



ELECTRIC WIRE ROPE HOIST

OPERATION MANUAL & PARTS LIST

SERIES:

- | | |
|---|---|
| ☐ TUAH(D)-100DB | ☐ FUAH(D)-100DB |
| ☐ TUBH(D)-200DB | ☐ FUBH(D)-200DB |
| ☐ TUCH(D)-300DB | ☐ FUCH(D)-300DB |
| ☐ TUDH(D)-500DB | ☐ FUDH(D)-500DB |
| ☐ TUEAH(D)-750DB | ☐ FUEAH(D)-750DB |
| ☐ TUF AH(D)-1000DB | ☐ FUF AH(D)-1000DB |
-
- | |
|--|
| ☐ SUBH(D)-200DB |
| ☐ SUCH(D)-300DB |
| ☐ SUDH(D)-500DB |
| ☐ SUEAH(D)-750DB |
| ☐ SUFAH(D)-1000DB |



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.



CONTENTS

Safety – Important	1
1.Foreword	3
2.Main Specification	4
2.1 Specification	4
2.2 Mechanical Classification (Grade) and Life	5
2.3 Safety Device	6
3.Safety Rules	7
4.Installation	10
4.1 Unpacking Information	10
4.2 Voltage	10
4.3 Installation	10
5.Operation	12
6.Maintenance and Inspection	13
6.1 Maintenance	13
6.2 Inspection	13
7.Troubleshooting	16
7.1 Wiring Diagrams	16
7.2 Troubleshooting and Remedial Action	20
8.Wire rope reeving(passing)	21
9.Parts List	22
10. Adjust the air gap as follows	72

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 will have your trust of Cheng Day's long term satisfactory service as our belief.

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,230V-110V,60Hz Three Phase,460V-110V,60Hz
Noise Level (dB)	Single speed hoist	81
	Dual Speed hoist	81
Wire Rope diameter	WLL (working load limit)(t)	Nominal diameter (mm)
	1T (2200lbs)	Ø6 19×7(181kg/mm ²)
	2T (4400 lbs)	Ø8 19×7(195kg/mm ²)
	3T (6600 lbs)	Ø10 19×7(195kg/mm ²)
	5T (11000 lbs)	Ø10 19×7(195kg/mm ²)
	7.5T (16500 lbs)	Ø12 19×7(195kg/mm ²)
	10T (22000 lbs)	Ø14 19×7(195kg/mm ²)

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.

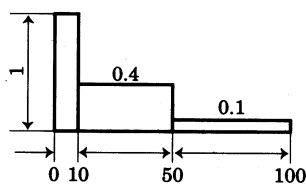
Black Bear electric wire rope hoists have been designed according to FEM-2m regulations (FEM 9.511).

Details are provided in Table 2-2.

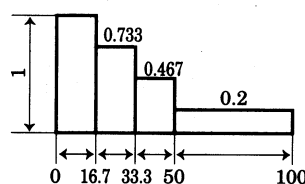
Average daily operating time and total operating time are determined by load distribution.

Table 2-2 Mechanical classification

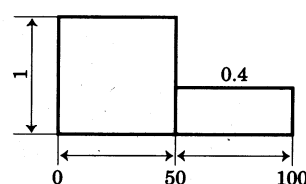
Load Spectrum (Load distribution)	Definitions	Cubic mean value	Average daily operating time (h)	Total operating time (h)
1 (light)	Mechanisms or parts thereof, usually subject to very small loads and in exceptional cases only to maximum loads.	$k \leq 0.50$	4 - 8	12500
2 (medium)	Mechanisms or parts thereof, usually subject to small loads but rather often to maximum loads.	$0.50 < k \leq 0.63$	2 - 4	6300
3 (heavy)	Mechanisms or parts thereof, usually subject to medium loads but frequently to maximum loads.	$0.63 < k \leq 0.80$	1 - 2	3200
4 (very heavy)	Mechanisms or parts thereof, usually subject to maximum or almost maximum loads.	$0.80 < k \leq 1.00$	0.5 - 1	1600



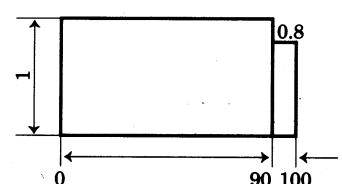
% operating time
Load spectrum 1



% operating time
Load spectrum 2



% operating time
Load spectrum 3



% operating time
Load spectrum 4

2.3 Safety Devices

(1) Motor brake

"DC Electro-Magnetic Brake" is of a unique design in its field. It features simultaneous motor braking upon removing 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

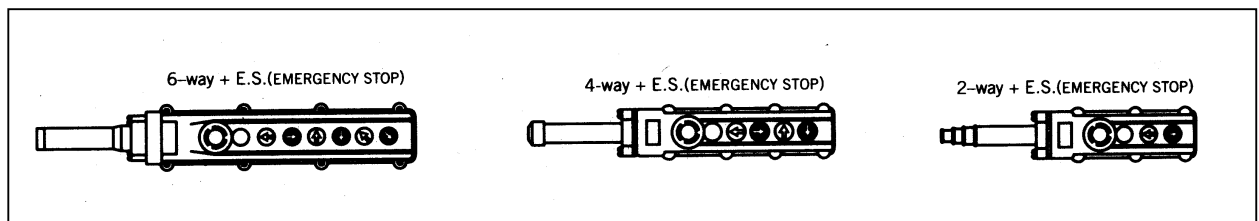
The hook is drop - forged from high tensile steel and heat treated for strength and toughness. The button hook is capable of 360°swivel and fitted with safety latch to ensure safe lifting.

(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)

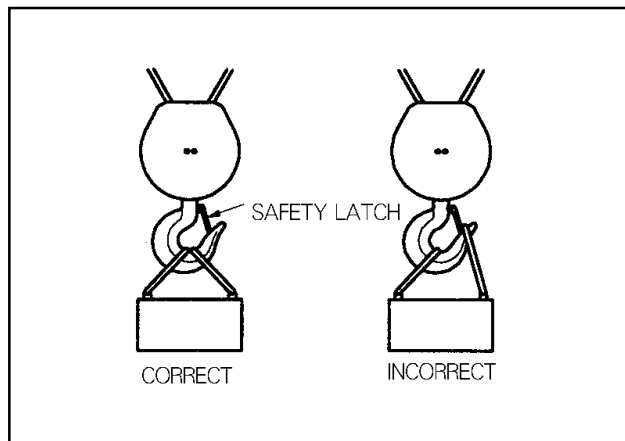
DANGER

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.

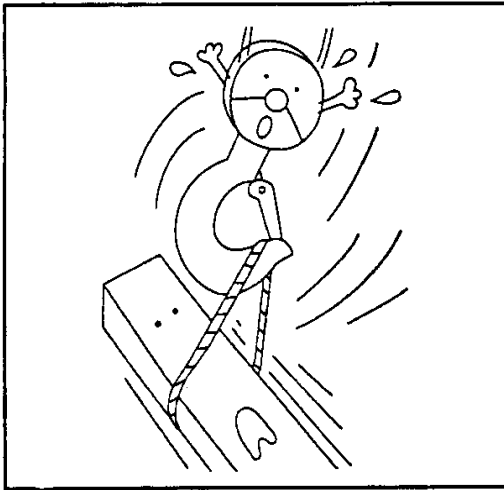
(b) The lifting sling is located in the hook as shown below (Illust. 2) and that a safety latch has been fitted.



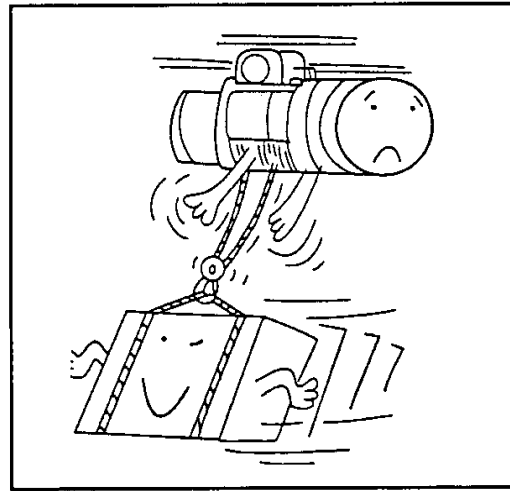
Illust. 2

(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, avoid jogging.
- (5) 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 Side load, back load, or tip load a hook. (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)

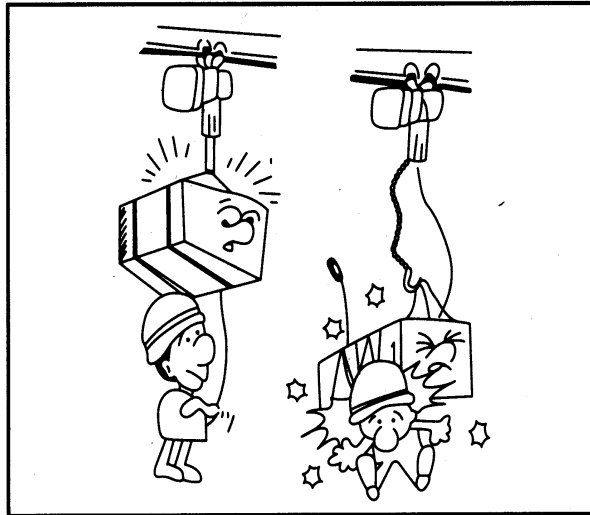


Do not use the Hoist's wire rope as a welding electrode.

(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 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

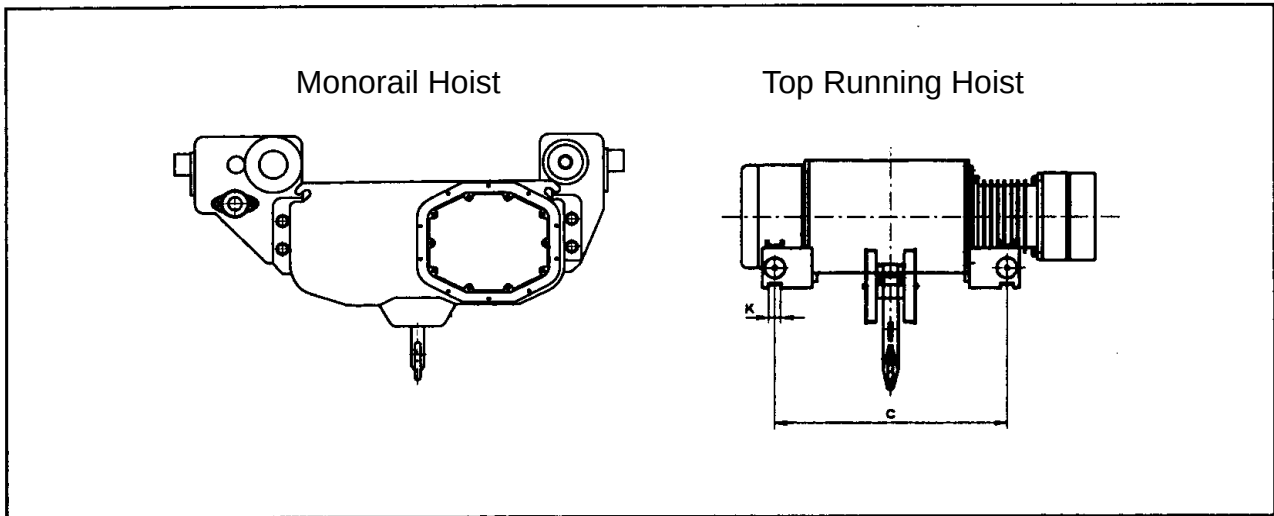
If power supply deviates from standard by more than $\pm 10\%$, abnormal operation or damage to the motor may result. It is imperative to ensure correct voltage supply before commencing operation.

4.3 Installation

WARNING

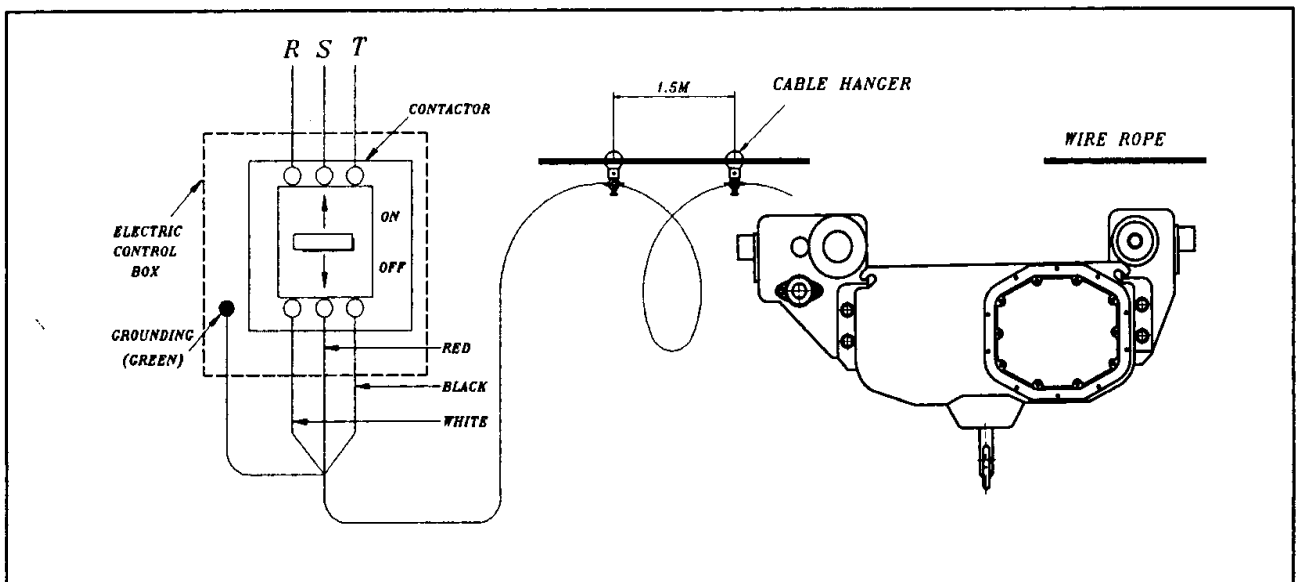
Connection to power supply before installation procedures having been completed is strictly prohibited.

- (1) Prior to installation ,for the Top Running hoist, check dimension “C” & “K” to insure dimension is compatible to the rail size or the gauge between the rails; for the monorail hoist-please insure trolley adjustment equal to beam’s width. (Please refer to illustration 6)



Illust. 6

- (2) Connect power supply to hoist and operate the up push button switch. If the hoist goes down, release the button, go to power source and change (switch) any two wires. Do not modify or change any wires in the push button station.



Illust. 7

(3) Operation Test

(A) push  switch button to lower bottom hook until the drum has only 3 wraps left on  the drum.

(B) push  switch button to check if the rope winds into the drum grooves.

(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, verify 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 either of the above checks, check the wiring and automatic locking function of the emergency stop device.

(D) Check to insure upper limit stop works properly by raising the lower block to a point just below engagement. Then carefully jog "UP" into engagement .

When engaged, the "UP" button should be inoperative.

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 careful use of the trolley controls.

6. MAINTENANCE AND INSPECTION



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



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 in of the bottom block's sheave.

(2) Monthly inspection



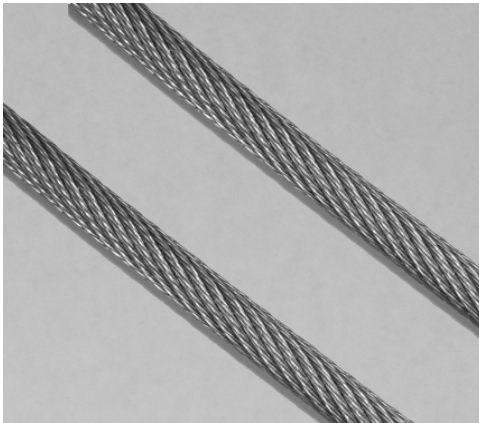
WARNING
Always use the hoist manufacture's recommended parts when repairing a hoist.

(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.

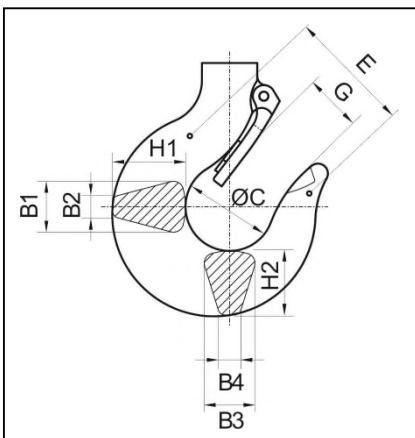


Rope Dia. (m/m) d	Model Being Used	Construction	Specified Breaking Load(kN)
Ø6	T,FUAH(D)-100DB	Steel Wire Rope 19×7 (181kg/mm ²)	23.8
Ø8	T,F,SUBH(D)-200DB	Steel Wire Rope 19×7 (195kg/mm ²)	45.9
Ø10	T,F,SUCH(D)-300DB T,F,SUDH(D)-500DB		71.7
Ø12	T,F,SUEAH(D)-750DB		103
Ø14	T,F,SUFAH(D)-1000DB		140

Table 6-2-a

(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 (ton)	Dimensions (mm)									Tensile Strength (kg/mm ²)
	H1	B1	B2	H2	B3	B4	C	G	E	
1	33	23	9	29	23	9	40	27	61	70
2	45	31	10	41	31	10	46	35	70	70
3	57	38	12	52	38	12	60	42	90	70
5	75	48	16	68	48	16	75	56	105	70
7.5	85	61	22	77	61	22	85	62	140	70
10	100	68	27	95	64	27	100	70	150	70

Table 6-2-b

(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.



WARNING

Your dealer should be asked to perform this inspection.

(3) Annual 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
Gear Box NO.	UA	UB	UC	UD	UEA	UFA
U.S. gal	0.4~0.53	0.53~0.66	1.85~1.98	1.85~1.98	2.11~2.64	2.11~2.64
Liter	1.5~2.0	2.0~2.5	7.0~7.5	7.0~7.5	8.0~10	8.0~10

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 ² /s(cST)	Approximate viscosity of the VG Categories 50°C mm ² /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 ² /s(cST)	Approximate viscosity of the VG Categories 50°C mm ² /s(cST)	SHELL	TEXACO	I.P.	AGIP	TOTAL
VG460	251	Omala oil 460	Meropa 460	Mellana 460	Blasia 460	Carter EP 460

(a) Check brake lining and ratchet pawl for emergency braking any wear or damage.

(b) Check operation of pawl spring.

(c) 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(US-03-0006A1 (230V))	17
(2) Single Speed Wiring Diagram(US-03-0002A1 (460V))	17
(3) Dual Speed Wiring Diagram (US-03-0009A1 (230V Under 1T~7.5T)	18
(4) Dual Speed Wiring Diagram (US-03-0010A1 (460V Under 1T~7.5T)	18
(5) Dual Speed Wiring Diagram (US-03-0007A1 (230V Under 10T)	19
(6) Dual Speed Wiring Diagram (US-03-0008A1 (460V Under 10T)	19

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 to 600
60 Hz	

Warranty Details

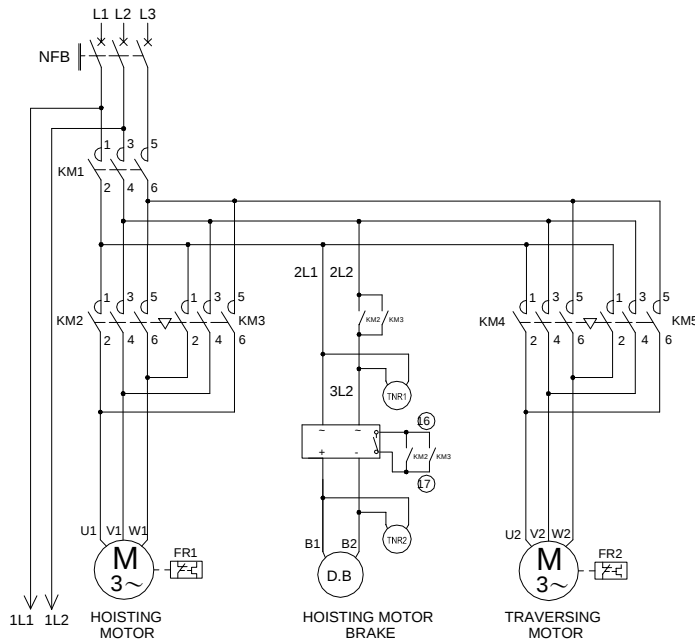
1.Warranty Period : One year for Mechanical Spare Parts after purchase the product.

2.Non-Warranty Scope:

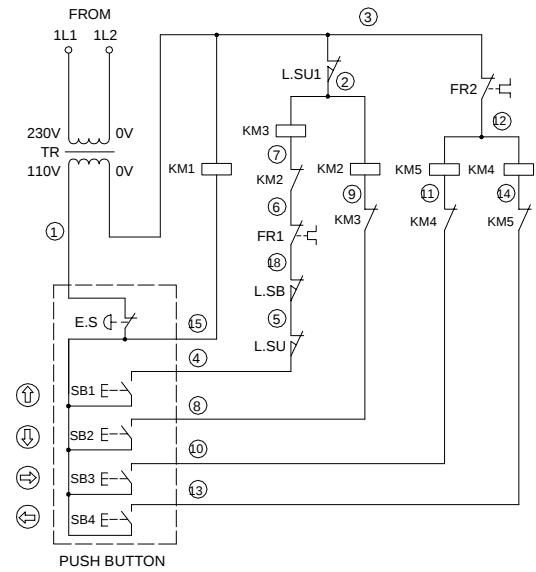
- a.Electrical Spare Parts (ex. Contactor, Pendant, Phase Error Relay, etc.)
- b.Expense Spare Parts (ex. Chain Bucket, Brake Lining, etc.)
- c.Damage caused by unsuitable operation.
(ex. Galvanize plant, Chemical Plant, Dye-work, etc.)
- d.Damage caused by operate on the wrong electric voltage.
- e.Damage caused by user amend the product.
- f.Damage caused by natural disaster.

3.Warranty Scope shall be permitted by Cheng Day Machinery and Within One Year of damaged Mechanical Spare Parts Repair and Replacement.
(circumstance stated in detail No. 2 are not included.)

SINGLE SPEED WITH EMERGENCY STOP



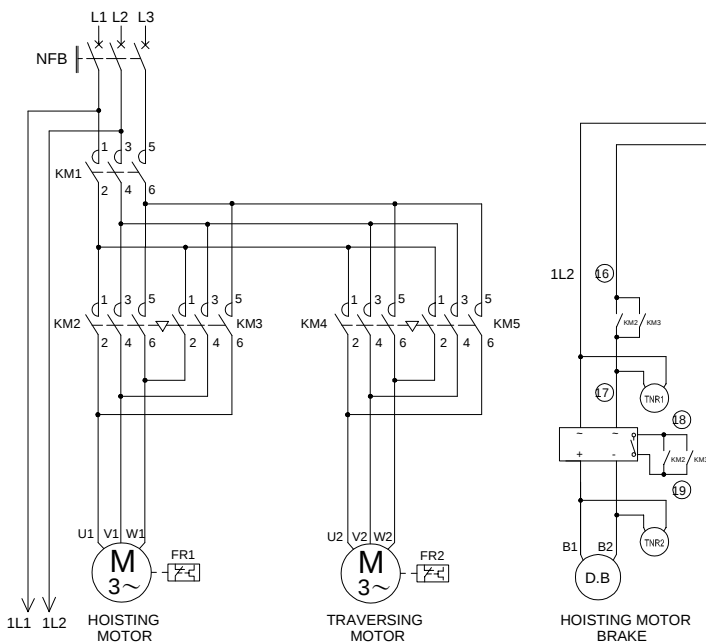
MAIN CIRCUIT WIRING DIAGRAM



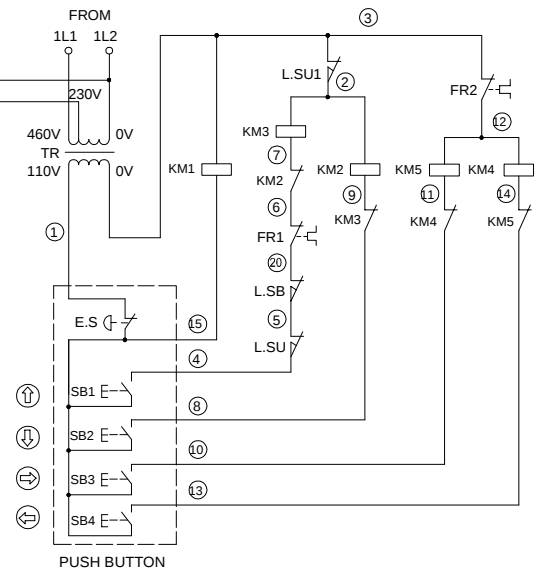
CONTROL CIRCUIT WIRING DIAGRAM

NOTE:
D.B: DC BRAKE
D.B COIL VOLTAGE DC103V:HOISTING MOTOR UNDER 5KW
D.B COIL VOLTAGE DC205V:HOISTING MOTOR ABOVE 6.5KW
L.SB:LIMIT SWITCH FOR "BRAKE"
L.SU:LIMIT SWITCH FOR "UP"
L.SU1:LIMIT SWITCH FOR "UPPER"

US-03-0006A1



MAIN CIRCUIT WIRING DIAGRAM

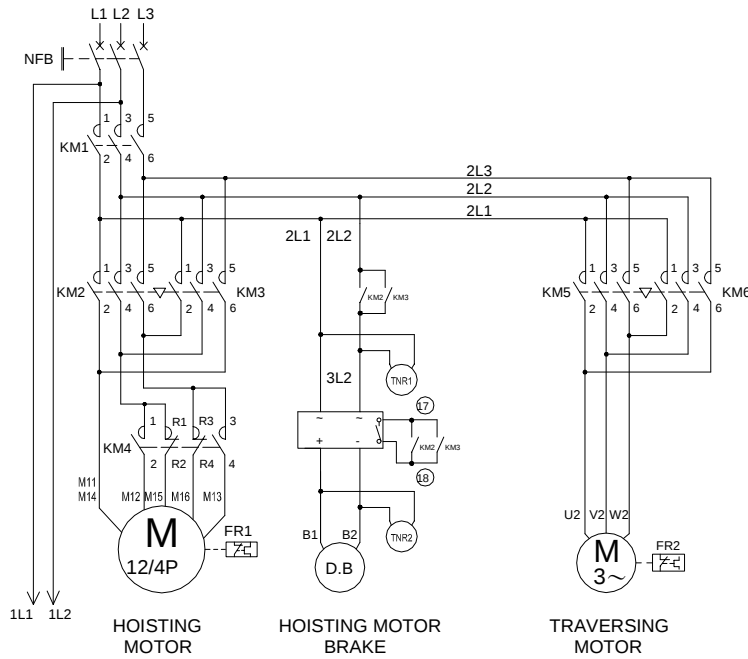


CONTROL CIRCUIT WIRING DIAGRAM

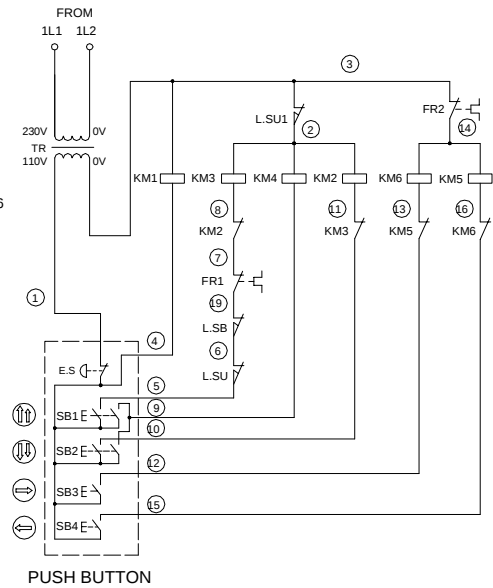
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D.B COIL VOLTAGE DC205V:HOISTING MOTOR ABOVE 6.5KW
L.SB:LIMIT SWITCH FOR "BRAKE"
L.SU:LIMIT SWITCH FOR "UP"
L.SU1:LIMIT SWITCH FOR "UPPER"

US-03-0002A1

DUAL SPEED WITH EMERGENCY STOP



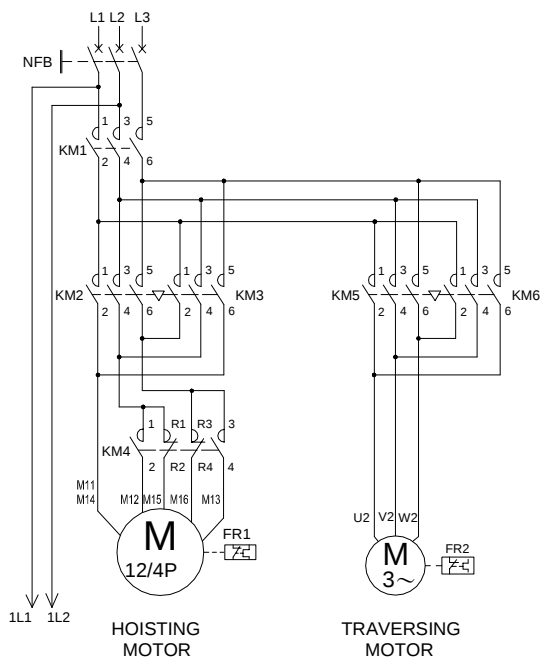
MAIN CIRCUIT WIRING DIAGRAM



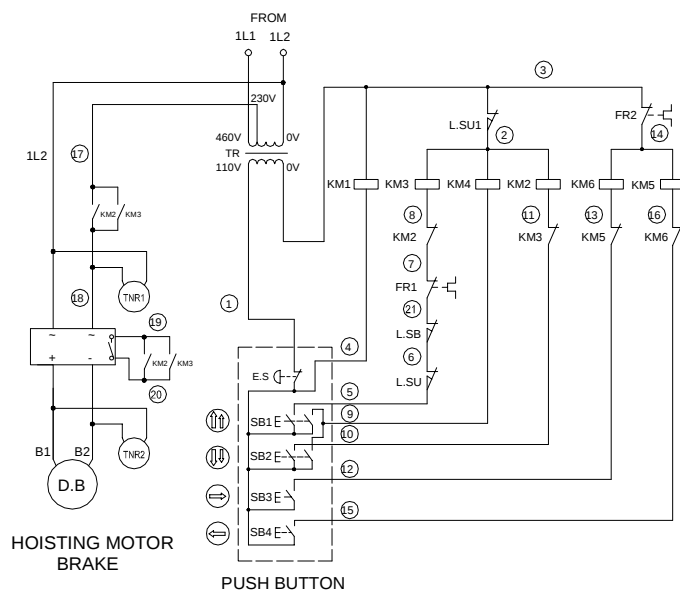
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D.B COIL VOLTAGE DC205V:HOISTING MOTOR ABOVE 6.5KW
L.SB:LIMIT SWITCH FOR "BRAKE"
L.SU:LIMIT SWITCH FOR "UP"
L.SU1:LIMIT SWITCH FOR "UPPER"

US-03-0009A1



MAIN CIRCUIT WIRING DIAGRAM

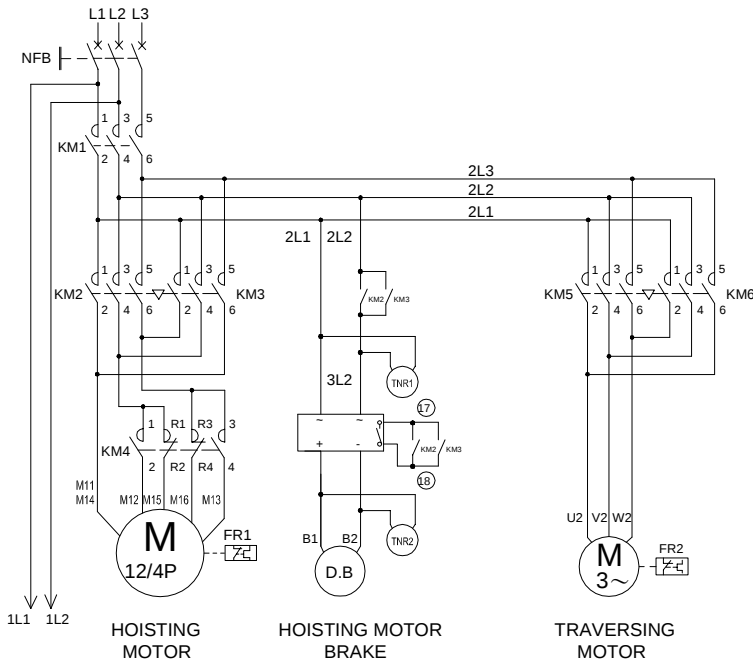


CONTROL CIRCUIT WIRING DIAGRAM

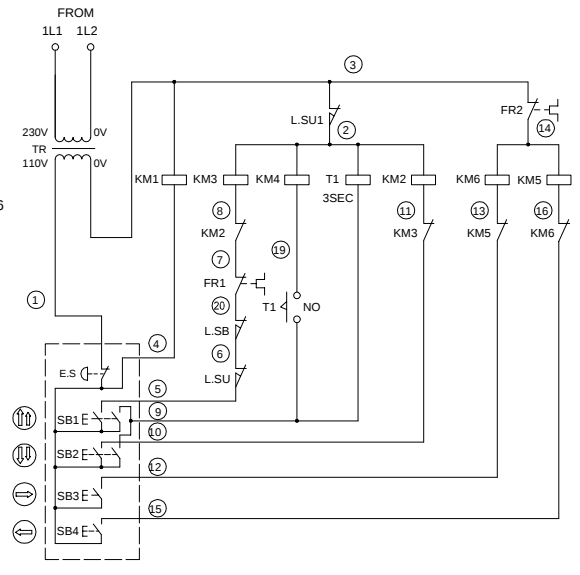
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D.B COIL VOLTAGE DC205V:HOISTING MOTOR ABOVE 6.5KW
L.SB:LIMIT SWITCH FOR "BRAKE"
L.SU:LIMIT SWITCH FOR "UP"
L.SU1:LIMIT SWITCH FOR "UPPER"

US-03-0010A1

DUAL SPEED WITH EMERGENCY STOP ADD TIMER



MAIN CIRCUIT WIRING DIAGRAM

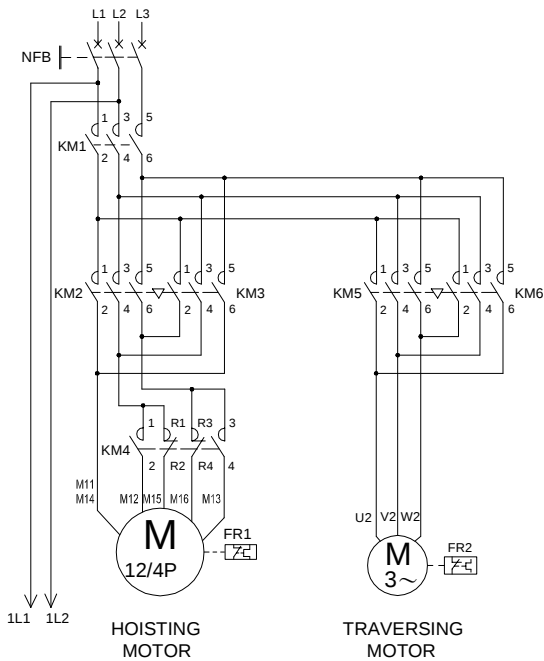


PUSH BUTTON

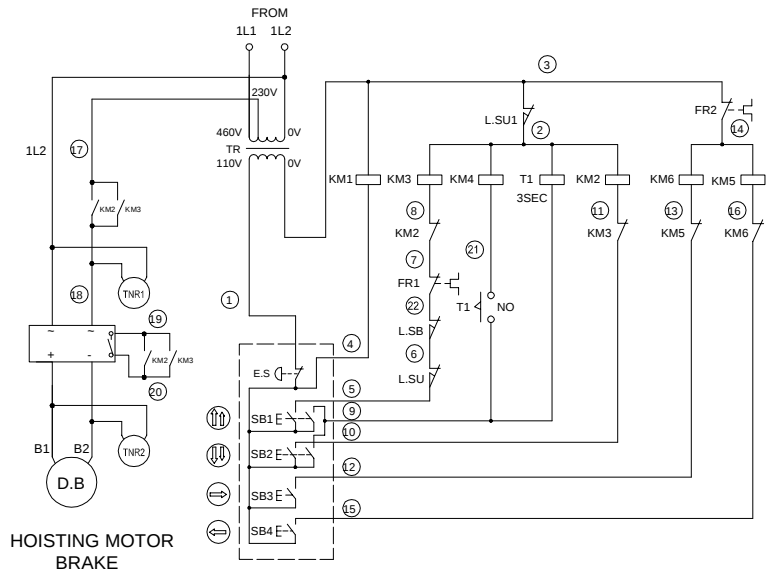
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US-03-0007A1



MAIN CIRCUIT WIRING DIAGRAM



PUSH BUTTON

CONTROL CIRCUIT WIRING DIAGRAM

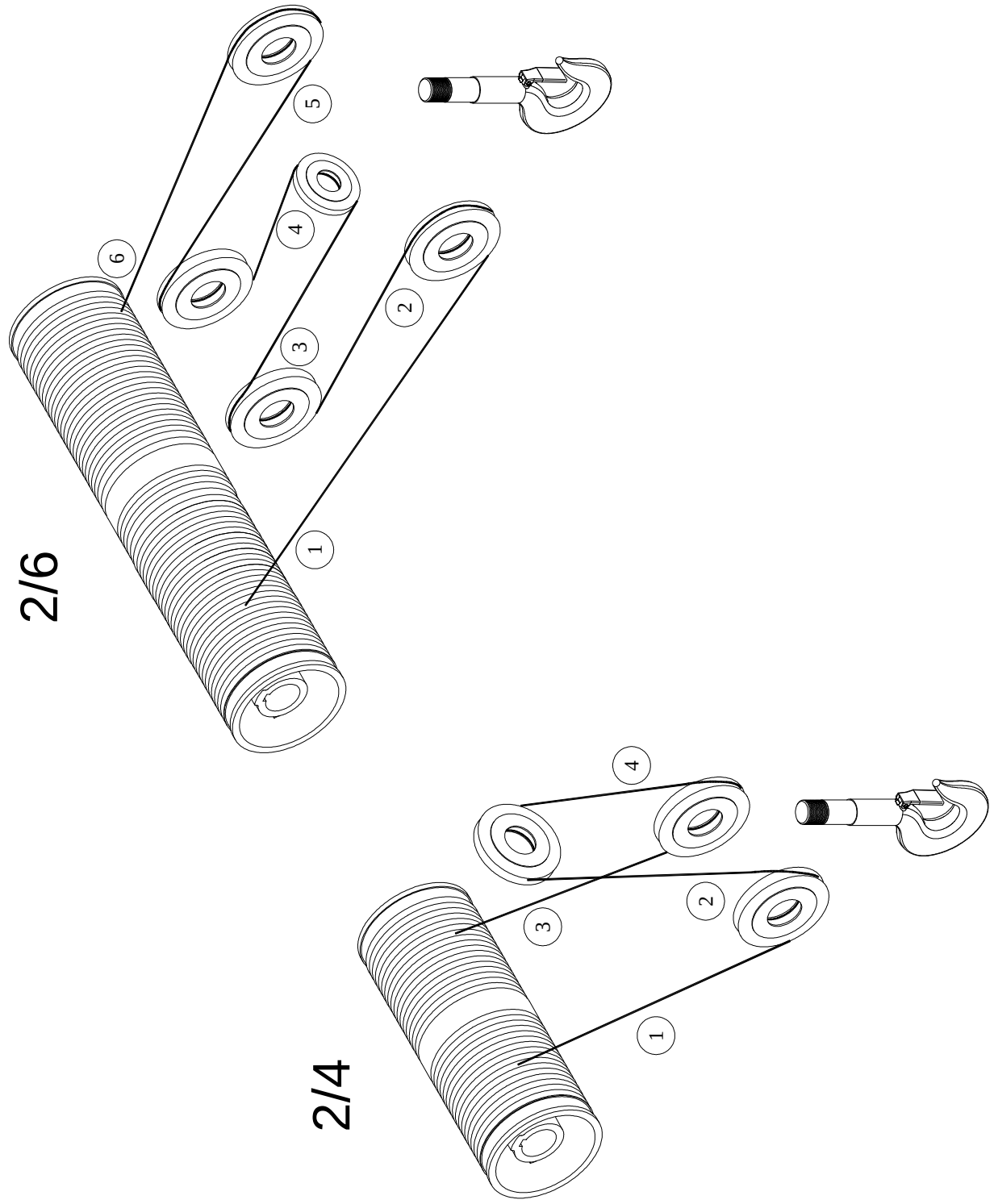
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L.SU1:LIMIT SWITCH FOR "UPPER"

US-03-0008A1

7.2 Troubleshooting and Remedial action

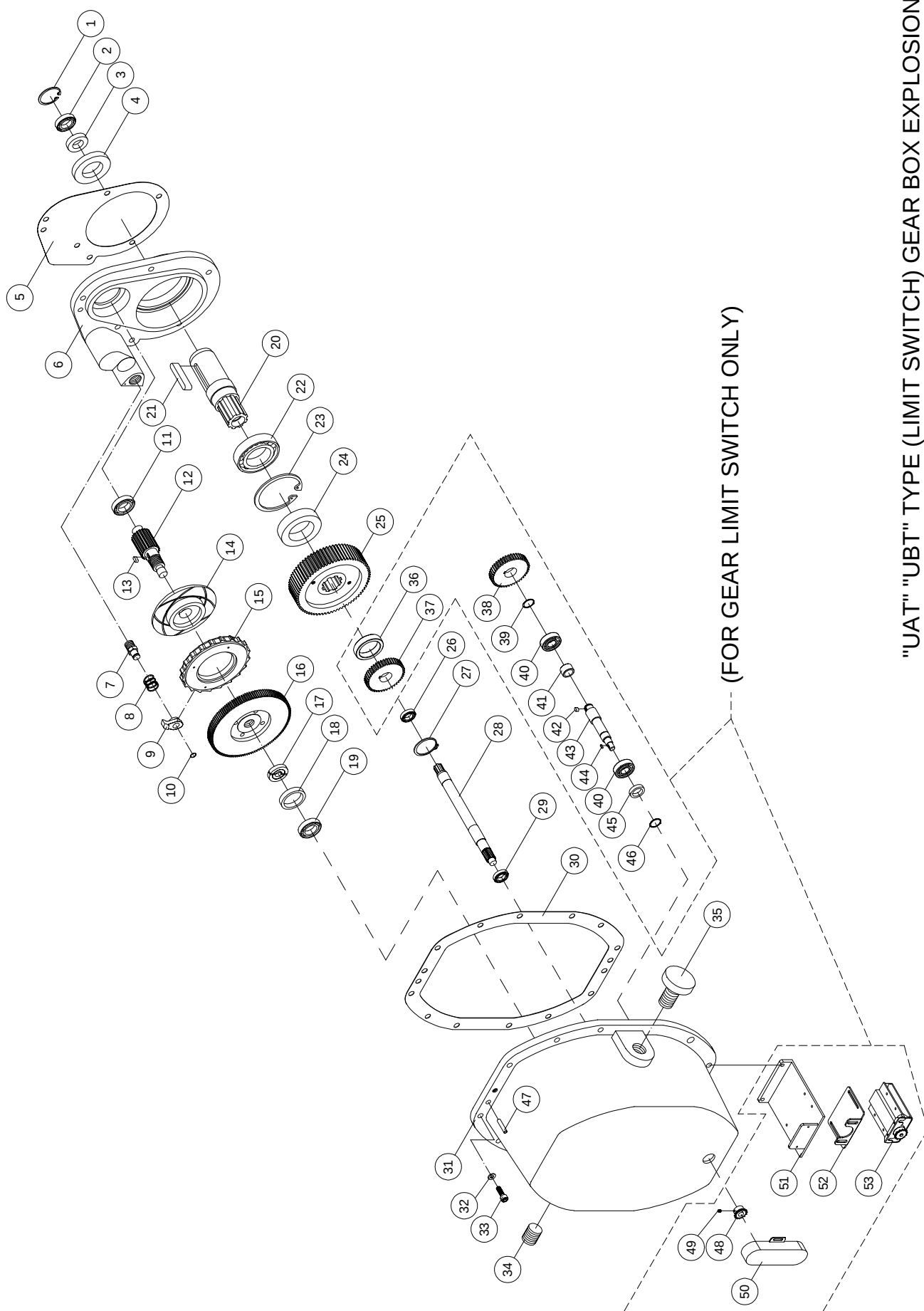
SITUATION	CAUSE	REMEDY
Hoist will not operate	(1) Blown power fuse or tripped power circuit breaker (2) Blown control circuit fuse (3) Broken/disconnected power or control circuit wire (4) Low supply voltage (5) Motor hums but does not rotate (6) Emergency stop button release pushed (if fitted) (7) Faulty 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



9. DRAWINGS AND PARTS LIST

(1) "UA" "UB" TYPE GEAR BOX EXPLOSION DRAWING	23
(2) "UA" "UB" TYPE GEAR BOX BILL OF MATERIAL	24
(3) "UC" "UD" TYPE GEAR BOX EXPLOSION DRAWING	26
(4) "UC" "UD" TYPE GEAR BOX BILL OF MATERIAL	27
(5) "UEA" "UFA" TYPE GEAR BOX EXPLOSION DRAWING	30
(6) "UEA" "UFA" BILL OF MATERIAL	31
(7)MOTOR EXPLOSION DRAWING	34
(8)MOTOR BILL OF MATERIAL	35
(9)1-2T BOTTOM BLOCK EXPLOSION DRAWING	39
(10) 1-2T BOTTOM BLOCK BILL OF MATERIAL	40
(11) 3-10T BOTTOM BLOCK EXPLOSION DRAWING	41
(12) 3-10T BOTTOM BLOCK BILL OF MATERIAL.	42
(13) MOTORIZED TROLLEY EXPLOSION DRAWING	44
(14) MOTORIZED TROLLEY BILL OF MATERIAL	45
(15) HOIST FRAME EXPLOSION DRAWING	48
(16) HOIST FRAME BILL OF MATERIAL	49
(17) SADDLE FRAME EXPLOSION DRAWING	55
(18) SADDLE FRAME BILL OF MATERIAL	56
(19) LIMIT SWITCH EXPLOSION DRAWING	66
(20) LIMIT SWITCH BILL OF MATERIAL	66
(21) ELECTRIC EXPLOSION DRAWING	67
(22) ELECTRIC BILL OF MATERIAL	68



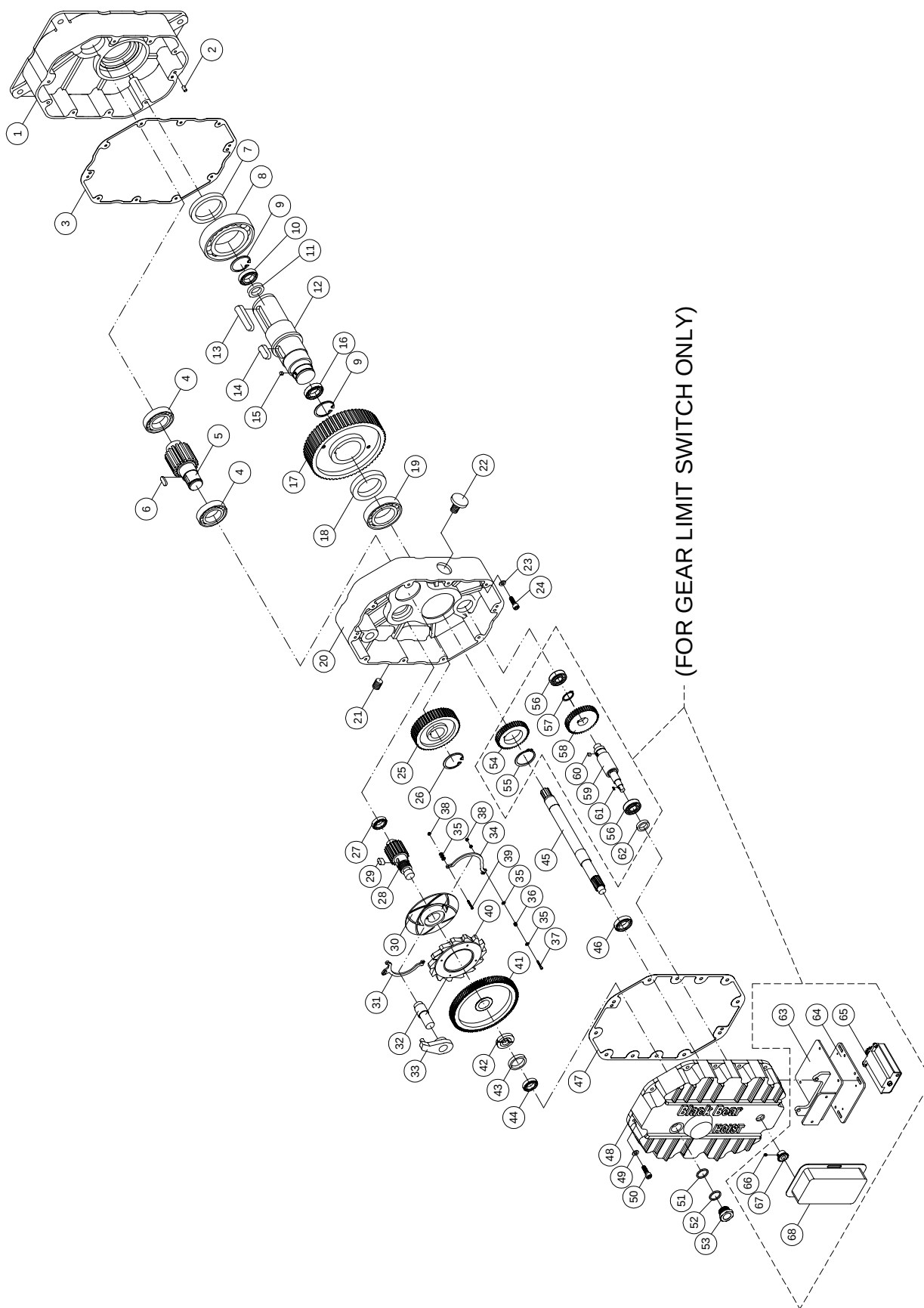
"UBT" "UBT" TYPE (LIMIT SWITCH) GEAR BOX EXPLOSION

GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 1T (2200lbs)		QTY 2T (4400lbs)	
			STD	GEAR	STD	GEAR
01	400198	Retaining Ring <R-47>	1		1	
02	405563	Bearing <6005 2RS>	1		1	
03	404488	Oil Seal <Ø25×Ø40×8t>	1		1	
04	400935	Oil Seal <Ø65×Ø90×13t>	1		1	
05	411072	Gasket	1		1	
06	269453	Flange Frame	1		1	
07	200286	Pawl Pin	1		1	
08	400241	Pawl Spring	1		1	
09	200288	Pawl	1		1	
10	400190	Retaining Ring <S-16>	1		1	
11	407748	Bearing <6305>	1		1	
12	268043	Load Brake Gear Shaft < 3 rd Gear >	1			
	268044				1	
13	405961	Key <12×8×20L>	1		1	
14	268062	Friction Plate	1		1	
15	268049	Ratchet Lining Ass'y	1		1	
16	268042	2 nd Gear	1		1	
17	268046	Load Brake Gear Spacer	2		2	
18	268045	End Spacer	1		1	
19	407748	Bearing <6305>	1		1	
20	268061	Drum Shaft	1		1	
21	400993	Key <18×12×80L>	1		1	
22	400826	Bearing <6212 Z>	1		1	
23	400916	Retaining Ring <R-110>	1		1	
24	268501	Sleeve < Ø70×Ø50×15L>	1		1	
25	268201	4 th Gear	1			
	268202				1	
26	400170	Needle Bearing <NK 25/16>	1		1	
27	400197	Retaining Ring <S- 50>	1		1	
28	268041	1 st Gear <M1.5×11T Ø24.5×333>	1		1	
29	400131	Bearing <6203>	1		1	
30	402550	Gasket(A)	1		1	

GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 1T (2200lbs)		QTY 2T (4400lbs)	
			STD	GEAR	STD	GEAR
31	268063	Gear Case Cover	1		1	
	268191			1		1
32	400095	Spring Washer <M8>	12		12	
33	400017	Hex. Recess Bolt <M8×1.25×35L>	12		12	
34	400591	Drain Plug	1		1	
35	206856	Lubricant Filling Plug <7/8" ×14UNF>	1		1	
	400594	Lubricant Filling Plug <7/8" ×14UNF>		1		1
36	268208	Sleeve <Ø66×Ø50×11>		1		1
37	268192	5 th Gear <M2×35T>		1		1
38	268193	6 th Gear <M2×35T>		1		1
39	400198	Retaining Ring <R- 47>		1		1
40	400132	Bearing <6204>		2		2
41	268195	Sleeve <Ø27×Ø20×16>		1		1
42	400961	Key <6×6×10L>		1		1
43	268194	Connecting Rod <Ø25×136>		1		1
44	405900	Key <3×3×10L>		1		1
45	400186	Oil Seal <Ø20×Ø35×8t>		1		1
46	400191	Retaining Ring <S-20>		2		2
47	400554	Pin <Ø8×15L>		2		2
48	273621	Chain Wheel		1		1
49	400205	Screw <M5×0.8× 8L>		2		2
50	202320	Limit Frame		1		1
51	202319	Limit Pedestal Ass' y		1		1
52	274957	Limit Pedestal		1		1
53	273623	Limit Switch		1		1
	408421	Chain Connection <1/4">		1		1
	400395	Chain <1/4"×304mm>		1		1



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

GEAR BOX ASSEMBLY B.O.M

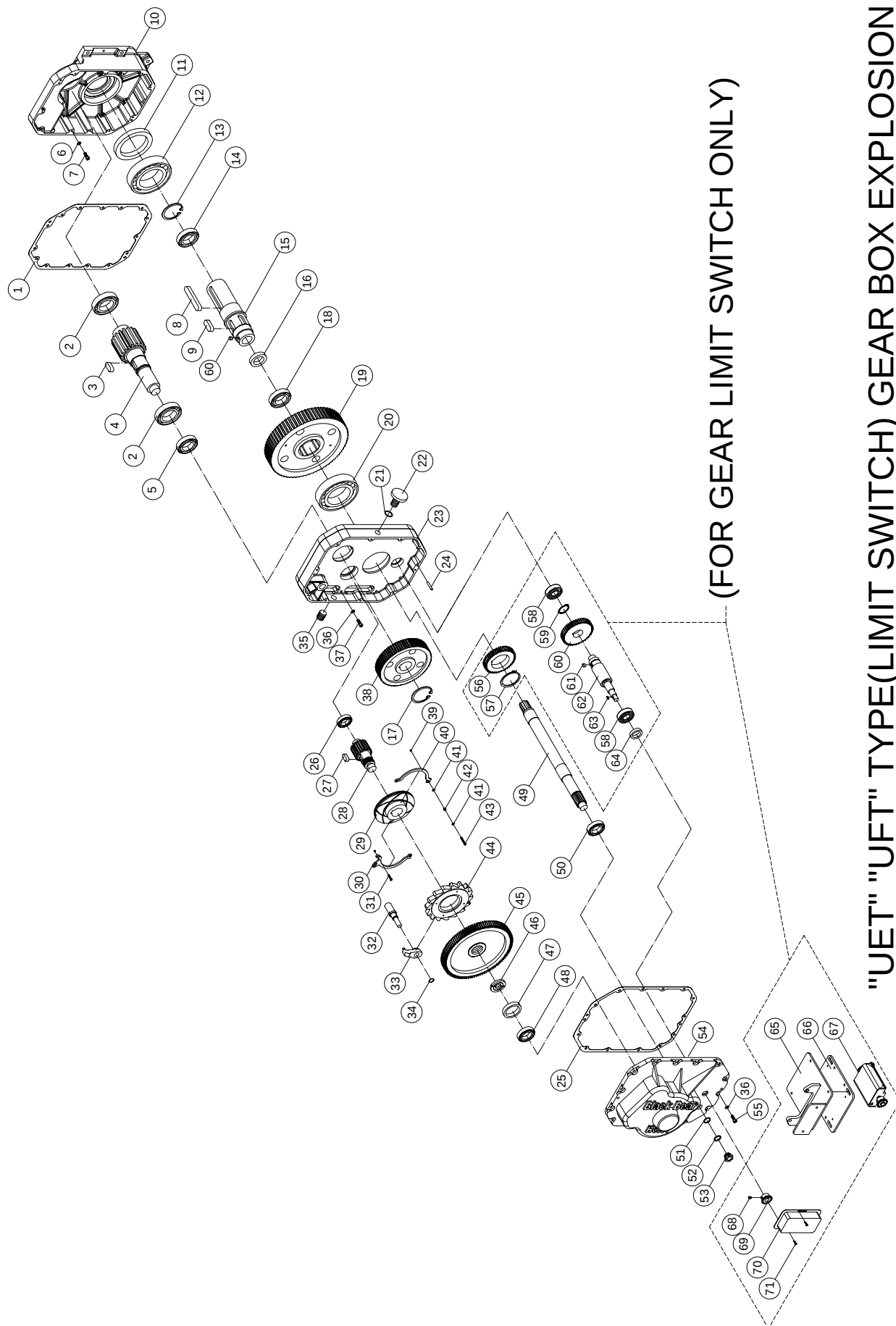
NO.	PART NUMBER	DESCRIPTION	QTY 3T (6600lbs)		QTY 5T (11000lbs)	
			STD	GEAR	STD	GEAR
01	269455	Gear Case Base	1	1	1	1
02	407454	Pin <Ø8×15L>	4	4	4	4
03	402669	Gasket (A)	1	1	1	1
04	407714	Bearing <6209>	2	2	2	2
05	201162	5 th Gear	1	1		
	201169				1	1
06	405908	Key <12×8×30L>	2	2	2	2
07	400933	Oil Seal <Ø80×Ø105×12t>	1	1	1	1
08	400790	Bearing <6216 Z>	1	1	1	1
09	400906	Retaining Ring <R-55>	2	2	2	2
10	405562	Bearing <6006 2RS>	1	1	1	1
11	404512	Oil Seal <Ø30×Ø45×8t>	1	1	1	1
12	268802	Drum Shaft	1		1	
	268812			1		1
13	405906	Key <20×12×90L>	1	1	1	1
14	405907	Key <20×12×45L>	1	1	1	1
15	400961	Key <6×6×10L>		1		1
16	407725	Bearing <6006>	1		1	
	400838	Needle Bearing <NK 30/20>		1		1
17	268403	6 th Gear	1	1		
	268404				1	1
18	268502	Sleeve <Ø82×Ø70×9L>	1	1	1	1
19	400484	Bearing <6014>	1	1	1	1
20	269456	Gear Case B	1	1	1	1
21	400591	Drain Plug <3/8"PT>	1	1	1	1
22	206856	Lubricant Filling Plug	1	1	1	1
23	400095	Spring Washer <M8>	10	10	10	10
24	400014	Hex. Recess Bolt <M8×1.25×30L>	10	10	10	10

GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 3T (6600lbs)		QTY 5T (11000lbs)	
			STD	GEAR	STD	GEAR
25	201161	4 th Gear	1	1		
	201170				1	1
26	400195	Retaining Ring <S-40>	1	1	1	1
27	407748	Bearing <6305>	1	1	1	1
28	268036	Load Brake Gear Shaft <3 rd Gear>	1	1		
	268034				1	1
29	405921	Key <8×8×16L>	2	2	2	2
30	268035	Friction Plate	1	1	1	1
31	268986	Pawl Actuator(L)	1	1	1	1
32	269352	Pawl Pin	1	1	1	1
33	269402	Pawl	1	1	1	1
34	268992	Pawl Actuator Ring(R)	1	1	1	1
35	400662	Flat Washer <M6>	5	5	5	5
36	400340	Compress Spring <Ø1- Ø10.5×Ø8.5×25L>	1	1	1	1
37	405017	Hex. Recess Bolt <M6×1.0×60L>	1	1	1	1
38	406420	Nut System <M6×1.0>	3	3	3	3
39	400009	Hexagon Headed Bolt <M6×1.0×35L>	1	1	1	1
40	269102	Ratchet Lining Ass'y	1	1	1	1
41	268033	2 nd Gear	1	1	1	1
42	262479	Load Brake Gear Spacer <Ø50×12>	2	2	2	2
43	262478	End Spacer <Ø68×Ø50×11.5>	1	1	1	1
44	407736	Bearing <6205>	1	1	1	1
45	267903	1 st Gear	1	1	1	1
46	400132	Bearing <6204>	1	1	1	1
47	402670	Gasket (B)	1	1	1	1
48	269457	Gear Case Cover	1		1	
	269497			1		1
49	400095	Spring Washer <M8>	12	12	12	12

GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 3T (6600lbs)		QTY 5T (11000lbs)	
			STD	GEAR	STD	GEAR
50	400015	Hex. Recess Bolt <M8×1.25×40L>	12	12	12	12
51	404459	O Ring <Ø28×Ø34×3t>	1	1	1	1
52	201147	O Ring <Ø40×Ø34×t2>	1	1	1	1
53	201337	Sight Glass <M30×1.5P>	1	1	1	1
54	274701	7 th Gear		1		1
55	400909	Retaining Ring <S-55>		1		1
56	407734	Bearing <6204>		2		2
57	400193	Retaining Ring <S-30>		1		1
58	274801	8 th Gear		1		1
59	274901	Connecting Rod <Ø35×171L >		1		1
60	400961	Key <6×6×10L>		1		1
61	405900	Key <3×3×10L>		1		1
62	400186	Oil Seal <Ø20×Ø35×8t>		1		1
63	274954	Limit Pedestal Ass' y		1		1
64	274955	Limit Pedestal		1		1
65	273623	Limit Switch		1		1
66	400205	Screw <M5×0.8×8L>		2		2
67	273621	Chain Wheel		1		1
68	271951	Limit Frame		1		1
	408421	Chain Connection <1/4">		1		1
	408713	Chain <1/4"×327mm>		1		1



(FOR GEAR LIMIT SWITCH ONLY)

"UFT" "UFT" TYPE(LIMIT SWITCH) GEAR BOX EXPLOSION

GEAR BOX ASSEMBLY B.O.M

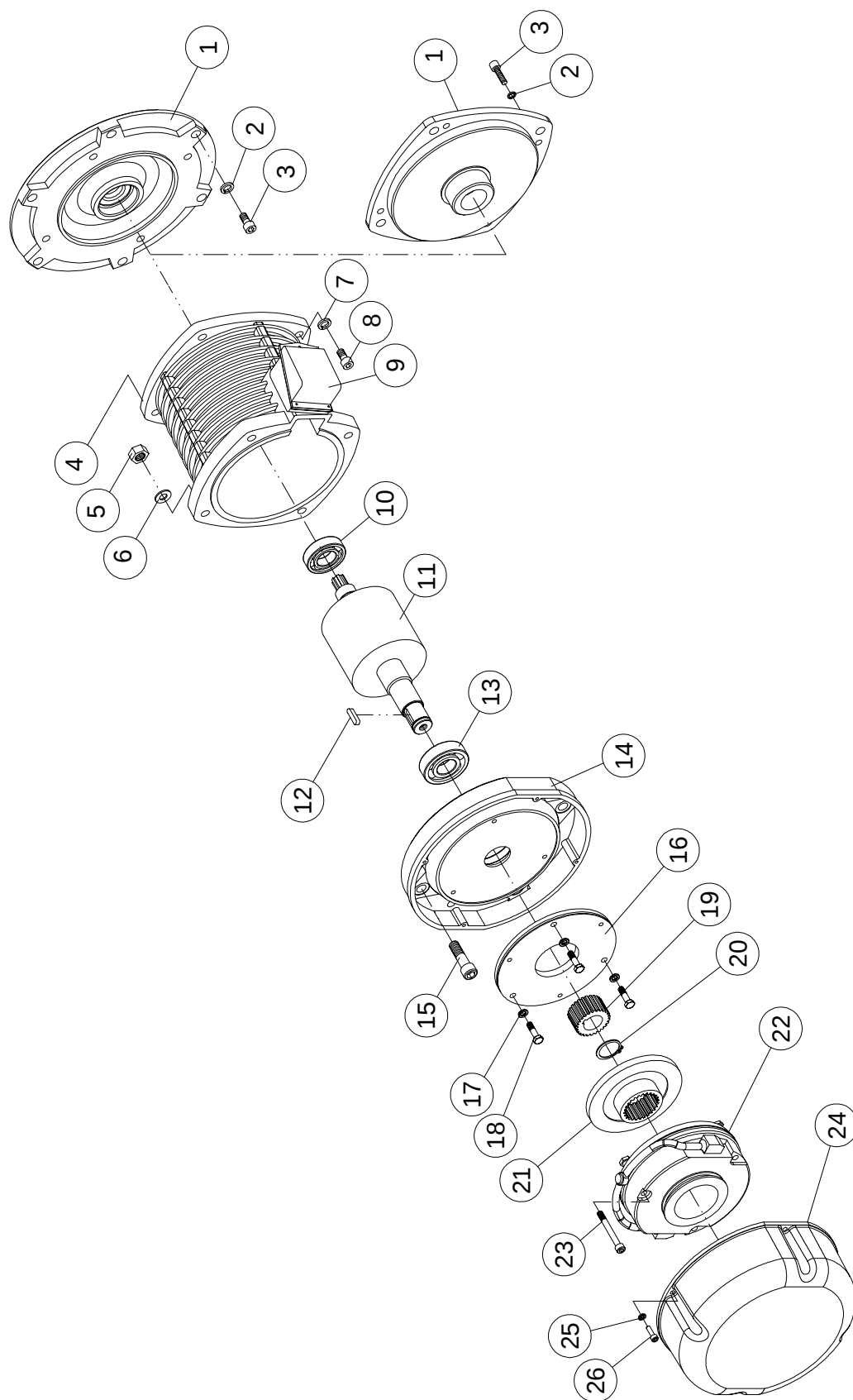
NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500lbs)		QTY 10T (22000lbs)	
			STD	GEAR	STD	GEAR
01	402644	Gasket(A)	1	1	1	1
02	407741	Bearing <6213>	2	2	2	2
03	405910	Key <18×11×40L>	2	2	2	2
04	268016	5 th Gear	1	1		
	268023				1	1
05	407714	Bearing <6209>	1	1	1	1
06	400651	Spring Washer <M14>	10	10	10	10
07	400442	Hex. Recess Bolt <M14×2.0×50L>	10	10	10	10
08	400966	Key <25×14×150L>	1	1	1	1
09	405955	Key <25×14×70L>	4	4	4	4
10	267635	Gear Case Base	1	1	1	1
11	400929	Oil Seal <Ø100×Ø125×13t>	1	1	1	1
12	400792	Bearing <6220Z>	1	1	1	1
13	400200	Retaining Ring <R-62>	1	1	1	1
14	400711	Bearing <6007 Z>	1	1	1	1
15	268018	Drum Shaft <Ø118×370L>	1	1	1	1
16	404513	Oil Seal <Ø35×Ø55×11t>	1	1	1	1
17	400919	Retaining Ring <S-60>	1	1	1	1
18	405564	Bearing <6007 2RS>	1	1	1	1
19	268017	6 th Gear	1	1		
	268024				1	1
20	407744	Bearing <6218>	1	1	1	1
21	404341	O Ring <Ø20×Ø26×3>	1	1	1	1
22	206856	Lubricant Filling Plug	1	1	1	1
23	267636	Gear Case B	1	1	1	1
24	205327	Pin <Ø12×Ø8.5×14L>	4	4	4	4
25	402643	Gasket (B)	1	1	1	1
26	407750	Bearing <6308>	1	1	1	1

GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500lbs)		QTY 10T (22000lbs)	
			STD	GEAR	STD	GEAR
27	405962	Key <16×10×25L>	2	2	2	2
28	268065	Load Brake Gear Shaft <3 rd Gear>	1	1		
	268067				1	1
29	268073	Friction Plate	1	1	1	1
30	268985	Pawl Actuator (L)	1	1	1	1
31	400009	Hexagon Headed Bolt <M6×1.0×35L>	1	1	1	1
32	269351	Pawl Pin	1	1	1	1
33	269401	Pawl	1	1	1	1
34	400192	Retaining Ring <S-25>	1	1	1	1
35	407203	Drain Plug	1	1	1	1
36	400096	Spring Washer <M10>	29	29	29	29
37	400432	Hex. Recess Bolt <M10×1.5×65L>	15	15	15	15
38	268015	4 th Gear	1	1		
	268022				1	1
39	406420	Nut System <M6×1.0>	3	3	3	3
40	268991	Pawl Actuator(R)	1	1	1	1
41	400662	Flat Washer <M6>	5	5	5	5
42	400340	Compress Spring <Ø1- Ø10.5×Ø8.5×25L>	1	1	1	1
43	405017	Hex. Recess Bolt <M6×1.0×60L>	1	1	1	1
44	268069	Ratchet Lining Ass'y	1	1	1	1
45	268064	2 nd Gear	1	1		
	268066				1	1
46	268072	Load Brake Gear Spacer <Ø68×12>	2	2	2	2
47	268071	End Spacer <Ø90×Ø68×11.5>	1	1	1	1
48	407759	Bearing <6208>	1	1	1	1
49	268012	1 st Gear	1	1		
	268019				1	1
50	407747	Bearing <6305>	1	1	1	1

GEAR BOX ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500lbs)		QTY 10T (22000lbs)	
			STD	GEAR	STD	GEAR
51	404459	O Ring <Ø28×Ø34×3t>	1	1	1	1
52	201147	O Ring	1	1	1	1
53	201337	Sight Glass	1	1	1	1
54	267634	Gear Case Cover	1		1	
	267638			1		1
55	400450	Hex. Recess Bolt <M10×1.5×35L>	14	14	14	14
56	274702	7 th Gear		1		1
57	400918	Retaining Ring <S-80>		1		1
58	407748	Bearing <6305>		2		2
59	400194	Retaining Ring <S-35>		1		1
60	274802	8 th Gear		1		1
61	400963	Key <6×6×15L>		1		1
62	267955	Connecting Rod		1		1
63	405900	Key <3×3×10L>		1		1
64	400183	Oil Seal <Ø25×Ø40×8t>		1		1
65	274958	Limit Pedestal Ass' y		1		1
66	274957	Limit Pedestal		1		1
67	273623	Limit Switch		1		1
68	400205	Screw		2		2
69	273621	Chain Wheel		1		1
70	271951	Limit Frame		1		1
71	408421	Chain Connection <1/4">		1		1
	408712	Chain <1/4"×365mm>		1		1



MOTOR ASSEMBLY B.O.M.

D: Dual speed

NO.	PART NUMBER	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			1T 2200lbs 3HP	2T 4400lbs 4.7HP	3T 6600lbs 6.67HP	5T 11000lbs 8.7HP	7.5T 16500lbs 10.7HP	10T 22000lbs 15HP
01	105694	Flange	1					
	107788		1D	1				
	105689				1			
	105645				1D			
	105623					1		
	105622						1	1
	101179						1D	1D
02	400095	Spring Washer	4	4				
	400651				6	6	6	6
03	400013	Hex. Recess Bolt	4	4				
	400440				6	6	6D	6D
	400441						6	6
04	Voltage : 230V/460V							
	133401	Motor Stator Ass'y	1					
	101159			1				
	133403				1			
	108458					1		
	108460						1	
	108462							1
	Voltage : 230V							
	133437	Motor Stator Ass'y	1D					
	133420			1D				
	108424				1D			
	108426					1D		
	100837						1D	
	135268							1D
	Voltage : 460V							
	133438	Motor Stator Ass'y	1D					
	133421			1D				
	108425				1D			
	108427					1D		
	100838						1D	
	135269							1D

MOTOR ASSEMBLY B.O.M.

D: Dual speed

NO.	PART NUMBER	DESCRIPTION	Q.EACH UNIT					
			1T 2200lbs 3HP	2T 4400lbs 4.7HP	3T 6600lbs 6.67HP	5T 11000lbs 8.7HP	7.5T 16500lbs 10.7HP	10T 22000lbs 15HP
05	400637	Nut	4	4	4			
	400083				4D	4	4	4
	400640						6D	6D
06	400651	Spring Washer	4	4	4			
	400100				4D	4	4	4
	400099						6D	6D
07	400097	Spring Washer			4	4	4	4
	400651						6D	6D
08	400451	Hex. Recess Bolt			4			
	400022				4D	4	4	4
	400442						6D	6D
09	120179	Motor Component <Cable Box>	1	1	1			
	120170				1D	1	1	1
	120233						1D	1D
10	405622	Bearing <6206 2RU>	1	1	1			
	405625	Bearing <6307 2RU>			1D	1	1	1
	405627	Bearing <6310 2RU>					1D	1D
11	105542	Motor Rotor	1					
	105910		1D					
	107397			1				
	105999			1D				
	105546				1			
	105547				1D			
	106000					1		
	105484					1D		1
	106001						1	
	101127						1D	
	106003							1D

MOTOR ASSEMBLY B.O.M.

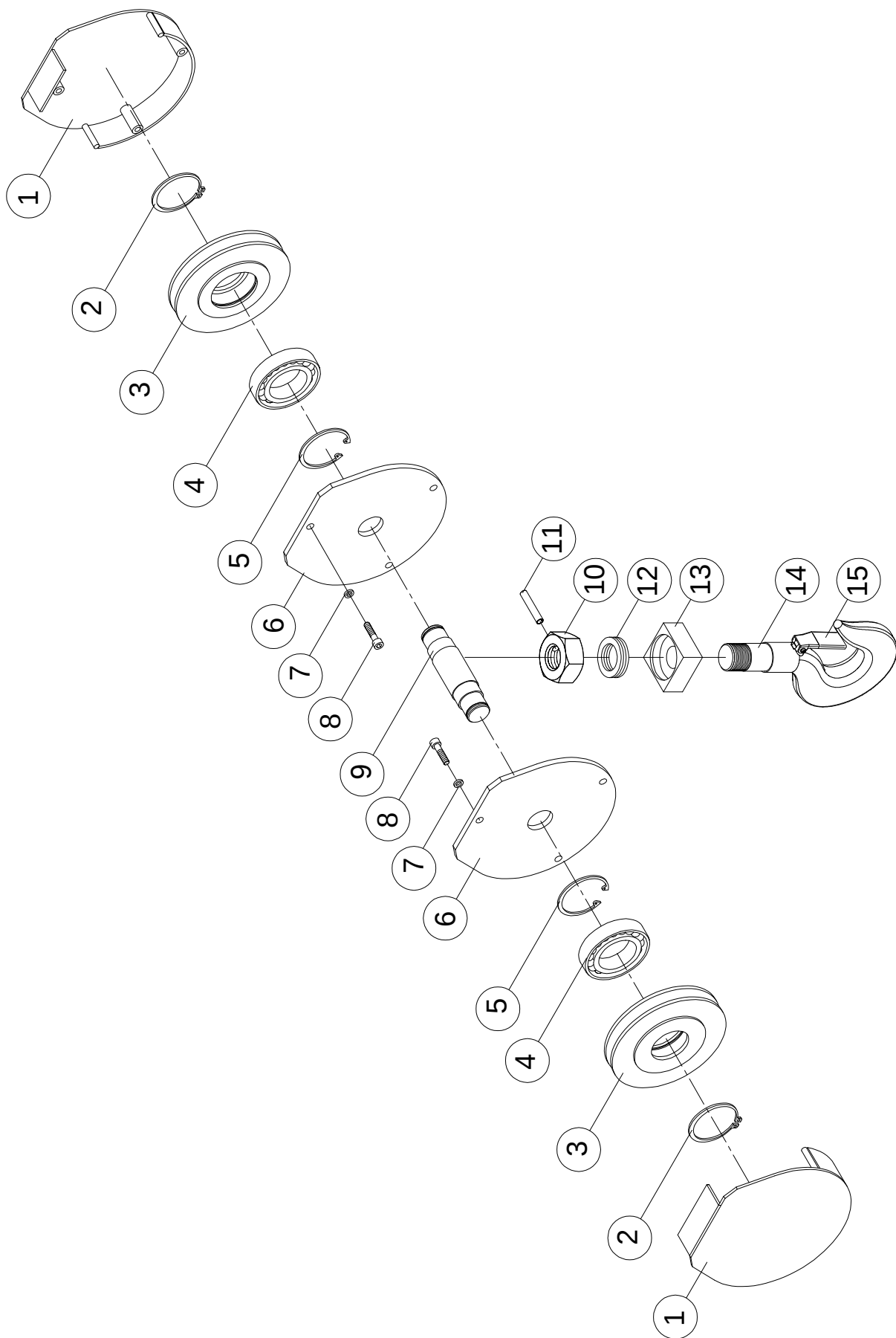
D: Dual speed

NO.	PART NUMBER	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			1T 2200lbs 3HP	2T 4400lbs 4.7HP	3T 6600lbs 6.67HP	5T 11000lbs 8.7HP	7.5T 16500lbs 10.7HP	10T 22000lbs 15HP
12	405939	Key	1					
	405940			1				
	405941				1			
	405942					1	1	1
13	405621	Bearing <6306 2RU>	1	1				
	405698	Bearing <6208 2RU>			1			
	405626	Bearing <6309 2RU>			1D	1	1	1
	405628	Bearing <6308 2RU>					1D	1D
14	100033	Back Bracket	1					
	100040			1				
	100042				1			
	100044				1D			
	100050					1	1	1
	100052						1D	1D
15	400454	Hex. Recess Bolt	4	4	4			
	408386				4D	4	4	4
	408379						6D	6D
16	100122	Flange	1					
	100123			1				
	100124				1			
	108524					1	1	1
17	400094	Spring Washer	3					
	400095			3	3	4	4	4
18	400481	Hexagonal Bolt	3					
	404619			3	3	4	4	4
19	100128	Disc Hub	1					
	100129			1				
	100130				1			
	100131					1	1	1

MOTOR ASSEMBLY B.O.M.

D: Dual speed

NO.	PART NUMBER	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			1T 2200lbs 3HP	2T 4400lbs 4.7HP	3T 6600lbs 6.67HP	5T 11000lbs 8.7HP	7.5T 16500lbs 10.7HP	10T 22000lbs 15HP
20	400192	Retaining Ring	1	1				
	400194				1			
	400195					1	1	1
21	100135	Friction Disc	1					
	100136			1				
	100137				1			
	100138					1	1	1
22	107047	DC Solenoid	1					
	107048			1				
	107049				1			
	107065					1	1	1
23	408382	Hex. Recess Bolt	3					
	408385			3				
	408384				3			
	408429					6	6	6
24	262137	Brake End Cover	1	1	1			
	262138				1D	1	1	1
	262139						1D	1D
25	400094	Spring Washer	4	4	4	4	4	4
	400095						6D	6D
26	400007	Hex. Recess Bolt	4	4	4	4	4	4
	400013						6D	6D



BOTTOM BLOCK B.O.M.

NO.	PART NUMBER	DESCRIPTION	QTY 1T(2200lbs)	QTY 2T(4400lbs)
01	272011	Bottom Hook Side Cover Ass'y	2	
	227919			2
02	400192	Retaining Ring	2	
	400194			2
03	263606	Sheave	2	
	263605			2
04	407807	Bearing <6205 ZZ>	2	
	407818	Bearing <6307 ZZ>		2
05	400199	Retaining Ring	2	
	400202			2
06	272211	Bottom Hook Side Cover	2	
	272201			2
07	400094	Spring Washer	6	
	400095			6
08	400008	Hex. Recess Bolt	6	
	400014			6
09	207554	Sheave Axle	1	
	207552			1
10	202016	Hex. Nut	1	
	400075			1
11	400209	Spring Pin	1	1
12	400839	Thrust Bearing	1	
	400166			1
13	273811	Bearing Housing	1	
	273801			1
14	274009	Bottom Hook	1	
	204987			1
15	400300	Safety Latch Ass'y	1	
	400301			1

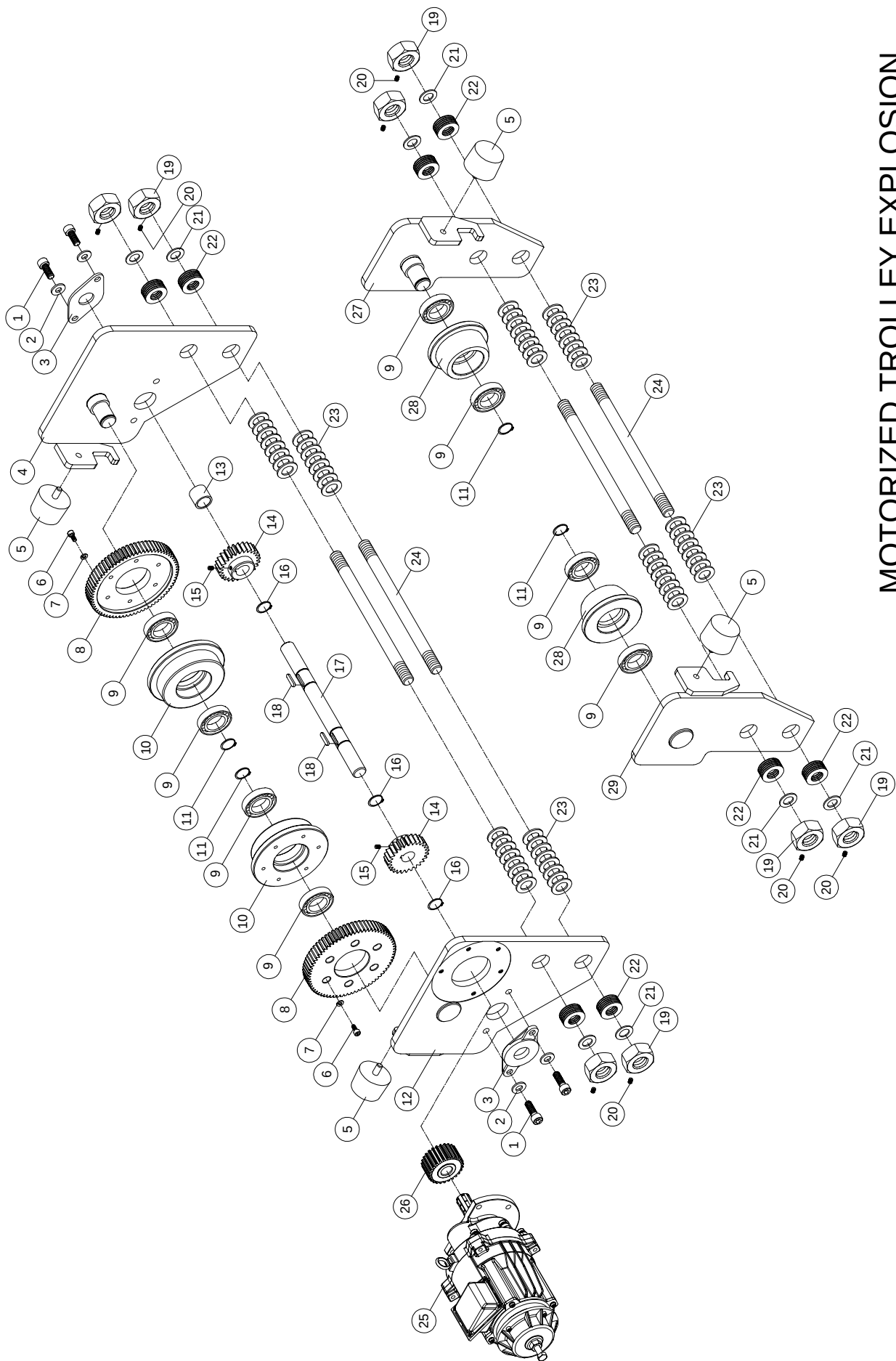
-10T BOTTOM BLOCK EXPLOSION

BOTTOM BLOCK B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			3T 6600lbs	5T 11000lbs	7.5T 16500lbs	10T 22000lbs
01	400446	Hex. Recess Bolt	4	4	4	4
02	400096	Spring Washer	4	4	4	4
03	272002	Bottom Hook Side Cover Ass'y	2			
	272005			2		
	272003				2	
	272004					2
04	400195	Retaining Ring	2			
	400196			2		
	400197				2	
	400909					2
05	210824	Sheave	2			
	263603			2		
	263601				2	
	263602					2
06	407819	Bearing <6308ZZ>	2			
	407820	Bearing <6309ZZ>		2		
	407821	Bearing <6310ZZ>			2	
	407822	Bearing <6311ZZ>				2
07	400914	Retaining Ring	2			
	404151			2		
	400916				2	
	404152					2
08	272202	Bottom Hook Side Cover	2			
	272205			2		
	272203				2	
	272204					2
09	400095	Spring Washer	6	8	8	8
10	400012	Hex. Recess Bolt	6	8	8	8

BOTTOM BLOCK B.O.M

[illegible]



MOTORIZED TROLLEY EXPLOSION

MOTORIZED TROLLEY B.O.M

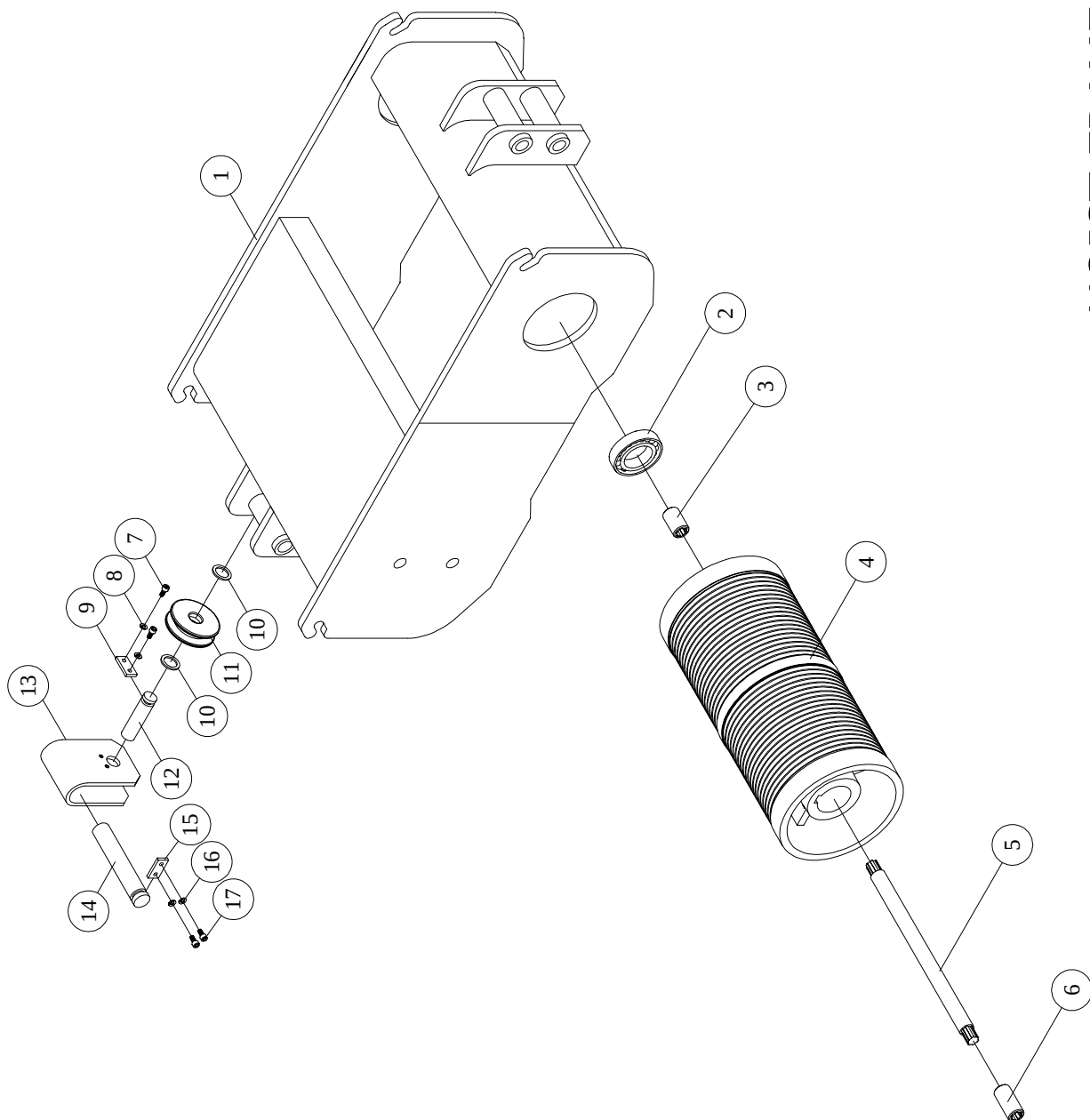
NO.	PART NUMBER	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			1T 2200lbs	2T 4400lbs	3T 6600lbs	5T 11000lbs	7.5T 16500lbs	10T 22000lbs
01	400450	Hex. Recess Bolt	4	4				
	400440				4	4		
	400441						4	4
02	400096	Spring Washer	4	4				
	400651				4	4	4	4
03	400759	Bearing Housing	2	2				
	400760				2	2		
	400761						2	2
04	264420	Drive Frame Ass'y (Right)	1					
	264412			1				
	264416				1	1		
	268224						1	
	264418							1
05	400313	Bumper	4	4	4	4	4	4
06	400424	Hex. Recess Bolt	12	12				
	400012				12	12		
	400013						12	12
07	400095	Spring Washer	12	12	12	12	12	12
08	202486	Gear(A)	2	2				
	202490				2	2		
	202492						2	
	274301							2
09	407807	Bearing <6205 ZZ>	8	8				
	405578	Bearing <6207 ZZ>			8	8		
	407818	Bearing <6307 ZZ>					8	
	407819	Bearing <6308 ZZ>						8
10	203525	Wheel(B)	2	2				
	203531				2	2		
	203533						2	
	204805							2

MOTORIZED TROLLEY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			1T 2200lbs	2T 4400lbs	3T 6600lbs	5T 11000lbs	7.5T 16500lbs	10T 22000lbs
11	400192	Retaining Ring	4	4				
	400194				4	4	4	
	400195							4
12	264419	Drive Frame Ass'y (Left)	1					
	264411			1				
	264415				1	1		
	268223						1	
	264417							1
13	264253	Pinion Shaft Tube	1	1				
	264251				1	1		
	268979						1	
	264252							1
14	202505	Motor Pinion	2	2				
	202506				2	2		
	202507						2	2
15	400588	Set Screw	4	4	4	4	4	4
	400204							
16	400191	Retaining Ring	3	3				
	400193				3	3		
	400194						3	3
17	269803	Pinion Shaft	1	1				
	269801				1	1		
	269802						1	1
18	405914	Key	2	2				
	400967				2	2		
	400978						2	2
19	202011	Hex. Nut	8	8				
	202012				8	8		
	202010						8	8
20	400586	Set Screw	8	8	8	8	8	8

MOTORIZED TROLLEY B.O.M

NO.	PART NUMBER	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			1T 2200lbs	2T 4400lbs	3T 6600lbs	5T 11000lbs	7.5T 16500lbs	10T 22000lbs
21	400105	Spring Washer	8	8				
	400106				8	8		
	400104						8	8
22	203223	Spacer	48	48				
23	269911	Spacer Sleeve	112	112				
	269912				152	152		
	269913						168	168
24	408307	Mounting Bolts	4	4				
	408305				4	4		
	408306						4	4
25	101367	Motor	1					
	136403	Reducing Gear Motor		1	1			
	135770					1		
	135771						1	
	135772							1
26	201767	Pinion	1					
	201756			1	1	1		
	201680						1	
	201679							1
27	264612	Idler Frame Ass'y (Right)	1	1				
	264616				1	1		
	264614						1	
	264618							1
28	203510	Idler Wheel	2	2				
	203517				2	2		
	203519						2	
	204796							2
29	264611	Idler Frame Ass'y(Left)	1	1				
	264615				1	1		
	264613						1	
	264617							1



HOIST FRAME ASSEMBLY

HOIST FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 1T (2200lbs)		
			20ft	30ft	40ft
01	266001	Hoist Frame (TU)	1		
	266002			1	
	266003				1
	266201	Hoist Frame (FU)	1		
	266202			1	
	266203				1
02	407838	Bearing <6212ZZ>	1	1	1
03	205469	Coupling	1	1	1
04	266801	Drum	1		
	266802			1	
	266803				1
05	263011	Drum Shaft	1		
	263012			1	
	263013				1
06	205469	Coupling	1	1	1
07	405011	Hex. Recess Bolt	2	2	2
08	400095	Spring Washer	2	2	2
09	200636	Keeper	1	1	1
10	205239	Washer	2	2	2
11	263551	Equalizer Sheave	1	1	1
12	207553	Sheave Axle	1	1	1
13	270201	Link Equalizer	1	1	1
14	205470	Load Axle	1	1	1
15	269551	Load Key Plate	1	1	1
16	400095	Spring Washer	2	2	2
17	405011	Hex. Recess Bolt	2	2	2

HOIST FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 2T (4400lbs)		
			20ft	30ft	40ft
01	266006	Hoist Frame (TU)	1		
	266007			1	
	266008				1
	266206	Hoist Frame (FU)	1		
	266207			1	
	266208				1
02	407838	Bearing <6212ZZ>	1	1	1
03	205466	Coupling	1	1	1
04	266806	Drum	1		
	266807			1	
	266808				1
05	263016	Drum Shaft	1		
	263017			1	
	263018				1
06	205469	Coupling	1	1	1
07	405011	Hex. Recess Bolt	2	2	2
08	400095	Spring Washer	2	2	2
09	200636	Keeper	1	1	1
10	205239	Washer	2	2	2
11	263551	Equalizer Sheave	1	1	1
12	207553	Sheave Axle	1	1	1
13	270201	Link Equalizer	1	1	1
14	205470	Load Axle	1	1	1
15	269551	Load Key Plate	1	1	1
16	400095	Spring Washer	2	2	2
17	405011	Hex. Recess Bolt	2	2	2

HOIST FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 3T (6600lbs)		
			20ft	30ft	40ft
01	266011	Hoist Frame (TU)	1		
	266012			1	
	266013				1
	266211	Hoist Frame (FU)	1		
	266212			1	
	266213				1
02	407838	Bearing <6212ZZ>	1	1	1
03	205466	Coupling	1	1	1
04	266811	Drum	1		
	266812			1	
	266813				1
05	263021	Drum Shaft	1		
	263022			1	
	263023				1
06	205466	Coupling	1	1	1
07	400012	Hex. Recess Bolt	2	2	2
08	400095	Spring Washer	2	2	2
09	200636	Keeper	1	1	1
10	205239	Washer	2	2	2
11	202535	Equalizer Sheave	1	1	1
12	209289	Sheave Axle	1	1	1
13	270202	Link Equalizer	1	1	1
14	270502	Load Axle	1	1	1
15	200636	Keeper	1	1	1
16	400095	Spring Washer	2	2	2
17	400012	Hex. Recess Bolt	2	2	2

HOIST FRAME ASSEMBLY B.O.M

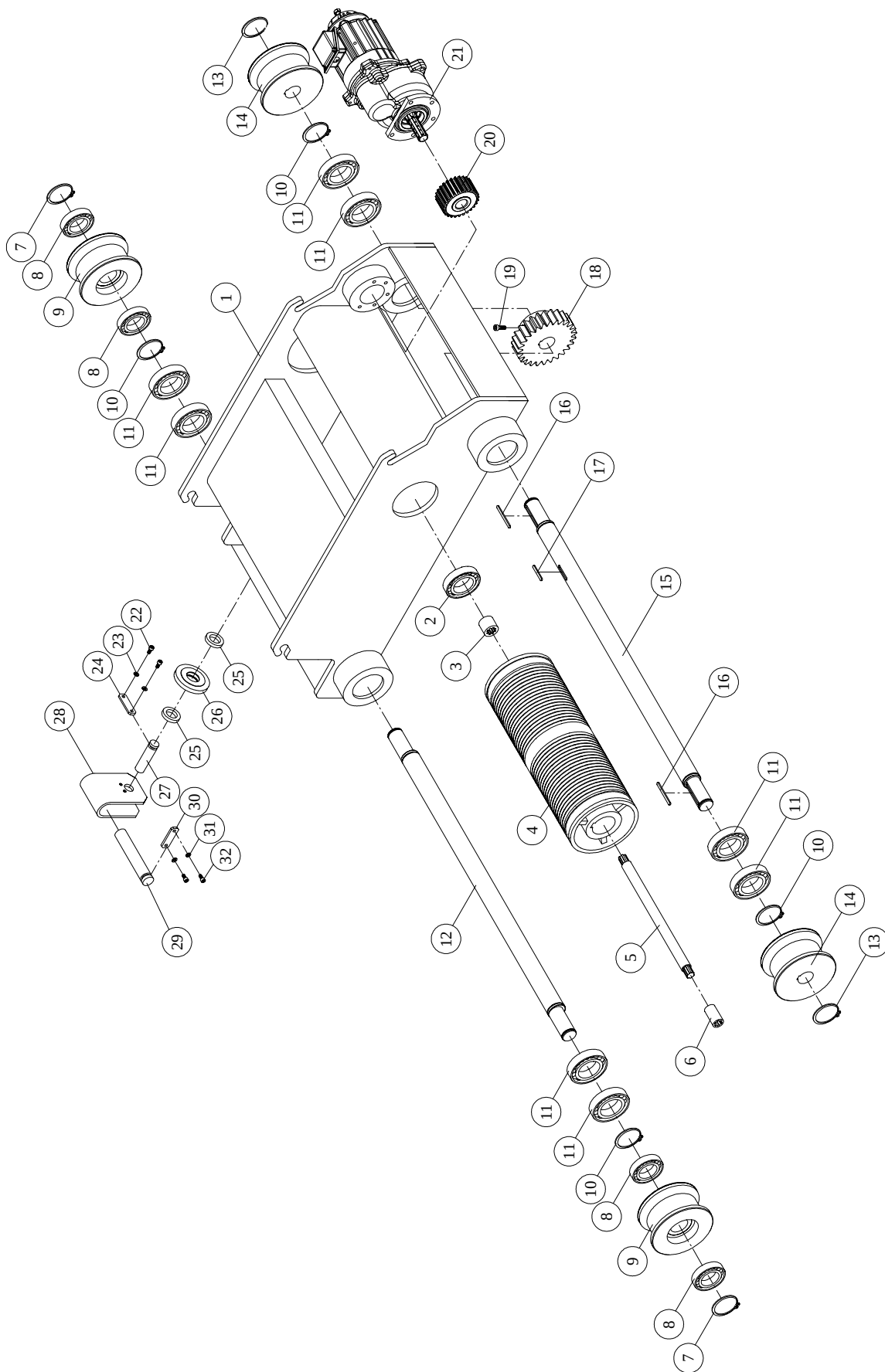
NO.	PART NUMBER	DESCRIPTION	QTY 5T (11000lbs)		
			20ft	30ft	40ft
01	266016	Hoist Frame (TU)	1		
	266017			1	
	266018				1
	266216	Hoist Frame (FU)	1		
	266217			1	
	266218				1
02	407838	Bearing <6212ZZ>	1	1	1
03	205466	Drum Coupling	1	1	1
04	228332	Drum	1		
	228333			1	
	228334				1
05	263026	Drum Shaft	1		
	263027			1	
	263028				1
06	205467	Drum Coupling	1	1	1
07	400012	Hex. Recess Bolt	2	2	2
08	400095	Spring Washer	2	2	2
09	200636	Keeper	1	1	1
10	205239	Washer	2	2	2
11	202535	Equalizer Shave	1	1	1
12	209289	Sheave Axle	1	1	1
13	270202	Link Equalizer	1	1	1
14	270502	Load Axle	1	1	1
15	200636	Keeper	1	1	1
16	400095	Spring Washer	2	2	2
17	400012	Hex. Recess Bolt	2	2	2

HOIST FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500lbs)		
			20ft	30ft	40ft
01	266034	Hoist Frame (TU)	1		
	266035			1	
	266036				1
	266051	Hoist Frame (FU)	1		
	266052			1	
	266053				1
02	407814	Bearing <6220 ZZ>	1	1	1
03	205467	Coupling	1	1	1
04	266871	Drum	1		
	266872			1	
	266873				1
05	263053	Drum Shaft	1		
	263054			1	
	263055				1
06	205468	Coupling	1	1	1
07	400012	Hex. Recess Bolt	2	2	2
08	400095	Spring Washer	2	2	2
09	200636	Keeper	1	1	1
10	205238	Washer	2	2	2
11	202534	Equalizer Sheave	1	1	1
12	205222	Sheave Axle	1	1	1
13	270203	Link Equalizer	1	1	1
14	270503	Load Axle	1	1	1
15	200636	Keeper	1	1	1
16	400095	Spring Washer	2	2	2
17	400013	Hex. Recess Bolt	2	2	2

HOIST FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 10T (22000lbs)		
			20ft	30ft	40ft
01	266034	Hoist Frame (TU)	1		
	266035			1	
	266036				1
	266051	Hoist Frame (FU)	1		
	266052			1	
	266053				1
02	407814	Bearing <6220 ZZ>	1	1	1
03	205467	Coupling	1	1	1
04	266876	Drum	1		
	266877			1	
	266878				1
05	263053	Drum Shaft	1		
	263054			1	
	263055				1
06	205468	Coupling	1	1	1
07	400012	Hex. Recess Bolt	2	2	2
08	400095	Spring Washer	2	2	2
09	200636	Keeper	1	1	1
10	205238	Washer	2	2	2
11	202534	Equalizer Sheave	1	1	1
12	205222	Sheave Axle	1	1	1
13	270203	Link Equalizer	1	1	1
14	270503	Load Axle	1	1	1
15	200636	Keeper	1	1	1
16	400095	Spring Washer	2	2	2
17	400013	Hex. Recess Bolt	2	2	2



SADDLE FRAME EXPLOSION

SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 2T (4400lbs)		
			20ft	30ft	40ft
01	266056	Hoist Frame (SU)	1		
	266057			1	
	266058				1
02	407838	Bearing <6212 ZZ>	1	1	1
03	205466	Coupling	1	1	1
04	266806	Drum	1		
	266807			1	
	266808				1
05	263016	Drum Shaft	1		
	263017			1	
	263018				1
06	205469	Coupling	1	1	1
07	400194	Retaining Ring	2	2	2
08	405578	Bearing <6207 ZZ>	4	4	4
09	205170	Idler Wheel	2	2	2
10	400196	Retaining Ring	4	4	4
11	400119	Bearing <6309 ZZ>	4		4
	407820			4	
12	265421	Idler Shaft	1		
	265422			1	
	265423				1
13	400194	Retaining Ring	2	2	2
14	205070	Drive Wheel	2	2	2
15	265221	Drive Shaft	1		
	265222			1	
	265223				1
16	400969	Key	2	2	2
17	400969	Key	1	1	1

SADDLE FRAME ASSEMBLY B.O.M

[illegible]

SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 3T (6600lbs)		
			20ft	30ft	40ft
01	266061	Hoist Frame (SU)	1		
	266062			1	
	266063				1
02	407838	Bearing <6212 ZZ>	1	1	1
03	205466	Coupling	1	1	1
04	266811	Drum	1		
	266812			1	
	266813				1
05	263021	Drum Shaft	1		
	263022			1	
	263023				1
06	205466	Coupling	1	1	
	205467				1
07	400195	Retaining Ring	2	2	2
08	407872	Bearing <6208 ZZ>	4	4	4
09	205167	Idler Wheel	2	2	2
10	400909	Retaining Ring	4	4	4
11	407871	Bearing <6211 ZZ>	8	8	8
12	205137	Idler Shaft	1		
	265412			1	
	265428				1
13	400196	Retaining Ring	2	2	2
14	205067	Drive Wheel	2	2	2
15	205097	Drive Shaft	1		
	265212			1	
	265228				1
16	400969	Key	2	2	2

SADDLE FRAME ASSEMBLY B.O.M

[illegible]

SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 5T (11000lbs)		
			20ft	30ft	40ft
01	266066	Hoist Frame (SU)	1		
	266067			1	
	266068				1
02	407838	Bearing <6212 ZZ>	1	1	1
03	205466	Coupling	1	1	1
04	228332	Drum	1		
	228333			1	
	228334				1
05	263026	Drum Shaft	1		
	263027			1	
	263028				1
06	205467	Coupling	1	1	1
07	400195	Retaining Ring	2	2	2
08	407872	Bearing <6208 ZZ>	4	4	4
09	205167	Idler Wheel	2	2	2
10	400909	Retaining Ring	4	4	4
11	407871	Bearing <6211 ZZ>	8	8	8
12	205137	Idler Shaft	1		
	265412			1	
	265428				1
13	400196	Retaining Ring	2	2	2
14	205067	Drive Wheel	2	2	2
15	205097	Drive Shaft	1		
	265212			1	
	265228				1
16	400969	Key	2	2	2
17	405904	Key	1		
	400969			1	1

SADDLE FRAME ASSEMBLY B.O.M

[illegible]

SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500lbs)		
			20ft	30ft	40ft
01	266071	Hoist Frame (SU)	1		
	266072			1	
	266073				1
02	407814	Bearing <6220 ZZ>	1	1	1
03	205467	Coupling	1	1	1
04	266871	Drum	1		
	266872			1	
	266873				1
05	263053	Drum Shaft	1		
	263054			1	
	263055				1
06	205468	Coupling	1	1	1
07	400196	Retaining Ring	2	2	2
08	407820	Bearing <6309 ZZ>	4	4	4
09	205173	Idler Wheel	2	2	2
10	400909	Retaining Ring	4	4	4
11	407822	Bearing <6311ZZ>	8	8	8
12	265436	Idler Shaft	1	1	
	265438				1
13	400196	Retaining Ring	2	2	2
14	205073	Drive Wheel	2	2	2
15	265236	Drive	1	1	
	265238				1
16	400969	Key	2	2	2
17	400969	Key	1	1	1
18	205186	Trolley Drive Gear	1	1	1
19	400014	Hex. Recess Bolt	1	1	1
20	201680	Pinion	1	1	1

SADDLE FRAME ASSEMBLY B.O.M

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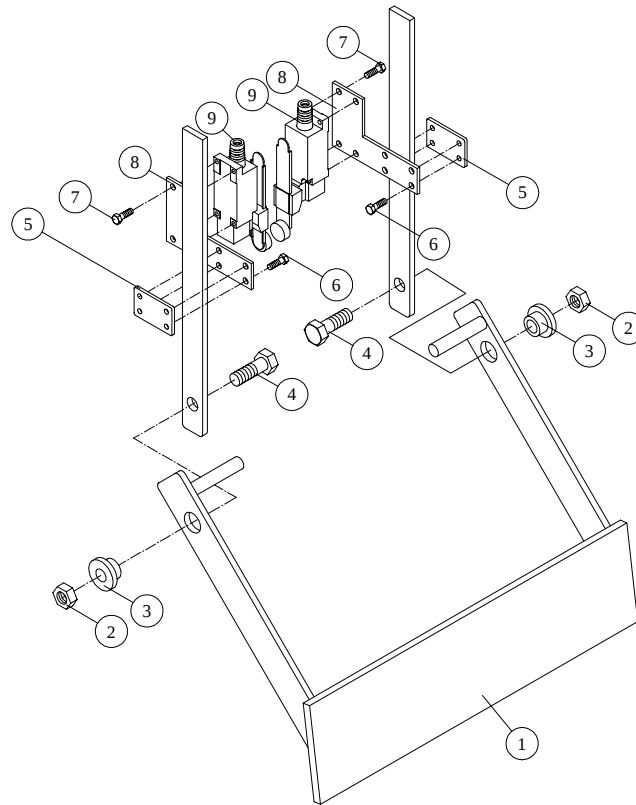
SADDLE FRAME ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 10T (22000lbs)		
			20ft	30ft	40ft
01	266071	Hoist Frame (SU)	1		
	266072			1	
	266073				1
02	407814	Bearing <6220 ZZ>	1	1	1
03	205467	Coupling	1	1	1
04	266876	Drum	1		
	266877			1	
	266878				1
05	263053	Drum Shaft	1		
	263054			1	
	263055				1
06	205468	Coupling	1	1	1
07	400196	Retaining Ring	2	2	2
08	407820	Bearing <6309 ZZ>	4	4	4
09	205173	Idler Wheel	2	2	2
10	400909	Retaining Ring	4	4	4
11	407822	Bearing <6311 ZZ>	8	8	8
12	265436	Idler Shaft	1	1	
	265438				1
13	400196	Retaining Ring	2	2	2
14	205073	Drive Wheel	2	2	2
15	265236	Drive Shaft	1	1	
	265238				1
16	400969	Key	2	2	2
17	400969	Key	1	1	1
18	205181	Trolley Drive Gear	1	1	1
19	400014	Hex. Recess Bolt	1	1	1
20	201679	Pinion	1	1	1

SADDLE FRAME ASSEMBLY B.O.M

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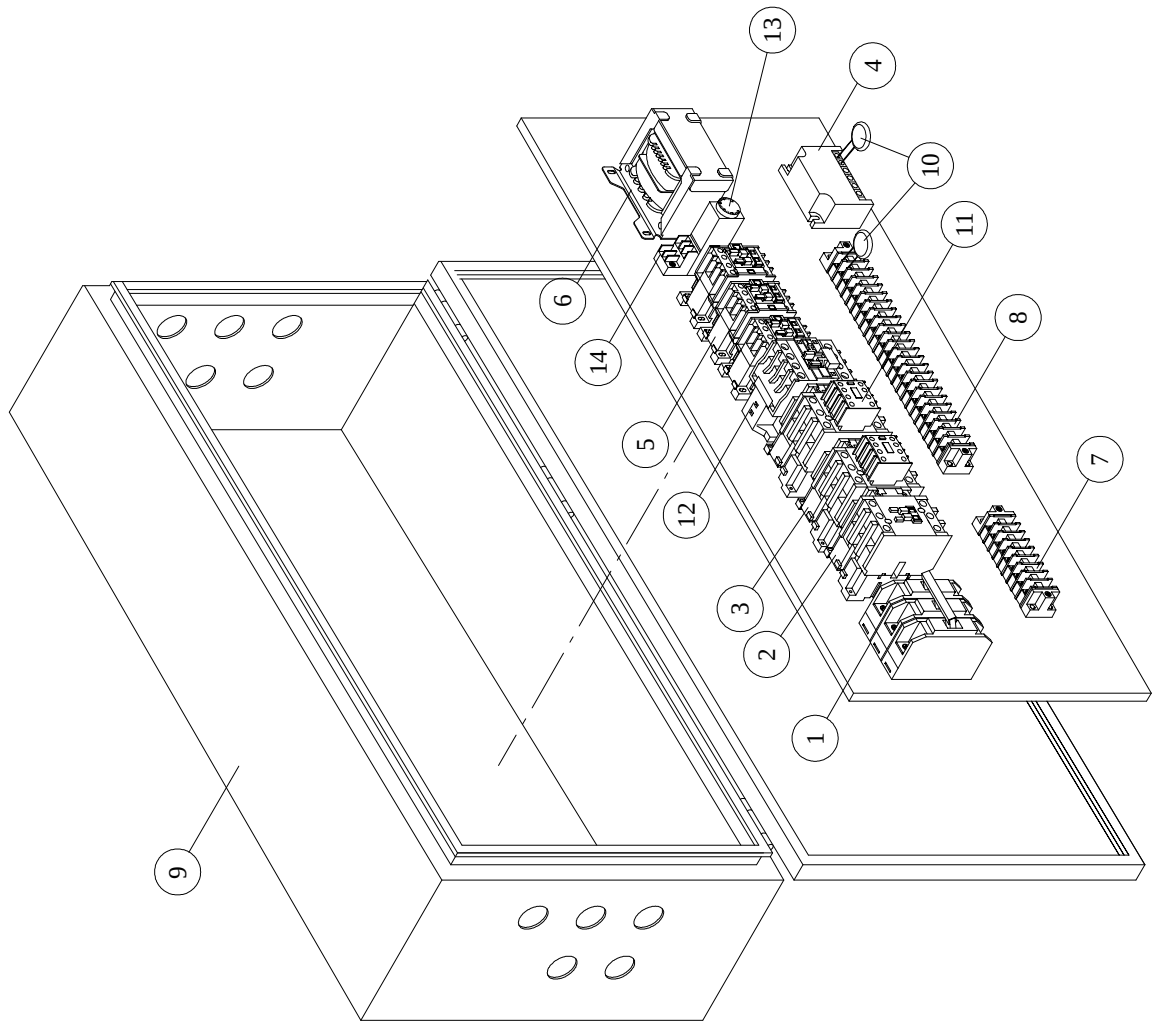
LIMIT SWITCH EXPLOSION



LIMIT SWITCH ASSEMBLY B.O.M

NO.	PART NUMBER	DESCRIPTION	QTY 1,2T (2200lbs) (4400lbs)	QTY 3,5T (6600lbs) (11000lbs)	QTY 7.5,10T (16500lbs) (22000lbs)
01	204893	Lever Arm	1		
	204891			1	
	204892				1
02	400084	Nut	2	2	2
03	205308	Tube	2	2	2
04	400023	Hex. Recess Bolt	2	2	2
05	205314	Limit Frame	2	2	
	273701				2
06	400003	Hex. Recess Bolt	8	8	8
07	408396	Hex. Recess Bolt	8	8	8
08	205313	Limit Plate	2	2	
	273602				2
09	300560	Limit Switch	2	2	2

ELECTRIC EXPLOSION



ELECTRIC ASSEMBLY B.O.M.

S =Single Speed

NO.	PART NUMBER	DESCRIPTION	Q'TY 1,2T (2200lbs) (4400lbs)		Q'TY 3T (6600lbs)		Q'TY 5T (11000lbs)	
			S		S		S	
			230 (V)	460 (V)	230 (V)	460 (V)	230 (V)	460 (V)
01	300888	No Fuse Breaker	1	1	1	1		1
	302216						1	
02	301116	Magnetic Contactor For "Emergency Stop"	1					1
	301112			1		1		
	301120				1			
	301132						1	
03	301116	Magnetic Contactor For "Hoist"	2					2
	301112			2		2		
	301120				2			
	301132						2	
04	300593	Rectifier	1	1	1	1	1	1
05	301103	Reversing Contactor For "Trolley Motion" (TU, SU)	3	3	3	3	T(2) S(3)	3
		Reversing Contactor For "Trolley Motion" (FU)	1	1	1	1	1	1
06	301056	Control Transformer	1		1			
	301076			1		1		
	303752						1	
	303753							1
07	300658	Terminal Blocks	1	1	1	1		1
	300659						1	
08	300663	Terminal Blocks	1	1	1	1	1	1
09	301422	Electric Control Panel(TU,FU)	1	1	1	1		1
	301424						1	
	301427	Electric Control Panel(SU)	1	1	1	1		1
	301428						1	
10	300166	Varistor	2	2	2	2	2	2
11	300529	Auxiliary Contact	2	2	2	2	2	2

ELECTRIC ASSEMBLY B.O.M.

S=Single Speed

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500 lbs)		QTY 10T (22000 lbs)	
			S		S	
			230(V)	460(V)	230(V)	460(V)
01	302216	No Fuse Breaker	1			
	300888			1		1
	300887				1	
02	301132	Magnetic Contactor For "Emergency Stop"	1			
	301120			1		
	301136				1	
	301124					1
03	301132	Magnetic Contactor For "Hoist"	2			
	301120			2		
	301136				2	
	301124					2
04	300593	Rectifier	1	1	1	1
05	301103	Reversing Contactor For "Trolley Motion" (TU, SU)	3	3	1	1
		Reversing Contactor For "Trolley Motion" (FU)	1	1	1	1
	301108	Reversing Contactor For "Trolley Motion" (TU, SU)			2	2
		Reversing Contactor For "Trolley Motion" (FU)				
06	303752	Control Transformer	1		1	
	303753			1		1
07	300659	Terminal Blocks	1			1
	300658			1		
	300648				1	
08	300663	Terminal Blocks	1	1	1	1
09	301424	Electric Control Panel(TU, FU)	1		1	1
	301422			1		
	301428	Electric Control Panel(SU)	1		1	1
	301427			1		
10	300166	Varistor	2	2	2	2
11	300529	Auxiliary Contact	2	2	2	2

ELECTRIC ASSEMBLY B.O.M.

D=Dual Speed

NO.	PART NUMBER	DESCRIPTION	Q'TY 1,2T (2200lbs) (4400lbs)		Q'TY 3T (6600lbs)		Q'TY 5T (11000lbs)	
			D		D		D	
			230 (V)	460 (V)	230 (V)	460 (V)	230 (V)	460 (V)
01	300888	No Fuse Breaker	1	1	1	1		1
	302216						1	
02	301116	Magnetic Contactor For "Emergency Stop"	3					1
	301112			3		1		
	301120				3			
	301132						1	
03	301116	Magnetic Contactor For "Hoist"	2					2
	301112			2		2		
	301120				2			
	301132						2	
04	300593	Rectifier	1	1	1	1	1	1
05	301103	Reversing Contactor For "Trolley Motion"	3	3	3	2	2	2
06	301056	Control Transformer	1					
	301076			1		1		
	303752				1		1	
	303753							1
07	300647	Terminal Blocks	1	1	1	1		1
	300656						1	
08	300663	Terminal Blocks	1	1	1	1	1	1
09	301422	Electric Control Panel(TU,FU)	1	1		1		1
	301424				1		1	
	301427	Electric Control Panel(SU)	1	1		1		1
	301428				1		1	
10	300166	Varistor	2	2	2	2	2	2
11	300529	Auxiliary Contact	2	2	2	2	2	2
12	300043	Magnetic Contactor For Fast"(Hoisting)	1	1		1		1
	300047				1			
	300022						1	

ELECTRIC ASSEMBLY B.O.M.

D=Dual Speed

NO.	PART NUMBER	DESCRIPTION	QTY 7.5T (16500 lbs)		QTY 10T (22000 lbs)	
			D		D	
			230(V)	460(V)	230(V)	460(V)
01	302216	No Fuse Breaker	1			
	300888			1		1
	300887				1	
02	301132	Magnetic Contactor For "Emergency Stop"	1			
	301120			1		
	301136				1	
	301124					1
03	301132	Magnetic Contactor For "Hoist"	2			
	301120			2		
	301136				2	
	301124					2
04	300593	Rectifier	1	1	1	1
05	301103	Reversing Contactor For "Trolley Motion"	2	2		
	301108				2	2
06	303752	Control Transformer	1		1	
	303753			1		1
07	300656	Terminal Blocks	1			1
	300647			1		
	300650				1	
08	300663	Terminal Blocks	1	1	1	1
09	301424	Electric Control Panel(TU)	1	1		1
	301429				1	
	301424	Electric Control Panel(FU)	1		1	1
	301422			1		
	301428	Electric Control Panel(SU)	1	1		1
	301425				1	
10	300166	Varistor	2	2	2	2
11	300529	Auxiliary Contact	2	2	2	2
12	300022	Magnetic Contactor For "Fast"(Hoisting)	1			
	300047			1		1
	301167				1	
13	301588	Timer			1	1
14	300439	Relay Base			1	1

10. Adjust the air gap as follows:



To prevent hazards and risks, all crane operators must be certified or qualified.

1. Unbolt screws (10) ° (FIG-1)
2. Slightly turn threaded sleeve (9) using a spanner ° (FIG-1)
 - If the air gap is too large , screw them into the stator (7) °
 - If the air gap is too small , screw them out of the stator (7) °
 - 1/6 turn change the width of the air gap by approx. 0.15mm °
3. Tighten the screws (10) ° (FIG-1)
 - BFK459-12E torques is 9 Nm
 - BFK459-14E~16E torques is 24.6 Nm
 - BFK468-18E torques is 24.6 Nm
 - BFK468-20E ~25E torques is 48 Nm
4. Check air gap again using thickness gauge and if necessary , repeat the adjustment ° (FIG-2)
 - BFK459-12E~16E air gap is 0.3mm
 - BFK468-18E~20E air gap is 0.4mm
 - BFK468-25E air gap is 0.5mm
5. Operation for manual release bar ° (FIG-3)
 - Ensure main power is off.
 - Remove hoisting motor end cover.
 - Install release bar.
 - Turning direction of the lever.
6. Recover the brake cover , and using the hoist continue °

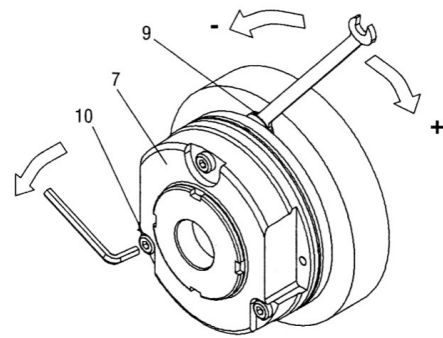


FIG-1

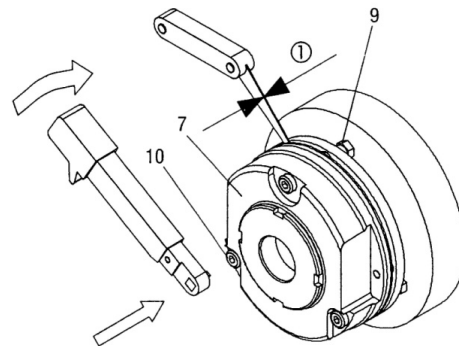


FIG-2

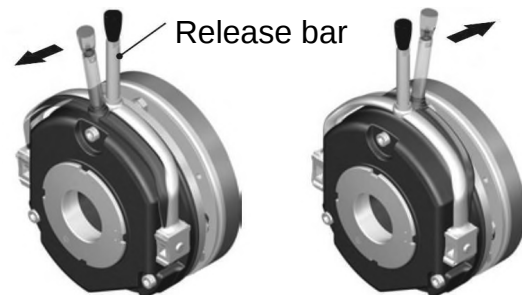


FIG-3

Supply voltage selection table

AC voltage Coil rated voltage	60HZ 230V 60HZ 460V
3HP - BFK-459-12	DC103V
4.7HP - BFK-459-14	DC103V
7.5HP - BFK-459-16	DC103V
8.7PH;10.7PH - BFK-468-18	DC205V
15HP;17.4HP - BFK-468-20	DC205V

Remark : Before replace brake gear set, please preheat to 200°C then proceed assembly.