



## Motorized Trolley Operation Manual & Parts List

Series:

☐ MTS-100

☐ MTS-200

☐ MTS-300

☐ MTS-500

☐ MTS-750

☐ MTS-1000

☐ MTD-100

☐ MTD-200

☐ MTD-300

☐ MTD-500

☐ MTD-750

☐ MTD-1000

☐ MTF-100

☐ MTF-200

☐ MTF-300



**CHENG DAY** MACHINERY WORKS CO., LTD.

# SAFETY-IMPORTANT

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

That risk is greatly increased if proper instructions and warnings are not followed.

Before using this hoist, each user should become thoroughly familiar with all warnings, instructions and recommendations herein.



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



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## I. FOREWORD

This manual contains important information to help you properly install, operate and maintain the Black Bear motor driven trolley for maximum performance, economy and safety.

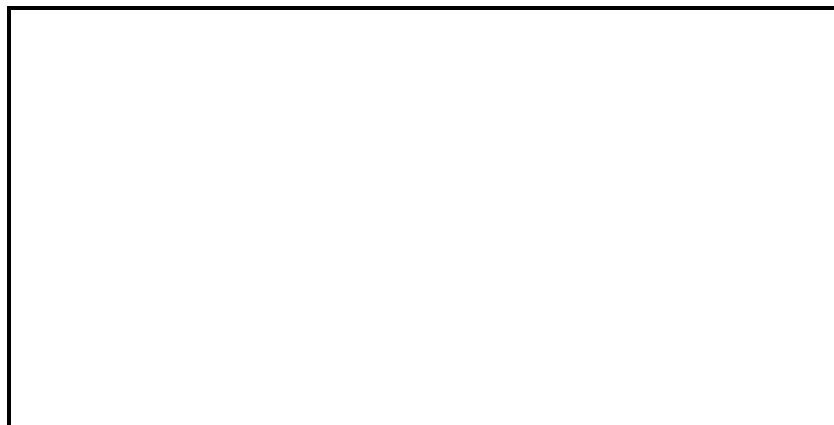
Please study its contents thoroughly before putting the trolley into operation. By practicing correct operation procedures and by carrying out the recommended preventative maintenance suggestions, you will be assured of dependable service.

In order to help us to supply correct spare parts quickly, please always specify:

1).Trolley Model, 2). Serial Number and 3). Part Number, as well as the description.

We trust that you will find this "Black Bear" trolley satisfies your requirements.

Should you have any queries, please contact:



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

## II. OPERATING AND SAFETY PROCEDURES

The following are operating and safety procedures for safe operation of the Black Bear motor driven trolley. Taking precedence over and specific rules listed here, however is the most importance rule of all. A few minutes spent reading these rules can make an operator aware of dangerous practices to avoid and precautions to take for his own safety and others.

1. Immediately after installation, operate trolley with safe working load over the entire length of runway or monorail system to be sure that all adjustments and operations are satisfactory.
2. Rail stops must be installed for all trolleys operating on open end beams. These stops must be positioned such that impact forces are absorbed by trolley side frames only.
3. When preparing to lift a load, be sure that the attachments to the hook are firmly seated in hook saddle. Avoid off center loading on the point of hook.
4. When lifting, raise the load only enough to clear the floor or support and check to be sure that the attachments to hook and load are firmly seated. Continue lift only after you are assured the load is free of all obstructions.
5. When applying a load, it should be directly under the trolley. Avoid off center loading of any kind.
6. Take up a slack load chain carefully and start lifting load slowly to avoid shock and jerking of hoist load chain. If there is any evidence of overloading, immediately lower the load and remove the excess load.
7. Do not allow the load to swing or twist while hoisting.
8. Anticipate the stopping point and allow trolley to coast to smooth stop. Reversing or plugging to stop trolley causes overheating of motor and swaying of load.
9. Do not load trolley beyond the rated capacity. Overload can cause immediate failure of load carrying parts of cause damage resulting in future failure at less than rated capacity.
10. Do not use this or any other overhead materials handling equipment for lifting or transporting people.
11. Stand clear of all loads and avoid moving a load over the heads of other people. Warn people of your intention to move a load in their area.
12. Do not leave the load suspended in the air unattached.

13. Do not wrap the load chain around the load and hook into itself as a choker chain.

Doing this will result in the follow:

(a) Operation of the upper limit switch is bypassed and the load could hit the hoist.

(b) The loss of the swivel effect of the hook which could mean twisted chain and a jammed lift wheel.

(c) The chain could be damaged at the hook.

14. Permit only qualified personnel to operate the unit.

### III. GENERAL INFORMATION

The Black Bear motorized trolleys are designed for use with the Black Bear Electric Chain Hoists. The trolleys are available in the following capacities: 1-Ton, 2-Ton, 3-Ton, 5-Ton, 7.5-Ton, and 10-Ton. These trolleys are similar except for the size of the load carrying members.

The trolleys have rugged steel side plates with anti-drop fins, steel wheel axles, steel suspension bolts, construction steel load plate seated in middle of two suspension bolts for top hook of hoist to hook on. The hot forged travelling wheels machine to suit both I-beam and flat beam. Hardened steel gears are attached to two track wheels and driven by a hardened steel pinion. The pinion is driven by planetary gear reducer in high quality grease. A weather proof motor drive the gear reducer.

The electric housing contains a reversing contactor and a terminal boards. The transformer will be an option depending on the user's need. The 3-phase motor is always equipped with a magnetic brake over the end of driven motor. Above the housing bottom, there three holes, one for cord from hoist, another for control cord from hoist, the third one for trolley motor cord, it will serve as an option for equipped with the Push-Bottom-Station cord for the trolley. In addition, there are two option holes on each side of the housing, motor power cord on the right, and an optional hole for the power cord to trolley on the left. All five holes are equipped with cable gland for IP-54 protection optionally. Please refer to Illust.4 on page 12.

## IV. INSTALLATION

### 1.UNPACKING INFORMATION

After removing the trolley from the shipping carton/crate, carefully inspect the external condition of the cord, electric housing, gear reducer, motor and brake (3-phase model) for damage that may have occurred during shipment and handling. Check to make sure all parts are furnished. i.e. trolley side frame with electric housing, side frame with reducing gear motor, position tube, spacer washer, stay-bolts, nuts and load plate for hoist top hook. Also, before attempting to install the trolley, make sure that the power supply indicated on the labels attached to the motor housing is the same as the power supply on which the unit is to operate.

Generally, the hoist and trolley are packed separately. Except when the order indicates the requirement of 4-way control for the hoist with trolley (YSS series), then the hoist will be packed with trolley together in one wooden crate.

### **WARNING**

For all trolley suspended hoist rail stops must be installed at each end of the rail. Failure to install rail stops will allow the hoist and trolley to fall off the end of the rail and thus cause an accident that may result in injury and/or property damage. The stops must be positioned as to not exert impact force on the hoist frame or trolley wheels. They must contact the ends of the trolley side frames.

### 2. TROLLEY TO BEAM

It is recommended that the trolley be mounted on the beam prior to attaching the hoist to the trolley. Before attempting to mount the trolley on the beam, measure the actual width of the beam flange on which the trolley is to operate. Using this measurement determine the arrangement of spacer washers between the two trolley side frames. First loosely assemble the side frames, position tubes, spacer washers and nuts on the stay bolts.

## **WARNING**

The trolley and beam should be inspected periodically to assure their continued operations. Operating a malfunctioning trolley and/or operation the trolley on a beam with an excessively worn flange may allow the trolley to fall from the beam causing an accident that may result in injury and/or property damage.

Due to the variations in beam flange widths, it is suggested that the beam flange width be measured to determine the exact distribution of spacer washers. The distance between track wheel flanges should be 3-5 mm greater than the beam flange width for straight runway beams, and 5-7 mm greater than the beam flange width if runway includes sharp curves.

Now install the trolley on the beam by sliding one side frame out far enough to allow the track wheels to clear beam flange. Lift the trolley up so that the track wheels are riding on the beam and draw the side frames together and tighten the nuts snugly.

### 3. HOIST TO TROLLEY

There are four different ways of assembling the hoist to trolley:

(a) Hoist to trolley with top hook

(Please refer to Illust.1)

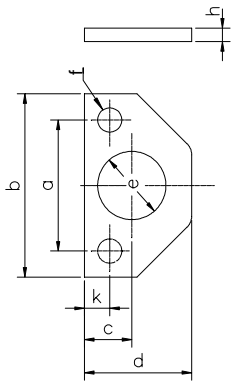
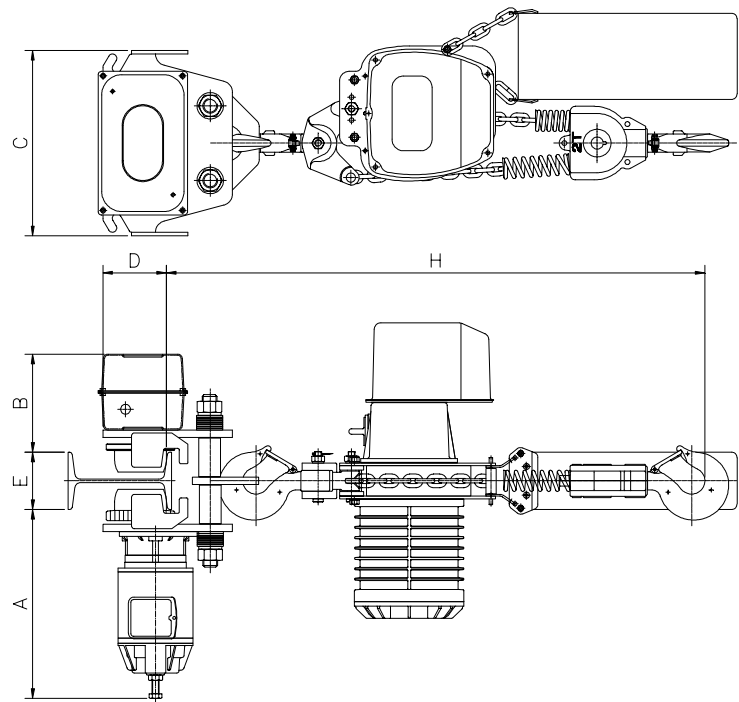
(b) Hoist to trolley with "E" type rigid hook

(Please refer to Illust.2)

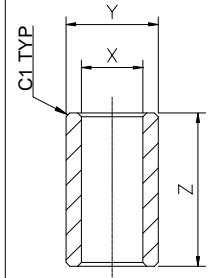
(c) Hoist to trolley with "A" type rigid hook

(Please refer to Illust.3)

HOIST TO TROLLEY WITH TOP HOOK



CAPACITY (TON)	a	b	c	d	e	f	h	k
1	125	175	45	102	φ65	φ23	13	24
2	130	180	55	115	φ65	φ27	13	30
3	150	230	58	120	φ74	φ34	16	36
5	170	260	60	135	φ74	φ40	19	45

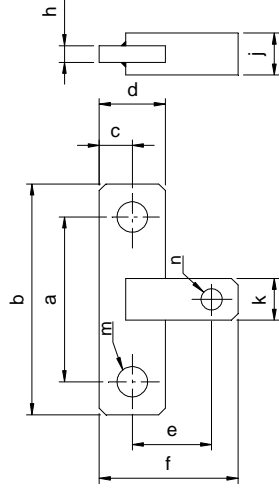
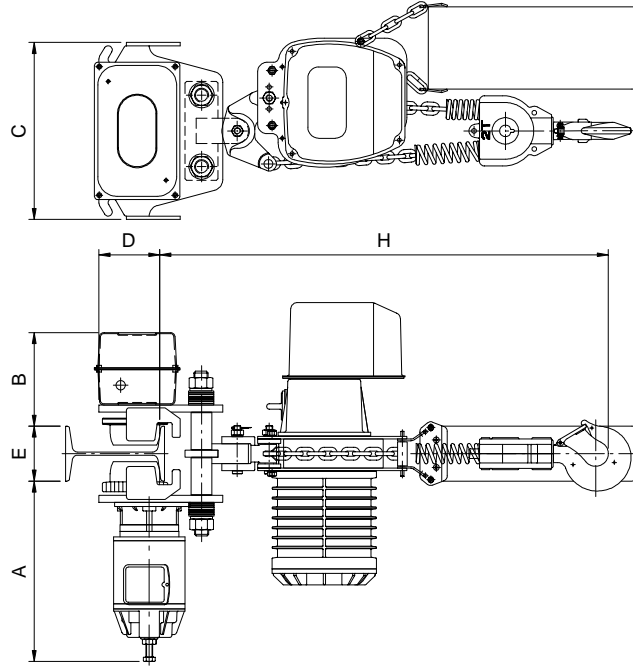


CAPACITY (TON)	X	Y	Z	QTY
1	φ24	φ34	56	4
2	φ28	φ38	69	4
3	φ40	φ50	83.5	4
5	φ40	φ50	83.5	4

S.W.L. T	HOIST	TROLLEY	BEAM E(mm)	TROLLEY (kW)	SPACER 1/8"t	TURNING RADIUS
1	YSL.H.E-100	MT-100	328 173	294 105	705	1.3M
2	YSL.H.E-200	MT-200	328 173	322 119	935	1.5M
3	YSL.H-300	MT-300	368 180	356 124	1030	1.8M
2	YSS-200	MT-200	328 173	322 119	995	1.5M
3	YSS-300	MT-300	368 180	356 124	1120	1.8M
5	YSS-500	MT-500	372 184	386 134	1200	2.0M

Illust.1

# HOIST TO TROLLEY WITH TYPE "E" RIGID HOOK

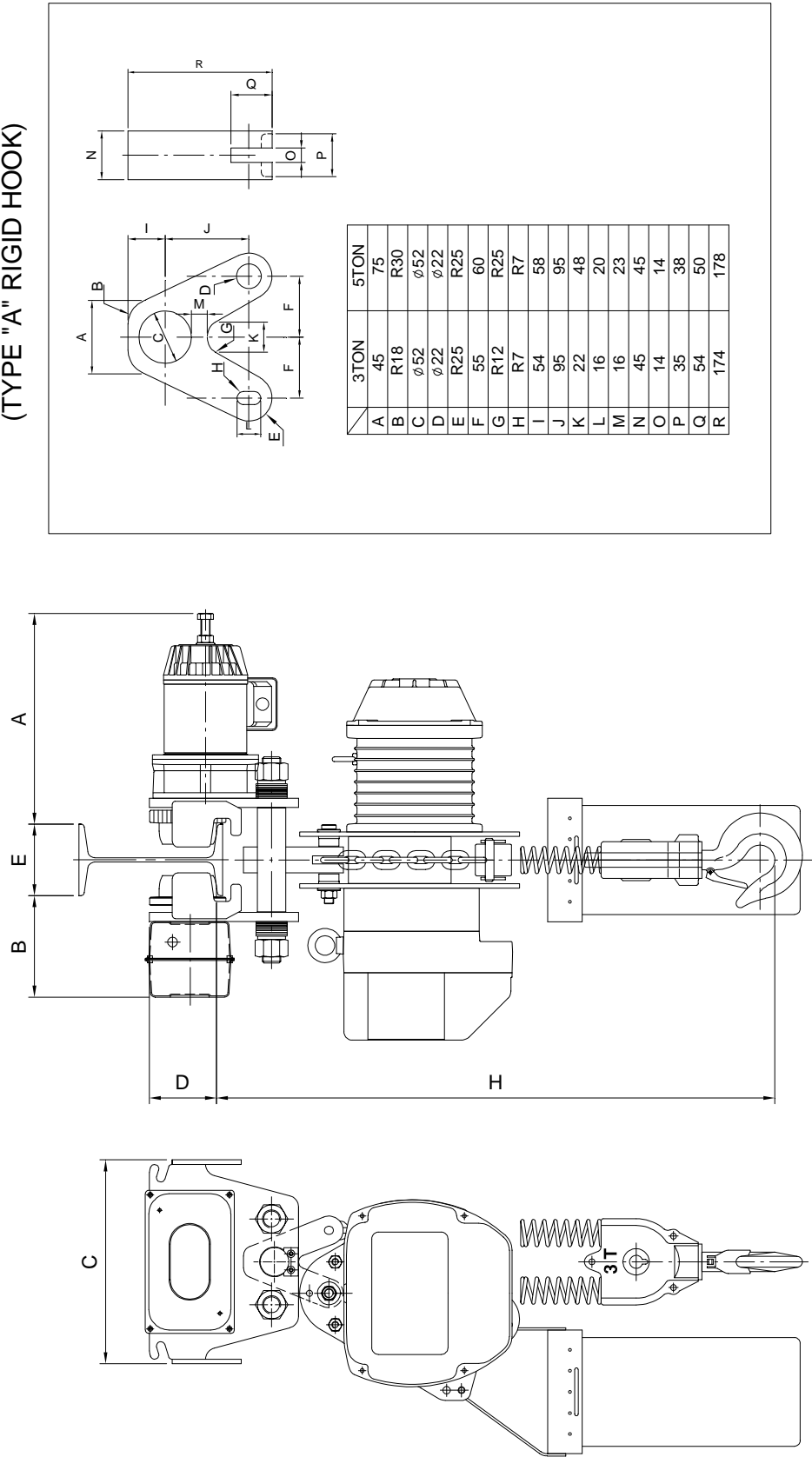


CAPACITY (TON)	a	b	c	d	e	f	h	j	k	m	n
160	1	125	175	25	50	60	105	13	31.8	31.8	φ16
160	2	130	180	30	60	65	115	13	35	46	φ16
160 190	3	150	230	36	72	73	132	16	42	46	φ22
190	2	130	180	30	60	67	120	13	42	46	φ22
190	5	170	260	45	90	82	160	19	50	66	φ40 φ28.5

S.W.L. T	HOIST	TROLLEY	A	B	C	D	H	BEAM E (mm)	TROLLEY (kW)	SPACER 1/8"t	TURNING RADIUS
1	YSL.H.E-100	MT-100	328	173	294	105	705	75-125	0.25	32	1.3M
2	YSL.H.E-200	MT-200	328	173	322	119	935	100-150	0.25	32	1.5M
3	YSL.H-300	MT-300	368	180	356	124	103	125-175	0.6	32	1.8M
2	YSS-200	MT-200	328	173	322	119	995	100-150	0.25	32	1.5M
3	YSS-300	MT-300	368	180	356	124	1120	125-175	0.6	32	1.8M
5	YSS-500	MT-500	372	184	386	134	1200	125-175	0.6	32	2.0M

# HOIST TO TROLLEY WITH TYPE "A" RIGID HOOK

(TYPE "A" RIGID HOOK)



S.W.L. T	HOIST	TROLLEY	A	B	C	D	H	BEAM E(mm)	TROLLEY (kW)	SPACER 1/8"t	TURNING RADIUS
3	YSS-300	MT-300	368	180	356	124	1120	125-175	0.6	32	1.8M
5	YSS-500	MT-500	372	184	386	134	1200	125-175	0.6	32	2.0M

Illust.3

MA003

## 4. ELECTRICAL INSTALLATION

The trolley electrical connection must be completed as shown in Illust.4, the Hoist & Trolley General Arrangement. Generally, the electric housing is provided with three holes in the bottom, one for trolley motor cord, the second one for trolley power cord from hoist and the third one for control cord from hoist. Moreover, the optional five holes design for independent usage of trolley are also available, please refer to the Illust.4. There are two holes on each side of the housing, on the left is the power cord for trolley, on the right is for the trolley motor cord.

For the details of wiring connection, please refer to the wiring diagrams. Also be noted that the above mentioned diagrams only acceptable for the standard units of 3-phase & 1-phase.

Hoist with trolley wiring diagram shown example as follows :

C20023 is 3 phases, single speed model, Please refer to page 13.

C30031 is 3 phases, dual speed model, Please refer to page 13.

C40010 is 1 phases, 220V~230V, Please refer to page 14.

C40012 is 1 phases, 110V~115V, Please refer to page 14.

For special unit, please see wiring diagram supplied with unit.



Power should be disconnected when making or changing connections, also proper grounding should be accomplished.

### Warranty Details:

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

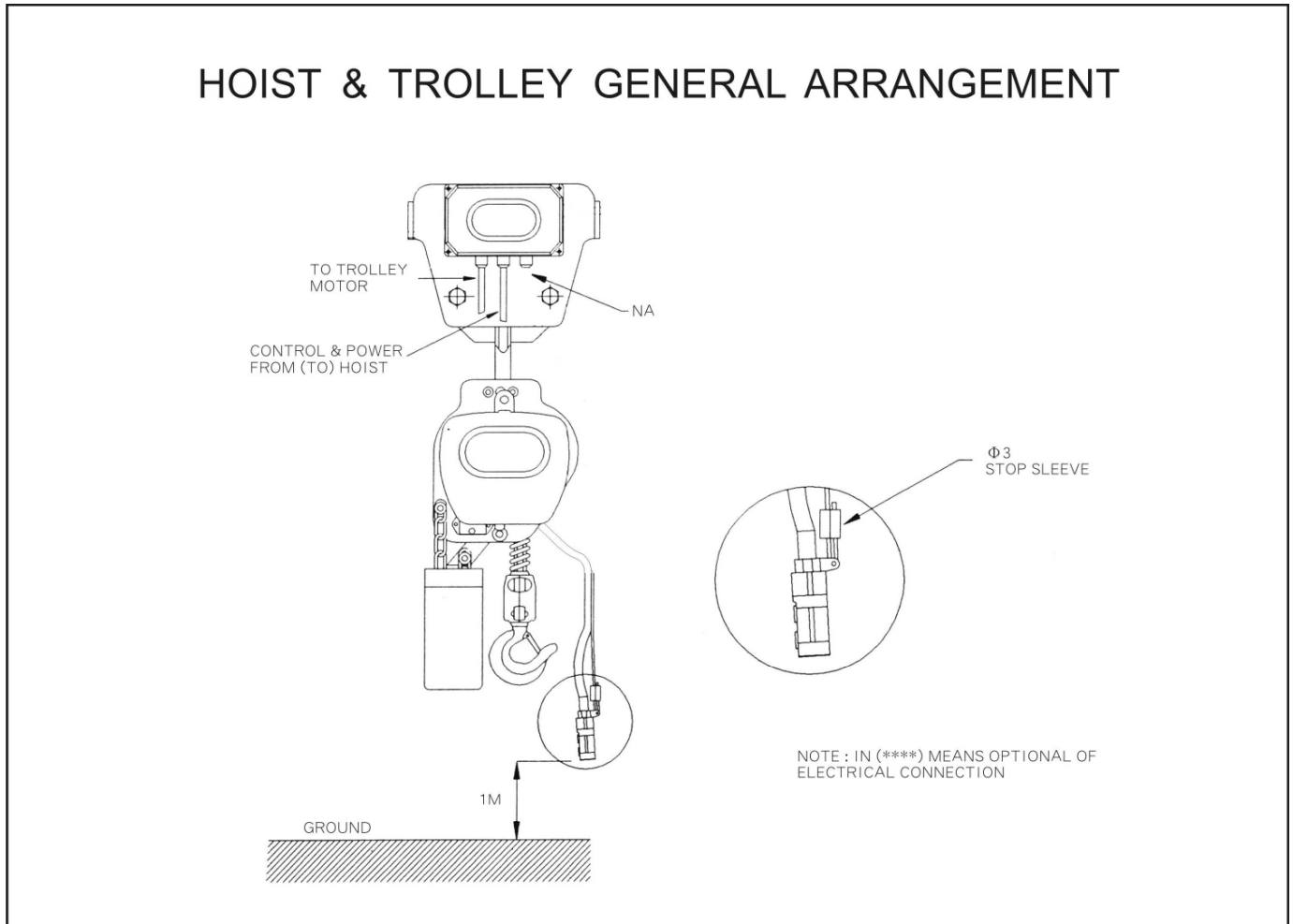
2. Non-Warranty Scope:

- 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.  
(galvanize plant, chemical plant, and dye-works etc.)
- d. Damage caused by operating on the wrong electric voltage.
- e. Damage caused by user emending 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.)

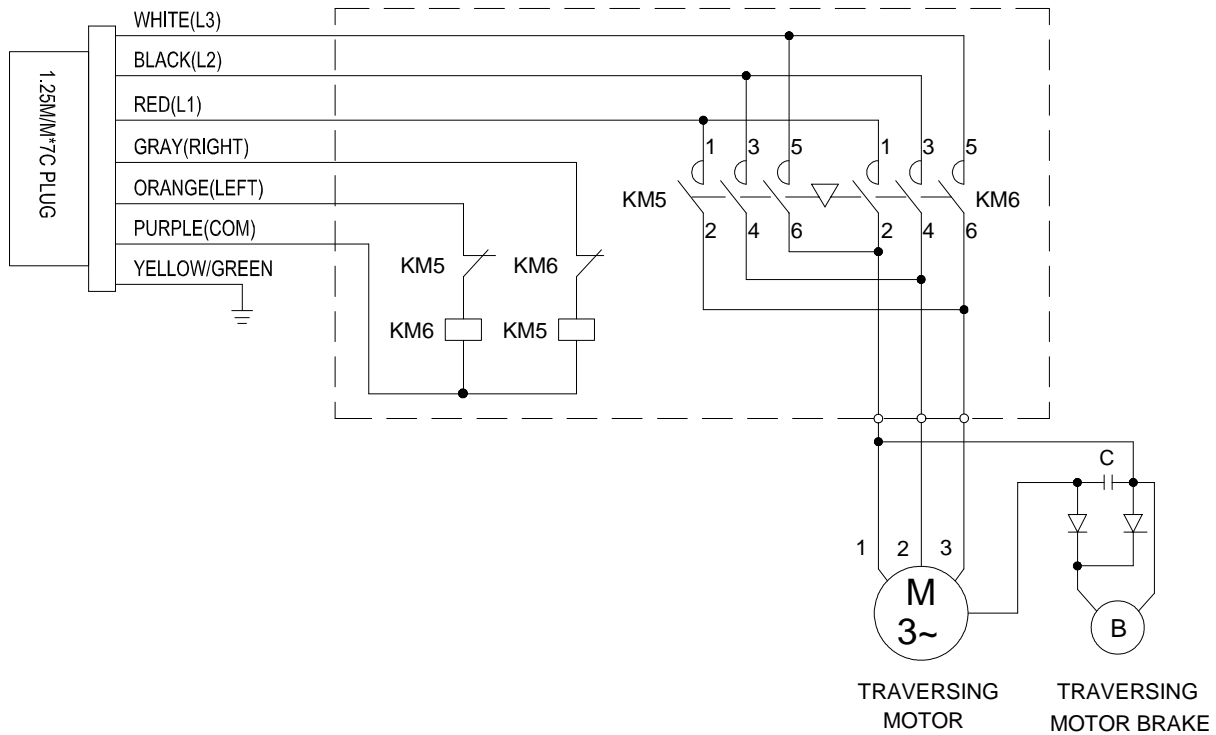
## 5. TEST RUNNING

After trolley to beam, hoist hook to trolley and wiring connection completed, operate the trolley forward and backward over a short distance. Then you can operate the trolley over the entire length of runway or monorail system to be sure that all adjustment and operations are satisfactory.



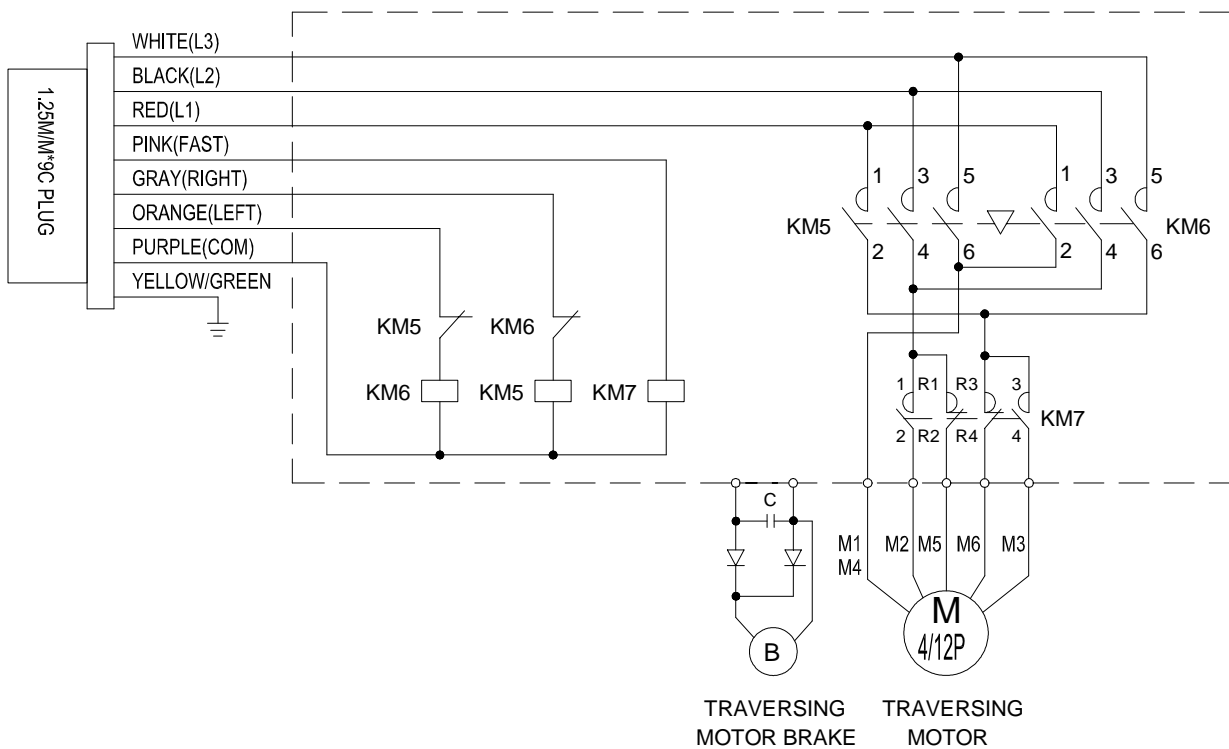
Illust.4

## TROLLEY FOR SINGLE SPEED



C20023

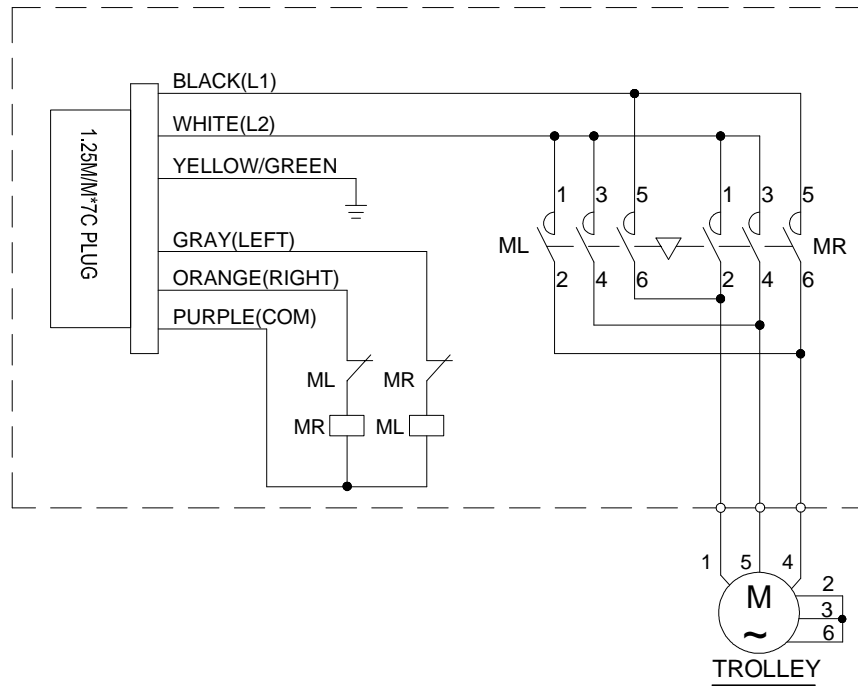
## TROLLEY FOR DUAL SPEED



C30031

## TROLLEY FOR SINGLE PHASE

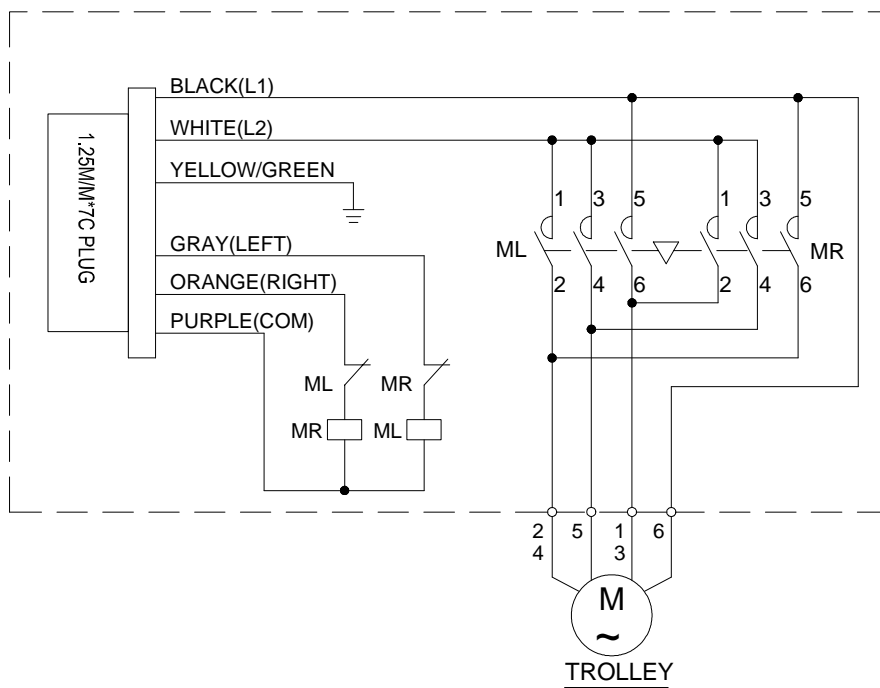
1 ⚡ 220V~230V



C40010

## TROLLEY FOR SINGLE PHASE

1 ⚡ 110V~115V



C40012

## V. INSPECTION

To maintain continuous and satisfactory operation, a regular periodic inspection procedure must be initiated so that worn or damaged parts can be replaced before they become unsafe. The frequency of inspection must be determined by the individual application.

The following list gives an inspection procedure for normal usage under normal conditions. When the unit is subjected to heavy usage or duty, moist or other adverse atmospheric conditions, shorter time periods must be assigned. Inspection must be made of all parts for unusual wear, corrosion or damage in addition to those specifically mentioned in the succeeding list.

It is suggested that the unit be inspected monthly for wear damage and corrosion effects to all parts with particular attention to the following:

1. Tightness of all fasteners.
2. Contactor and control station for burnt or pitted contacts and loose or corroded terminals.
3. Cables and leads for broken wires, loose or corroded terminals and damaged insulation.
4. Terminal board for loose or corroded connections.
5. Track wheels for wear of tread, flange and bearings.
6. Gear portion of track wheel and pinion for wear.
7. Check the wear of top hook to load plate in trolley. If type "E" & "A" rigid hook are used, check the condition of those parts.
8. Collector or power supply system for damage, wear corrosion and proper operation.
9. 3-phase trolley is usually equipped with motor brake. Check the wear of brake lining and adjusting the gap between lining and drum to assure brake efficiency.

## VI. MAINTENANCE

The following three steps are recommended for maintenance:

1. Once a month lubricate track wheel gear and pinion with grease or graphite grease.
2. Motor reducing gearbox uses planetary gear lubricated with cosmo No. 3 grease (Equivalent to: Shell Unedo 3, Exxon Eastan 3, Mobil Cup Grease 3) for good maintenance. It is highly recommended that the motor gearbox grease should be changed after 100 hours of operation, then every 6 months or 2500 hours of normal service. Whichever comes first, the grease needs to be changed as well.
3. The motor brake should be changed & be checked periodically for wear of brake lining and disc. The gap between brake lining & disc can be adjusted by the brake adjusting hex. bolts over the end of motor.  
(Please refer to the parts list on page 25 & 28 No. 27 and page 31 No. 36, brake adjusting hex. bolt.)

## VII. TROUBLE SHOOTING

Please refer to table 1 on page 17.

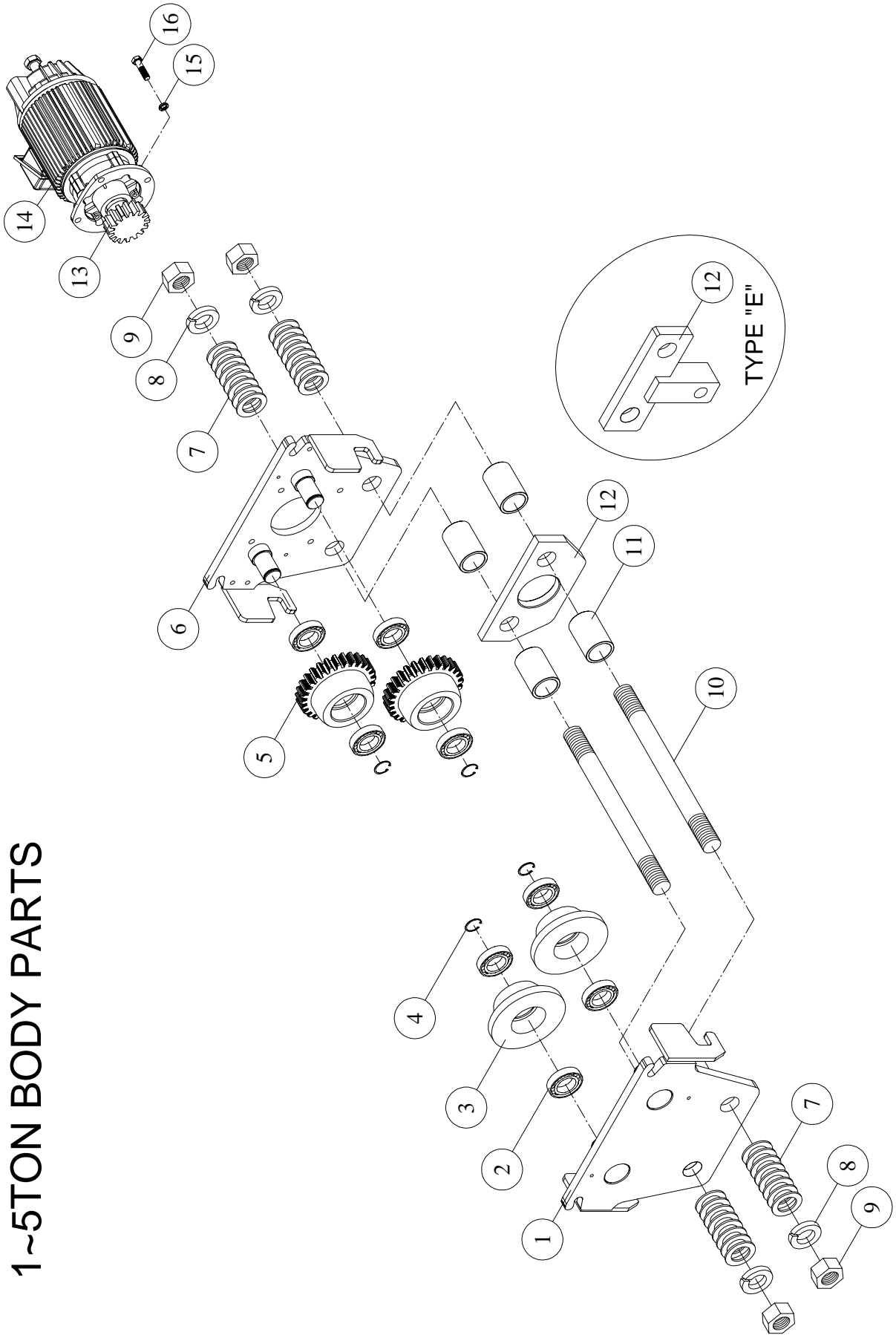
## VIII. PARTS LIST (BOM)

- |  |           |
|--|-----------|
| 1. Trolley Exploded view, 1~5 ton .....        | P.18~P.20 |
| 2. Trolley Exploded view, 7.5ton, 10 ton ..... | P.21~P.22 |
| 3. Electric Explosion, 1~10 ton .....          | P.23~P.25 |
| 4. Reducing Gear Motor, 0.25kW .....           | P.26~P.28 |
| 5. Reducing Gear Motor, 0.6kW & 0.9kW .....    | P.29~P.31 |
| 6. Reducing Motor, 1.5kW .....                 | P.32~P.34 |

**Table 1. Troubleshooting and Remedial Action**

IF	CAUSE MAY BE	REMEDY
1.Trolley does not operate in either direction.	a)Power failure at trolley	Main line or branch circuit switch power on, branch line fuse blown or circuit breaker tripped. Power off, replace or reset. Check for grounded or connect supply lines or current collectors.
	b) Phase error (Single phasing)	Power on, grounded or connected one line of supply system, collectors, trolley wiring, reversing contactor, motor leads or windings. Check for electrical continuity.
	c) Turn on control circuit	Power on or shorted windings in transformer or reversing contactor coil, loosen connection or broken wire in circuit, mechanical binding in contactor, control station switch contacts not making. Check continuity and repair or replace defective parts.
	d) Wrong voltage or frequency	The voltage and frequency must be the same as shown on trolley control box.
	e) Low voltage	Control power supply deviates from standard not to exceed $\pm 10\%$ to prevent abnormal operation or damage to the motor.
	f) Excessive load	Prevent frequently loading rated load of trolley.
2.Trolley operates in one direction only.	a) Turn on control circuit	As item 1. c)
3.Trolley operates sluggishly	a) Excessive load	As item 1. f)
	b) Low Voltage	As item 1. e)
	c) Worn or dirty rail	Clean rails, inspect for worn spots.
4.Motor overheats	a) Excessive load	As item 1. f)
	b) Low voltage	As item 1. e)
	c) Extreme external heating	Above an ambient temperature of 40°C., the frequency of trolley operation must be limited to avoid overheating of motor. Special provision should be made to ventilate the space or shield the trolley from heat radiation.
	d) Frequent starting or reversing	Excessive inching, jogging or plugging should be avoided since this type of operation will drastically shorten the life of motor and contactor.
	e) Phase error	As item 1. e)

# 1~5TON BODY PARTS



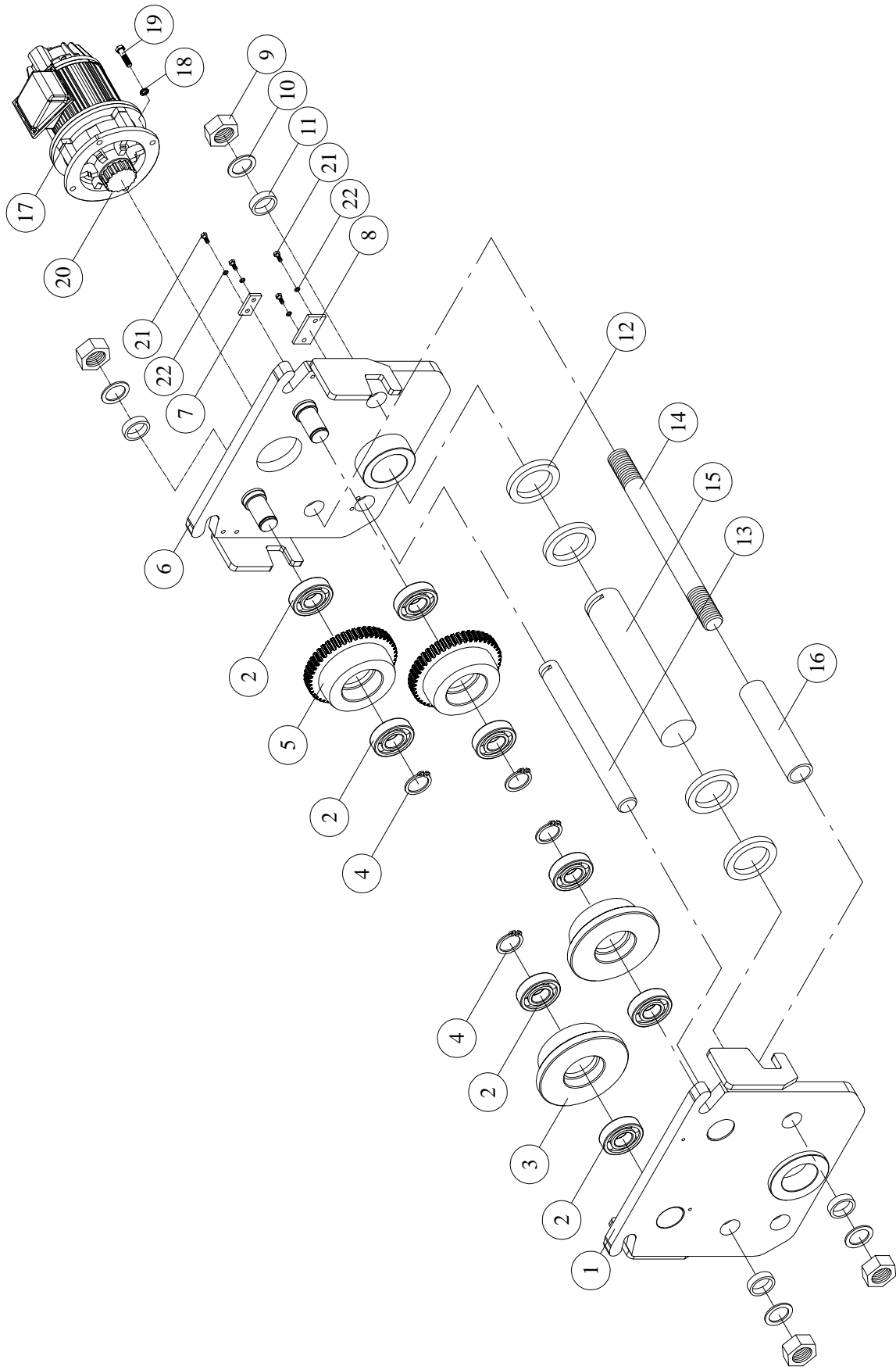
## BODY PARTS B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			1T	2T	3T	5T
1	202961	Electric Frame	1			
	202962			1		
	202963				1	
	202964					1
2	407835	Bearing <6204 Z>	8			
	407830	Bearing <6205 Z>		8		
	407824	Bearing <6206 Z>			8	
	407808	Bearing <6207 Z>				8
3	203131	Idler Wheel <Ø105 × 38L>	2			
	203132	Idler Wheel <Ø119 × 49L>		2		
	203133	Idler Wheel <Ø133 × 52L>			2	
	203134	Idler Wheel <Ø143.5 × 59L>				2
4	400191	Retaining Ring <S-20>	4			
	400192	Retaining Ring <S-25>		4		
	400193	Retaining Ring <S-30>			4	
	400194	Retaining Ring <S-35>				4
5	203111	Drive Wheel <M3.5 × 28T × 47L>	2			
	203112	Drive Wheel <M3.5 × 32T × 56L>		2		
	203113	Drive Wheel <M3.5 × 36T × 59L>			2	
	203114	Drive Wheel <M3.5 × 39T × 67L>				2
6	202931	Motor Frame	1			
	202932			1		
	202933				1	
	202934					1
7	203221	Spacer Washer <Ø40 × Ø24 × 1/8">	32			
	203222	Spacer Washer < Ø46 × Ø27 × 1/8">		32		
	203223	Spacer Washer < Ø54 × Ø34 × 1/8">			32	
	203224	Spacer Washer < Ø60 × Ø40 × 1/8">				32
8	400102	Spring Washer <7/8">	4			
	400103	Spring Washer <1">		4		
	400105	Spring Washer <1 1/4">			4	
	400106	Spring Washer <1 1/2">				4

## BODY PARTS B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT			
			1T	2T	3T	5T
9	400070	Hex. Nut <7/8"×9UNC>	4			
	400071	Hex. Nut <1"×8UNC>		4		
	400072	Hex. Nut <1 1/4"×7UNC>			4	
	400073	Hex. Nut <1 1/2"×6UNC>				4
10	408366	Stay Bolt <7/8"×9UNC×265L>	2			
	408369	Stay Bolt <1"×8UNC×300L>		2		
	400063	Stay Bolt <1 1/4"×7UNC×360L>			2	
	400067	Stay Bolt <1 1/2"×6UNC×390L>				2
11	203151	Position Tube <Ø34×Ø24×56L>	4			
	203152	Position Tube <Ø38×Ø28×69L>		4		
	203153	Position Tube <Ø50×Ø40×83.5L>			4	4
12	203186	Load Bracket <t13×102×175L>	1			
	203187	Load Bracket <t13×115×180L>		1		
	203188	Load Bracket <t16×120×230L>			1	
	203189	Load Bracket <t19×135×260L>				1
	201922	Type "E" Rigid Hook	1			
	201923	Type "E" Rigid Hook		1		
	201926	Type "E" Rigid Hook (YSS-200)		1		
	201924	Type "E" Rigid Hook			1	
	201925	Type "E" Rigid Hook				1
13	201761	Transmission Pinion <0.25kW-M3.5×16T>	1	1		
	201771	Transmission Pinion <0.6kW-M3.5×16T>			1	1
14		Motor Ass'y-0.25kW	1	1		
		Motor Ass'y-0.6kW			1	1
15	400096	Spring Washer <M10>	4	4	4	4
16	400046	Hex. Head Bolt <M10×1.5×25L>	4	4	4	4

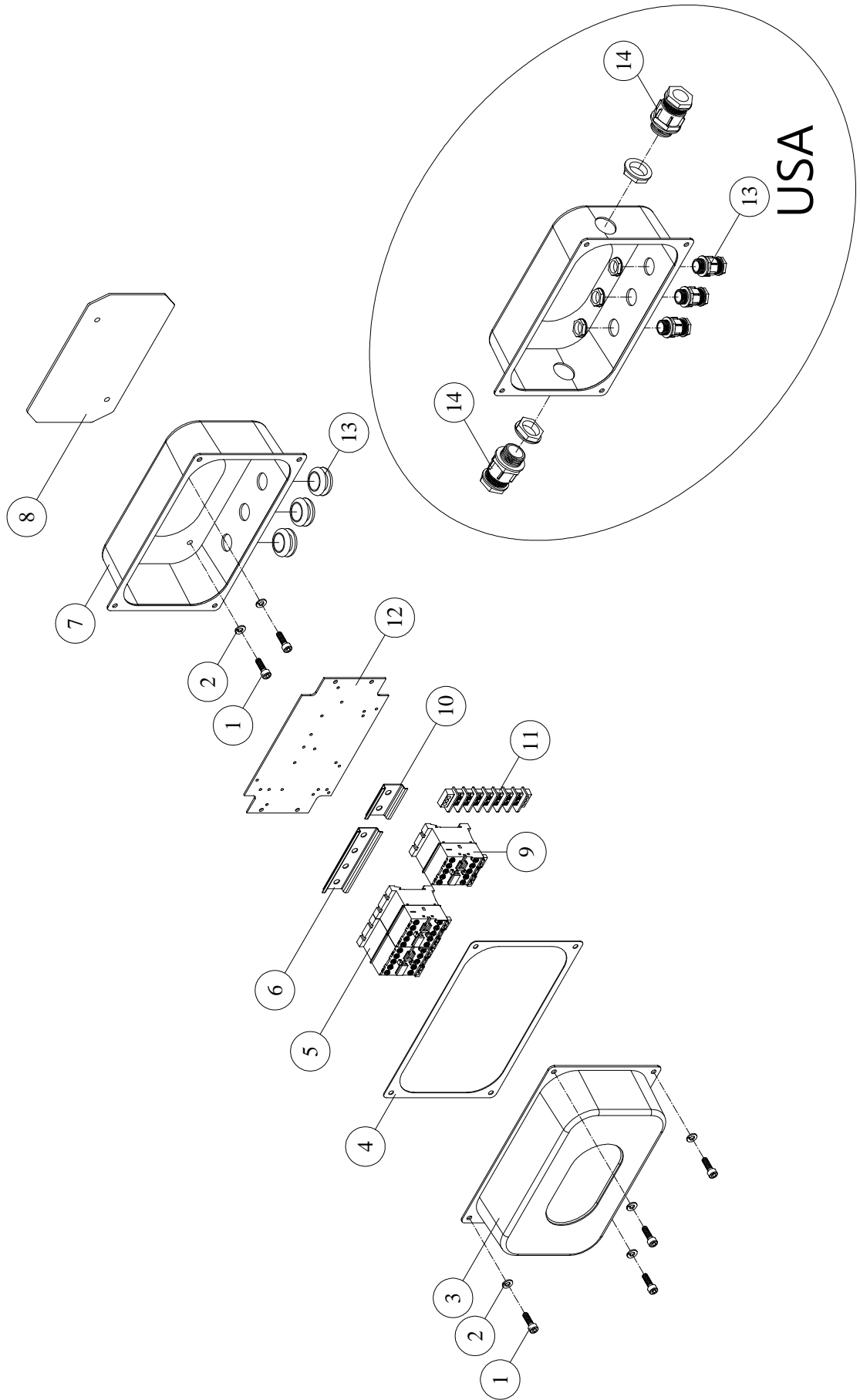
## 7.5~10 TON BODY PARTS



## BODY PARTS B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			7.5T	10T
1	202965	Electric Frame	1	
	202966			1
2	407817	Bearing <6307 Z>	8	
	407825	Bearing <6308 Z>		8
3	203519	Idler Wheel <Ø176 × 60L>	2	
	204796	Idler Wheel <Ø203 × 63>		2
4	400194	Retaining Ring <S-35>	4	
	400195	Retaining Ring <S-40>		4
5	203501	Drive Wheel <M3.5 × 49T × 65L>	2	
	204795	Drive Wheel <M3.5 × 56T × 68L>		2
6	202935	Motor Frame	1	
	202983			1
7	200636	Stopper For Load Shaft <t6 × 25 × 50L>	1	1
8	200635	Stopper For Load Shaft <t6 × 38 × 70L>	1	1
9	400073	Hex. Nut <1 1/2" × 6UNC>	4	
	400644	Hex. Nut <1 3/4" × 5UNC>		4
10	400106	Spring Washer <1 1/2">	4	
	400104	Spring Washer <1 3/4">		4
11	203171	Spacer Sleeve <Ø50 × Ø40 × 13L>	8	
	203172	Spacer Sleeve <Ø60 × Ø47 × 13L>		8
12	203225	Spacer Ring <Ø100 × Ø71 × 12.5L>	4	4
13	203090	Load Shaft B <Ø38 × 355L>	1	1
14	408374	Stay Bolt <1 1/2" × 6UNC × 435L>	2	
	400411	Stay Bolt <1 3/4" × 5UNC × 460L>		2
15	203245	Load Shaft A <Ø70 × 365L>	1	1
16	203155	Stay Bolt Position Tube <Ø50 × Ø40 × 216L>	2	
	203156	Stay Bolt Position Tube <Ø60 × Ø47 × 216L>		2
17		Motor Ass'y-0.9kW	1	
		Motor Ass'y-1.5kW		1
18	400096	Spring Washer <M10>	4	
	400097	Spring Washer <M12>		6
19	400047	Hex. Head Bolt <M10 × 1.5 × 30L>	4	
	406815	Hex. Head Bolt <M12 × 1.75 × 30L>		6
20	201782	Transmission Pinion <0.9kW-M3.5 × 16T>	1	
	201331	Transmission Pinion <1.5kW-M3.5 × 23T>		1
21	400012	Hex. Recess Bolt <M8 × 1.25 × 20L>	4	4
22	400095	Spring Washer <M8>	4	4

# ELECTRIC EXPLOSION



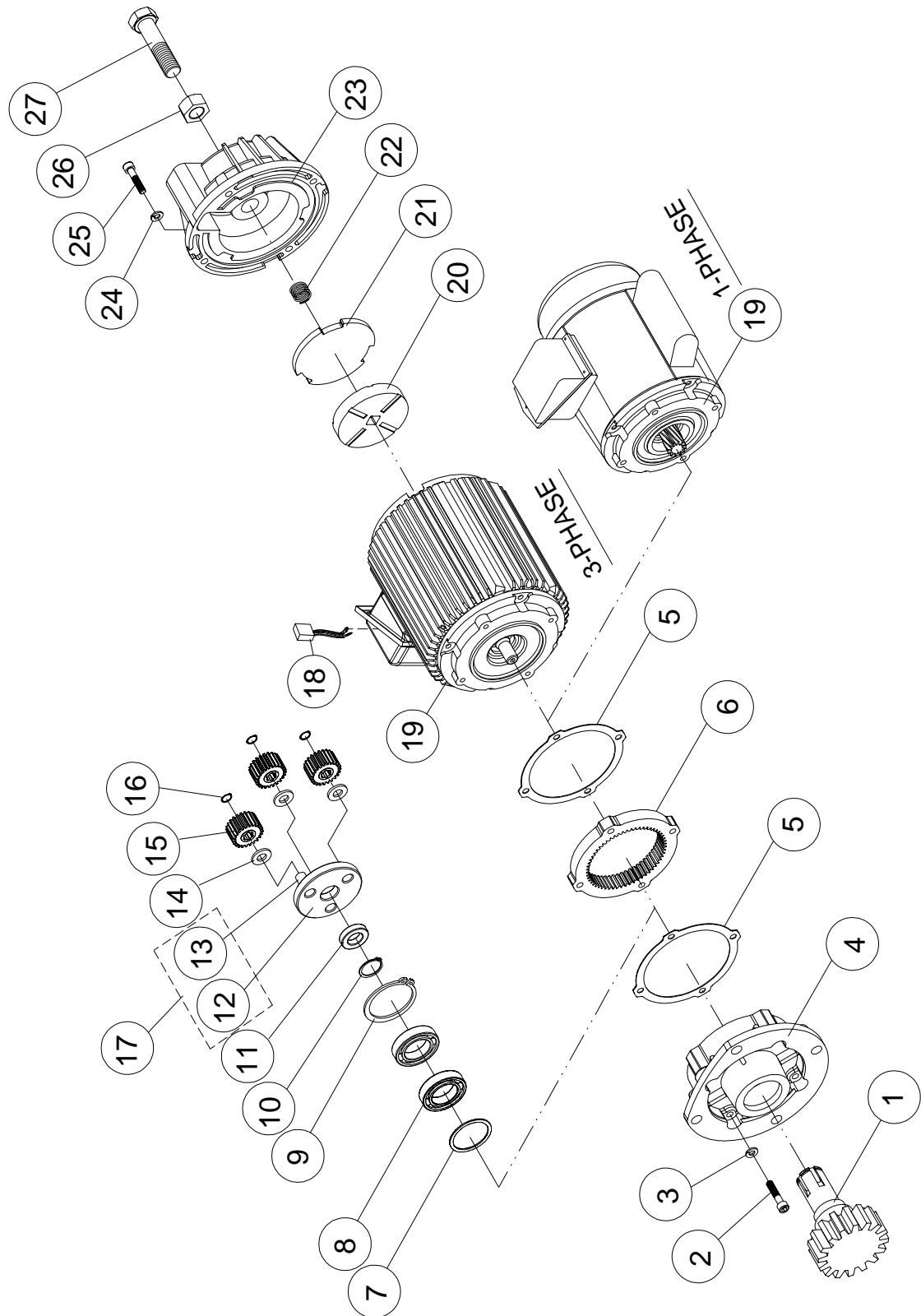
## ELECTRIC PARTS B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			0.5T~2T		
			0.25kW		
			MT	MTD	USA
1	400006	Hex. Recess Bolt <M6 × 1.0 × 16L>	6	6	6
2	400094	Spring Washer <M6>	6	6	6
3	300394	Electric Housing Cover	1	1	1
4	402583	Gasket 68#	1	1	1
5	301101	Contactor <24V>	2	2	2
	301102	Contactor <48V>	2	2	2
	301103	Contactor <110V>	2	2	2
6	300079	Contactor Rail <2PC>	1	1	1
7	300778	Electric Housing	1		
	300395	Electric Housing		1	
	300398	Electric Housing <USA>			1
8	402516	Gasket 16#	1	1	1
9	300035	Contactor <24V>		1	
	300036	Contactor <48V>		1	
	300037	Contactor <110V>		1	
10	300078	Contactor Rail <1PC>		1	
11	300229	Terminal Blocks		1	
	300636	Terminal Blocks <USA>			1
12	300392	Steady Plate		1	
	300388	Steady Plate <USA>			1
13	400270	Rubber Cap	2	3	
	400339		1		
	400222	Cable Glands <USA>			3
14	400941	Cable Glands <USA>			2

## ELECTRIC PARTS B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			3T~10T		
			0.6kW~1.5kW		
			MT	MTD	USA
1	400006	Hex. Recess Bolt <M6×1.0×16L>	6	6	6
2	400094	Spring Washer <M6>	6	6	6
3	300394	Electric Housing Cover	1	1	1
4	402583	Gasket 68#	1	1	1
5	301106	Contactor <24V>	2		2
	301107	Contactor <48V>	2		2
	301108	Contactor <110V>	2		2
	301101	Contactor <24V>		2	
	301102	Contactor <48V>		2	
	301103	Contactor <110V>		2	
6	300079	Contactor Rail <2PC>	1	1	1
7	300778	Electric Housing	1		
	300395	Electric Housing		1	
	300398	Electric Housing <USA>			1
8	402516	Gasket 16#	1	1	1
9	300035	Contactor <24V>		1	
	300036	Contactor <48V>		1	
	300037	Contactor <110V>		1	
10	300078	Contactor Rail <1PC>		1	
11	300229	Terminal Blocks		1	
	300636	Terminal Blocks <USA>			1
12	300392	Steady Plate		1	
	300388	Steady Plate <USA>			1
13	400270	Rubber Cap	2	3	
	400339		1		
	400222	Cable Glands <USA>			3
14	400941	Cable Glands <USA>			2

# 0.25 kW REDUCING GEAR MOTOR

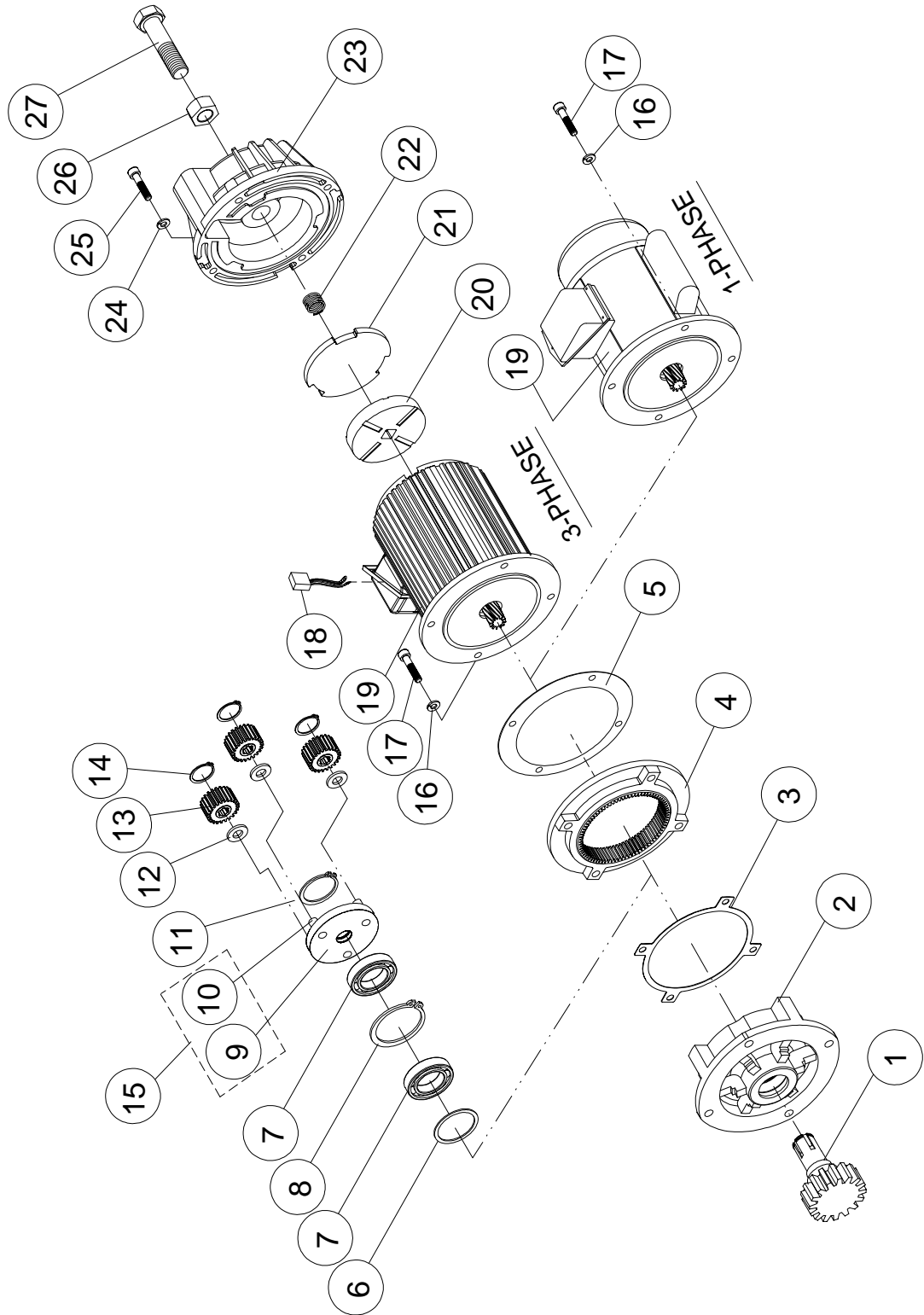


## 0.25kW REDUCING GEAR MOTOR B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT		
			3-Phase		1-Phase
			S	D	
1	201761	Transmission Pinion	1		
2	405017	Hex. Head Bolt <M6 × 1.0 × 60L>	4		
3	400094	Spring Washer <M6>	4		
4	200320	Gear Box	1		
5	402513	Gear Box Gasket 13#	2		
6	200334	Internal Ring Gear	1		
7	400182	Oil Seal <Ø25 × Ø40 × 6t>	1		
8	400695	Bearing <6204 Z>	2		
9	400198	Retaining Ring <R-47>	1		
10	400191	Retaining Ring <S-20>	1		
11	200347	Axle Sleeve <Ø25 × Ø20 × 6L>	1		
12	200328	Reducing Gear Frame	1		
13	200392	Planetary Gear Axle <Ø13 × 26.1L>	3		
14	400669	Flat Washer <Ø21 × Ø11 × 2t>	3		
15	200337	Planetary Gear	3		
16	400188	Retaining Ring <S-10>	3		
17	200391	Reducing Gear Frame Ass'y	1		
18	300152	Rectifier	1		
19	A	Motor Ass'y	1		
	B			1	
	C			1	
20	100805	Brake Lining	1		
21	100807	Brake Disc	1		
22	400239	Brake Spring	1		
23	100533	Brake Drum Ass'y	1		
24	400094	Spring Washer <M6>	4		
25	400007	Hex. Head Bolt <M6 × 1 × 20L>	4		
26	400084	Nut <M12 × 1.75>	1		
27	400464	Hex. Head Bolt <M12 × 1.75 × 35L>	1		

NO.	PARTS CODE		DESCRIPTION	Ø -Hz-V	
19	A	106520	Motor Ass'y (S)	3Ø 60Hz	220V/380V
		106521			220V/440V
		106511			230V/460V
		106499			240V
		106500			480V
		106525			600V
		106501		3Ø 50Hz	220V/380V
		106503			400V
		106504			415V
		106506			525V
	B	106816	Motor Ass'y (D)	3Ø 60Hz	208V
		106807			220V
		106441			230V
		106809			380V
		106810			440V
		106811			460V
		106813			600V
		106800		3Ø 50Hz	220V
		106444			230V
		106802			380V
		106443			400V
		106804			415V
		106805			525V
	C	106751	Motor Ass'y	1Ø 60Hz	110V/220V
		106750			115V/230V
		106743		1Ø 50Hz	110V/220V
		106744			220V/230V

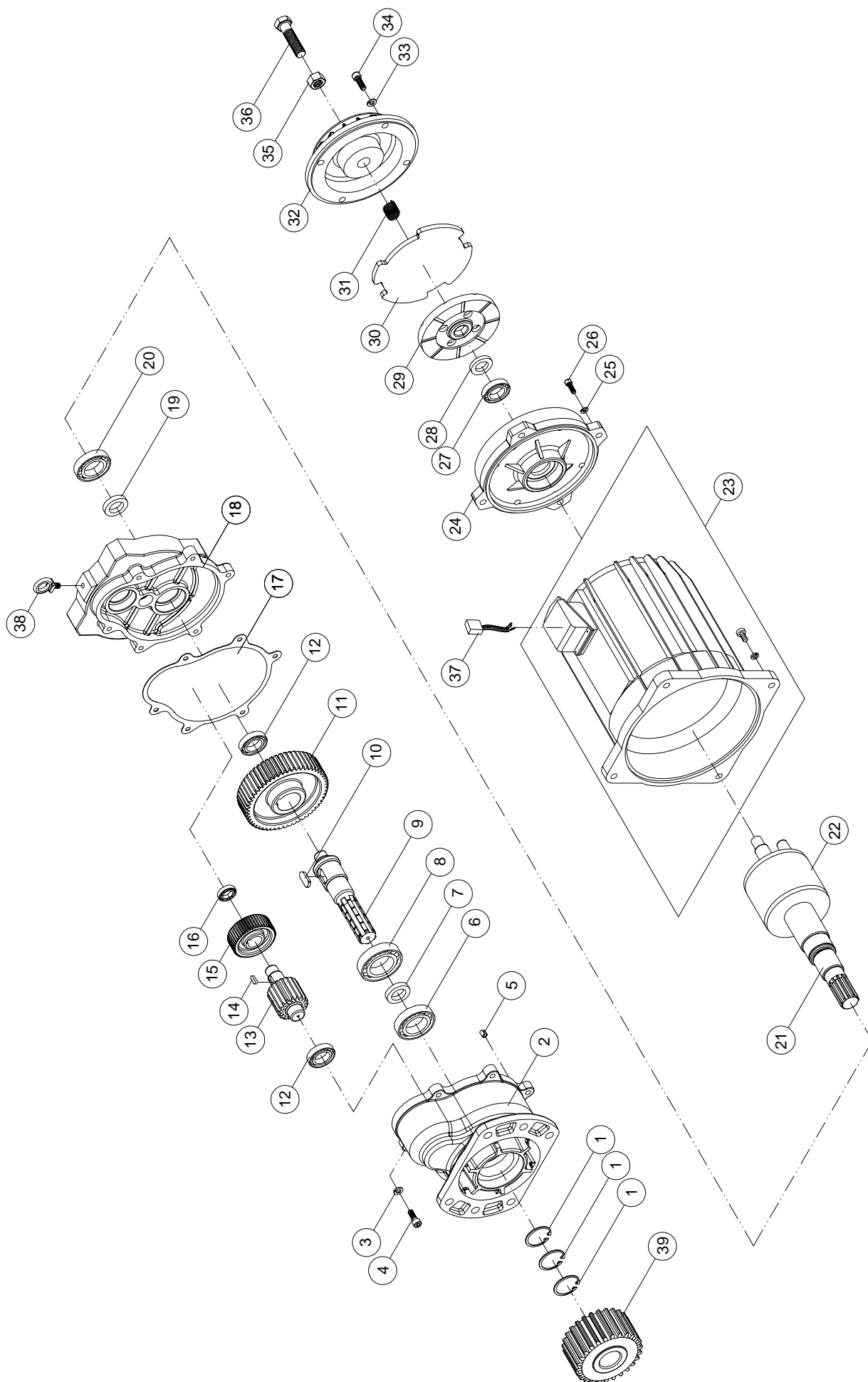
# 0.6 kW/0.9 kW REDUCING GEAR MOTOR



## 0.6kW/0.9kW REDUCING GEAR MOTOR B.O.M.

NO.	PARTS CODE	DESCRIPTION	0.6kW		0.9kW		
			3-Phase		3-Phase		1-Phase
			S	D	S	D	
1	201771	Transmission Pinion	1				
	201782				1		
2	200319	Gear Box	1				
3	402519	Gear Box Gasket B	1				
4	200336	Internal Ring Gear	1				
5	402517	Gear Box Gasket A	1				
6	400939	Oil Seal <Ø30 × Ø 45 × 8>	1				
7	400803	Bearing <6205Z>	2				
8	400199	Retaining Ring <R-52>	1				
9	200332	Reducing Gear Frame	1				
10	200394	Planetary Gear Axle < Ø15 × 28.8L>	3				
11	400192	Retaining Ring <S-25>	1				
12	400667	Flat Washer <Ø20 × Ø12 × 2>	3				
13	200342	Planetary Gear	3				
14	400189	Retaining <S-12>	3				
15	200326	Reducing Gear Frame Ass'y	1				
16	400095	Spring Washer <M8>	4				
17	400426	Hex. Recess Bolt <M8 × 1.25 × 45L>	4				
18	300152	Rectifier	1				
19	A	Motor Ass'y	1		1		
	B			1		1	
	C						1
20	100806	Brake Lining	1				
21	100808	Brake Disc	1				
22	400314	Brake Spring	1				
23	100534	Brake Drum Ass'y	1				
24	400094	Spring Washer <M6>	4				
25	400007	Hex. Head Bolt <M6 × 1 × 20L>	4				
26	400085	Nut <M16 × 1.5>	1				
27	400468	Hex. Head Bolt <M16 × 1.5 × 50L>	1				

NO.	PARTS CODE		DESCRIPTION	Ø -Hz-V				
19	A	106600	Motor Ass'y (S)	0.6kW	3Ø 60Hz	220V/380V		
		106601				220V/440V		
		106610				230V/460V		
		106605				600V		
		106581			3Ø 50Hz	220V/380V		
		106584				415V		
		106585				440V		
		106586				525V		
		106680		0.9kW	3Ø 60Hz	220V/380V		
		106681				220V/440V		
		106688				230V/460V		
		106685				600V		
		106661			3Ø 50Hz	220V/380V		
		106662				400V		
		106664				415V		
		106665				440V		
		106666		525V				
		106700		550V				
		B		106836	Motor Ass'y (D)	0.6kW	3Ø 60Hz	208V
				106837				220V
	106830		230V					
	106839		380V					
	106840		440V					
	106841		460V					
	106843		600V					
	106832		Motor Ass'y (D)	0.6kW				3Ø 50Hz
	106846				400V			
	106834				415V			
	106799				440V			
	106842				460V			
	106835				525V			
	106867			0.9kW	3Ø 60Hz	220V		
	106869					380V		
	106871					460V		
	106821					600V		
	106862				3Ø 50Hz	380V		
	106863					400V		
	106864					415V		
	106865					525V		
	C		106787	Motor Ass'y (S)		1Ø 60Hz	110V/220V	
		106786	115V					
		106783	1Ø 50Hz			110V/220V		



1.5kW REDUCTION MOTOR

## 1.5kW REDUCTION MOTOR B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT
			3-Phase
			1/20
1	400195	Retaining Ring <S-40>	3
2	219994	Gear Case A	1
3	400095	Spring Washer <M8>	6
4	400017	Hex. Recess Bolt <M8 × 1.25 × 35L>	6
5	400224	Spring Pin <Ø8 × 10 >	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>	1
11	216783	Drum Gear (4th Gear) <M2.5 × 60T>	1
12	407807	Bearing < 6205 Z>	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	219995	Gear Case B	1
19	400934	Oil Seal <Ø30 × Ø50 × 8t>	1
20	400151	Bearing <6306 2RU>	1
21	100825	Motor Shaft	1
	100823		1D
22	100824	Motor Rotor	1
	100818		1D
23	A	Motor Stator Ass'y	1
	B		1D
24	100593	Rear Bracket	1
25	400094	Spring Washer <M6>	4
26	400008	Hex. Recess Bolt <M6 × 1.0 × 25L>	4
27	407703	Bearing <6305 2RS>	1

## 1.5kW REDUCTION MOTOR B.O.M.

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT
			3-Phase
			1/20
28	400943	Oil Seal <Ø25 × Ø35 × 5t>	1
29	100756	Brake Lining	1
30	100459	Brake Plate	1
31	400314	Brake Spring	1
32	100505	Brake Drum Ass'y	1
33	400095	Spring Washer <M8>	4
34	400014	Hex. Recess Bolt <M8 × 1.25 × 30L>	4
35	400085	Nut <M16 × 1.5>	1
36	400468	Hex. Bolt <M16 × 1.5 × 50L>	1
37	300152	Rectifier	1
38	400217	Eye Bolt<M8 × 1.25>	1
39	201331	Transmission Pinion<M3.5 × 23T>	1

NO.	PARTS CODE		DESCRIPTION	Ø -Hz-V	
23	A	108633	Motor Stator Ass'y (S)	3Ø 60Hz	220 / 380V
		108634			230 / 460V
		108635		3Ø 50Hz	220 / 380V
		108642			415V
	B	108639	Motor Stator Ass'y (D)	3Ø 60Hz	220V
		108640			380V
		108651			230V
		108652			460V
		108636		3Ø 50Hz	220V
		108637			380V
		108638			415V



**No. M8A 004703 0014 Rev. 00**

TÜV®

















