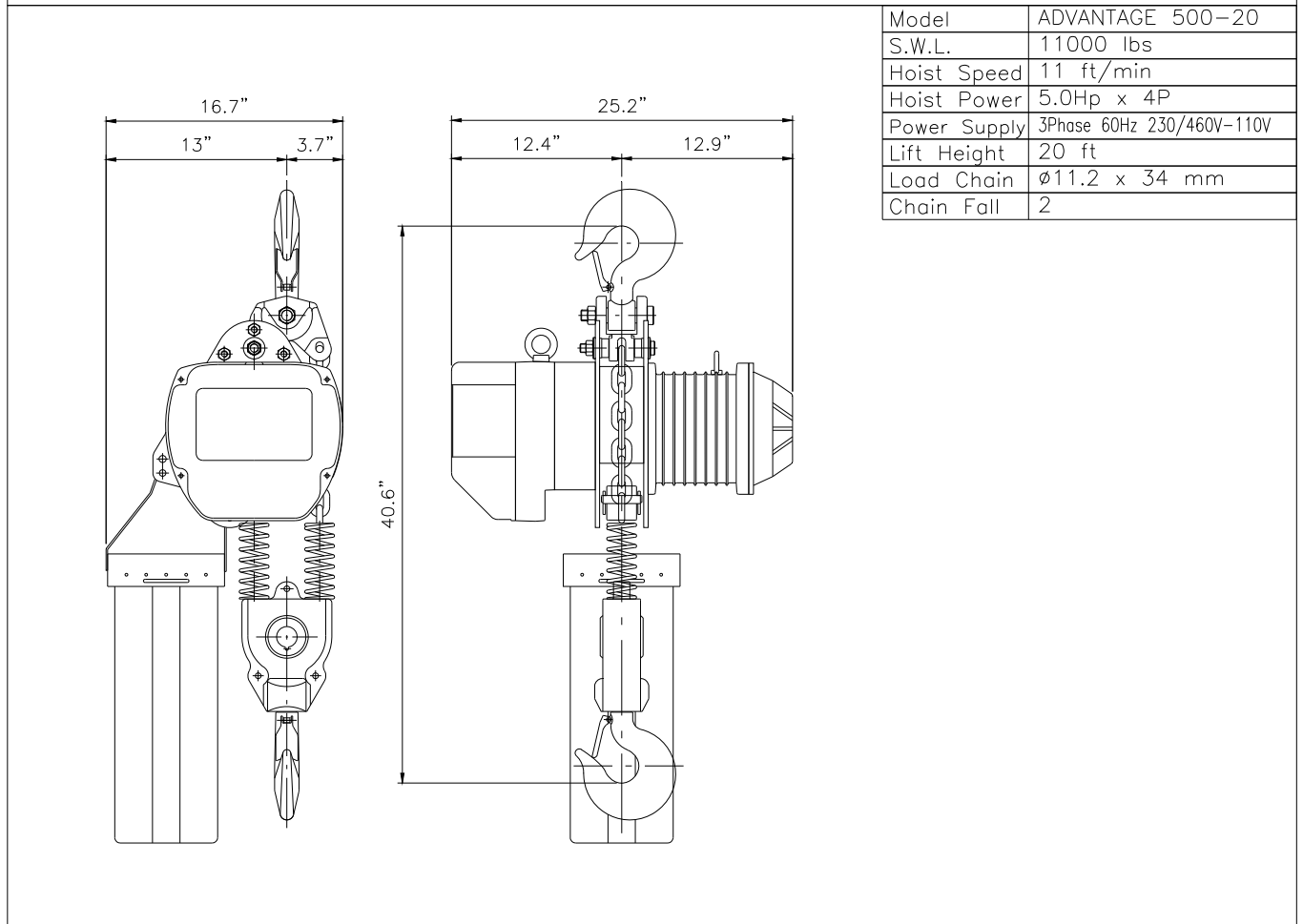
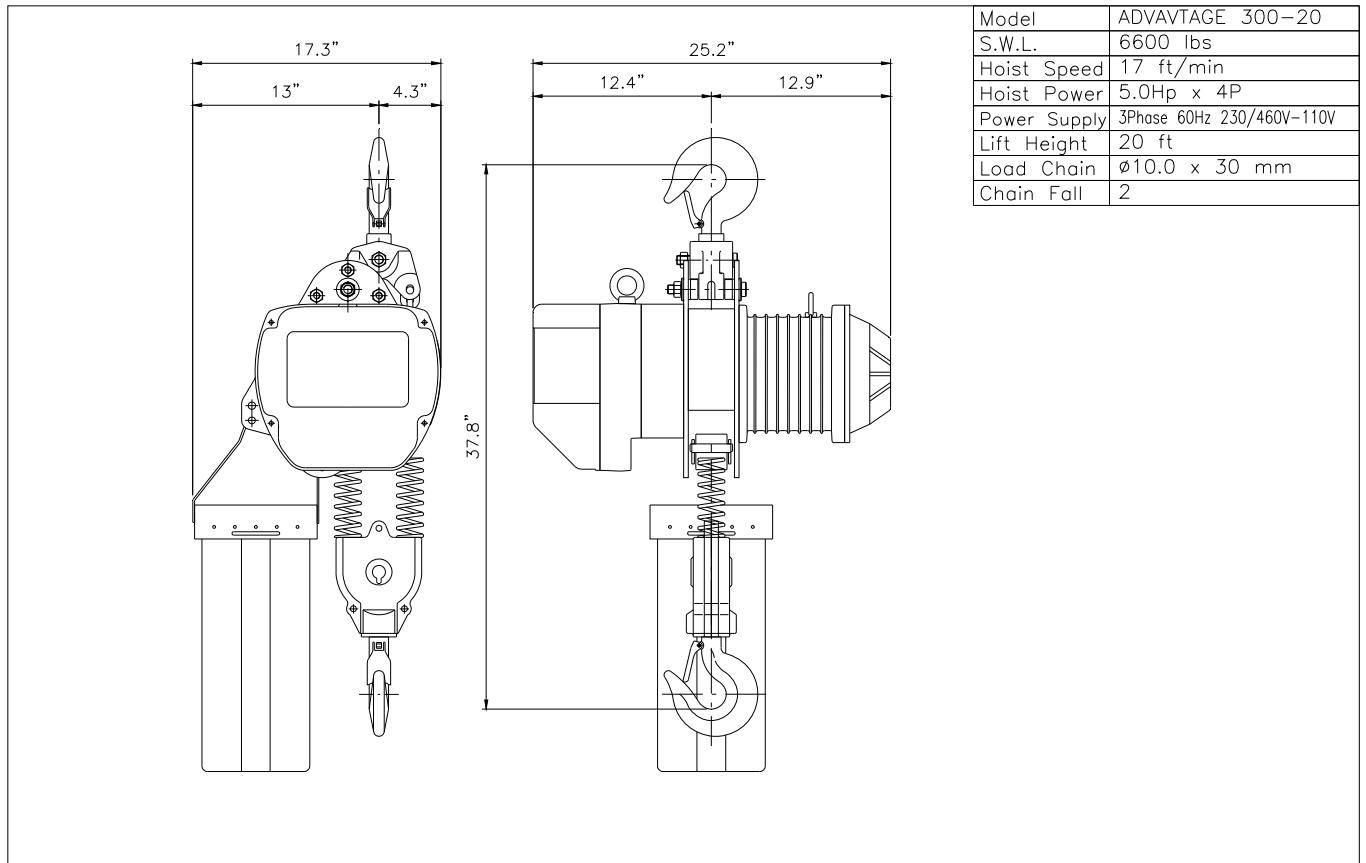
(6) Emergency stop device (optional)

This button is used to stop the hoist in an emergency situation. It is a red, mushroom type button, located in the uppermost position on the pendant. When pressed, power to the equipment is switched off and the button locks automatically. Turning it to the right will release the lock and to enable re-starting. (Illus. 1)




Illus. 1

2.4 Main Specification and Dimensions:



3. SAFETY RULES

DANGER

The hoist herein is not designed for, and should not be used for, lifting, supporting, or transporting personnel. Any modifications to upgrade, re-rate, or otherwise alter the hoist equipment must be authorized by either the original manufacturer or a qualified professional engineer.

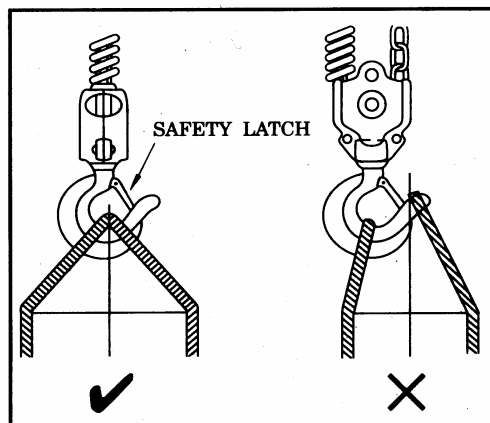
(1) Only the trained personnel are allowed to operate the hoist.

DANGER

Do not use the hoist in explosive atmosphere.

(3) Prior to each lifting operation, it is essential to make sure that:

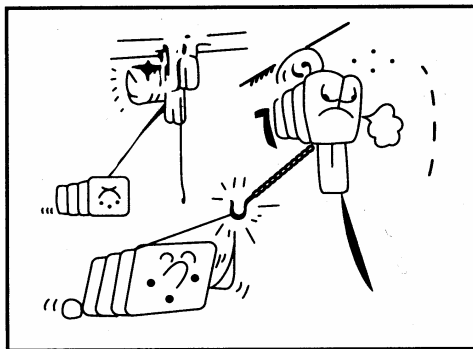
- (a) The correct lifting sling is being used.
- (b) The lifting sling is located in the hook as shown below (Illus. 2) and that a safety latch has been fitted.



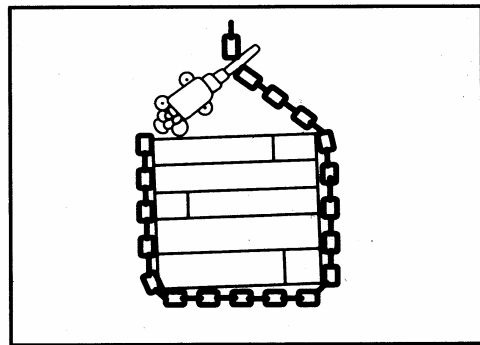
Illus. 2

(c) The object to be hoisted is well secured for direct lifting (a proper lifting frame or apparatus is strongly recommended for direct lifting.)

- (4) Firm and steady button operation is required; never push the button switch intermittently.
- (5) Always avoid excessive inching operation.
- (6) Always make sure the hoist motor completely stops before reversing.
- (7) Always leave the pendant button switch cable and bottom hook load chain vertically static after completion of operation, never leave them at any position, which may allow them swing or slip.
- (8) Sling must be applied to load evenly and centrally to ensure correct balance. Never lift any object which is insecure or out of balance.
- (9) Never use hoist to end or side pull a load. (Illus. 3)
- (10) Never wrap around and hook back the load chain as a sling to lift a load. (Illus. 4)



Illus. 3



Illus. 4

(11)



WARNING

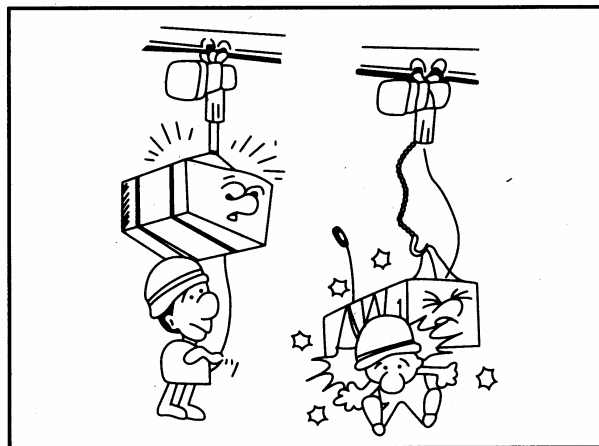
Do not use the hoist chain as a welding electrode.

(12)



DANGER

Never stand under a raised load (Illus. 5)



Illus. 5

(13) Lifting must always be personally attended, never leave a raised load unattended.

(14) Over-capacity-load lifting is hazardous and should not be undertaken.

(15) Never lift a load when the load chain is twisted.

(16) Regularly inspect and check the condition of load chain. Do not operate with damaged chain.

4. INSTALLATION

4.1 Unpacking Information

After removing the hoist from its packing box, carefully inspect the external condition of the electrical cables, contactor, gear box and motor casing for damage.

Check and ensure that these items are present.

Each hoist is supplied as standard with the following accessories.

1. Chain bucket	1 set
2. Power cable	3 meters
3. Push button control switch	1 piece

Table. 4-1

4.2 Voltage



CAUTION

If power supply deviates from standard by more than $\pm 10\%$ abnormal operation or damage to the motor may result. It is imperative to ensure correct voltage supply before commencing operation.

4.3 Installation



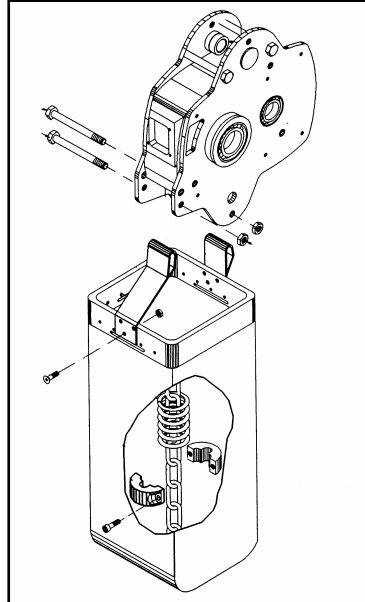
WARNING

Connection to power supply before installation procedures having been completed is strictly prohibited.

- (1) Prior to installation check and ensure that the top hook assembly is securely attached to the hoist by means of the connecting pin (page 35, item 13)

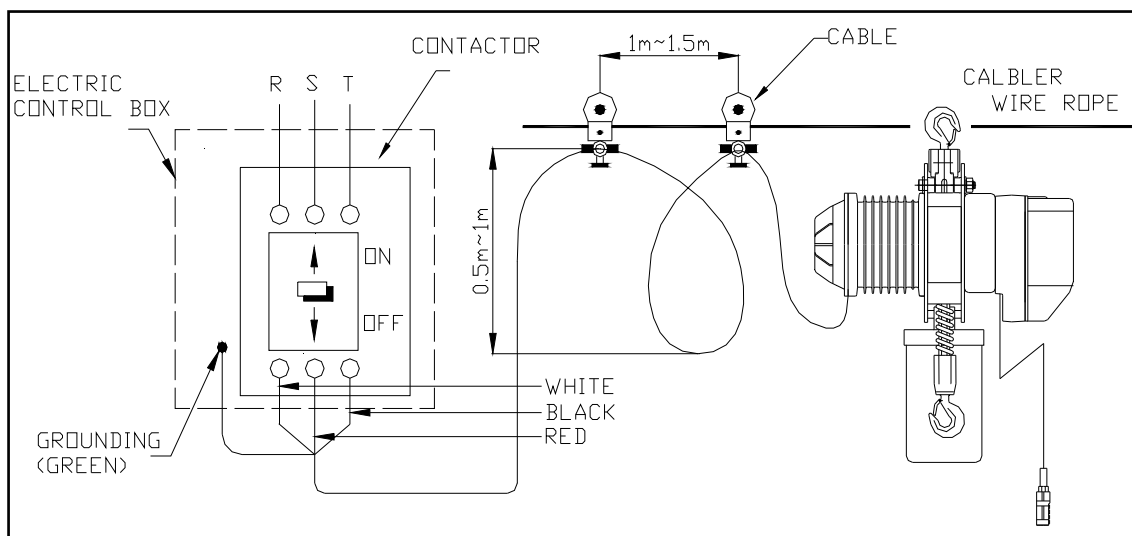
NOTE: If the hoist is to be suspended from an electric trolley, assembly may be eased by firstly removing the top hook, just attaching hoist top hook to the trolley load plate.

- (2) Assemble chain bucket.





Illus. 6

- (3) Connect power supply to hoist and operate the push button switch. This operation must be carried out by a trained person.





(4) Operation Test

(A) Firmly push  switch button to lower load chain until the limit spring touches the limit switch. Power should be cut off automatically.

(B) Firmly push  switch button to check the collection of load chain into chain bucket.

(C) Check the emergency stop device functions (if fitted):

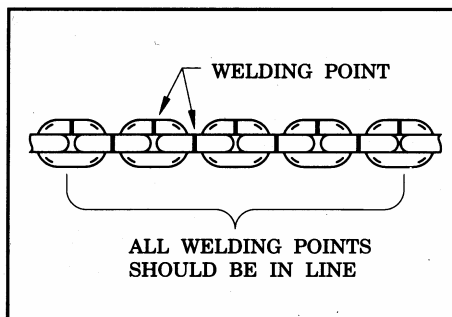
While holding down either  or  button on the push button switch, push the emergency stop button. Check that the hook stops when the emergency stop button is pushed. Also, check the hoist does not move in response to the push button switch. Finally, check that the emergency stop device pops out when turned to the right and that operation can be resumed thereafter. If the equipment fails to pass another above checks, check the wiring and automatic locking function of the emergency stop device.

(D) Check load chain lubrication (It has been lubricated at our works, but the lubricant may dry out during transportation). Any readily available lubricant is recommended. It is further advisable to keep a small amount of lubricant in chain bucket to allow chain in oil bath.

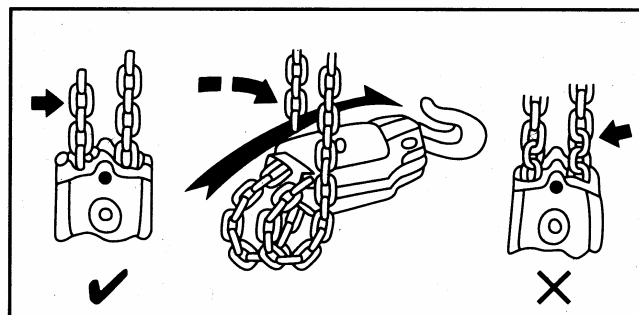
(E) Check chain position. Weld joints on links must face the same direction (Illus. 8), correct chain operation can only be achieved when all joints are vertically in line.

CAUTION

The bottom hook on multi-fall hoist must never be rotated as Shown below. (Illus. 9)



Illus. 8



Illus. 9

5. OPERATION

After running test and checks have been completed, the hoist will be ready for normal operation.



WARNING

Since dealing with heavy loads may involve unexpected danger all of the “SAFETY RULES” (Ref 3.) must be followed and the operator must be aware of the following points while using the hoist.

- (1) The operator must have a clear and unobstructed view of the entire working area before operating the hoist.
- (2) The operator must check that the entire working area is safe and secure before operating the hoist.
- (3) When using the hoist with a motorized trolley, the operator must take care to prevent excessive load swinging by sympathetic use of the trolley controls.

6. MAINTENANCE AND INSPECTION



DANGER

**Do not perform maintenance on the hoist while it is carrying a load
Except monthly checking for the brake or limit switch.**



DANGER

**Before performing maintenance do not forget to affix tags to the
Power source and the push button switch reading: “DANGER”,
“EQUIPMENT BEING REPAIRED”.**

6.1 Maintenance

- (1) Check the level of gear box lubricant after first 500 hours of operation, thereafter every 3 months and lubricant accordingly.

NOTE: WE RECOMMEND USING A LUBRICANT OIL EQUIVALENT TO ISO VG460.

- (2) Always keep the hoist unit dry and never misuse it in a manner likely to reduce its durability.
- (3) When it is necessary to keep the unit outdoors, a protective covering should be fitted.

6.2 Inspection

- (1) Daily inspection: Before starting daily operation, check the following

- (a) Correct power supply.
- (b) "Up", "Down" and "Emergency stop" (where fitted) test runs under no load.
- (c) Correct motor performance.
- (d) No abnormal or excessive noise.
- (e) No malfunction of the bottom hook safety latch.
- (f) Proper function of moving/turning parts, limit switches and brake.
- (g) Well lubricated load chain.

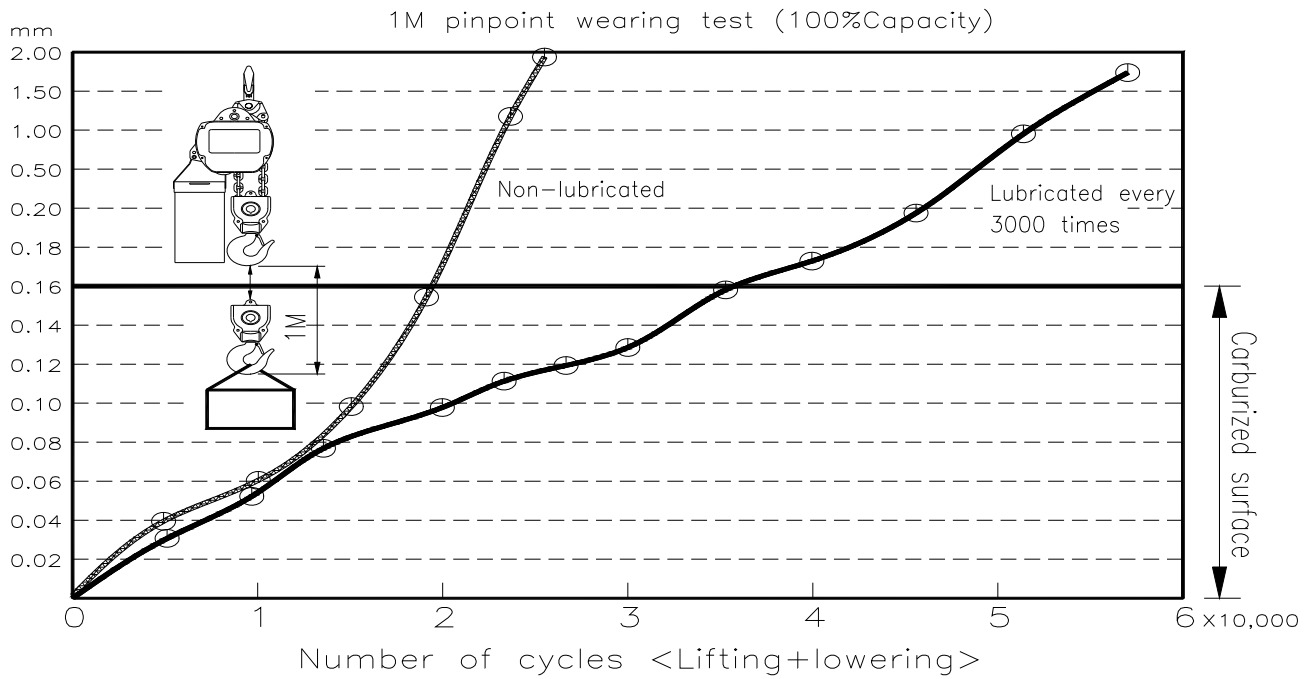
- (2) Monthly inspection

- (a) Load chain:

Chain Wearing Test

Load Spectrum	Cubic mean Value	Using times	
		Non-lubricated	Lubricated
1 (Light)	50%	75000	175000
2 (Medium)	63%	55500	129500
3 (Heavy)	85%	30000	70000
4 (Very heavy)	100%	15000	35000

Above testing data under lifting height 1M

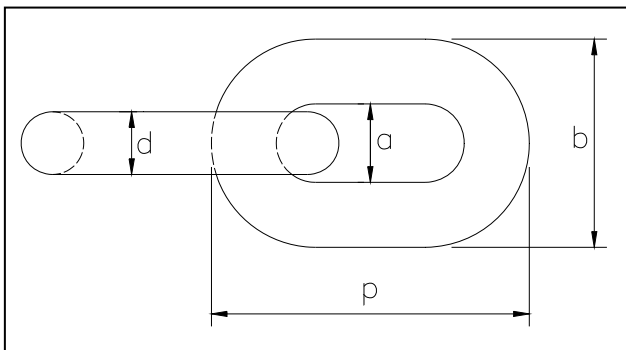


WARNING

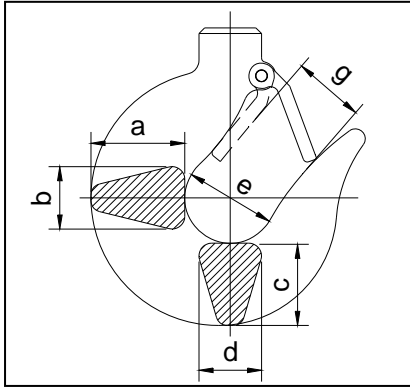
Always use the hoist manufacturer's recommended parts when repairing a hoist.

Table 6-2-a

Distorted, elongated or worn chain link will not sit properly on the load sprocket wheel and may cause chain breakage and/or damage to the hoist unit. To ensure safe and efficient operation, the chain links must be checked for their pitch (inside length), inside width and outside width monthly according to following table.



Dia-Meter (m/m) (d)	Load (ton)	Inside Length (m/m) (p)	Inside Width (m/m) (a)	Outside Width (m/m) (b)
10.0	3T	30	12.5	33.2
11.2	5T	34	14	37.2



Capacity	T	Dimensions					
	B	a	b	c	d	e	g
3 Ton	T	55	34	48	34	52	43
	B						
5 Ton	T	67	45	60	45	62	45
	B						

(b) Load hook

Check hook with care. If hook shows crack deformation or wear in excess of 5% of its original size, it should be replaced (Ref. following table)

(c) Limit Switches:


WARNING

A qualified electrician should perform this inspection.

Check correct operation of the limit switches. Clean thoroughly and apply a thin lubrication to ensure correct operation.

(3) Annual inspection


WARNING

Your dealer should be asked to perform this inspection.

- (a) Check gearing for any excessive wear or damage.
- (b) Replace gearbox lubricant completely.
- (c) Check brake lining and ratchet pawl for any wear or damage.
- (d) Check operation of pawl spring.
- (e) After reassembly of above check, lifting a load several times to ensure good performance of the hoist before starting duty operation.

φ190 BUCKET SPECIFICATIONS

Key No.	Bucket No.	Chain Size	Chain length (M)	Bucket Size (mm)	Material
200781	6	ψ10	< 8.8	190 × 190 × 440	canvas
200782	7	ψ10	8.8 - 20.8	190 × 190 × 560	canvas
200783	8	ψ10	21 - 30.8	190 × 190 × 680	canvas
200784	8-1	ψ10	21- 26.8 M	400 × 210 × 605 × t2	steel
200785	9	ψ10	27 - 38.8 M	400 × 210 × 695 × t2	steel
200786	10	ψ10	39 - 47.8 M	400 × 210 × 770 × t2	steel
200781	6	ψ11.2	< 8.8	190 × 190 × 440	canvas
200782	7	ψ11.2	8.8 - 18.8	190 × 190 × 560	canvas
200783	8	ψ11.2	19 - 27.8	190 × 190 × 680	canvas
200784	8-1	ψ11.2	< 19M	400 × 210 × 605 × t2	steel
200785	9	ψ11.2	19.8 - 31 M	400 × 210 × 695 × t2	steel
200786	10	ψ11.2	32 - 40.8 M	400 × 210 × 770 × t2	steel

Chain Gauge – Wear and Stretch Measuring

- (1) The chain gauge is useful and convenience for measuring.
- (2) Please use a chain gauge to measure the chain pitch and diameter, such as illustrations (1) and (2).
- (3) Every chain ring must be measured, and the chain must be replaced when one of chain rings is wear or stretch.
- (4) It will be a cutting-out possibility if you use a chain fall either wear or stretch during operation.
- (5) Do not replace a chain fall by yourself and do please contact specific either service centers or contractors to help you out.
- (6) The chain fall must be replaced whole instead of a partial part.
- (7) The load sheave, regulator, and chain compressing wheel must be replaced the same time as you do a second time replacement.

Remark

- (1) Chain must be perfect condition without any defects and attachments.

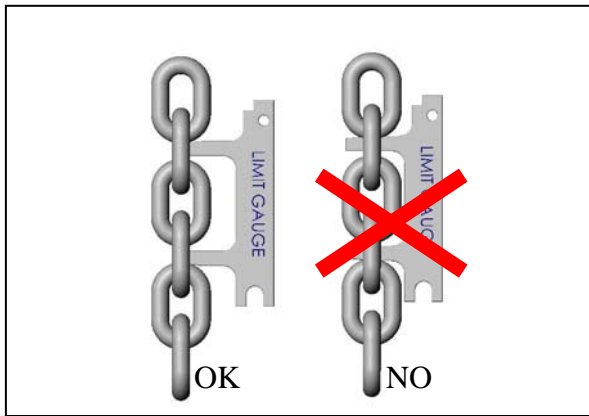


Illustration (1)
Chain pitch measure

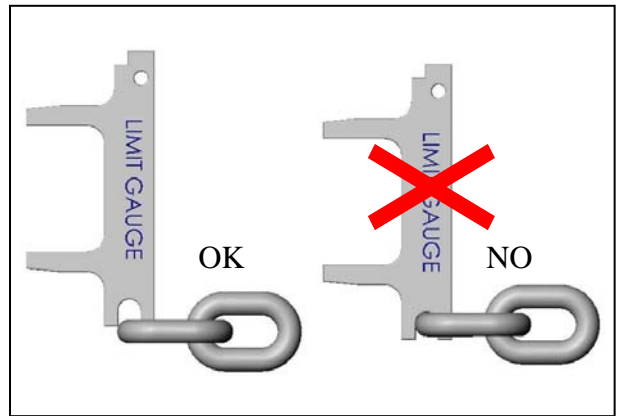
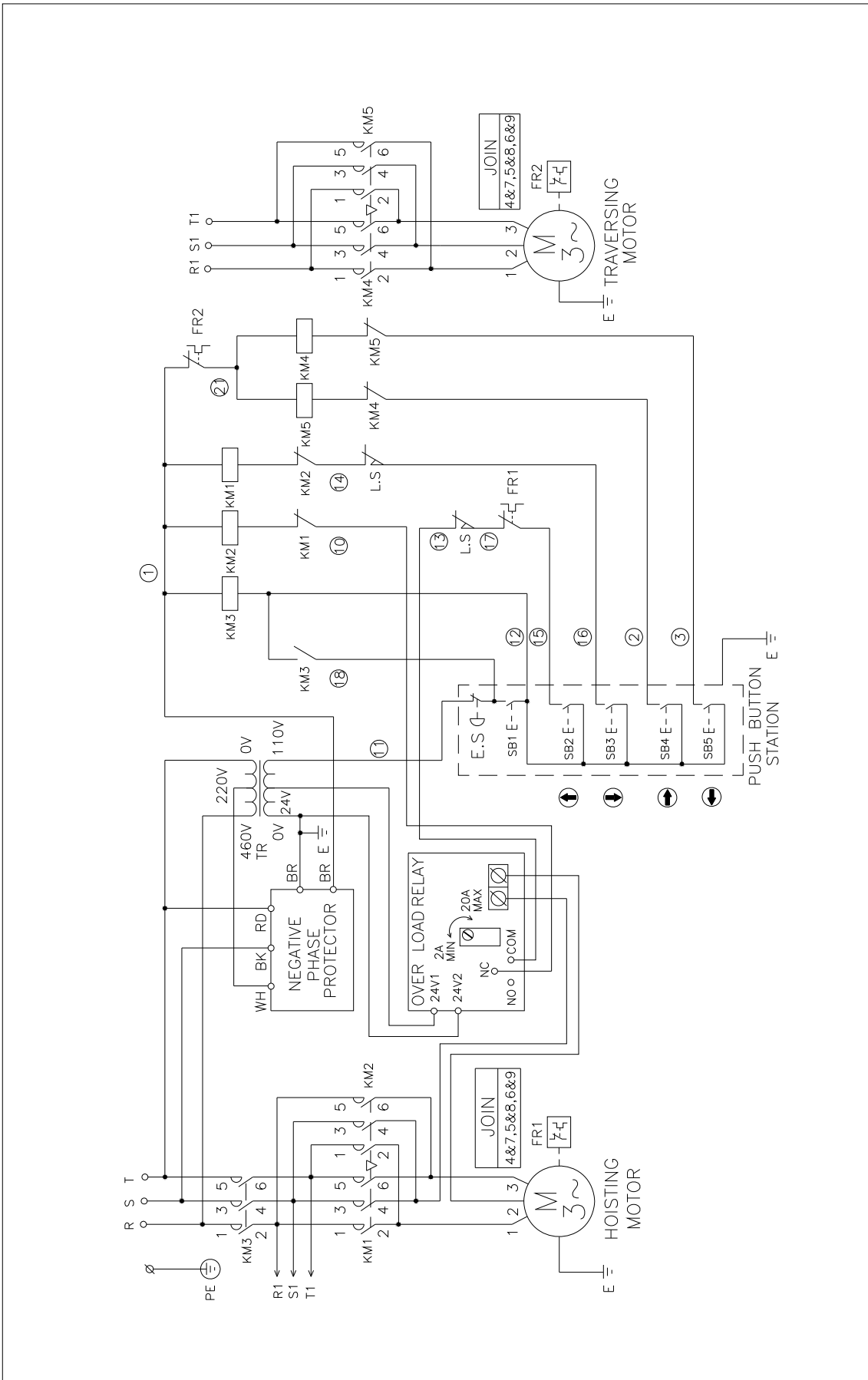


Illustration (2)
Diameter measure

7. TROUBLESHOOTING

7.1 Wiring Diagrams



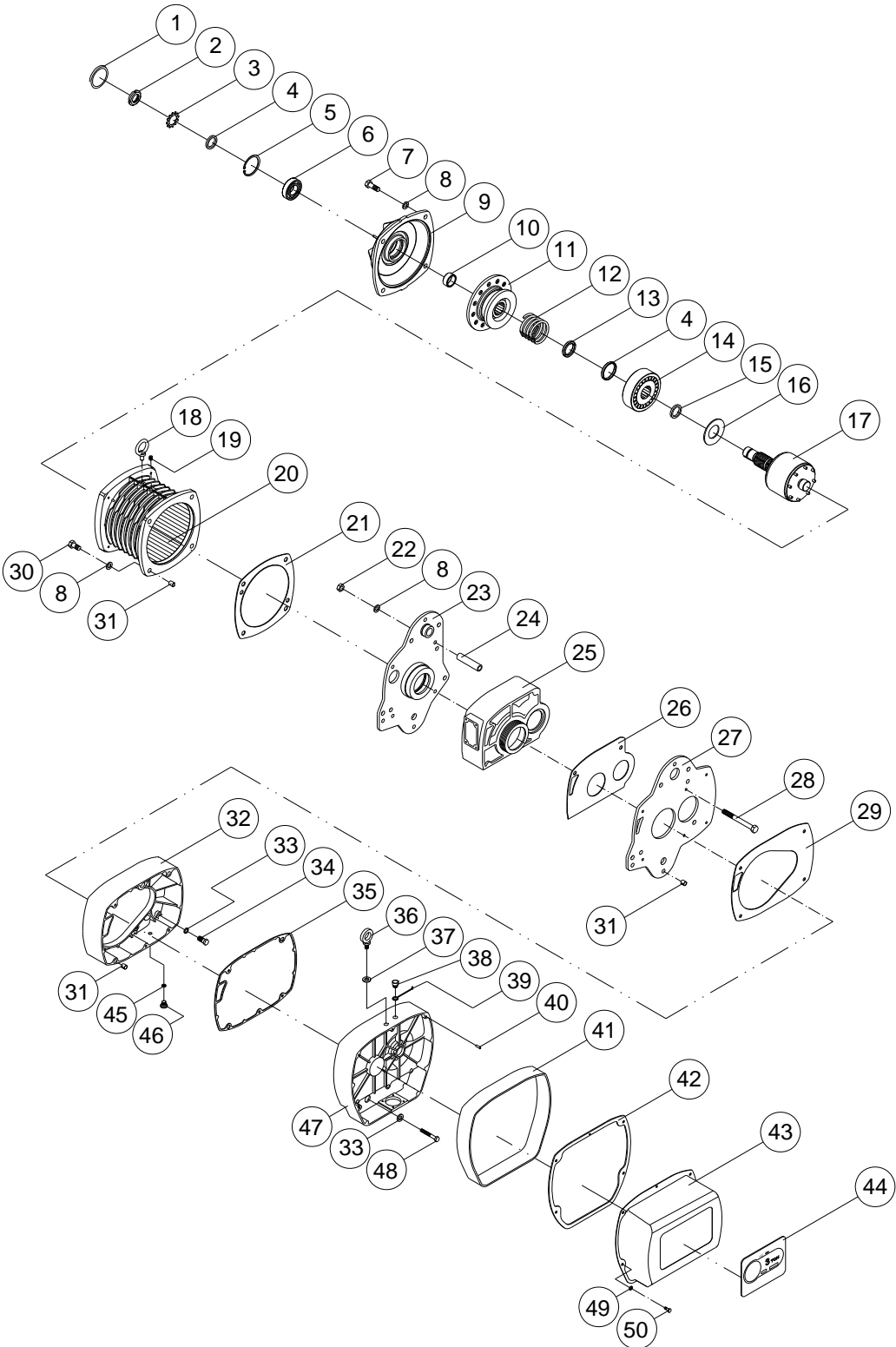
7.2 Troubleshooting and Remedial action

SITUATION	CAUSE	REMEDY
Hoist will not operate	(1) Phase error relay operated due to incorrect phase connections (2) Blown power fuse or tripped power circuit breaker (3) Blown control circuit fuse (4) Broken/disconnected power or control circuit wire (5) Low supply voltage (6) Motor hums but does not rotate (7) Emergency stop button release pushed (if fitted) (8) Faulty contactor	Reverse any two phase connections Check supply requirements and refuse/reset breaker to meet requirements Check fuse for correct rating and replace Locate and repair/reconnect Check if 10% reduction in voltage, have mains supply checked Check phases to motor - insulate and repair Check the cause as necessary Operate manually if hoist runs then control circuit/coil is faulty - locate fault and repair. If hoist does not run then check main supply. If input supply is correct but there is a faulty output supply then replace the contactor
Hoist will not stop	Welded contacts in contactor	Replace contactor
Brake slips	Abrasion of motor brake	Replace
Abnormal sound. on load chain/chain sprocket	(1) Chain dry (2) Worn chain sprocket	Lubricate Replace load chain and chain sprocket
Electric shock	(1) Poor earth connection (2) Accumulated foreign matter/ moisture on electrical parts	Provide correct earth connection Remove foreign matter/dry electrical parts
Oil leak	(1) No oil plug (2) Loose fitting of oil plug (3) No plug packing (4) Worn or deteriorated oil packing	Attach the normal oil plug Fasten the plug tightly Attach normal packing Attach the new packing

8. Drawings and parts list

(1).Motor Assembly & Housing Drawing -----	22
(2).Motor Assembly & Housing B.O.M -----	23
(3).Hook Assembly Drawing -----	25
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(8).Load Chain Section B.O.M -----	30
(9).Electric Parts Drawing -----	31
(10).Electric Parts B.O.M -----	32

MOTOR ASSEMBLY & HOUSING



MOTOR ASSEMBLY & HOUSING

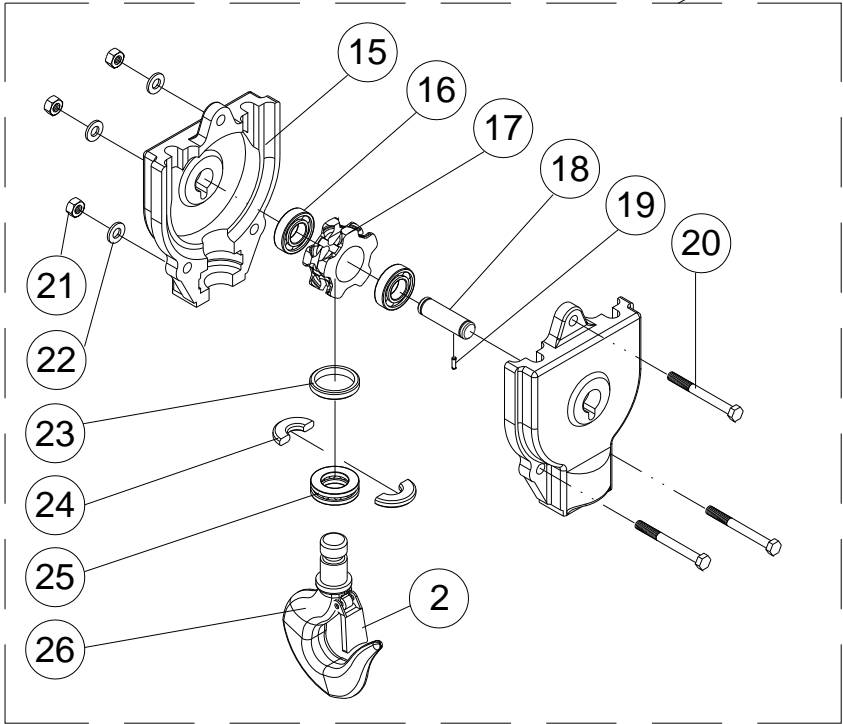
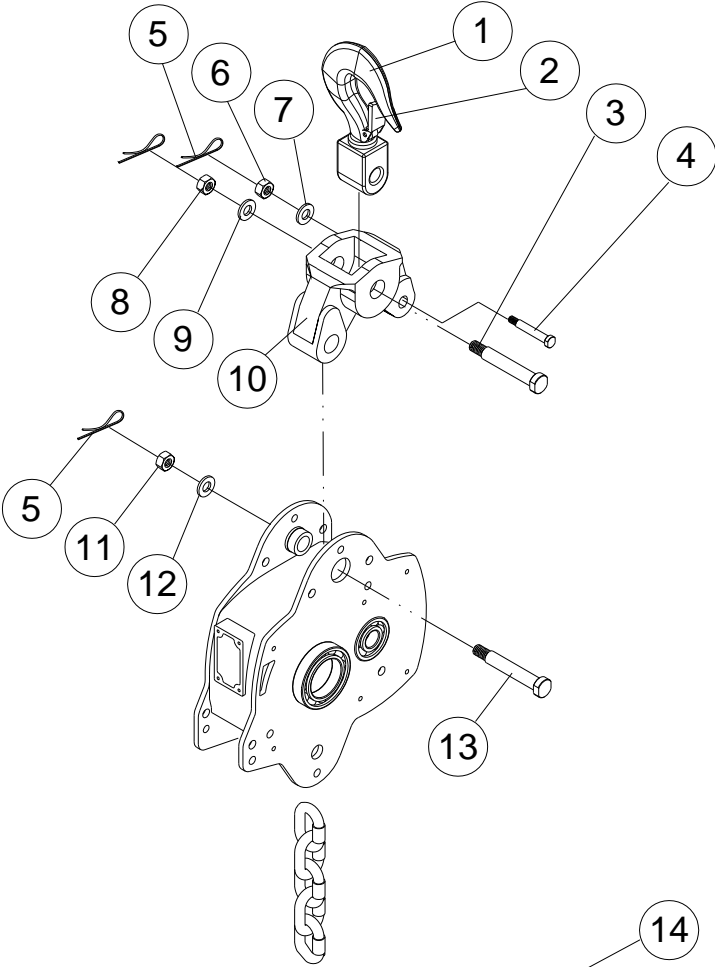
KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			ADVANTAGE 300	ADVANTAGE 500
1	400264	Rubber Cap	1	1
2	400220	Castle Nut <AN06>	1	1
3	400221	External Teeth Washer <AW06>	1	1
4	100430	Bearing Stop Ring	2	2
5	400200	Retaining Ring <R-62>	1	1
6	400141	Bearing <6206 ZZ>	1	1
7	400023	Hex. Recess Bolt <M12×1.75×35L>	4	4
8	400097	Spring Washer <M12>	12	12
9	100424	Motor End Cover	1	1
10	100490	Spacer Ring	1	1
11	100395	Brake Drum	1	1
12	400237	Brake Spring	1	1
13	100363	Motor Shaft Spacer	2	2
14	100365	Motor Retaining Ring	1	1
15	100414	Magnet Producer	1	1
16	100410	Cone Spring	1	1
17	100325	Motor Rotor	1	1
18	400218	Eye Bolt <M10×1.5>	1	1
19	400585	Bolt <M8×1.25×16L>	2	2
20	132707	Motor Stator Ass'y	1	1
21	402507	Gasket 7#	1	1
22	400084	Nut <M12×1.75>	4	4
23	100339	Motor End Plate	1	1
24	200308	Connecting Screws Sleeve	4	4
25	200698	Load Sheave Housing	1	1
26	210139	Gasket 55#	1	1
27	200066	Gear End Plate	1	1

28	400032	Hex. Bolt <M12×1.75×120L>	4	4
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MOTOR ASSEMBLY & HOUSING

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			ADVANTAGE 300	ADVANTAGE 500
29	402510	Gasket 10#	1	1
30	400021	Hex. Recess Bolt <M12×1.25×25L>	4	4
31	400215	Spring Pin <ø12×14L>	4	4
32	200245	Gear Box A	1	1
33	400095	Spring Washer <M8>	11	11
34	400025	Oil tight Hex. Recess Bolt <M8×1.25×30L>	6	6
34	402511	Gasket 11#	1	1
36	400219	Eye Bolt <M16×1.5>	1	1
37	400227	Gasket Ring	1	1
38	200926	Hexagon Oil Plug	1	1
39	200927	Air Plug	1	1
40	400212	Spring Pin <ø5×16L>	1	1
41	400267	Rubber Band	1	1
42	402522	Gasket 22#	1	1
43	300764	Electric Housing	1	1
44		Name Plate	1	1
45	400225	O-Ring <ø8×ø12×2>	1	1
46	400600	Lubricant Drain Bolt	1	1
47	200246	Gear Box B	1	1
48	400460	Hex. Recess Bolt <M8×1.25×65L>	5	5
49	400094	Spring Washer <M6>	4	4
50	400005	Hex. Recess Bolt <M6×1.0×12L>	8	8

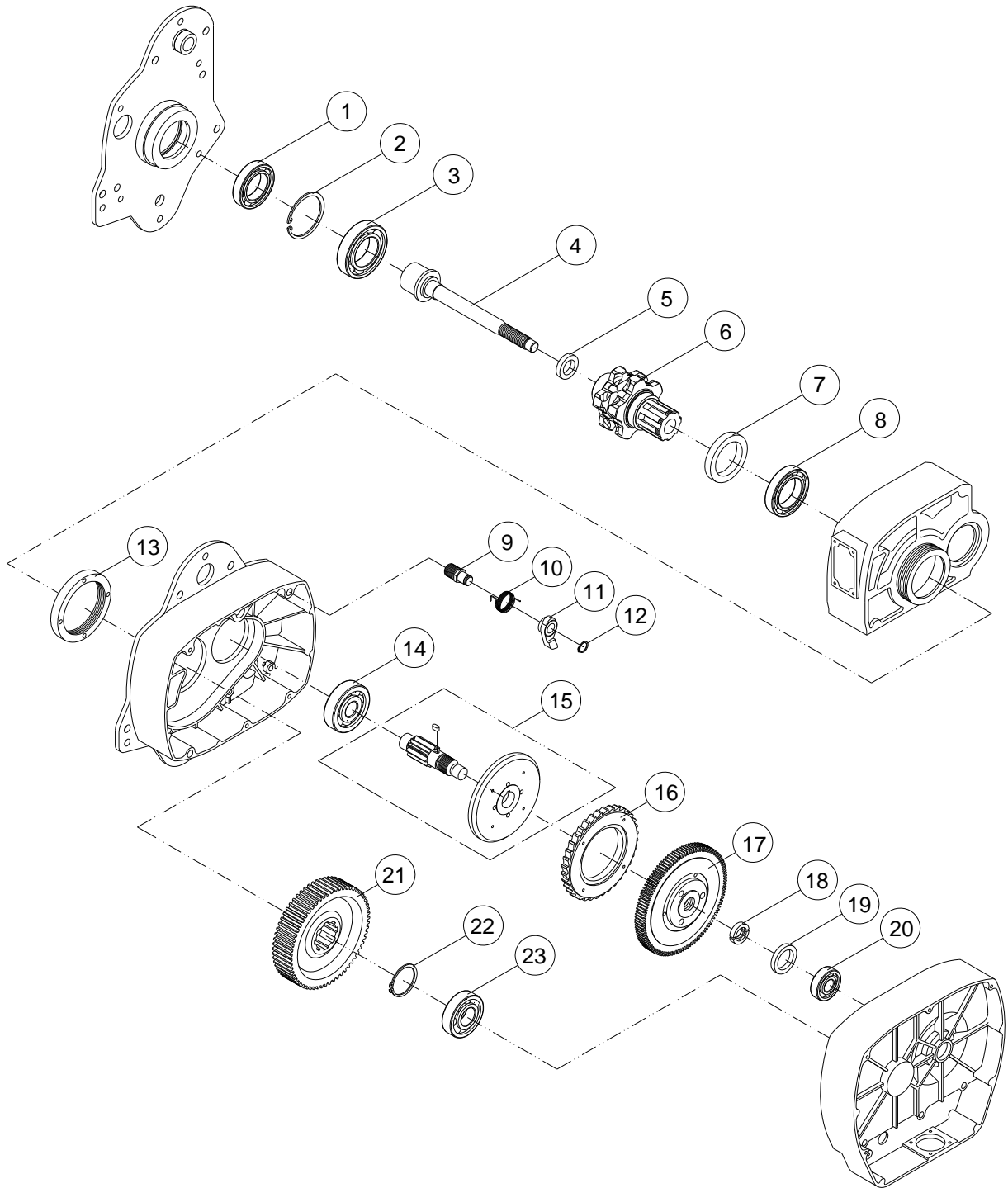
HOOK ASSEMBLY



HOOK ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			ADVANTAGE 300	ADVANTAGE 500
1	200012	Top Hook	1	
	200013			1
2	400301	Safety Latch Ass'y	2	2
3	200094	Top Hook Pin <ø25×107L>	1	
	200095	Top Hook Pin <ø34×134L>		1
4	200177	Chain Connecting Pin <ø19×70L>	1	
	200178	Chain Connecting Pin <ø19×72L>		1
5	400603	Cotter Pin <3/32"×1"L>	2	2
6	400091	Lock Nut <M12×1.75>	1	1
7	400097	Spring Washer <M12>	1	1
8	400085	Nut <M16×1.5>	1	
	400086	Nut <M20×2.0>		1
9	400099	Spring Washer <M20>		1
10	200155	Hook Bracket	1	
	200156			1
11	400085	Nut <M16×1.5>	1	1
12	400098	Spring Washer <M16>	1	1
13	200165	Rigid Hook Connecting Pin	1	1
14	200025	Bottom Hook Ass 'y	1	
	200027			1
15	200100	Bottom Hook Housing	1	
	200101			1
16	408052	Needle Bearing <TA 3020 Z>	2	
	400174	Needle Bearing <TA 4025 Z>		2
17	200170	Bottom Hook Idle Wheel <ø40×42L>	1	
	200111	Bottom Hook Idle Wheel <ø50×51L>		1
18	200813	Bottom Hook Idle Wheel Axle <ø30×71L>	1	
	200116	Bottom Hook Idle Wheel Axle <ø40×78L>		1
19	400212	Spring Pin <ø5×16L>	1	1
20	400018	Hex. Recess Bolt <M10×1.5×40L>	3	
	400019	Hex. Recess Bolt <M10×1.5×45L>		3
21	400089	Lock Nut <M10×1.5>	3	3
22	400096	Spring Washer <M10>	3	3
23	200133	Bottom Hook Retaining Ring	1	
	200134			1
24	400159	Thrust Bearing <51106>	1	
	400160	Thrust Bearing <51207>		1
25	200129	Bottom Hook Half Spacer	2	
	200130			2
26	200003	Bottom Hook	1	

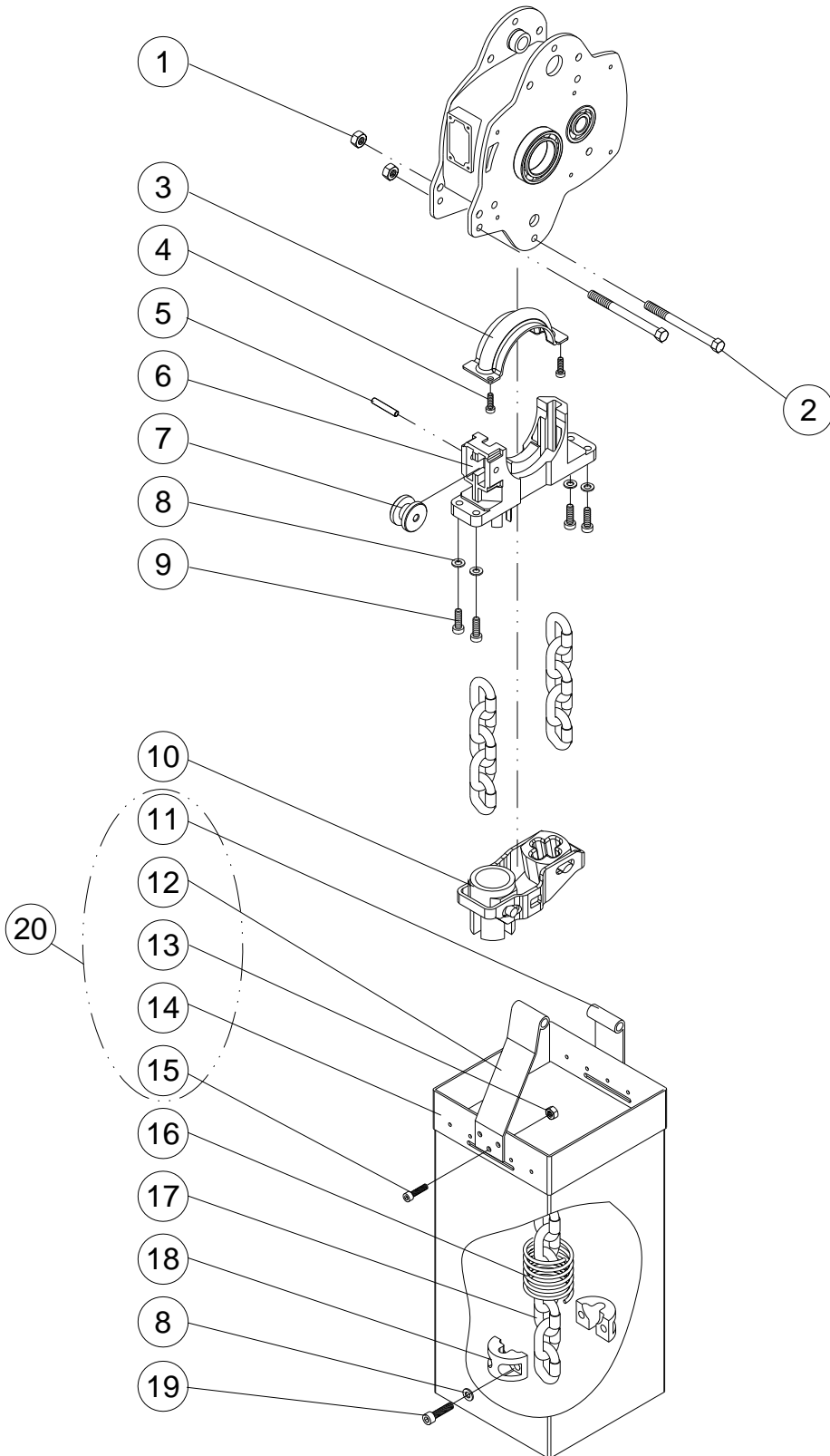
REDUCING GEAR BOX



REDUCING GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			ADVANTAGE 300	ADVANTAGE 500
1	400140	Bearing <6009ZZ>	1	1
2	400201	Retaining Ring <R-75>	1	1
3	407841	Bearing <6210Z>	1	1
4	200695	Front Motor Axle Ass'y	1	1
5	400183	Oil Seal <ø25×ø40×8>	1	1
6	200198	Load Sheave	1	
	200199			1
7	400185	Oil Seal <ø58×ø80×12>	1	1
8	405567	Bearing <6010>	1	1
9	200286	Ratchet Pawl Shaft	1	1
10	400241	Ratchet Spring	1	1
11	200288	Ratchet Pawl	1	1
12	400190	Retaining Ring <S-16>	1	1
13	200699	Compress Retaining Sleeve	1	1
14	407772	Bearing <6405>	1	1
15	200734	3 rd Gear Ass'y	1	
	200735			1
16	200741	Ratchet Wheel Ass'y	1	1
17	200665	2 nd Gear	1	1
18	200274	Half Spacer	2	2
19	200277	Bearing Spacer	1	1
20	407746	Bearing <6304>	1	1
21	200265	4 th Gear	1	
	200267			1
22	400197	Retaining Ring <S-50>	1	1
23	407765	Bearing <6303>	1	1

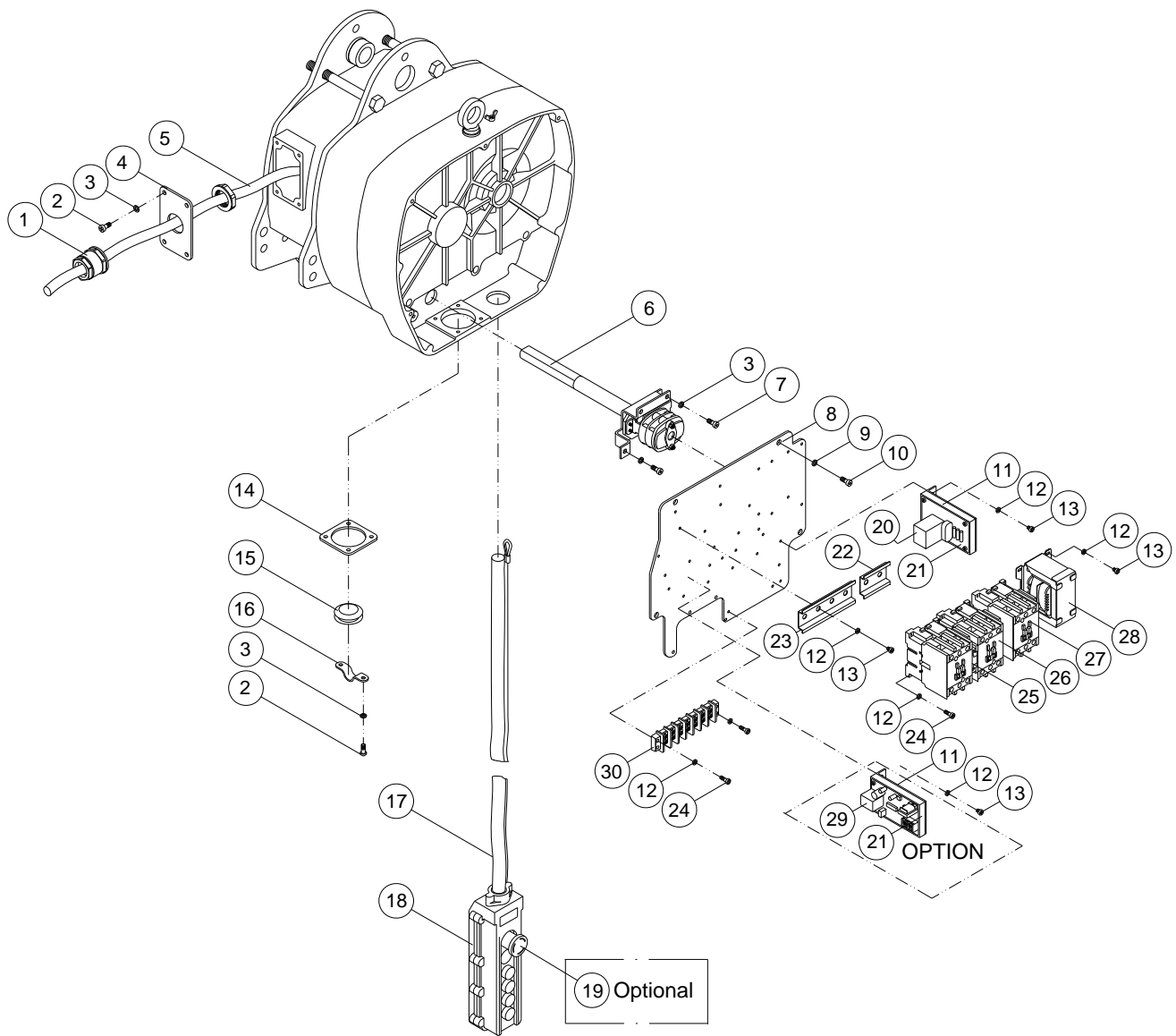
LOAD CHAIN SECTION



LOAD CHAIN SECTION ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			ADVANTAGE 300	ADVANTAGE 500
1	400089	Lock Nut <M10×1.5>	2	2
2	400029	Hex. Bolt <M10×1.5×120L>	2	2
3	200203	Chain Regulating Plate <t2.0×50×160L>	1	1
4	400005	Hex. Recess Bolt <M6×1.0×12L>	2	2
5	400273	Compressing Wheel Axle <M8×55L>	1	1
6	200194	Chain Regulator <ø10>	1	
	200195	Chain Regulator <ø11.2>		1
7	200191	Chain Regulating Wheel <ø10 ø39×25L>	1	
	200192	Chain Regulating Wheel <ø11.2 ø40×28L>		1
8	400095	Spring Washer <M8>	6	6
9	400013	Hex. Recess Bolt <M8×1.25×25L>	4	4
10	200564	Chain Guide Ass'y	1	
	200561			1
11	200223	Bucket Arm(B) <t3.0×50×180L>	1	1
12	200222	Bucket Arm(A) <t3.0×50×260L>	1	1
13	400087	Lock Nut <M6×1.0>	6	6
14	200218	Chain Bucket	1	1
15	400055	Cross Headed Screw <M6×1.0×12L>	6	6
16	400233	Limit Spring <ø10>	3	
	400234	Limit Spring <ø11.2>		3
17	400543	Load Chain <ø10>	6M	
	400544	Load Chain <ø11.2>		6M
18	200201	Chain Stopper <ø10>	4	
	200202	Chain Stopper <ø11.2>		4
19	400014	Hex. Recess Bolt <M8×1.25×30L>	2	2
20	200781	Chain Bucket 6#	1	1

ELECTRIC ASSEMBLY



ELECTRIC ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			ADVANTAGE 300	ADVANTAGE 500
1	400222	Cable Gland(M20)	1	1
2	400053	Cross Headed Screw<M5×0.8×12L>	4	4
3	400093	Spring Washer<M5>	7	7
4	300343	Power Cable Holding Plate	1	1
5	311601	Power Cable Ass'y	1	1
6	302608	Limit Switch Ass'y	1	1
7	400620	Cross Headed Screw<M5×0.8×8L>	3	3
8	300337	Electric Components Plate	1	1
9	400094	Spring Washer<M6>	4	4
10	400005	Hex. Recess Bolt<M6×1.0×12L>	4	4
11	300340	N.P.P Holding Plate	2	2
12	400092	Spring Washer<M4>	14	14
13	400048	Cross Headed Screw<M4×0.7×6L>	13	13
14	300332	Control Cable Holding Plate	1	1
15	400271	Rubber Cap	1	1
16	300342	Wire Holder Clamp	1	1
17	301209	Pendant Cable With Wire Rope "Built In"	6M	6M
18	300463	Single Speed Pbs	1	1
19	300576	Emergency Stop	1	1
20	300203	Negative Phase Protector (N.P.P)	1	1
21	300363	N.P.P/E.O Box	2	2
22	300078	Contactor Rail <1PC>	1	1
23	300079	Contactor Rail<2PC>	1	1
24	400052	Cross Headed Screw<M4×0.7×15L>	1	1
25	300800	Contactor Interlock	1	1
26	301112	Magnetic Contactor	2	2
27	301112	Emergency Contactor	1	1
28	301059	Control Transformer	1	1
29	300726	Electric Overload(E.O)	1	1
30	300228	Terminal Block	1	1