



Electric Wire Rope Hoist

Operation Manual & Parts List

SERIES:

- | | |
|---------------------------------------|---------------------------------------|
| ☐ TEAH-320PM | ☐ SEAH-320PM |
| ☐ TEA1H-500PM | ☐ SEA1H-500PM |
| ☐ TEBH-500PM | ☐ SEBH-500PM |
| ☐ TEB1H-630PM | ☐ SEB1H-630PM |
| ☐ TECH-800PM | ☐ SECH-800PM |
| ☐ TEC1H-1000PM | ☐ SEC1H-1000PM |
| ☐ TEC2H-1250PM | ☐ SEC2H-1250PM |



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,

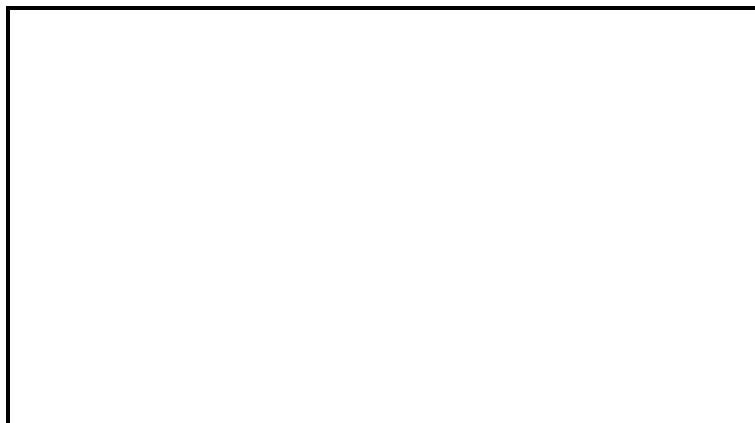
(1) Hoist model

(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,380V-48V, 50Hz
Noise Level (dB)	Single speed hoist	81
	Dual speed hoist	81
Wire Rope diameter	working load Limit	Nominal diameter (mm)
	3.2T	Ø8 S.IWRC8×P.WS(26)-S
	5T,6.3T	Ø10 S.IWRC8×P.WS(26)-S
	8T,10T	Ø12.5 S.IWRC8×P.WS(26)-S
	12.5T	Ø14 S.IWRC8×P.WS(26)-S

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

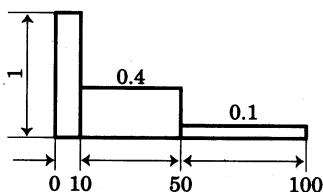
Safety and life for electric wire rope hoists are guaranteed only when the said equipment is operated in accordance with the prescribed grade.

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

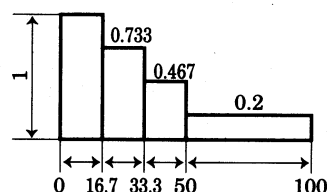
Average daily operating time and total operating time are determined by load distribution.

Table 2-2 Mechanical classification

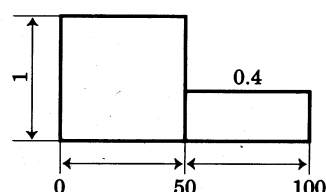
Load Spectrum (Load distribution)	Definitions	Cubic mean value	2m	2m
			Average daily Operation time(h)	Total operating time(h)
1 (light)	Mechanisms or parts thereof, usually subject to very small loads and in exceptional cases only to maximum loads.	$k \leq 0.50$	4 - 8	12500
2 (medium)	Mechanisms or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



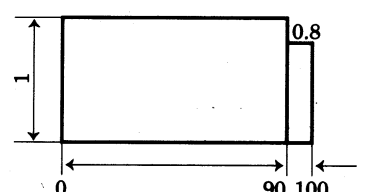
% operating time
Load spectrum 1



% 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) Load Cell

Check the load weight from detector. Prevent overload to ensure the safety.

(3) Rope Guide

To ensure positive winding of wire rope; Prevent rope overlapping.

(4) 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.

(5) Planetary Geared Limit Switch Assembly

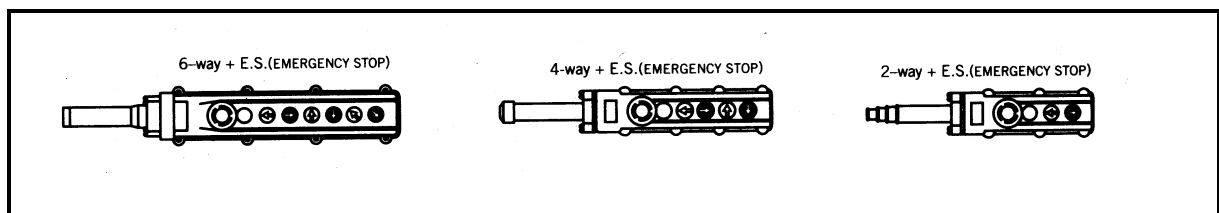
Up & down are with auto stop limit switch device. Prevent rope over-roll.

Able to setup / stop location according to working environment.

(6) Emergency stop device (optional)

This button is used to stop the hoist in an emergency situation. It is a red, Mushroom type button, located 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)

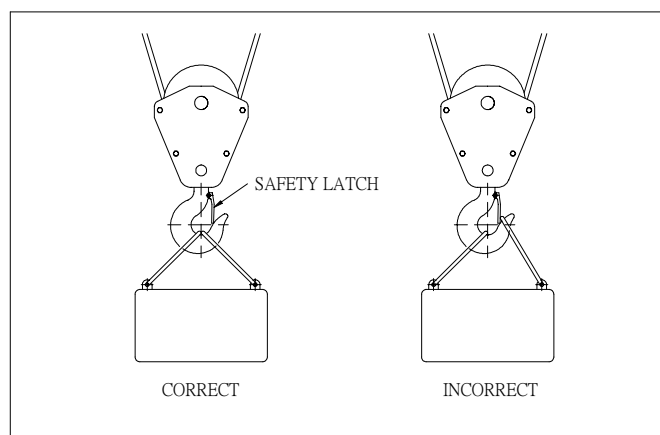
DANGER

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.

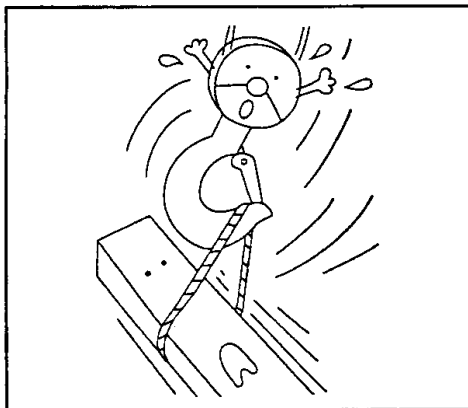
(b) The lifting sling is located in the hook as shown below (Illust.2) and that a safety latch has been fitted.



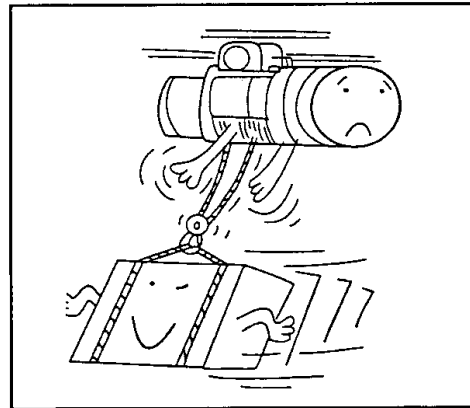
Illust.2

(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)

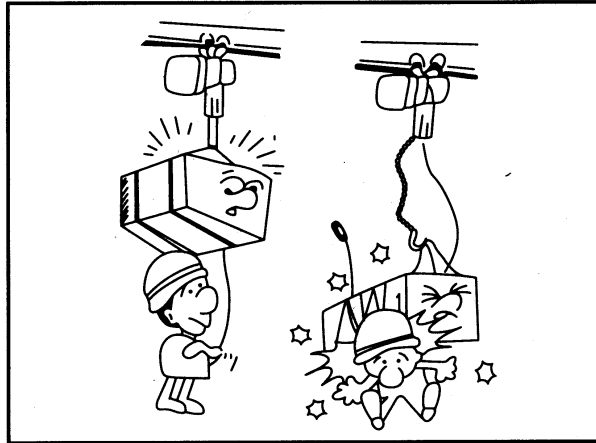
! WARNING

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

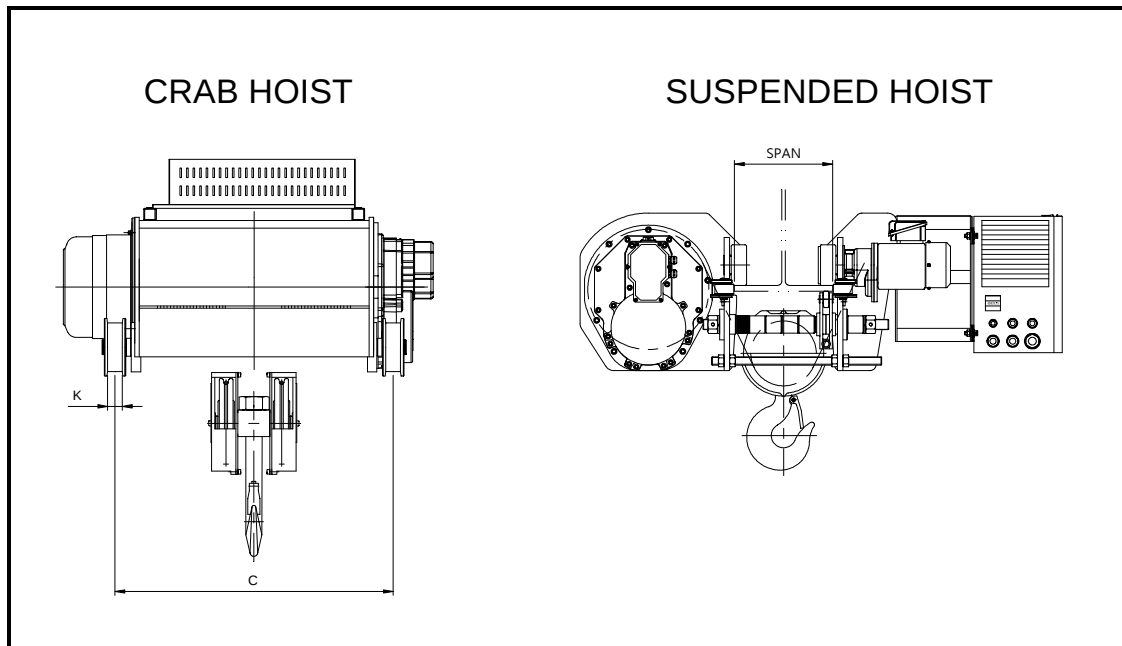
If power supply deviates from standard by more than $\pm 10\%$, abnormal operation or damage to the motor may result. It is imperative to ensure correct voltage supply before commencing operation.

4.3 Installation

WARNING

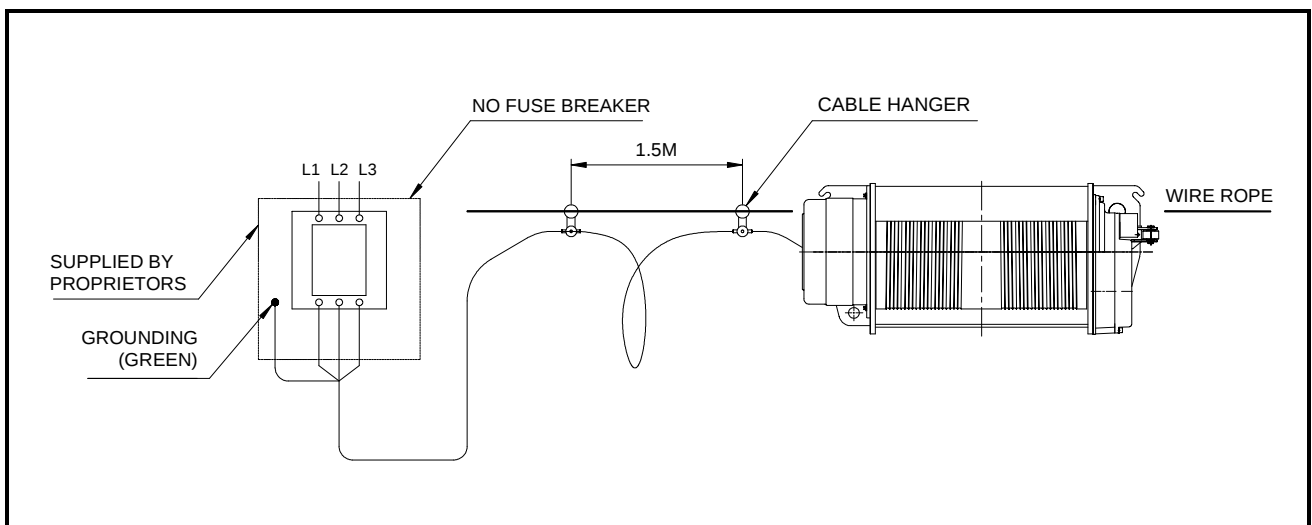
Connection to power supply before installation procedures having been completed is strictly prohibited.

- (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

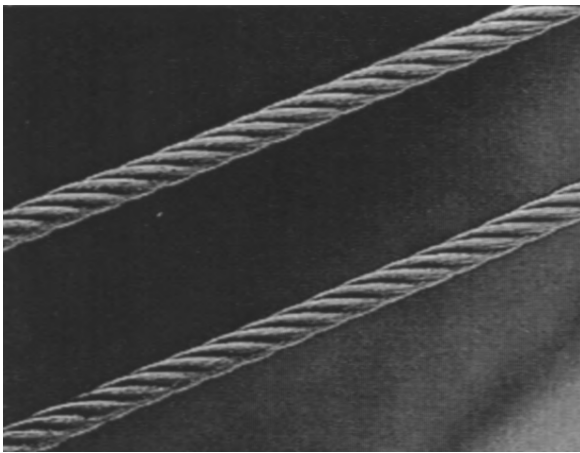
Always use the hoist manufacture's recommended parts when repairing a hoist.

(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 be deforming or loosing.

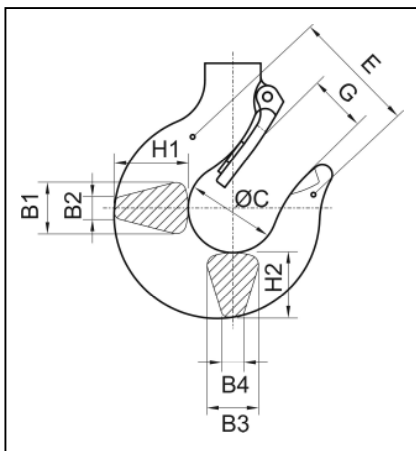


Rope Dia (mm) d	Model Being Used	Construction	Specified Breaking Load (KN)
Ø8	T,SEAH-320PM	Steel Wire Rope S.IWRC8× P.WS(26)-S	68
Ø10	T,SEA1H-500PM T,SEBH-500PM T,SEB1H-630PM		103
Ø12.5	T,SECH-800PM T,SEC1H-1000PM		160
Ø14	T,SEC2H-1250PM		203

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	
3.2	57	38	13	52	38	13	60	42	100	70
5	75	48	16	68	48	16	75	56	105	70
6.3	75	48	16	68	48	16	75	56	105	100
8	85	61	22	77	61	22	85	62	140	70
10	85	61	22	77	61	22	85	62	140	100
12.5	100	70	28	95	65	28	100	70	133	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	EA	EB	EC
Oil Volume(L)	2.5	3	4.5

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.

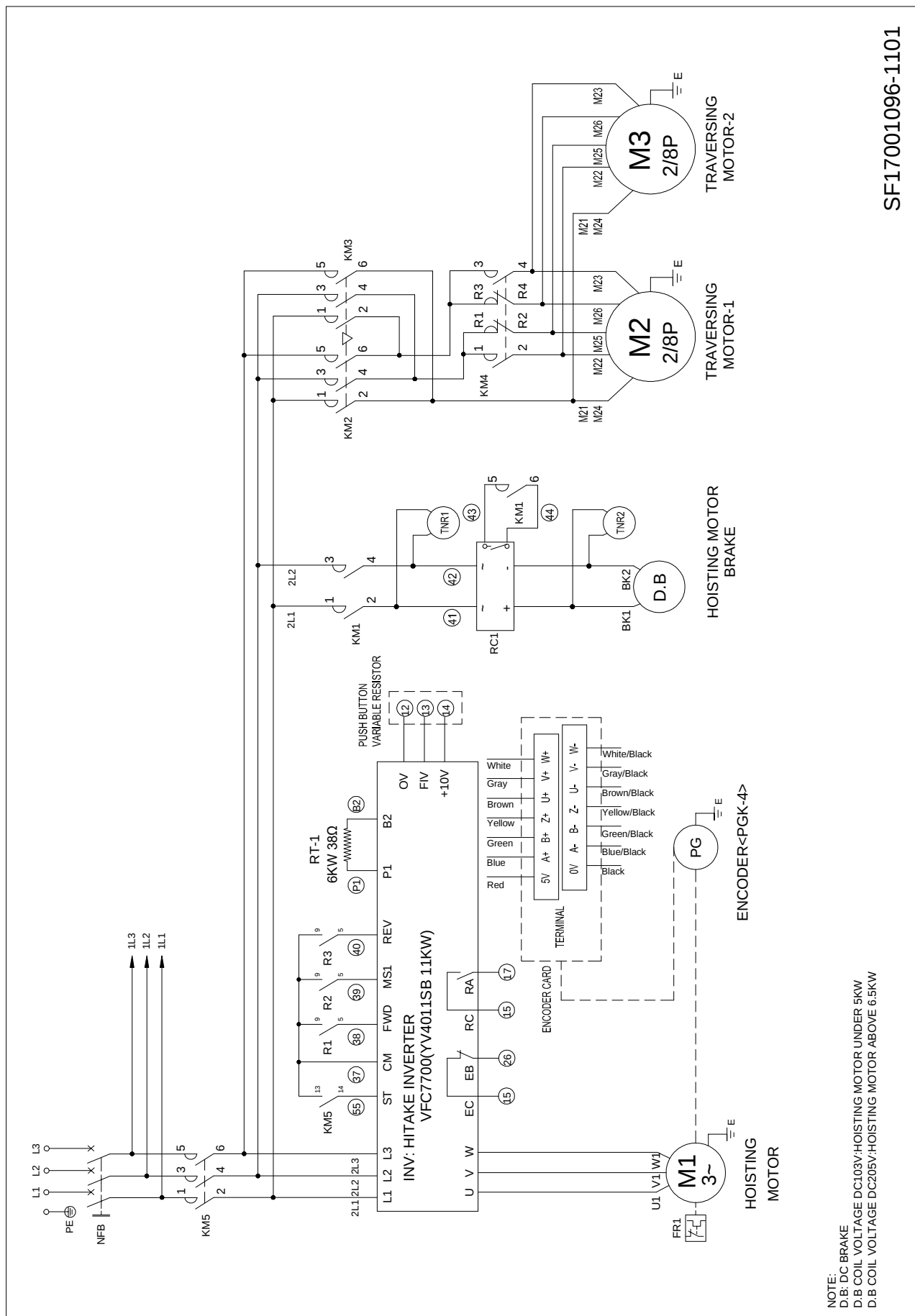
(d) Check operation of pawl spring.

(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



SF17001096-1101

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

7.3 Parameter Setting and Auto-Adjust Step (HITAKE VFC-7700)

1. Set parameter 12.01 value be 1.

2. Set motor tech. parameter.

Item No.	Parameter	Function	Initial Value	Set Value				Remark
				220V	380V	220V	380V	
1	0623	SM rated current (A)	--	16.85	9.55	22.95	13.09	Set acc. to the motor tech. parameter
2	0624	SM rated speed (rpm)	--	1800				Set acc. to the motor tech. parameter
3	0625	SM rated frequency (Hz)	--	120				Set acc. to the motor tech. parameter
4	0627	SM rated torque(Nm)	--	26.53	26.53	34.49	34.49	Set acc. to the motor tech. parameter
5	0628	SM current for zero speed(A)	--	16.85	9.55	22.95	13.09	Set acc. to the motor tech. parameter(same as 0623)
6	0632	SM rated power(kW)	--	5		6.5		Chang acc. to 0627 adjustment

Item No.	Parameter	Function	Initial Value	Set Value				Remark
				220V	380V	220V	380V	
1	0623	SM rated current (A)	--	29.92	17.29	42.27	24.44	Set acc. to the motor tech. parameter
2	0624	SM rated speed (rpm)	--	1200				Set acc. to the motor tech. parameter
3	0625	SM rated frequency (Hz)	--	80				Set acc. to the motor tech. parameter
4	0627	SM rated torque(Nm)	--	71.62	71.62	103.47	103.47	Set acc. to the motor tech. parameter
5	0628	SM current for zero speed(A)	--	29.92	17.29	42.27	24.44	Set acc. to the motor tech. parameter(same as 0623)
6	0632	SM rated power(kW)	--	9		13		Chang acc. to 0627 adjustment

3.If the motor parameter revised before, then set parameter 1010 value be 1; if not skip this step.

4.Set motor initial identification parameter.

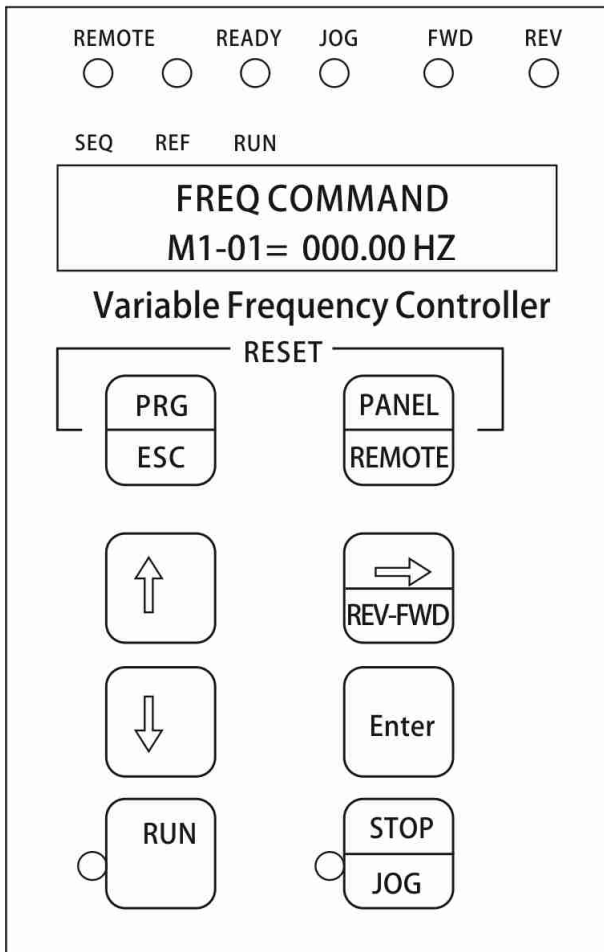
Item No.	Parameter	Function	Initial Value	Set Value	Remark
1	0802	Absolute position encoder 1	57057	2	2 : initial identification

5.Set parameter 12.01 value be 0 and displayed "cal. Drive dat".

6.During the identification process if displayed "Encoder 1" etc. Errors, which may refer encoder scan direction not correct or motor phase sequence inverse , please set parameter 08.06 value be 1 and make encorder revsrse and back to step 4.

7. After displayed "AutoTuneOK" means motor identification finished, reset parameter 12.01 value be 1.
8. Back to step 4 and restart motor identification process. (Suggest motor identification for 3 times, check if parameters 08.02 value similar or not, if all similar then in normal condition.)
9. After motor identification finished, please set 12.01 value be 1.
10. Digital operator key description.

DIGITAL OPERATOR KEY DESCRIPTION

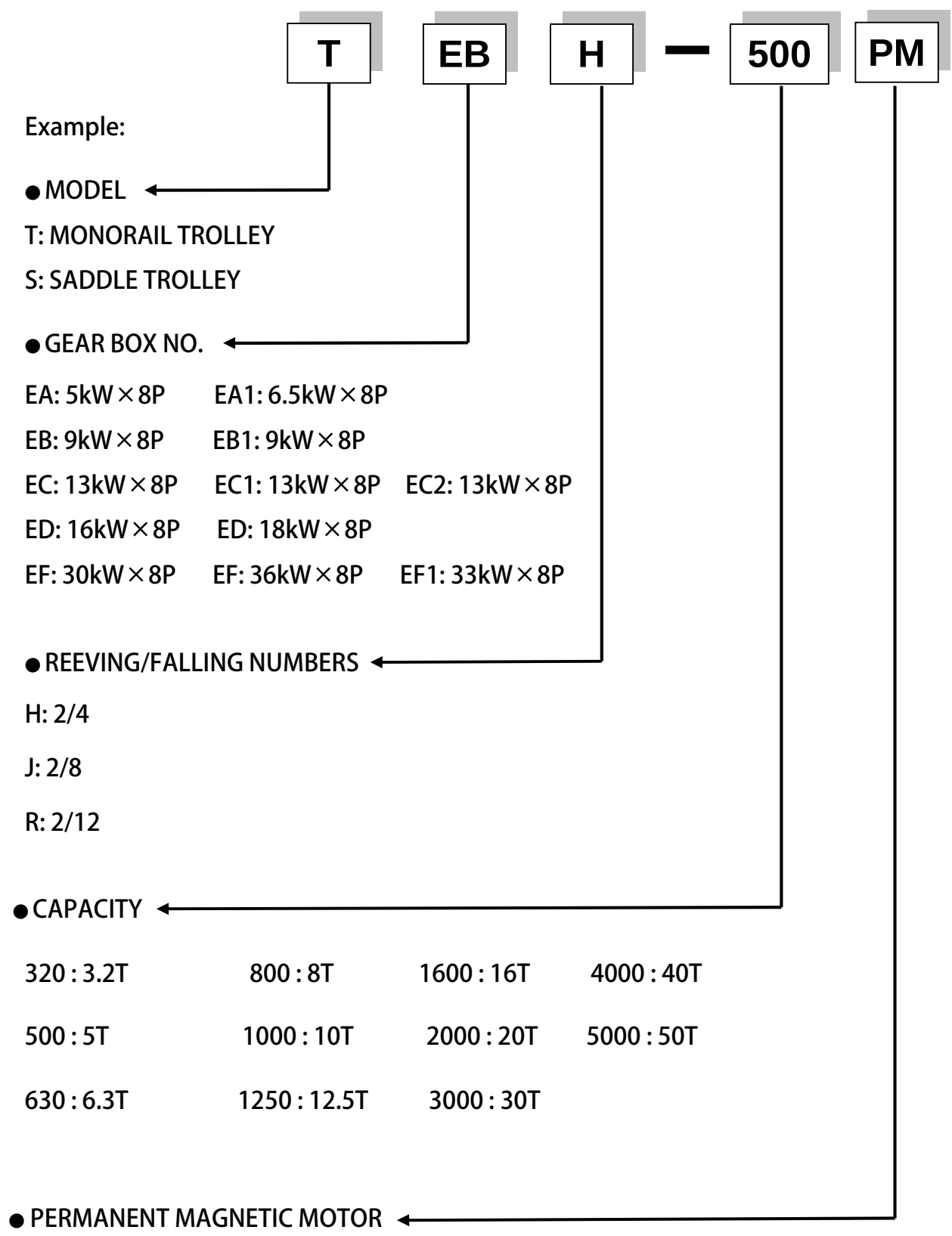


← PANEL , FWD 、 REV ON ◦
REMOTE , SEQ 、 REF ON ◦

← Display Section : Frequency reference
corresponding to analog reference value

← Execute operations such as setting user
constants monitoring , jog , autotuning

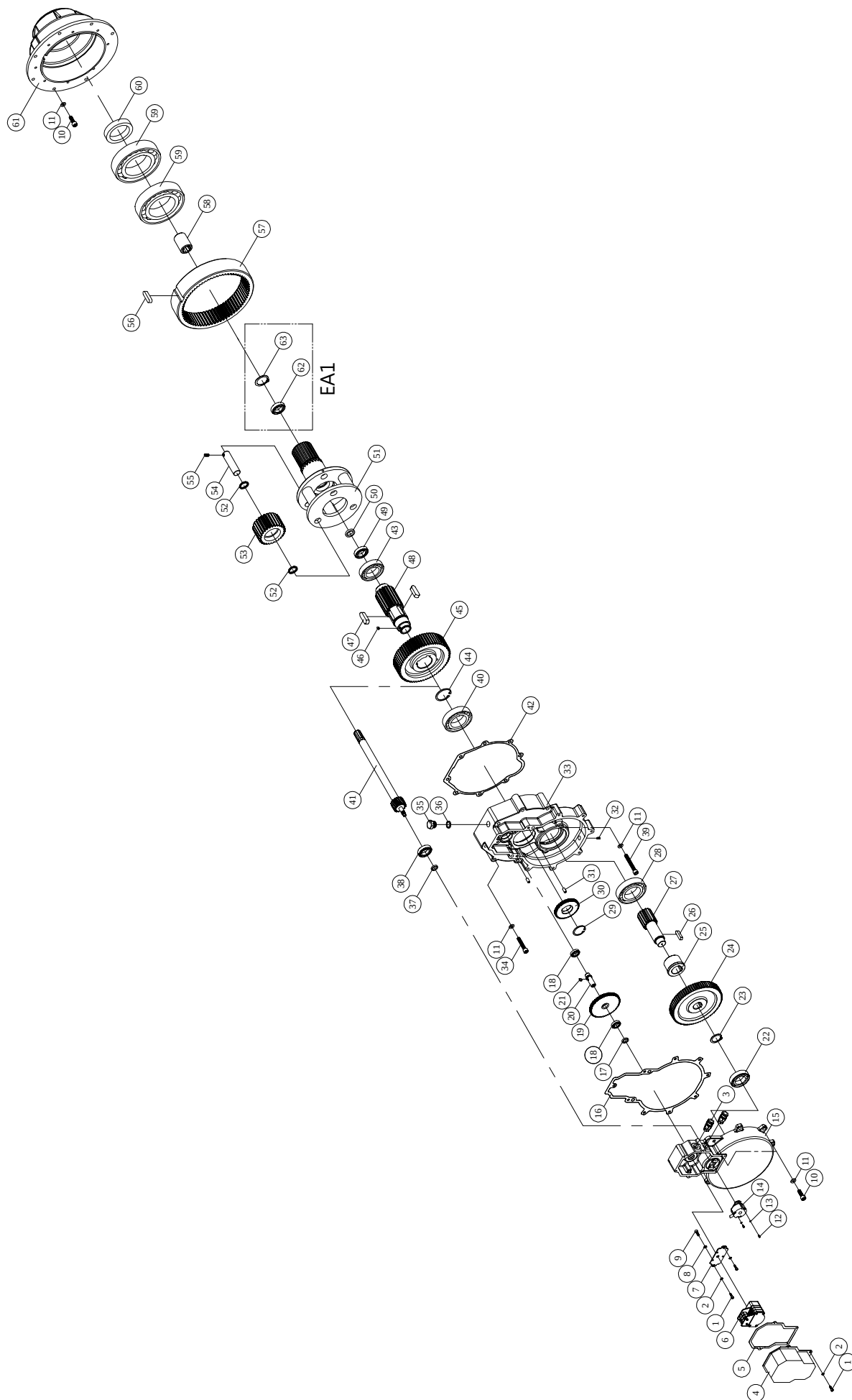
8. MODEL CODE EXPLANATION



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

9. DRAWING AND PARTS LIST

(1) "EA" "EA1" TYPE GEAR BOX EXPLOSION	23
(2) "EA" "EA1" TYPE GEAR BOX ASSEMBLY	24
(3) "EB" "EB1" TYPE GEAR BOX EXPLOSION	26
(4) "EB" "EB1" TYPE GEAR BOX ASSEMBLY	27
(5) "EC" "EC1" "EC2" TYPE GEAR BOX EXPLOSION	29
(6) "EC" "EC1" "EC2" TYPE GEAR BOX ASSEMBLY	30
(7) MOTOR EXPLOSION	33
(8) MOTOR ASSEMBLY	34
(9) BOTTOM BLOCK EXPLOSION	36
(10) BOTTOM BLOCK ASSEMBLY	37
(11) HOIST FRAME EXPLOSION	39
(12) HOIST FRAME ASSEMBLY	40
(13) SADDLE FRAME EXPLOSION	50
(14) SADDLE FRAME ASSEMBLY	51
(15) TRAVERSING MOTOR EXPLOSION	57
(16) TRAVERSING MOTOR ASSEMBLY	58
(17) ELECTRIC EXPLOSION	68
(18) ELECTRIC ASSEMBLY	68



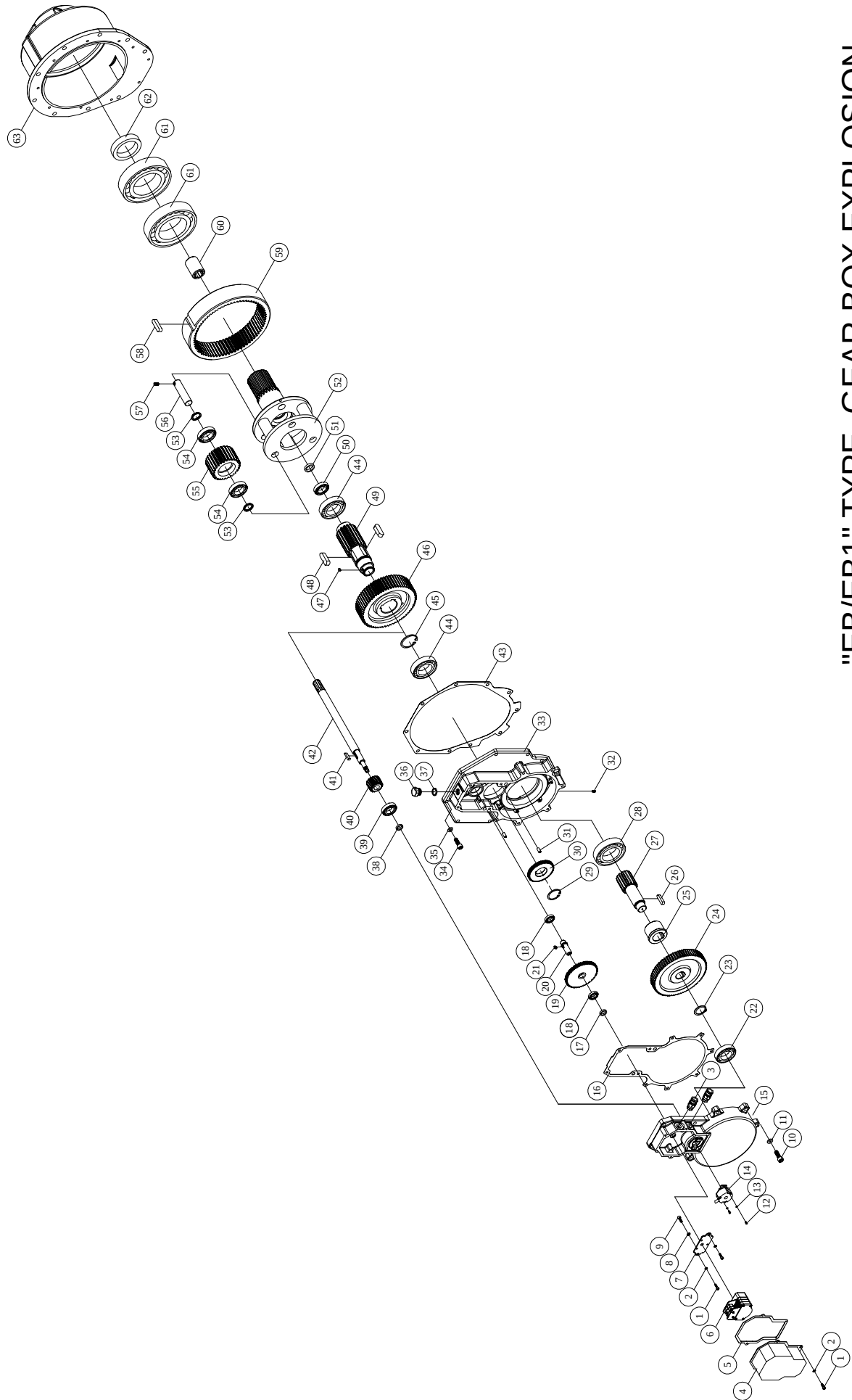
"EA/EA1" TYPE GEAR BOX EXPLOSION

GEAR BOX ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			"EA" TYPE	"EA1" TYPE
			i=102	i=138.7
1	400005	Hex. Recess Bolt<M6 × 1.0 × 12>	8	
2	400094	Spring Washer<M6>	8	
3	400222	Rubber Cap<M20-13>	2	
4	210563	Limit Switch Cover	1	
5	402674	Limit Switch Cover Gasket	1	
6	268511	Planetary Geared Limit Switch Ass'y	1	
7	210594	Limit Plate<t3 × 43 × 100>	1	
8	400093	Spring Washer<M5>	3	
9	400002	Hex. Recess Bolt<M5 × 0.8 × 12>	3	
10	400431	Hex. Recess Bolt<M10 × 1.5 × 30>	16	
11	400096	Spring Washer<M10>	22	
12	405001	Hex. Recess Bolt<M3 × 0.5 × 8>	2	
13	400868	Flat Washer<M3>	2	
14	107069	Encoder<OIH48-2500P8-L6-5V >	1	
15	268010	Gear Case Cover	1	
16	402203	Gear Case Gasket B	1	
17	400181	Oil Seal<Ø17 × Ø28 × 6t>	1	
18	407732	Bearing<6203 >	2	
19	266000	8th Gear<M2.0 × 31T>	1	
20	275056	Connecting Rod <Ø22 × 70>	1	
21	400958	Key<5 × 5 × 10>	1	
22	400800	Bearing<6307 Z>	1	
23	404161	Retaining Ring<S-38>	1	
24	223056	2nd Gear<M2 × 99T>	1	
	223057	2nd Gear<M2 × 103T>		1
25	223059	Bushing<Ø65 × Ø38 × 44>	1	
26	400978	Key<10 × 10 × 40>	1	
27	223058	3rd Gear<M3.0 × 14T>	1	
28	404555	Cylindrical Roller Bearing<NJ 211>	1	
29	400196	Retaining Ring<S-45>	1	
30	265939	7th Gear <M2.0 × 44T>	1	

GEAR BOX ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			"EA" TYPE	"EA1" TYPE
			i=102	i=138.7
31	205327	Spring Pin<Ø12×Ø8.5×14t>	2	
32	400591	Drain Plug<3/8" PT>	1	
33	268004	Gear Case B	1	
34	405003	Hex. Recess Bolt<M10×1.5×85L>	6	
35	206856	Oil Plug<7/8"×14UNF>	1	
36	404341	O Ring<Ø20×Ø26×3>	1	
37	401801	Oil Seal<Ø20×Ø30×7L>	1	
38	400820	Bearing<6304 Z>	1	
39	408456	Hex. Recess Bolt<M10×1.5×110L>	2	
40	400797	Bearing<6210 Z>	1	
41	223054	1st Gear<M2.0×17T>	1	
	223055	1st Gear<M2.0×13T>		1
42	402202	Gear Case Gasket A	1	
43	400147	Bearing<6209 Z>	1	
44	400919	Retaining Ring<S-60>	1	
45	223060	4th Gear<M3.0×66T>	1	
46	400961	Key<6×6×10>	1	
47	405910	Key<18×11×40>	2	
48	223061	5th Gear<M3.5×21T>	1	
49	400715	Bearing<6205 Z>	1	
50	404488	Oil Seal<Ø25×Ø40×8t>	1	
51	223265	Big Reduction Gear Frame	1	
52	268341	Sleeve<Ø28×Ø21×2.5t>	6	
53	223070	Pinion<M3.5×18T>	3	
54	223072	Gear Shaft< Ø20×82>	3	
55	400204	Set Screw<M8×1.25×12>	3	
56	405947	Key<18×11×55L>	1	
57	223062	Internal Gear <M3.5×57T>	1	
58	223063	Coupling<Ø37×57L>	1	
59	400790	Bearing<6216 Z>	2	
60	400933	Oil Seal<Ø80×Ø105×12t>	1	
61	268009	Gear Case A	1	
62	400129	Bearing<6005 ZZ>	-	1
63	400198	Retaining Ring<R-47>	-	1



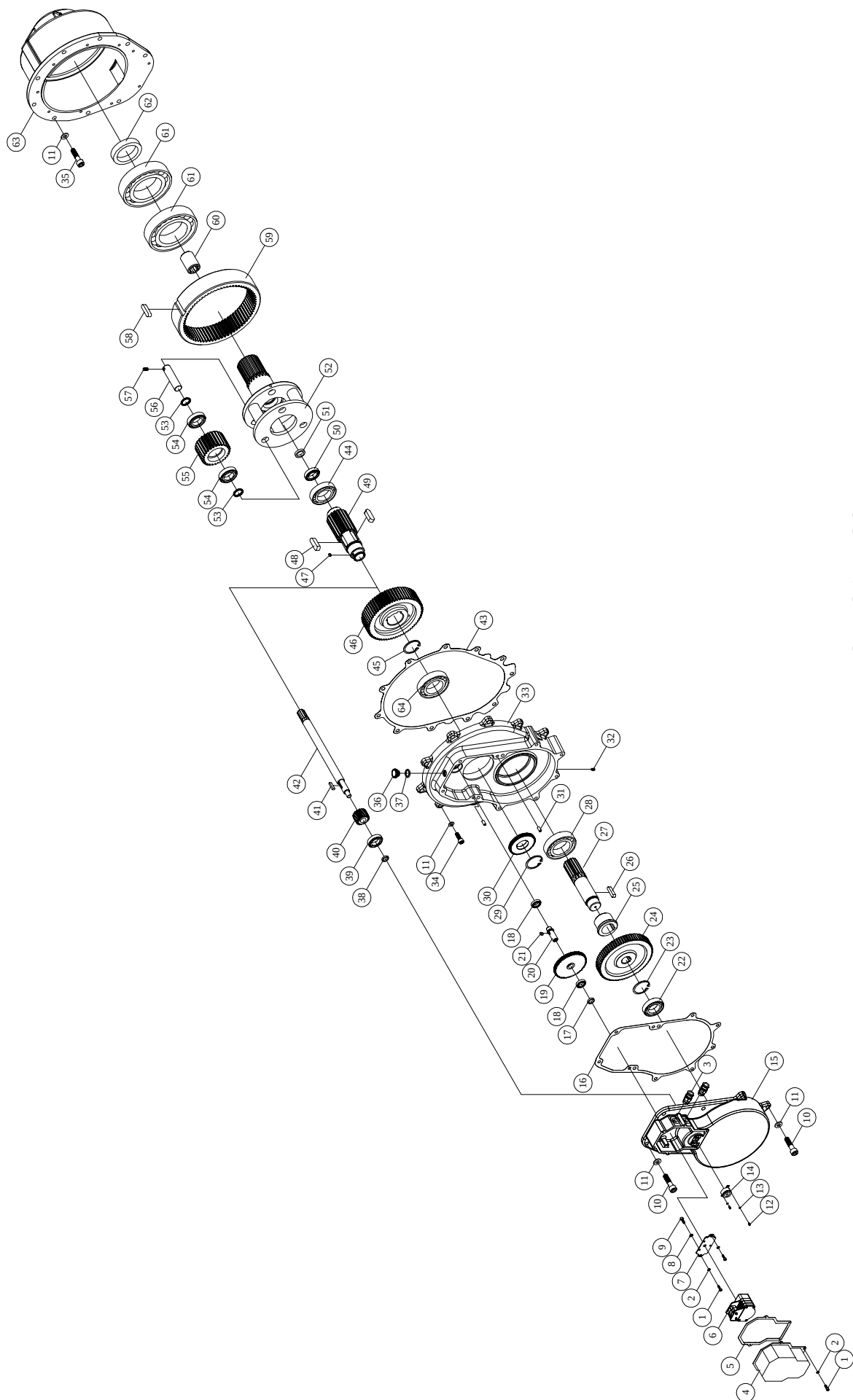
"EB/EB1" TYPE GEAR BOX EXPLOSION

GEAR BOX ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			"EB" TYPE	"EB1" TYPE
			i=86.5	i=100
1	400005	Hex. Recess Bolt<M6×1.0×12>	8	
2	400094	Spring Washer<M6>	8	
3	400222	Rubber Cap<M20-13>	2	
4	210563	Limit Switch Cover	1	
5	402674	Limit Switch Cover Gasket	1	
6	268511	Planetary Geared Limit Switch Ass'y	1	
7	210594	Limit Plate<t3×43×100>	1	
8	400093	Spring Washer<M5>	3	
9	400002	Hex. Recess Bolt<M5×0.8×12>	3	
10	400096	Spring Washer<M10>	20	
11	400431	Hex. Recess Bolt<M10×1.5×30>	20	
12	405001	Hex. Recess Bolt<M3×0.5×8>	2	
13	400868	Flat Washer<M3>	2	
14	107069	Encoder<OIH48-2500P8-L6-5V >	1	
15	222681	Gear Case Cover	1	
16	402673	Gear Case Gasket B	1	
17	400181	Oil Seal<Ø17×Ø28×6t>	1	
18	407732	Bearing<6203 >	2	
19	266000	8 th Gear<M2.0×31T>	1	
20	275056	Connecting Rod< Ø22×70>	1	
21	400958	Key<5×5×10>	1	
22	400150	Bearing<6306 Z>	1	
23	404161	Retaining Ring<S-38>	1	
24	265984	2 nd Gear<M2.5×73T>	1	
	228644	2 nd Gear<M2.5×75T>		1
25	209188	Bushing< Ø65× Ø38×44>	1	
26	400978	Key<10×10×40>	1	
27	209189	3 rd Gear<M3.0×15T>	1	
28	405689	Cylindrical Roller Bearing<MJ 312>	1	
29	400196	Retaining Ring<S-45>	1	
	400195	Retaining Ring<S-40>		1
30	265939	7 th Gear<M2.0×44T>	1	
31	205327	Spring Pin< Ø12×Ø8.5×14t>	2	
32	400591	Drain Plug<3/8" PT>	1	

GEAR BOX ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			"EB" TYPE	"EB1" TYPE
			i=86.5	i=100
33	268058	Gear Case B	1	
34	400097	Spring Washer<M12>	9	
35	400023	Hex. Recess Bolt<M12×1.75×35>	9	
36	206856	Oil Plug<7/8"×14UNF>	1	
37	404341	O Ring< Ø20×Ø26×3>	1	
38	401801	Oil Seal< Ø20×Ø40×7L>	1	
39	400820	Bearing<6304 Z>	1	
40	222596	1st Gear<M2.5×18T>	1	
	222109	1st Gear<M2.5×16T>		1
41	405914	Key<6×6×30>	1	
42	222673	Drum Shaft<Ø33×374>	1	
43	402675	Gear Case Gasket A	1	
44	400797	Bearing<6210 Z>	2	
45	400909	Retaining Ring<S-55>	1	
46	265985	4 th Gear<M3.0×64T>	1	
47	400961	Key<6×6×10>	1	
48	400992	Key<16×10×50>	2	
49	265997	5 th Gear<M3.5×18T>	1	
50	400716	Bearing<6206 Z>	1	
51	404512	Oil Seal<Ø30×Ø45×8t>	1	
52	200615	Big Reduction Gear Frame	1	
53	228585	Spacer<Ø35×Ø26×5t>	6	
54	400148	Bearing<6305 Z>	6	
55	265998	Pinion<M3.5×27T>	3	
56	209190	Gear Shaft< Ø25×97>	3	
57	400204	Set Screw<M8×1.25×12>	3	
58	400952	Key<20×13×60>	1	
59	265999	Internal Gear<M3.5×72T>	1	
60	271927	Coupling<Ø44×62L>	1	
61	400790	Bearing<6216 Z>	2	
62	400933	Oil Seal<Ø80×Ø105×12t>	1	
63	268057	Gear Case A	1	



"EC/EC1/EC2" TYPE GEAR BOX EXPLOSION

GEAR BOX ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			"EC" TYPE	"EC1" TYPE	"EC2" TYPE
			i=112.5	i=128.3	i=165
1	400005	Hex. Recess Bolt<M6 × 1.0 × 12>	8		
2	400094	Spring Washer<M6>	8		
3	400222	Rubber Cap<M20-13>	2		
4	210563	Limit Switch Cover	1		
5	402674	Limit Switch Cover Gasket	1		
6	268511	Planetary Geared Limit Switch Ass'y	1		
7	210594	Limit Plate<t3 × 43 × 100>	1		
8	400093	Spring Washer<M5>	3		
9	400002	Hex. Recess Bolt<M5 × 0.8 × 12>	3		
10	400023	Hex. Recess Bolt<M12 × 1.75 × 35>	9		
11	400097	Spring Washer<M12>	30		
12	405001	Hex. Recess Bolt<M3 × 0.5 × 8>	2		
13	400868	Flat Washer<M3>	2		
14	107069	Encoder< OIH48-2500P8-L6-5V >	1		
15	222594	Gear Case Cover	1		
16	402677	Gasket B	1		
17	400181	Oil Seal<Ø17 × Ø28 × 6t>	1		
18	407732	Bearing<6203 >	2		
19	228633	8 th Gear<M2.5 × 30T>	1		
20	265945	Connecting Rod<Ø20 × 91>	1		
21	400958	Key<5 × 5 × 10>	1		
22	400152	Bearing<6308 Z>	1		
23	400196	Retaining Ring<S-45>	1		
24	228684	2 nd Gear<M3 × 75T>	1		
	265960	2 nd Gear<M3 × 77T>		1	
	228632	2 nd Gear<M3 × 78T>			1
25	272878	Spacer Tube<Ø70 × Ø45 × 44.5L>	1		
26	405934	Key<12 × 8 × 60>	1		
27	209160	3 rd Gear<M3.5 × 14T>	1	1	
	228645	3 rd Gear<M3.5 × 12T>			1

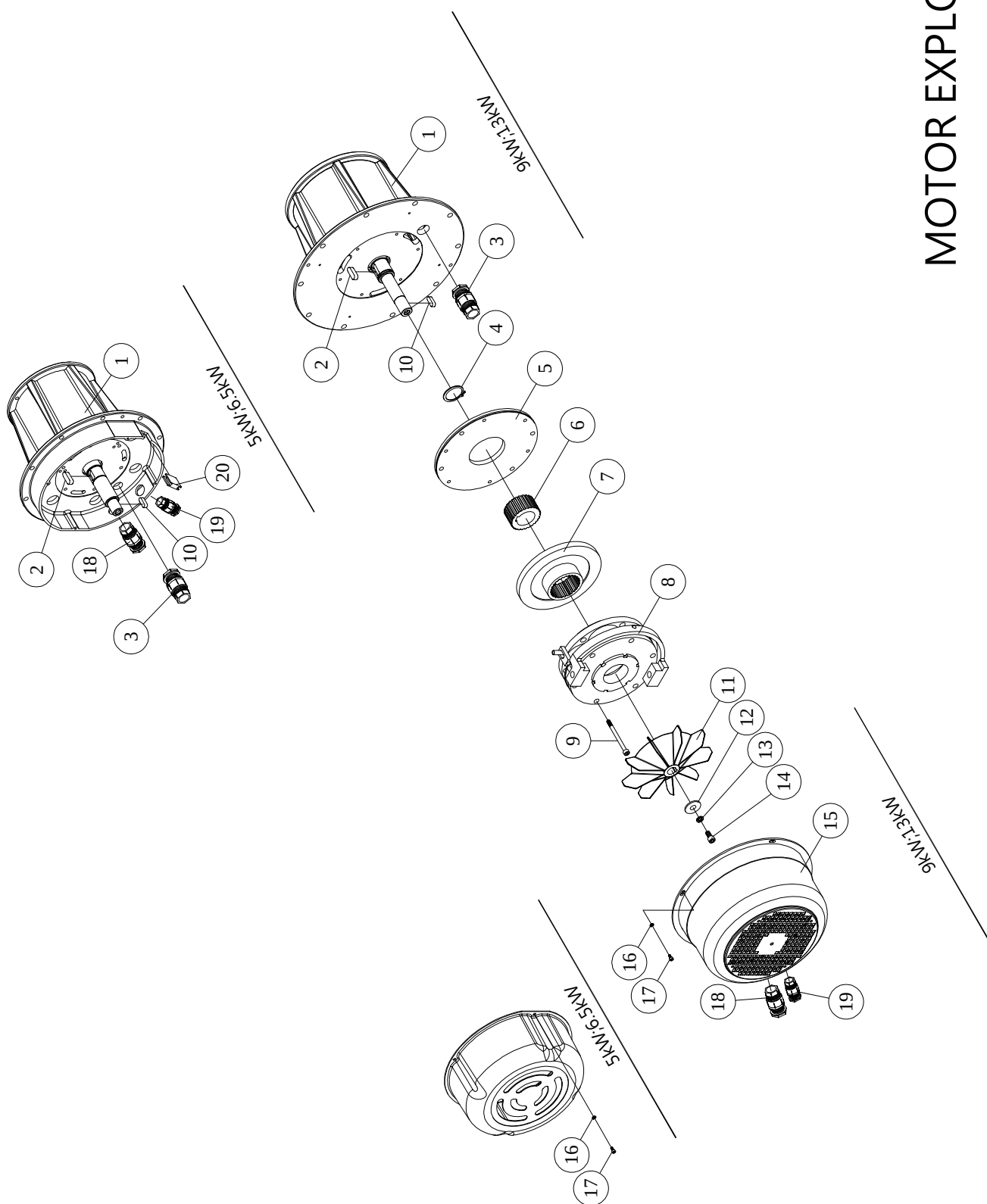
GEAR BOX ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			"EC" TYPE	"EC1" TYPE	"EC2" TYPE
			i=112.5	i=128.3	i=165
28	405700	Cylindrical Roller Bearing <MJ 312E>	1		
29	400196	Retaining Ring <S-45>	1		
30	265950	Limit Pinion <M2.5 × 40T>	1		
31	205327	Spring Pin <Ø12 × Ø8.5 × 14t>	2		
32	400591	Drain Plug <3/8" PT>	1		
33	268051	Gear Case B	1		
34	400435	Hex. Recess Bolt <M12 × 1.75 × 25>	11		
35	400022	Hex. Recess Bolt <M12 × 1.75 × 30>	10		
36	206856	Oil Plug<7/8" × 14UNF>	1		
37	404341	O Ring <Ø20 × Ø26 × 3>	1		
38	401801	Oil Seal <Ø20 × Ø30 × 7L>	1		
39	405707	Bearing<6305 Z>	1		
40	222110	1 st Gear<M3 × 20T>	1		
	222676	1 st Gear<M3 × 18T>		1	
	222111	1 st Gear<M3 × 17T>			1
41	405991	Key<8 × 7 × 50>	1		
42	222675	Drum Shaft <Ø32 × 428>	1		
43	402676	Gasket A	1		
44	405701	Cylindrical Roller Bearing<NJ 309E>	1		
45	400913	Retaining Ring<S-65>	1		
46	265955	4 th Gear<M3.5 × 70T>	1	1	
46	228646	4 th Gear<M3.5 × 72T>			1
47	400962	Key<6 × 6 × 12>	1		
48	400987	Key<20 × 13 × 55>	2		
49	265956	5 th Gear<M4 × 14T>	1		
50	400716	Bearing<6206 Z>	1		
51	404512	Oil Seal< Ø30 × Ø45 × 8t>	1		
52	271919	Big Reduction Gear Frame	1		
53	205231	Spacer<Ø45 × Ø36 × 5>	6		
54	400800	Bearing<6307 Z>	6		

GEAR BOX ASSEMBLY

[illegible]

MOTOR EXPLOSION



MOTOR ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			5kW	6.5kW	9kW	13kW
1		Motor Stator Ass'y	1	1	1	1
2	405940	Key<8×7×30L>	2			
	405941	Key<10×8×30L>		1		
	405942	Key<12×8×35L>			1	
	405943	Key<14×9×40L>				1
3	400941	Cable Gland<M25-18>	1	1		
	400942	Cable Gland<M32-24>			1	1
4	400192	Retaining Ring<S-25>	2			
	400194	Retaining Ring<S-35>		1		
	400195	Retaining Ring<S-40>			1	
	400196	Retaining Ring< S-45>				1
5	100625	Flange<BFK459-14E>	1			
	100124	Flange<BFK458-16E>		1		
	108524	Flange<BFK468-18E>			1	
	107910	Flange<BFK468-20E>				1
6	100129	Disc Hub Ø25<BFK458-14E>	1			
	100130	Disc Hub Ø35<BFK458-16E>		1		
	100131	Disc Hub Ø40<BFK458-18E>			1	
	100132	Disc Hub Ø40<BFK458-20E>				1
7	100136	Friction Disc<BFK458-14E>	1			
	100137	Friction Disc<BFK458-16E>		1		
	100138	Friction Disc<BFK458-18E>			1	
	100139	Friction Disc<BFK458-20E>				1
8		DC Solenoid	1	1	1	1
9	408385	Hex. Recess Bolt<M8×1.25×80L>	3			
	408586	Hex. Recess Bolt<M8×1.25×90L>		3		
	408429	Hex. Recess Bolt<M8×1.25×105L>			6	
	408417	Hex. Recess Bolt<M10×1.5×120L>				6
10	405940	Key<8×7×30L>	1	1	1	
	405993	Key<12×8×40L>				1
11	105404	Fan	1	1	1	
	105405					1
12	243959	Washer<Ø50×Ø9×6t>	1			
13	400095	Spring Washer<M8>	1			
14	400013	Hex. Recess Bolt <M8×1.25×25>	1			

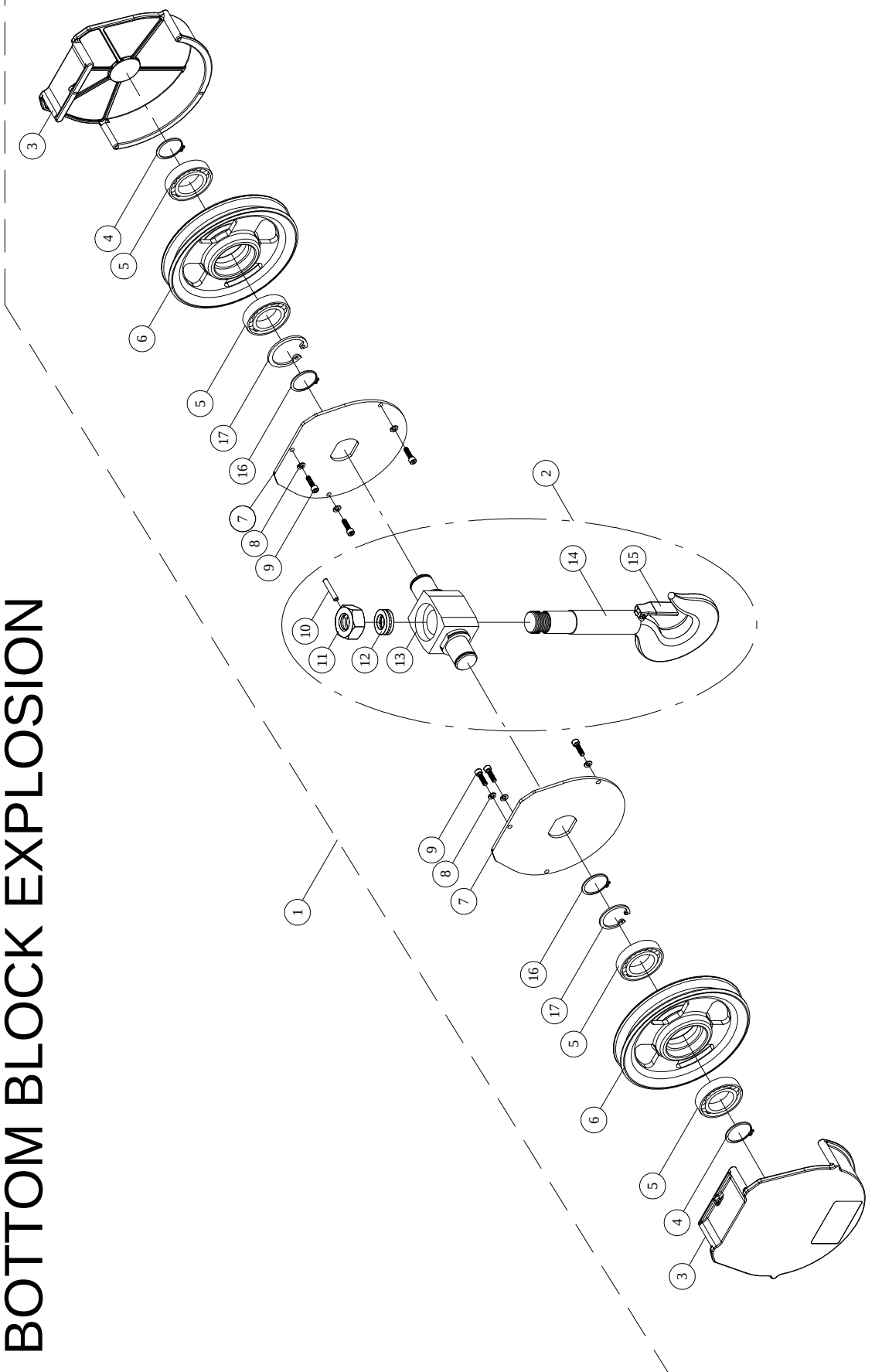
MOTOR ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			5kW	6.5kW	9kW	13kW
15	269244	Cover	1	1		
	105480				1	
	104219					1
16	400094	Spring Washer <M6>		4		
17	400004	Hex. Recess Bolt <M6×1.0×8>	4	4	4	
	400005	Hex. Recess Bolt <M6×1.0×12>				4
18	400941	Cable Gland<M25-18>	1	1	1	
	408433	Cable Gland<M40-30>				1
19	400222	Cable Gland<M20-13>	1			
20	400415	Waterproof Rubber	1	1	-	-

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			5kW	6.5kW	9kW	13kW
1	108984	Motor Stator Ass'y <220V>	1			
	108982				1	
	108899					1
	108499	Motor Stator Ass'y <380V/460V>	1			
	108983					
	108500			1		
	108981				1	
	108986					1

KEY NO	PARTS CODE	DESCRIPTION		Q'TY REQ'D EACH UNIT			
				5kW	6.5kW	9kW	13kW
8	107048	DC Solenoid <220V/460V>	< BFK459-14E >	1			
	107049		< BFK459-16E >		1		
	107065		< BFK468-18E >			1	1
	107067		< BFK468-20E >				
	107054	DC Solenoid <380V>	< BFK459-14E >	1			
	107055		< BFK459-16E >		1		
	107066		< BFK468-18E >			1	
	107068		< BFK468-20E >				1

BOTTOM BLOCK EXPLOSION

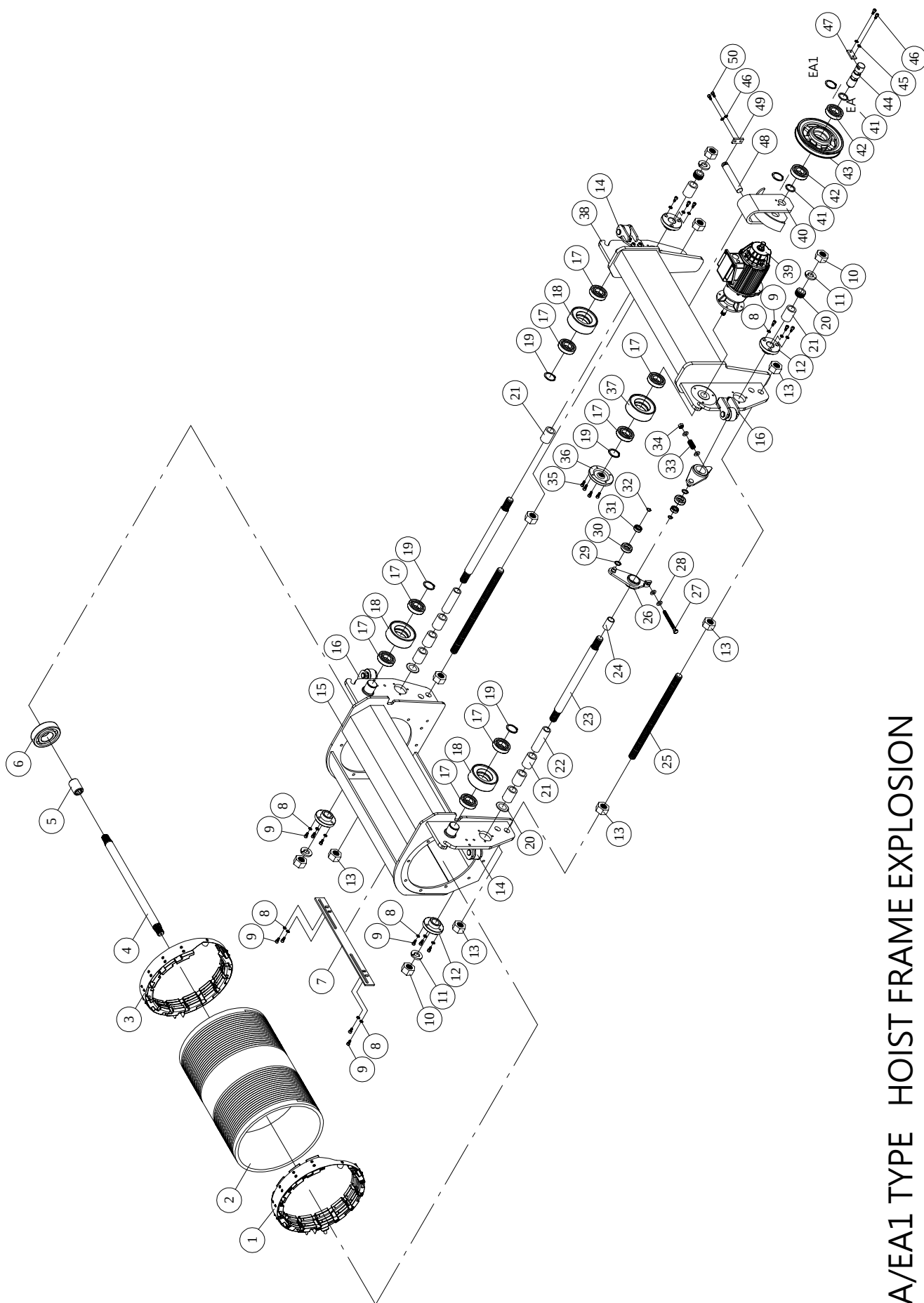


BOTTOM BLOCK ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			3.2T	5T	6.3T
1	227917	Bottom Block Ass'y	1		
	227922			1	
	227940				1
2	227921	Bottom Hook Ass'y	1		
	227926			1	
	227942				1
3	227919	Bottom Block Cover Ass'y	2		
	227924			2	2
4	400195	Retaining Ring<S-40>	2		
	400196	Retaining Ring<S-45>		2	2
5	407819	Bearing<6308 Z>	2		
	407809	Bearing<6209 Z>		4	
	400147	Bearing<6209 Z>			4
6	228698	Sheave<Ø180 × Ø80 t34>	2		
	269668	Sheave<Ø226 × Ø85 t43>		2	2
7	227920	Bottom Block Cover	2		
	227925			2	2
8	400095	Spring Washer<M8>	6	6	6
9	400012	Hex. Recess Bolt<M8 × 1.25 × 20>	6	6	6
10	400209	Spring Pin<Ø8 × 55>	1		
	400214	Spring Pin<Ø8 × 70>		1	1
11	400074	Nut<1 3/8" × 6UNC >	1		
	400644	Nut<1 3/4" × 5UNC >		1	1
12	400160	Thrust Bearing<51207>	1		
	400162	Thrust Bearing<51209>		1	1
13	227918	Bearing Housing	1		
	227927			1	1
14	228703	Bottom Hook	1		
	228668			1	
	228674				1
15	400301	Safety Latch	1		
	400302			1	1
16	400197	Retaining Ring<S-50>	2		
	400919	Retaining Ring<S-60>		2	2
17	400914	Retaining Ring<R-90>	2	-	-

BOTTOM BLOCK ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			8T	10T	12.5T
1	227944	Bottom Block Ass'y	1		
	227928			1	
	227934				1
2	227946	Bottom Hook Ass'y	1		
	227931			1	
	227937				1
3	203550	Bottom Block Cover Ass'y	2	2	
	227935				2
4	400913	Retaining Ring<S-65>	2	2	2
5	407832	Bearing<6213 Z>	4	4	
	407864	Bearing<6013 Z>			4
6	228375	Sheave<Ø279.5 × Ø120 t50>	2	2	
	271937	Sheave<Ø314 × Ø100 t50>			2
7	227932	Bottom Block Cover	2	2	
	227938				2
8	400095	Spring Washer<M8>	6	6	6
9	400012	Hex. Recess Bolt<M8 × 1.25 × 20>	6	6	6
10	400214	Spring Pin<Ø8 × 70>	1	1	
	400209	Spring Pin<Ø8 × 55>			1
11	400636	Nut<M52 × 5.0 >	1	1	
	406427	Nut<M64 × 6.0 >			1
12	400161	Thrust Bearing<51211>	1	1	
	400164	Thrust Bearing<51313>			1
13	227933	Bearing Housing	1	1	
	227939				1
14	228725	Bottom Hook	1		
	228719			1	
	228741				1
15	400303	Safety Latch	1	1	1
16	400921	Retaining Ring<S-75>	2	2	2



EA/EA1 TYPE HOIST FRAME EXPLOSION

HOIST FRAME ASSEMBLY

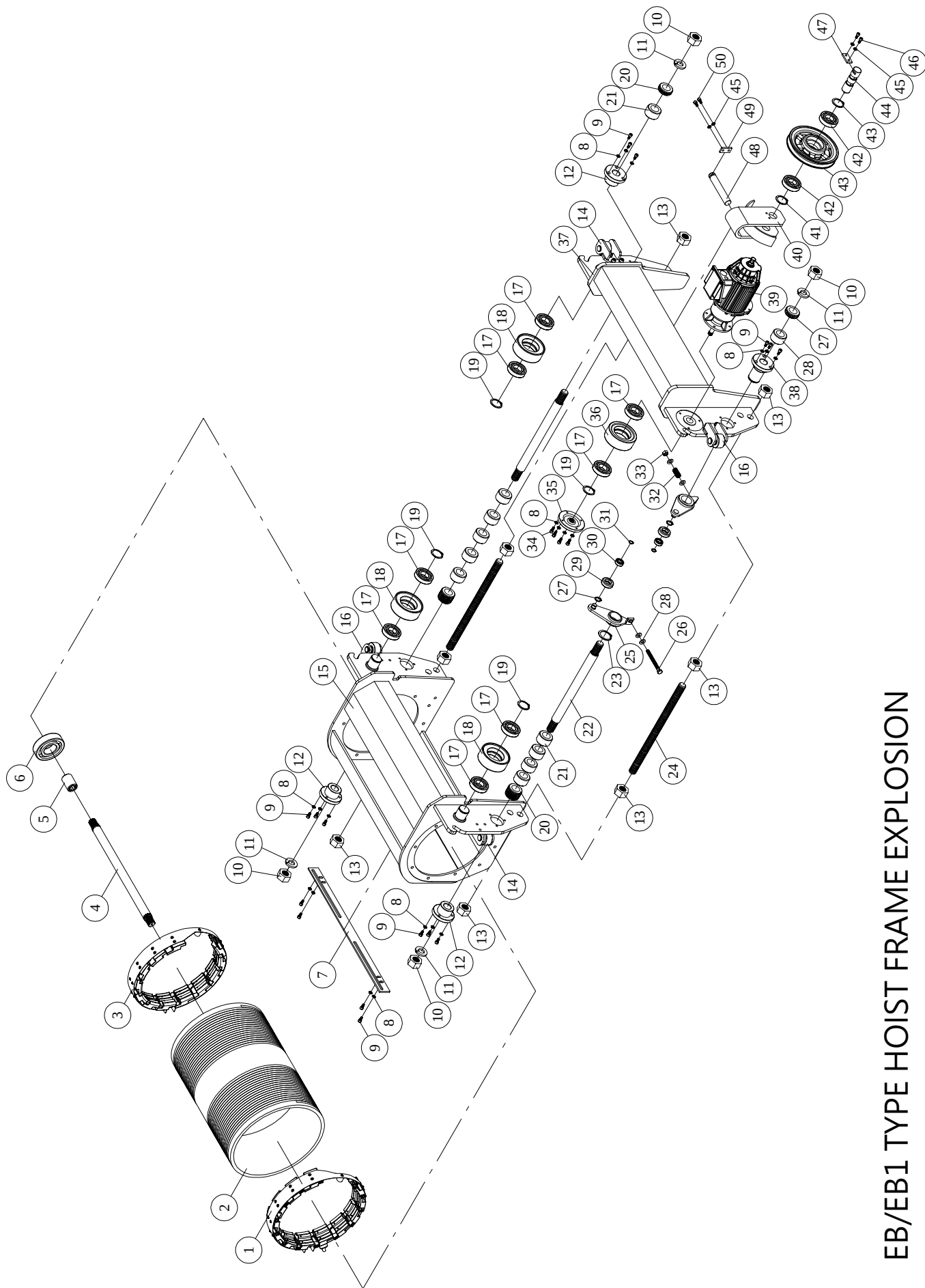
KEY NO	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT					
			TEAH-320PM			TEA1H-500PM		
			6M	9M	12M	6M	9M	12M
1	273604	Wire rope guide<Left Thread>	1	1	1			
	273632					1	1	1
2	270893	Drum	1					
	270894			1				
	270895				1			
	223864					1		
	223865						1	
	223866							1
3	273605	Wire rope guide<Right Thread >	1	1	1			
	273633					1	1	1
4	270890	Drum Shaft	1					
	270891			1				
	270892				1			
	223267					1		
	223268						1	
	223269							1
5	223063	Coupling<Ø26 × Ø44 × 62>	1	1	1	1	1	1
6	400806	Bearing<6216 ZZ>	1	1	1	1	1	1
7	202302	Wire Rope Guide Baffle	1					
	202303			1				
	202304				1			
	202305					1		
	202306						1	
	202307							1
8	400094	Spring Washer< M6>	16	16	16	16	16	16
9	400006	Hex. Recess Bolt<M6 × 1.0 × 16L>	16	16	16	16	16	16
10	202009	Nut<1" × 8UNC>	4	4	4	4	4	4
11	400103	Spring Washer<1 ">	4	4	4	4	4	4
12	273655	Bracket (Drive)	4	4	4	4	4	4
13	400071	Nut<1" × 8UNC>	8	8	8	8	8	8
14	273653	Guide Wheel Frame B	2	2	2	2	2	2

HOIST FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT					
			TEAH-320PM			TEA1H-500PM		
			6M	9M	12M	6M	9M	12M
15	270887	Idler Frame Ass'y	1					
	270888			1				
	270889				1			
	270875					1		
	270876						1	
	270877							1
16	273652	Guide Wheel Frame A	2	2	2	2	2	2
17	407773	Bearing<6008 Z>	8	8	8			
	405702	Bearing<6009 Z>				8	8	8
18	271810	Idler Wheel	3	3	3			
	201089					3	3	3
19	400195	Retaining Ring<S-40>	4	4	4			
	400196	Retaining Ring<S-45>				4	4	4
20	203222	Sleeve<Ø46 × Ø27 × 1/8">	30	30	30	30	30	30
21	273664	Sleeve B< Ø37 × Ø26 × 50L>	9	9	9	9	9	9
22	273663	Sleeve A< Ø37 × Ø26 × 124L>	2	2	2	2	2	2
23	408068	Support Shaft<1" × 8UNC × 540>	2	2	2	2	2	2
24	273665	Sleeve C< Ø33 × Ø25.5 × 50L>	1	1	1	1	1	1
25	408450	Stay Bolt<1" × 8UNC × 520>	2	2	2	2	2	2
26	273656	Equalizer Support Ass'y	2	2	2	2	2	2
27	408417	Hex. Bolt<M10 × 1.5 × 120>	1	1	1	1	1	1
28	400865	Flat Washer<M10>	4	4	4	4	4	4
29	404181	Retaining Ring<R-35>	2	2	2	2	2	2
30	271318	Support Wheel	2	2	2	2	2	2
31	405635	Bearing<6003 ZZ>	2	2	2	2	2	2
32	404184	Retaining Ring<S-17>	2	2	2	2	2	2
33	408656	Heavy Load Spring TH25-50	1	1	1	1	1	1
34	400089	Lock Nut<M10 × 1.5>	1	1	1	1	1	1
35	400005	Hex. Recess Bolt<M6 × 1.0 × 12>	4	4	4			
	400424	Hex. Recess Bolt<M8 × 1.25 × 16>				4	4	4

HOIST FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT					
			TEAH-320PM			TEA1H-500PM		
			6M	9M	12M	6M	9M	12M
36	271811	Drive Wheel Cover	1	1	1			
	201056					1	1	1
37	271809	Drive Wheel	1	1	1			
	201051					1	1	1
38	270884	Drive Frame Ass'y	1					
	270885			1				
	270886				1			
	270872					1		
	270873						1	
	270874							1
39	101548	Traversing Motor Ass'y <0.37kW>	1	1	1			
	101555	Traversing Motor Ass'y <0.6kW>				1	1	1
40	228692	Link Equalizer	1	1	1			
	271913					1	1	1
41	228695	Washer<Ø50.8×Ø40.5×t8>	2	2	2			
	400196	Retaining Ring<S-45>				2	2	2
42	407831	Bearing<6208 Z>	-	-	-	2	2	2
43	228696	Equalizer Sheave<Ø148×Ø40 t40>	1	1	1			
	207811	Equalizer Sheave<Ø206×Ø60 t50>				1	1	1
44	214939	Load cell <Ø40×123>	1	1	1	1	1	1
	301514	Load Monitor [TI-500E]	1	1	1	1	1	1
45	400095	Spring Washer<M8>	16	16	16	16	16	16
46	405011	Hex. Recess Bolt<M8×1.25×15L>	2	2	2	2	2	2
47	271916	Keeper<Ø8.5 t5.0×22×60L>	1	1	1	1	1	1
48	205470	Load Axle<Ø28×165L>	1	1	1	1	1	1
49	200636	Keeper<Ø8.5 t6.0×25×50L>	1	1	1	1	1	1
50	400012	Hex. Recess Bolt<M8×1.25×20>	14	14	14	14	14	14



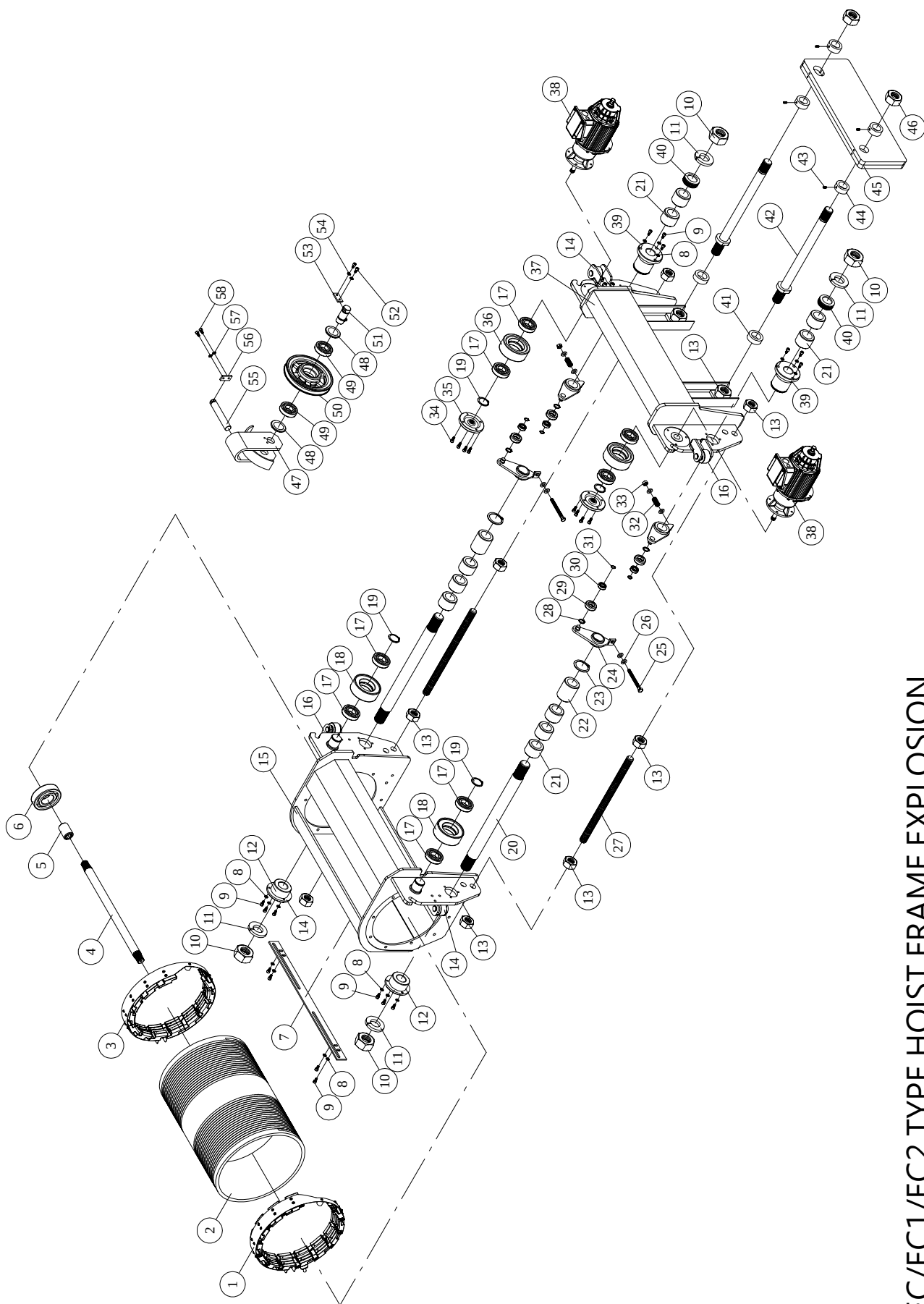
EB/EB1 TYPE HOIST FRAME EXPLOSION

HOIST FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			TEBH-500PM		TEB1H-630PM	
			9M	12M	9M	12M
1	202245	Wire rope guide<Left Thread>	1	1	1	1
2	271855	Drum	1		1	
	271857			1		1
3	202246	Wire rope guide<Right Thread >	1	1	1	1
4	263164	Drum Shaft	1		1	
	271827			1		1
5	271927	Coupling<Ø26 × Ø44 × 62>	1	1	1	1
6	405686	Bearing <6217 ZZ>	1	1	1	1
7	202634	Wire Rope Guide Baffle	1		1	
	202635			1		1
8	400095	Spring Washer< M8>	20	20	20	20
9	400012	Hex. Recess Bolt<M8 × 1.25 × 20>	20	20	20	20
10	202011	Nut<1 1/4" × 7UNC>	4	4	4	4
11	400105	Spring Washer <1 1/4">	4	4	4	4
12	268379	Bracket (Idler)	3	3	3	3
13	400071	Nut<1" × 8UNC>	8	8	8	8
14	228557	Guide Wheel Frame B	2	2	2	2
15	202639	Idler Frame Ass'y	1		1	
	202641			1		1
16	228560	Guide Wheel Frame A	2	2	2	2
17	405702	Bearing<6008 Z>	8	8	8	8
18	201089	Idler Wheel	3	3	3	3
19	400196	Retaining Ring<S-45>	4	4	4	4
20	203223	Sleeve<Ø54 × Ø35 × 1/8">	30	30	30	30
21	271316	Sleeve<Ø53 × Ø34 × 50>	11	11	11	11
22	220826	Support Shaft<1 1/4" × 7UNC × 560>	2	2	2	2
23	400197	Retaining Ring<S-50>	1	1	1	1
24	408450	Stay Bolt<1" × 8UNC × 520>	2	2	2	2
25	205664	Equalizer Support Ass'y	2	2	2	2
26	408617	Hex. Bolt<M10 × 1.5 × 130>	1	1	1	1

HOIST FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			TEBH-500PM		TEB1H-630PM	
			9M	12M	9M	12M
27	404181	Flat Washer <R-35>	2	2	2	2
28	400865	Retaining Ring <M10>	4	4	4	4
29	271318	Support Wheel	2	2	2	2
30	405635	Bearing <6003 ZZ>	2	2	2	2
31	404184	Retaining Ring <S-17>	2	2	2	2
32	408656	Heavy Load Spring TH25-50	1	1	1	1
33	400089	Lock Nut <M10×1.5>	1	1	1	1
34	400424	Hex. Recess Bolt <M8×1.25×16>	4	4	4	4
35	201056	Drive Wheel Cover	1	1	1	1
36	201051	Drive Wheel	1	1	1	1
37	202638	Drive Frame Ass'y	1		1	
	202640			1		1
38	268350	Bracket (Drive)	1	1	1	1
39	101555	Traversing Motor Ass'y <0.6kW i=69>	1	1	1	1
40	271913	Link Equalizer	1	1	1	1
41	400196	Retaining Ring<S-45>	2	2	2	2
42	407831	Bearing <6208 Z>	2	2	2	2
43	207811	Equalizer Sheave <Ø206×Ø60 t50>	1	1	1	1
44	214939	Load cell <Ø40×123>	1	1	1	1
	301514	Load Monitor [TI-500E]	1	1	1	1
45	400095	Spring Washer <M8>	4	4	4	4
46	405011	Hex. Recess Bolt <M8×1.25×15L>	2	2	2	2
47	271916	Keeper <Ø8.5 t5.0×22×60L>	1	1	1	1
48	205470	Load Axle <Ø28×165L>	1	1	1	1
49	200636	Keeper <Ø8.5 t6.0×25×50L>	1	1	1	1
50	400013	Hex. Recess Bolt <M8×1.25×25L>	2	2	2	2



EC/EC1/EC2 TYPE HOIST FRAME EXPLOSION

HOIST FRAME ASSEMBLY

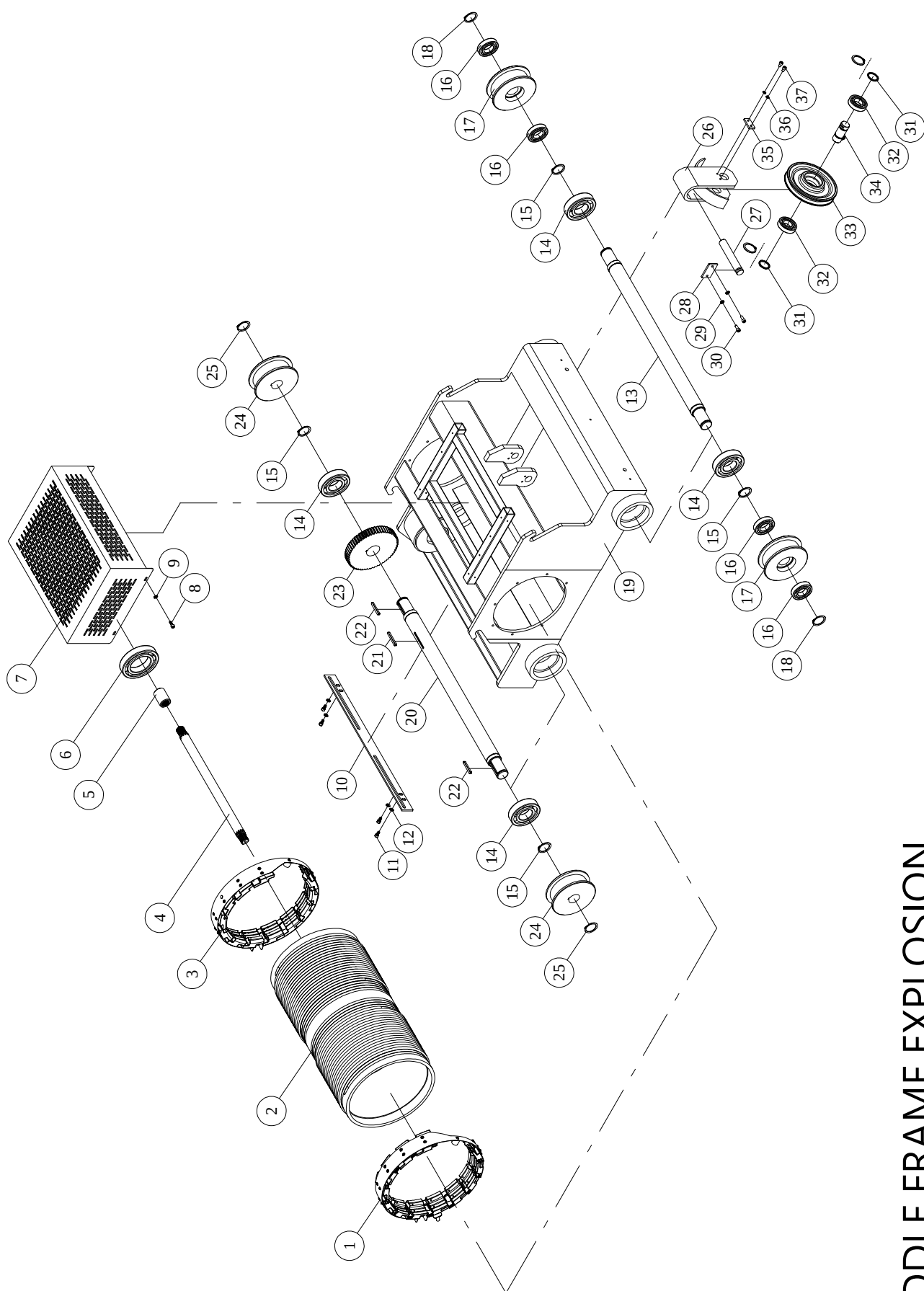
KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			TECH-800PM		TEC1H-1000PM		TEC2H-1250PM	
			9M	12M	9M	12M	9M	12M
1	211013	Wire rope guide<Left Thread>	1	1	1	1		
	211015						1	1
2	271791	Drum	1		1			
	271792			1		1		
	271793						1	
	271794							1
3	211014	Wire rope guide<Right Thread >	1	1	1	1		
	211016						1	1
4	271836	Drum Shaft	1		1			
	209391			1		1	1	
	228864							1
5	271837	Coupling<Ø52 × 72 M2.0 × 17T>	1	1	1	1	1	1
6	407814	Bearing<6220 ZZ>	1	1	1	1	1	1
7	202746	Wire Rope Guide Baffle	1		1			
	202747			1		1	1	
	202748							1
8	400095	Spring Washer< M8>	24	24	24	24	24	24
9	400012	Hex. Recess Bolt<M8 × 1.25 × 20>	16	16	16	16	16	16
10	202072	Nut<1 3/4" × 5UNC>	4	4	4	4	4	4
11	400104	Spring Washer<1 3/4">	4	4	4	4	4	4
12	271988	Bracket (Idler)	2	2	2	2	2	2
13	400073	Nut<1 1/2" × 6UNC>	8	8	8	8	8	8
14	271949	Guide Wheel Frame B	2	2	2	2	2	2
15	228728	Idler Frame Ass'y	1					
	228856			1				
	228715				1			
	228736					1	1	
	228858							1
16	271991	Guide Wheel Frame A	2	2	2	2	2	2
17	400727	Bearing<6011 Z>	8	8				
	400821	Bearing<6211 Z>			8	8	8	8

HOIST FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			TECH-800PM		TEC1H-1000PM		TEC2H-1250PM	
			9M	12M	9M	12M	9M	12M
18	243922	Idler Wheel <Ø140 × 60>	2	2				
	271965	Idler Wheel <Ø160 × 60>			2	2	2	2
19	400909	Retaining Ring<S-55>	4	4	4	4	4	4
20	408306	Support Shaft <1 3/4" × 5UNC × 680>	2	2	2	2	2	2
21	271994	Sleeve <Ø69 × Ø47 × 50>	10	10	10	10	10	10
22	271995	Sleeve B <Ø69 × Ø47 × 86>	2	2	2	2	2	2
23	400918	Retaining Ring <S-80>	2	2	2	2	2	2
24	271958	Equalizer Support Ass'y	4	4	4	4	4	4
25	408617	Hex. Recess Bolt <M10 × 1.5 × 130>	2	2	2	2	2	2
26	400865	Flat Washer <M10>	8	8	8	8	8	8
27	271992	Stay Bolt <1 1/2" × 6UNC × 650>	2	2	2	2	2	2
28	404181	Retaining Ring <R-35>	4	4	4	4	4	4
29	271318	Support Wheel	4	4	4	4	4	4
30	405635	Bearing <6003 ZZ>	4	4	4	4	4	4
31	404184	Retaining Ring <S-17>	4	4	4	4	4	4
32	408656	Heavy Load Spring TH25-50	2	2	2	2	2	2
33	400089	Lock Nut<M10 × 1.5>	2	2	2	2	2	2
34	400424	Hex. Recess Bolt<M8 × 1.25 × 16>	8	8	8	8	8	8
35	243923	Drive Wheel Cover <Ø130 × 12>	2	2				
	271964	Drive Wheel Cover <Ø140 × 12>			2	2	2	2
36	243921	Drive Wheel <Ø140 × 60>	2	2				
	271963	Drive Wheel <Ø160 × 60>			2	2	2	2
37	228726	Drive Frame Ass'y	1					
	228854			1				
	228713				1			
	228738					1	1	
	228860							1
38	104196	Traversing Motor Ass'y<0.6kW i=83.2>	2	2				
	104191	Traversing Motor Ass'y<0.6kW i=98.7>			2	2	2	2
39	271989	Bracket (Drive)	2	2	2	2	2	2

HOIST FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			TECH-800PM		TEC1H-1000PM		TEC2H-1250PM	
			9M	12M	9M	12M	9M	12M
40	269913	Sleeve<Ø70×Ø47×1/4">	16	16	16	16	16	16
41	200822	Spacer Sleeve<Ø50.8×Ø40.5×18>	2	2	2	2	2	2
42	271024	Stay Bolt<1 1/2"×6UNC×560>	2	2	2	2	2	2
43	400204	Set Screw<M8×1.25×12>	8	8	8	8	8	8
44	263392	Spacer Ring<Ø60.5×Ø39 t15>	4	4	4	4	4	4
45	271998	Counter Weight Block <t19×180×700>	2	2	2	2	2	2
46	202012	Nut< 1 1/2"×6UNC>	2	2	2	2	2	2
47	271945	Link Equalizer	1	1	1	1		
	243949						1	1
48	243951	Washer <Ø60×Ø51 t3>	2	2	2	2	2	2
49	400788	Bearing<6010 Z>	2	2	2	2		
	400797	Bearing<6210 Z>					2	2
50	203383	Equalizer Sheave<Ø206×Ø80 t50>	1	1	1	1		
	243932	Equalizer Sheave<Ø270×Ø80 t50>					1	1
51	214940	Load cell <Ø50×128>	1	1	1	1	1	1
	301514	Load Monitor [TI-500E]	1	1	1	1	1	1
52	400446	Hex. Recess Bolt<M10×1.5×20L>	2	2	2	2	2	2
53	271948	Keeper<t9.0×30×50L>	1	1	1	1	1	1
54	400096	Spring Washer<M10>	2	2	2	2	2	2
55	208350	Load Axle<Ø35×165L>	1	1	1	1	1	1
56	200636	Keeper< t6.0×25×50L>	1	1	1	1	1	1
57	400095	Spring Washer<M8>	2	2	2	2	2	2
58	400012	Hex. Recess Bolt<M8×1.25×20L>	2	2	2	2	2	2



SADDLE FRAME EXPLOSION

SADDLE FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			SEAH-320PM			SEA1H-500PM		
			6M	9M	12M	6M	9M	12M
1	273604	Wire rope guide<Left Thread>	1	1	1			
	273632					1	1	1
2	270893	Drum	1					
	270894			1				
	270895				1			
	223864					1		
	223865						1	
	223866							1
3	273605	Wire rope guide<Right Thread >	1	1	1			
	273633					1	1	1
4	270890	Drum Shaft<Ø25 × 110L>	1					
	270891	Drum Shaft<Ø25 × 240L>		1				
	270892	Drum Shaft<Ø25 × 370L>			1			
	223267	Drum Shaft<Ø25 × 190L>				1		
	223268	Drum Shaft<Ø25 × 340L>					1	
	223269	Drum Shaft<Ø25 × 490L>						1
5	223063	Coupling<Ø37 × 57 M1.5 × 15T>	1	1	1	1	1	1
6	400806	Bearing<6216 ZZ>	1	1	1	1	1	1
7	221682	Resistance protective Ass'y	1	1	1	1	1	1
8	400005	Hex. Recess Bolt<M6 × 1 × 12L>	4	4	4	4	4	4
9	400094	Spring Washer< M6>	4	4	4	4	4	4
10	202302	Wire Rope Guide Baffle	1					
	202303			1				
	202304				1			
	202305					1		
	202306						1	
	202307							1
11	400012	Hex. Recess Bolt<M8 × 1.25 × 20L>	4	4	4	4	4	4
12	400095	Spring Washer<M8>	4	4	4	4	4	4
13	205127	Idler Wheel Axle	1					
	262326			1		1		
	228882				1		1	
	269046							1
14	407822	Bearing<6311 ZZ>	4	4	4	4	4	
	407871	Bearing<6211 ZZ>						4

SADDLE FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT					
			SEAH-320PM			SEA1H-500PM		
			6M	9M	12M	6M	9M	12M
15	400909	Retaining Ring<S-55>	4	4	4	4	4	4
16	407831	Bearing<6208 Z>	4	4	4	4	4	4
17	205167	Idler Wheel <12KG Ø178×65L>	2	2	2	2	2	2
18	400195	Retaining Ring<S-40>	2	2	2	2	2	2
19	215045	Hoist Frame	1					
	215046			1				
	215047				1			
	215048					1		
	215049						1	
	215050							1
20	205087	Drive Wheel Axle	1					
	262322			1		1		
	228881				1		1	
	269043							1
21	405904	Key< 8×8×85L>	1	1	1	1	1	1
22	400969	Key< 8×8×60L>	2	2	2	2	2	2
23	205186	Trolley Drive Gear<M3.5×58T×45L>	1	1	1	1	1	1
24	205067	Drive Wheel<12KG Ø178×65L>	2	2	2	2	2	2
25	400196	Retaining Ring<S-45>	2	2	2	2	2	2
26	228692	Link Equalizer	1	1	1			
	271913					1	1	1
27	205470	Load Axle<Ø28×165L>	1	1	1	1	1	1
28	200636	Keeper<t6×25×50L>	1	1	1	1	1	1
29	400095	Spring Washer< M8>	2	2	2	2	2	2
30	400013	Hex. Recess Bolt<M8×1.25×25L>	2	2	2	2	2	2
31	228695	Spacer Washer<Ø50.8×Ø40.5×t8>	2	2	2			
	400196	Retaining Ring<S-45>				2	2	2
32	407831	Bearing<6208 Z>	-	-	-	2	2	2
33	228696	Equalizer Sheave<Ø148×Ø40×40L>	1	1	1			
	207811	Equalizer Sheave<Ø206×Ø60×50L>				1	1	1
34	214939	Load cell<Ø40×123L >	1	1	1	1	1	1
	301514	Load Monitor [TI-500E]	1	1	1	1	1	1
35	271916	Keeper<t5×22×60L>	1	1	1	1	1	1
36	400095	Spring Washer<M8>	2	2	2	2	2	2
37	405011	Hex. Recess Bolt<M8×1.25×15L>	2	2	2	2	2	2

SADDLE FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			SEBH-500PM		SEB1H-630PM	
			9M	12M	9M	12M
1	273629	Wire rope guide<Left Thread>	1	1	1	1
2	271855	Drum	1		1	
	271857			1		1
3	273625	Wire rope guide<Right Thread >	1	1	1	1
4	263164	Drum Shaft<Ø35 × 197L>	1		1	
	271827	Drum Shaft<Ø35 × 317L>		1		1
5	271927	Coupling <Ø44 × 62 M2.0 × 13T>	1	1	1	1
6	405686	Bearing<6217 ZZ>	1	1	1	1
7	221682	Resistance protective Ass'y	1	1	1	1
8	400005	Hex. Recess Bolt<M6 × 1 × 12L>	4	4	4	4
9	400094	Spring Washer<M6>	4	4	4	4
10	228370	Wire Rope Guide Baffle	1		1	
	243906			1		1
11	400012	Hex. Recess Bolt<M8 × 1.25 × 20L>	4	4	4	4
12	400095	Spring Washer<M8>	4	4	4	4
13	228750	Idler Wheel Axle	1		1	
	228882			1		1
14	407822	Bearing<6311 ZZ>	4	4	4	4
15	400909	Retaining Ring<S-55>	4	4	4	4
16	407831	Bearing<6208 Z>	4	4	4	4
17	205167	Idler Wheel <12KG Ø178 × 65L>	2	2	2	2
18	400195	Retaining Ring<S-40>	2	2	2	2
19	228461	Hoist Frame	1		1	
	228462			1		1
20	228749	Drive Wheel Axle	1		1	
	228881			1		1
21	405904	Key <8 × 8 × 85L>	1	1	1	1
22	400969	Key <8 × 8 × 60L>	2	2	2	2
23	205186	Trolley Drive Gear<M3.5 × 58T × 45L>	1	1	1	1
24	205067	Drive Wheel<Ø178 × 65L>	2	2	2	2
25	400196	Retaining Ring<S-45>	2	2	2	2

SADDLE FRAME ASSEMBLY

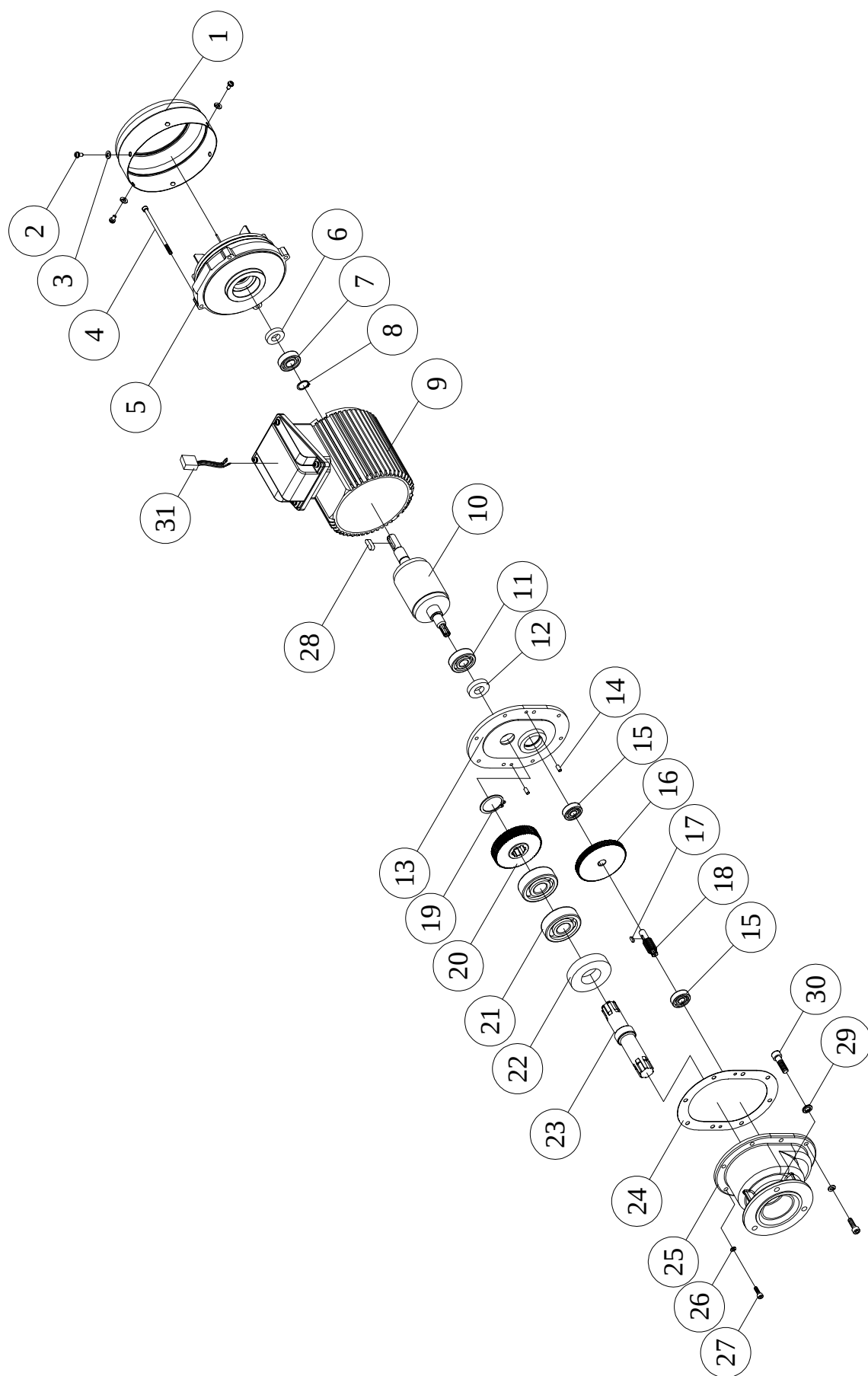
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SADDLE FRAME ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			SECH-800PM		SEC1H-1000PM		SEC2H-1250PM	
			9M	12M	9M	12M	9M	12M
1	273630	Wire rope guide<Left Thread>	1	1	1	1		
	273631						1	1
2	271789	Drum	1					
	271790			1				
	271791				1			
	271792					1		
	271793						1	
	271794							1
3	273626	Wire rope guide<Right Thread >	1	1	1	1		
	273627						1	1
4	271836	Drum Shaft<Ø40 × 176L>	1		1			
	209391	Drum Shaft<Ø40 × 296L>		1		1	1	
	228864	Drum Shaft<Ø40 × 436L>						1
5	271837	Coupling<Ø52 × 72 M2.0 × 17T>	1	1	1	1	1	1
6	407814	Bearing<6220 ZZ>	1	1	1	1	1	1
7	221683	Resistance Protective Ass'y	1	1	1	1	1	1
8	400005	Hex. Recess Bolt<M6 × 1 × 12L>	4	4	4	4	4	4
9	400094	Spring Washer< M6>	4	4	4	4	4	4
10	271977	Wire Rope Guide Baffle	1		1			
	243946			1		1	1	
	228865							1
11	400012	Hex. Recess Bolt<M8 × 1.25 × 20L>	4	4	4	4	4	4
12	400095	Spring Washer<M8>	4	4	4	4	4	4
13	228760	Idler Wheel Axle	1		1			
	205148			1		1	1	
	205158							1
14	407832	Bearing<6213 Z>	8	8	8	8	8	8
15	400913	Retaining Ring<S-65>	4	4	4	4	4	4
16	407810	Bearing<6211 Z>	4	4	4	4	4	4
17	205179	Idler Wheel<22KG Ø225 × 90L>	2	2	2	2	2	2
18	400909	Retaining Ring<S-55>	2	2	2	2	2	2

SADDLE FRAME ASSEMBLY

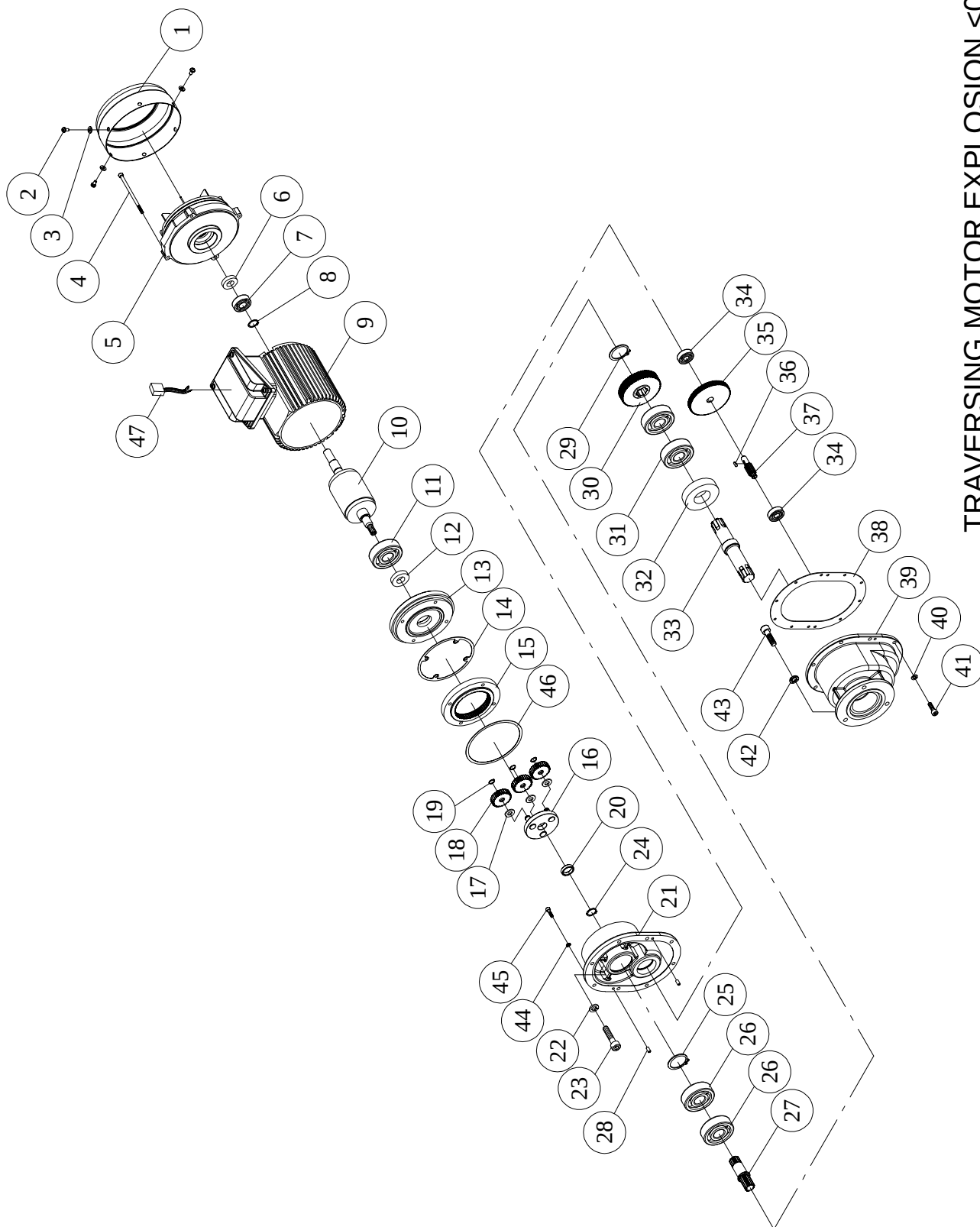
KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT					
			SECH-800PM		SEC1H-1000PM		SEC2H-1250PM	
			9M	12M	9M	12M	9M	12M
19	228746	Hoist Frame	1		1			
	228761			1		1	1	
	228431							1
20	228759	Drive Wheel Axle	1		1			
	205108			1		1	1	
	205118							1
21	400982	Key<10×10×60L>	1	1	1	1	1	1
22	400982	Key<10×10×60L>	2	2	2	2	2	2
23	205184	Trolley Drive Gear<M3.5×65T×45L>	1	1	1	1	1	1
24	205079	Drive Wheel <Ø225×90L>	2	2	2	2	2	2
25	400909	Retaining Ring<S-55>	2	2	2	2	2	2
26	271945	Link Equalizer	1	1	1	1		
	243949						1	1
27	208350	Load Axle<Ø35×165L>	1	1	1	1	1	1
28	200636	Keeper<t6×25×50L>	1	1	1	1	1	1
29	400095	Spring Washer<M8>	2	2	2	2	2	2
30	400013	Hex. Recess Bolt<M8×1.25×25L>	2	2	2	2	2	2
31	243951	Washer<t3×Ø60×Ø51>	2	2	2	2	2	2
32	400788	Bearing<6010 Z>	2	2	2	2	2	2
	400797	Bearing<6012Z>					2	2
33	271947	Equalizer Sheave<Ø206×Ø80×50L>	1	1	1	1		
	243932	Equalizer Sheave<Ø270×Ø80×50L>					1	1
34	214940	Load cell <Ø50×128>	1	1	1	1	1	1
	301514	Load Monitor [TI-500E]	1	1	1	1	1	1
35	271948	Keeper<t9×30×50L>	1	1	1	1	1	1
36	400096	Spring Washer<M10>	2	2	2	2	2	2
37	400446	Hex. Recess Bolt<M10×1.5×20L>	2	2	2	2	2	2



TRAVERSING MOTOR EXPLOSION <0.37/0.6KW>

TRAVERSING MOTOR ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT	
			0.37kW	0.6kW
			i=54.5	i=69
1	108098	Brake End Cover	1	1
2	400620	Cross Headed Screw<M5 × 0.8 × 8L>	4	4
3	400093	Spring Washer<M5>	4	4
4	408636	Hex. Bolt<M5 × 0.8 × 160>	4	4
5	108096	Brake Ass'y (SBV-YSO71)	1	1
6	400932	Oil Seal<Ø15 × Ø30 × 7t>	1	1
7	400111	Bearing<6202 ZZ >	1	1
8	404184	Retaining Ring<S-17>	1	1
9	106480	Motor Stator Ass'y	1	
	108089			1
10	108714	Motor Rotor<Ø64.4 × 70 × 220>	1	
	101558	Motor Rotor<Ø64.3 × 80 × 220>		1
11	400732	Bearing<6203 ZZ >	1	1
12	404413	Oil Seal<Ø17 × Ø35 × 8t>	1	1
13	108648	Flange	1	1
14	400212	Spring Pin<Ø5 × 16L>	2	2
15	405570	Bearing<6200 ZZ >	2	2
16	265946	2nd Gear<M0.8 × 100T>	1	1
17	405985	Key<4 × 4 × 12>	1	1
18	228681	3rd Gear<M1.25 × 11T>	1	
	265947	3rd Gear<M1.25 × 9T>		1
19	400192	Retaining Ring<S-25>	1	1
20	228682	4th Gear<M1.25 × 60T>	1	
	265948	4th Gear<M1.25 × 62T>		1
21	407807	Bearing<6205 ZZ >	2	2
22	404493	Oil Seal<Ø52 × Ø32 × 11t >	1	1
23	265949	Drive Shaft With Pinion	1	1
24	402672	Gearbox Gasket	1	1
25	269670	Gearbox	1	1
26	400094	Spring Washer<M6>	8	8
27	400007	Hex. Recess Bolt< M6 × 1.0 × 20>	8	8
28	400947	Key<5 × 5 × 25>	1	1
29	400095	Spring Washer<M8>	3	3
30	406819	Hex. Bolt< M8 × 1.25 × 20>	3	3
31	300152	Rectifier	1	1



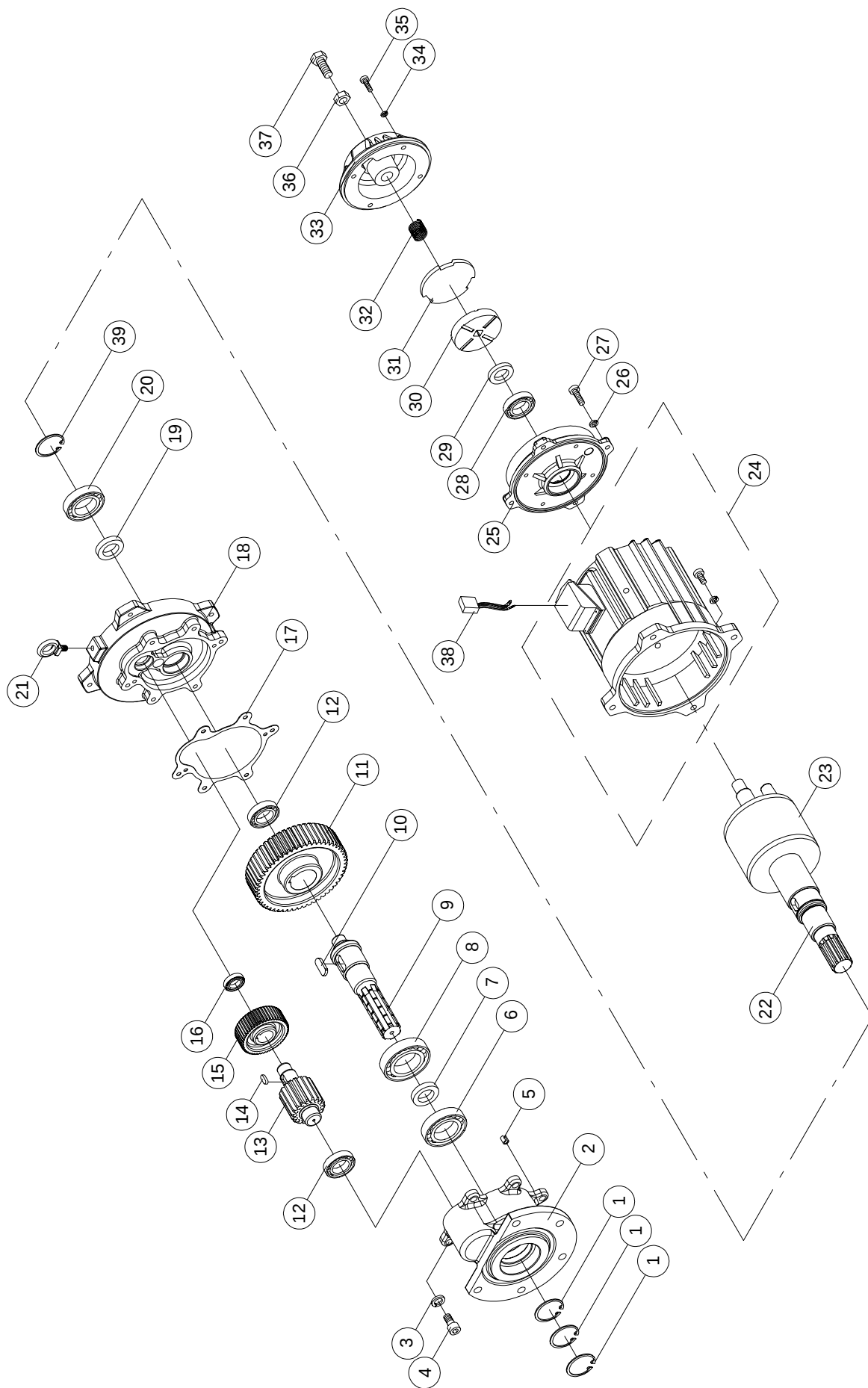
TRAVERSING MOTOR EXPLOSION <0.6kW>

TRAVERSING MOTOR ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			0.6kW	
			i =83.2	i =98.7
1	108098	Brake End Cover	1	1
2	400620	Cross Headed Screw< M5 × 0.8 × 8L>	4	4
3	400093	Spring Washer<M5>	4	4
4	408636	Hex. Bolt<M5 × 0.8 × 160>	4	4
5	108096	Brake Ass'y (SBV-YS-071A)	1	1
6	404413	Oil Seal<Ø17 × Ø35 × 8t>	1	1
7	400732	Bearing<6203 ZZ >	1	1
8	404184	Retaining Ring<S-17>	1	1
9	108089	Motor Stator Ass'y	1	1
10	108713	Motor Rotor< Ø125 × Ø65 × 80>	1	1
11	400130	Bearing<6204 Z >	1	1
12	400186	Oil Seal< Ø20 × Ø35 × 8t>	1	1
13	108649	Flange	1	1
14	402704	Gasket A	1	1
15	228635	Internal Ring Gear< M1 × 72T>	1	1
16	200391	Reducing Gear Frame Ass'y	1	1
17	400669	Flat Washer< Ø21 × Ø11 × 2t>	3	3
18	228634	Planetary Gear<M1 × 27T>	3	3
19	400188	Retaining Ring<S-10>	3	3
20	200347	Axle Sleeve<Ø25 × Ø20 × 6t>	1	1
21	271839	Gearbox B	1	1
22	400094	Spring Washer<M6>	4	4
23	400010	Hex. Recess Bolt< M6x1.0x55>	4	4
24	400191	Retaining Ring<S-20>	1	1
25	400198	Retaining Ring<R-47>	1	1
26	400695	Bearing<6204 Z >	2	2
27	228685	Pinion For Motor Shaft<M1.25 × 15T>	1	
	228636	Pinion For Motor Shaft<M1.25 × 13T>		1
28	400212	Spring Pin< Ø5 × 16L>	2	2
29	400192	Retaining Ring<S-25>	1	1

TRAVERSING MOTOR ASSEMBLY

[illegible]



Reduction Motor Drawings <0.4;0.75kW>

TRAVERSING MOTOR ASSEMBLY

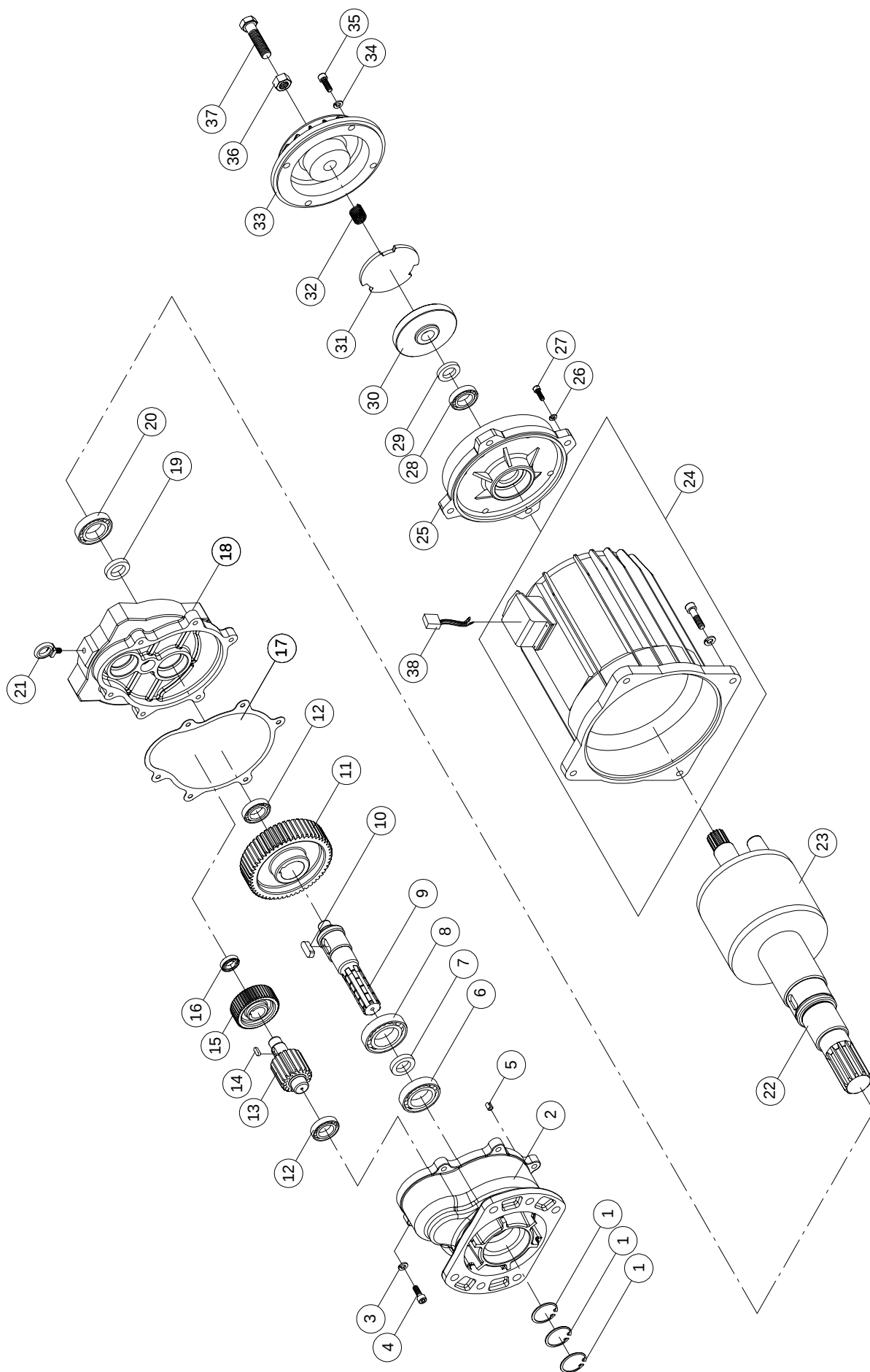
KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			0.4kW	0.75kW
			1/15	
1	400193	Retaining Ring<S-30>	3	
2	268091C	Gear Case Cover A	1	
3	400095	Spring Washer<M8>	6	
4	400013	Hex. Recess Bolt<M8 × 1.25 × 25L>	6	
5	400224	Spring Pin<ø8 × 10L>	2	
6	400817	Bearing< 6206 Z>	1	
7	400177	Oil Seal<ø35 × ø55 × 11t>	1	
8	407758	Bearing<6207>	1	
9	216777	Drum Shaft	1	
10	405908	Key<12 × 8 × 30L>	1	
11	216776	Drum Gear (4th Gear)<M2 × 60T>	1	
12	407734	Bearing< 6204>	2	
13	216775	Load Brake Gear Shaft (3rd Gear)<M2 × 12T>	1	
14	400963	Key<6 × 6 × 15L>	1	
15	216774	Load Brake Gear (2nd Gear)<M1.25 × 36T>	1	
16	400125	Bearing< 6003>	1	
17	402654	Gasket	1	
18	268178C	Gear Case Cover B	1	
19	400183	Oil Seal<ø25 × ø40 × 8t>	1	
20	400815	Bearing<6205 2RS>	1	
21	400217	Eye Bolt<M8 × 1.25>	1	
22	106379	Motor Shaft	1	
	100544			1
23	100527	Motor Rotor	1	
	100543			1
24	A	Motor Stator Ass'y	1	
	B			1
25	100589C	Motor End Cover	1	
26	400094	Spring Washer<M6>	4	
27	400008	Hex. Recess Bolt<M6 × 1.0 × 25L>	4	

TRAVERSING MOTOR ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			0.4kW	0.75kW
			1/15	
28	407702	Bearing <6303 2RS>	1	
29	400181	Oil Seal <ø17 × ø28 × 6t>	1	
30	100806	Brake Lining	1	
31	100808	Brake Plate	1	
32	400314	Brake Spring	1	
33	100509C	Brake Drum Ass'y	1	
34	400094	Spring Washer<M6>	4	
35	400008	Hex. Recess Bolt<M6 × 1.0 × 25L>	4	
36	400085	Nut<M16 × 1.5>	1	
37	400468	Hex. Bolt<M16 × 1.5 × 50L>	1	
38	300152	Rectifier	1	
39	400193	Retaining Ring<S-30>	1	

Motor Stator Ass'y

NO.	PARTS CODE		DESCRIPTION	Q'TY REQ'D EACH UNIT
24	A	107661C	Motor Stator Ass'y <0.4kW 4/12P>	60HZ 220V
		107400C		50HZ 380V
	B	107773C	Motor Stator Ass'y <0.75kW 4/12P>	60HZ 220V
		106924C		50HZ 380V



Reduction Motor Explosion <1.1kW>

TRAVERSING MOTOR ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT
			1.1kW 4/12P
			1/20
1	400195	Retaining Ring<S-40>	3
2	219994C	Gear Case Cover A	1
3	400095	Spring Washer<M8>	6
4	400017	Hex. Recess Bolt<M8 × 1.25 × 35L>	6
5	400224	Spring Pin<Ø8 × 10L>	2
6	407857	Bearing<6208 ZZ>	1
7	400938	Oil Seal<Ø40 × Ø62 × 12t>	1
8	407759	Bearing<6208>	1
9	216778	Drum Shaft (4th Gear)	1
10	405942	Key<12 × 8 × 35L>	2
11	216783	Drum Gear (4th Gear)<M2.5 × 60T>	1
12	407807	Bearing< 6205 ZZ>	2
13	216782	Load Brake Gear Shaft (3rd Gear)<M2.5 × 12T>	1
14	405939	Key<8 × 7 × 25L>	1
15	216781	Load Brake Gear (2nd Gear)<M1.5 × 48T>	1
16	407843	Bearing< 6204 ZZ>	1
17	402656	Gasket	1
18	219995C	Gear Case B	1
19	400934	Oil Seal<Ø30 × Ø50 × 8t>	1
20	400151	Bearing<6306 2RU>	1
21	400217	Eye Bolt<M8 × 1.25>	1
22	100823	Motor Shaft	1
23	100819	Motor Rotor	1
24	C	Motor Stator Ass'y	1
25	100593C	Motor End Cover	1
26	400094	Spring Washer<M6>	4
27	400008	Hex. Recess Bolt<M6 × 1.0 × 25L>	4

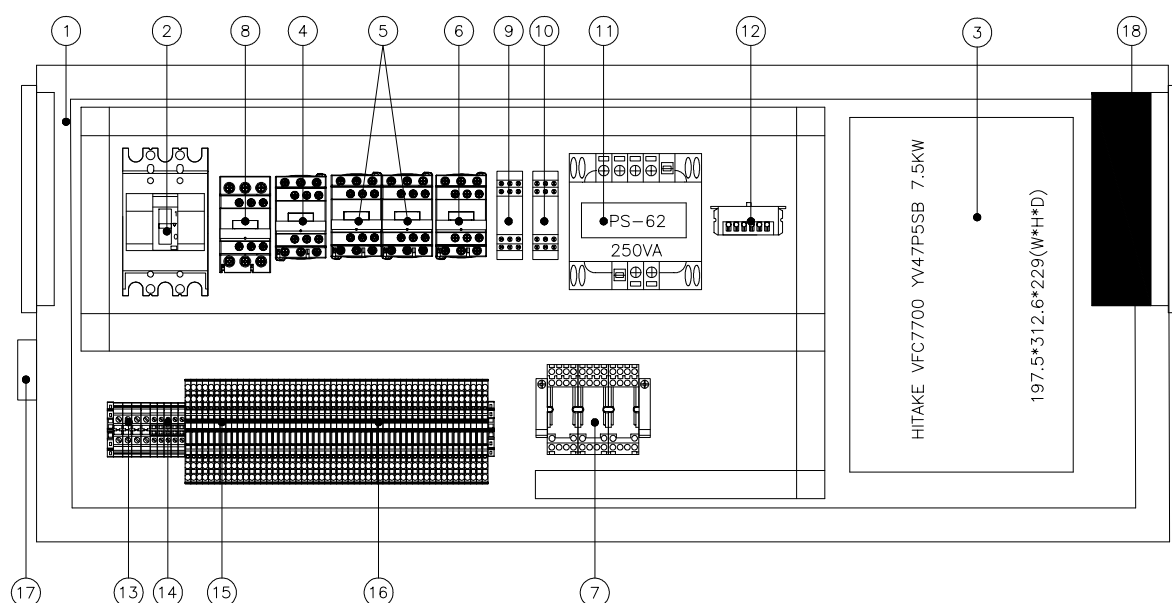
TRAVERSING MOTOR ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT
			1.1kW 4/12P
			1/20
28	407703	Bearing<6305 2RS>	1
29	400943	Oil Seal<Ø25 × Ø35 × 5t>	1
30	100756	Brake Lining	1
31	100459	Brake Plate	1
32	400314	Spring	1
33	100505C	Brake Drum Ass'y	1
34	400095	Spring Washer<M8>	4
35	400014	Hex. Recess Bolt<M8 × 1.25 × 30L>	4
36	400085	Nut<M16>	1
37	400468	Hex. Bolt<M16 × 1.5 × 50L>	1
38	300152	Rectifier	1

Motor Stator Ass'y

KEY NO	PARTS CODE		DESCRIPTION	Ø - Hz- V
24	C	101072C	Motor Stator Ass'y<1.1kW - 4/12P>	3Ø 60Hz 220V
		101073C		3Ø 50Hz 380V

ELECTRIC ASSEMBLY



ELECTRIC ASSEMBLY

KEY NO	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT
1		Control Box	1
2	301329	No Fuse Breaker	1
3	302370	Inverter Hitake VFC7700	1
4	301103	Contactor LC1-D09-F7	1
5	301108	Contactor LC1-D12-F7	2
6	300037	Contactor LC1-D128-F7	1
7	300443	Relay RXM4AB2F7 120V	3
8	301116	Contactor LC1-D25-F7	1
9	302319	Phase Sequence Protector RM22-TG20	1
10		Timer RE22R1CMR AC220V	1
11	301076	Transformer PS-62 [250VA]+FUSE	1
12	300593	Rectifier BEG-561-255-030	1
13	302354	Terminal Blocks UT 6	3
	302355	Terminal Blocks UT 6-PE	1
14	302348	Terminal Blocks PT 2,5	5
15	302342	Terminal Blocks PT 2,5	8
16	302342	Terminal Blocks PT 2,5	43
	302343	Terminal Blocks PT 2,5	1
17	302318	Counter	1
18	302284	Fan 6"	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 ◦

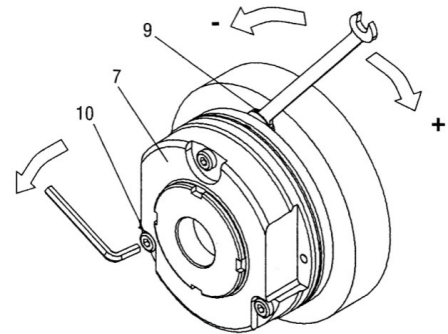


FIG-1

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

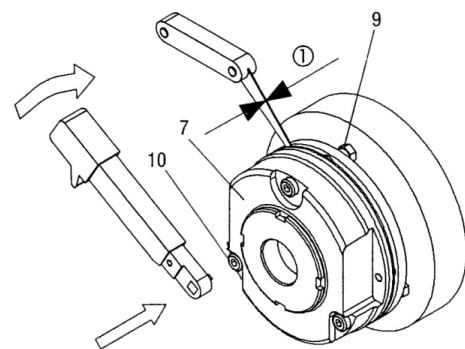


FIG-2

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.

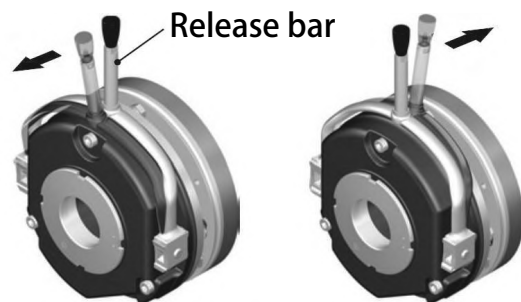


FIG-3

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

Supply voltage selection table

AC voltage	50/60Hz 220V	50/60Hz 380V 50/60Hz 400V	50/60Hz 415V 50/60Hz 440V	50/60Hz 230V 50/60Hz 460V
Coil rated voltage				
5kW - BFK-459-14	DC103V	DC180V	DC103V	DC103V
6.5kW - BFK-459-16	DC103V	DC180V	DC103V	DC103V
9kW - BFK-468-18	DC205V	DC360V	DC205V	DC205V
13/16/18.5kW - BFK-468-20	DC205V	DC360V	DC205V	DC205V

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

