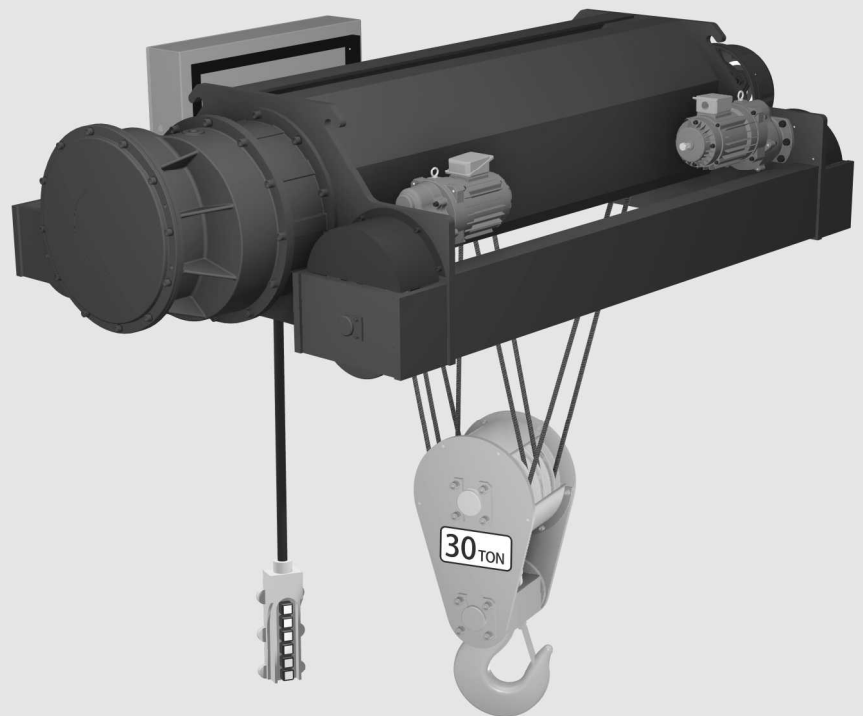




Electric Wire Rope Hoist

Operation Manual & Parts List



Series:

- | | |
|---|---|
| ☐ SBH(D)-750DB | ☐ TBH(D)-750DB |
| ☐ SBL(D)-1000DB | ☐ TBL(D)-1000DB |
| ☐ SCAH(D)-1000DB | ☐ TCAH(D)-1000DB |
| ☐ SDAH(D)-1500DB | |
| ☐ SEAL(D)-1500DB | |
| ☐ SFAH(D)1500DB | |
| ☐ SCAL(D)-2000DB | |
| ☐ SFAJ(D)-3000DB | |



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 ELECTRIC WIRE ROPE HOIST.



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1. FOREWORD

This manual contains important information to help you properly install, operate and maintain the 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.

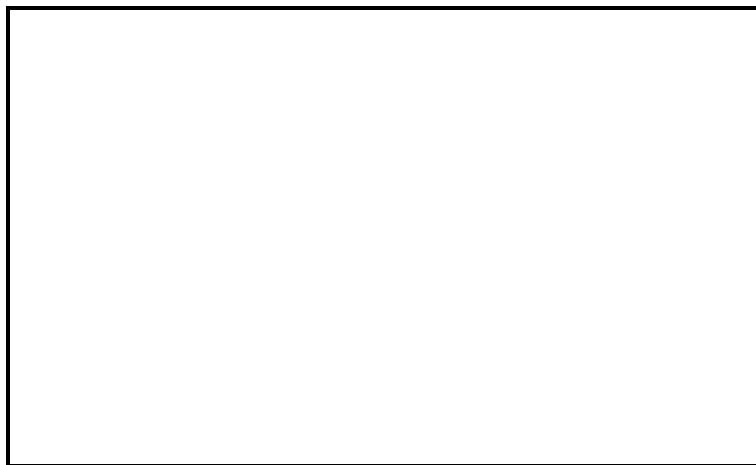
(1) Hoist model.

(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 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 (Normal)	IP 40	
	Push button	IP 65	
Electric power supply		Three Phase, 220V~600V, 50/60Hz	
Noise Level (dB)	Single speed hoist	81	
	Dual speed hoist	81	
Wire Rope diameter	Model	Wll (working load Limit) (t)	Nominal diameter (mm)
	TBH(D)-750DB SBH (D)-750DB	7.5T	Ø14 6×37-H
	TBL(D)-1000DB TCAH(D)-1000DB SBL(D)-1000DB SCAH(D)-1000DB	10T	Ø16 6×37-H
	SCAL(D)-2000DB	20T	Ø20 IWRC 6×P.Fi(29)-H
	SEAL(D)-1500DB SDAH(D)-1500DB SFAH (D)-1500DB SFAJ (D)-3000DB	15T,30T	Ø18 IWRC 6×Fi(29)-H

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

(2) For dimensions and other details, refer to the latest catalogue.

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

2.2 Mechanical Classification (Grade) and Lift

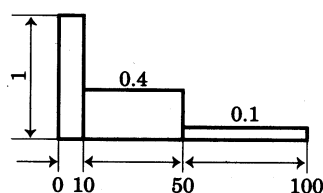
Safety and life for electric wire rope hoists are guaranteed only when the said Equipment is operated in accordance with the prescribed grade.

Electric wire rope hoists have been designed according to FEM 2m regulations (FEM 9.511). Details are provided in Table 2-2.

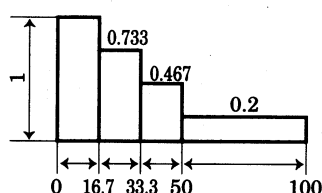
Average daily operating time and total operating time are determined by load distribution.

Table 2-2 Mechanical classification

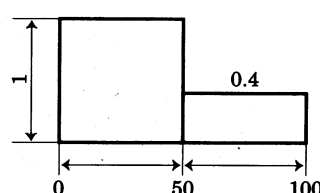
Load Spectrum (Load distribution)	Definitions	Cubic mean value	FEM 2m	FEM 2m
			Average daily Operation time (h)	Total operating time (h)
1 (light)	Mechanisms or parts thereof, usually subject to very small loads and in exceptional cases only to maximum loads.	$k \leq 0.50$	4 - 8	12500
2 (medium)	Mechanisms 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



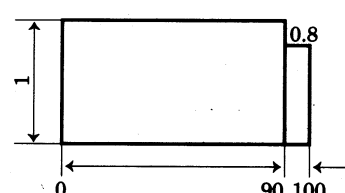
% operating time
Load spectrum 1



% 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 switching off power even under full load condition.

(2) Emergency brake system (B-type hoist available only)

In case of main braking system failure, the lost speed happened, the emergency brake system will automatically stock the transmission mechanism to prevent hooked load from falling down.

(3) Hook and hook latch

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

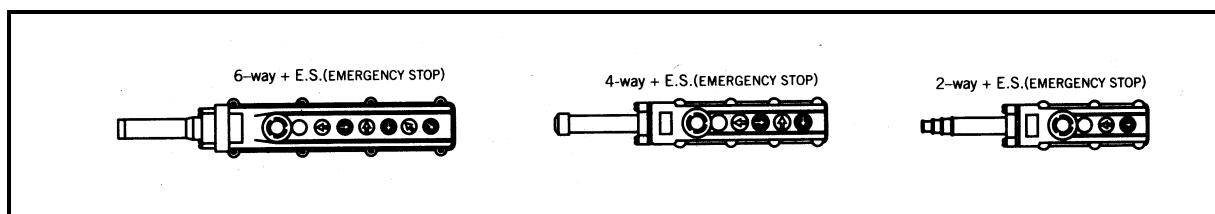
(4) Limit Switches

Upper limit switches are fitted for switching off power automatically in case of Over lifting.

(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 at the uppermost position of 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 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, rerate, 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.

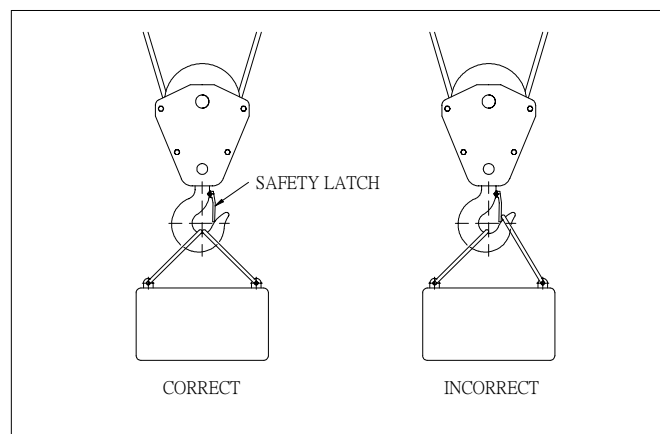
(2)

DANGER

Do not use the hoist in explosive atmosphere.

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

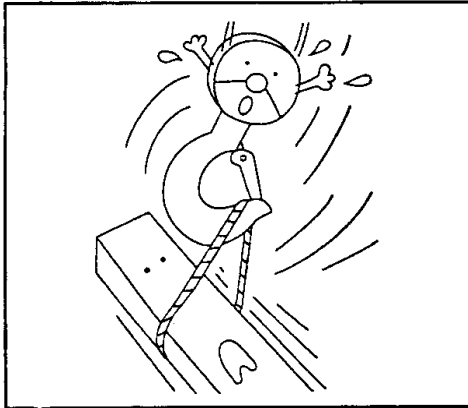
- (a) The correct lifting sling is being used.
- (b) The lifting sling is located in the hook as shown below (Illust. 2) and that a safety latch has been fitted.



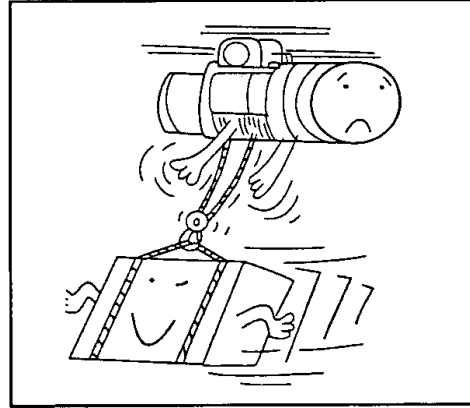
Illust. 2

- (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 push button switch cable and bottom hook vertically static after completion of operation, never leave them at any position which may cause 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)

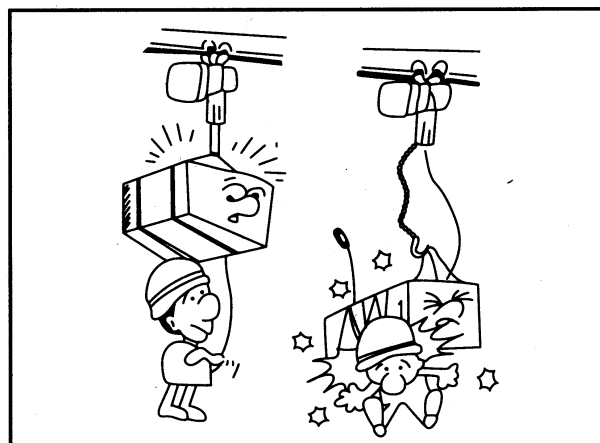
WARNING

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

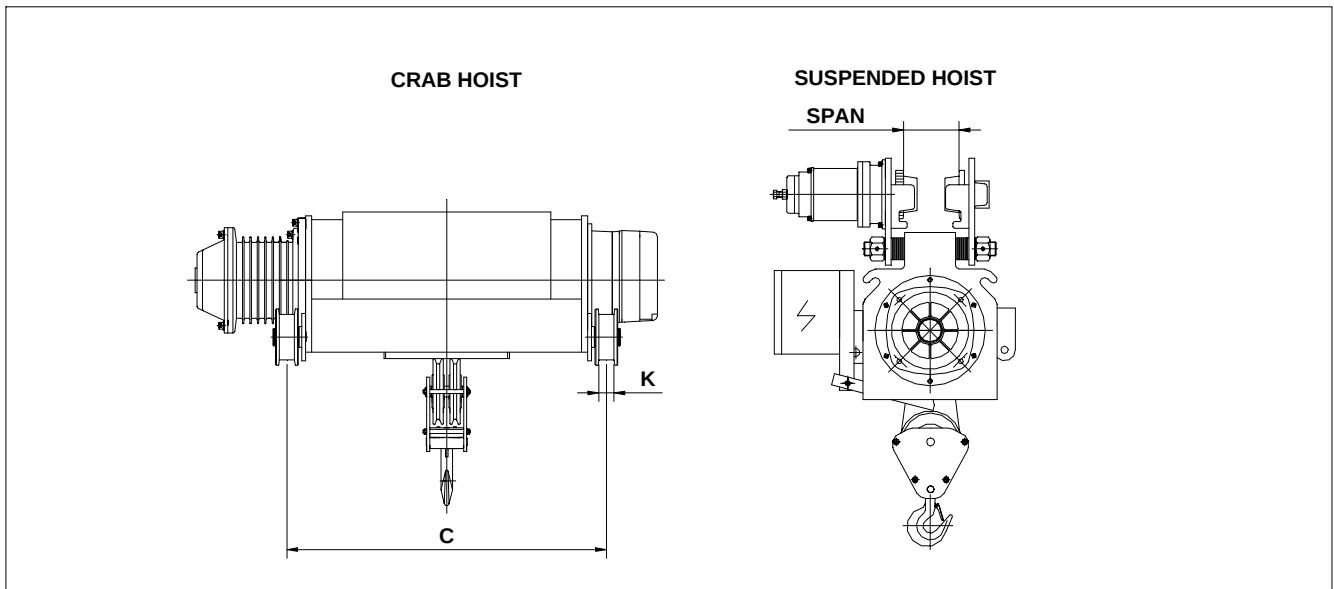
If power supply deviates from standard by more than $\pm 10\%$, abnormal operation or damage to the motor may result. It is imperative to ensure correct voltage supply before commencing operation.

4.3 Installation

WARNING

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

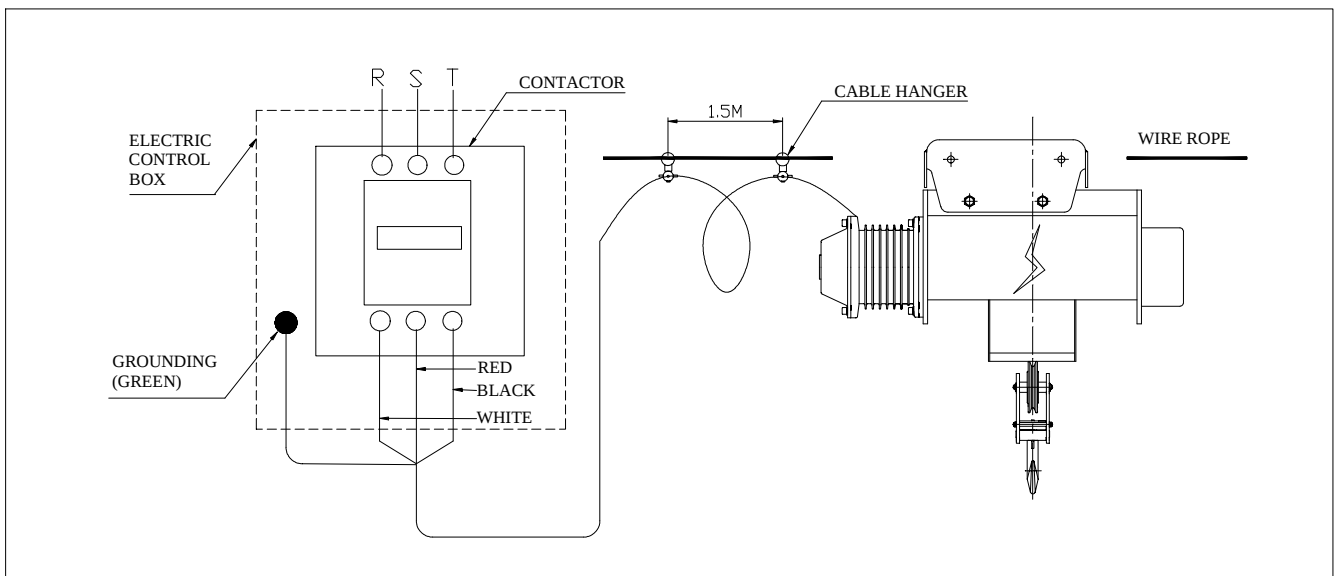
(1) Prior to installation, the crab hoist should check dimension "C" & "K" adapt to the rails span over the girder and rail specification, if hoist is suspended from an electric trolley, please check trolley's span is adapt to beam's width. (please refer to Illust.6)



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.
- (d) 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 the above function, 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 gear box lubricant after the first 500 hours operation, thereafter check every 3 months and lubricate 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 hook's wheel groove or not.

(2) Monthly inspection



WARNING

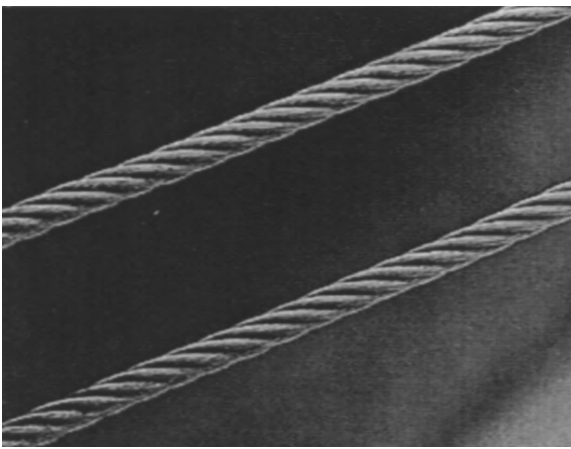
Always use the hoist manufacture's recommended parts when repairing a hoist.

(a) Wire rope :

a-1 : Any single strain of wire rope breaking. Breaking of strains more than 10% should replace new wire rope.

a-2 : Any distort, deform, itching and rust of wire rope.

a-3 : Wire rope fixing fasteners

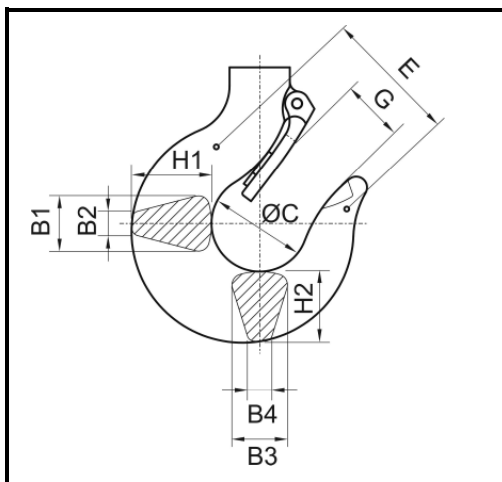


Rope Dia (mm) d	Model Being Used	Construction	Specified Breaking Load (kN)
Ø14	TBH(D)-750DB SBH(D)-750DB	Steel Wire Rope 6x37-H	123
Ø16	TBL(D)-1000DB SBL(D)-1000DB SCAH(D)-1000DB		161
Ø18	SDAH(D)-1500DB SFAH(D)-1500DB SEAL(D)-1500DB SFAJ(D)-3000DB	Steel Wire Rope IWRC 6 × Fi(29)-H	234
Ø20	SCAL(D)-2000DB	Steel Wire Rope IWRC 6 × P.Fi(29)-H	331

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)									Allowable Stress(kg/mm ²)
	H1	B1	B2	H2	B3	B4	C	G	E	
7.5	85	61	22	77	61	22	85	62	140	70
10	100	68	27	95	64	27	100	70	150	70
15	120	85	32	110	83	32	120	82	165	70
20	120	85	32	110	83	32	120	82	165	100
30	138	98	36	128	93	36	140	105	220	100

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.

(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

Gearbox	B	CA	DA	EA	FA
Oil Volume(L)	4.0~4.5	12~14	8.0~10	4.5~5.0	28~30

Table 6-3-a

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

Table 6-3-b

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

(d) Check operation of pawl spring.

(e) Check AC electromagnetic generator in good condition.

(f) 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) B530001C : SINGLE SPEED WIRING DIAGRAM	16
(2) B630001B : DUAL SPEED WIRING DIAGRAM	17

Our electric specifications can be done according to followings :

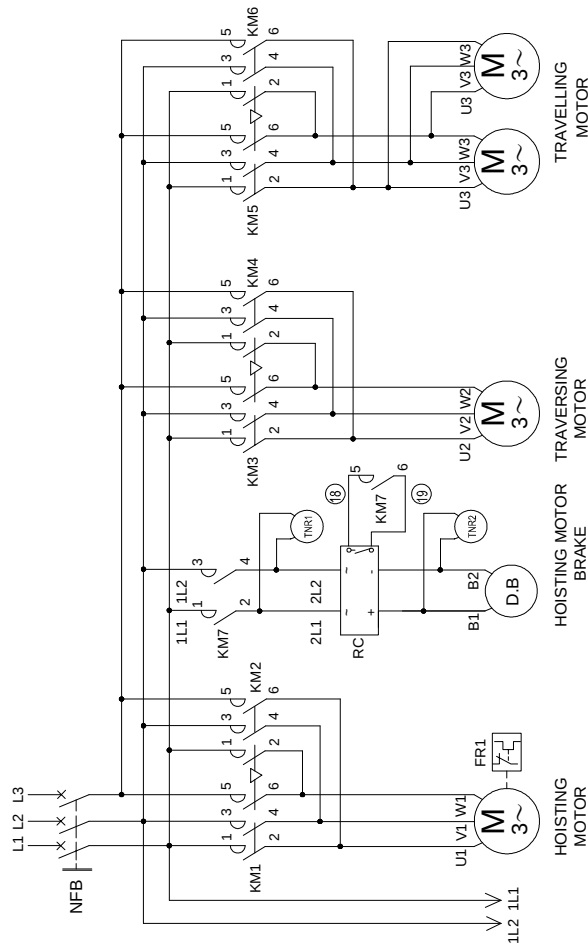
- (a) 3-Phase
- (b) 50Hz or 60 Hz
- (c) Single voltage

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

Table 7-1

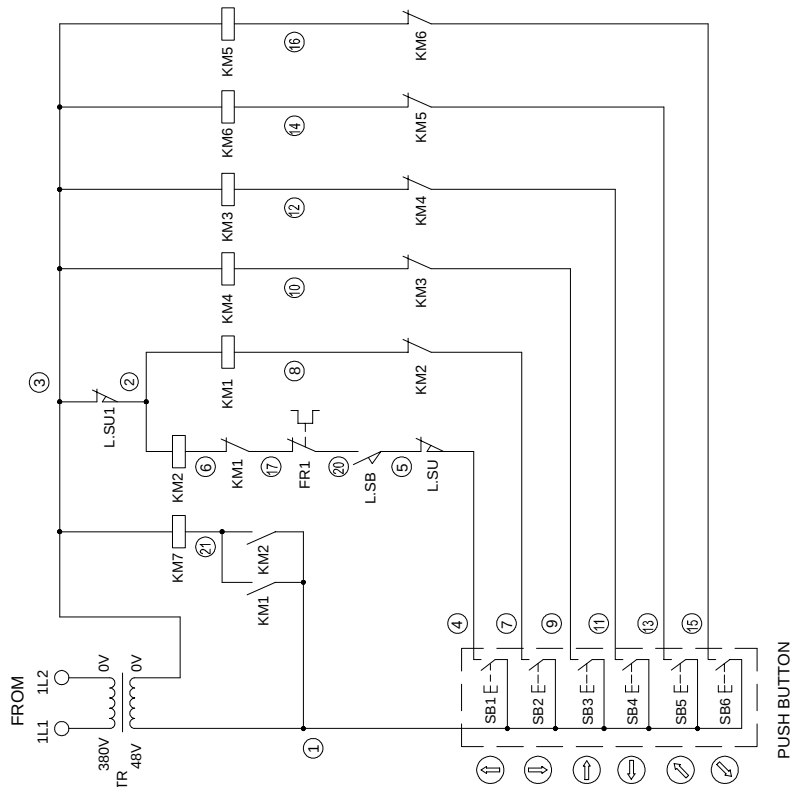
Warranty Details

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 operating 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.)



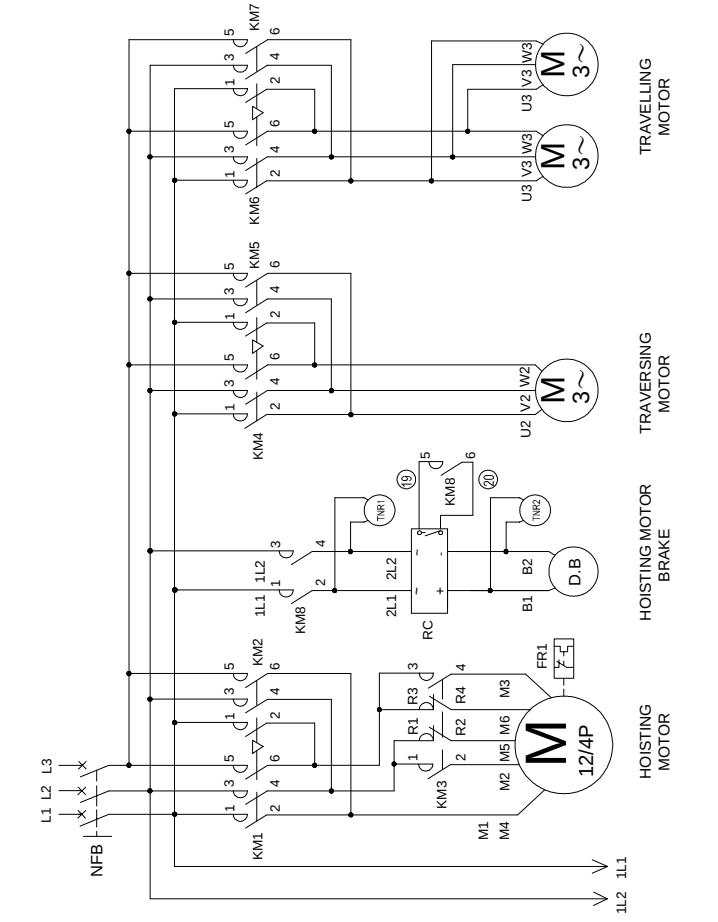
MAIN CIRCUIT WIRING DIAGRAM

NOTE:
D.B: DC BRAKE
D.B COIL VOLTAGE DC180V: HOISTING MOTOR UNDER 5KW
D.B COIL VOLTAGE DC360V: HOISTING MOTOR ABOVE 6.5KW
L.SB: LIMIT SWITCH FOR "BRAKE"
L.SU: LIMIT SWITCH FOR "UP"
L.SU1: LIMIT SWITCH FOR "UPPER"



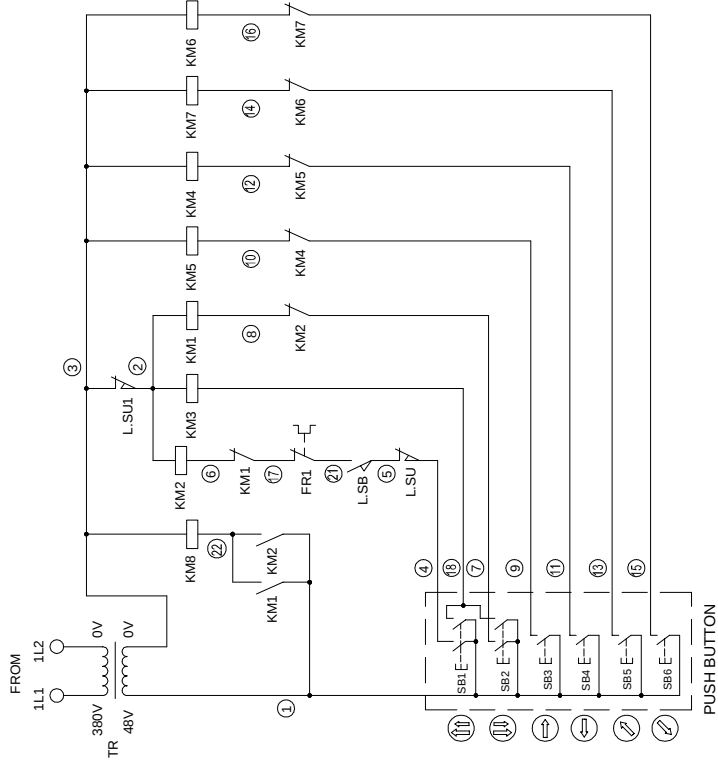
CONTROL CIRCUIT WIRING DIAGRAM

B530001C



MAIN CIRCUIT WIRING DIAGRAM

NOTE:
 D.B: DC BRAKE
 D.B: COIL VOLTAGE DC180V;HOISTING MOTOR UNDER 5KW
 D.B: COIL VOLTAGE DC360V;HOISTING MOTOR ABOVE 6.5KW
 L.SB:LIMIT SWITCH FOR "BRAKE"
 L.SU:LIMIT SWITCH FOR "Up"
 L.SU1:LIMIT SWITCH FOR "UPPER"



CONTROL CIRCUIT WIRING DIAGRAM

B630001B

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 replace the fuse/reset breaker to meet requirements Check fuse for correct rating and replace Locate and repair/reconnect Check if 10% reduction of voltage, have mains supply checked Check phases of 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) Oil plug loosen (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. MODEL CODE EXPLANATION

Example :

● MODEL

T : MONORAIL TROLLEY

S : SADDLE TROLLEY

● GEAR BOX NO.

B : 11kW×4P

CA : 11kW×4P 13kW×4P

DA : 13kW×4P

EA : 13kW×4P

FA : 18.5kW×4P

● REEVING/FALLING NUMBERS

H : 2/4

L : 1/4

J : 2/8

● SPEED

BLANK : SINGLE SPEED ONLY

D : ONLY HOIST DUAL SPEED

● CAPACITY

750 : 7.5T 1000 : 10T

1500 : 15T 2000 : 20T

3000 : 30T

● DC BRAKE

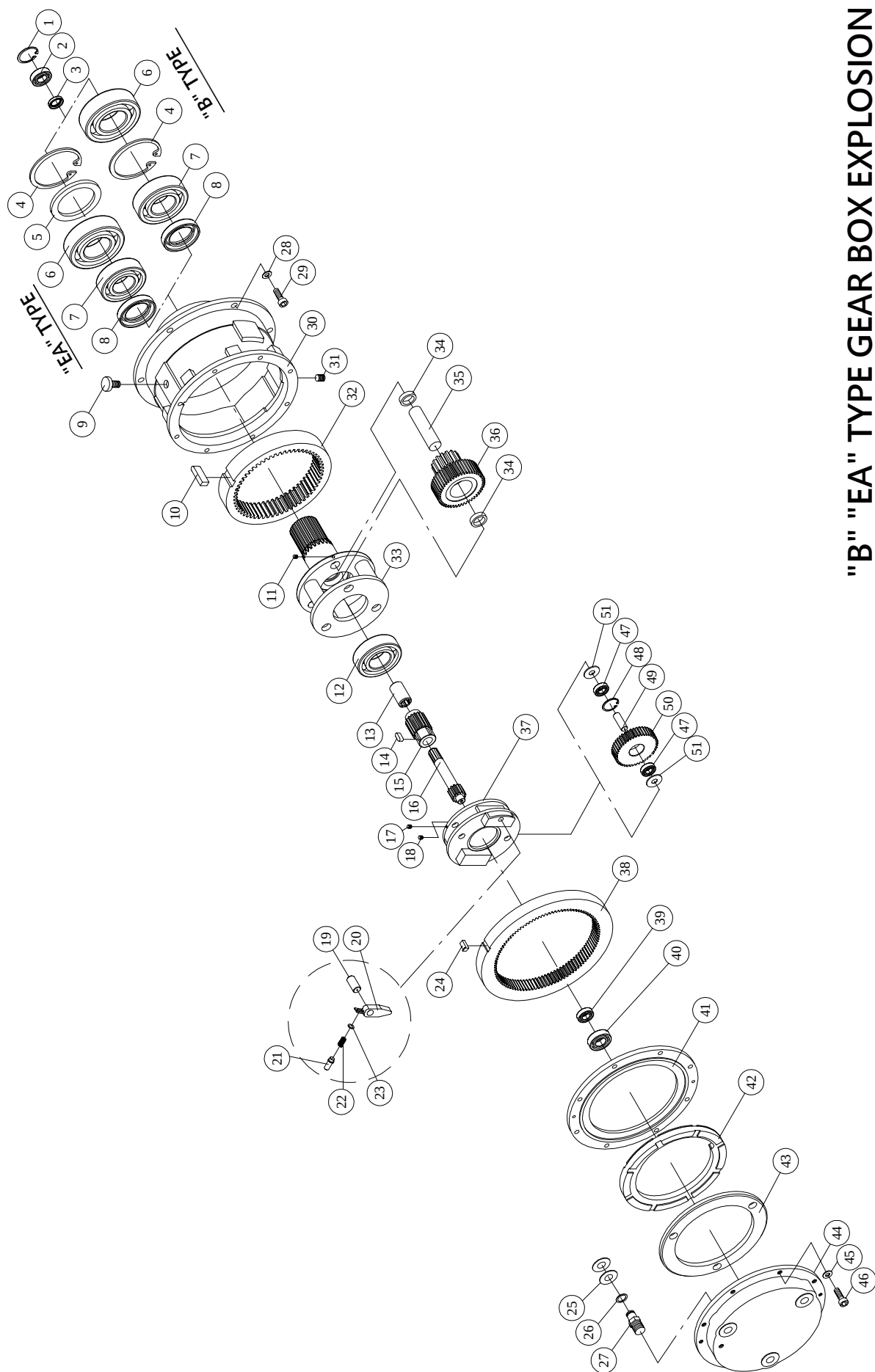
For special applications please contact the factory or your local "Black Bear" distributor.

● ORDERING GUIDE

Capacity	Monorail	Crab	Monorail	Crab	Dual Speed
Ton	High Speed	High Speed	Low Speed	Low Speed	
7.5	TBH-750DB	SBH-750DB			SBHD-750DB/TBHD-750DB
10	TCAH-1000DB	SCAH-1000DB	TBL-1000DB	SBL-1000DB	SCAHD-1000DB/SBLD-1000DB/SCAH-1000DB/TBLD-1000DB
15		SFAH-1500DB		SEAL-1500DB	SEALD-1500DB/SFAHD-1500DB/SDAH-1500DB
		SDAH-1500DB			
20				SCAL-2000DB	SCALD-2000DB
30				SFAJ-3000DB	SFAJD-3000DB

9. Drawings and Parts List

(1) "B" "EA" TYPE GEAR BOX EXPLOSION	21
(2) "B" "EA" TYPE GEAR BOX ASSEMBLY	22
(3) "CA" "DA" "FA" TYPE GEAR BOX EXPLOSION	25
(4) "CA" "DA" "FA" TYPE GEAR BOX ASSEMBLY	26
(5) MOTOR ASSEMBLY EXPLOSION (Ø220 SERIES)	30
(6) MOTOR ASSEMBLY (Ø220 SERIES)	31
(7) MOTOR ASSEMBLY EXPLOSION (Ø260, Ø310 SERIES)	33
(8) MOTOR ASSEMBLY (Ø260, Ø310 SERIES)	34
(9) 7.5-10T BOTTOM BLOCK EXPLOSION	38
(10) 7.5-10T BOTTOM BLOCK ASSEMBLY	39
(11) 15,20T BOTTOM BLOCK EXPLOSION	42
(12) 15,20T BOTTOM BLOCK ASSEMBLY	43
(13) 30T BOTTOM BLOCK EXPLOSION	44
(14) 30T BOTTOM BLOCK ASSEMBLY	45
(15) 7.5-20T SADDLE FRAME EXPLOSION	46
(16) 7.5-20T SADDLE FRAME ASSEMBLY	47
(17) 30T SADDLE FRAME EXPLOSION	58
(18) 30T SADDLE FRAME ASSEMBLY	59
(19) 7.5-10T HOIST FRAME EXPLOSION	61
(20) 7.5-10T HOIST FRAME ASSEMBLY	62
(21) 7.5-10T TROLLEY FRAME EXPLOSION	66
(22) 7.5-10T TROLLEY FRAME ASSEMBLY	67
(23) ELECTRIC EXPLOSION	69
(24) ELECTRIC ASSEMBLY	70
(25) LIMIT SWITCH EXPLOSION	73
(26) LIMIT SWITCH ASSEMBLY	74



"B" "EA" TYPE GEAR BOX EXPLOSION

GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			"B" TYPE	"EA" TYPE
1	400198	Retaining Ring<R-47>	1	
	400200	Retaining Ring<R-62>		1
2	405563	Bearing<6005 2RS>	1	
	405564	Bearing<6007 2RS>		1
3	404488	Oil Seal<Ø25 × Ø40 × 8t>	1	
	404513	Oil Seal<Ø35 × Ø55 × 11t>		1
4	400926	Retaining Ring<R-140>	1	
	400925	Retaining Ring<R-180>		1
5	205193	Bearing Washer<t5 × Ø180 × Ø160>		1
6	407756	Bearing<6021 Z>	1	
	400802	Bearing<6220 ZZ>		1
7	400790	Bearing<6216 Z>	1	
	400728	Bearing<6220>		1
8	400937	Oil Seal<Ø85 × Ø110 × 13t>	1	
	404414	Oil Seal<Ø120 × Ø150 × 14t>		1
9	400594	Oil Seal<7/8" × 14UNF>	1	1
10	278501	Key<20 × 20 × 56L>	1	
	278502	Key<20 × 20 × 60L>		1
11	400204	Set Screw<M8 × 1.25 × 12L>	3	3
12	407754	Bearing<6010>		1
13	205466	Coupling	1	
	205468			1
14	400975	Key<10 × 10 × 25L>	4	4
15	205453	Load Brake Gear Shaft<3 rd Gear>	1	
	205424			1
16	205451	Pinion For Motor Shaft<1 st Gear>	1	
	205422			1
17	400206	Set Screw<M5 × 0.8 × 12L>	2	
	400204	Set Screw<M8 × 1.25 × 12L>		2

"B" : T,SBH(D)-750DB ; T,SBL(D)-1000DB

"EA" : SEAL(D)-1500DB

GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			"B" TYPE	"EA" TYPE
18	400205	Set Screw<M5 × 0.8 × 8L>	1	1
19	205202	Ratchet Pawl Axle<Ø16 × 38L>	1	1
20	205332	Ratchet Pawl<t16 × 25 × 98L>	1	1
21	205326	Dowel Pin<Ø13 × 45L>	1	1
22	408511	Spring<Ø1 × Ø12 × Ø10 × 45L>	1	
	408503	Spring<Ø1.2 × Ø12.4 × Ø10 × 42.7L>		1
23	205225	Washer<t1 × Ø14 × Ø9>	1	1
24	205043	Key<12 × 12 × 25>	1	1
25	400574	Cone Spring<Ø40 × Ø20.5 × 2.5mm>	6	6
26	205205	Washer<t2 × Ø30 × Ø20.5>	3	3
27	205196	Stay Shaft<Ø26 × 38L>	3	3
28	400651	Spring Washer<M14>	6	6
29	400445	Hex. Recess Bolt<M14 × 2.0 × 40L>	6	6
30	205547	Gear Case Base	1	
	267631			1
31	400591	Lubricant Drain Bolt<3/8" PT>	1	1
32	205040	Internal Gear B	1	
	268118			1
33	228390	Big Reduction Gear Frame	1	
	228276			1
34	407733	Needle Bearing<KT 32/42/17>	6	6
35	205197	Axle	3	
	205192			3
36	205440	Gear Ass'y	3	
	268115			3
37	205350	Reduction Gear Frame	1	
	269020			1

"B" : T,SBH(D)-750DB ; T,SBL(D)-1000DB

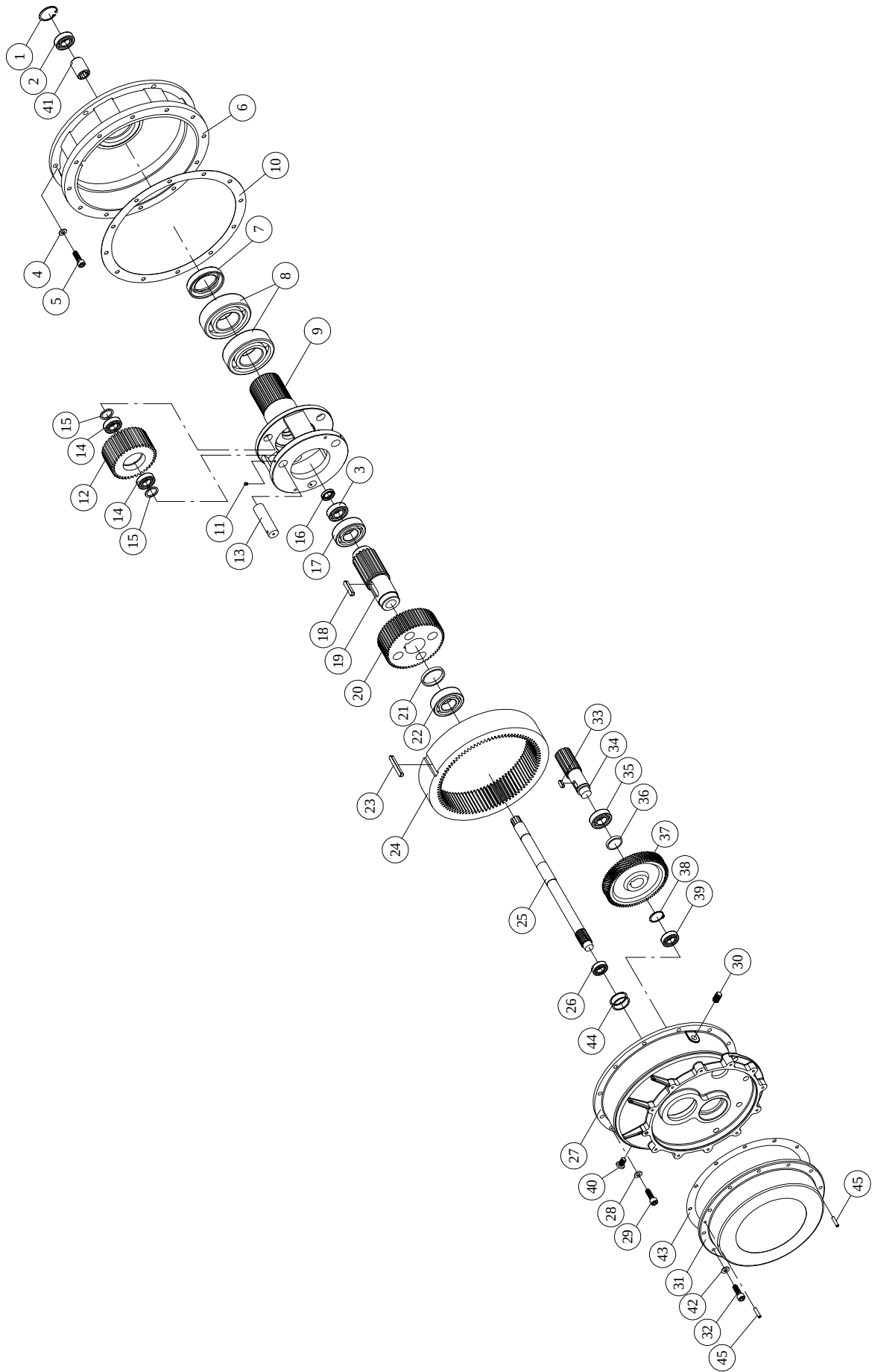
"EA" : SEAL(D)-1500DB

GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			"B" TYPE	"EA" TYPE
38	205042	Internal Gear A	1	
	268117			1
39	400136	Bearing<6304>	1	
	400810	Bearing<6206>		1
40	407758	Bearing<6207>		1
41	205016	Flange	1	
	267633			1
42	205062	Friction Disc	1	
	205063			1
43	205061	Disc Hub<t12 × Ø279 × Ø207>	1	
	205064	Disc Hub<t12 × Ø343 × Ø270>		1
44	205542	Gear Case Cover	1	
	267632			1
45	400096	Spring Washer<M10>	8	12
46	400019	Hex. Recess Bolt<M10 × 1.5 × 45L>	8	12
47	407732	Bearing<6203>	4	
	407753	Bearing<6005>		4
48	400922	Retaining Ring<R-40>	2	
	400198	Retaining Ring<R-47>		2
49	205199	Intermediate Axle	2	
	205191			2
50	205455	Intermediate Gear<2 nd Gear>	2	
	268114			2
51	205205	Washer<t2 × Ø30 × Ø20.5>	4	
	200633	Sprocket Spacer<Ø40 × Ø26 × 4L>		4

"B" : T,SBH(D)-750DB ; T,SBL(D)-1000DB

"EA" : SEAL(D)-1500DB



"CA" "DA" "FA" TYPE GEAR BOX EXPLOSION

GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			"CA" TPYE		"DA" TPYE	"FA" TPYE
			10T	20T		
1	400200	Retaining Ring<R-62>	1			
	400924	Retaining Ring<R-85>			1	
	400914	Retaining Ring<R-90>				1
2	407770	Bearing<6007>	1			
	407723	Bearing<6209 ZZ>			1	
	400139	Bearing<6210 ZZ>				1
3	405564	Bearing<6007 2RS>	1			
	405721	Bearing<6009 2RS>			1	
	405565	Bearing<6011 2RS>				1
4	400651	Spring Washer<M14>	6		8	
	400098	Spring Washer<M16>				10
5	400442	Hex. Recess Bolt<M14×2.0×50L>	6			
	400441	Hex. Recess Bolt<M14×2.0×45L>			8	
	400457	Hex. Recess Bolt<M16×2.0×50L>				10
6	206230	Gear Box Bracket	1			
	205790			1		
	228619	Gear Case A			1	
	268234					1
7	400929	Oil Seal<Ø100×Ø125×13t>	1			
	404414	Oil Seal<Ø120×Ø150×14t>		1	1	
	400931	Oil Seal<Ø140×Ø170×14t>				1
8	400792	Bearing<6220 Z>	2			
	400729	Bearing<6224 Z>		2	2	
	400683	Bearing<6228 Z>				2
9	228320	Big Reduction Frame	1			
	205869			1		
	228609				1	
	228259					1
10	402665	Gasket A	1			
	402667				1	
	402616					1
11	400585	Set Screw<M8×1.25×16L>	3			
	400586	Set Screw<M10×1.5×16L>			3	3

"CA" : T,SCAH(D)-1000DB ; SCAL(D)-2000DB

"DA" : SDAH(D)-1500DB

"FA" : SFAH(D)-1500DB ; SFAJ(D)-3000DB

GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			"CA" TPYE		"DA" TPYE	"FA" TPYE
			10T	20T		
12	268112	Drum Gear<6 th Gear>	3			
	228607				3	
	205433					3
13	205190	Drum Gear Shaft	3			
	228615				3	
	205194					3
14	407767	Bearing<6307>	6			
	407750	Bearing<6308>			6	6
15	205685	Sleeve A	6			
	205460				6	6
16	404513	Oil Seal<Ø35 × Ø55 × 11t>	1			
	404402	Oil Seal<Ø45 × Ø68 × 12t>			1	
	404514	Oil Seal<Ø55 × Ø78 × 12t>				1
17	407741	Bearing<6213>	1			
	405686	Bearing<6217 ZZ>			1	
	400728	Bearing<6220>				1
18	400957	Key<20 × 13 × 65L>	1			
	405917	Key<28 × 16 × 70L>			1	
	400988	Key<32 × 20 × 80L>				1
19	205438	Drum Pinion Gear<5 th Gear>	1			
	228606				1	
	205432					1
20	205437	Load Brake Gear<4 th Gear>	1			
	228605				1	
	201313					1
21	205686	Sleeve B	1			
	228616				1	
	205461					1
22	407741	Bearing<6213>	1			
	405686	Bearing<6217 ZZ>			1	
	400762	Bearing<6222 ZZ>				1
23	400995	Key<20 × 13 × 90L>	1			
	400955	Key<20 × 13 × 120L>			1	1

"CA" : T,SCAH(D)-1000DB ; SCAL(D)-2000DB

"DA" : SDAH(D)-1500DB

"FA" : SFAH(D)-1500DB ; SFAJ(D)-3000DB

GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			"CA" TPYE		"DA" TPYE	"FA" TPYE
			10T	20T		
24	268113	Internal Gear	1			
	228608				1	
	205045					1
25	201312	Pinion For Motor Shaft<1 st Gear>	1			
	228602				1	
	201311					1
26	407749	Bearing<6306>	1			
	400121	Bearing<6306 ZZ>			1	
	400721	Bearing<6307 ZZ>				1
27	205780	Gear Case	1			
	228618	Gear Case B			1	
	268235					1
28	400097	Spring Washer<M12>	12		12	
	400651	Spring Washer<M14>				12
29	400451	Hex. Recess Bolt<M12×1.75×40L>	12		12	
	400441	Hex. Recess Bolt<M14×2.0×45L>				12
30	400591	Lubricant Drain Bolt<3/8" PT>	1			
	407204	Oil Plug<PT 1">			1	1
31	204967	Gear Case Cover	1			
	228617				1	
	268233					1
32	400450	Hex. Recess Bolt<M10×1.5×35L>	12			
	400451	Hex. Recess Bolt<M12×1.75×40L>			12	
	400441	Hex. Recess Bolt<M14×2.0×45L>				12
33	400996	Key<16×10×30L>	1			
	405910	Key<18×11×40L>			1	
	400987	Key<20×13×55L>				1
34	209117	Load Brake Gear Shaft<3 rd Gear>	1			
	228604				1	
	205430					1

"CA" : T,SCAH(D)-1000DB ; SCAL(D)-2000DB

"DA" : SDAH(D)-1500DB

"FA" : SFAH(D)-1500DB ; SFAJ(D)-3000DB

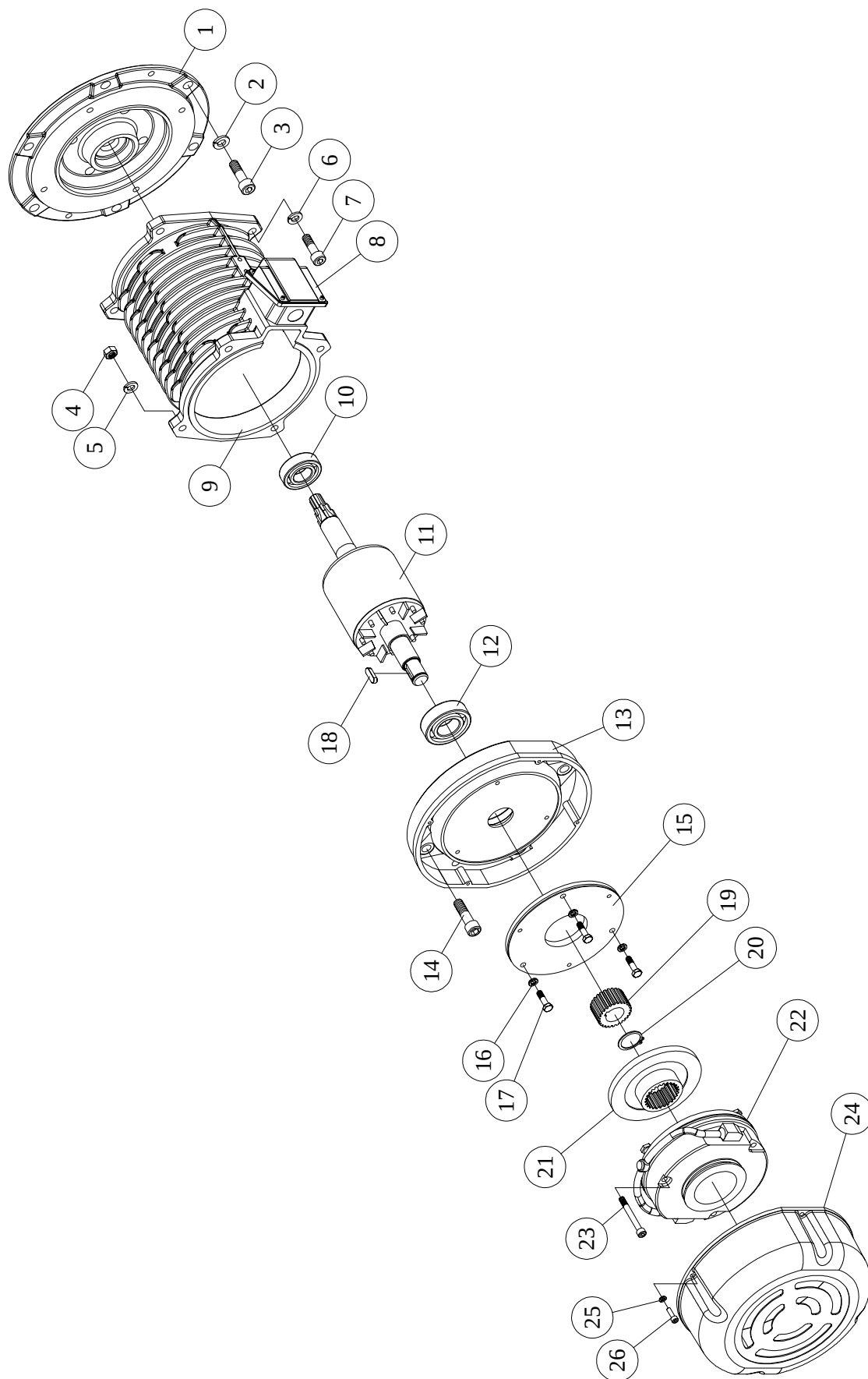
GEAR BOX ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			"CA" TPYE		"DA" TPYE	"FA" TPYE
			10T	20T		
35	405650	Bearing<NJ 2309>	1			
	405688	Bearing<NF 312E>			1	
	400781	Bearing<NF 314>				1
36	205562	Sleeve C	-		1	
	205462					1
37	205435	Intermediate Gear<2 nd Gear>	1			
	228603				1	
	201314					1
38	400196	Retaining Ring<S-45>	1			
	400919	Retaining Ring<S-60>			1	
	400910	Retaining Ring<S-70>				1
39	405649	Bearing<NF 307>	1			
	405687	Bearing<NF 210>			1	
	405681	Bearing<NF 212>				1
40	400594	Oil Plug<7/8" × 14UNF>	1			
	206856	Oil Plug<7/8" × 14UNF>			1	1
41	205463	Coupling	1			
	267977				1	
	205465					1
42	400096	Spring Washer<M10>	12			
	400097	Spring Washer<M12>			12	
	400651	Spring Washer<M14>				12
43	402666	Gasket B	1			
	402668				1	
	402615					1
44	400864	Corrugated Washer<W61630>	-		-	2
45	200346	Axle<Ø12 × 52L>	-		2	2

"CA" : T,SCAH(D)-1000DB ; SCAL(D)-2000DB

"DA" : SDAH(D)-1500DB

"FA" : SFAH(D)-1500DB ; SFAJ(D)-3000DB



MOTOR EXPLOSION (φ220 DC BRAKE SERIES)

MOTOR ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT
			Ø220
			11kW 4P
1	105645	Flange	1
2	400651	Spring Washer<M14>	6
3	400440	Hex. Recess Bolt<M14×2.0×35L>	6
4	400083	Nut<M18×2.5>	4
5	400100	Spring Washer<M18>	4
6	400097	Spring Washer<M12>	4
7	400022	Hex. Recess Bolt<M12×1.75×30L>	4
8	120134	Motor Component (Cable Box)	1
9	A	Motor Stator Ass'y	1
10	405625	Bearing<6307 2RU>	1
11	105484	Motor Rotor	1
12	405626	Bearing<6309 2RU>	1
13	100050	Back Bracket Ø220 BFK458-18E	1
14	408386	Hex. Recess Bolt<M18×2.5×60L>	4
15	108524	Flange BFK468-18E	1
16	400095	Spring Washer<M8>	4
17	404619	Hex. Bolt<M8×1.25×25L>	4
18	405942	Key<12×8×35L>	1
19	100131	Disc Hub Ø40 BFK458-18E	1
20	400195	Retaining Ring<S-40>	1
21	100138	Friction Disc BFK458-18E	1
22	B	DC Solenoid	1
23	408429	Hex. Recess Bolt<M8×1.25×105L>	6
24	269244	Brake End Cover Ø220	1
25	400094	Spring Washer<M6>	4
26	400007	Hex. Recess Bolt<M6×1.0×20L>	4

11kW : T,SBH-750DB;T,SBL-1000DB;T,SCAH-1000DB;

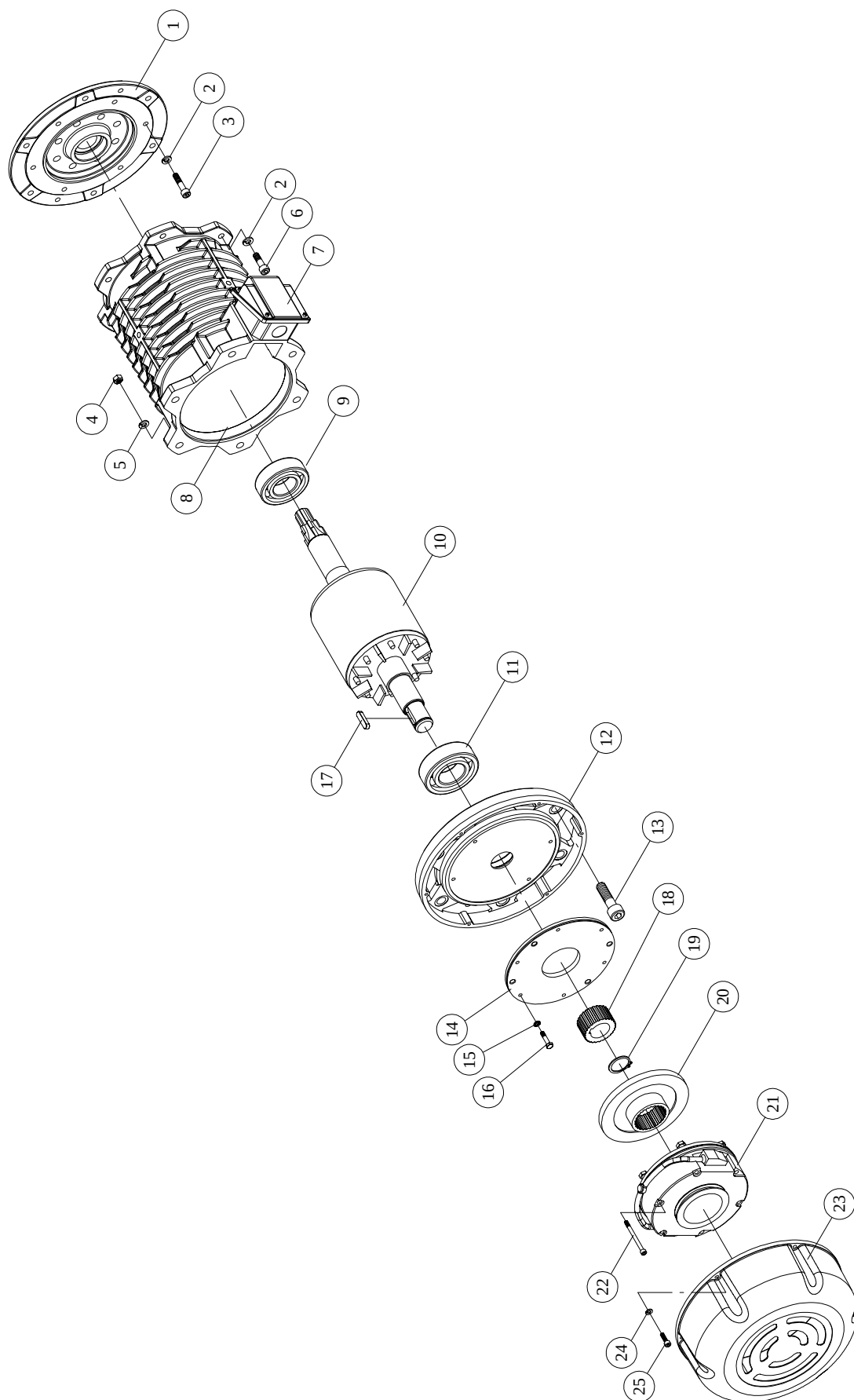
#8、#9、#22 Ref.Page32

Motor Stator Ass'y

KEY NO.	PARTS CODE		DESCRIPTION	Ø-Hz-V	
9	A	108491	Motor Stator Ass'y<11kW 4P>	3Ø 60Hz	220V/380V
		108532			440V
		108533		3Ø 50Hz	220V/380V
		108535			415V

DC Solenoid

KEY NO.	PARTS CODE		DESCRIPTION	Ø-Hz-V	
22	B	107065	DC Solenoid BFK468-18E DC205V	3Ø 60/50Hz	220V
		107066	DC Solenoid BFK468-18E DC360V		380V
		107065	DC Solenoid BFK468-18E DC205V		415V
					440V



MOTOR EXPLOSION <φ260 ; φ310 DC BRAKE SERIES >

MOTOR ASSEMBLY

Dual = Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT				
			Ø260				Ø310
			11kW	13kW	13kW	18.5kW	18.5kW
			(Dual)		(Dual)		(Dual)
1	101178	Flange	1	1	1	1	
	105648						1
2	400651	Spring Washer<M14>	12	12	12	12	14
3	400440	Hex. Recess Bolt<M14×2.0×35L>	6	6	6	6	
	400441	Hex. Recess Bolt<M14×2.0×45L>					8
4	400640	Nut<M20×2.5>	6	6	6	6	
	400076	Nut<M24×3.0>					6
5	400099	Spring Washer<M20>	6	6	6	6	
	400101	Spring Washer<M24>					6
6	400442	Hex. Recess Bolt<M14×2.0×50L>	6	6	6	6	6
7	A	Motor Component<Cable Box> Ø 260	1				
	B			1			
	C				1		
	D					1	
	E	Motor Component<Cable Box> Ø 310					1
8	F	Motor Stator Ass'y	1				
	G			1			
	H				1		
	I					1	
	J						1
9	405628	Bearing<6308 2RU>	1	1	1	1	
	405624	Bearing<6312 2RU>					1
10	105485	Motor Rotor	1				
	101125			1			
	105487				1		
	108579					1	
	105489						1
11	405627	Bearing<6310 2RU>	1	1	1	1	
	405623	Bearing<6313 2RU>					1

11kW: T,SBHD-750DB ; T,SBLD-1000DB ; T,SCAHD-1000DB

13kW: SEAL(D)-1500DB ; SCAL(D)-2000DB

18.5kW: SFAH(D)-1500DB ; SFAJ(D)-3000DB #7 Ref.Page36 , #8 Ref.Page36 、 37.

MOTOR ASSEMBLY

Dual = Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT				
			Ø260				Ø310
			11kW	13kW	13kW	18.5kW	18.5kW
			(Dual)		(Dual)		(Dual)
12	100052	Back Bracket Ø260 BFK458-18E	1				
	100058	Back Bracket Ø260 BFK458-20E		1	1	1	
	100065	Back Bracket Ø310 BFK458-20E					1
13	408379	Hex. Recess Bolt<M20×2.5×60L>	6	6	6	6	
	408387	Hex. Recess Bolt<M24×3.0×80L>					6
14	108524	Flange BFK468-18E	1				
	108526	Flange BFK468-20E		1	1	1	1
15	400095	Spring Washer<M8>	4				
	400096	Spring Washer<M10>		4	4	4	4
16	404619	Hex. Bolt<M8×1.25×25L>	4				
	408350	Hex. Bolt<M10×1.5×30L>		4	4	4	4
17	405942	Key<12×8×35L>	1				
	405943	Key<14×9×40L>		1	1	1	1
18	100131	Disc Hub Ø40 BFK458-18E	1				
	100132	Disc Hub Ø45 BFK458-20E		1	1	1	1
19	400195	Retaining Ring<S-40>	1				
	400196	Retaining Ring<S-45>		1	1	1	1
20	100138	Friction Disc BFK458-18E	1				
	100139	Friction Disc BFK458-20E		1	1	1	1
21	K	DC Solenoid	1				
	L			1	1	1	1
22	408429	Hex. Recess Bolt<M8×1.25×105L>	6				
	408417	Hex. Recess Bolt<M10×1.5×120L>		6	6	6	6
23	269245	Brake End Cover Ø260	1	1	1	1	
	107265	Brake End Cover Ø310					1
24	400095	Spring Washer<M8>	6	6	6	6	6
25	400013	Hex. Recess Bolt<M8×1.25×25L>	6	6	6	6	6

11kW: T,SBHD-750DB ; T,SBLD-1000DB ; T,SCAHD-1000DB

13kW: SEAL(D)-1500DB ; SCAL(D)-2000DB

18.5kW: SFAH(D)-1500DB ; SFAJ(D)-3000DB #21 Ref.Page37

Motor Component

KEY NO	PARTS CODE		DESCRIPTION	Ø-Hz-V	
7	A	120233	Motor Component<Cable Box> Ø260-11kW 4/12P	3Ø 50/60Hz	220V
		120142		3Ø 50/60Hz	380~440V
	B	120142	Motor Component<Cable Box> Ø260-13kW 4P	3Ø 50/60Hz	220V~440V
	C	120233	Motor Component<Cable Box> Ø260-13kW 4/12P	3Ø 50/60Hz	220V~440V
	D	120236	Motor Component<Cable Box> Ø260-18.5kW 4P	3Ø 50/60Hz	220V
		120142		3Ø 50/60Hz	380~440V
	E	120235	Motor Component<Cable Box> Ø310-18.5kW 4/12P	3Ø 50/60Hz	220V
		120233		3Ø 50/60Hz	380~440V

Motor Stator Ass'y

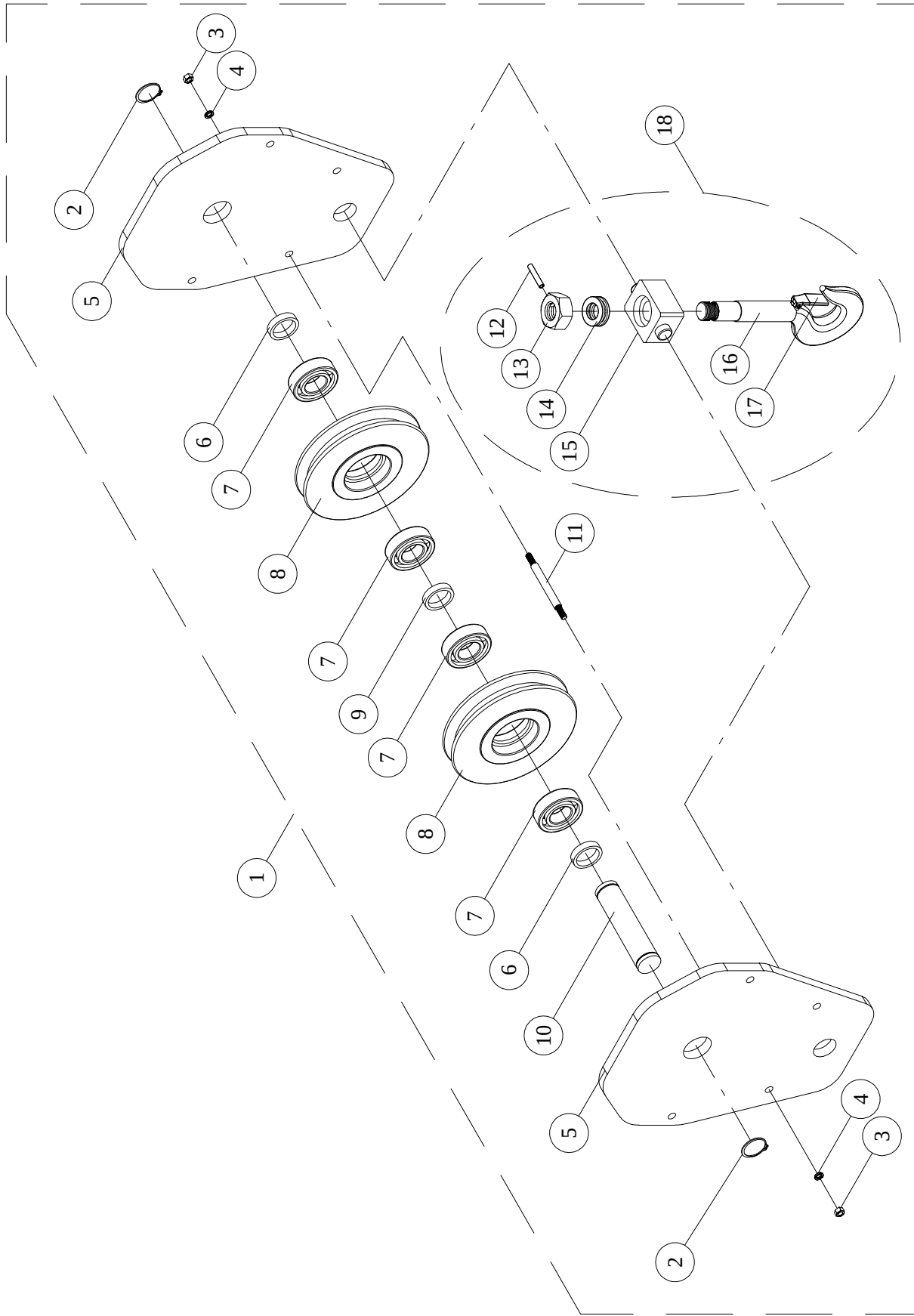
KEY NO	PARTS CODE		DESCRIPTION	Ø-Hz-V	
8	F	100076	Motor Stator Ass'y (11kW 4/12P)	3Ø 60Hz	220V
		135485			380V
		135486			440V
		135487		3Ø 50Hz	220V
		135488			380V
		135490			415V
		100856			525V
	G	100096	Motor Stator Ass'y (13kW 4P)	3Ø 60Hz	220V/380V
		100097			220V/440V
		100098		3Ø 50Hz	220V/380V
		107865			220V/440V
		100099			415V
		100271			525V

Motor Stator Ass'y

KEY NO	PARTS CODE		DESCRIPTION	Ø-Hz-V	
8	H	100078	Motor Stator Ass'y (13kW 4/12P)	3Ø 60Hz	220V
		135491			380V
		135492			440V
		135493		3Ø 50Hz	220V
		135494			380V
		135495			415V
		135666			525V
	I	108576	Motor Stator Ass'y (18.5kW 4P)	3Ø 60Hz	220V/380V
		135211			440V
		135212		3Ø 50Hz	220V/380V
		135213			415V
		100278			525V
	J	100080	Motor Stator Ass'y (18.5kW 4/12P)	3Ø 60Hz	220V
		135496			380V
		135497			440V
		135498		3Ø 50Hz	220V
		135499			380V
		135530			415V
		135244			525V

DC Solenoid

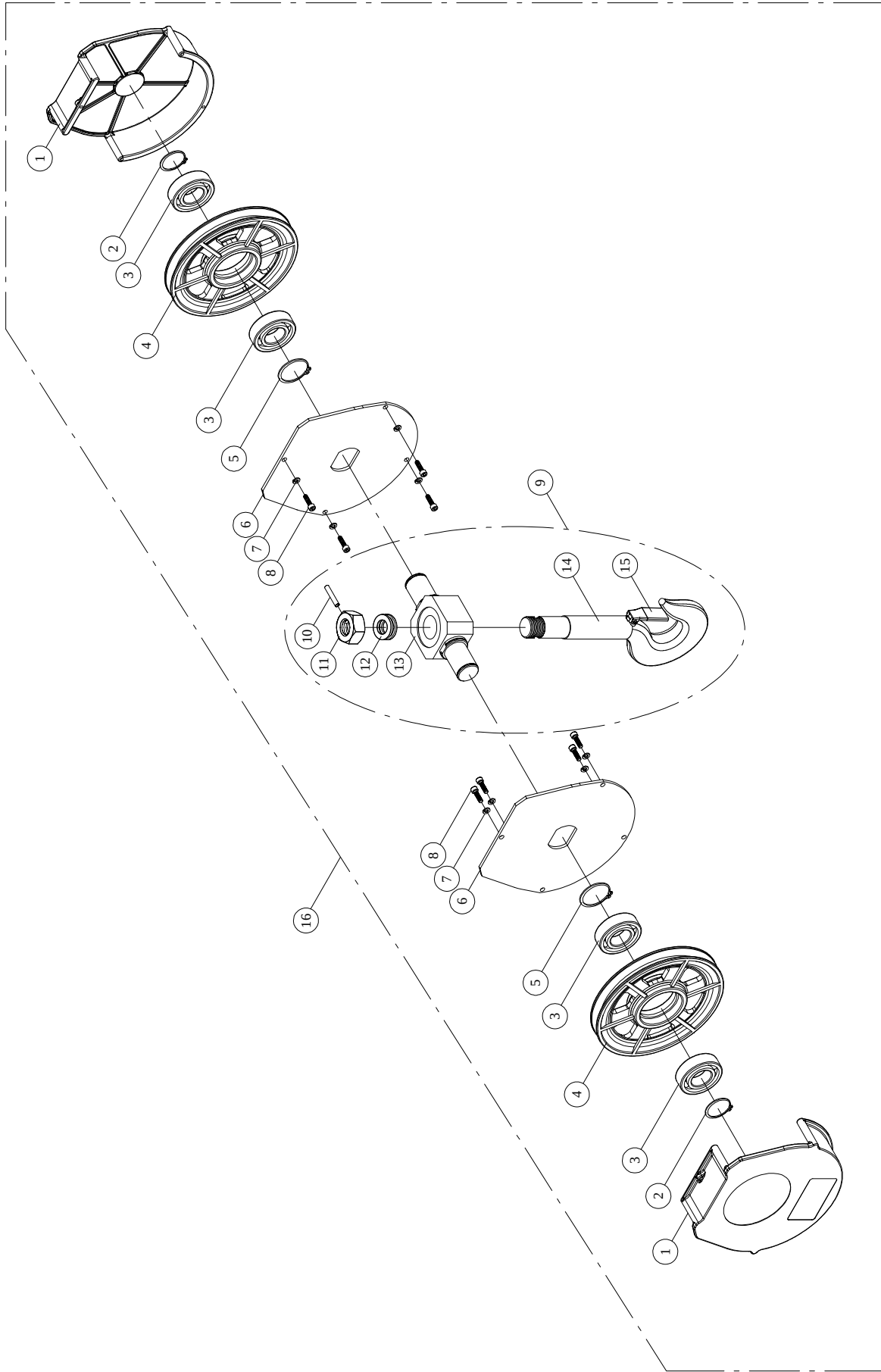
KEY NO	PARTS CODE		DESCRIPTION	Ø-Hz-V	
21	K	107065	DC Solenoid BFK468-18E DC205V	3Ø 60/50Hz	220V
		107066	DC Solenoid BFK468-18E DC360V		380V
		107065	DC Solenoid BFK468-18E DC205V		415V
					440V
	L	107067	DC Solenoid BFK468-20E DC205V	3Ø 60/50Hz	220V
		107068	DC Solenoid BFK468-20E DC360V		380V
		107067	DC Solenoid BFK468-20E DC205V		415V
					440V



7.5 - 10T BOTTOM BLOCK EXPLOSION

BOTTOM BLOCK ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			2/4 (R/F)	
			7.5T	10T
1	202359	Bottom Block Ass'y	1	
	240246			1
2	400909	Retaining Ring<S-55>	2	
	400913	Retaining Ring<S-65>		2
3	400637	Nut<M14×2.0>	8	
	400634	Nut<M16×2.0>		8
4	400651	Spring Washer<M14>	8	
	400098	Spring Washer<M16>		8
5	202363	Bottom Block Cover	2	
	240248			2
6	205872	Position Sleeve	2	
	240247			2
7	400821	Bearing<6211 Z>	4	
	407832	Bearing<6313 Z>		4
8	205847	Sheave	2	
	210609			2
9	205873	Position Sleeve	1	
	240250			1
10	205366	Sheave Axle	1	
	240249			1
11	205226	Stay Bolt<Ø20×220L>	4	
	205229	Stay Bolt<Ø22×256L>		4
12	400214	Spring Pin<Ø8×70L>	1	
	400209	Spring Pin<Ø8×55L>		2
13	400636	Nut<M52×5.0>	1	
	202049	Nut<M64×6.0>		1
14	400161	Thrust Bearing<51211>	1	
	400164	Thrust Bearing<51313>		1
15	202365	Bearing Housing	1	
	202369			1
16	204989	Bottom Hook	1	
	200091			1
17	400303	Safety Latch	1	1
18	202360	Bottom Hook Ass'y	1	
	202362			1

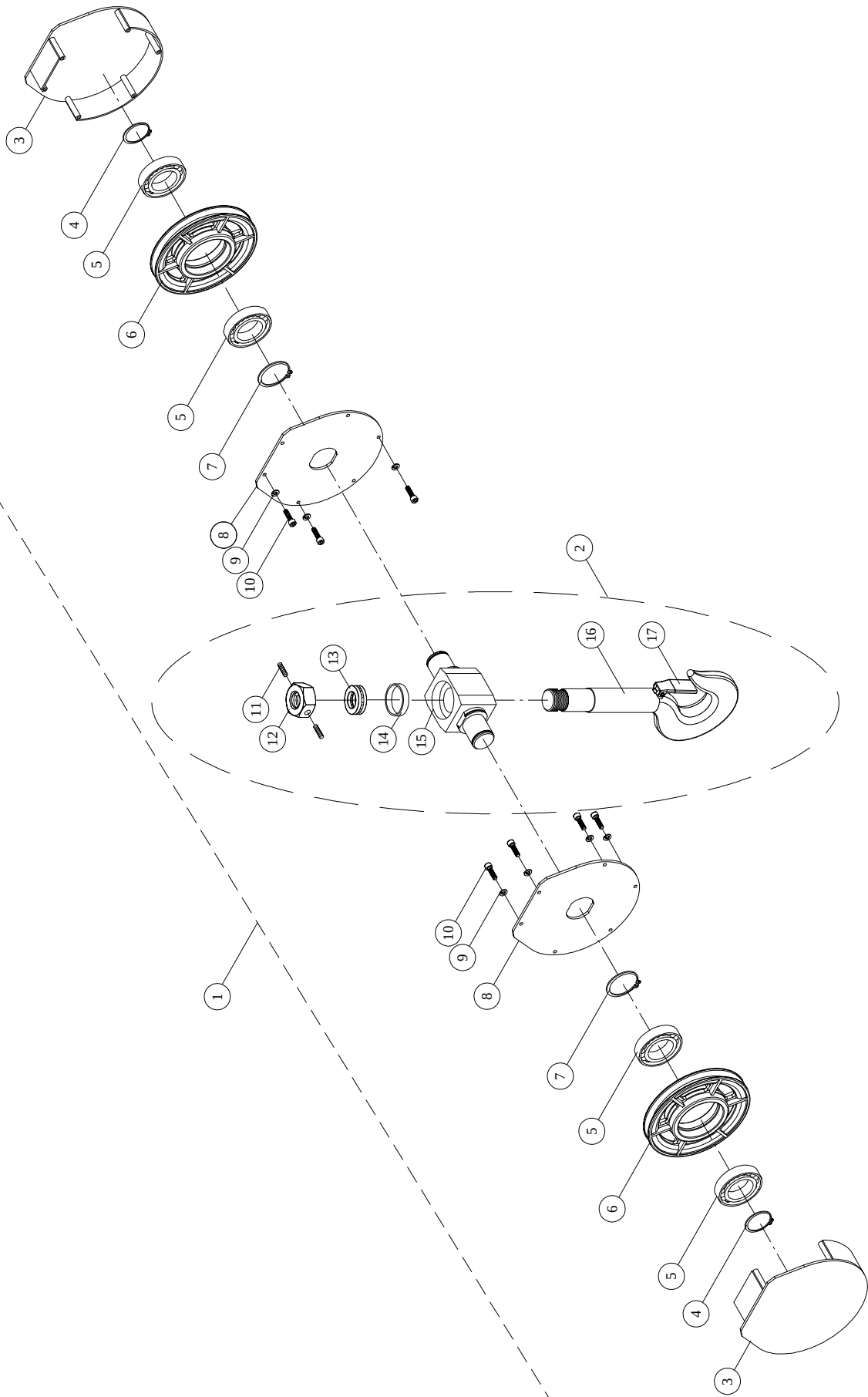


10T 1/4 (R/F) BOTTOM BLOCK EXPLOSION

BOTTOM BLOCK ASSEMBLY

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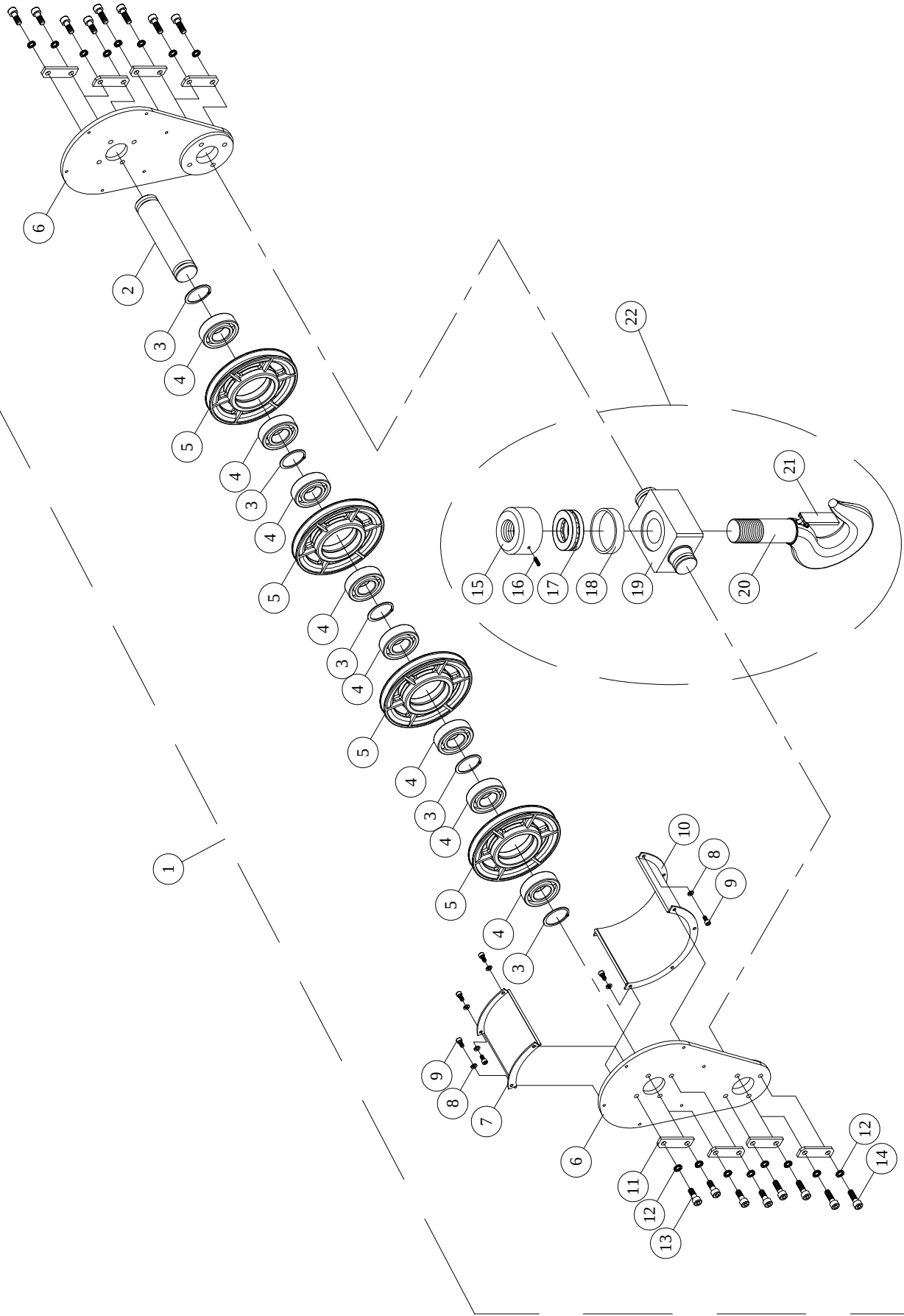
15 T, 20T BOTTOM BLOCK EXPLOSION



BOTTOM BLOCK ASSEMBLY

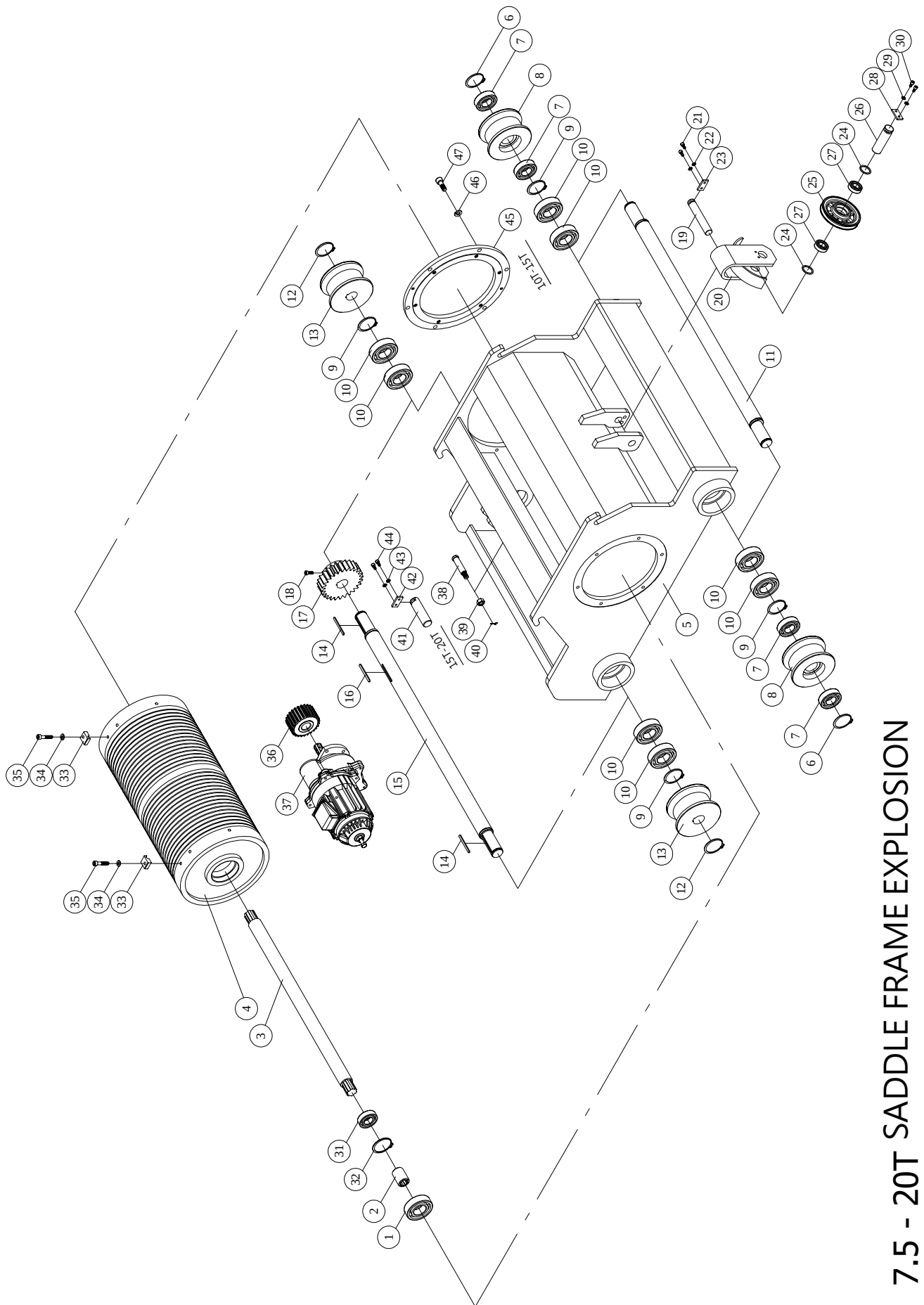
KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			15T	20T
			1/4,2/4 (R/F)	1/4 (R/F)
1	215153	Bottom Block Ass'y	1	
	227914			1
2	227915	Bottom Hook Ass'y	1	
	227916			1
3	227834	Bottom Block Cover Ass'y	2	
	227835			2
4	400915	Retaining Ring<S-100>	2	
	404160	Retaining Ring<S-120>		2
5	407813	Bearing<6220 Z>	4	
	407805	Bearing<6024 Z>		4
6	202987	Sheave<Ø406 × Ø180 × t76>	2	
	263553	Sheave<Ø450 × Ø170 × t70>		2
7	404188	Retaining Ring<S-110>	2	
	400911	Retaining Ring<S-130>		2
8	227828	Bottom Block Cover	2	
	227829			2
9	400097	Spring Washer<M12>	12	12
10	400022	Hex. Recess Bolt<M12 × 1.75 × 30>	12	12
11	400584	Set Screw<M8 × 1.25 × 30L>	2	2
12	228797	Nut<M80 × 6.0>	1	1
13	405714	Thrust Bearing<51316>	1	1
14	228845	Dust Proof Cover<Ø152 × Ø140 × 28>	1	1
15	227822	Bearing Housing	1	
	227823			1
16	227818	Bottom Hook	1	
	227819			1
17	400304	Safety Latch Ass'y	1	1

30T BOTTOM BLOCK EXPLOSION



BOTTOM BLOCK ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT
			30T
			2/8 (R/F)
1	272013	Bottom Block Ass'y	1
2	272016	Sheave Axle<Ø100×424>	1
3	404188	Retaining Ring<S-110>	5
4	407813	Bearing<6220 Z>	8
5	202987	Sheave<Ø406×Ø225×76>	4
6	272017	Bottom Block Cover	2
7	272020	Bottom Block Cover Ass'y	1
8	400097	Spring Washer<M12>	12
9	400435	Hex. Recess Bolt<M12×1.75×25L>	12
10	200546	Bottom Block Cover Ass'y	1
11	205929	Key Plate<t12×50×170>	8
12	400099	Spring Washer<M20>	16
13	400461	Hex. Recess Bolt<M20×2.5×35>	8
14	400847	Hex. Recess Bolt<M20×2.5×45>	8
15	202048	Nut<M100×6.0>	1
16	400584	Set Screw<M8×1.25×30L>	2
17	400165	Thrust Bearing<51320>	1
18	200305	Thrust Cover<Ø190×Ø170.5×39>	1
19	272015	Bearing Housing	1
20	200544	Bottom Hook	1
21	400305	Safety Latch	1
22	272014	Bottom Hook Ass'y	1



7.5 - 20T SADDLE FRAME EXPLOSION

2R / 4F (H) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			SBH(D)-750DB		
			6m	9m	12m
1	407838	Bearing<6212 ZZ>	1	1	1
	407814	Bearing<6220 ZZ>	1D	1D	1D
2	205467	Coupling	1	1	1
	205468		1D	1D	1D
3	204958	Drum Shaft	1		
	205023			1	
	204954				1
	263007		1D		
	263008			1D	
	261947				1D
4	269466	Drum	1		
	269467			1	
	269468				1
	269473		1D		
	269474			1D	
	269475				1D
5	262124	Hoist Frame	1		
	262125			1	
	262126				1
	262148		1D		
	262149			1D	
	262150				1D
6	400196	Retaining Ring<S-45>	2	2	2
7	407826	Bearing<6309 Z>	4	4	4
8	205173	Idler Wheel	2	2	2
9	400909	Retaining Ring<S-55>	4	4	4
10	407834	Bearing<6311 Z>	8	8	8
11	207755	Idler Wheel Axle	1		
	207754			1	
	205998				1
12	400196	Retaining Ring<S-45>	2	2	2
13	205073	Drive Wheel	2	2	2
14	400969	Key<8×8×60L>	2	2	2
15	206419	Drive Wheel Axle	1		
	206418			1	

2R / 4F (H) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			SBH(D)-750DB		
			6m	9m	12m
15	206417	Drive Wheel Axle			1
16	405904	Key<8 × 8 × 85L>	1	1	1
17	205186	Pinion	1	1	1
18	400014	Hex. Recess Bolt<M8 × 1.25 × 30L>	1	1	1
19	205470	Load Axle<Ø28 × 165L>	1	1	1
20	206466	Link Equalizer	1	1	1
21	400012	Hex. Recess Bolt<M8 × 1.25 × 20L>	2	2	2
22	400095	Spring Washer<M8>	2	2	2
23	200636	Keeper<t6.0 × 25 × 50L>	1	1	1
24	205238	Washer<Ø45 × Ø36 × 3L>	2	2	2
25	202534	Equalizer Sheave<Ø208 × Ø35 t50>	1	1	1
26	209288	Sheave Axle<Ø35 × 119L>	1	1	1
27		Bearing	-	-	-
28	200636	Keeper<t6.0 × 25 × 50L>	1	1	1
29	400095	Spring Washer<M8>	2	2	2
30	400012	Hex. Recess Bolt<M8 × 1.25 × 20L>	2	2	2
31		Bearing	-	-	-
32		Retaining Ring	-	-	-
33	267713	Wire Rope Clips<t16 × 32 × 34>	8	8	8
34	400095	Spring Washer<M8>	8	8	8
35	400015	Hex. Recess Bolt<M8 × 1.25 × 40>	8	8	8
36	201680	Drive Pinion<M3.5 × 26T>	1	1	1
37	A	Reduction Motor	1	1	1
	B		1	1	1

KEY NO.	PARTS CODE	DESCRIPTION	Ø-Hz-V	
37	A	Reduction Motor<1.1kW 4P>	3Ø 60Hz	220V/380V
				220V/440V
			3Ø 50Hz	220V/380V
				415V
	B	Reduction Motor<1.1kW 4/12P>	3Ø 60Hz	220V
				380V
				440V
			3Ø 50Hz	220V
				380V
				415V

2R / 4F (H) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT								
			SCAH(D)-1000DB			SDAH(D)-1500DB			SFAH(D)-1500DB		
			6m	9m	12m	8m	10m	12m	8m	10m	12m
1	407838	Bearing<6212 ZZ>	1	1	1						
	407814	Bearing<6220 ZZ>	1D	1D	1D	1	1	1	1	1	1
	407842	Bearing<6224 ZZ>							1D	1D	1D
2	205467	Coupling	1	1	1						
	205468		1D	1D	1D	1	1	1			
	267977								1	1	1
	205464								1D	1D	1D
3	262628	Drum Shaft	1								
	262629			1							
	262630				1						
	262590					1					
	262538						1				
	204949							1			
	262631		1D								
	262632			1D							
	262633				1D						
	262233								1		
	262232									1	
	262231										1
	262240								1D		
	262239									1D	
	262238										1D
4	262615	Drum	1								
	262616			1							
	262617				1						
	262604					1					
	262698						1				
	262699							1			
	262622		1D								
	262623			1D							
	262624				1D						
	228544								1		
	228545									1	
	228546										1
	228547								1D		
	228548									1D	
	228549										1D

2R / 4F (H) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT								
			SCAH(D)-1000DB			SDAH(D)-1500DB			SFAH(D)-1500DB		
			6m	9m	12m	8m	10m	12m	8m	10m	12m
5	263056	Hoist Frame	1								
	263057			1							
	263058				1						
	206313					1					
	206314						1				
	206315							1			
	269061		1D								
	269062			1D							
	269063				1D						
	262198								1		
	262197									1	
	262196										1
	262201								1D		
	262200									1D	
	262199										1D
6	400913	Retaining Ring<S-65>	2	2	2						
	400918	Retaining Ring<S-80>				2	2	2	2	2	2
7	407810	Bearing<6211 Z>	4	4	4						
	407833	Bearing<6214 Z>				4	4	4	4	4	4
8	205179	Idler Wheel	2	2	2						
	205177					2	2	2	2	2	2
9	400909	Retaining Ring<S-55>	4	4	4						
	400910	Retaining Ring<S-70>				4	4	4	4	4	4
10	407832	Bearing<6213 Z>	8	8	8						
	407811	Bearing<6216 Z>				8	8	8	8	8	8
11	205139	Idler Wheel Axle	1								
	205148			1							
	205158				1						
	201868					1	1				
	201869							1			
	262252								1		
	262259									1	
	262212										1
12	400913	Retaining Ring<S-65>	2	2	2						
	400918	Retaining Ring<S-80>				2	2	2	2	2	2
13	205079	Drive Wheel	2	2	2						
	205077					2	2	2	2	2	2

2R / 4F (H) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT								
			SCAH(D)-1000DB			SDAH(D)-1500DB			SFAH(D)-1500DB		
			6m	9m	12m	8m	10m	12m	8m	10m	12m
14	400982	Key<10×10×60L>	2	2	2						
	400954	Key<16×10×90L>				2	2	2	2	2	2
15	205099	Drive Wheel Axle	1								
	205108			1							
	205118				1						
	205153					1	1				
	205157							1			
	262251								1		
	262258									1	
	262211										1
16	400982	Key<10×10×60L>	1	1	1						
	400984	Key<16×10×60L>				1	1	1	1	1	1
17	205184	Pinion	1	1	1						
	205183					1	1	1	1	1	1
18	400014	Hex. Recess Bolt<M8×1.25×30>	1	1	1						
	400013	Hex. Recess Bolt<M8×1.25×25>							1	1	1
19	205470	Load Axle<Ø28×165L>	1	1	1						
	205471	Load Axle<Ø50×285L>				1	1	1			
	270507	Load Axle<Ø60×290L>							1	1	1
20	206466	Link Equalizer	1	1	1						
	217834					1	1	1	1	1	1
21	400012	Hex. Recess Bolt<M8×1.25×20L>	2	2	2						
	400013	Hex. Recess Bolt<M8×1.25×25L>							2	2	2
	400014	Hex. Recess Bolt<M8×1.25×30L>				2	2	2			
22	400095	Spring Washer<M8>	2	2	2	2	2	2	2	2	2
23	200636	Keeper<t6.0×25×50L>	1	1	1						
	200635	Keeper<t6.0×38×70L>				1	1	1	1	1	1
24	205238	Washer<Ø45×Ø36×3L>	2	2	2						
	217838	Washer<Ø81×Ø66×5L>				2	2	2	2	2	2
25	202534	Equalizer Sheave<Ø208×Ø35×t50>	1	1	1						
	217833	Equalizer Sheave<Ø406×Ø130×t76>				1	1	1	1	1	1
26	209288	Sheave Axle<Ø35×119L>	1	1	1						
	217839	Sheave Axle<Ø65×155L>				1	1	1	1	1	1
27	401246	Bearing<6313 Z>				2	2	2	2	2	2
28	200636	Keeper<t6.0×25×50L>	1	1	1						
	200635	Keeper<t6.0×38×70L>				1	1	1	1	1	1

2R / 4F (H) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT								
			SCAH(D)-1000DB			SDAH(D)-1500DB			SFAH(D)-1500DB		
			6m	9m	12m	8m	10m	12m	8m	10m	12m
29	400095	Spring Washer<M8>	2	2	2	2	2	2	2	2	2
30	400012	Hex. Recess Bolt<M8×1.25×20L>	2	2	2	2	2	2	2	2	2
31	407709	Bearing<6209 ZZ>				1	1	1	1	1	1
	407854	Bearing<6210 ZZ>							1D	1D	1D
32	400924	Retaining Ring<R-85>,(Single Speed)				1	1	1	1	1	1
33	267716	Wire Rope Clips<t16×38×32>	8	8	8						
	267654	Wire Rope Clips<t19×38×43>				8	8	8	8	8	8
34	400096	Spring Washer<M10>	8	8	8						
	400097	Spring Washer<M12>				8	8	8	8	8	8
35	400018	Hex. Recess Bolt<M10×1.5×40>	8	8	8						
	400436	Hex. Recess Bolt<M12×1.75×45>				8	8	8	8	8	8
36	201679	Drive Pinion<M3.5×23T>	1	1	1	1	1	1	1	1	1
37	C	Reduction Motor	1	1	1						
	D					1	1	1	1	1	1

REDUCING MOTOR ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Ø -Hz-V	
37	C	Reduction Motor<1.1kW 4P>	3Ø 60Hz	220V/380V
				220V/440V
			3Ø 50Hz	220V/380V
				415V
		Reduction Motor<1.1kW 4/12P>	3Ø 60Hz	220V
				380V
				440V
			3Ø 50Hz	220V
				380V
				415V
	D	Reduction Motor<1.5kW 4P>	3Ø 60Hz	220V/380V
				220V/440V
			3Ø 50Hz	220V/380V
				415V
		Reduction Motor<1.5kW 4/12P>	3Ø 60Hz	220V
				380V
				440V
			3Ø 50Hz	220V
				380V
				415V

1R / 4F (L) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT								
			SBL(D)-1000DB			SEAL(D)-1500DB			SCAL(D)-2000DB		
			6m	9m	12m	8m	10m	12m	8m	10m	12m
1	407838	Bearing<6212 ZZ>	1	1	1						
	407814	Bearing<6220 ZZ>	1D	1D	1D	1	1	1	1	1	1
2	205467	Coupling	1	1	1						
	205468		1D	1D	1D	1	1	1	1	1	1
3	205024	Drum Shaft	1								
	205025			1							
	205026				1						
	262594					1					
	262595						1				
	262596							1			
	262591								1		
	262592									1	
	262593										1
	205050		1D								
	205051			1D							
	205053				1D						
4	269535	Drum	1								
	269536			1							
	269537				1						
	217913					1					
	217914						1				
	217915							1			
	228763								1		
	228764									1	
	228765										1
	269541		1D								
	269542			1D							
	269543				1D						
5	272941	Hoist Frame	1								
	272942			1							
	272943				1						
	262017					1			1		
	262018						1			1	
	262019							1			1

1R / 4F (L) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT								
			SBL(D)-1000DB			SEAL(D)-1500DB			SCAL(D)-2000DB		
			6m	9m	12m	8m	10m	12m	8m	10m	12m
5	272944	Hoist Frame	1D								
	272945			1D							
	272946				1D						
6	400909	Retaining Ring<S-55>	2	2	2						
	400910	Retaining Ring<S-70>				2	2	2	2	2	2
7	407810	Bearing<6211 Z>	4	4	4						
	407833	Bearing<6214 Z>				4	4	4	4	4	4
8	205179	Idler Wheel	2	2	2						
	205177					2	2	2	2	2	2
9	400913	Retaining Ring<S-65>	4	4	4						
	400918	Retaining Ring<S-80>				4	4	4	4	4	4
10	407832	Bearing<6213 Z>	8	8	8						
	407811	Bearing<6216 Z>				8	8	8	8	8	8
11	205139	Idler Wheel Axle	1								
	205148			1	1						
	205151					1	1		1	1	
	205155							1			1
12	400909	Retaining Ring<S-55>	2	2	2						
	400910	Retaining Ring<S-70>				2	2	2	2	2	2
13	205079	Drive Wheel	2	2	2						
	205077					2	2	2	2	2	2
14	400982	Key<10×10×60L>	2	2	2						
	400954	Key<16×10×90L>				2	2	2	2	2	2
15	205099	Drive Wheel Axle	1								
	205306			1	1						
	205111					1	1		1	1	
	205115							1			1
16	400982	Key<10×10×60L>	1	1	1						
	400984	Key<16×10×60L>				1	1	1	1	1	1
17	205184	Pinion	1	1	1						
	205183					1	1	1	1	1	1
18	400014	Hex. Recess Bolt<M8×1.25×30L>	1	1	1						
	400013	Hex. Recess Bolt<M8×1.25×25L>				1	1	1	1	1	
19	205470	Load Axle<Ø28×165L>	1	1	1						
	205471	Load Axle<Ø50×285L>				1	1	1	1	1	1

1R / 4F (L) SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT								
			SBL(D)-1000DB			SEAL(D)-1500DB			SCAL(D)-2000DB		
			6m	9m	12m	8m	10m	12m	8m	10m	12m
20	216183	Link Equalizer	1	1	1						
	217834					1	1	1			
	210569								1	1	1
21	400012	Hex. Recess Bolt<M8×1.25×20L>	2	2	2						
	400014	Hex. Recess Bolt<M8×1.25×30L>				2	2	2	2	2	2
22	400095	Spring Washer<M8>	2	2	2	2	2	2			
	400098	Spring Washer<M16>							2	2	2
23	200636	Keeper<t6.0×25×50L>	1	1	1						
	200635	Keeper<t6.0×38×70L>				1	1	1	1	1	1
24	217838	Washer<Ø81×Ø66×5L>	2	2	2	2	2	2			
	210580	Washer<Ø120×Ø101×5L>							2	2	2
25	210609	Equalizer Sheave<Ø365×Ø110t55>	1	1	1						
	217833	Equalizer Sheave<Ø406×Ø130t76>				1	1	1			
	210568	Equalizer Sheave<Ø440×Ø170t70>							1	1	1
26	216185	Sheave Axle<Ø65×130L>	1	1	1						
	217839	Sheave Axle<Ø65×155L>				1	1	1			
	210571	Sheave Axle<Ø100×178L>							1	1	1
27	407832	Bearing<6213 Z>	2	2	2						
	401246	Bearing<6313 Z>				2	2	2			
	407813	Bearing<6220 Z>							2	2	2
28	200635	Keeper <t6×38×70L>	1	1	1	1	1	1			
	200622	Keeper <t10×40×120L>							1	1	1
29	400095	Spring Washer <M8>	2	2	2	2	2	2			
	400098	Spring Washer <M16>							2	2	2
30	400012	Hex. Recess Bolt<M8×1.25×20L>	2	2	2	2	2	2			
	400455	Hex. Recess Bolt <M16×2.0×25L>							2	2	2
31		Bearing	-	-	-	-	-	-	-	-	-
32		Retaining Ring	-	-	-	-	-	-	-	-	-
33	267716	Wire Rope Clips<t16×38×32>	4	4	4						
	267654	Wire Rope Clips<t19×38×43>				4	4	4			
	267717	Wire Rope Clips<t22×50×50>							4	4	4
34	400096	Spring Washer<M10>	4	4	4						
	400097	Spring Washer<M12>				4	4	4			
	400651	Spring Washer<M14>							4	4	4

1R / 4F (L) SADDLE FRAME ASSEMBLY

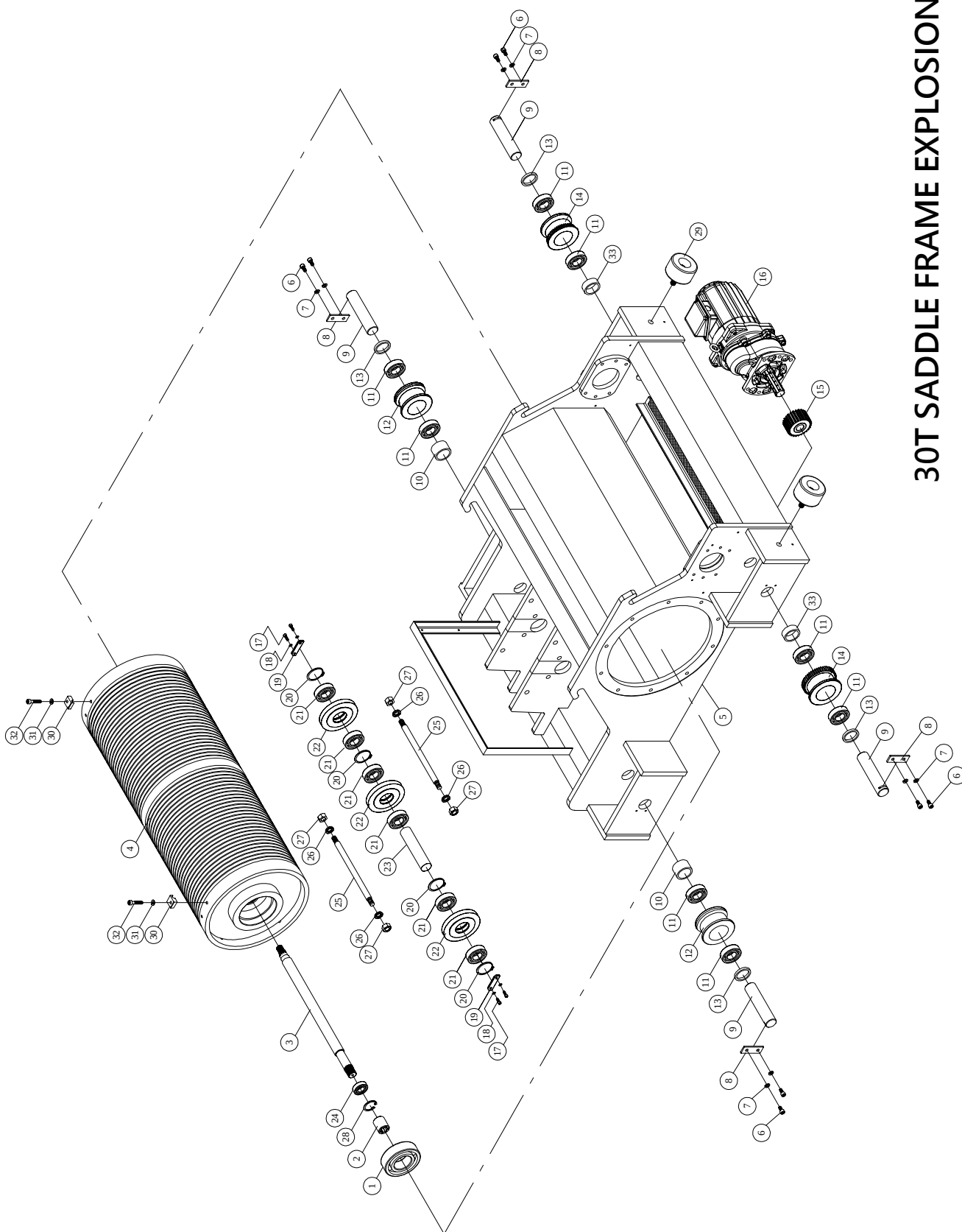
(D)=Dual Speed

[illegible]

#37 Ref. Page 57.

REDUCING GEAR MOTOR ASSEMBLY

KEY NO.	PARTS CODE		DESCRIPTION	Ø-Hz-V	
37	E	134023	Reduction Motor<1.1kW 4P>	3Ø 60Hz	220V/380V
		134024			220V/440V
		134025		3Ø 50Hz	220V/380V
		134031			415V
		134026	Reduction Motor<1.1kW 4/12P>	3Ø 60Hz	220V
		134032			380V
		134036			440V
		134027		3Ø 50Hz	220V
		134028			380V
		134035			415V
	F	136314	Reduction Motor<1.5kW 4P>	3Ø 60Hz	220V/380V
		136315			220V/440V
		136312		3Ø 50Hz	220V/380V
		136313			415V
		136319	Reduction Motor<1.5kW 4/12P>	3Ø 60Hz	220V
		136324			380V
		136325			440V
		136316		3Ø 50Hz	220V
		136317			380V
		136318			415V



30T SADDLE FRAME EXPLOSION

30T SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			SFAJ(D)-3000DB		
			8m	10m	12m
1	407814	Bearing<6220 ZZ>	1	1	1
	407842	Bearing<6224 ZZ>	1D	1D	1D
2	267977	Coupling	1	1	1
	205464	Coupling	1D	1D	1D
3	262435	Drum Shaft	1		
	262436			1	
	262437				1
	263062		1D		
	263063			1D	
	263064				1D
4	228550	Drum	1		
	228551			1	
	228552				1
	228553		1D		
	228554			1D	
	228555				1D
5	206085	Hoist Frame	1		
	206010			1	
	206075				1
	206515		1D		
	206520			1D	
	206540				1D
6	400012	Hex. Recess Bolt<M8×1.25×20L>	8	8	8
7	400095	Spring Washer<M8>	8	8	8
8	200635	Keeper<t6×38×70L>	4	4	4
9	201278	Axle	4	4	4
10	207562	Spacer Sleeve B<Ø76×Ø62×48L>	2	2	2
11	407823	Bearing<6312 Z>	8	8	8
12	214758	Idler Wheel	2	2	2
13	201878	Spacer Sleeve A<Ø76×Ø62×10L>	4	4	4
14	214757	Drive Wheel	2	2	2
15	201682	Drive Pinion<M4.0×22T>	2	2	2
16	A	Reduction Motor	2	2	2

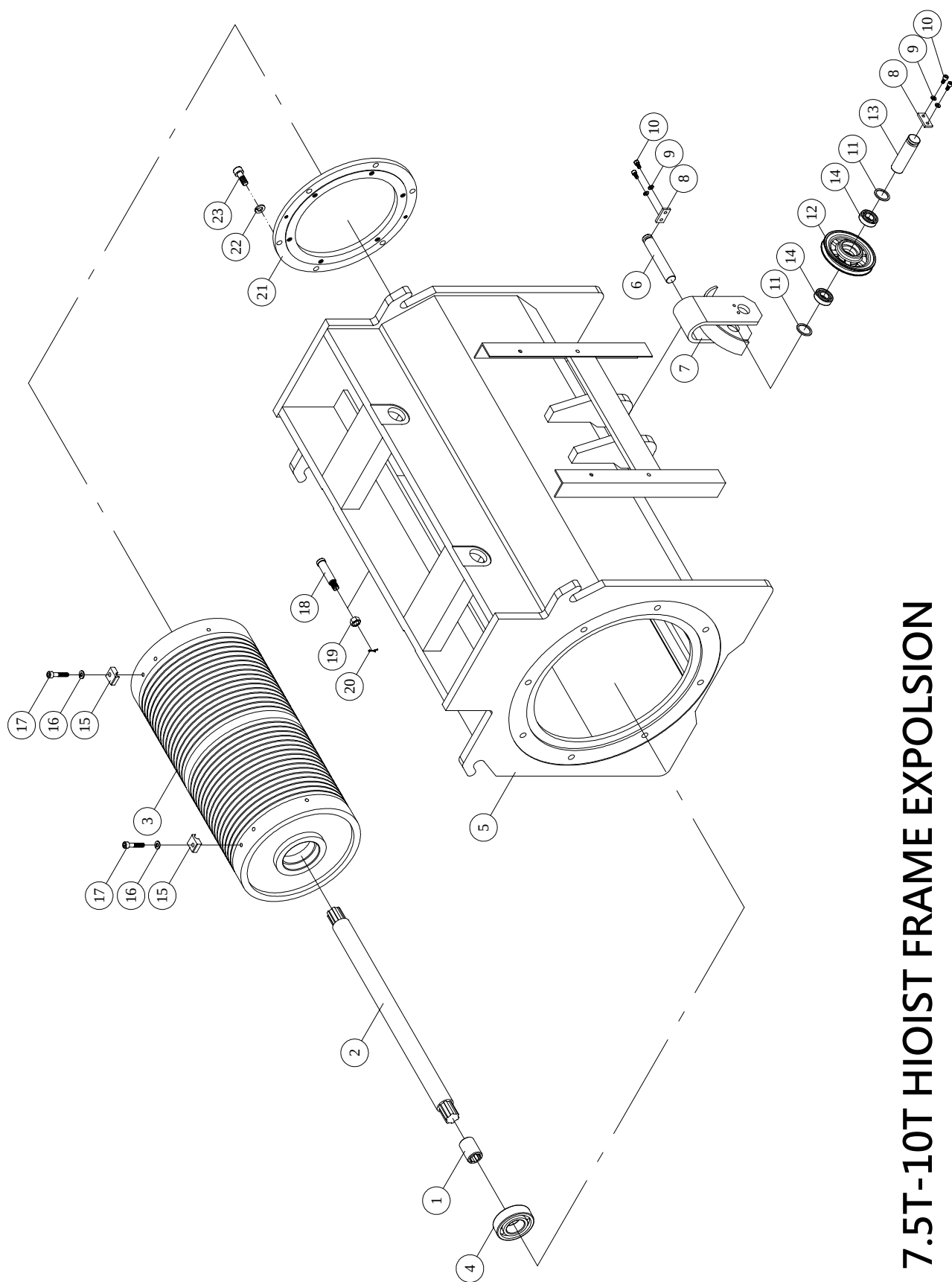
30T SADDLE FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			SFAJ(D)-3000DB		
17	400461	Hex. Recess Bolt<M20×2.5×35L>	4	4	4
18	400099	Spring Washer<M20>	4	4	4
19	205734	Keeper<t12×50×170>	2	2	2
20	400920	Retaining Ring<S-85>	4	4	4
21	407811	Bearing<6216 Z>	6	6	6
22	202988	Equalizer Sheave<Ø406×Ø175 t76>	3	3	3
23	204965	Sheave Axle<Ø80×342L>	1	1	1
24	407709	Bearing<6209 ZZ>	1	1	1
	407854	Bearing<6210 ZZ>	1D	1D	1D
25	273644	Wire Guide Shaft	2	2	2
26	400098	Spring Washer<M16>	4	4	4
27	400634	Nut<M16×2.0>	4	4	4
28	400924	Retaining Ring<R-85>	1	1	1
	400914	Retaining Ring<R-90>	1D	1D	1D
29	202582	Bumper	4	4	4
30	267654	Wire Rope Clips<t19×38×43>	8	8	8
31	400097	Spring Washer<M12>	8	8	8
32	400436	Hex. Recess Bolt<M12×1.75×45>	8	8	8
33	201897	Spacer Sleeve B<Ø76×Ø62×23L>	2	2	2

REDUCING GEAR MOTOR ASSEMBLY

KEY NO.	PARTS CODE		DESCRIPTION	Ø-Hz-V	
16	A	136314	Reduction Motor<1.5kW 4P>	3Ø 60Hz	220V/380V
		136315			220V/440V
		136312		3Ø 50Hz	220V/380V
		136313			415V
		136319	Reduction Motor<1.5kW 4/12P>	3Ø 60Hz	220V
		136324			380V
		136325			440V
		136316		3Ø 50Hz	220V
		136317			380V
		136318			415V



7.5T-10T HIOIST FRAME EXPLOSION

2R / 4F (H) HOIST FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			TBH(D)-750DB		
			6m	9m	12m
1	205467	Coupling	1	1	1
	205468		1D	1D	1D
2	204958	Drum Shaft	1		
	205023			1	
	204954				1
	263007		1D		
	263008			1D	
	261947				1D
3	269466	Drum	1		
	269467			1	
	269468				1
	269473		1D		
	269474			1D	
	269475				1D
4	407838	Bearing<6212 ZZ>	1	1	1
	407814	Bearing<6220 ZZ>	1D	1D	1D
5	209248	Hoist Frame	1		
	209250			1	
	209252				1
	209249		1D		
	209251			1D	
	209253				1D
6	205470	Load Axle<Ø28×165L>	1	1	1
7	206466	Link Equalizer<t12×100×239L>	1	1	1
8	200636	Keeper<t6.0×25×50L>	2	2	2
9	400095	Spring Washer<M8>	4	4	4
10	400012	Hex. Recess Bolt<M8×1.25×20L>	4	4	4
11	205238	Washer<Ø45×Ø36×3L>	2	2	2
12	202534	Equalizer Sheave<Ø208×t50>	1	1	1
13	209288	Equalizer Sheave Axle<Ø35×119L>	1	1	1
14		Bearing	-	-	-
15	267713	Wire Rope Clips<t16×32×34>	8	8	8
16	400095	Spring Washer<M8>	8	8	8
17	400015	Hex. Recess Bolt<M8×1.25×40L>	8	8	8

1R / 4F (H) HOIST FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			TBL(D)-1000DB		
			6m	9m	12m
1	205467	Coupling	1	1	1
	205468		1D	1D	1D
2	205024	Drum Shaft	1		
	205025			1	
	205026				1
	205050		1D		
	205051			1D	
	205053				1D
3	269535	Drum	1		
	269536			1	
	269537				1
	269541		1D		
	269542			1D	
	269543				1D
4	407838	Bearing<6212 ZZ>	1	1	1
	407814	Bearing<6220 ZZ>	1D	1D	1D
5	206591	Hoist Frame	1		
	206592			1	
	206593				1
	206594		1D		
	206595			1D	
	206596				1D
6	205470	Load Axle<Ø28×165L>	1	1	1
7	216183	Link Equalizer	1	1	1
8	200636	Keeper<t6.0×25×50L>	1	1	1
	200635	Keeper<t6.0×38×70L>	1	1	1
9	400095	Spring Washer<M8>	4	4	4
10	400012	Hex. Recess Bolt<M8×1.25×20L>	4	4	4
11	217838	Washer<Ø81×Ø66×5L>	2	2	2
12	210609	Equalizer Sheave<Ø365×Ø110 t55>	1	1	1
13	216185	Sheave Axle<Ø65×130L>	1	1	1
14	407832	Bearing<6213 Z>	2	2	2
15	267716	Wire Rope Clips<t16×38×32>	4	4	4
16	400096	Spring Washer<M10>	4	4	4
17	400018	Hex. Recess Bolt<M10×1.5×40L>	4	4	4
18	200094	Lock Pin	1	1	1
19	400085	Nut<M16×1.5>	1	1	1

1R / 4F (H) HOIST FRAME ASSEMBLY

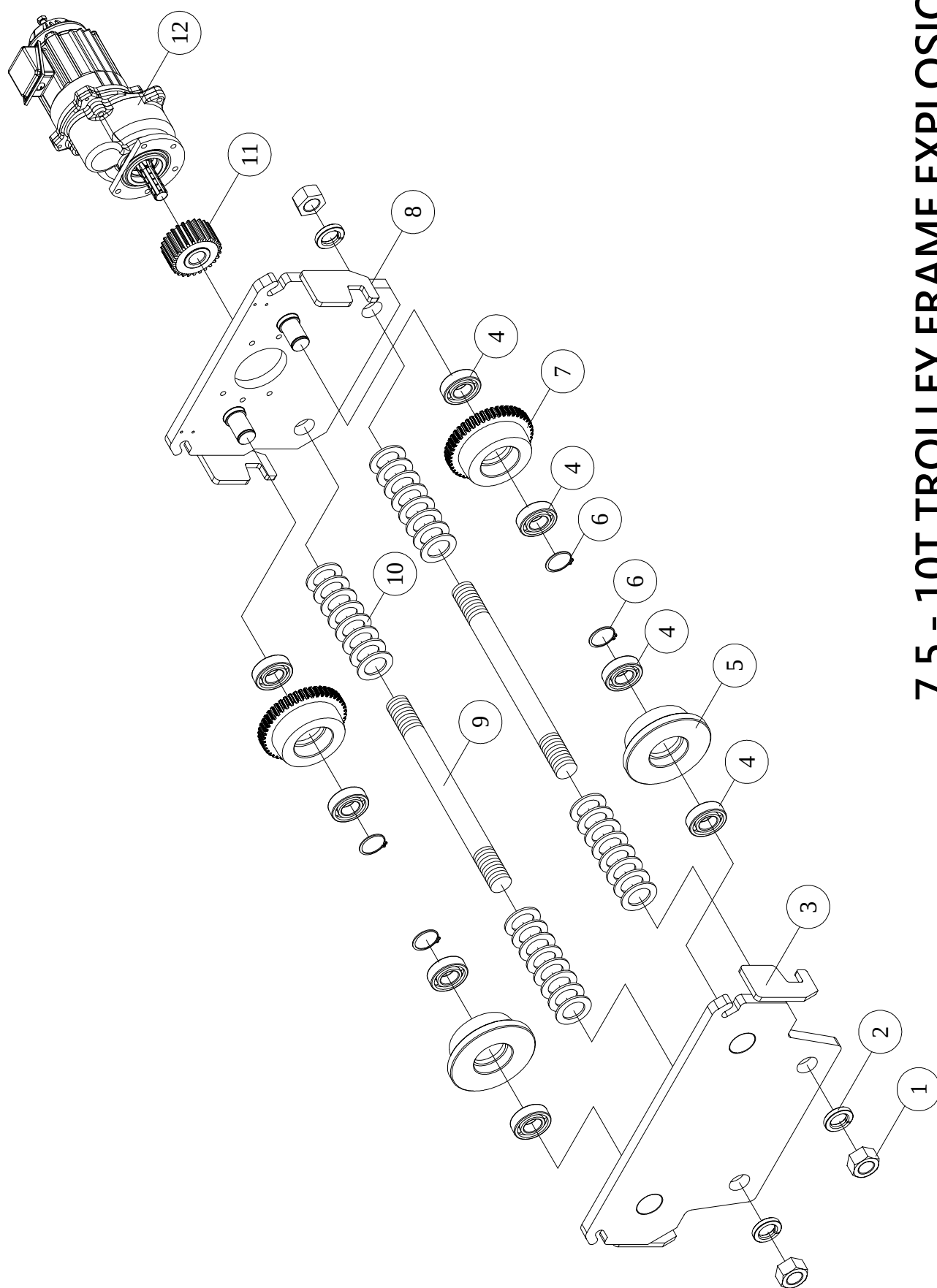
(D)=Dual Speed

[illegible]

2R / 4F (H) HOIST FRAME ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			TCAH(D)-1000DB		
			6m	9m	12m
1	205467	Coupling	1	1	1
	205468		1D	1D	1D
2	262628	Drum Shaft	1		
	262629			1	
	262630				1
	262631		1D		
	262632			1D	
	262633				1D
3	262615	Drum	1		
	262616			1	
	262617				1
	262622		1D		
	262623			1D	
	262624				1D
4	407838	Bearing<6212 ZZ>	1	1	1
	407814	Bearing<6220 ZZ>	1D	1D	1D
5	228311	Hoist Frame	1		
	228312			1	
	228313				1
	228314		1D		
	228315			1D	
	228316				1D
6	205470	Load Axle<Ø28 × 165L>	1	1	1
7	206466	Link Equalizer	1	1	1
8	200636	Keeper<t6.0 × 25 × 50L>	2	2	2
9	400095	Spring Washer<M8>	4	4	4
10	400012	Hex. Recess Bolt<M8 × 1.25 × 20L>	4	4	4
11	205238	Washer<Ø45 × Ø36 × 3L>	2	2	2
12	202534	Equalizer Sheave<Ø208 × t50>	1	1	1
13	209288	Sheave Axle<Ø35 × 119L>	1	1	1
14		Bearing	-	-	-
15	267716	Wire Rope Clips<t16 × 38 × 32>	4	4	4
16	400096	Spring Washer<M10>	4	4	4
17	400018	Hex. Recess Bolt<M10 × 1.5 × 40L>	4	4	4



7.5 - 10T TROLLEY FRAME EXPLOSION

TROLLEY FRAME ASSEMBLY

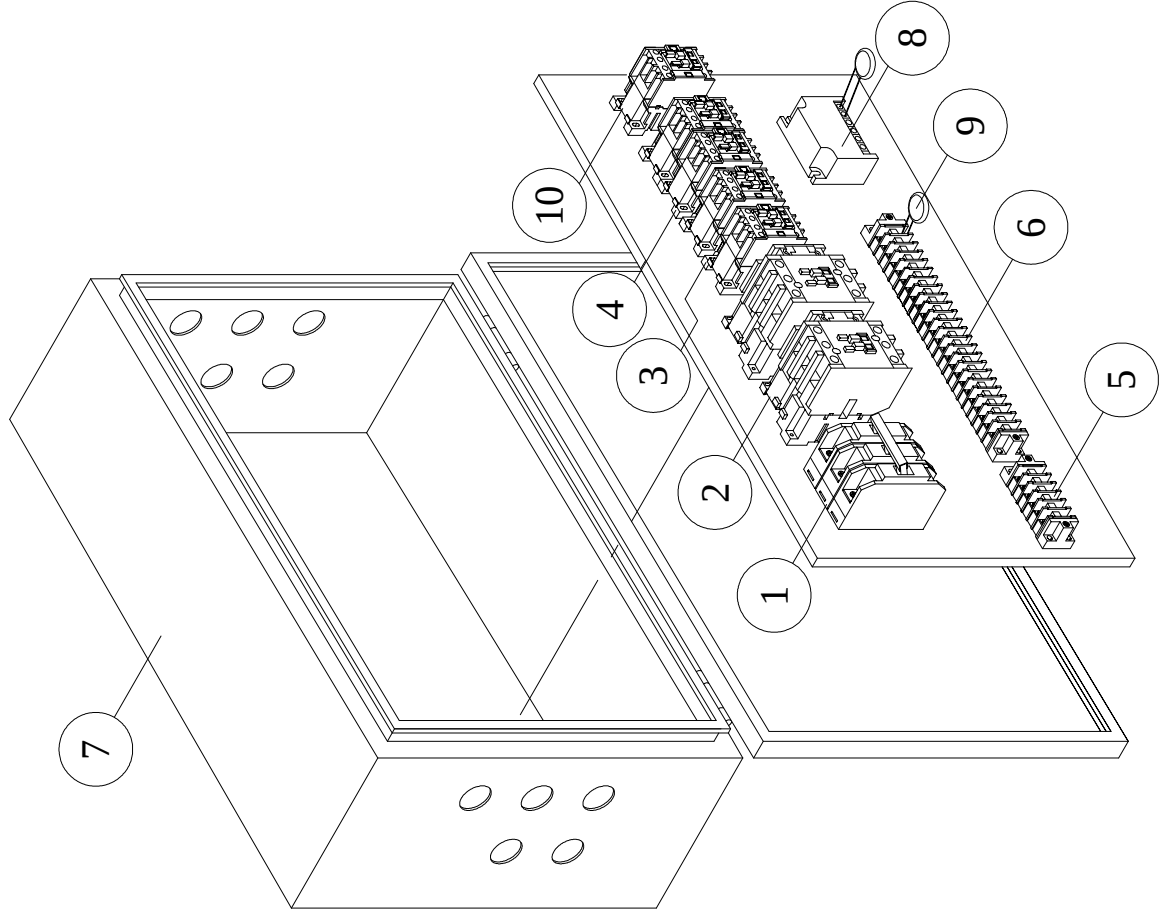
(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			7.5T			10T		
			6m	9m	12m	6m	9m	12m
1	202010	Nut<1 3/4" × 5UNC>	4	4	4	4	4	4
2	400104	Spring Washer<1 3/4">	4	4	4	4	4	4
3	202971	Plain Frame Ass'y	1					
	202975		1D	1				
	216718				3			
	264601					1	1	
	264836							2
4	407817	Bearing<6307 Z>	8	8				
	407808	Bearing<6207 Z>			16			16
	407825	Bearing<6308 Z>				8	8	
5	203519	Idler Wheel	2	2				
	203124				6			4
	204796					2	2	
6	400194	Retaining Ring<S-35>	4	4	8			8
	400195	Retaining Ring<S-40>				4	4	
7	203501	Drive Wheel	2	2				
	203104				2			4
	204795					2	2	
8	202940	Motor Frame Ass'y	1	1				
	262145				1			
	264401					1	1	
	264835							2
9	400411	Stay Bolt<1 3/4" × 5UNC × 460L>	2	2	2			2
	400069	Stay Bolt<1 3/4" × 5UNC × 490L>				2	2	
10	269913	Spacer Sleeve<Ø70 × Ø47 × 1/4">	36	36	36	36	36	36
11	201680	Drive Pinion	1	1	1			
	201679					1	1	
	201756							2
12	A	Reduction Motor	1	1	1	1	1	
	B							2

REDUCING GEAR MOTOR ASSEMBLY

KEY NO.	PARTS CODE		DESCRIPTION	Ø-Hz-V	
12	A	134023	Reduction Motor<1.1kW 4P>	3Ø 60Hz	220V/380V
		134024			220V/440V
		134025		3Ø 50Hz	220V/380V
		134031			415V
	B	135989	Reduction Motor<0.75kW 4P>	3Ø 60Hz	220V/380V
		135990			220V/440V
		135994		3Ø 50Hz	220V/380V
		136284			415V

7.5T-30T SINGLE SPEED ELECTRIC EXPLOSION



ELECTRIC ASSEMBLY

(S)=Single Speed

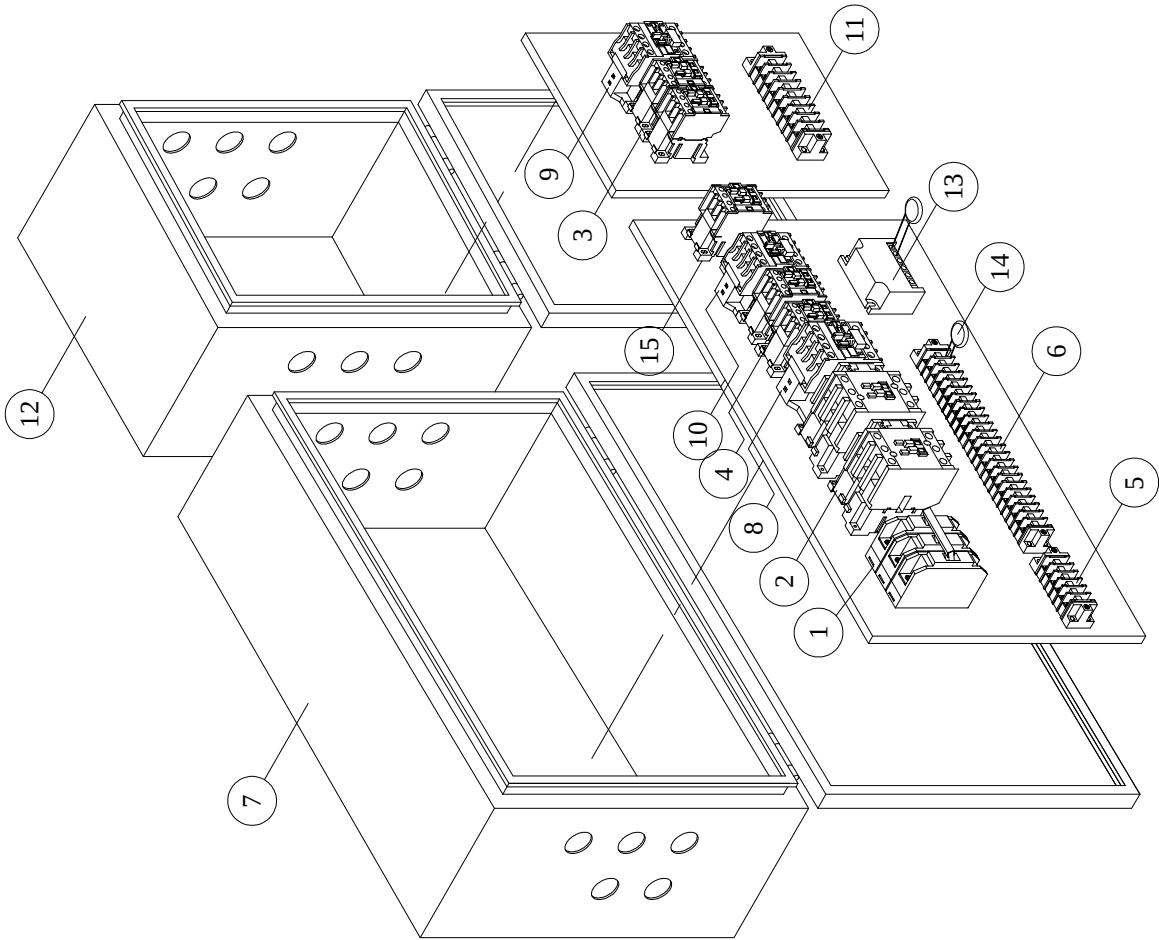
KEY NO.	PARTS CODE	DESCRIPTION		7.5T	10T	15T	20T	15T	30T
				11kW	11kW	13kW	13kW	18.5kW	18.5kW
				S	S	S	S	S	S
				380V-48V					
1	300888	No Fuse Breaker	iC60N 3P50A A9F74350	1	1				
	302216		EZC100F 3075 3P 75A			1	1		
	300887		EZC100F 3100 3P 100A					1	1
2	301123	Magnetic Contactor For "Hoist"	48V 3A1a1b LC1-D40A-E7	2	2				
	301131		48V 3A1a1b LC1-D65A-E7			2	2		
	301135		48V 3A1a1b LC1-D80-E7					2	2
3	301107	Reversing Contactor For "Traveling"	48V 3A1a1b LC1-D12-E7	2	2				
	301115		48V 3A1a1b LC1-D25-E7			2	2	2	2
4	301102	Reversing Contactor For "Traversing"	48V 3A1a1b LC1-D09-E7	2					
	301107		48V 3A1a1b LC1-D12-E7		2	2	2	2	
	301111		48V 3A1a1b LC1-D18-E7						2
5	300659	Terminal Blocks	6P 60A	1	1	1	1		
	300648		6P 100A					1	1
6	300663	Terminal Blocks	TF 24P 20A	1	1	1	1	1	1
7	301344	Electric Control Box		1	1	1	1		
	301380	Electric Control Box						1	1
8	300618	Rectifier	BEG-561-440-030-01	1	1	1	1	1	1
9	300165	Varistor	23G681 380V	2	2	2	2	2	2
10	301102	Contactor	48V 3A1a1b LC1-D09-E7	1	1	1	1	1	1

7.5 - 30T DUAL SPEED ELECTRIC EXPLOSION

	Single Speed	Dual Speed	Control Box
Hoisting		○	7
Traversing	○		7
Travelling	○		12

	Single Speed	Dual Speed	Control Box
Hoisting		○	7
Traversing		○	7
Travelling	○		12

	Single Speed	Dual Speed	Control Box
Hoisting		○	7
Traversing		○	7
Travelling		○	12

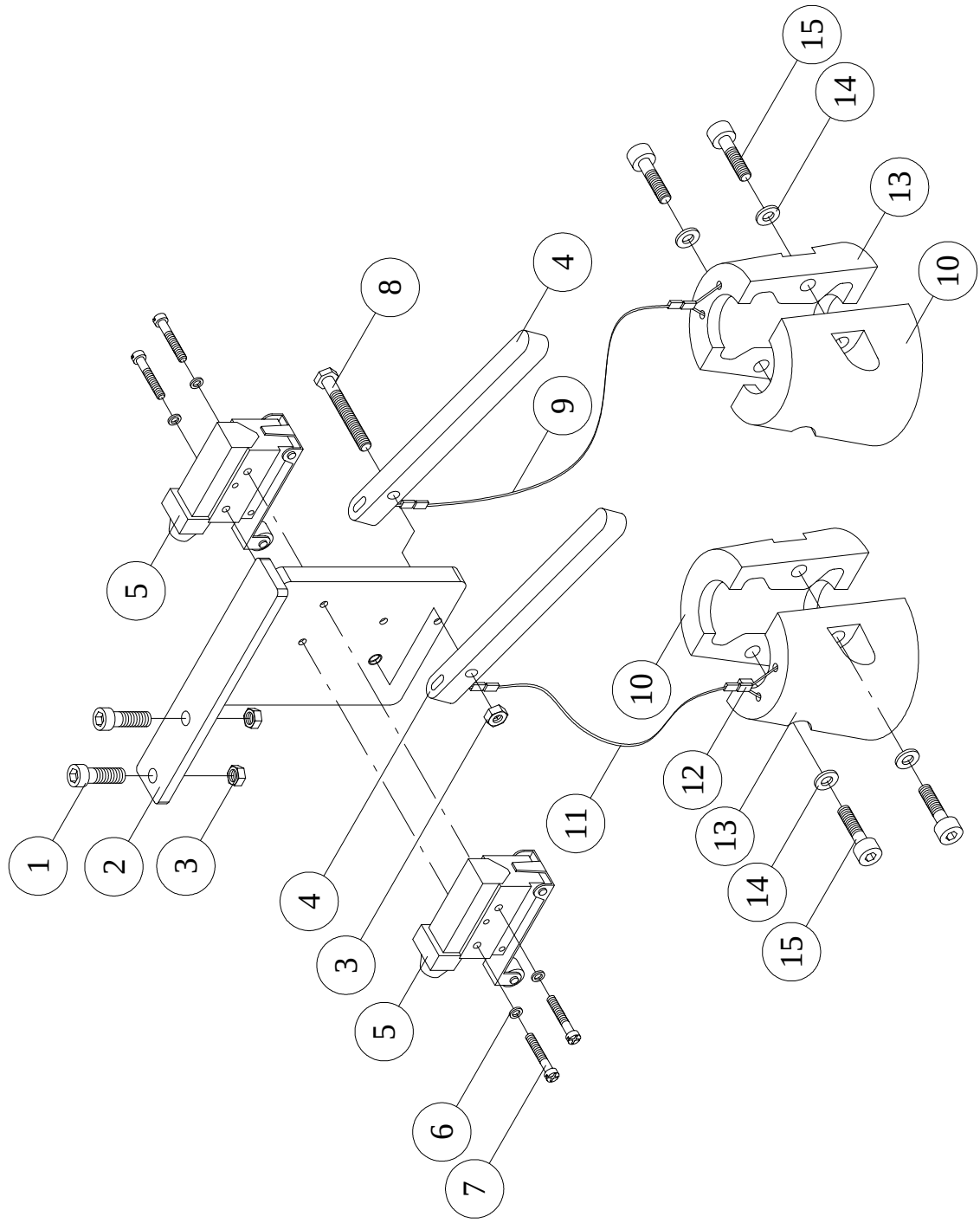


ELECTRIC ASSEMBLY

(D)=Dual Speed

KEY NO.	PARTS CODE	DESCRIPTION		7.5T	10T	15T	20T	15T	30T
				11kW	11kW	13kW	13kW	18.5kW	18.5kW
				D	D	D	D	D	D
				380V-48V					
1	302216	No Fuse Breaker	EZC100F 3075 3P 75A	1	1	1	1		
	300887		EZC100F 3100 3P 100A					1	1
2	301131	Magnetic Contactor For "Hoist"	48V 3A1a1b LC1-D65A-E7	2	2	2	2		
	301135		48V 3A1a1b LC1-D80-E7					2	2
3	301107	Magnetic Contactor For "Traveling"	48V 3A1a1b LC1-D12-E7	2					
	301111		48V 3A1a1b LC1-D18-E7		2				
	301115		48V 3A1a1b LC1-D25-E7			2	2	2	2
4	301102	Magnetic Contactor For "Traversing"	48V 3A1a1b LC1-D09-E7	2					
	301107		48V 3A1a1b LC1-D12-E7		2	2	2	2	
	301111		48V 3A1a1b LC1-D18-E7						2
5	300656	Terminal Blocks	9P 60A	1	1	1	1		
	300650		9P 100A					1	1
6	300663	Terminal Blocks	TF 24P 20A	1	1	1	1	1	1
7	301344	Electric Control Box		1	1	1	1		
	301345							1	1
8	300021	Magnetic Contactor For "Fast" <Hoisting>	48V 2A2B LC1-D65008-E7	1	1	1	1		
	300009		48V 2A2B LC1-D80008-E7					1	1
9	300036	Magnetic Contactor For "Fast" <Traveling>	48V 2A2B LC1-D128-E7	1					
	300041		48V 2A2B LC1-D258-E7		1	1	1	1	1
10	300036	Magnetic Contactor For "Fast" <Traversing>	48V 2A2B LC1-D128-E7	1	1	1	1		
	300041		48V 2A2B LC1-D258-E7					1	1
11	300475	Terminal Blocks	KOB175A-1	1	1				
	300652		TF 15P 30A			1	1	1	1
12	301426	Electric Control Box		1	1				
	301336					1	1	1	1
13	300618	Rectifier	BEG-561-440-030-01	1	1	1	1	1	1
14	300165	Varistor	23G681 380V	2	2	2	2	2	2
15	301102	Contactor	48V 3A1a1b LC1-D09-E7	1	1	1	1	1	1

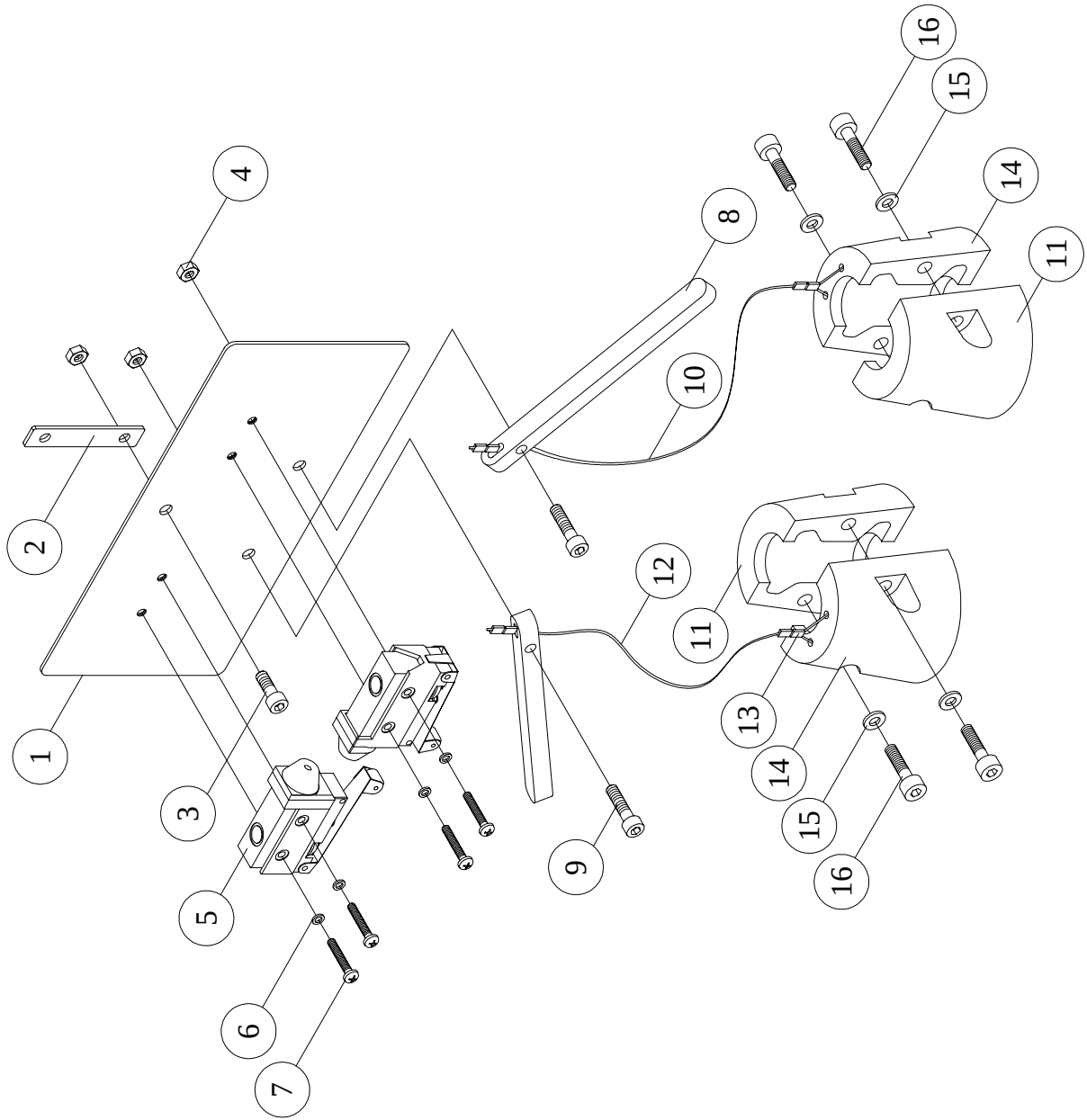
LIMIT SWITCH EXPLOSION



LIMIT SWITCH ASSEMBLY

KEY NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			7.5T	10T	15T	30T
1	400007	Hex. Recess Bolt<M6×1.0×20L>	2	2	2	2
2	205349	Limit Frame	1	1	1	1
3	400087	Lock Nut<M6×1.0>	3	3	3	3
4	205342	Limit Stick<t12×12×145L>	2	2	2	2
5	300534	Limit Switch	2	2	2	2
6	400092	Spring Washer<M4>	4	4	4	4
7	400617	Cross Headed Screw<M4×0.7×25L>	4	4	4	4
8	400027	Hex. Recess Bolt<M6×1.0×45L>	1	1	1	1
9	403001	Wire Rope<Ø2×885L>	1			
	403001	Wire Rope<Ø2×1120L>		1		1
	403001	Wire Rope<Ø2×1320L> FA TYPE			1	
	403001	Wire Rope<Ø2×1520L> DA TYPE			1	
10	205337	Counter Weight B	2			
	205339			2	2	2
11	403001	Wire Rope<Ø2×625L>	1			
	403001	Wire Rope<Ø2×920L>		1		1
	403001	Wire Rope<Ø2×1120L> FA TYPE			1	
	403001	Wire Rope<Ø2×1320L> DA TYPE			1	
12	300290	Sleeve<5.5mm>	8	8	8	8
13	205336	Counter Weight A	2			
	205338			2	2	2
14	400094	Spring Washer<M6>	4			
	400095	Spring Washer<M8>		4	4	4
15	400008	Hex. Recess Bolt<M6×1.0×25L>	4			
	400013	Hex. Recess Bolt<M8×1.25×25L>		4	4	4

LIMIT SWITCH EXPLOSION



LIMIT SWITCH ASSEMBLY

[illegible]

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 ◦

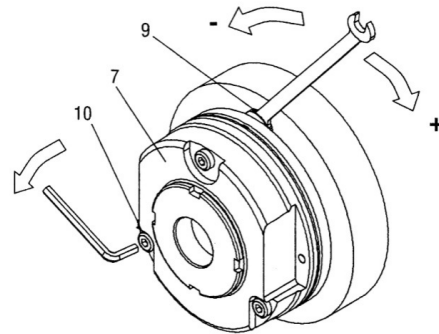


FIG-1

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

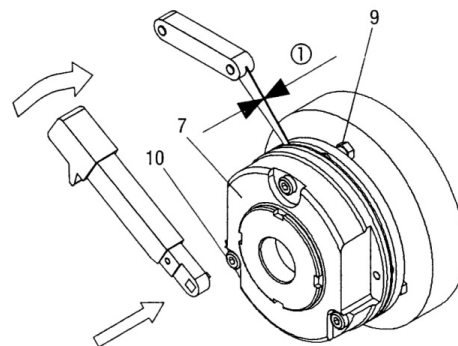


FIG-2

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.

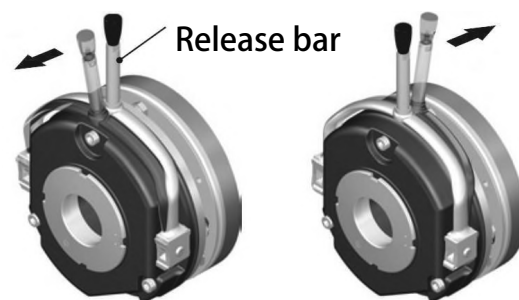


FIG-3

6. Recover the brake cover , and using the hoist continue ◦

Supply voltage selection table

Coil rated voltage \ AC voltage	AC voltage			
	50/60Hz 220V	50/60Hz 380V 50/60Hz 400V	50/60Hz 415V 50/60Hz 440V	50/60Hz 230V 50/60Hz 460V
2.2kW - BFK-459-12	DC103V	DC180V	DC103V	DC103V
3/3.5kW - BFK-459-14	DC103V	DC180V	DC103V	DC103V
5kW - BFK-459-16	DC103V	DC180V	DC103V	DC103V
6.5/7.5/8/11kW - BFK-468-18	DC205V	DC360V	DC205V	DC205V
13/18.5kW - BFK-468-20	DC205V	DC360V	DC205V	DC205V

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