

®



# ELECTRIC WIRE ROPE HOIST



## OPERATION MANUAL & PARTS LIST

### SERIES:

<input type="checkbox"/>	<input type="checkbox"/>	TUAH-(D)-100
<input type="checkbox"/> SUBH-(D)-200	<input type="checkbox"/>	TUBH-(D)-200
<input type="checkbox"/> SUCH-(D)-300	<input type="checkbox"/>	TUCH-(D)-300
<input type="checkbox"/> SUDH-(D)-500	<input type="checkbox"/>	TUDH-(D)-500
<input type="checkbox"/> SUEAH-(D)-750	<input type="checkbox"/>	TUEAH-(D)-750
<input type="checkbox"/> SUFAH-(D)-1000	<input type="checkbox"/>	TUFAH-(D)-1000
<input type="checkbox"/> SUFAI-(D)-1500	<input type="checkbox"/>	TUFAI-(D)-1500

CHENG DAY MACHINERY WORKS CO., LTD.

# **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 "BLACK BEAR" ELECTRIC WIRE ROPE HOIST.***



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# 1. FOREWORD

This manual contains important information to help you properly install, operate and maintain the Black Bear electric wire rope hoist for maximum performance, economy and safety. Please study its contents thoroughly before putting the electric wire rope 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 "Black Bear" electric wire rope hoist will give you many years of satisfactory service.

Should you have any queries, please contact :



(Please ask for a company's stamp from your local agent)

## 2. MAIN SPECIFICATIONS

### 2.1 Specifications

The following specifications are common to all Black Bear electric wire rope hoists.

**Table 2-1 Specifications**

Item		Detail
Working temperature range(°C)		-5 to +40
Working humidity range (%)		85 or less
Protection	Hoist	IP 40
Electric power supply		Three Phase, 200~600V, 50/60 Hz
Noise Level (dB)	Single speed hoist	81
	Dual Speed hoist	81
Wire Rope diameter	WLL (working load limit)(t)	Nominal diameter (mm)
	1T(2200lbs)	§ 6 19×7(195kg/mm <sup>2</sup> )
	2T (4400 lbs)	§ 8 19×7(195kg/ mm <sup>2</sup> )
	3T (6600 lbs)	§ 10 19×7(195kg/ mm <sup>2</sup> )
	5T (11000 lbs)	§ 10 19×7(195kg/ mm <sup>2</sup> )
	7.5T (16500 lbs)	§ 12 19×7(195kg/ mm <sup>2</sup> )
	10T (22000 lbs)	§ 14 19×7(195kg/ mm <sup>2</sup> )
	15T (33000 lbs)	§ 14 19×7(195kg/ mm <sup>2</sup> )

Remarks: (1) Contact an authorized Black Bear 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.

## 2.2 Mechanical Classification (Grade) and Life

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

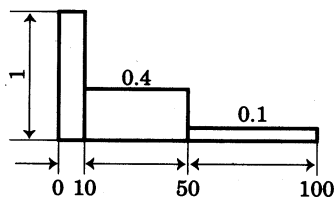
Black Bear electric wire rope hoists have been designed according to FEM regulations (FEM 9.511).

Details are provided in Table 2-2.

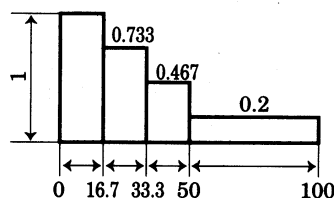
Average daily operating time and total operating time are determined by load distribution.

**Table 2-2 Mechanical classification**

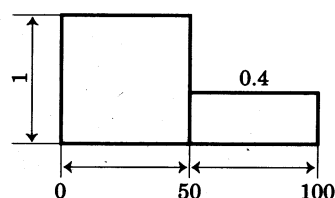
Load Spectrum (Load distribution)	Definitions	Cubic mean value	Average daily operating time (h)	Total operating time (h)
1 (light)	Mechanisms or parts thereof, usually subject to very small loads and in exceptional cases only to maximum loads.	$k \leq 0.50$	2-4	6300
2 (medium)	Mechanisms or parts thereof, usually subject to small loads but rather often to maximum loads.	$0.50 < k \leq 0.63$	1-2	3200
3 (heavy)	Mechanisms or parts thereof, usually subject to medium loads but frequently to maximum loads.	$0.63 < k \leq 0.80$	0.5-1	1600
4 (very heavy)	Mechanisms or parts thereof, usually subject to maximum or almost maximum loads.	$0.80 < k \leq 1.00$	0.25-0.5	800



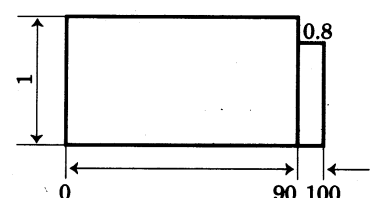
% operating time  
Load spectrum 1



% operating time  
Load spectrum 2



% operating time  
Load spectrum 3



% operating time  
Load spectrum 4

## 2.3 Safety Devices

### (1) Motor brake

"AC 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

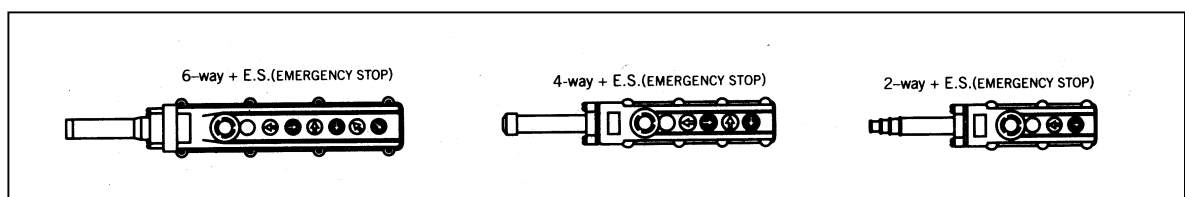
The hook is drop - forged from high tensile steel and heat treated for strength and toughness. The button hook is capable of 360°swivel and fitted with safety latch to ensure safe lifting.

### (4) Limit Switches

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

### (5) 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. (Illust. 1)



Illust. 1

### 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.

(2)

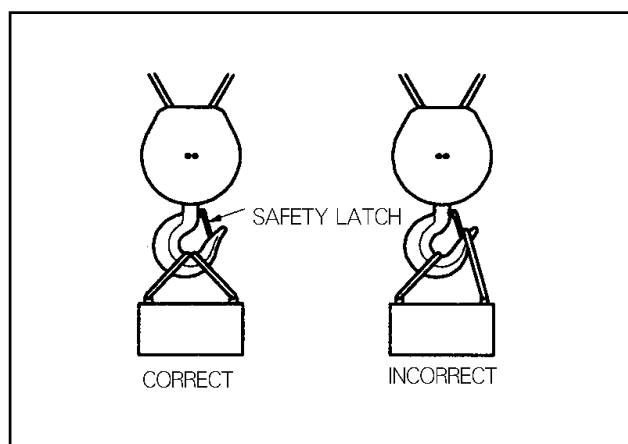


**DANGER**

*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 (Illust. 2) and that a safety latch has been fitted.

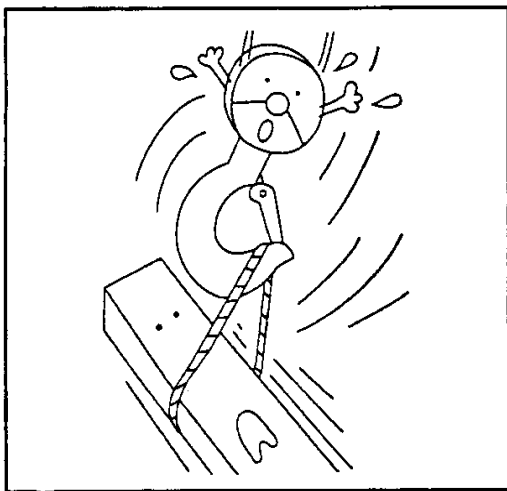


Illust. 2

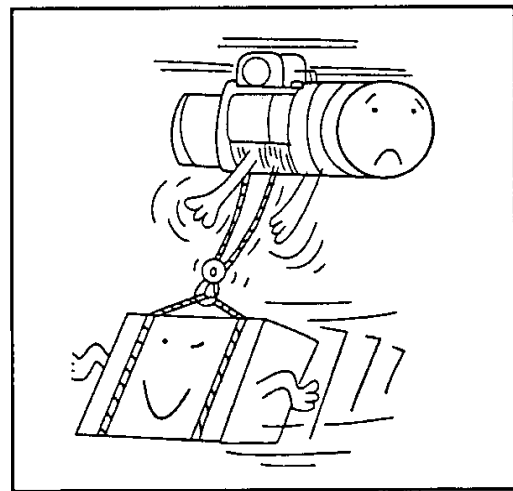
- (c) the object to be hoisted is well secured for direct lifting (a proper lifting frame or apparatus is strongly recommended for direct lifting.)



- (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 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. (Illust. 3)
- (10) Never wrap around and hook back the wire rope as a sling to lift a load. (Illust. 4)



Illust. 3



Illust. 4

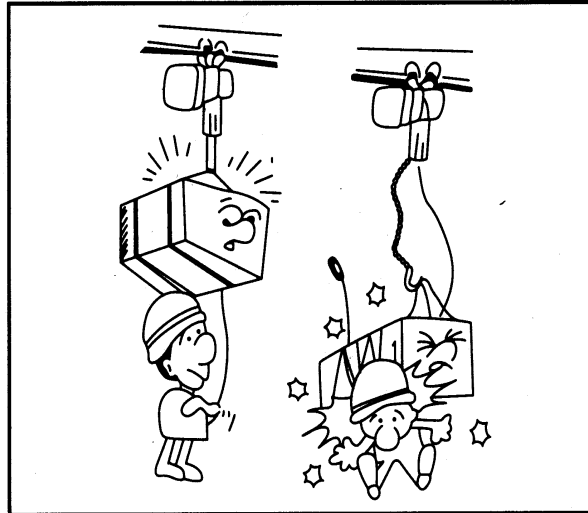
(11)

	<b>WARNING</b>
<i>Do not use the Hoist's wire rope as a welding electrode.</i>	

(12)

DANGER

*Never stand under a raised load (Illust. 5)*



**Illust. 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 wire rope is twisted.
- (16) Regularly inspect and check the condition of load wire rope. Do not operate with damaged wire rope.

## 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.

### 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.*

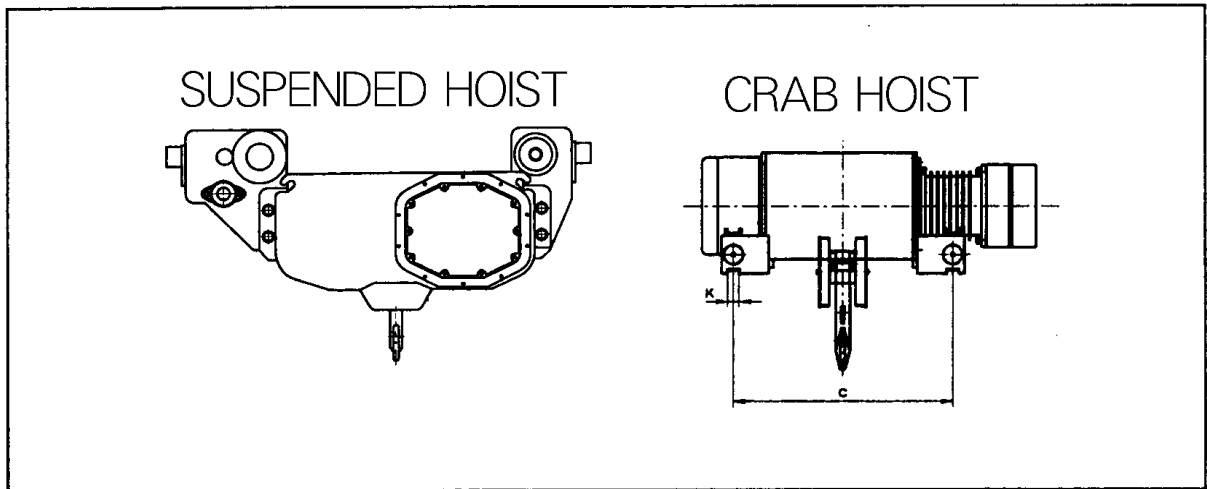
### 4.3 Installation



#### **WARNING**

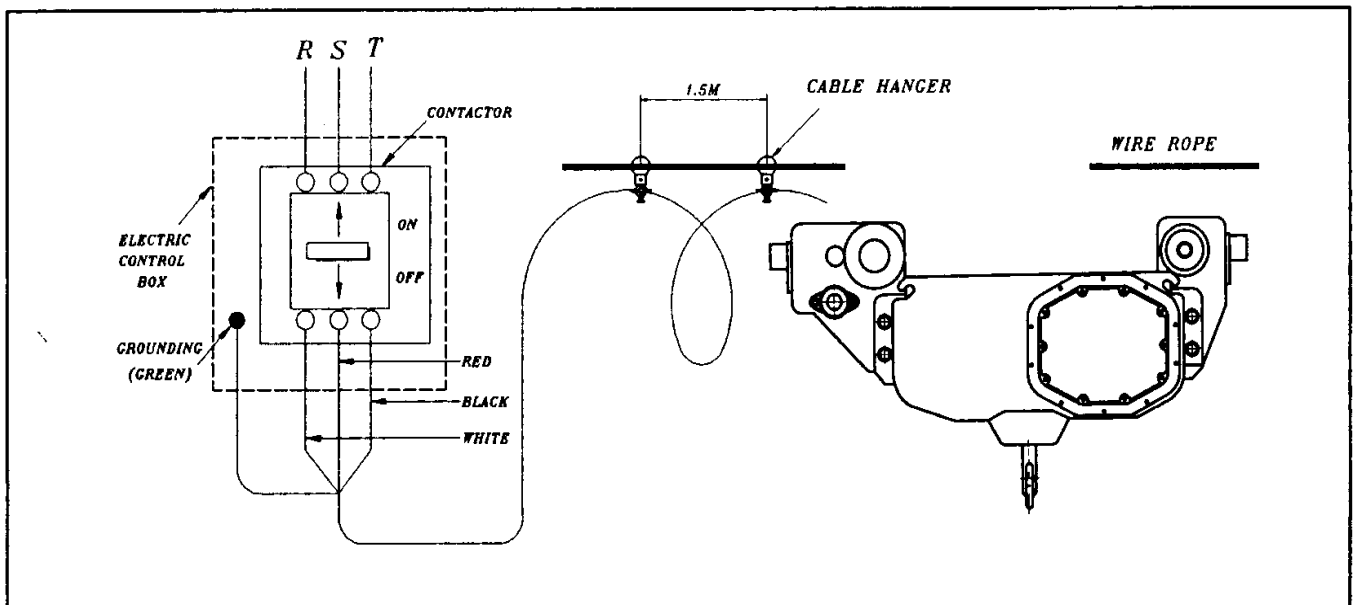
*Connection to power supply before installation procedures having been completed is strictly prohibited.*

- (1) Prior to installation , the crab hoist should check dimension “C” & “K” confirm to the rails span over the girder and rail specification, if hoist is suspended from an electric trolley, please check trolley’s span is confirm to beam’s width . (Please refer to Illust. 6)




Illust. 6


- (2) Connect power supply to hoist and operate the push button switch. This operation must be carried out by a trained person. If hoist won't run after power connection, might due to phase error relay in function, just change any two of power cable connection in switch box then will run normally.





illust. 7

### (3) Operation Test

(A) Firmly push  switch button to lower bottom hook until the wire rope still have at least 3 round over the drum.

(B) Firmly push  switch button to check the winding of wire rope to drum evenly spread over the groove.

(C) Check the emergency stop device function (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.

## 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 gearbox lubricant after first 500 hours of operation, thereafter every 3 months and lubricant accordingly.

**Note: We recommend using lubricant oil equivalent to ISO VG460 as table of following annual inspection.**

- (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) The condition of wire rope and winding evenly over the drum.
  - (h) Wire rope out of the bottom block's wheel groove or not.

(2) Monthly inspection



# WARNING

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

(a) Wire rope:

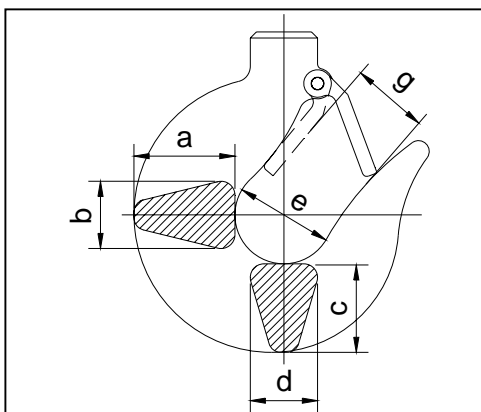
- a-1: Any single strain of wire breaking. Breaking of strains more than 10% should replace new wire rope.
- a-2: Any distorted, deform, itching and rusty of wire rope.
- a-3: Wire rope fixing fasteners being deforming of loosing.



Rope Dia. (m/m)d	Model Being Used	Construction	Specified Breaking Load(lbs)
φ 6	TUAH(D)-100	19×7 (195kg/mm <sup>2</sup> )	5474
φ 8	SUBH(D)-200 TUBH(D)-200		8448
φ 10	SUCH(D)-300 TUCH(D)-300 SUDH(D)-500 TUDH(D)-500		15580
φ 12	SUEAH(D)-750 TUEAH(D)-750		22436
φ 14	SUFAH(D)-1000 TUFAH(D)-1000 SUFAI(D)-1500 TUFAI(D)-1500		27900

(b) Load hook:

Check hook with care. If hook shows crack deformation or wear in excess of 10% of its original size, it should be replaced (Ref. following table)



Capacity (T)	a	b	c	d	e	g	Allowable Stress(lb)
1	39	26	39	26	39	27	7000
2	45	31	41	31	45	36	7000
3	57	38	52	38	60	43	7000
5	75	48	68	48	75	56	7000
7.5	85	62	77	62	85	62	7000
10	100	67	95	62	100	65	7000
15	120	87	110	85	120	82	7000



(c) Limit Switches



## WARNING

*A qualified electrician should perform this inspection.*

Check correct operation of the limit switches to prevent the drum from over winding.

(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.

Oil volume of gearbox

Ton	1	2	3	5	7.5	10-15	20	25-40
Gear Box NO.	UA	UB	UC	UD	UEA	UFA	UG	UG
U.S. gal	1.98	1.98	2.64	2.64	6.6	6.6	8.98	8.98
Liter	7.5	7.5	10	10	25	25	34	34

Gear Oil No : COSMO # W460

NOTE: 1 ( U.S. gal ) = 3.78537 Liter

Recommended oils according to DIN 51354

ISO-VGDIN 51519 viscosity At 40°C mm <sup>2</sup> /s(cST)	Approximate viscosity of the VG Categories 50°C mm <sup>2</sup> /s(cST)	ARAL	BP	ESSO	MOBIL OIL
VG460	251	Aral Degol BG 460-BMB 460	BP Energol GR-XP 460	Spartan EP-460	Mobilgear 634

ISO-VGDIN 51519 Viscosity At 40°C mm <sup>2</sup> /s(cST)	Approximate viscosity of the VG Categories 50°C mm <sup>2</sup> /s(cST)	SHELL	TEXACO	I.P.	AGIP
VG460	251	Omala oil 460	Meropa 460	Mellana 460	Blasia 460

(c) Check brake lining and ratchet pawl for emergency braking 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.

# 7. TROUBLESHOOTING

## 7.1 Wiring Diagrams

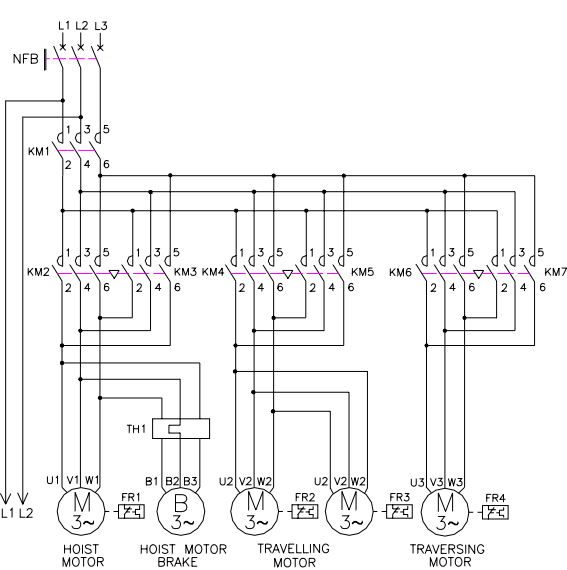
- (1) Single Speed Wiring Diagram.....18
- (2) Dual Speed Wiring Diagram (Hoisting) .....19
- (3) Dual Speed Wiring Diagram (Hoisting with timer) .....20
- (4) Dual Speed Wiring Diagram (Hoisting, Traversing) .....21
- (5) Dual Speed Wiring Diagram (Hoisting with timer Traversing) .....22

### 7.1.1 The above models are available in the following specification:

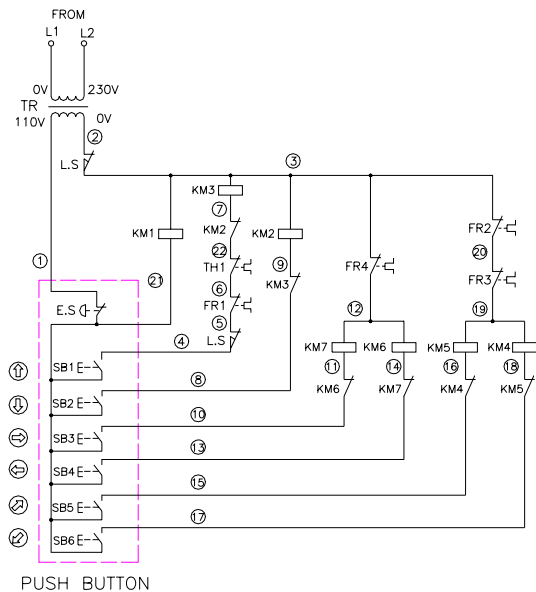
- (a) 3-Phase
- (b) 50 or 60 Hertz
- (c) Single voltage

Hertz \ Voltage	Single Voltage
50 Hz	220
60 Hz	to 600

## SINGLE SPEED WITH EMERGENCY STOP



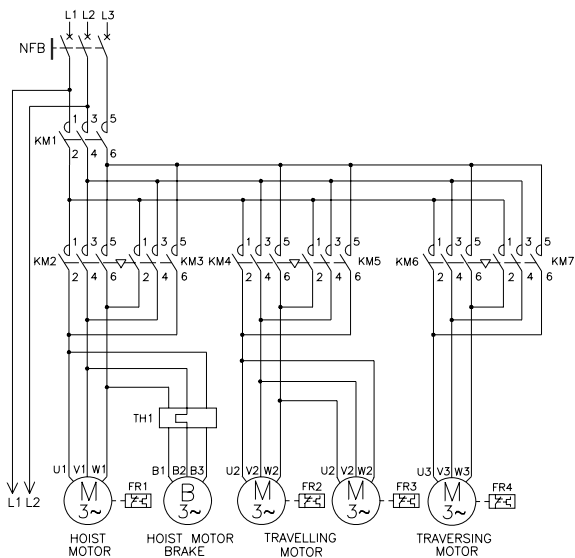
MAIN CIRCUIT WIRING DIAGRAM



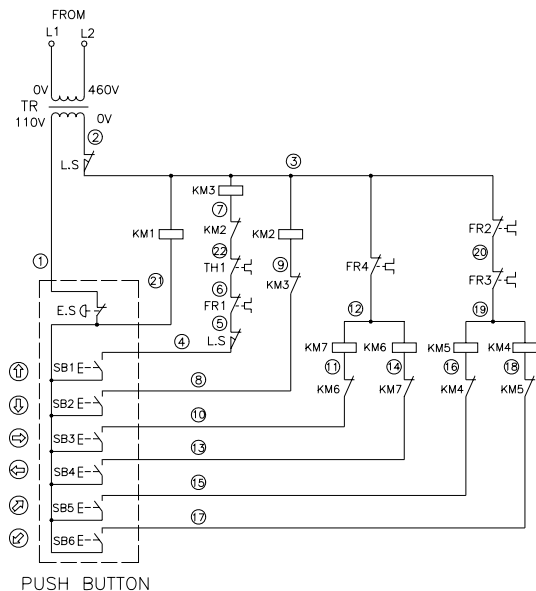
CONTROL CIRCUIT WIRING DIAGRAM

230V-110V  
US-01-0001E

## SINGLE SPEED WITH EMERGENCY STOP



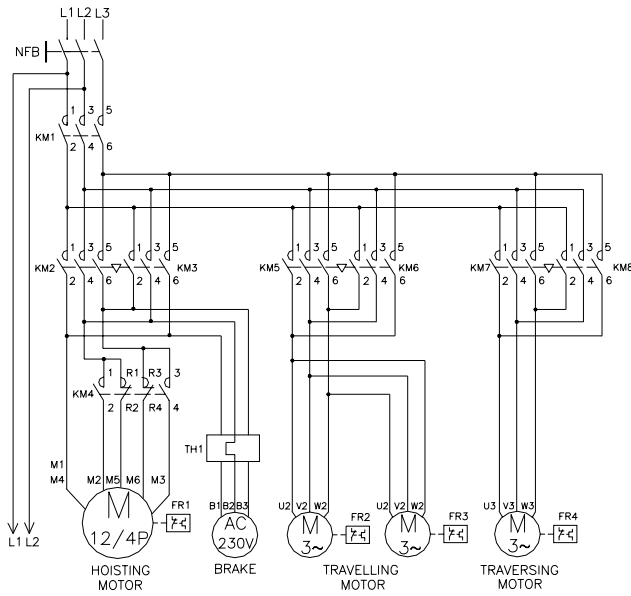
MAIN CIRCUIT WIRING DIAGRAM



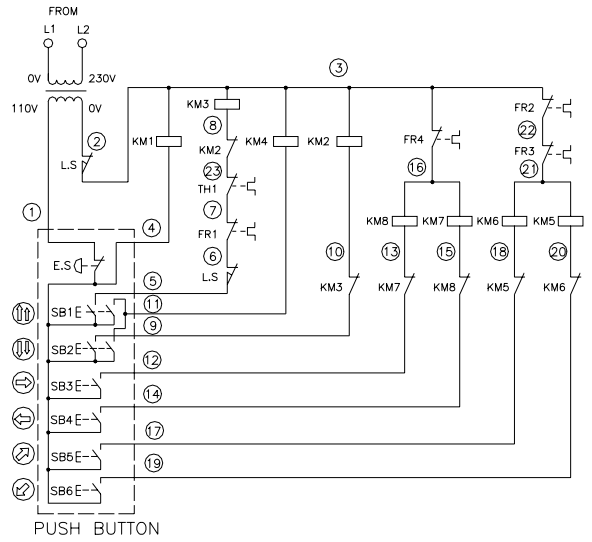
CONTROL CIRCUIT WIRING DIAGRAM

460V-110V  
US-01-0001A

## DUAL SPEED WITH EMERGENCY STOP(HOISTING)



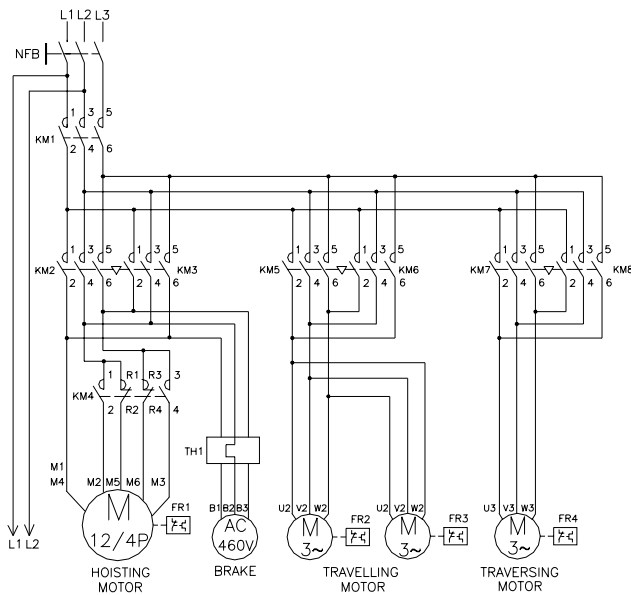
MAIN CIRCUIT WIRING DIAGRAM



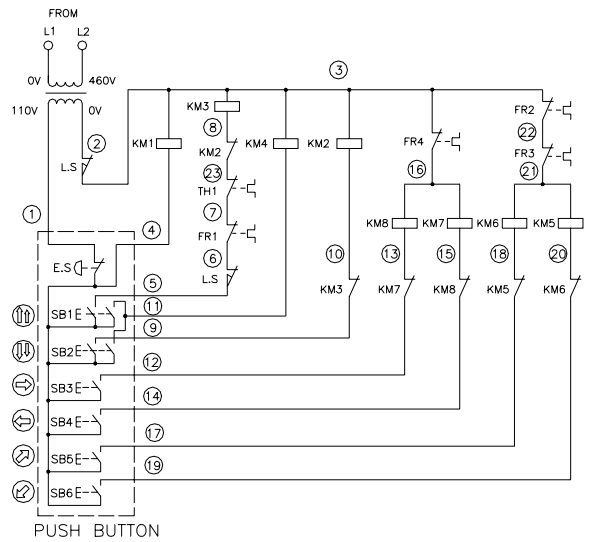
CONTROL CIRCUIT WIRING DIAGRAM

230V-110V  
US-01-0004E

## DUAL SPEED WITH EMERGENCY STOP(HOISTING)



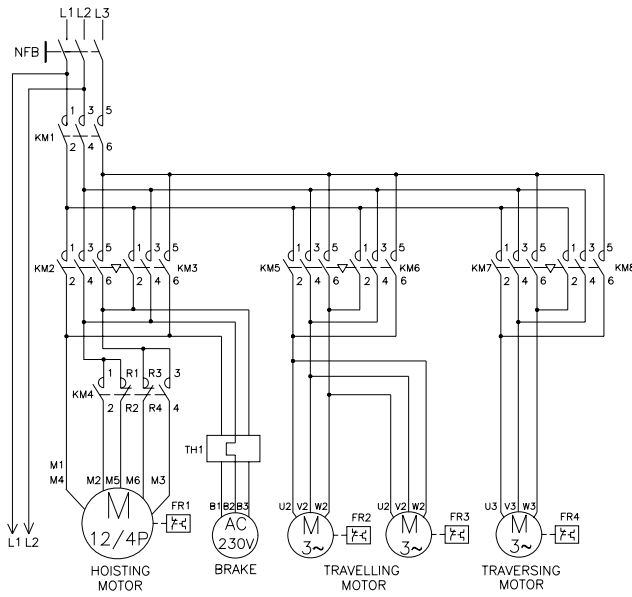
MAIN CIRCUIT WIRING DIAGRAM



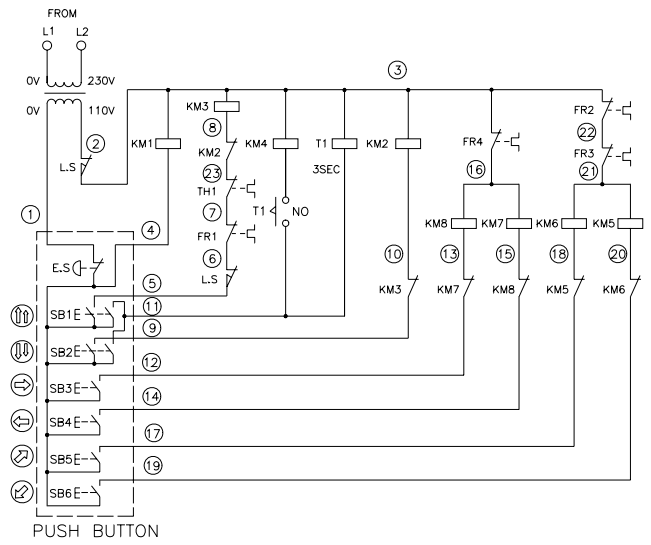
CONTROL CIRCUIT WIRING DIAGRAM

460V-110V  
US-01-0004D

## DUAL SPEED WITH EMERGENCY STOP(HOISTING WITH TIMER)



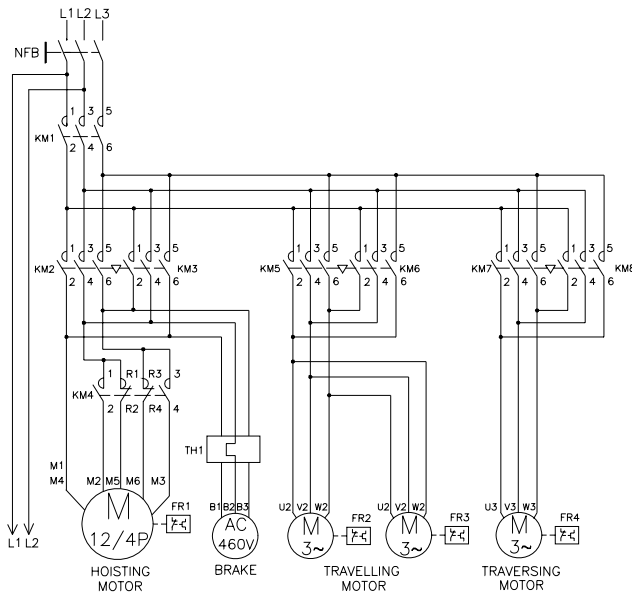
MAIN CIRCUIT WIRING DIAGRAM



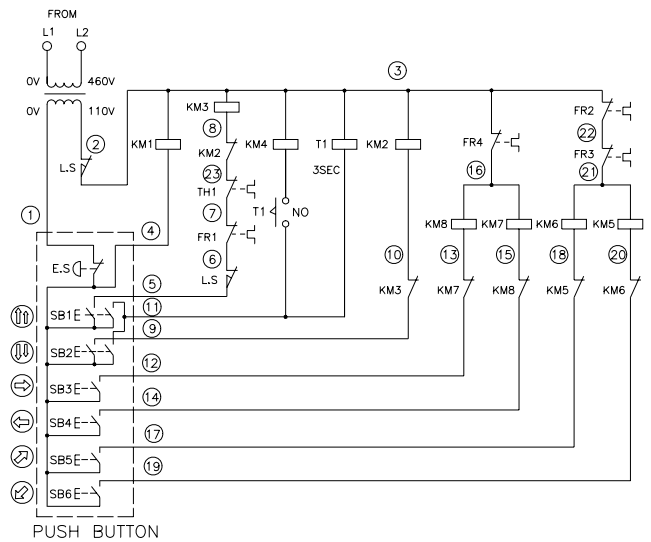
CONTROL CIRCUIT WIRING DIAGRAM

230V-110V  
US-01-0041A

## DUAL SPEED WITH EMERGENCY STOP(HOISTING WITH TIMER)



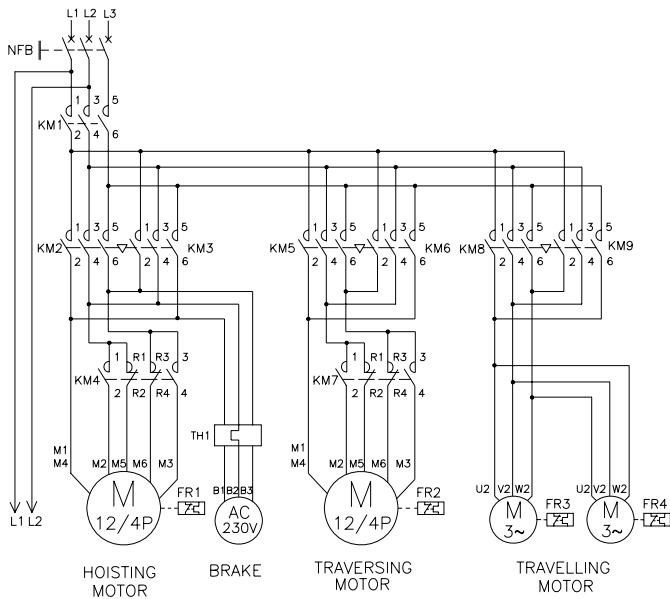
MAIN CIRCUIT WIRING DIAGRAM



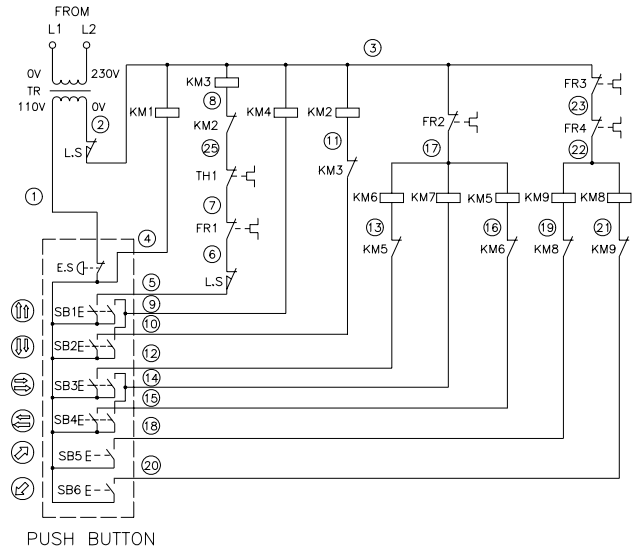
CONTROL CIRCUIT WIRING DIAGRAM

460V-110V  
US-01-0041

## DUAL SPEED WITH EMERGENCY STOP(HOISTING AND TRAVERSING)



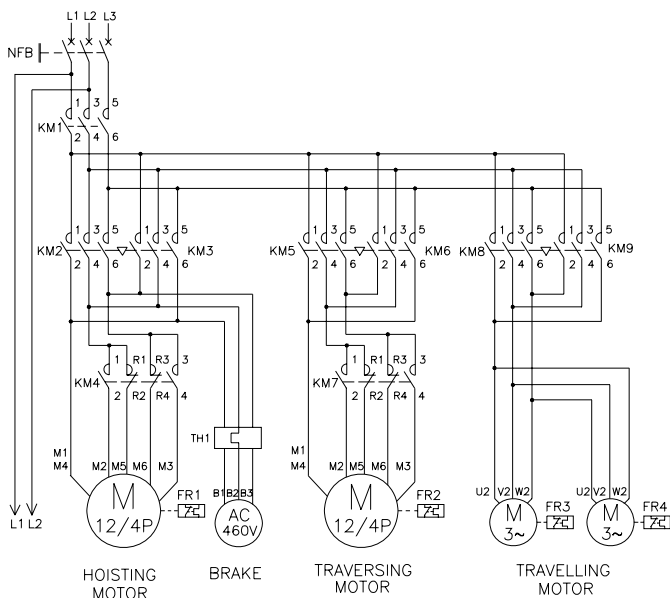
MAIN CIRCUIT WIRING DIAGRAM



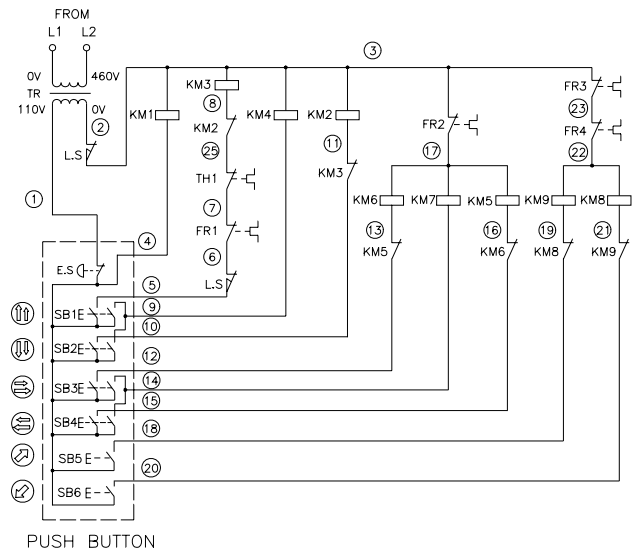
CONTROL CIRCUIT WIRING DIAGRAM

230V-110V  
US-01-0010A

## DUAL SPEED WITH EMERGENCY STOP(HOISTING AND TRAVERSING)



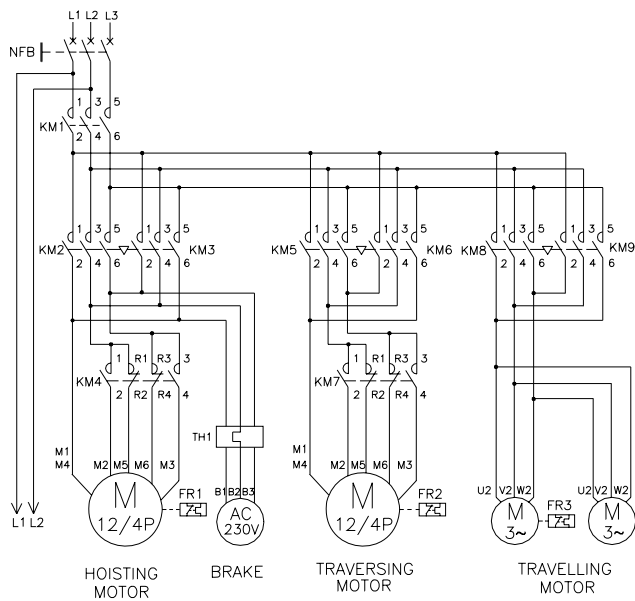
MAIN CIRCUIT WIRING DIAGRAM



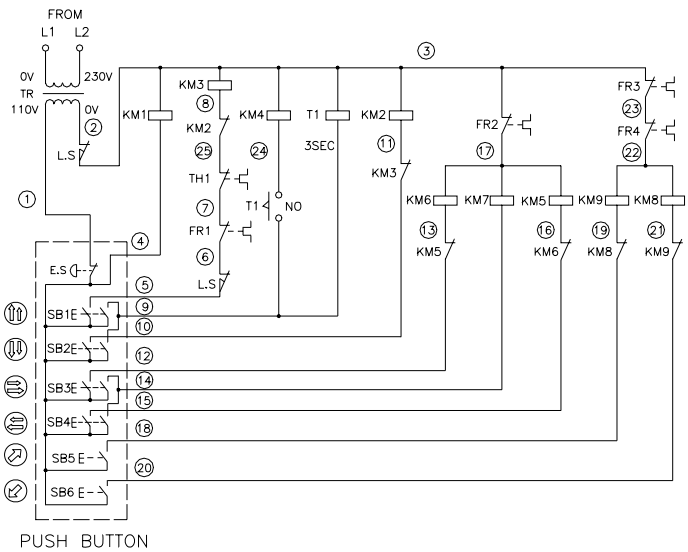
CONTROL CIRCUIT WIRING DIAGRAM

460V-110V  
US-01-0010

## DUAL SPEED WITH EMERGENCY STOP(HOISTING WITH TIMER AND TRAVERSING)



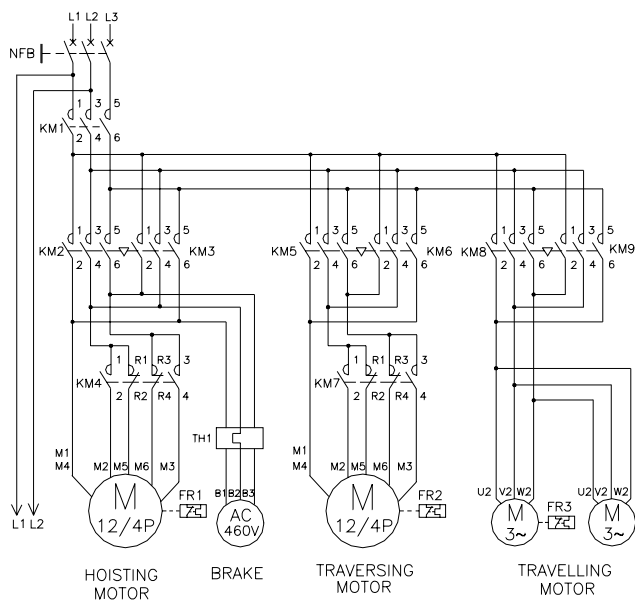
MAIN CIRCUIT WIRING DIAGRAM



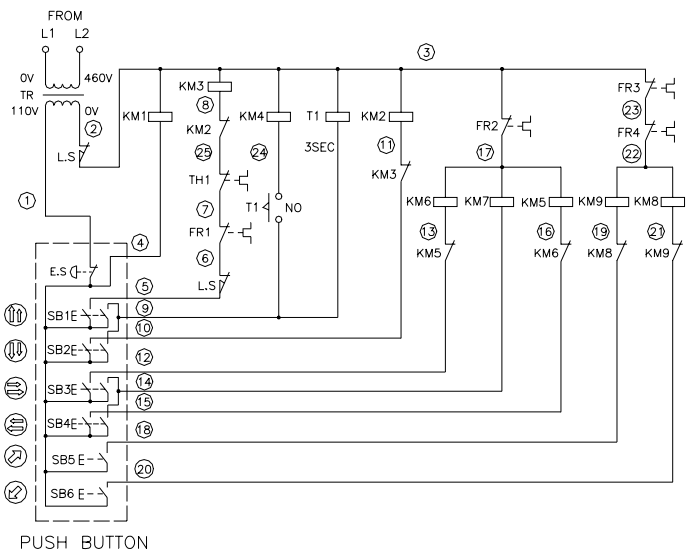
CONTROL CIRCUIT WIRING DIAGRAM

230V-110V  
US-01-0009A

## DUAL SPEED WITH EMERGENCY STOP(HOISTING WITH TIMER AND TRAVERSING)



MAIN CIRCUIT WIRING DIAGRAM



CONTROL CIRCUIT WIRING DIAGRAM

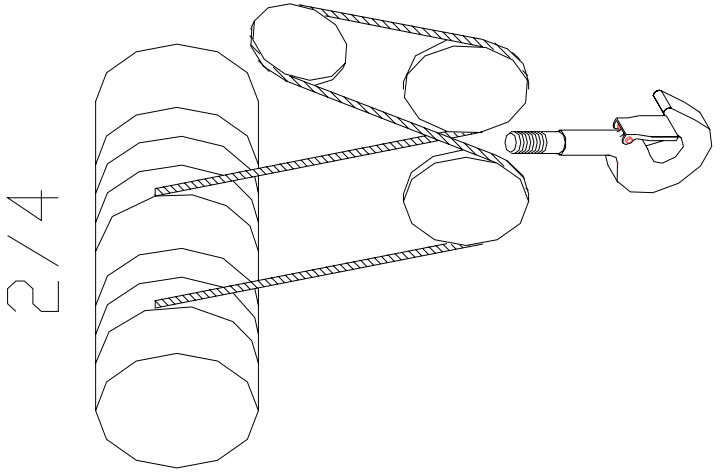
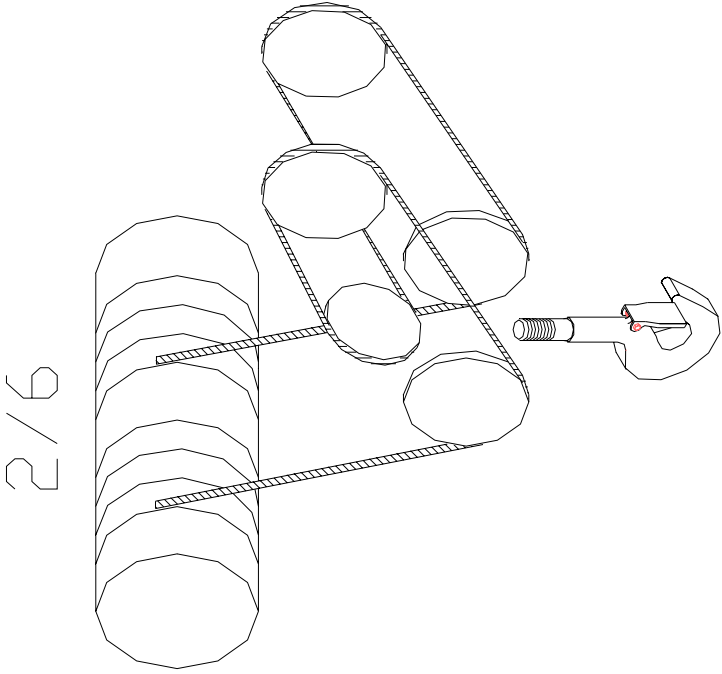
460V-110V  
US-01-0009

## 7.2 Troubleshooting and Remedial action

SITUATION	CAUSE	REMEDY
Hoist will not operate	(1) Blown power fuse or tripped power circuit breaker (2) Blown control circuit fuse (3) Broken/disconnected power or control circuit wire (4) Low supply voltage (5) Motor hums but does not rotate (6) Emergency stop button release pushed (if fitted) (7) Faulty contactor	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 the hoist operation.	(1) Wire rope dry (2) Twisting & bending of wire rope due to frequently side pull. (3) Worn or deteriorated oil packing	Lubricate Replace new wire rope. Replace new wire rope.
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

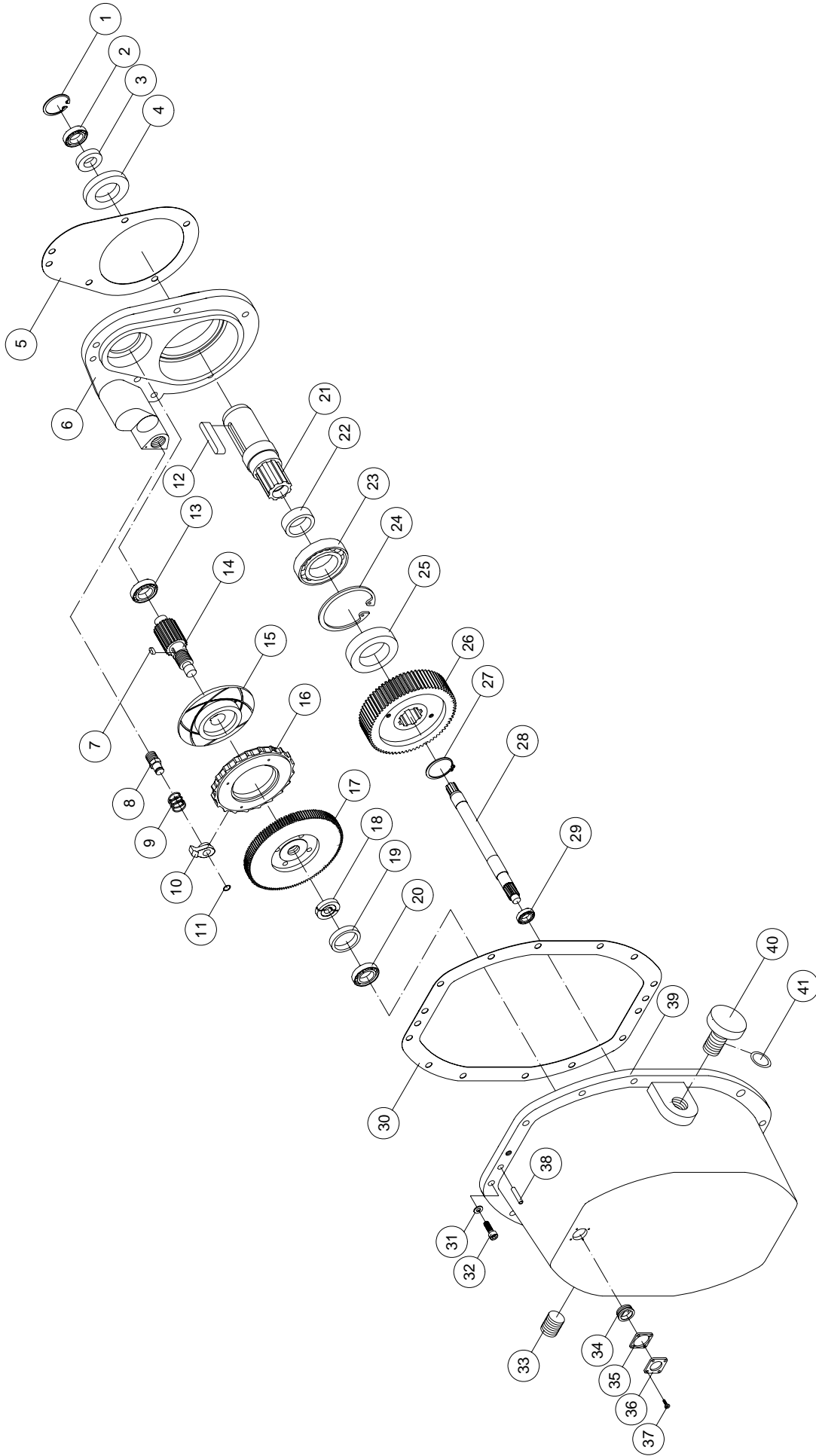


# 8. Wire rope reeving



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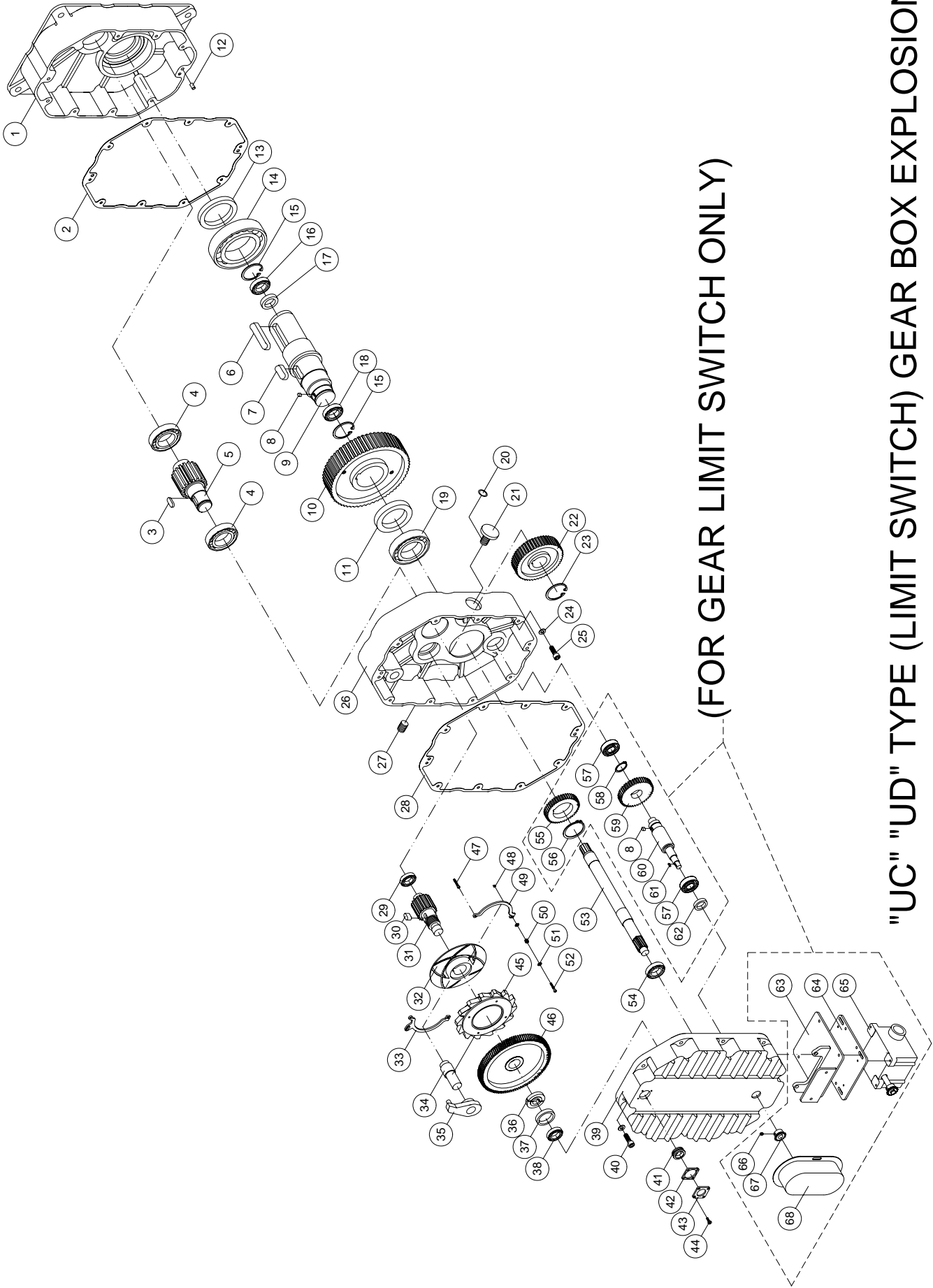
"UA" "UB" TYPE GEAR BOX EXPLOSION

## GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 1T (2200lbs)	Q'TY 2T (4400lbs)
01	400198	Retaining Ring <R-47>	1	1
02	405563	Bearing <6005 2RS>	1	1
03	400183	Oil Seal <ø25×ø40×8t>	1	1
04	400935	Oil Seal <ø65×ø90×13t>	1	1
05	402509	Gasket <t0.8×176×253.5L>	1	1
06	269452	Flange Frame	1	1
07	400963	Key <t6×6×15L>	1	1
08	200286	Pawl Pin	1	1
09	400241	Pawl Spring	1	1
10	200288	Pawl	1	1
11	400190	Retaining Ring <S-16>	1	1
12	400993	Key <t18×12×80L>	1	1
13	407748	Bearing <6305>	1	1
14	268101	Load Brake Gear Shaft <M2.0×20T>	1	
	268102	Load Brake Gear Shaft <M2.5×14T>		1
15	268901	Friction Plate	1	1
16	269101	Ratchet Lining Ass'y	1	1
17	268002	Intermediate Gear <M1.5×126T>	1	1
18	269301	End Spacer	2	2
19	269251	Intermediate Gear Spacer	1	1
20	407746	Bearing <6304>	1	1
21	268801	Drum Shaft	1	1
22	400170	Needle Bearing <NK25/16>	1	1
23	400826	Bearing <6212 Z>	1	1
24	400916	Retaining Ring <R-110>	1	1

## GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 1T (2200lbs)	Q'TY 2T (4400lbs)
25	268501	Sleeve <ø70×ø50×15L>	1	1
26	268201	Load Brake Gear <M2.0×87T>	1	
	268202	Load Brake Gear <M2.5×72T>		1
27	400197	Retaining Ring <S-50>	1	1
28	267902	Motor Shaft Pinion <M1.5×11T>	1	1
29	407732	Bearing <6203>	1	1
30	402550	Gasket(A) <t0.8×279×389L>	1	1
31	400095	Spring Washer <M8>	12	12
32	400017	Hex. Recess Bolt <M8×1.25×35L>	12	12
33	400591	Drain Plug <3/8"PT>	1	1
34	211385	Sight Glass <ø30>	1	1
35	263381	Sight Glass Frame A <t3.5×38×38L>	1	1
36	263382	Sight Glass Frame B<t2×38×38L>	1	1
37	400052	Cross Headed Screw<M4×0.7×15L>	4	4
38	400224	Pin <ø8×10L>	3	3
39	267602	Gear Case Cover <FC-25>	1	1
40	206856	Lubricant Filling Plug< 7/8"-14UNF>	1	1
41	404341	O Ring <ø20×ø26×3>	1	1



(FOR GEAR LIMIT SWITCH ONLY)

"UC" "UD" TYPE (LIMIT SWITCH) GEAR BOX EXPLOSION

## GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 3T (6600lbs)		Q'TY 5T (11000lbs)	
			STD	GEAR	STD	GEAR
01	269451	Gear Case Base	1	1	1	1
02	402551	Gasket (A) <t0.8×320×450L>	1	1	1	1
03	405908	Key <t12×8×30L>	1	1	1	1
04	407714	Bearing <6209>	2	2	2	2
05	268303	Drum Pinion Gear <M3.5×18T>	1	1		
	268304	Drum Pinion Gear <M3.5×17T>			1	1
06	405906	Key <t20×12×90L>	1	1	1	1
07	405907	Key <t20×12×45L>	1	1	1	1
08	400961	Key <t6×6×10L>		2		2
09	268802	Transmission Shaft	1		1	
	268812			1		1
10	268403	Drum Gear <M3.5×62T>	1	1		
	268404	Drum Gear <M3.5×63T>			1	1
11	268502	Sleeve <ø82×ø70×9L>	1	1	1	1
12	407454	Pin <ø8×15L>	4	4	4	4
13	400933	Oil Seal <ø80×ø105×12t>	1	1	1	1
14	400790	Bearing <6216 Z>	1	1	1	1
15	400906	Retaining Ring <R-55>	2	2	2	2
16	405562	Bearing <6006 2RS>	1	1	1	1
17	400939	Oil Seal <ø30×ø45×8t>	1	1	1	1
18	407725	Bearing <6006>	1		1	
	400838	Needle Bearing <30/20>		1		1
19	407731	Bearing <6014>	1	1	1	1
20	404341	O Ring <ø20×ø26×3>	1	1	1	1
21	206856	Lubricant Filling Plug	1	1	1	1
22	268203	Load Brake Gear <M2.5×51T>	1	1		
	268204	Load Brake Gear <M2.5×52T>			1	1

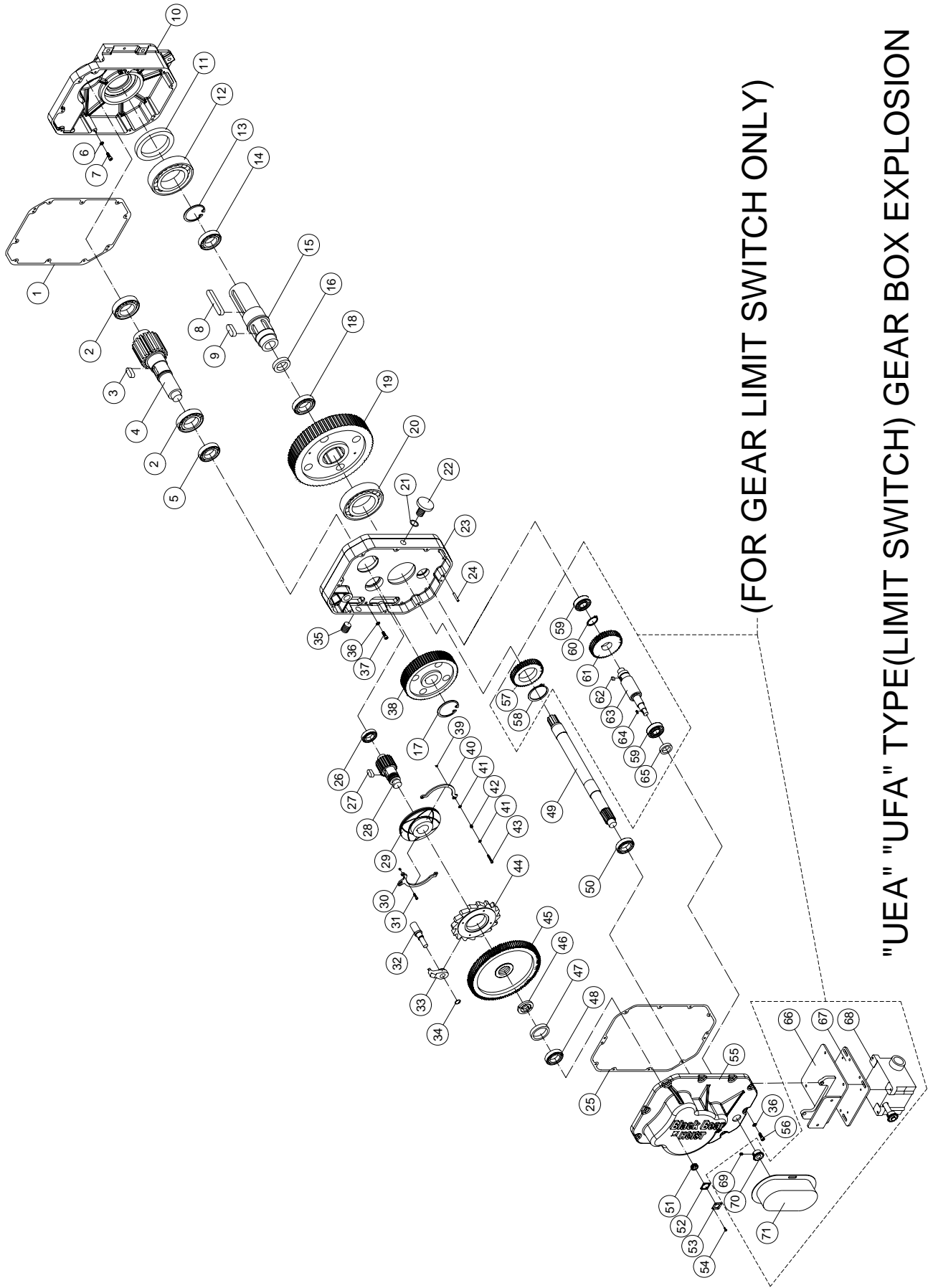
## GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 3T (6600lbs)		Q'TY 5T (11000lbs)	
			STD	GEAR	STD	GEAR
23	400195	Retaining Ring <S-40>	1	1	1	1
24	400095	Spring Washer <M8>	20	20	20	20
25	400015	Hex. Recess Bolt <M8×1.25×40L>	10	10	10	10
26	267603	Gear Case B	1	1	1	1
27	400591	Drain Plug <3/8"PT>	1	1	1	1
28	402552	Gasket (B) <t0.8×328×458L>	1	1	1	1
29	407748	Bearing <6305>	1	1	1	1
30	405921	Key <t8×8×16L>	1	1	1	1
31	268103	Load Brake Gear Shaft <M2.5×18T>	1	1		
	268104	Load Brake Gear Shaft <M2.5×17T>			1	1
32	268902	Friction Plate	1	1	1	1
33	268982	Pawl Actuator(L)	1	1	1	1
34	269352	Pawl Pin <ø30×81L>	1	1	1	1
35	269402	Pawl	1	1	1	1
36	269302	Intermediate Gear Spacer	2	2	2	2
37	269252	End Spacer<ø50×ø60×9.5L>	1	1	1	1
38	407736	Bearing <6205>	1	1	1	1
39	269002	Gear Case Cover	1		1	
	269012			1		1
40	400014	Hex. Recess Bolt <M8×1.25×30L>	10	10	10	10
41	400592	Sight Glass <M30×1.5>	1	1	1	1
42	263381	Sight Glass Frame A <t3.5×38×38L>	1	1	1	1
43	263382	Sight Glass Frame B <t2×38×38L>	1	1	1	1
44	400052	Cross Headed Screw <M4×0.7×15L>	4		4	
45	269102	Ratchet Lining Ass'y	1	1	1	1
46	268003	Intermediate Gear <M1.75×108T>	1	1	1	1
47	400009	Hexagon Headed Bolt <M6×1.0×35L>	1	1	1	1



## GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 3T (6600lbs)		Q'TY 5T (11000lbs)	
			STD	GEAR	STD	GEAR
48	400087	Lock Nut <M6×1.0>	2	2	2	2
49	268992	Pawl Actuator Ring(R)	1	1	1	1
50	400340	Compress Spring	1	1	1	1
51	400662	Flat Washer	2	2	2	2
52	400010	Hex. Recess Bolt <M6×1.0×55L>	1	1	1	1
53	267903	Motor Shaft Pinion <M1.75×12T>	1	1	1	1
54	407734	Bearing <6204>	1	1	1	1
55	274701	Motor Shaft Pinion <M2.0×45T>		1		1
56	400909	Retaining Ring <S-55>		1		1
57	407734	Bearing <6204>		2		2
58	400193	Retaining Ring <S-30>		1		1
59	274801	Connecting Rod Gear <M2.0×45T>		1		1
60	274901	Connecting Rod <ø35×171>		1		1
61	405900	Key <t3×3×10L>		2		2
62	400186	Oil Seal <ø20×ø35×8t>		1		1
63	274951	Limit Pedestal Ass' y		1		1
64	267956	Limit Pedestal <t5×190×114L>		1		1
65		Limit Switch<Customer Supply>		1		1
66	400205	Screw <M5×0.8×8L>		2		2
67	273621	Chain Wheel <1/4"×15.7L>		2		2
68	271951	Limit Frame <t2×45×205L>		1		1
	408421	Chain Connection <1/4">		1		1
	400561	Chain <1/4"×300L>		0.3M		0.3M



(FOR GEAR LIMIT SWITCH ONLY)

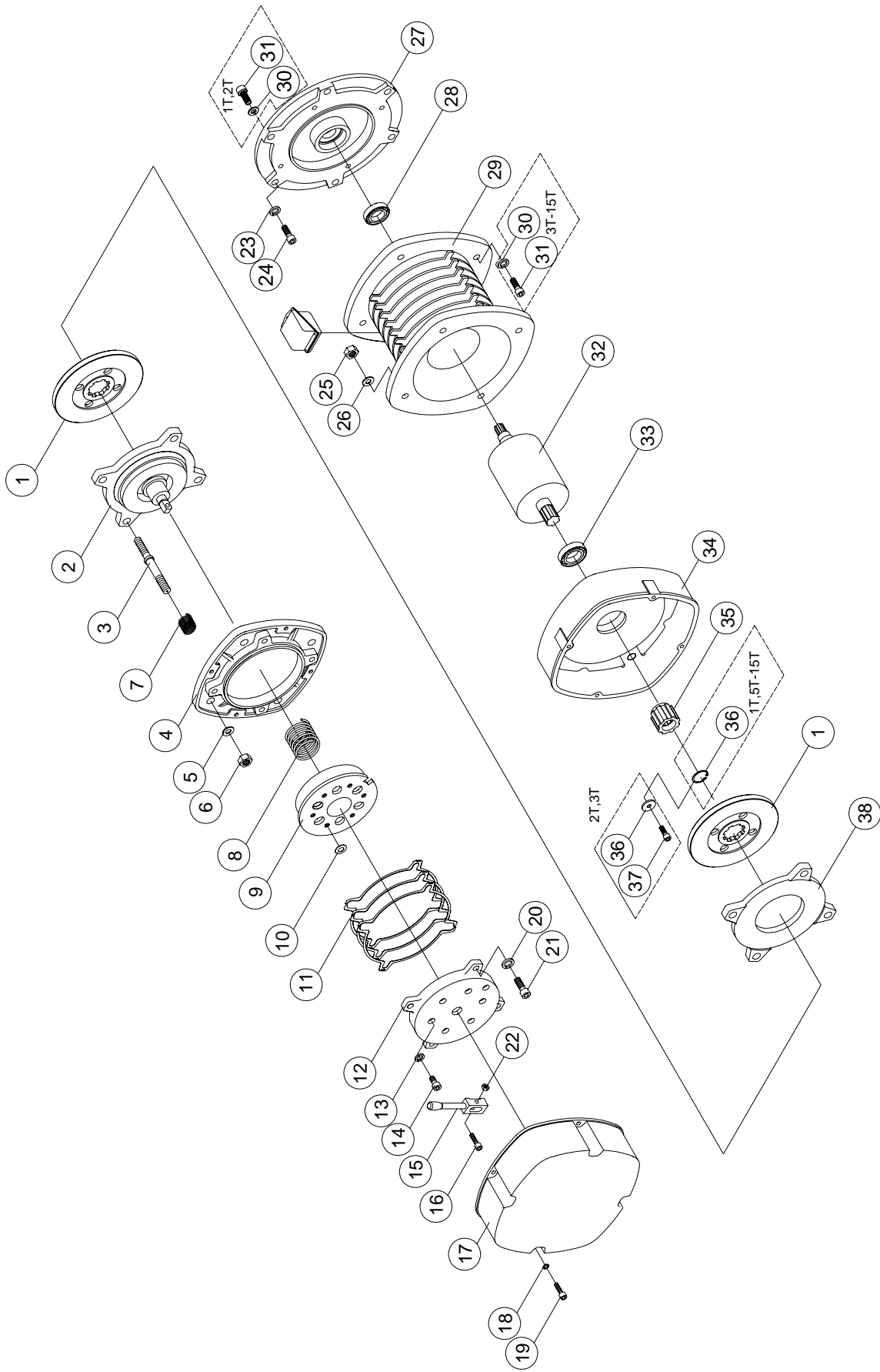
"UEA" "UFA" TYPE(LIMIT SWITCH) GEAR BOX EXPLOSION

## GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500lbs)		QTY 10T (22000lbs)		QTY 15T (33000lbs)	
			STD	GEAR	STD	GEAR	STD	GEAR
01	402601	Gasket(A) <t0.8×430×587L>	1	1	1	1	1	1
02	407741	Bearing <6213>	2	2	2	2	2	2
03	405911	Key <t18×11×50L>	1	1	1	1	1	1
04	268016	Drum Pinion Gear <M4.5×19T>	1	1				
	268023	Drum Pinion Gear <M5×17T>			1	1	1	1
05	407714	Bearing <6209>	1	1	1	1	1	1
06	400651	Spring Washer <M14>	7	7	7	7	7	7
07	400442	Hex. Recess Bolt <M14×2.0×50L>	7	7	7	7	7	7
08	400966	Key <t25×14×150L>	1	1	1	1	1	1
09	405909	Key <t25×14×65L>	4	4	4	4	4	4
10	267613	Gear Case Base	1	1	1	1	1	1
11	400929	Oil Seal <ø100×ø125×13t>	1	1	1	1	1	1
12	400792	Bearing <6220Z>	1	1	1	1	1	1
13	400200	Retaining Ring <R-62>	2	2	2	2	2	2
14	405564	Bearing <6007 2RS>	1	1	1	1	1	1
15	268018	Drum Shaft	1	1	1	1	1	1
16	400177	Oil Seal <ø35×ø55×11t>	1	1	1	1	1	1
17	400910	Retaining Ring <S-70>	1	1	1	1	1	1
18	407727	Bearing <6007>	1	1	1	1	1	1
19	268405	Drum Gear <M5.5×71T>	1	1				
	268024	Drum Gear <M5×74T>			1	1	1	1
20	407744	Bearing <6218>	1	1	1	1	1	1
21	404341	Oil Ring <ø20×ø26×3>	1	1	1	1	1	1
22	206856	Lubricant Filling Plug	1	1	1	1	1	1
23	267614	Gear Case B	1	1	1	1	1	1
24	205327	Pin <ø12×ø8.5×14L>	4	4	4	4	4	4
25	402602	Gasket (B) <t0.8×430×587L>	1	1	1	1	1	1
26	407750	Bearing <6308>	1	1	1	1	1	1
27	400996	Key <t16×10×30L>	1	1	1	1	1	1
28	268014	Load Brake Gear Shaft <M3×21T>	1	1				
	268021	Load Brake Gear Shaft <M3.25×19T>			1	1	1	1
29	268903	Friction Plate	1	1	1	1	1	1
30	268981	Pawl Actuator (L)	1	1	1	1	1	1
31	400009	Hexagon Headed Bolt<M6×1.0×35L>	1	1	1	1	1	1
32	269351	Pawl Pin <ø35×140.5L>	1	1	1	1	1	1
33	269401	Pawl	1	1	1	1	1	1
34	400192	Retaining Ring <S-25>	1	1	1	1	1	1
35	407203	Drain Plug <PT 3/4”>	1	1	1	1	1	1
36	400097	Spring Washer <M10>	20	20	20	20	20	20
37	400432	Hex. Recess Bolt <M10×1.5×65L>	10	10	10	10	10	10

## GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500lbs)		QTY 10T (22000lbs)		QTY 15T (33000lbs)	
			STD	GEAR	STD	GEAR	STD	GEAR
38	268015	Load Brake Gear <M3×87T>	1	1				
	268022	Load Brake Gear <M3.25×80T>			1	1	1	1
39	400087	Lock Nut <M6×1.0>	2	2	2	2	2	2
40	268991	Pawl Actuator(R)	1	1	1	1	1	1
41	400662	Flat Washer<M6>	2	2	2	2	2	2
42	400340	Compress Spring<ø1.0-ø10.5×ø8.5×25L>	1	1	1	1	1	1
43	400010	Hex. Recess Bolt <M6×1.0×55L>	1	1	1	1	1	1
44	269103	Ratchet Lining Ass'y	1	1	1	1	1	1
45	268020	Intermediate Gear <M2.25×107T>	1	1	1	1	1	1
46	269303	Intermediate Gear Spacer	2	2	2	2	2	2
47	269253	End Spacer<ø75×ø90×9.5L>	1	1	1	1	1	1
48	407759	Bearing <6208>	1	1	1	1	1	1
49	268012	Motor Shaft Pinion	1	1				
	268019				1	1	1	1
50	407748	Bearing <6305>	1	1	1	1	1	1
51	400592	Sight Glass <M30×1.5>	1	1	1	1	1	1
52	263381	Sight Glass Frame A <t3.5×38×38L>	1	1	1	1	1	1
53	263382	Sight Glass Frame B <t2×38×38L>	1	1	1	1	1	1
54	400052	Cross Headed Screw <M4×0.7×15L>	4	4	4	4	4	4
55	267615	Gear Case Cover	1	1	1	1	1	1
56	400450	Hex. Recess Bolt <M10×1.5×35L>	10	10	10	10	10	10
57	274702	Motor Shaft Pinion <M2.0×60T>		1		1		1
58	400919	Retaining Ring <S-60>		1		1		1
59	407748	Bearing <6305>		2		2		2
60	400910	Retaining Ring <S-35>		1		1		1
61	274802	Connecting Rod Gear <M2.0×60T>		1		1		1
62	400963	Key <t6×6×15L>		1		1		1
63	267955	Connecting Rod <ø35×115L>		1		1		1
64	405900	Key <t3×3×10L>		1		1		1
65	400183	Oil Seal <ø25×ø40×8t>		1		1		1
66	267958	Limit Pedestal Ass'y		1		1		1
67	267956	Limit Pedestal <t5×190×114L>		1		1		1
68		Limit Switch<Customer Supply>		1		1		1
69	400205	Screw <M5×0.8×8L>		2		2		2
70	273621	Chain Wheel <1/4"×15.7L>		1		1		1
71	267965	Limit Frame <t2×49×182L>		1		1		1
	408421	Chain Connection <1/4">		1		1		1
	400561	Chain <1/4"×300L>		0.4		0.4		0.4



# 1-15T SINGLE SPEED MOTOR EXPLOSION

# MOTOR ASSEMBLY B.O.M.

For 1~15T Single Speed

S: Single speed

NO.	PART NUMBER	DESCRIPTION	Q'TY						
			1T 2200lbs 3HP	2T 4400lbs 5HP	3T 6600lbs 7HP	5T 11000lbs 9HP	7.5T 16500lbs 11HP	10T 22000lbs 15HP	15T 33000lbs 15HP
01	105702	Friction Lining	1	2	2				
	105735					2	2	2	2
02	105991	Spring Guide Plate	1	1	1				
	105992					1	1	1	1
03	207113	Brake Stud	4						
	207114			4					
	207112				4	4	4	4	4
04	105823	Brake Bracket	1	1					
	105824				1	1	1	1	1
05	400098	Spring Washer	4	4	4				
	400100					4	4	4	4
06	400634	Nut <M16x2.0>	4	4	4				
	400083	Nut <M18x2.5>				4	4	4	4
07	408551	Auxiliary Spring	4	4	4				
	408552					4	4	4	4
08	400325	Brake Spring	1	1	1				
	400319					1	1	1	1
09	Voltage : 230V/460V								
	105870	AC Solenoid	1	1	1				
105875					1	1	1	1	
10	207115	Disc Spring	6	6	6	6	6	6	6
11	105838	Brake Shim	8	8	8				
	105839					6	6	6	6
12	105826	Solenoid Cover	1	1	1				
	105827					1	1	1	1
13	400096	Spring Washer	6	6	6				
	400097					6	6	6	6
14	400449	Hex. Recess Bolt	6	6	6				
	400435					6	6	6	6
15	207121	Release Bar	1	1	1	1	1	1	1
16	400025	Hex. Recess Bolt	1	1	1	1	1	1	1

# MOTOR ASSEMBLY B.O.M.

For 1~15T Single Speed

S: Single speed

NO.	PART NUMBER	DESCRIPTION	Q'TY						
			1T 2200lbs 3HP	2T 4400lbs 5HP	3T 6600lbs 7HP	5T 11000lbs 9HP	7.5T 16500lbs 11HP	10T 22000lbs 15HP	15T 33000lbs 15HP
17	105617	Brake End Cover	1	1	1				
	105744					1	1	1	1
18	400095	Spring Washer	4	4	4	4	4	4	4
19	400012	Hex. Recess Bolt	4	4	4	4	4	4	4
20	400097	Spring Washer	4	4	4				
	400651					4	4	4	4
21	400451	Hex. Recess Bolt	4	4	4				
	400439					4	4	4	4
22	400088	Lock Nut	1	1	1	1	1	1	1
23	400097	Spring Washer	4	4					
	400651				6	6	6	6	6
24	400451	Hex. Recess Bolt	4	4					
	400441				6	6	6	6	6
25	400637	Nut <M14x2.0>	4	4	4				
	400083	Nut <M18x2.5>				4	4	4	4
26	400651	Spring Washer	4	4	4				
	400100					4	4	4	4
27	105694	Flange	1	1					
	105689				1				
	105623					1			
	105622						1	1	1
28	400113	Bearing <6206>	1	1	1				
	400801	Bearing <6307>				1	1	1	1
29	Voltage : 230V								
	133401(S)	Motor Stator Ass'y	1						
	133402(S)			1					
	133403(S)				1				
	133355(S)					1			
	108177(S)						1		
	108185(S)								1

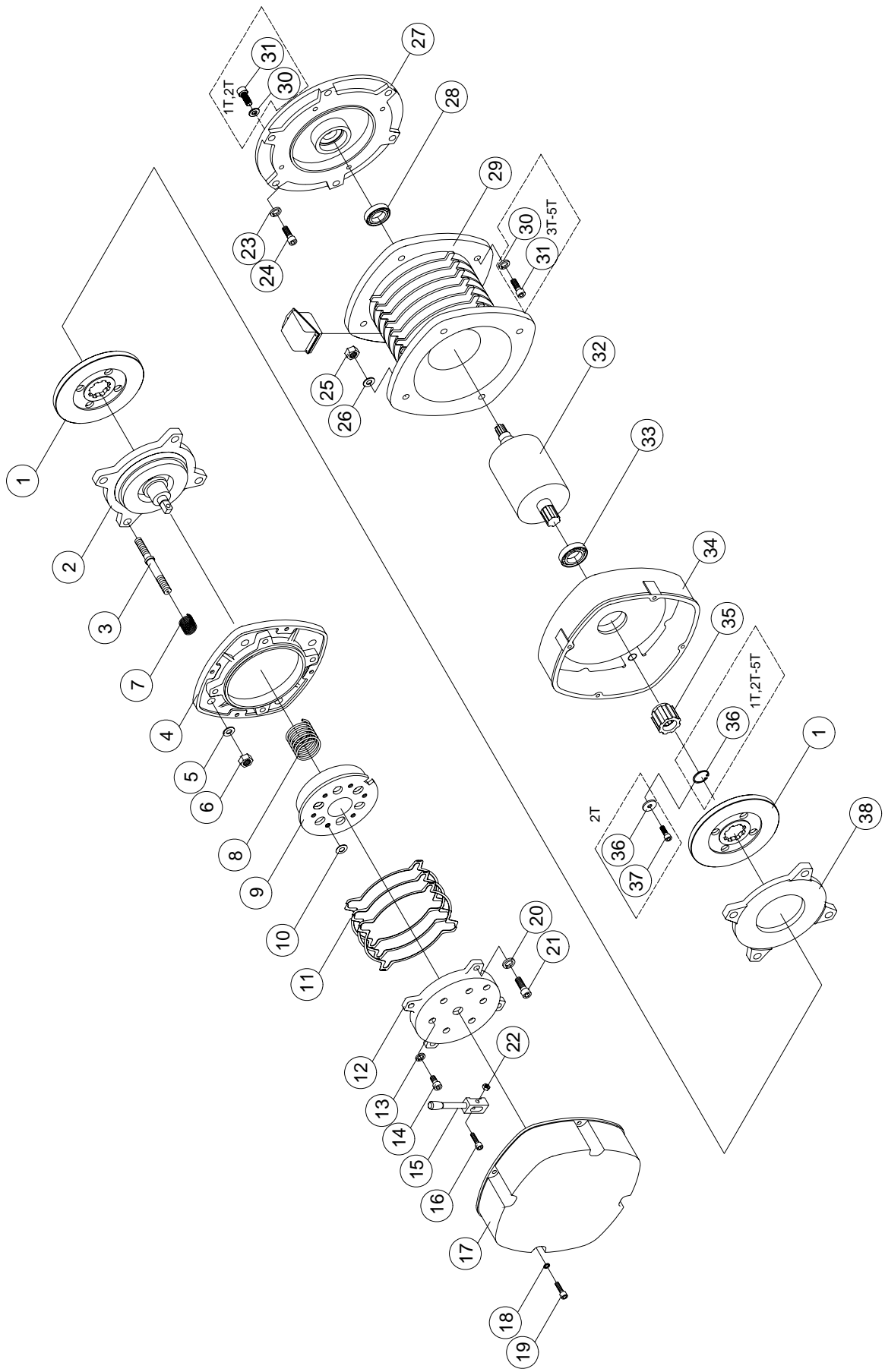
# MOTOR ASSEMBLY B.O.M.

For 1~15T Single Speed

S: Single speed

NO.	PART NUMBER	DESCRIPTION	Q'TY						
			1T 2200lbs 3HP	2T 4400lbs 5HP	3T 6600lbs 7HP	5T 11000lbs 9HP	7.5T 16500lbs 11HP	10T 22000lbs 15HP	15T 33000lbs 15HP
Voltage : 460V									
29	133401(S)	Motor Stator Ass'y	1						
	133402(S)			1					
	133403(S)				1				
	133355(S)					1			
	108177(S)						1		
	108185(S)							1	1
30	400095	Spring Washer	4	4					
	400097				4	4	4	4	4
31	400015	Hex. Recess Bolt	4	4					
	400451				4	4	4	4	4
32	105509(S)	Motor Rotor	1						
	105574(S)			1					
	105911(S)				1				
	105569(S)					1			
	106369(S)						1		
	105912(S)							1	1
33	400151	Bearing <6306>	1	1	1				
	400118	Bearing <6309>				1	1	1	1
34	105690	Brake Housing	1						
	105691			1	1				
	105742					1	1	1	1
35	105693	Disc Hub	1						
	105705			1	1				
	105681	Friction Gasket				1	1	1	1
36	400193	Retaining Ring	1						
	105606	Motor Shaft Plate		1	1				
	400195	Retaining Ring				1	1	1	1
37	400017	Hex. Recess Bolt		1	1				
38	105692	Disc Plate		1	1				
	105741					1	1	1	1





# 1-5T DUAL SPEED MOTOR EXPLOSION

# MOTOR ASSEMBLY B.O.M.

For 1~5T Dual Speed

D: Dual speed

NO.	PART NUMBER	DESCRIPTION	Q'TY			
			1T 2200lbs 3HP	2T 4400lbs 5HP	3T 6600lbs 7HP	5T 11000lbs 9HP
01	105702	Friction Lining	1	2		
	105735				2	2
02	105991	Spring Guide Plate	1	1		
	105992				1	1
03	207113	Brake Stud	4			
	207114			4		
	207112				4	4
04	105823	Brake Bracket	1	1		
	105824				1	1
05	400098	Spring Washer	4	4		
	400100				4	4
06	400634	Nut <M16x2.0>	4	4		
	400083	Nut <M18x2.5>			4	4
07	408551	Auxiliary Spring	4	4		
	408552				4	4
08	400325	Brake Spring	1	1		
	400319				1	1
09	Voltage : 230V					
	105870	AC Solenoid	1	1		
	105875				1	1
	Voltage : 460V					
	105864	AC Solenoid	1	1		
105874				1	1	
10	207115	Disc Spring	6	6	6	6
11	105838	Brake Shim	8	8		
	105839				6	6
12	105826	Solenoid Cover	1	1		
	105827				1	1
13	400096	Spring Washer	6	6		
	400097				6	6
14	400449	Hex. Recess Bolt	6	6		
	400435				6	6
15	207121	Release Bar	1	1	1	1
16	400025	Hex. Recess Bolt	1	1	1	1
17	105617	Brake End Cover	1	1		
	105744				1	1

# MOTOR ASSEMBLY B.O.M.

For 1~5T Dual Speed

D: Dual speed

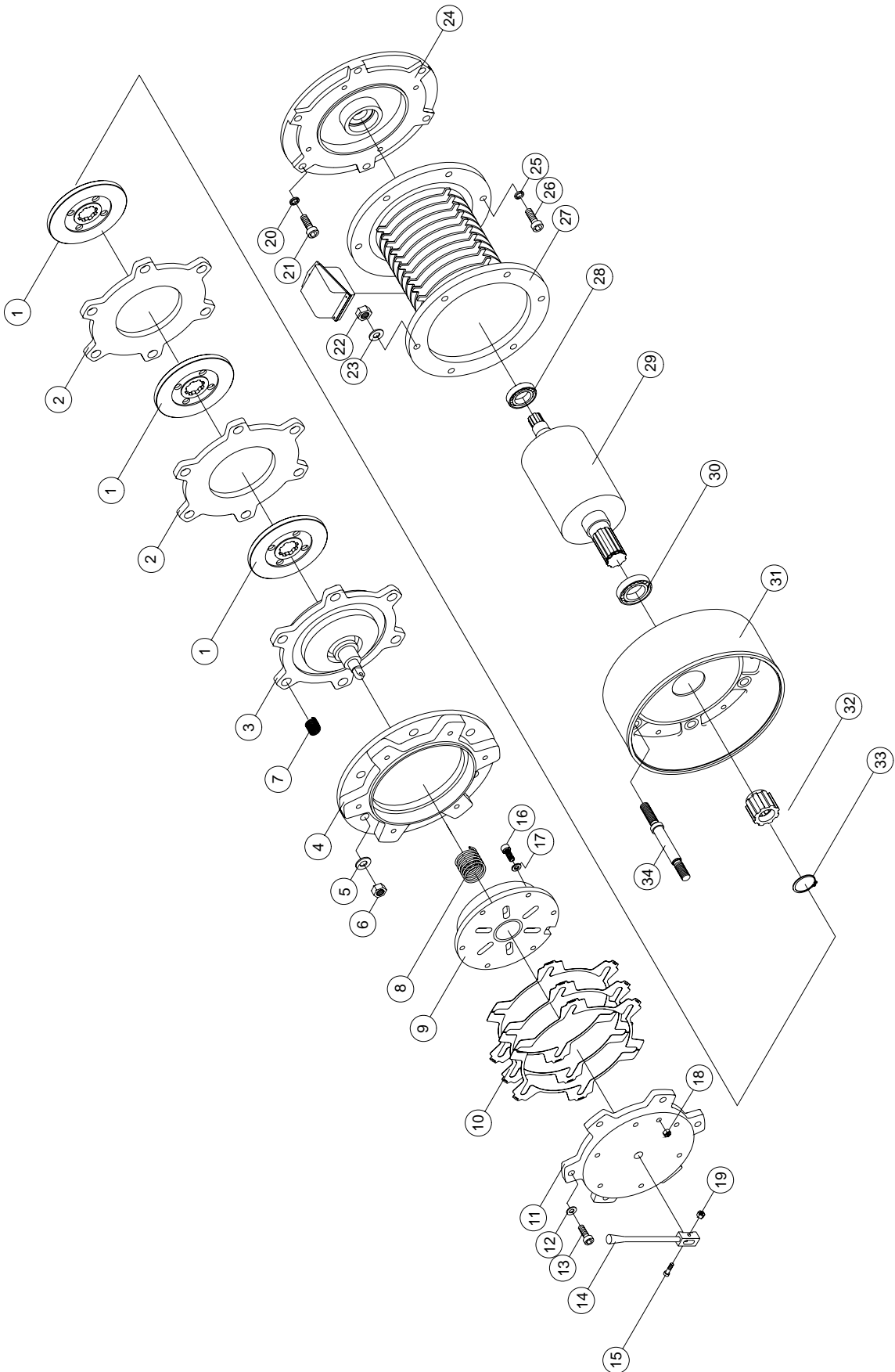
NO.	PART NUMBER	DESCRIPTION	Q'TY			
			1T 2200lbs 3HP	2T 4400lbs 5HP	3T 6600lbs 7HP	5T 11000lbs 9HP
18	400095	Spring Washer	4	4	4	4
19	400012	Hex. Recess Bolt	4	4	4	4
20	400097	Spring Washer	4	4		
	400651				4	4
21	400451	Hex. Recess Bolt	4	4		
	400439				4	4
22	400088	Lock Nut	1	1	1	1
23	400097	Spring Washer	4	4		
	400651				6	6
24	400451	Hex. Recess Bolt	4	4		
	400441				6	6
25	400637	Nut <M14x2.0>	4	4		
	400083	Nut <M18x2.5>			4	4
26	400651	Spring Washer	4	4		
	400100				4	4
27	105694	Flange	1	1		
	105623				1	
	105622					1
28	400113	Bearing <6206>	1	1		
	400801	Bearing <6307>			1	1
29	Voltage : 230V					
	133437(D)	Motor Stator Ass'y	1			
	133420(D)			1		
	108424(D)				1	
	108426(D)					1
	Voltage : 460V					
	133438(D)	Motor Stator Ass'y	1			
	133421(D)			1		
108425(D)				1		
108427(D)					1	
30	400095	Spring Washer	4	4		
	400097				4	4
31	400015	Hex. Recess Bolt	4	4		
	400451				4	4

# MOTOR ASSEMBLY B.O.M.

For 1~5T Dual Speed

D: Dual speed

NO.	PART NUMBER	DESCRIPTION	Q'TY			
			1T 2200lbs 3HP	2T 4400lbs 5HP	3T 6600lbs 7HP	5T 11000lbs 9HP
32	105910(D)	Motor Rotor	1			
	105541(D)			1		
	106369(D)				1	
	105912(D)					1
33	400151	Bearing <6306>	1	1		
	400118	Bearing <6309>			1	1
34	105690	Brake Housing	1			
	105691			1		
	105742				1	1
35	105693	Disc Hub	1			
	105705			1		
	105681	Friction Gasket			1	1
36	400193	Retaining Ring	1			
	105606	Motor Shaft Plate		1		
	400195	Retaining Ring			1	1
37	400025	Hex. Recess Bolt		1		
38	105692	Disc Plate		1		
	105741				1	1



7.5 -15T DUAL SPEED MOTOR EXPLOSION

# MOTOR ASSEMBLY B.O.M.

For 7.5~15T Dual Speed

D: Dual speed

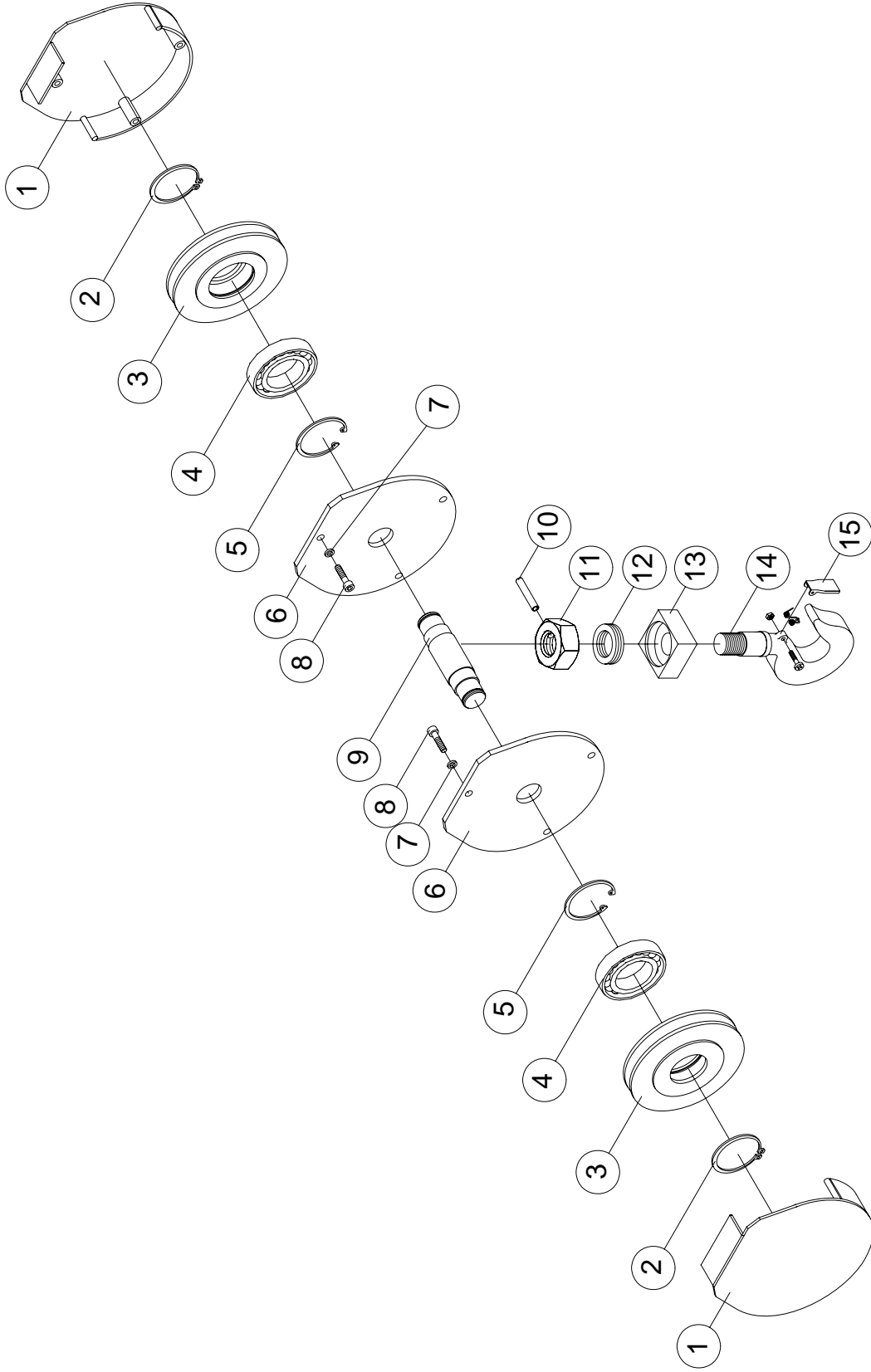
NO.	PART NUMBER	DESCRIPTION	QTY		
			7.5T 16500lbs 11HP	10T 22000lbs 15HP	15T 33000lbs 15HP
01	105736	Friction Lining	3	3	3
02	105782	Disc Plate	2	2	2
03	105993	Armature Plate (B)	1	1	1
04	105816	Brake Bracket	1	1	1
05	400099	Spring Washer <M20>	6	6	6
06	400086	Nut <M20x2.0>	6	6	6
07	408553	Auxiliary Spring	4	4	4
08	408471	Brake Spring <ø7.5-ø60xø45x70L>	1	1	1
09	Voltage:3 φ -60HZ-230V				
	105925	AC Solenoid	1	1	1
	Voltage:3- φ 60HZ-460V				
	105924	AC Solenoid	1	1	1
10	105840	Brake Shim <t1.0xø360>	6	6	6
11	105829	Brake Drum <t42xø360>	1	1	1
12	400651	Spring Washer <M14>	6	6	6
13	400441	Hex. Recess Bolt <M14x2.0x45L>	6	6	6
14	207121	Release Bar <d25x25x250L>	1	1	1
15	400017	Hex. Recess Bolt <M8x1.25x35L>	1	1	1
16	400018	Hex. Recess Bolt <M12x1.75x50L>	6	6	6
17	400096	Spring Washer <M10>	6	6	6
18	400089	Lock Nut <M10x1.5>	6	6	6
19	400088	Nylon Nut <M8x1.25>	1	1	1
20	400651	Spring Washer <M14>	6	6	6
21	400442	Hex. Recess Bolt <M14x2.0x50L>	6	6	6
22	400086	Nut <M20x2.0>	6	6	6
23	400099	Spring Washer <M20>	6	6	6

# MOTOR ASSEMBLY B.O.M.

For 7.5~15T Dual Speed

D: Dual speed

NO.	PART NUMBER	DESCRIPTION	Q'TY		
			7.5T 16500lbs 11HP	10T 22000lbs 15HP	15T 33000lbs 15HP
24	105711	Flange	1	1	1
25	400651	Spring Washer <M14>	6	6	6
26	400442	Hex. Recess Bolt <M14x2.0x50L>	6	6	6
27	Voltage:3 φ -60HZ-230V				
	133439(D)	Motor Stator Ass'y	1		
	133441(D)			1	1
	Voltage:3 φ -60HZ-460V				
	133440(D)	Motor Stator Ass'y	1		
	133442(D)			1	1
28	400116	Bearing <6308>	1	1	1
29	105540	Motor Rotor <ø160x190L>	1		
	105917	Motor Rotor <ø165x260L>		1	1
30	400117	Bearing <6310>	1	1	1
31	105801	Brake Housing	1	1	1
32	105701	Friction Gasket <ø82x91L>	1	1	1
33	400197	Retaining Ring <S-50>	1	1	1
34	207117	Stay Bolt <ø30x232L>	6	6	6

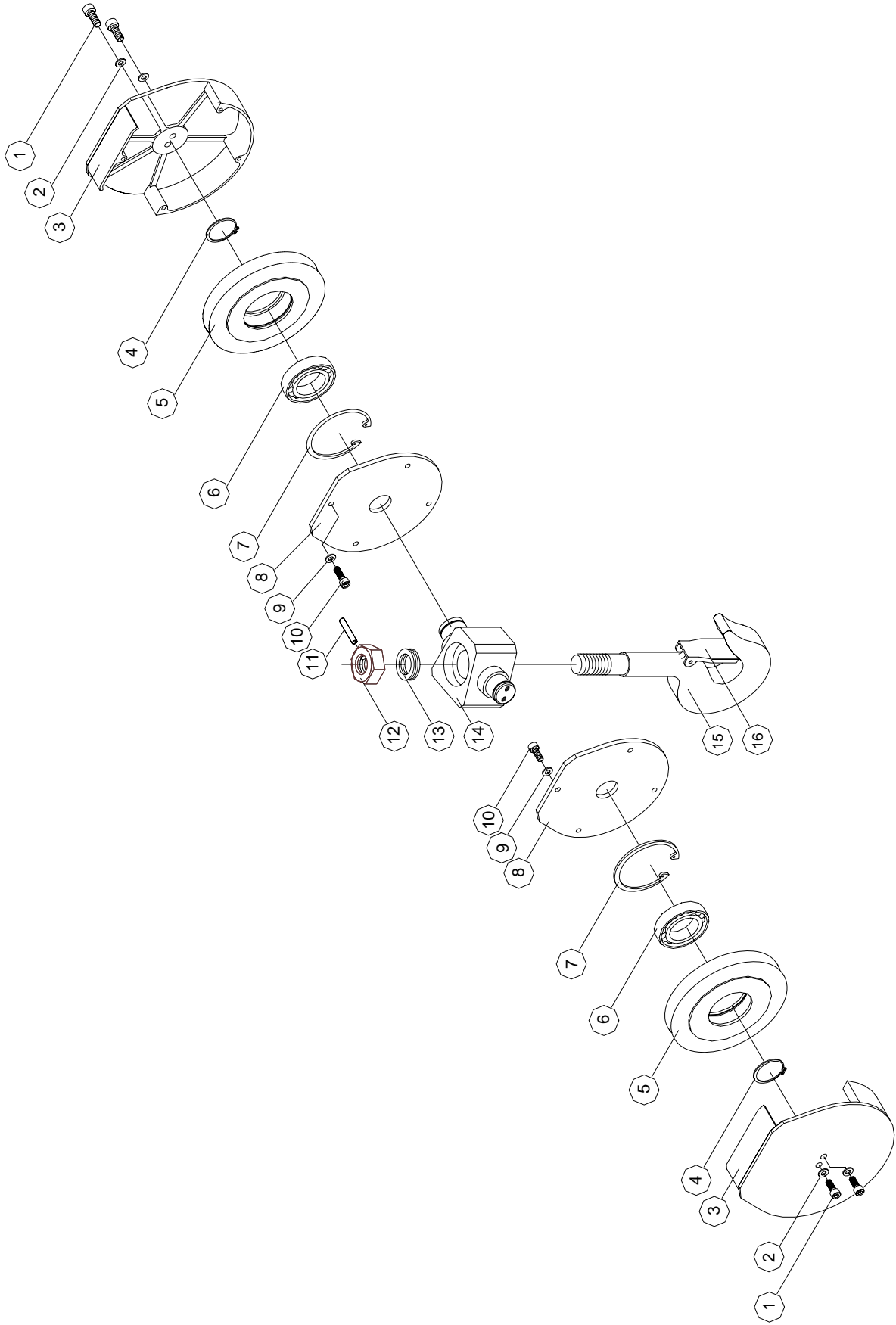


# 1,2T BOTTOM BLOCK EXPLOSION



## BOTTOM BLOCK B.O.M.

NO.	PART NUMBER	DESCRIPTION	Q'TY 1T (2200lbs)	Q'TY 2T (4400lbs)
01	272011	Bottom Hook Side Cover Ass'y	2	
	272001			2
02	400192	Retaining Ring <S-25>	2	
	400194	Retaining Ring <S-35>		2
03	263606	Sheave	2	
	263605			2
04	407807	Bearing <6205 ZZ>	2	
	407818	Bearing <6307 ZZ>		2
05	400199	Retaining Ring <S-52>	2	
	400202	Retaining Ring <R-80>		2
06	272211	Bottom Hook Side Cover <t6×170×170L ø28>	2	
	272201	Bottom Hook Side Cover <t8×225×225L ø40>		2
07	400094	Spring Washer <M6>	6	
	400095	Spring Washer <M8>		6
08	400008	Hex. Recess Bolt <M6×1.0×25L>	6	
	400014	Hex. Recess Bolt <M8×1.25×30L>		6
09	207554	Sheave Axle <ø30×118L>	1	
	207552	Sheave Axle <ø45×150L>		1
10	400209	Spring Pin <ø8×55L >	1	1
11	202016	Hex. Nut <7/8"×9UNC>	1	
	400075	Hex. Nut <1"×8UNC×28L>		1
12	400839	Thrust Bearing <51205>	1	
	400166	Thrust Bearing <51206>		1
13	273811	Bearing Housing <t25×50×50L>	1	
	273801	Bearing Housing <t35×60×65L>		1
14	274009	Bottom Hook	1	
	204987			1
15	400300	Safety Latch Ass'y	1	
	400301			1



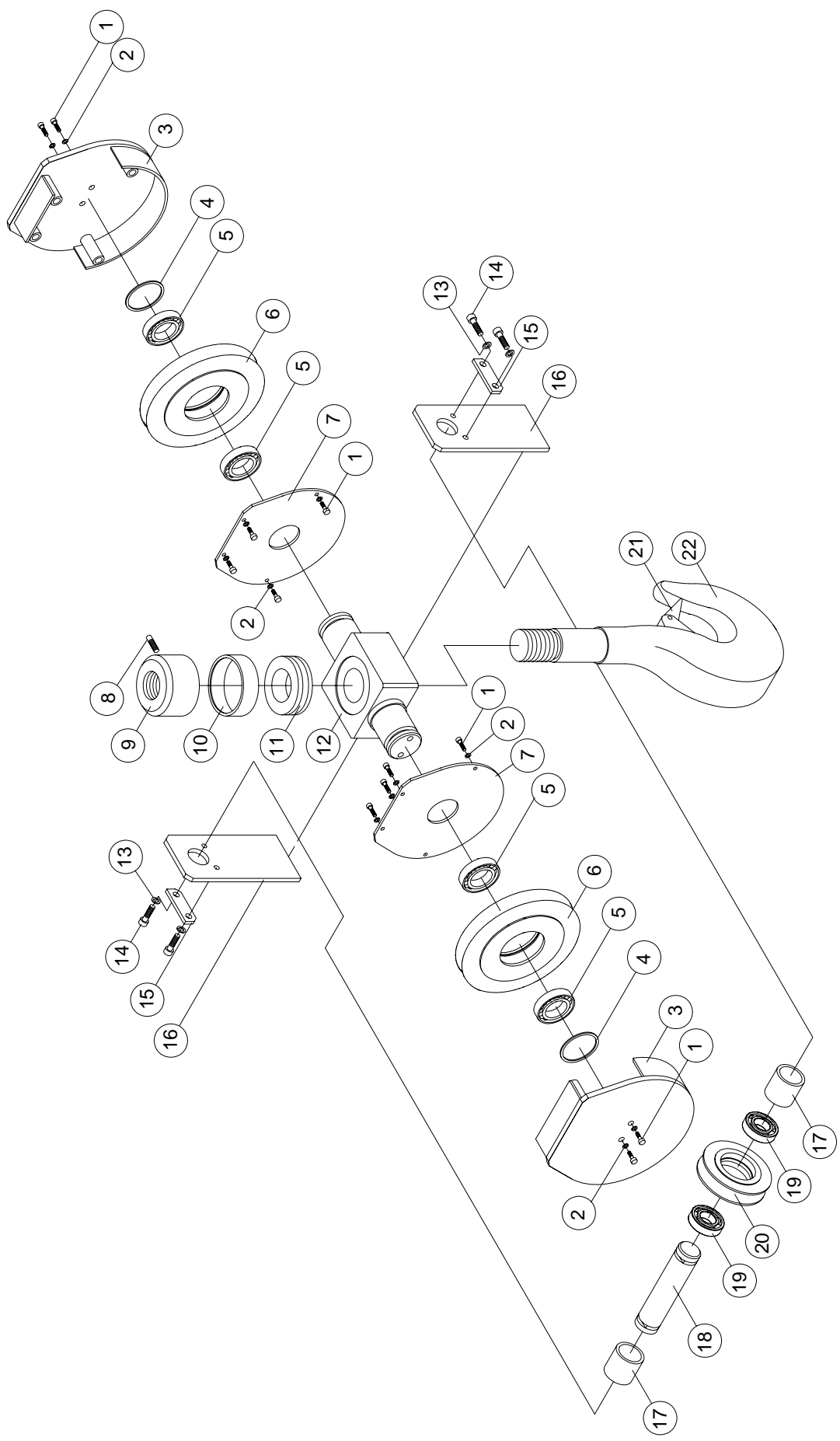
### 3-10T BOTTOM BLOCK EXPLOSION

## BOTTOM BLOCK B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 3T (6600lbs)	Q'TY 5T (11000lbs)	Q'TY 7.5T (16500lbs)	Q'TY 10T (22000lbs)
01	400446	Hex. Recess Bolt <M10×1.5×20L>	4	4	4	4
02	400096	Spring Washer <M10>	4	4	4	4
03	272002	Bottom Hook Side Cover Ass'y	2			
	272005			2		
	272003				2	
	272004					2
04	400195	Retaining Ring <S-40>	2			
	400196	Retaining Ring <S-45>		2		
	400197	Retaining Ring <S-50>			2	
	400909	Retaining Ring <S-55>				2
05	210824	Sheave <ø210×ø80 t36>	2			
	263603	Sheave <ø210×ø100 t36>		2		
	263601	Sheave <ø242×ø100 t40>			2	
	263602	Sheave <ø282×44L>				2
06	407819	Bearing <6308ZZ>	2			
	407820	Bearing <6309ZZ>		2		
	407821	Bearing <6310ZZ>			2	
	407822	Bearing <6311ZZ>				2
07	400914	Retaining Ring <R-90>	2			
	404151	Retaining Ring <R-100>		2		
	400916	Retaining Ring <R-110>			2	
	404152	Retaining Ring <R-120>				2
08	272202	Bottom Hook Side Cover	2			
	272205			2		
	272203				2	
	272204					2
09	400095	Spring Washer <M8>	8	8	8	8
10	400012	Hex. Recess Bolt <M8×1.25×20L>	8	8	8	8
11	400209	Spring Pin <ø8×55L>	1			1
	400214	Spring pin <ø8×70L>		1	1	
12	400074	Nut <1 3/8" ×6UNC>	1			
	400644	Nut <1 3/4" ×5UNC t43mm>		1		
	400636	Nut <M52×5.0>			1	
	202049	Nut <M64×6.0 ø118×55L>				1

## BOTTOM BLOCK B.O.M

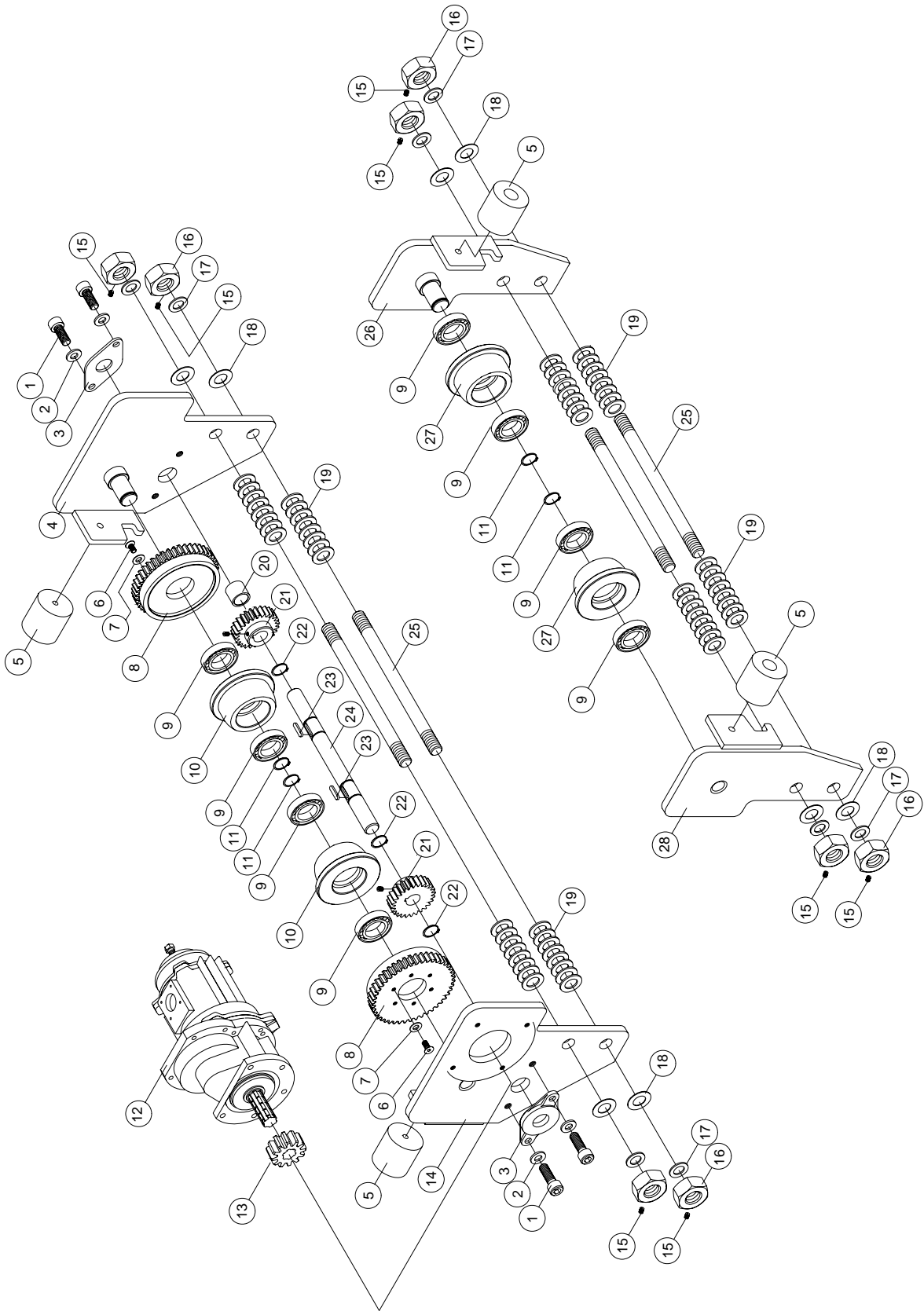
NO.	PART NUMBER	DESCRIPTION	Q'TY 3T (6600lbs)	Q'YT 5T (11000lbs)	Q'TY 7.5T (16500lbs)	Q'TY 10T (22000lbs)
13	400160	Thrust Bearing <51207>	1			
	400162	Thrust Bearing <51209>		1		
	400161	Thrust Bearing <51211>			1	
	400164	Thrust Bearing <51313>				1
14	273802	Bearing Housing <t62×100×191L>	1			
	273803	Bearing Housing <t82×122×205L>		1		
	273804	Bearing Housing <t82×110×228L>			1	
	273805	Bearing Housing <t92×159×240L>				1
15	274004	Bottom Hook	1			
	274005			1		
	274001				1	
	274002					1
16	400301	Safety Latch Ass'y	1			
	400302			1		
	400303				1	1



# 15T BOTTOM BLOCK EXPLOSION

## BOTTOM BLOCK B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 15T (33000lbs)
01	400435	Hex. Recess Bolt <M12×1.75×25L>	12
02	400097	Spring Washer <M12>	12
03	272008	Bottom Hook Side Cover Ass'y	2
04	400920	Retaining Ring <S-85>	2
05	407803	Bearing <6017Z>	4
06	263555	Sheave <ø285×60L>	2
07	272208	Bottom Hook Side Cover <t9×354×354L>	2
08	400584	Bolt <M8×1.25×30L>	2
09	202046	Hex. Nut <M68×6.0 ø137×80L>	1
10	200303	Dust Proof Cover <ø139.7×ø127×19L>	1
11	400155	Thrust Bearing <51314>	1
12	273809	Bearing Housing <t100×180×340>	1
13	400099	Spring Washer <M20>	4
14	400461	Hex. Recess Bolt <M20×2.5×35L>	4
15	264051	Stopper Plate<t12×50×150L>	2
16	271307	Frame <t12×150×430L>	2
17	269906	Spacer Sleeve <ø90×ø76×65L >	2
18	263453	Mounting Axle <ø75×266L>	1
19	400703	Bearing <6015 Z>	2
20	263651	Sheave <ø194×50L>	1
21	400304	Safety Latch	1
22	274008	Bottom Hook	1



# 1-15T MOTORIZED TROLLEY EXPLOSION

## MOTORIZED TROLLEY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY	Q'TY	Q'TY	Q'TY
			1T (2200lbs)	2T (4400lbs)	3T (6600lbs)	5T (11000lbs)
01	400450	Hex. Recess Bolt <M10×1.5×35L>	4	4		
	400440	Hex. Recess Bolt <M14×2.0×35L>			4	4
02	400096	Spring Washer <M10>	4	4		
	400651	Spring Washer <M14>			4	4
03	400759	Bearing Housing <UCFL 204>	2	2		
	400760	Bearing Housing <UCFL 206>			2	2
04	264420	Drive Frame Ass'y(Right) <t13>	1			
	264412	Drive Frame Ass'y(Right) <t13>		1		
	264416	Drive Frame Ass'y(Right) <t16>			1	1
05	400313	Bumper	4	4	4	4
06	400424	Hex. Recess Bolt <M8×1.25×16L>	12	12		
	400012	Hex. Recess Bolt <M8×1.25×20L>			12	12
07	400095	Spring Washer <M8>	12	12	12	12
08	202486	Gear(A) <M3.5×40T×21L>	2	2		
	202490	Gear(A) <M3.5×49T×21L>			2	2
09	407830	Bearing <6205 Z>	8	8		
	407808	Bearing <6207 Z>			8	8
10	202487	Wheel(B) <ø119×49L>	2	2		
	202491	Wheel(B) <ø143.5×59L>			2	2
11	400192	Retaining Ring <S-25>	4	4		
	400194	Retaining Ring <S-35>			4	4
12	101367	Motor	1			
	104953	Reducing Gear Motor		1	1	1
13	201767	Pinion <M3.5×12T 77L>	1			
	201756	Pinion <M3.5×18T 49L>		1	1	1
14	264419	Drive Frame Assembly Ass'y(Left) <t13>	1			
	264411	Drive Frame Assembly Ass'y(Left) <t13>		1		
	264415	Drive Frame Assembly Ass'y(Left) <t16>			1	1
15	400588	Bolt <M6×1.0×12L>	8	8		
	400204	Bolt <M8×1.25×12L>			4	4
16	202011	Hex. Nut <1 1/4"×7UNC>	8	8		
	202012	Hex. Nut <1 1/2"×6UNC>			8	8
17	400105	Spring Washer <1 1/4">	8	8		
	400106	Spring Washer <1 1/2">			8	8
18	203223	Spacer <ø54×ø34×1/8">	48	48		
19	269911	Spacer Sleeve <ø50.8×ø34×1/4">	112	112		
	269912	Spacer Sleeve <ø60×ø40×1/4">			152	152



MOTORIZED TROLLEY B.O.M

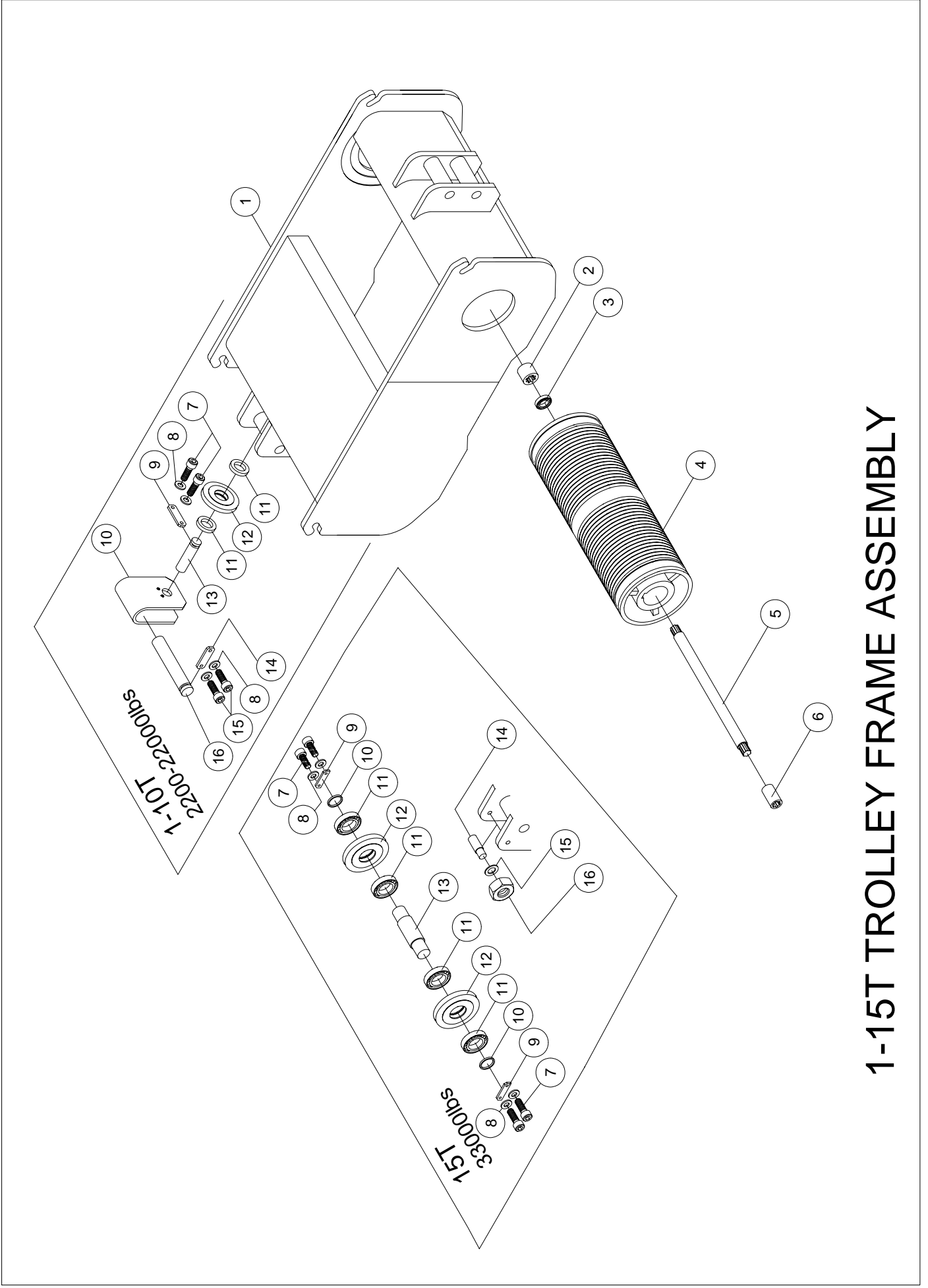
NO.	PART NUMBER	DESCRIPTION	Q'TY	Q'TY	Q'TY	Q'TY
			1T (2200lbs)	2T (4400lbs)	3T (6600lbs)	5T (11000lbs)
20	264253	Pinion Shaft Tube <ø30×ø20×20L>	1	1		
	264251	Pinion Shaft Tube <ø42×ø30×21L>			1	1
21	202505	Motor Pinion <M3.5×21T×35L>	2	2		
	202506	Motor Pinion <M3.5×23T×38L>			2	2
22	400191	Retaining Ring <S-20>	3	3		
	400193	Retaining Ring <S-30>			3	3
23	405914	Key <t6×6×30L>	2	2		
	400967	Key <t8×8×30L>			2	2
24	269803	Pinion Shaft <ø20×470L>	1	1		
	269801	Pinion Shaft <ø30×550L>			1	1
25	408307	Mounting Bolts <1 1/4"×7UNC×480L>	4	4		
	408305	Mounting Bolts <1 1/2"×6UNC×560L>			4	4
26	264612	Plain Frame Ass'y (Right) <t13>	1	1		
	264616	Plain Frame Ass'y (Right) <t16>			1	1
27	203132	Plain Wheel <ø119×49L>	2	2		
	203134	Plain Wheel <ø143.5×59L>			2	2
28	264611	Plain Frame Ass'y(Left) <t13>	1	1		
	264615	Plain Frame Ass'y(Left) <t16>			1	1

## MOTORIZED TROLLEY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 7.5T (16500lbs)	Q'TY 10T (22000lbs)	Q'TY 15T (33000lbs)
01	400441	Hex. Recess Bolt <M14×2.0×45L>	4	4	4
02	400651	Spring Washer <M14>	4	4	4
03	400761	Bearing Housing <UCFL 207>	2	2	
	400747	Bearing Housing <UCFL 208>			2
04	264414	Drive Frame Ass'y(Right) <t22>	1		
	264418	Drive Frame Ass'y(Right) <t25>		1	
	264422	Drive Frame Ass'y(Right) <t25>			1
05	400313	Bumper	4	4	4
06	400013	Hex. Recess Bolt <M8×1.25×25L>	12	12	
	400431	Hex. Recess Bolt <M10×1.5×30L>			12
07	400095	Spring Washer <M8>	12	12	
	400096	Spring Washer <M10>			12
08	202492	Gear(A) <M3.5×57T×28L>	2		
	274301	Gear(A) <M3.5×64T×28L>		2	
	274302	Gear(A) <M3.5×71T×35L>			2
09	407817	Bearing <6307Z>	8		
	407825	Bearing <6308Z>		8	
	407810	Bearing <6211Z>			8
10	202493	Wheel(B) <ø178.5×60L>	2		
	274501	Wheel(B) <ø203×60L>		2	
	274502	Wheel(B) <ø217×60L>			2
11	400195	Retaining Ring <S-40>	4	4	
	400909	Retaining Ring <S-55>			4
12	104939	Reducing Motor	1		
	104963			1	1
13	201756	Pinion<M3.5×18T 49L>	1		
	201679	Pinion<M3.5×23T 63L>		1	1
14	264413	Drive Frame Ass'y(Left) <t22>	1		
	264417	Drive Frame Ass'y(Left) <t25>		1	
	264421	Drive Frame Ass'y(Left) <t25>			1

## MOTROZIED TROLLEY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 7.5T (16500lbs)	Q'TY 10T (22000lbs)	Q'TY 15T (33000lbs)
15	400204	Bolt <M8×1.25×12L>	4	4	4
16	202010	Hex. Nut<1 3/4"×5UNC>	8	8	
	202017	Hex. Nut<2 1/4"×4 1/2UNC>			8
17	400104	Spring Washer<1 3/4">	8	8	
	405303	Spring Washer<2 1/4">			8
18	203223	Spacer<ø54×ø34×1/8">			
19	269913	Spacer Sleeve<ø70×ø47×1/4">	168	168	
	269908	Spacer Sleeve<ø82.5×ø62×12.7L>			144
20	264252	Pinion Shaft Tube<ø48×ø35×31.5L>	1	1	
	264254	Pinion Shaft Tube<ø55×ø40×30L>			1
21	202507	Motor Pinion <M3.5×33T×43L>	2	2	
	202485	Motor Pinion <M3.5×37T×50L>			2
22	400194	Retaining Ring <S-35>	3		
	400195	Retaining Ring <S-40>		3	3
23	400978	Key <t10×10×40L>	2	2	2
24	269802	Pinion Shaft <ø35×650 >	1	1	
	269804	Pinion Shaft <ø40×650>			1
25	408306	Mounting Bolts<1 3/4" ×5UNC×680L>	4	4	
	408309	Mounting Bolts<2 1/4" ×4 1/2UNC×680L>			4
26	264614	Plain Frame Ass'y(Right)<t22>	1		
	264618	Plain Frame Ass'y(Right)<t25>		1	
	264622	Plain Frame Ass'y(Right)<t25>			1
27	203135	Plain Wheel<ø178.5×60L>	2		
	203136	Plain Wheel<ø203×60L>		2	
	276971	Plain Wheel<ø217×60L>			2
28	264613	Plain Frame Ass'y(Left)<t22>	1		
	264617	Plain Frame Ass'y(Left)<t25>		1	
	264621	Plain Frame Ass'y(Left)<t25>			1



# 1-15T TROLLEY FRAME ASSEMBLY

## TROLLEY FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 1T (2200lbs)		
			20ft	30ft	40ft
01	266001	Hoist Frame	1		
	266002			1	
	266003				1
02	205469	Coupling <ø34×ø16×51L>	1	1	1
03	407838	Bearing <6212ZZ>	1	1	1
04	266801	Drum <ø188×ø166×540L>	1		
	266802	Drum <ø188×ø166×700L>		1	
	266803	Drum <ø188×ø166×860L>			1
05	263011	Drum Shaft <ø25×364L>	1		
	263012	Drum Shaft <ø25×524L>		1	
	263013	Drum Shaft <ø25×669L>			1
06	205469	Coupling <ø34×ø16×51L>	1	1	1
07	405011	Hex. Recess Bolt <M8×1.25×15L>	2	2	2
08	400095	Spring Washer <M8>	4	4	4
09	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
10	270201	Link Equalizer <t6×100×127L>	1	1	1
11	205239	Washer <ø40×ø29×3L>	2	2	2
12	263551	Equalizer Sheave <ø105×ø28 t31>	1	1	1
13	207553	Sheave Axle <ø28×79L>	1	1	1
14	269551	Load Key Plate <t6.0×25×80L>	1	1	1
15	405011	Hex. Recess Bolt <M8×1.25×15L>	2	2	2
16	205470	Load Axle <ø28×165L>	1	1	1

## TROLLEY FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 2T (4400lbs)		
			20ft	30ft	40ft
01	266006	Hoist Frame	1		
	266007			1	
	266008				1
02	205466	Coupling(A) <ø34×ø21×61L>	1	1	1
03	407838	Bearing <6212ZZ>	1	1	1
04	266806	Drum <ø188×ø166×640L>	1		
	266807	Drum <ø188×ø166×850L>		1	
	266808	Drum <ø188×ø166×1060L>			1
05	263016	Drum Shaft <ø30×459L>	1		
	263017	Drum Shaft <ø30×669L>		1	
	263018	Drum Shaft <ø30×879L>			1
06	205469	Coupling <ø34×ø16×51L>	1	1	1
07	405011	Hex. Recess Bolt <M8×1.25×15L>	2	2	2
08	400095	Spring Washer <M8>	4	4	4
09	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
10	270201	Link Equalizer <t6×100×127L>	1	1	1
11	205239	Washer <ø40×ø29×3L>	2	2	2
12	263551	Equalizer Sheave <ø105×ø28 t31>	1	1	1
13	207553	Sheave Axle <ø28×79L>	1	1	1
14	269551	Load Key Plate <t6.0×25×80L>	1	1	1
15	405011	Hex. Recess Bolt <M8×1.25×15L>	2	2	2
16	205470	Load Axle <ø28×165L>	1	1	1

## TROLLEY FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 3T (6600lbs)		
			20ft	30ft	40ft
01	266011	Hoist Frame	1		
	266012			1	
	266013				1
02	205466	Coupling(A) < $\phi 34 \times \phi 21 \times 61L$ >	1	1	1
03	407838	Bearing <6212ZZ>	1	1	1
04	266811	Drum < $\phi 218 \times \phi 194 \times 655L$ >	1		
	266812	Drum < $\phi 218 \times \phi 194 \times 855L$ >		1	
	266813	Drum < $\phi 218 \times \phi 194 \times 1112L$ >			1
05	263021	Drum Shaft < $\phi 30 \times 497L$ >	1		
	263022	Drum Shaft < $\phi 30 \times 697L$ >		1	
	263023	Drum Shaft < $\phi 30 \times 849L$ >			1
06	205466	Coupling(A) < $\phi 34 \times \phi 21 \times 61L$ >	1	1	1
07	400012	Hex. Recess Bolt <M8 $\times 1.25 \times 20L$ >	2	2	2
08	400095	Spring Washer <M8>	4	4	4
09	200636	Keeper < $\phi 8.5$ P28 t6.0 $\times 25 \times 50L$ >	1	1	1
10	270202	Link Equalizer <t8 $\times 120 \times 170$ >	1	1	1
11	205239	Washer < $\phi 40 \times \phi 29 \times 3L$ >	2	2	2
12	205212	Equalizer Sheave < $\phi 152 \times \phi 28$ t40>	1	1	1
13	205221	Sheave Axle < $\phi 28 \times 109L$ >	1	1	1
14	269551	Load Key Plate <t6.0 $\times 25 \times 80$ >	1	1	1
15	400012	Hex. Recess Bolt <M8 $\times 1.25 \times 20L$ >	2	2	2
16	270502	Load Axle < $\phi 35 \times 200L$ >	1	1	1

## TROLLEY FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 5T (11000lbs)		
			20ft	30ft	40ft
01	266016	Hoist Frame	1		
	266017			1	
	266018				1
02	205466	Drum Coupling(A) <ø34×ø21×61L>	1	1	1
03	407838	Bearing <6212ZZ>	1	1	1
04	266811	Drum <ø218×ø194×655L>	1		
	266812	Drum <ø218×ø194×855L>		1	
	266813	Drum <ø218×ø194×1007L>			1
05	263026	Drum Shaft <ø30×470L>	1		
	263027	Drum Shaft <ø30×670L>		1	
	263028	Drum Shaft <ø30×822L>			1
06	205467	Drum Coupling(B) <ø34×ø21×73L>	1	1	1
07	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
08	400095	Spring Washer <M8>	4	4	4
09	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
10	270202	Link Equalizer <t8×120×170L>	1	1	1
11	205239	Washer <ø40×ø29×3L>	2	2	2
12	205212	Equalizer Shave <ø152×ø28 t40>	1	1	1
13	205221	Sheave Axle <ø28×109L>	1	1	1
14	269551	Load Key Plate <t6.0×25×80L>	1	1	1
15	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
16	270502	Load Axle <ø35×200L>	1	1	1



## TROLLEY FRAME ASSEMBLY B.O.M

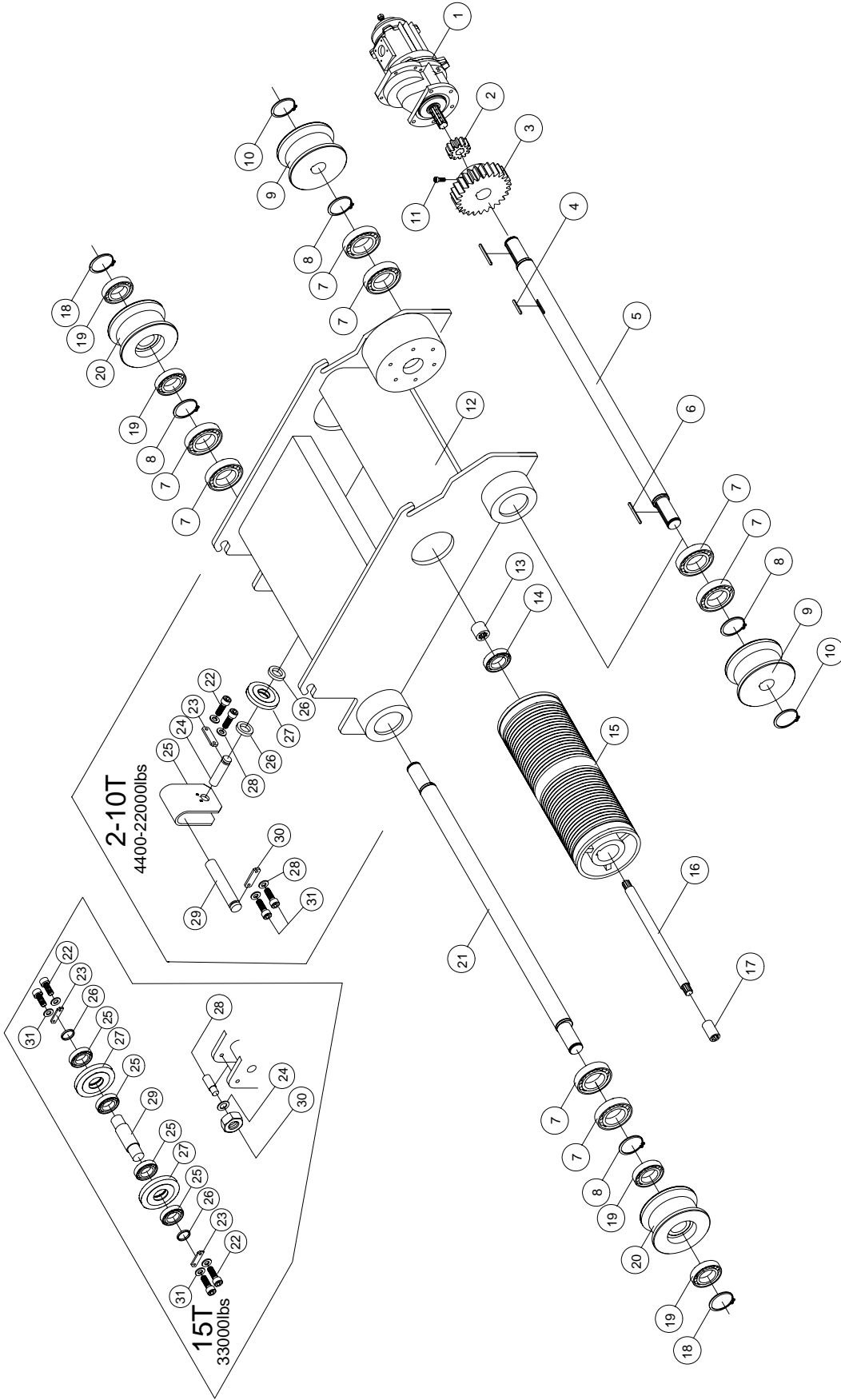
NO.	PART NUMBER	DESCRIPTION	Q'TY 7.5T (16500lbs)		
			20ft	30ft	40ft
01	266026	Hoist Frame	1		
	266027			1	
	266028				1
02	205467	Coupling(B) <ø34×ø21×73L>	1	1	1
03	407814	Bearing <6220 ZZ>	1	1	1
04	266871	Drum <ø271×ø243×712L>	1		
	266872	Drum <ø271×ø243×912L>		1	
	266873	Drum <ø271×ø243×1112L>			1
05	263031	Drum Shaft <ø35×475L>	1		
	263032	Drum Shaft <ø35×675L>		1	
	263033	Drum Shaft <ø35×875L>			1
06	205468	Coupling <ø48×ø28×62L>	1	1	1
07	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
08	400095	Spring Washer <M8>	4	4	4
09	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
10	270203	Link Equalizer <t8×140×230L>	1	1	1
11	205238	Washer <ø45×ø36×3L>	2	2	2
12	205244	Equalizer Sheave <ø210×ø35 t50>	1	1	1
13	205222	Sheave Axle <ø35×119L>	1	1	1
14	269551	Load Key Plate <t6.0×25×80L>	1	1	1
15	400013	Hex. Recess Bolt <M8×1.25×25L>	2	2	2
16	270503	Load Axle <ø35×220L>	1	1	1

## TROLLEY FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 10T (22000lbs)		
			20ft	30ft	40ft
01	266026	Hoist Frame	1		
	266027			1	
	266028				1
02	205467	Coupling(B) <ø34×ø21×73L>	1	1	1
03	407814	Bearing <6220 ZZ>	1	1	1
04	266876	Drum <ø296×ø261×712L>	1		
	266877	Drum <ø296×ø261×912L >		1	
	266878	Drum <ø296×ø261×1112L >			1
05	263031	Drum Shaft <ø35×475L>	1		
	263032	Drum Shaft <ø35×675L>		1	
	263033	Drum Shaft <ø35×875L>			1
06	205468	Coupling <ø48×ø28×62L>	1	1	1
07	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
08	400095	Spring Washer <M8>	4	4	4
09	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
10	270203	Link Equalizer <t8×140×230L>	1	1	1
11	205238	Washer <ø45×ø36×3L>	2	2	2
12	205244	Equalizer Sheave <ø210×ø35 t50>	1	1	1
13	205222	Sheave Axle <ø35×119L>	1	1	1
14	269551	Load Key Plate <t6.0×25×80L>	1	1	1
15	400013	Hex. Recess Bolt <M8×1.25×25L>	2	2	2
16	270503	Load Axle <ø35×220L>	1	1	1

## TROLLEY FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 15T (33000lbs)		
			20ft	30ft	40ft
01	266031	Hoist Frame	1		
	266032			1	
	266033				1
02	205467	Drum Coupling(B) <ø34×ø21×73L>	1	1	1
03	407814	Bearing <6220 ZZ>	1	1	1
04	266881	Drum <ø296×ø261×971L>	1		
	266882	Drum <ø296×ø261×1281L>		1	
	266883	Drum <ø296×ø261×1591L>			1
05	263041	Drum Shaft <ø35×734L>	1		
	263042	Drum Shaft <ø40×1044L>		1	
	263043	Drum Shaft <ø45×1354L>			1
06	205468	Drum Coupling <ø48×ø28×62L>	1	1	1
07	400461	Hex. Recess Bolt <M20×2.5×35L>	4	4	4
08	400099	Spring Washer <M20>	4	4	4
09	264055	Keeper	2	2	2
10	400920	Retaining Ring <S-85>	2	2	2
11	407803	Bearing <6017 Z>	4	4	4
12	263555	Sheave <ø285×60L>	2	2	2
13	263461	Load Axle <ø95×424L>	1	1	1
14	273641	Guide Rope Bar	4	4	4
15	400098	Spring Washer <M16>	4	4	4
16	400634	Nut <M16×2.0>	4	4	4



## 2-15T SADDLE FRAME EXPLOSION

## SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 2T (4400lbs)		
			20ft	30ft	40ft
01	104953	Reducing Motor	1	1	1
02	201757	Pinion <M3.5×23T 49L>	1	1	1
03	205187	Trolley Drive Gear <M3.5×49T×45L>	1	1	1
04	400969	Key <t8×8×60L>	1	1	1
05	265221	Transmission Shaft <ø45×924L>	1		
	265222	Transmission Shaft <ø45×1074L>		1	
	265223	Transmission Shaft <ø45×1274L>			1
06	400969	Key <t8×8×60L>	2	2	2
07	407820	Bearing <6309 ZZ>	4	4	4
08	400196	Retaining Ring <S-45>	4	4	4
09	205070	Transmission Wheel <ø147×60L>	2	2	2
10	400194	Retaining Ring <S-35>	2	2	2
11	400014	Hex. Recess Bolt <M8×1.25×30L>	1	1	1
12	266056	Hoist Frame	1		
	266057			1	
	266058				1
13	205466	Coupling (A) <ø34×ø21×61L>	1	1	1
14	407838	Bearing <6212 ZZ>	1	1	1
15	266806	Drum <ø188×ø166×640L>	1		
	266807	Drum <ø188×ø166×850L>		1	
	266808	Drum <ø188×ø166×1060L>			1
16	263016	Drum Shaft <ø30×459L>	1		
	263017	Drum Shaft <ø30×669L>		1	
	263018	Drum Shaft <ø30×879L>			1
17	205469	Coupling <ø34×ø16×51L>	1	1	1
18	400194	Retaining Ring <S-35>	2	2	2
19	407808	Bearing <6207 Z>	4	4	4
20	205170	Plain Wheel <ø147×60L>	2	2	2
21	265421	Plain Shaft <ø45×924L>	1		
	265422	Plain Shaft <ø45×1074L>		1	
	265423	Plain Shaft <ø45×1274L>			1
22	405011	Hex. Recess Bolt <M8×1.25×15L>	2	2	2
23	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
24	207553	Sheave Axle <ø28×79L>	1	1	1
25	270201	Link Equalizer <t6×100×127>	1	1	1
26	205239	Washer <ø40×ø29×3L>	2	2	2
27	263551	Equalizer Sheave <ø105×ø28 t31>	1	1	1
28	400095	Spring Washer <M8>	4	4	4
29	205470	Load Axle <ø28×165L>	1	1	1
30	269551	Load Key Plate <t6.0×25×80L>	1	1	1
31	405011	Hex. Recess Bolt <M8×1.25×15L>	2	2	2

## SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 3T (6600lbs)		
			20ft	30ft	40ft
01	104953	Reducing Motor	1	1	1
02	201756	Pinion <M3.5×18T 49L>	1	1	1
03	205186	Trolley Drive Gear <M3.5×58T×45L>	1	1	1
04	400969	Key <t8×8×60L>	1	1	1
05	205097	Transmission Shaft <ø55×929L>	1		
	265212	Transmission Shaft <ø55×1229L>		1	
	265228	Transmission Shaft <ø55×1229L>			1
06	400969	Key <t8×8×60L>	2	2	2
07	407810	Bearing <6211 Z>	8	8	8
08	400909	Retaining Ring <S-55>	4	4	4
09	205067	Transmission Wheel <ø178×65L>	2	2	2
10	400196	Retaining Ring <S-45>	2	2	2
11	400014	Hex. Recess Bolt <M8×1.25×30L>	1	1	1
12	266061	Hoist Frame	1		
	266062			1	
	266063				1
13	205466	Coupling (A) <ø34×ø21×61L>	2	2	1
14	407838	Bearing <6212 ZZ>	1	1	1
15	266811	Drum <ø218×ø194×655L>	1		
	266812	Drum <ø218×ø194×855L>		1	
	266813	Drum <ø218×ø194×1007L>			1
16	263021	Drum Shaft <ø30×497L>	1		
	263022	Drum Shaft <ø30×697L>		1	
	263023	Drum Shaft <ø30×849L>			1
17	205467	Coupling B <ø34×ø21×73L>			1
18	400195	Retaining Ring <S-40>	2	2	2
19	407831	Bearing <6208 Z>	4	4	4
20	205167	Plain Wheel <ø178×65L>	2	2	2
21	205137	Plain Shaft <ø55×929L>	1		
	265412	Plain Shaft <ø55×1229L>		1	
	265428	Plain Shaft <ø55×1229L>			1
22	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
23	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
24	205221	Sheave Axle <ø28×109L>	1	1	1
25	270202	Link Equalizer <t8×120×170L>	1	1	1
26	205239	Washer <ø40×ø29×3L>	2	2	2
27	205212	Equalizer Sheave <ø152×ø28 t40>	1	1	1
28	400095	Spring Washer <M8>	4	4	4
29	270502	Load Axle <ø35×200L>	1	1	1
30	269551	Load Key Plate <t6.0×25×80L>	1	1	1
31	400013	Hex. Recess Bolt <M8×1.25×25L>	2	2	2

## SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 5T (11000lbs)		
			20ft	30ft	40ft
01	104935	Reducing Motor	1	1	1
02	201757	Pinion <M3.5×23T 49L>	1	1	1
03	205186	Trolley Drive Gear <M3.5×58T×45L>	1	1	1
04	400969	Key <t8×8×60L>	1	1	1
05	205097	Transmission Shaft <ø55×929L>	1		
	265212	Transmission Shaft <ø55×1229L>		1	
	265228	Transmission Shaft <ø55×1229L>			1
06	400969	Key <t8×8×60L>	2	2	2
07	407810	Bearing <6211 Z>	8	8	8
08	400909	Retaining Ring <S-55>	4	4	4
09	205067	Transmission Wheel <ø178×65L>	2	2	2
10	400196	Retaining Ring <S-45>	2	2	2
11	400014	Hex. Recess Bolt <M8×1.25×30L>	1	1	1
12	266066	Hoist Frame	1		
	266067			1	
	266068				1
13	205466	Coupling (A) <ø34×ø21×61L>	1	1	1
14	407838	Bearing <6212 ZZ>	1	1	1
15	266811	Drum <ø218×ø194×655L>	1		
	266812	Drum <ø218×ø194×855L>		1	
	266813	Drum <ø218×ø194×1007L>			1
16	263026	Drum Shaft <ø30×470L>	1		
	263027	Drum Shaft <ø30×670L>		1	
	263028	Drum Shaft <ø30×822L>			1
17	205467	Coupling (B) <ø34×ø21×73L>	1	1	1
18	400195	Retaining Ring <S-40>	2	2	2
19	407831	Bearing <6208 Z>	4	4	4
20	205167	Plain Wheel <ø178×65L>	2	2	2
21	205137	Plain Shaft <ø55×929L>	1		
	265412	Plain Shaft <ø55×1229L>		1	
	265428	Plain Shaft <ø55×1229L>			1
22	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
23	200636	Keeper <ø8.5 P28 T6.0×25×50L>	1	1	1
24	205221	Sheave Axle <ø28×109L>	1	1	1
25	270202	Link Equalizer <t8×120×170L>	1	1	1
26	205239	Washer <ø40×ø29×3L>	2	2	2
27	205212	Equalizer Sheave <ø152×ø28 t40>	1	1	1
28	400095	Spring Washer <M8>	4	4	4
29	270502	Load Axle <ø35×200L>	1	1	1
30	269551	Load Key Plate <t6.0×25×80L>	1	1	1
31	400013	Hex. Recess Bolt <M8×1.25×25L>	2	2	2

## SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 7.5T (16500lbs)		
			20ft	30ft	40ft
01	104939	Reducing Motor	1	1	1
02	201678	Pinion <M3.5×20T 49L>	1	1	1
03	205186	Trolley Drive Gear <M3.5×58T×45L>	1	1	1
04	400969	Key <t8×8×60L>	1	1	1
05	265236	Transmission Shaft <ø55×1254L>	1		
	265214	Transmission Shaft <ø55×1254L>		1	
	265238	Transmission Shaft <ø55×1404L>			1
06	400969	Key <t8×8×60L>	2	2	2
07	407834	Bearing <6311Z>	8	8	8
08	400909	Retaining Ring <S-55>	4	4	4
09	205073	Transmission Wheel <ø196×90L>	2	2	2
10	400196	Retaining Ring <S-45>	2	2	2
11	400014	Hex. Recess Bolt <M8×1.25×30L>	1	1	1
12	266076	Hoist Frame	1		
	266077			1	
	266078				1
13	205467	Coupling (B) <ø34×ø21×73L>	1	1	1
14	407814	Bearing <6220 ZZ>	1	1	1
15	266871	Drum <ø271×ø243×712L>	1		
	266872	Drum <ø271×ø243×912L>		1	
	266873	Drum <ø271×ø243×1112L>			1
16	263031	Drum Shaft <ø35×475L>	1		
	263032	Drum Shaft <ø35×675L>		1	
	263033	Drum Shaft <ø35×875L>			1
17	205468	Coupling <ø48×ø28×62L>	1	1	1
18	400196	Retaining Ring <S-45>	2	2	2
19	407826	Bearing <6309Z>	4	4	4
20	205173	Plain Wheel <ø196×90L>	2	2	2
21	265436	Plain Shaft <ø55×1254L>	1		
	265414	Plain Shaft <ø55×1254L>		1	
	265438	Plain Shaft <ø55×1404L>			1
22	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
23	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
24	205222	Sheave Axle <ø35×119L>	1	1	1
25	270203	Link Equalizer <t8×140×230L>	1	1	1
26	205238	Washer <ø45×ø36×3L>	2	2	2
27	205244	Equalizer Sheave <ø210×35 t50>	1	1	1
28	400095	Spring Washer <M8>	4	4	4
29	270503	Load Axle <ø35×220L>	1	1	1
30	269551	Load Key Plate <t6.0×25×80L>	1	1	1
31	400013	Hex. Recess Bolt <M8×1.25×25L>	2	2	2

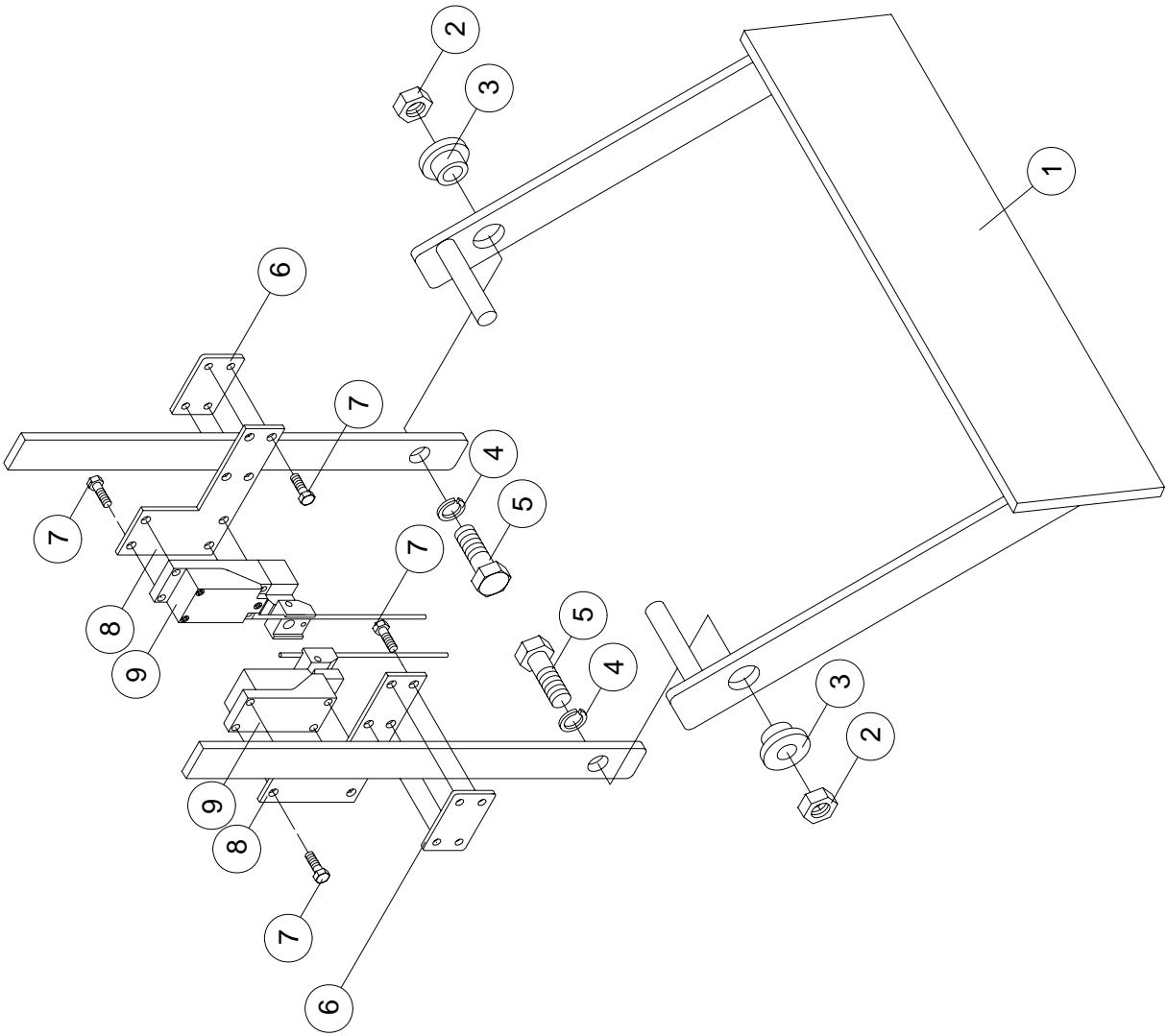


## SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 10T (22000lbs)		
			20ft	30ft	40ft
01	104963	Reducing Motor	1	1	1
02	201679	Pinion <M3.5×23T 63L>	1	1	1
03	205181	Trolley Drive Gear <M3.5×65T×45L>	1	1	1
04	400969	Key <t8×8×60L>	1	1	1
05	265236	Transmission Shaft <ø55×1254L>	1		
	265214	Transmission Shaft <ø55×1254L>		1	
	265238	Transmission Shaft <ø55×1404L>			1
06	400969	Key <t8×8×60L>	2	2	2
07	407834	Bearing <6311 Z>	8	8	8
08	400909	Retaining Ring <S-55>	4	4	4
09	205073	Transmission Wheel <ø196×90L>	2	2	2
10	400196	Retaining Ring <S-45>	2	2	2
11	400014	Hex. Recess Bolt <M8×1.25×30L>	1	1	1
12	266076	Hoist Frame	1		
	266077			1	
	266078				1
13	205467	Coupling (B) <ø34×ø21×73L>	1	1	1
14	407814	Bearing <6220 ZZ>	1	1	1
15	266876	Drum <ø296×ø261×712L>	1		
	266877	Drum <ø296×ø261×912L>		1	
	266878	Drum <ø296×ø261×1112L>			1
16	263031	Drum Shaft <ø35×475L>	1		
	263032	Drum Shaft <ø35×675L>		1	
	263033	Drum Shaft <ø35×875L>			1
17	205468	Coupling <ø48×ø28×62L>	1	1	1
18	400196	Retaining Ring <S-45>	2	2	2
19	407826	Bearing <6309 Z>	4	4	4
20	205173	Plain Wheel <ø196×90L>	2	2	2
21	265436	Plain Shaft <ø55×1254L>	1		
	265414	Plain Shaft <ø55×1254L>		1	
	265438	Plain Shaft <ø55×1404L>			1
22	400012	Hex. Recess Bolt <M8×1.25×20L>	2	2	2
23	200636	Keeper <ø8.5 P28 t6.0×25×50L>	1	1	1
24	205222	Sheave Axle <ø35×119L>	1	1	1
25	270203	Link Equalizer <t8×140×230L>	1	1	1
26	205238	Washer <ø45×ø36×3L>	2	2	2
27	205244	Equalizer Sheave <ø210×ø35 t50>	1	1	1
28	400095	Spring Washer <M8>	4	4	4
29	270503	Load Axle <ø35×220L>	1	1	1
30	269551	Load Key Plate <t6.0×25×80L>	1	1	1
31	400013	Hex. Recess Bolt <M8×1.25×25L>	2	2	2

## SADDLE FRAME ASSEMBLY B.O.M

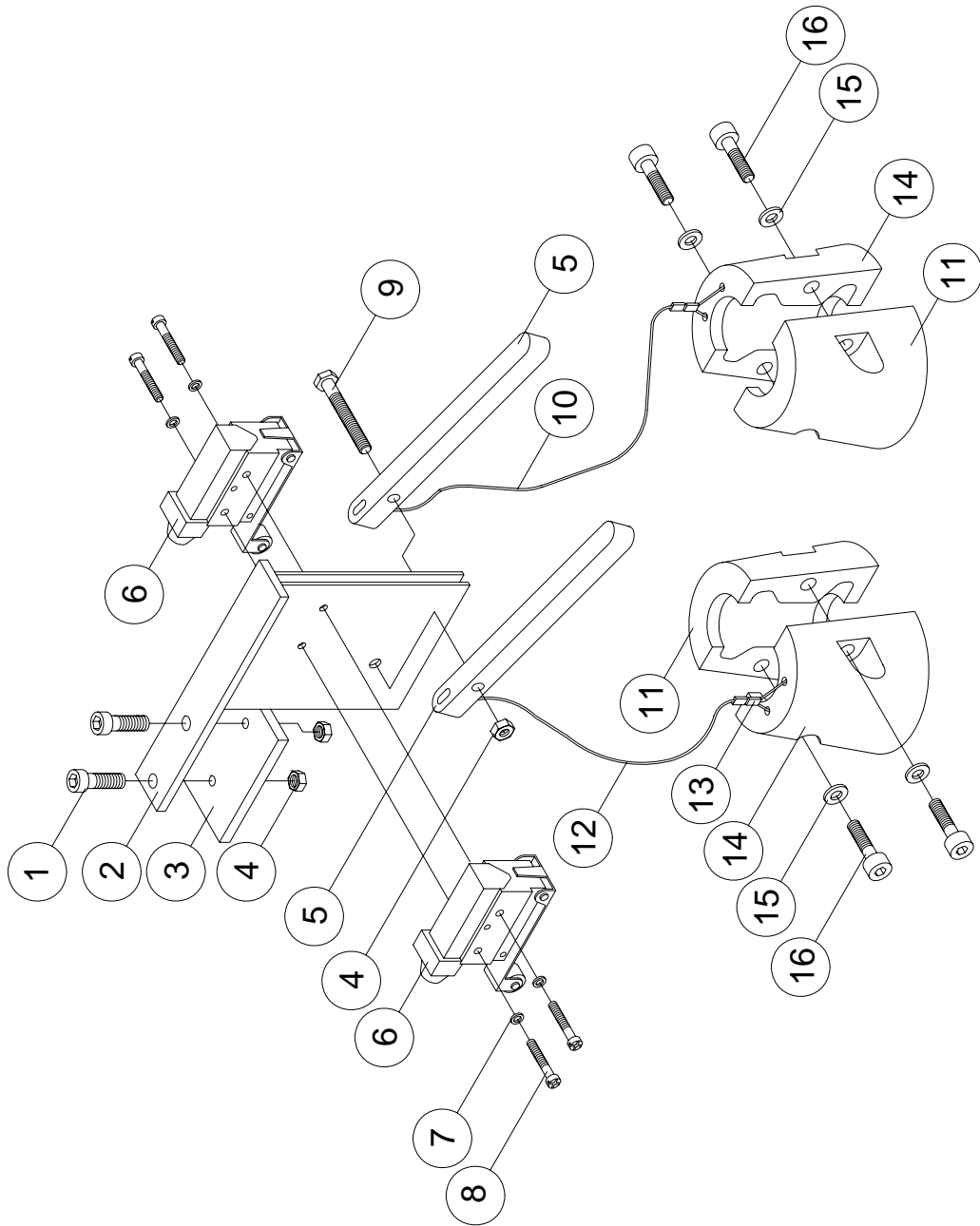
NO.	PART NUMBER	DESCRIPTION	Q'TY 15T (33000lbs)		
			20ft	30ft	40ft
01	104963	Reducing Motor	1	1	1
02	201679	Pinion <M3.5×23T 63L>	1	1	1
03	205183	Trolley Drive Gear <M3.5×70T×50L>	1	1	1
04	400984	Key <t16×10×60L>	1	1	1
05	265218	Transmission Shaft <ø80×1254L>	1		
	265217	Transmission Shaft <ø80×1604L>		1	
	265243	Transmission Shaft <ø80×1904L>			1
06	400954	Key <t16×10×90L>	2	2	2
07	407811	Bearing <6216 Z>	8	8	8
08	400918	Retaining Ring <S-80>	4	4	4
09	205077	Transmission Wheel <ø226×90L>	2	2	2
10	400910	Retaining Ring <S-70>	2	2	2
11	400013	Hex. Recess Bolt <M8×1.25×25L>	1	1	1
12	266081	Hoist Frame	1		
	266082			1	
	266083				1
13	205467	Coupling (B) <ø34×ø21×73L>	1	1	1
14	407814	Bearing <6220 ZZ>	1	1	1
15	266881	Drum <ø296×ø261×971L>	1		
	266882	Drum <ø296×ø261×1281L>		1	
	266883	Drum <ø296×ø261×1591L>			1
16	263041	Drum Shaft <ø35×734L>	1		
	263042	Drum Shaft <ø40×1044L>		1	
	263043	Drum Shaft <ø45×1354L>			1
17	205468	Coupling <ø48×ø28×62L>	1	1	1
18	400910	Retaining Ring <S-70>	2	2	2
19	407833	Bearing <6214 Z>	4	4	4
20	205177	Plain Wheel <ø226×90L>	2	2	2
21	265418	Plain Shaft <ø80×1254L>	1		
	265417	Plain Shaft <ø80×1604L>		1	
	265443	Plain Shaft <ø80×1904L>			1
22	400461	Hex. Recess Bolt <M20×2.5×35L>	4	4	4
23	264055	Keeper	2	2	2
24	400098	Spring Washer <M16>	4	4	4
25	407803	Bearing <6017 Z>	4	4	4
26	400920	Retaining Ring <S-85>	2	2	2
27	263555	Sheave <ø285×60L>	2	2	2
28	273641	Guide Rope Bar	4	4	4
29	263461	Load Axle <ø95×424L>	1	1	1
30	400634	Nut <M16×2.0 >	4	4	4
31	400099	Spring Washer <M20>	4	4	4



# 1-10T LIMIT SWITCH EXPLOSION

## LIMIT SWITCH ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY 1,2T (2200lbs) (4400lbs)	Q'TY 3,5T (6600lbs) (11000lbs)	Q'TY 7.5,10T (16500lbs) (22000lbs)
01	204893	Lever Arm	1		
	204891			1	
	204892				1
02	400084	Nut <M12×1.75>	2	2	2
03	205308	Tube <ø30×12.5×15L>	2	2	2
04	400097	Spring Washer <M12>	2	2	2
05	400023	Hex. Recess Bolt <M12×1.75×35L>	2	2	2
06	205314	Limit Frame <t3.0×30×47L>	2	2	
	273701	Limit Frame <t3.0×30×62L>			2
07	400003	Hex. Recess Bolt <M5×0.8×16L>	8	8	8
08	205313	Limit Plate <t3.0×40×55L>	2	2	
	273602	Limit Plate <t3.0×68×120L>			2
09	300540	Limit Switch	2	2	2



# 15T LIMIT SWITCH EXPLOSION

## LIMIT SWITCH ASSEMBLY B.O.M

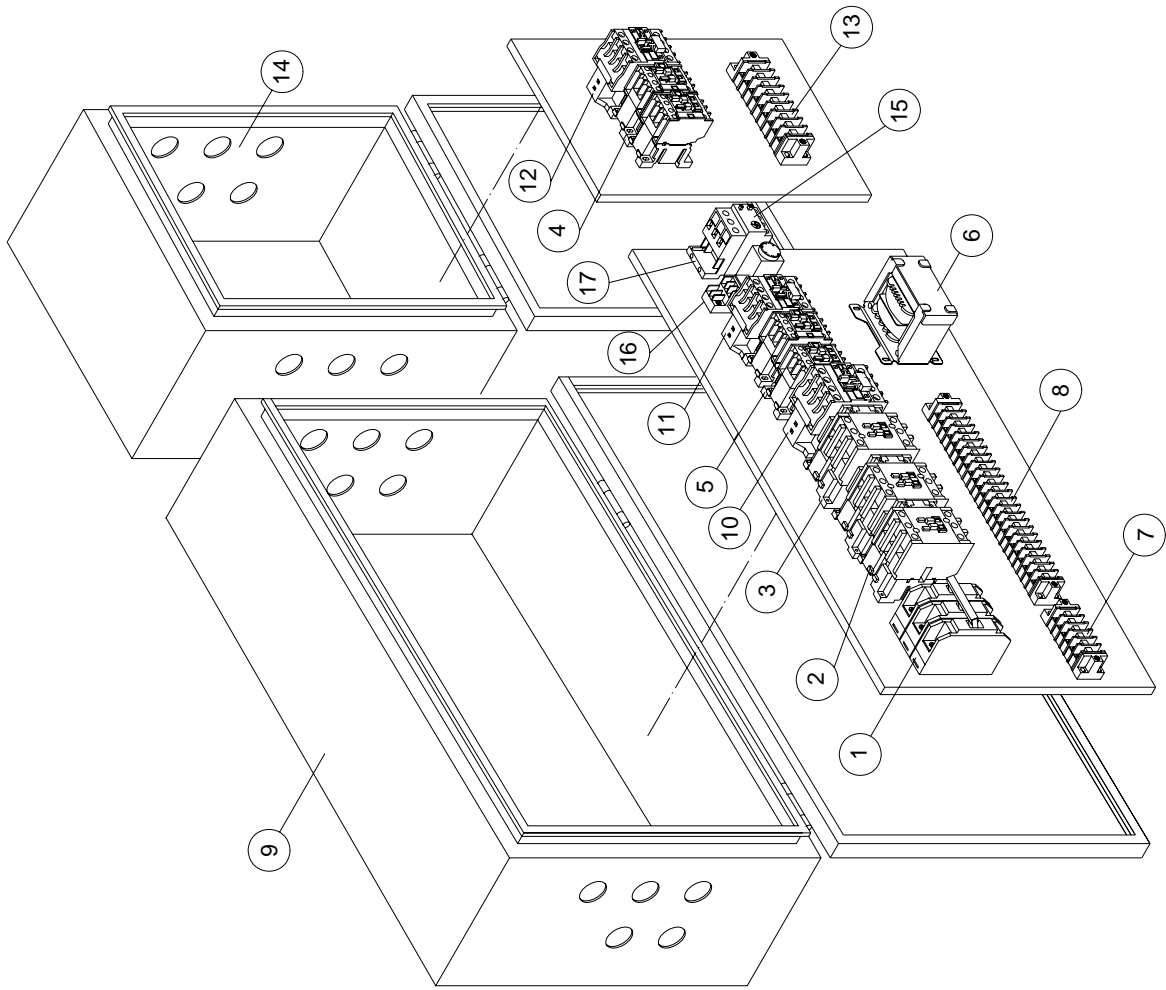
NO.	PART NUMBER	DESCRIPTION	Q'TY 15T (33000lbs)
01	400007	Hex. Recess Bolt <M6×1.0×20L>	2
02	205340	Limit Frame <t5.0×84×110>	1
03	205343	Stator <t6.0×38×64L>	1
04	400087	Lock Nut <M6×1.0>	3
05	205342	Limit Stick <t12×12×145L>	2
06	300534	Limit Switch <AZ-7121>	2
07	400092	Spring Washer <M4>	4
08	400617	Cross Headed Screw <M4×0.7×25L>	4
09	400027	Hex. Recess Bolt <M6×1.0×45L>	1
10	403001	Wire Rope ø2×1000L	1
11	205339	Counter Weight B	2
12	403001	Wire Rope ø2×850L	1
13	300294	AL. Setting Sleeve <3mm>	8
14	205338	Counter Weight A	2
15	400095	Spring Washer <M8>	4
16	400013	Hex. Recess Bolt <M8×1.25×25L>	4

	Single Speed	Dual Speed	Control Box
Hoisting	<input type="radio"/>		<input type="radio"/> 9
Traversing	<input type="radio"/>		<input type="radio"/> 9
Travelling	<input type="radio"/>		<input type="radio"/> 14

	Single Speed	Dual Speed	Control Box
Hoisting		<input type="radio"/>	<input type="radio"/> 9
Traversing	<input type="radio"/>		<input type="radio"/> 9
Travelling	<input type="radio"/>		<input type="radio"/> 14

	Single Speed	Dual Speed	Control Box
Hoisting		<input type="radio"/>	<input type="radio"/> 9
Traversing		<input type="radio"/>	<input type="radio"/> 9
Travelling	<input type="radio"/>		<input type="radio"/> 14

	Single Speed	Dual Speed	Control Box
Hoisting		<input type="radio"/>	<input type="radio"/> 9
Traversing		<input type="radio"/>	<input type="radio"/> 9
Travelling		<input type="radio"/>	<input type="radio"/> 14



# 1-15T ELECTRIC EXPLOSION

# ELECTRIC ASSEMBLY B.O.M.

(S)=Single Speed; (D)=Dual Speed

NO.	PART NUMBER	DESCRIPTION	Q'TY 1,2T (2200lbs) (4400lbs)			Q'TY 3T (6600lbs)			Q'TY 5T (11000lbs)		
			S	D		S	D		S	D	
			230/460 (V)	230 (V)	460 (V)	230/460 (V)	230 (V)	460 (V)	230/460 (V)	230 (V)	460 (V)
01	300886	No Fuse Breaker	1	1	1	1	1	1	1	1	1
02	301112	Magnetic Contactor For "Emergency Stop"			1						
	301116		1	1			1			1	
	301120					1	1				
	301124								1	1	
03	301112	Magnetic Contactor For "Hoist"			2						
	301116		2	2			2			2	
	301120					2	2				
	301124								2	2	
04	301103	Reversing Contactor For "Traveling"	2	2	2						
	301108					2	2	2	2	2	2
05	301103	Reversing Contactor For "Traversing"	2	2	2	2	2	2	2	2	2
06	301056	Control Transformer	1	1	1	1	1	1			1
	301076								1	1	
07	300658	Terminal Blocks	1			1			1		
	300647			1	1		1	1		1	1
08	300663	Terminal Blocks	1	1	1	1	1	1	1	1	1
09	301422	Electric Control Panel(TU)	1	1	1	1	1	1			1
	301424								1	1	
	301427	Electric Control Panel(SU)	1	1	1	1	1	1			1
	301428								1	1	
10	300043	Magnetic Contactor For "Fast"(Hoisting)		1	1		1	1			
	300047									1	
11	300037	Magnetic Contactor For "Fast" (Traversing)		1	1		1	1		1	1
12	300037	Magnetic Contactor For "Fast" (Traveling)		1	1		1	1		1	1
13	300657	Terminal Blocks		1	1		1	1	1	1	1
14	301336	Electric Control Panel		1	1		1	1	1	1	1
15	300132	Thermal Overload Relay	460V		1	460V		1	460V		1
			1			1		1			
	300113		230V	1		230V	1		230V	1	
			1			1		1			
17	300141	Terminal Blocks	1	1	1	1	1	1	1	1	



## ELECTRIC ASSEMBLY B.O.M.

(S)=Single Speed; (D)=Dual Speed

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500 lbs)			QTY 10T (22000 lbs)			QTY 15T (33000 lbs)		
			S		D	S		D	S		D
			230/460 (V)	230 (V)	460 (V)	230/460 (V)	230 (V)	460 (V)	230/460 (V)	230 (V)	460 (V)
01	302216	No Fuse Breaker	1	1		1	1		1	1	
	300886				1		1				1
02	301132	Magnetic Contactor For "Emergency Stop"	1	1		1	1		1	1	
	301124						1				1
	301120				1						
03	301132	Magnetic Contactor For "Hoist"	2	2		2	2		2	2	
	301124						2				2
	301120				2						
04	301112	Reversing Contactor For "Traveling"	2	2	2	2	2	2	2	2	2
05	301108	Reversing Contactor For "Traversing"				1	1	1	1	1	1
	301103		1	1	1						
06	301076	Control Transformer	1		1	1		1	1		1
	303752			1			1			1	
07	300659	Terminal Blocks	1			1			1		
	300656			1			1			1	
	300647				1		1				1
08	300663	Terminal Blocks	1	1	1	1	1	1	1	1	1
09	301424	Electric Control Panel(TU)	1		1	1		1	1		1
	301425			1			1			1	
	301428	Electric Control Panel(SU)	1		1	1		1	1		1
	301425			1			1			1	
10	300022	Magnetic Contactor For "Fast"(Hoisting)		1			1			1	
	300047				1		1				1
11	300037	Magnetic Contactor For "Fast"(Traversing)		1	1		1	1		1	1
12	300043	Magnetic Contactor For "Fast" (Traveling)		1	1		1	1		1	1
13	300657	Terminal Blocks	1	1	1	1	1	1	1	1	1
14	301336	Electric Control Panel	1	1	1	1	1	1	1	1	1
15	300133	Thermal Overload Relay	460V		1	460V		1	460V		1
			1			1			1		
	300134		230V			230V			230V		1
			1	1		1	1		1		
16	300271	Timer				1	1		1	1	
17	300141	Terminal Blocks	1	1	1	1	1	1	1	1	1