

URETHANE WHEEL CRANES N6 SERIES

OWNER'S (OPERATOR'S) MANUAL AND SAFETY INSTRUCTIONS

To Customer

Thank you for purchasing the KITO N6 series Urethane wheel type Crane.

This crane has urethane coated steel track wheels. Light weight, quiet and stable, the crane is designed to improve work efficiency.


Owing to thorough quality controls, this crane has been manufactured to satisfy requirements for durability.


However, improper handling, usage or maintenance may result in unforeseen accident or injury. Therefore, read thoroughly this manual before using the equipment.


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1. Definitions

 **DANGER** : Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING** : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION** : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

WLL: indicates maximum mass (working load limit) which a crane is designed to support in general service. Under WLL, all values are indicated in t (ton).


2. Intended Purpose

This crane has been designed for vertically lifting, lowering and horizontally carrying loads by means of the pendant push button switches, under normal atmospheric conditions of the work place.

3. Before Use

3.1 Safety summary

Danger exists when heavy loads are transported, particularly when the equipment is not being used properly or is poorly maintained. Because accidents and serious injury could result, special safety precautions apply to the operation, maintenance and inspection of the KITO crane.

 **WARNING** : **ALWAYS** operate, inspect and maintain this Crane in accordance with applicable safety codes and regulations.

Following these simple rules can help to avoid hoisting accidents:

 **WARNING** : **IMPROPER** crane use could result in death or serious injury.
To avoid these hazards:

3.1.1 Before and during operation

- NEVER** lift or transport loads over or near people.
- NEVER** use a crane for lifting, supporting or transporting people.
- NEVER** leave a suspended load unattended.
- NEVER** lift more than the rated capacity.
- NEVER** reverse crane operation abruptly or inch the crane excessively in travel.
- NEVER** pull a load from an extreme angle.
- NEVER** allow the crane to impact the stopper or other cranes.

- ALWAYS** inspect the crane before use and at periodic intervals.
- ALWAYS** pay attention to load swing while operating the crane.
- ALWAYS** be aware of what is going on in the vicinity of the crane during use.
- ALWAYS** keep travel and traverse paths, and shelters, unobstructed.
- ALWAYS** operate the push buttons from a location from where both the hook and load can be seen.
- ALWAYS** check slings and loads are properly installed before use.
- ALWAYS** walk behind or alongside a suspended load, and keep eyes looking forward, while operating the crane.
- ALWAYS** read the **“Safety Instructions” for your hoist and trolley respectively provided.**-----



3.1.2 Maintenance and checks

- ALWAYS** have maintenance, check and repairs performed by a qualified person.
- ALWAYS** place an “OUT OF SERVICE” sign on the crane when performing maintenance, checks or repairs.
- ALWAYS** **turn OFF power to the hoist, trolley and crane before performing maintenance, checks or repairs.**
- ALWAYS** wear a helmet and safety belt when performing maintenance, checks or repairs.

4. Cranes

4.1 Features

[Geared motor]

- (a) Employs an electromagnetic brake to mechanically adjust brake torque in stopping.
- (b) Travel is kept quiet because of the helical gear used in the reduction gear.
- (c) Comes in 3 models with different single speed specification (low, standard and high)

[Low-head end carriage]

- (a) Track wheels are easily taken off. This greatly shortens installation and maintenance work.
- (b) High tension bolts (H.T.B.) are used to couple the end carriage to the girder as standard for low-head type.
- (c) The center punch for girder installation holes is marked on the end carriage to make centering easier.
- (d) The end carriage is coated with a red primer when shipped from the factory.
- (e) Travel is kept quiet with urethanecoated wheels. The wheels are cold and weather resistant, and water resistant.
- (f) Travel is kept quiet with a pinion L made from nylon. The pinion is weather and wear resistant.
- (g) The end carriage uses press formed frames designed by KITO.

[Overhead end carriage]

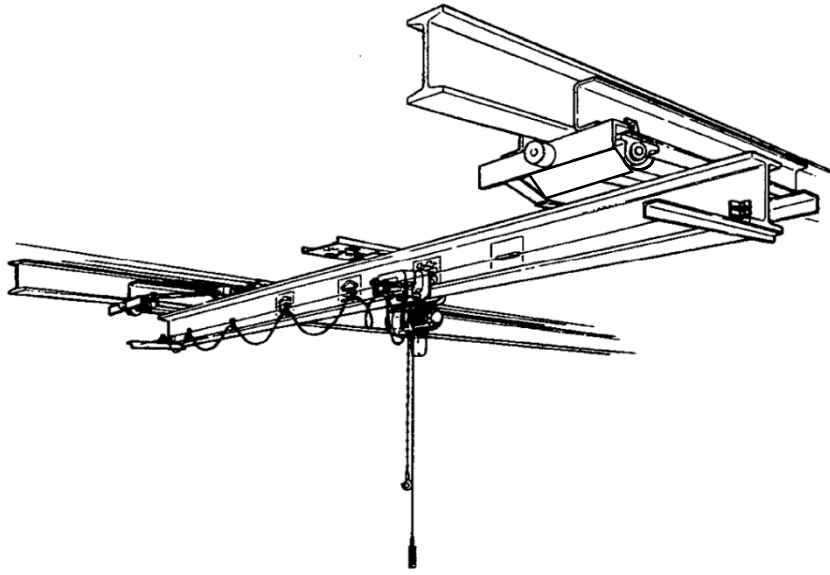
- (a) The end carriage has an open frame construction to facilitate track wheel maintenance.
- (b) The end carriage is built with side rollers to keep travel smooth and stable.
- (c) The center punch for girder installation holes, girders and travel rails are marked on the end carriage to make centering easier.
- (d) Span is easily adjusted on-site because the end carriage is coupled to the frame by bolts.
- (e) The end carriage is coated with a red primer when shipped from the factory.
- (f) Travel is kept quiet with urethanecoated wheels. The wheels are cold and weather resistant, and water resistant.
- (g) The end carriage uses press formed frames designed by KITO.

[Overhead double girder end carriage]

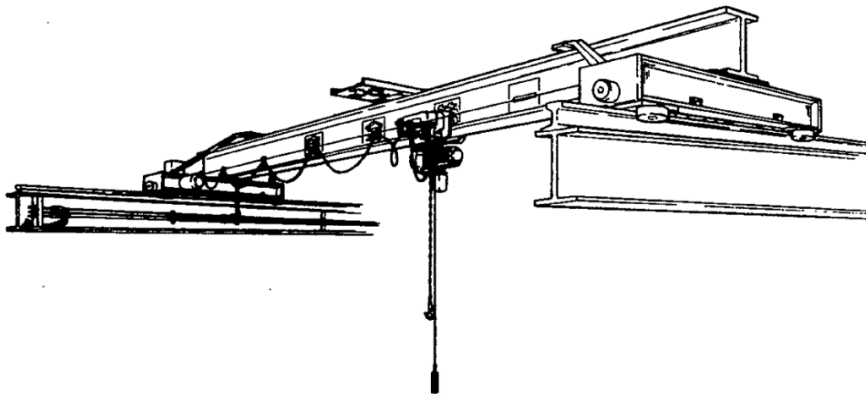
- (a) The end carriage has an open frame construction to facilitate track wheel maintenance.
- (b) The end carriage is built with side rollers to keep travel smooth and stable.
- (c) The center punch for girders and travel rails are marked on the end carriage to make centering easier.
- (d) The end carriage uses press formed frames (channel type) designed by KITO.
- (e) The end carriage is coated with a red primer when shipped from the factory.
- (f) Travel is kept quiet with urethanecoated wheels. The wheels are cold and weather resistant, and water resistant.

General view (For your reference)

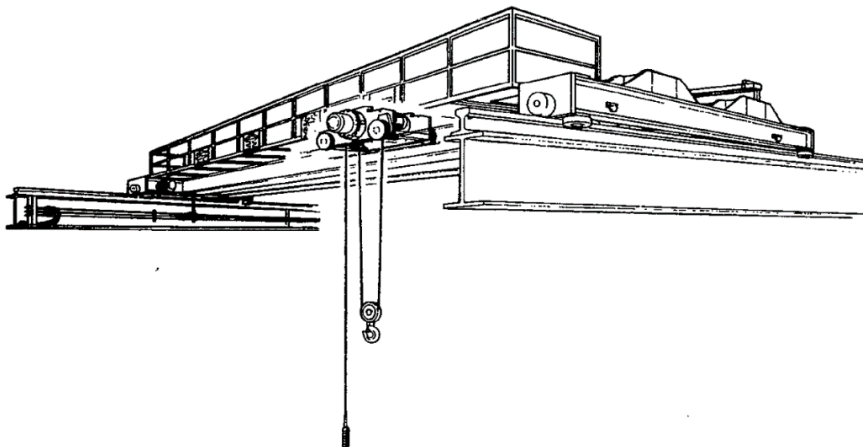
[Low-head crane]



[Overhead crane]

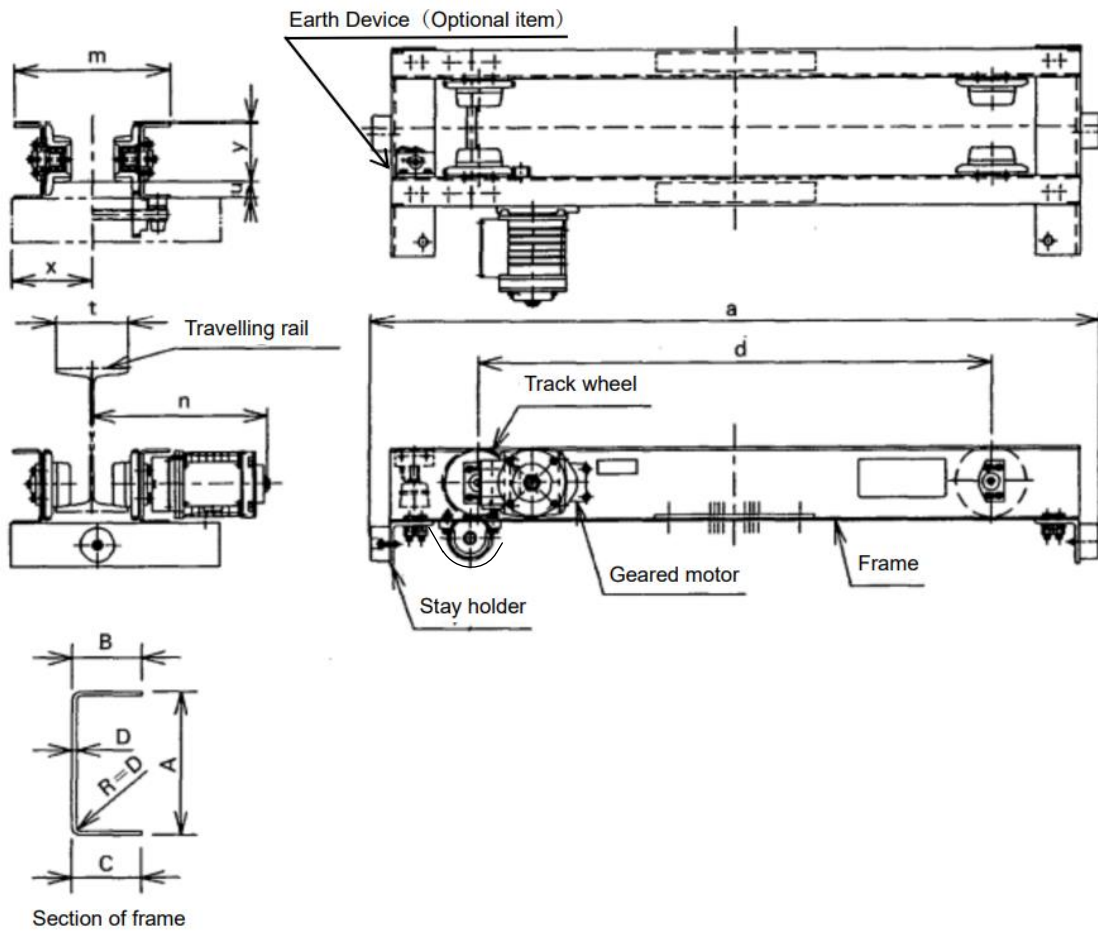


[Overhead double girder crane]



4.2 Specifications and outer appearance

Urethane wheel low-head type motorized end carriage



Frame Size A x B x C x D [mm]

Span [m]		6	9
WLL [t]	1	155 x 60 x 60 x 6	
	2	200 x 80 x 80 x 9	

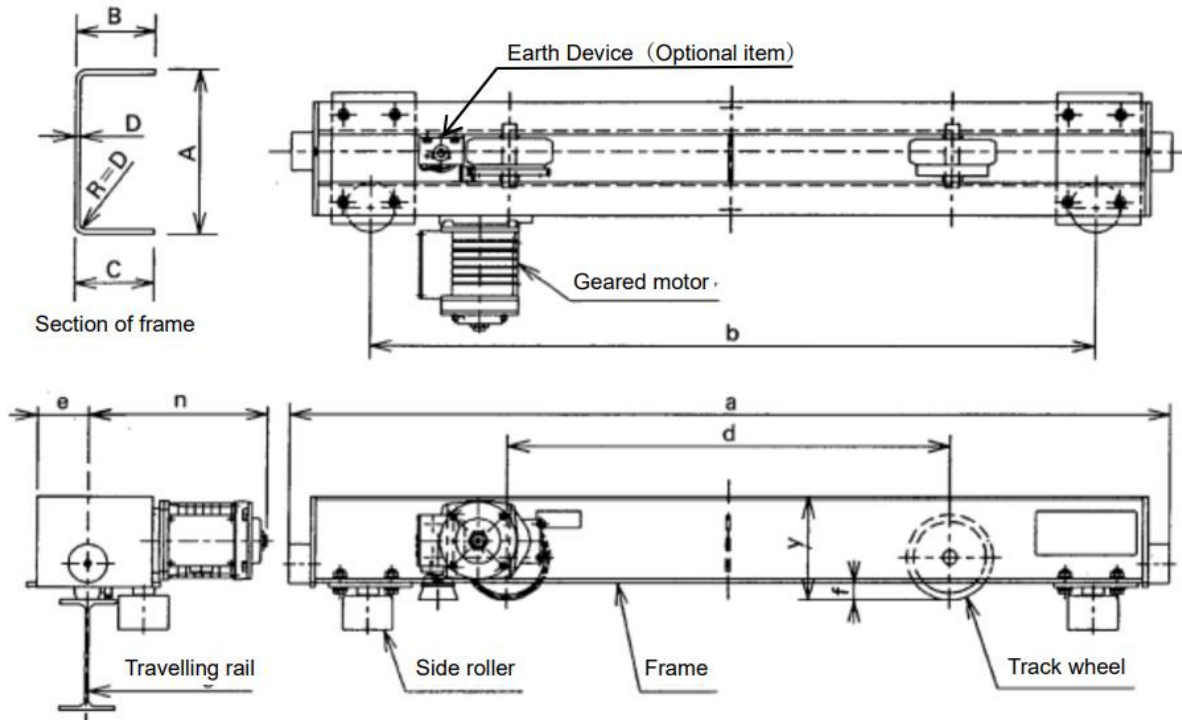
WLL	Max. Span	Type	Code	Traveling Motor Output [kWx2] 50/60Hz [m/min]			Wheel Diameter r	Applicable Traveling Rail Width	a	d	m	u	x	*2 y	*1 n	Max. Wheel Pressure	Net Weight
				L	S	H											
				10/12	20/24	30/36											
1	9	CEL010-9	N6CL310V	0.25	0.20	0.25	95	125 · 150	1500	1060	t+171	34	241-t/2	121	t/2+288	390	146
2	9	CEL020-9	N6CL320V	0.4	0.4	0.75	125	125 · 150	1500	1060	t+211	35	281-t/2	165	t/2+336	710	235

*1: Dimensions for standard speed (20/24[m/min].) geared motor

*2: Height from the traveling surface of the rail to the top point of the end carriage.

WLL: Working load limit [t].

Urethane wheel overhead type motorized end carriage



Frame Size A x B x C x D [mm]

Span [m]	9	12	15	18	21
WLL [t]					
1	155 x 60 x 60 x 6	155 x 60 x 60 x 6	200 x 70 x 70 x 6		200 x 90 x 90 x 9
2				200 x 95 x 95 x 6	
3	200 x 95 x 95 x 6				240 x 105 x 105 x 9
5	200 x 95 x 95 x 6		200 x 80 x 80 x 9		
7.5			240 x 105 x 105 x 9		300 x 125 x 125 x 9
10	200 x 80 x 80 x 9				

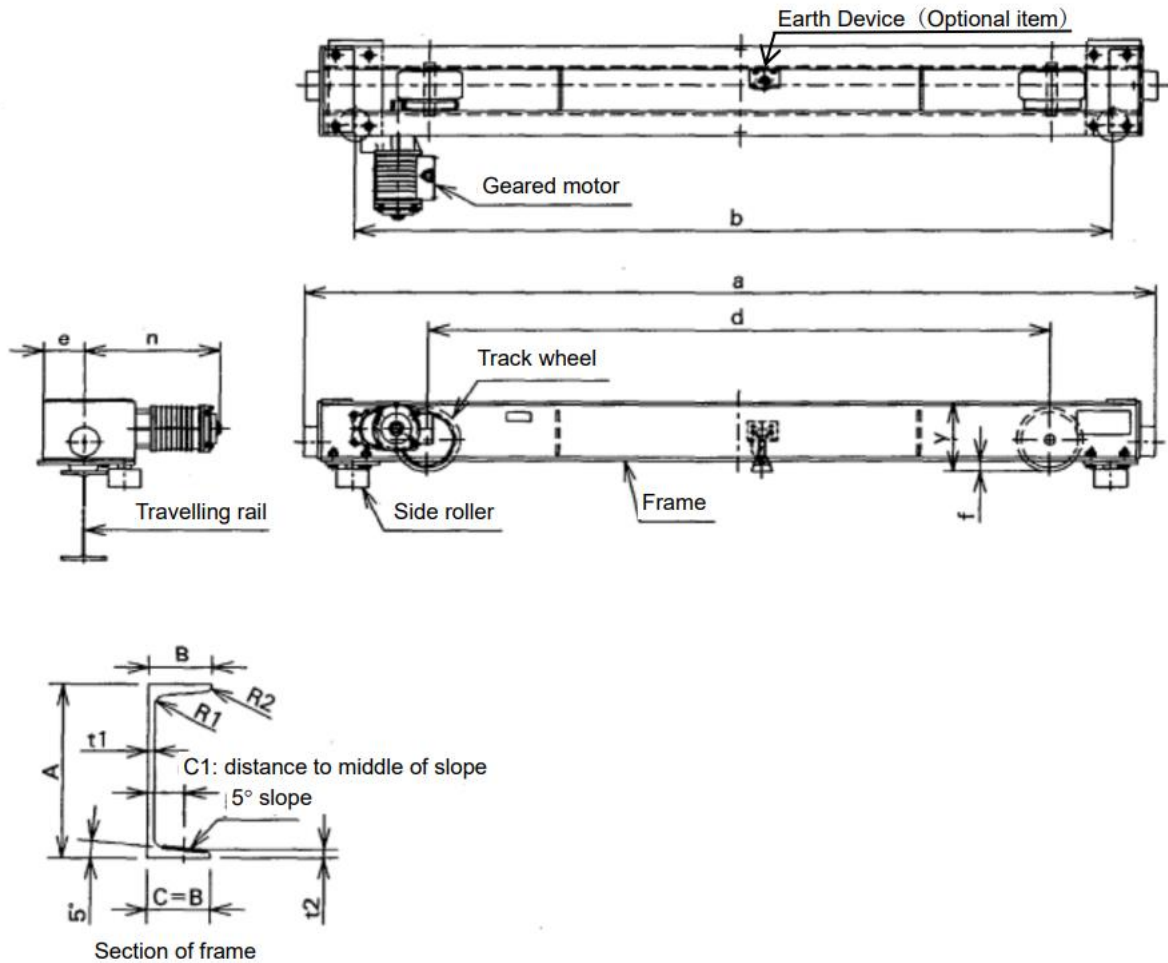
WLL	Max. Span	Type	Code	Traveling Motor Output [kW □ 2] 50/60Hz [m/min]			Wheel diameter [mm]	Applicable Traveling rail width [mm]	a [mm]	d [mm]	m [mm]	u [mm]	x [mm]	*2y [mm]	*1n [mm]	Max. Wheel pressure [kg]	Net Weight [kg]
				L 10/12	S 20/24	H 30/36											
1	9	CEO010-9	N6CO310V	0.25	0.25	0.25	155	100 to 150	1586	1307	800	92	32	188	317	800	156
	12	CEO010-12	N6CO420V	0.4	0.4	0.4	175	150 to 200	1696	1445	900	112	32	188	383	1500	202
	18	CEO010-15·18	N6CO610V	0.4	0.4	0.4	175	150 to 200	2356	2105	1200	122	32	233	383	1500	265
	21	CEO010-21	N6CO730V	0.75	0.75	0.75	220	150 to 200	2792	2499	1400	147	39	239	454	3400	502
2	12	CEO020-9·12	N6CO420V	0.4	0.4	0.4	175	150 to 200	1696	1445	900	112	32	188	383	1500	202
	15	CEO020-15	N6CO530V	0.75	0.75	0.75	220	150 to 200	2082	1761	1000	152	39	239	451	3400	384
	18	CEO020-18	N6CO630V	0.75	0.75	0.75	220	150 to 200	2422	2101	1200	152	39	239	451	3400	398
	21	CEO020-21	N6CO730V	0.75	0.75	0.75	220	150 to 200	2792	2499	1400	147	39	239	454	3400	502
3	15	CEO030-9·12·15	N6CO530V	0.75	0.75	0.75	220	150 to 200	2082	1761	1000	152	39	239	451	3400	384
	18	CEO030-18	N6CO630V	0.75	0.75	0.75	220	150 to 200	2422	2101	1200	152	39	239	451	3400	384
	21	CEO030-21	N6CO730V	0.75	0.75	0.75	220	150 to 200	2792	2499	1400	147	39	239	454	3400	502
5	12	CEO050-9·12	N6CO450V	0.75	0.75	1.5	220	150 to 200	1852	1531	900	152	39	239	451	3400	355
	18	CEO050-15·18	N6CO650V	1.5	1.5	1.5	260	150 to 200	2402	2106	1200	139	39	239	540	4200	543
	21	CEO050-21	N6CO775V	1.5	1.5	1.5	340	150 to 200	2821	2506	1400	184	39	279	553	6300	665
7.5	12	CEO075-12	N6CO411V	1.5	1.5	1.5	340	150 to 200	2081	1766	900	159	39	239	553	6300	525
	18	CEO075-18	N6CO675V	1.5	1.5	1.5	340	150 to 200	2421	2106	1200	184	39	279	553	6300	627
	21	CEO075-21	N6CO775V	1.5	1.5	1.5	340	150 to 200	2821	2506	1400	184	39	279	553	6300	665
10	12	CEO100-12	N6CO411V	1.5	1.5	1.5	340	150 to 200	2081	1766	900	159	39	239	553	6300	525
	21	CEO100-18·21	N6CO711V	1.5	1.5	1.5×2	440	200 to 250	2849	2509	1400	234	46	346	592	8300	1027 [1220]

*1: Dimensions for standard speed (20/24[m/min].) geared motor

*2: Height from the traveling surface of the rail to the top point of the end carriage.

WLL: Working load limit [t].

Urethane wheel overhead type double girder motorized end carriage (1)



Frame Size A x B x t1 x t2 [mm]

Symbol	Size	R1	R2	C1
FRM1	200×80×7.5×11	12	6	47
FRM2	250×90×9×13	14	7	53

Symbol of Frame Size

Span (m)	15	21	27
WLL (t)			
3	FRM1	FRM1	FRM2
5			
7.5	FRM2		

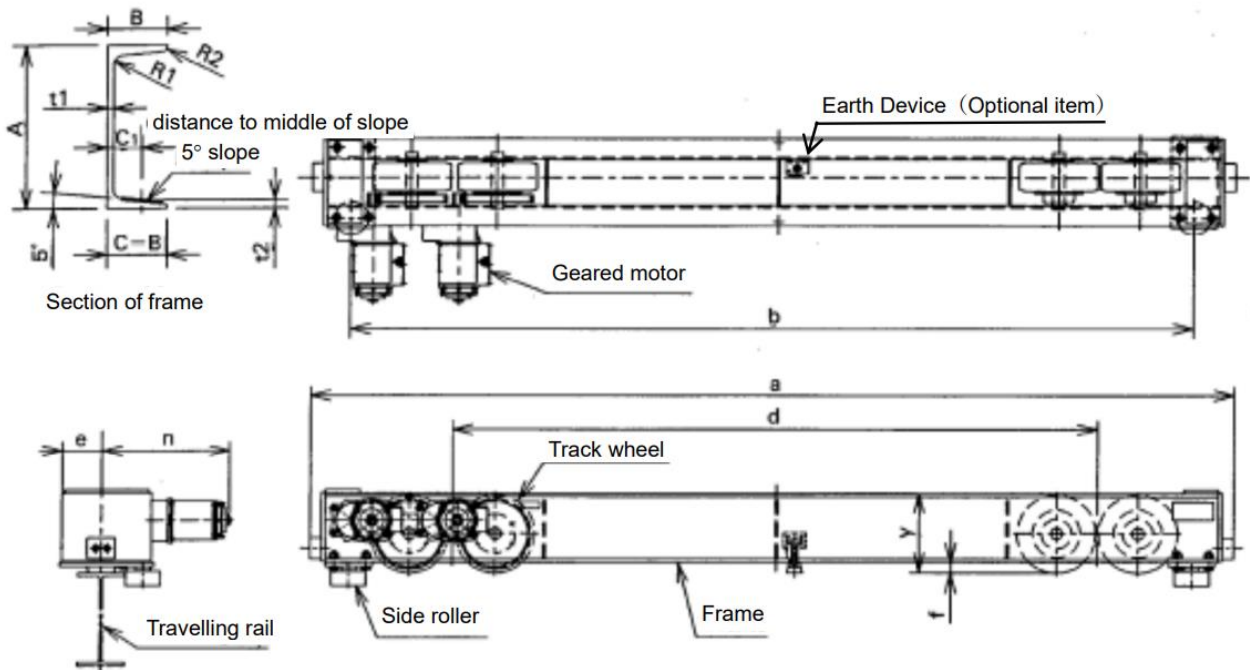
WLL	Max. Span	Type	Code	Traveling Motor Output [kW×2]			Wheel Diameter	Applicable Traveling rail width	a	d	m	u	x	*2y	*1n	Max. Wheel pressure	Net Weight
				L	S	H											
[t]	[m]			10/12	20/24	30/36	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	[kg]
3	15	CWEO030-15	N6KO530V	0.75	0.75	1.5	220	150 to 200	2851	2539	2085	137	39	239	453	3400	524
	21	CWEO030-21	N6KO730V	1.5	1.5	1.5	260	150 to 200	3111	2796	2295	139	39	239	538	4200	653
	27	CWEO030-27	N6KO930V	1.5	1.5	1.5	300	150 to 200	3211	2896	2140	159	39	239	548	4400	881
5	15	CWEO050-15	N6KO730V	1.5	1.5	1.5	260	150 to 200	3111	2796	2295	139	39	239	538	4200	653
	21	CWEO050-21	N6KO575V	1.5	1.5	1.5	340	150 to 200	3091	2776	2230	169	39	239	553	6300	930
7.5	15	CWEO075-15	N6KO575V	1.5	1.5	1.5	340	150 to 200	3091	2776	2230	169	39	239	553	6300	930

*1: Dimensions for standard speed (20/24[m/min].) geared motor

*2: Height from the traveling surface of the rail to the top point of the end carriage.

WLL: Working load limit [t].

Urethane wheel overhead type with double girder motorized end carriage (2)
[4 wheel drive style]



Frame Size A x B x t1 x t2 [mm]

Symbol	Size	R1	R2	C1
FRM1	250×90×9×13	14	7	53
FRM2	300×90×9×13	14	7	53
FRM3	300×90×10×15.5	19	9.5	55
FRM4	380×100×10.5×16	18	9	60
FRM5	380×100×13×20	24	12	62

Symbol of Frame Size

Span (m) WLL (t)	15	21	27
5	-	-	-
7.5	FRM1	FRM1	FRM2
10	-	-	-
15	FRM3	FRM4	-
20	FRM4	FRM5	FRM5

WLL	Max. Span	Type	Code	Traveling Motor Output [kW □ 2] 50/60Hz [m/min]			Wheel diameter	Applicable Traveling rail width	a	d	m	u	x	*2y	*1n	Max. Wheel pressure	Net Weight
				L	S	H											
				10/12	20/24	30/36											
5	27	CWEO050-27	N6KO775V	1.5×2	1.5×2	1.5×2	260×2	175 · 200	3771	3456	2700	149	39	289	540	4200	1150
	21	CWEO075-21	N6KO775V	1.5×2	1.5×2	1.5×2	260×2	175 · 200	3771	3456	2700	149	39	289	540	4200	1160
7.5	27	CWEO075-27	N6KO975V	1.5×2	1.5×2	1.5×2	300×2	175 · 200	4059	3701	2900	159	46	346	548	4400	1438
	15	CWEO100-15	N6KO775V	1.5×2	1.5×2	1.5×2	260×2	175 · 200	3771	3456	2700	149	39	289	540	4200	1160
10	21	CWEO100-21	N6KO975V	1.5×2	1.5×2	1.5×2	300×2	175 · 200	4059	3701	2900	159	46	346	548	4400	1438
	27	CWEO100-27	N6KO715V	1.5×2	1.5×2	1.5×2	340×2	200 · 250	4412	4063	3220	179	46	426	554	6300	1672
15	15	CWEO150-15	N6KO515V	1.5×2	1.5×2	1.5×2	340×2	200 · 250	3992	3643	2790	169	46	346	554	6300	1378
	21	CWEO150-21	N6KO715V	1.5×2	1.5×2	1.5×2	340×2	200 · 250	4412	4063	3220	179	46	426	554	6300	1672
	27	CWEO150-27	N6KO721V	1.5×2	1.5×2	-	340×2	250 · 300	5172	4823	3800	209	46	426	593	8300	2575
20	15	CWEO200-15	N6KO521V	1.5×2	1.5×2	-	440×2	250 · 300	4742	4393	3380	209	46	426	593	8300	2214
	21	CWEO200-21	N6KO721V	1.5×2	1.5×2	-	440×2	250 · 300	5172	4823	3800	209	46	426	593	8300	2575
	27	CWEO200-27	N6KO921V	1.5×2	1.5×2	-	440×2	250 · 300	5422	5073	4070	209	46	426	593	8300	2944

*1: Dimensions for standard speed (20/24[m/min].) geared motor

*2: Height from the traveling surface of the rail to the top point of the end carriage.

WLL: Working load limit [t].

5. Assembly, Wiring and Test Run

WARNING : ALWAYS make sure that the load supporting structures and load attaching device are strong enough to hold the weight of load and hoist. Have all assembly works by the authorized people. Off-limits to unauthorized people in assembly works area.

5.1 Assembly

For detailed assembly instructions, refer to the urethane wheel crane's assembly manual. The end carriage can be easily set on the travel rails with the following procedure.

[Low-head type end carriage]

(a) Detach all track wheels and axles from the end carriage as shown in Fig. 1.

The end carriage frame can be erected without detaching it from the girder. Reassemble the track wheels and axles when the end carriage is in position.

There is always the risk of the hoist and trolley moving when installing, therefore it is easy to fix them to the girder. Also, pay attention when assembling with the power supply cable, junction cable and other accessories.

(b) Installing as shown in Fig 1.

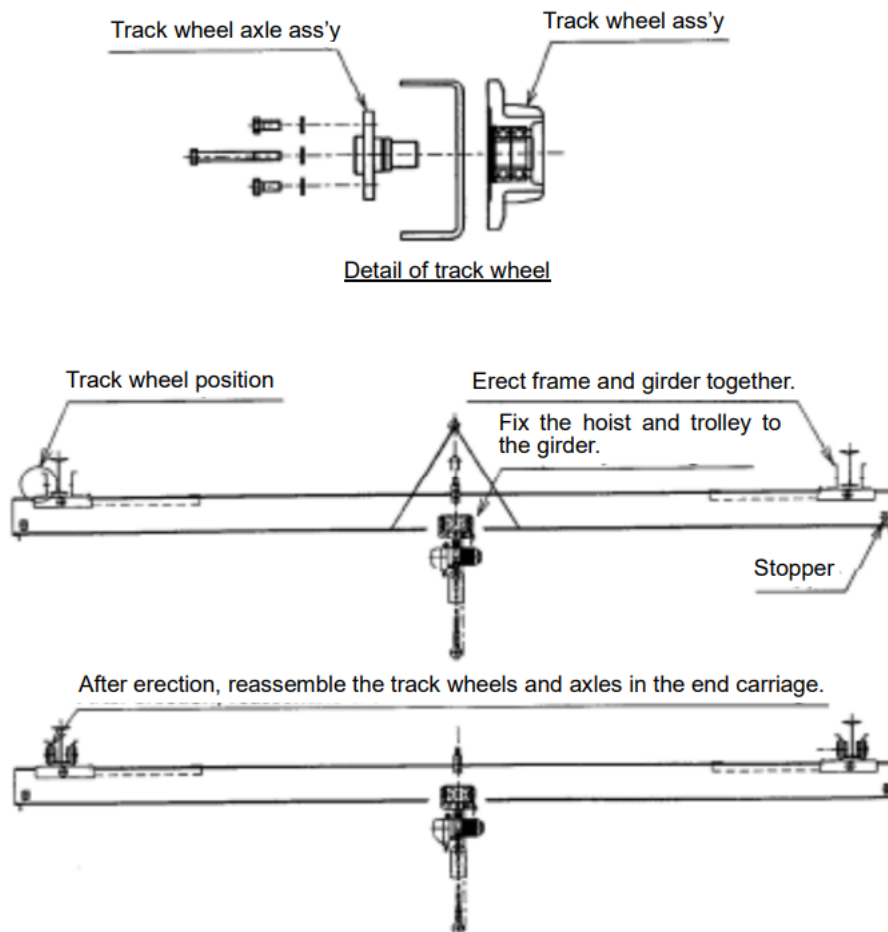


Fig. 1

(c) Precautions in installation (Refer to Fig. 2)

Pay attention to the following points when coupling the end carriage to the girder on-site.

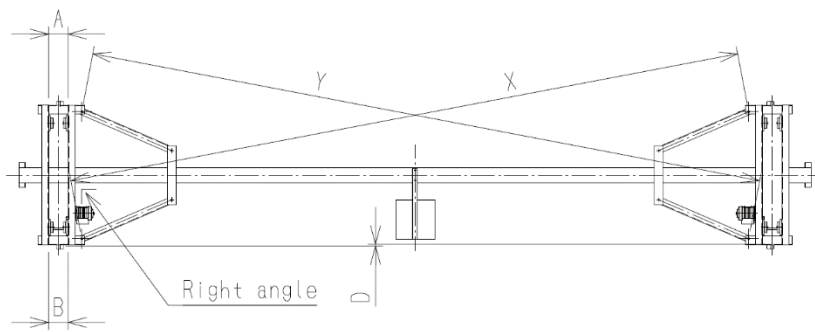


Fig. 2

- Keep the end carriage frames parallel (A and B should be the same).
- Minimize any discrepancy between the left and right end carriage frames position (D should be minimized).



WARNING : If improperly assembled and installed, the crane will repeatedly strike the stopper on the travel rail. This may cause bolts to loosen or other trouble.

- Keep the end carriage at a right angle to the girder.
- Minimize any discrepancy in angling between the left and right end carriage frames (X and Y dimensions).



WARNING : When installing the hoist and trolley on the girder, refer to the “Safety Instructions” for your hoist and trolley respectively provided.

[Overhead type crane]

(a) Generally, the simple way to erect the completed crane is shown in Fig. 3. Lift the crane into position of following figure, then turn the crane so as to fit on the travel rails.

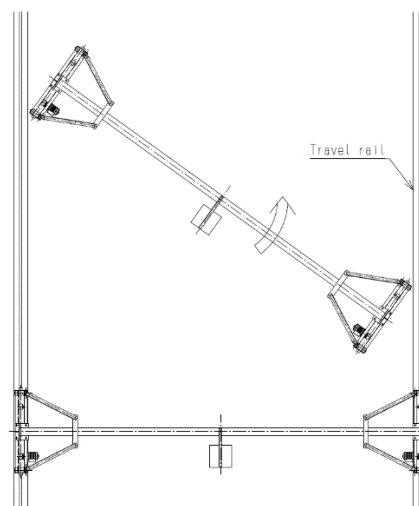


Fig. 3

(b) Precautions in installation (Refer to Fig. 4).

The end carriage comes set at a right angle to the girder and squared to size when delivered, nevertheless, pay attention to the following points when coupling the end carriage to the girder on-site.

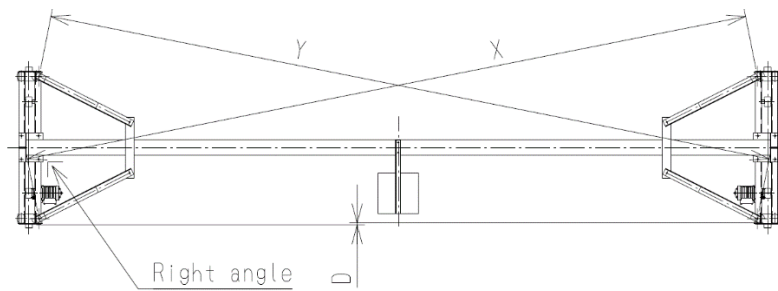


Fig. 4

- Minimize any discrepancy between the left and right end carriage frames position (D should be minimized).

⚠ WARNING : If improperly assembled and installed, the crane will repeatedly strike the stopper on the travel rail. This may cause bolts to loosen or other trouble.

- Keep the end carriage at a right angle to the girder.
- Minimize any discrepancy in angling between the left and right end carriage frames (X and Y dimensions).
- When using a urethane wheel crane, please lay a dedicated earth wire. When using an earth brush, do not paint on the running surface of the track wheel. (Painting can also cause the track wheel to slip)

⚠ WARNING : When installing the hoist and trolley on the girder, refer to the “Safety Instructions” for your hoist and trolley respectively provided.

[Double girder crane]

Many double girder cranes come equipped with peripheral equipment and accessories, and there are equally as many different ways to erect them.

- If the crane can be erected with the left and right end carriage frames attached to the girder, then erect the crane according to the same procedure described for overhead cranes, check dimensions after erecting the equipment, and adjust where necessary.
- If the crane cannot be erected with the left and right end carriage frames attached to the girder, then first erect the end carriage frames on the travel rails as shown in Fig. 5. Next, turn the girders so as to fit between the travel rails and lift into position, and attach the girders to the end carriage frames on the travel rail. When assembling, set the end carriages to a right angle with the girder and square with one another, and adjust span as necessary (Refer to Fig. 5).

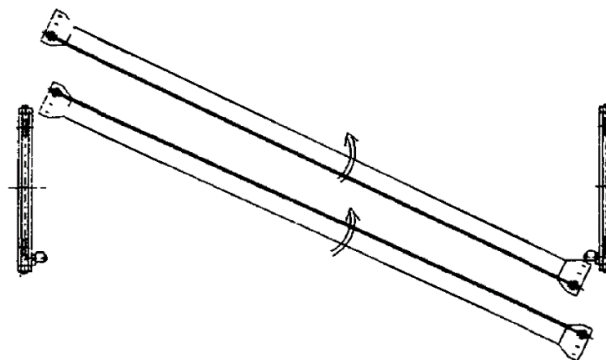


Fig. 5

(c) Precautions in installation (Refer to Fig. 6)

Pay attention to the following points when coupling the end carriage to the girder on-site.

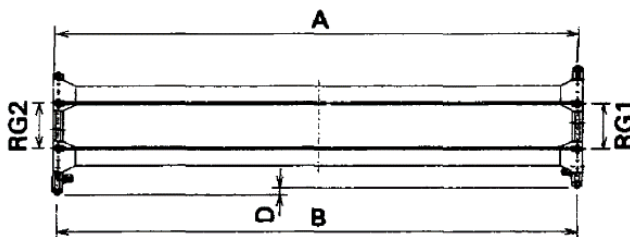


Fig. 6

- Minimize any discrepancy between the left and right end carriage frames position (D should be minimized). If improperly assembled and installed, the crane will repeatedly strike the stopper on the travel rail. This may cause bolts to loosen or other trouble.
- Minimize any discrepancy in rail gauge between the traverse rails (RG1 and RG2 dimensions).
- Keep the end carriage frames parallel (A and B should be the same).

5.2 Wiring

⚠ DANGER : ALWAYS turn off power source or breaker switch to prevent electric shock before beginning the wiring process.
HAVE all wiring performed by an authorized electrician.

Power can be supplied by the cable power supply, tro-reel, high tro-reel or trolley duct systems. For wiring from the power source to the crane's control box, refer to "9. Power supply" in this manual.

5.2.1 Control box internal wiring

Control box wiring differs depending on whether the emergency stop device (option) to the push button switch is attached or not, and whether an electric chain hoist or rope hoist is used. Check wiring diagrams before wiring.

For your reference, typical wiring schemes are shown in Figs. 7 through 10.

5.2.1 Electric traversing wire rope hoist with motorized trolley single speed (end carriage), without emergency stop device.

Color	Abbreviation
Black	Bk
Red	Rd
White	Wh
Gray	Gy
Brown	Bn
Blue	Be
Green	Gn
Green & Yellow	Gn/Ye

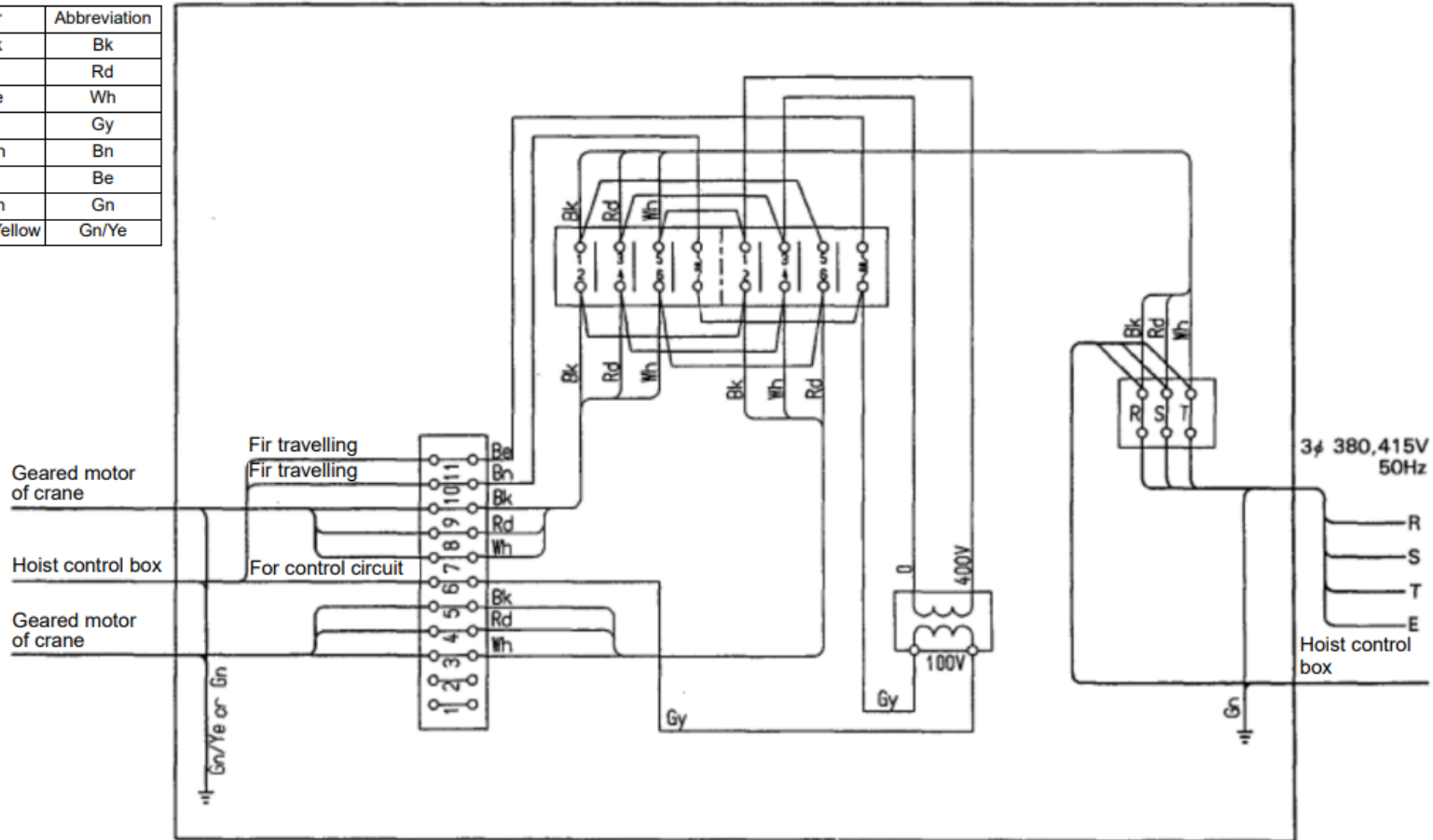


Fig. 7

5.2.1 Electric traversing wire rope hoist with motorized trolley single speed (end carriage), without emergency stop device.

Color	Abbreviation
Black	Bk
Red	Rd
White	Wh
Gray	Gy
Brown	Bn
Blue	Be
Green	Gn
Green & Yellow	Gn/Ye

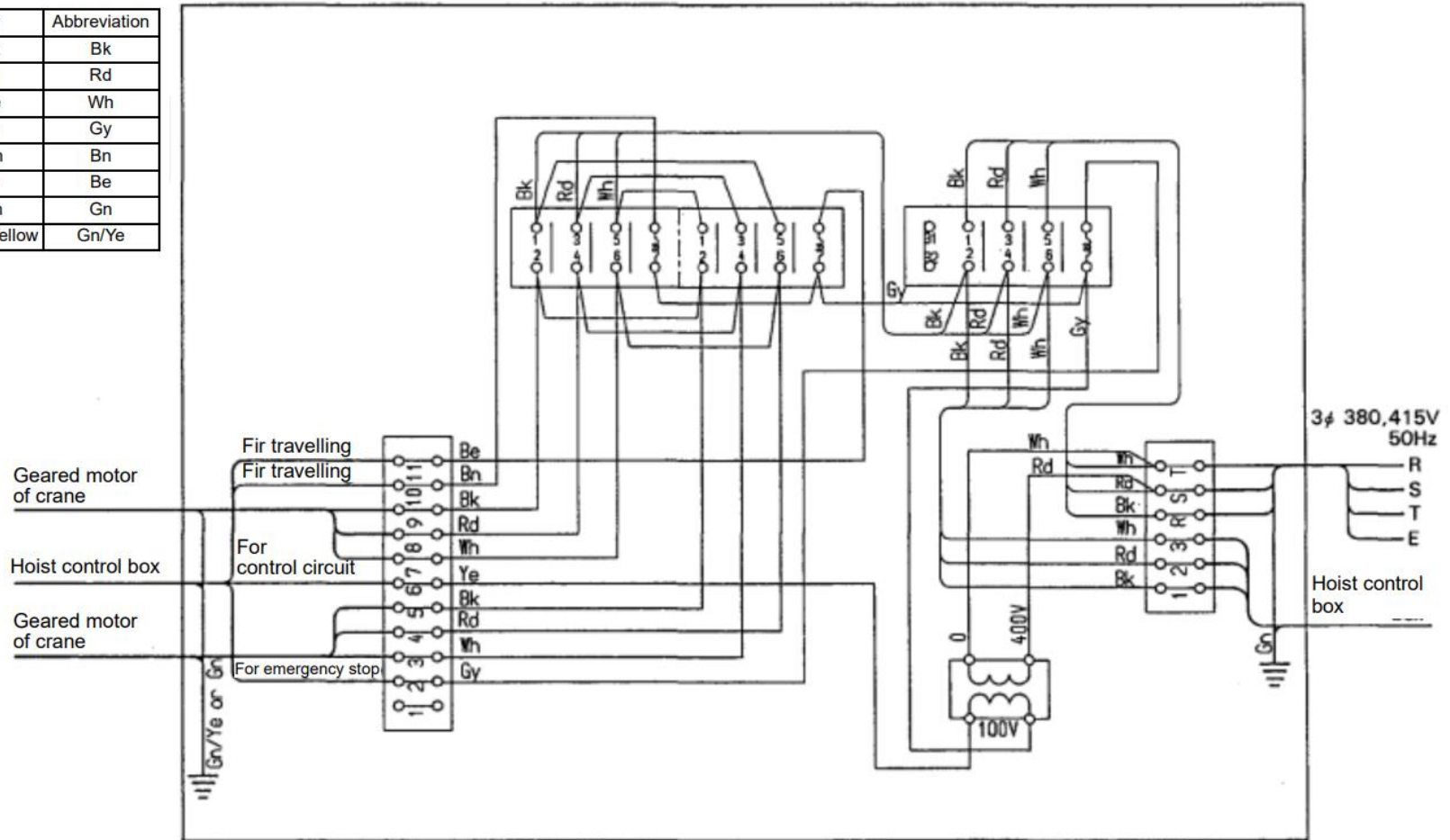
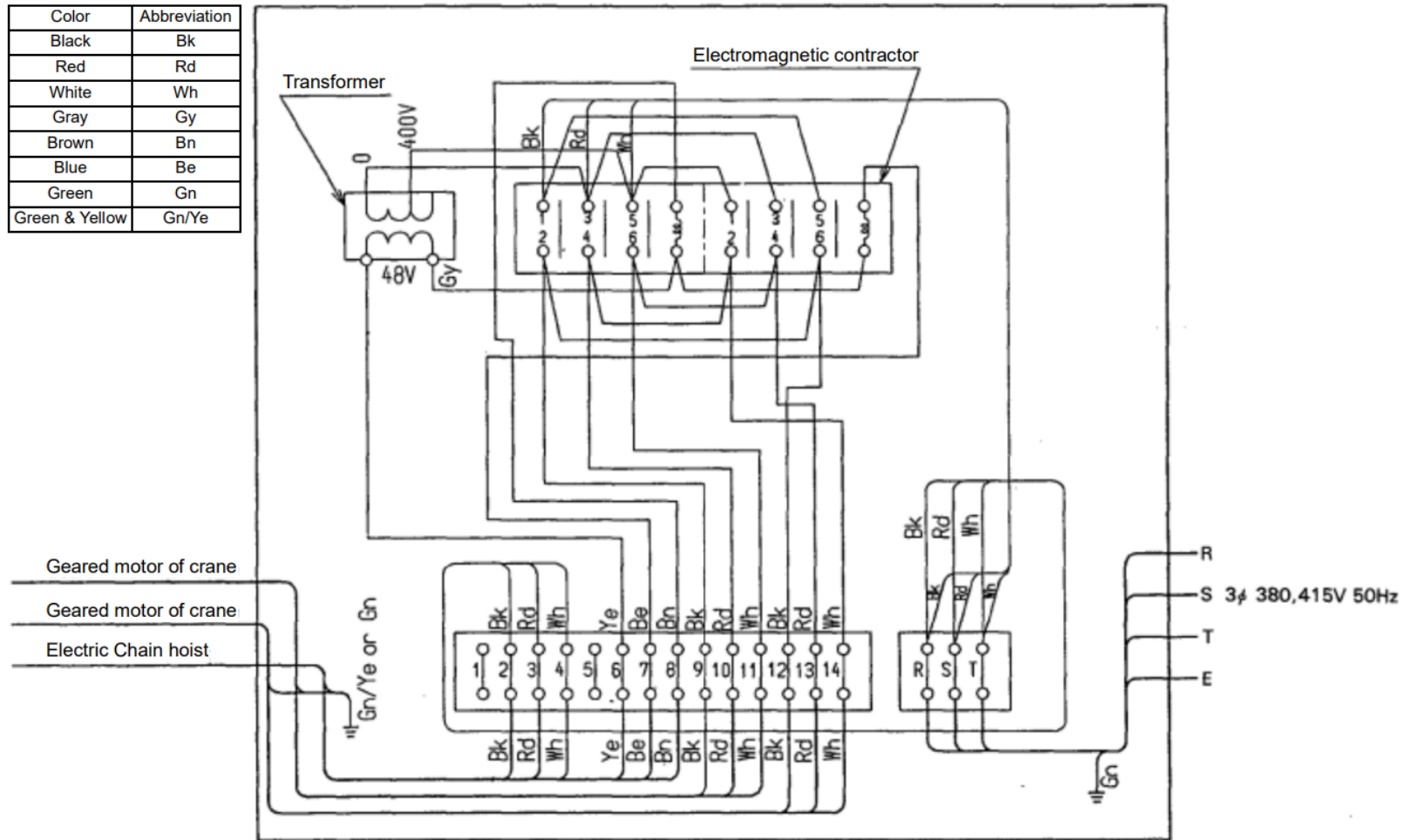


Fig. 8

5.2.1 Electric chain hoist with motorized trolley, single speed (end carriage) without emergency stop device.



* A disuse wire among three wires of the primary side of the transformer shall be isolated and rolled to be fixed securely.

Fig. 9

5.2.1 Electric chain hoist with motorized trolley, single speed (end carriage) with emergency stop device.

Color	Abbreviation
Black	Bk
Red	Rd
White	Wh
Gray	Gy
Brown	Bn
Blue	Be
Green	Gn
Green & Yellow	Gn/Ye

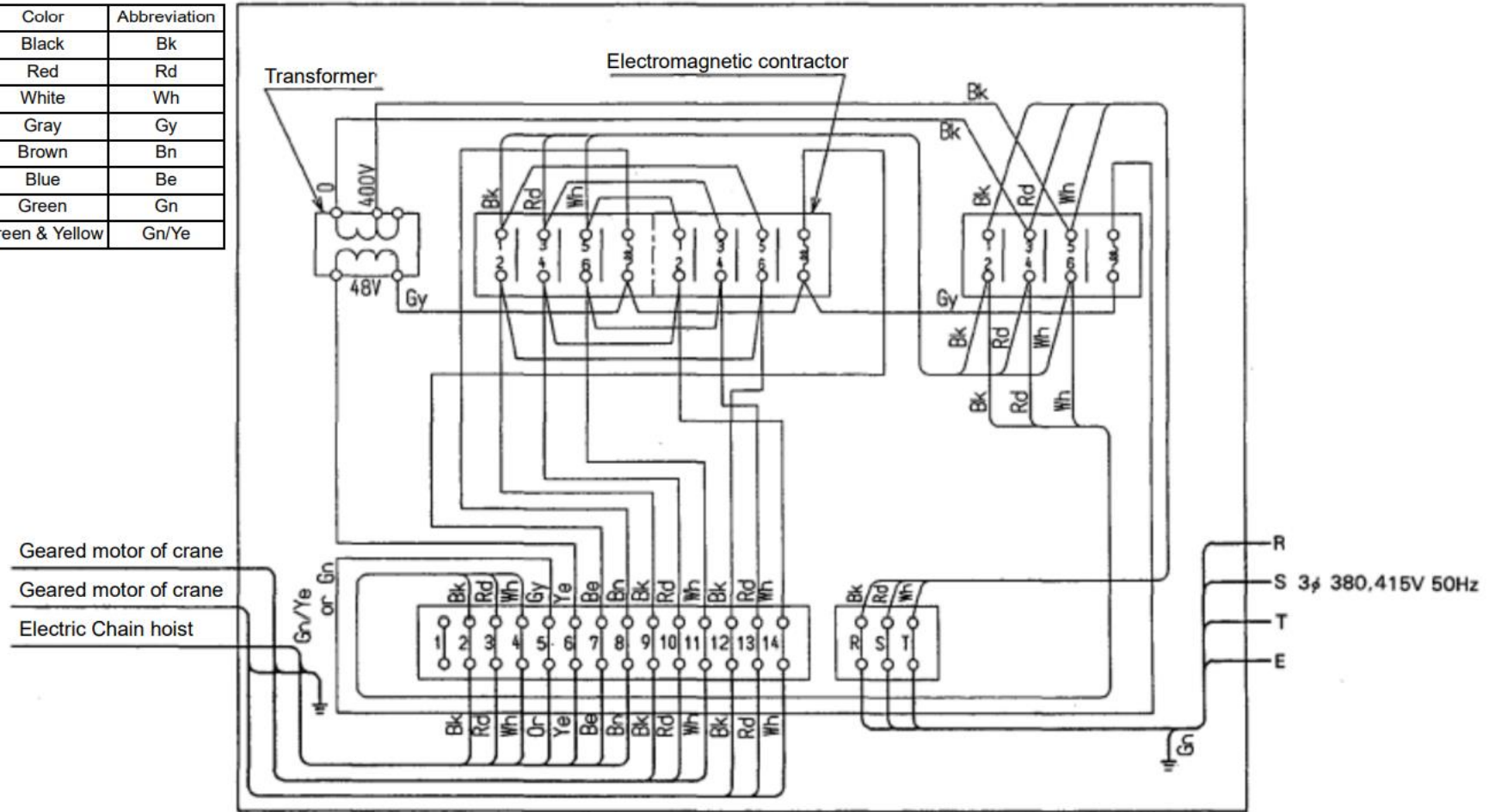


Fig. 10

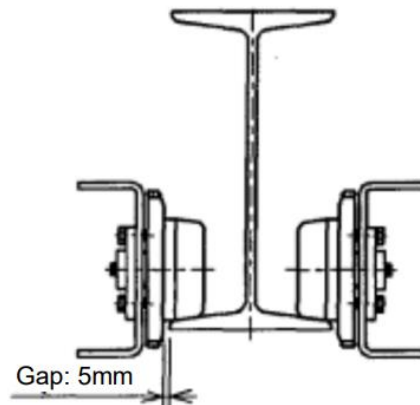
5.2.2 Traverse side power supply

Though different according to span, cranes generally use a cable power supply system.

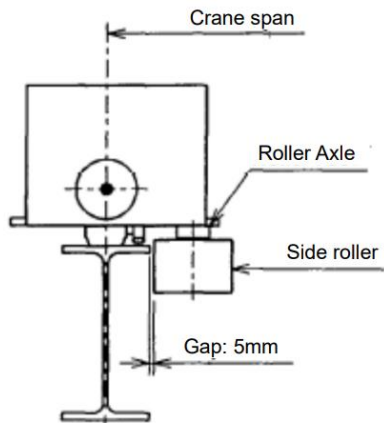
5.3 Test Run

Re-check the following points after the crane has been installed.

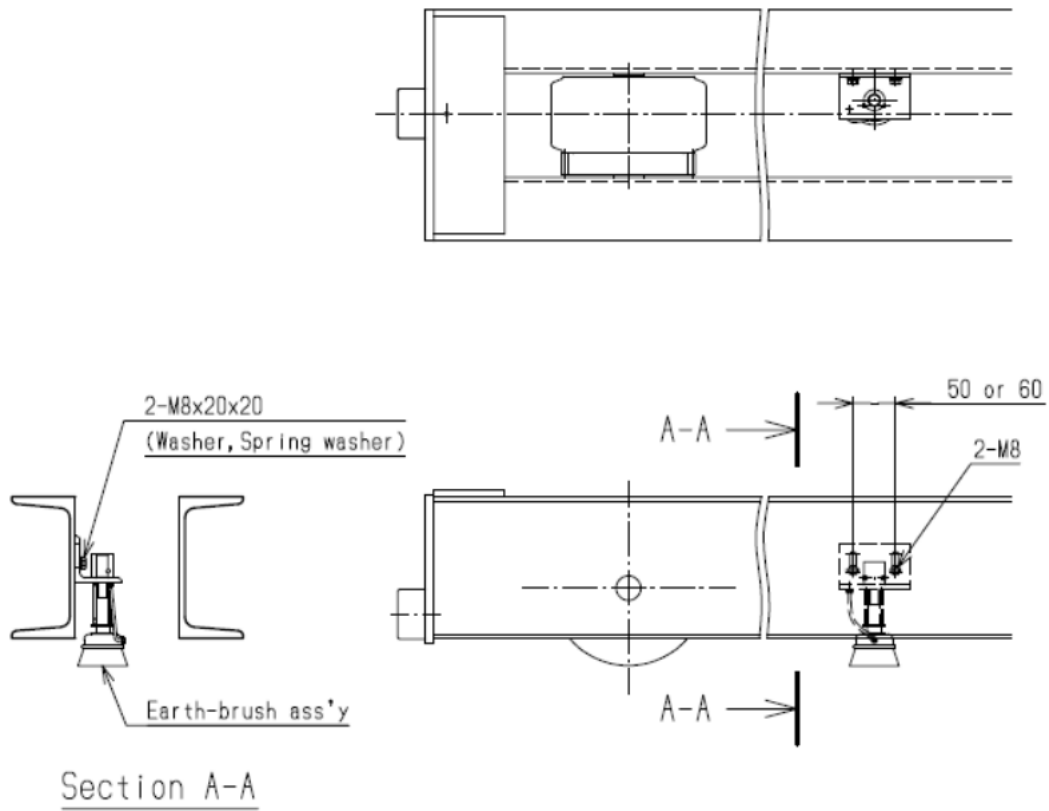
- (a) Make sure the stoppers are securely set on the girder, and that bolts are tight.
- (b) Make sure bolts coupling the end carriages to the girders are tight.
- (c) Make sure that bolts fastening the track wheel axles are tight.
- (d) Make sure the power collector moves smoothly.
- (e) Make sure the left and right end carriages are not backward.
After the above checks, check the following points to see if the crane travels properly.
- (f) Make sure no abnormal noises are made.
- (g) Make sure the crane does not travel on an incline or swerve.
- (h) Make sure the gap (approx. 5 mm) between the travel rail and track wheel flange is the same on both left and right sides.



- (i) Make sure the gap (approx. 5 mm) between the travel rail and side rollers is the same on both left and right sides.



If you cannot lay a dedicated earth wire, please attach the earth brush (optional item) as shown in the following.



- (j) After the above checks but before actually using the equipment, try lifting, lowering, traveling and traversing with a rated load suspended. Check the crane and parts move smoothly.

6. For Better Usage

There are things “to do” and “not to do”, in order to safely operate the equipment and maintain it in proper working order for many years.

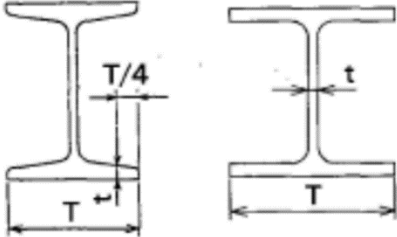
⚠ WARNING : Read carefully “Safety Instructions” for your hoist and trolley respectively provided.

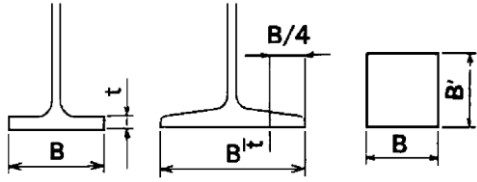
7. Maintenance and Inspections

In order to safely operate the equipment and maintain it in proper working order for many years, perform daily, monthly and yearly checks on it. For your reference, sample monthly and yearly check lists are provided at the end of this manual.

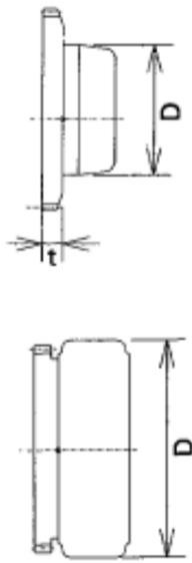
7.1 Check items and criteria for judgement

Check Item	Inspection Method	Discard Limit/Criteria	Remedy
Crane Electric Parts			
1. Power supply [For cable power supply system] <ul style="list-style-type: none"> • Messenger wire tautness • Cable hanger installation and mobility • Cable length 	<ul style="list-style-type: none"> • Check visually. • Check visually. • Check visually. 	<ul style="list-style-type: none"> • The wire must be sufficiently taut. • The cable must be hung at intervals but never twisted. • The cable must be longer than crane’s maximum travel distance. 	<ul style="list-style-type: none"> • Tighten where necessary. • Replace hangers where necessary. • Replace cable with a longer one where necessary.
2. Ground connection	<ul style="list-style-type: none"> • Check grounded parts. 	<ul style="list-style-type: none"> • Parts must be grounded to meet 100Ω resistance against ground. • Insulating objects like paint must not be found on the travel surfaces. 	<ul style="list-style-type: none"> • Ground parts in conformity with your local wiring regulations. • Remove any insulating objects.
3. Insulation	<ul style="list-style-type: none"> • Measure charged and non-charged parts with an insulation resistance meter. 	<ul style="list-style-type: none"> • Insulation resistance must be 0.5MΩ or more. 	<ul style="list-style-type: none"> • Investigate the cause and eliminate the trouble.

Check Item	Inspection Method	Discard Limit/Criteria	Remedy
Travel Rail			
4. Travel rail <ul style="list-style-type: none"> Rail surface wear Looseness in fixing bolts Oil accumulation on rail surface Span Rail slope Rail deformation 	<ul style="list-style-type: none"> Check visually and use calipers where necessary. Try turning with a wrench. Check visually. Measure with a tape measure or other means. Measure with a level. Check visually and use calipers where necessary. 	<ul style="list-style-type: none"> The travel rail surface must not be worn. Fixing bolts and hook bolts must be sufficiently tight. The rail surface must be free of oil. Crane span Low-head crane: $\pm 5\text{mm}$ Overhead crane: $\pm 5\text{mm}$ Double girder crane: $\pm 5\text{mm}$ Slope must be within $1/1000$ of the distance between supporting beams. For I-beams, no deformation or sagging must be found. 	<ul style="list-style-type: none"> Replace worn parts. Tighten where necessary. Clean where necessary. Adjust to the prescribed span. Adjust to the prescribed level. Replace deformed parts.
Girder			
5. Girder <ul style="list-style-type: none"> Girder deformation Welded parts 	<ul style="list-style-type: none"> Check visually and use calipers where necessary. Check visually and perform color check where necessary. 	<ul style="list-style-type: none"> For I-beams, no deformation or sagging must be found. No cracks must be found. No corrosion must be found. 	<ul style="list-style-type: none"> Reinforce or replace parts as necessary. Reinforce or repair parts as necessary.

Check Item	Inspection Method	Discard Limit/Criteria	Remedy
<ul style="list-style-type: none"> Girder wear Looseness in fixing bolts Deflection 	<ul style="list-style-type: none"> Check visually and use calipers where necessary. Try turning with a wrench. Measure with a level under rated load. 	<ul style="list-style-type: none"> The travel rail surface must not be worn.  <ul style="list-style-type: none"> Wear limit for B: Up to 5% of new part Wear limit for B': Up to 10% of new part Wear limit for t: Up to 10% of new part Fixing bolts for girder must be sufficiently tight. Deflection must be within 1/800 or less of the span. 	<ul style="list-style-type: none"> Replace worn parts. Tighten where necessary. Reinforce girders or lower the rated load.

End Carriage

<p>6. End carriage</p> <ul style="list-style-type: none"> Track wheel wear Cracks in track wheel contact surface 	<ul style="list-style-type: none"> Measure with calipers. Check visually. 	<ul style="list-style-type: none"> Wear in the travel surface and flange must not exceed in the below figures. <table border="1"> <thead> <tr> <th colspan="4">[Track wheels for low-head crane]</th> <th>mm</th> </tr> </thead> <tbody> <tr> <td rowspan="2">φ D</td> <td>Standard dimension</td> <td>φ 95</td> <td colspan="2">φ 125</td> </tr> <tr> <td>When worn</td> <td>φ 90</td> <td colspan="2">φ 115</td> </tr> <tr> <td rowspan="2">t</td> <td>Standard dimension</td> <td>15</td> <td colspan="2">15</td> </tr> <tr> <td>When worn</td> <td>12</td> <td colspan="2">12</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="5">[Track wheels for overhead crane]</th> </tr> <tr> <th colspan="5">[Track wheels for double girder crane]</th> </tr> <tr> <th colspan="5">mm</th> </tr> </thead> <tbody> <tr> <td rowspan="2">φ D</td> <td>Standard dimension</td> <td>φ 155</td> <td>φ 175</td> <td colspan="2">φ 220</td> </tr> <tr> <td>When worn</td> <td>φ 149</td> <td>φ 167</td> <td colspan="2">φ 209</td> </tr> <tr> <td rowspan="2">t</td> <td>Standard dimension</td> <td>φ 260</td> <td>φ 340</td> <td colspan="2">φ 440</td> </tr> <tr> <td>When worn</td> <td>φ 247</td> <td>φ 330</td> <td colspan="2">φ 427</td> </tr> </tbody> </table> <ul style="list-style-type: none"> No cracks must be found. 	[Track wheels for low-head crane]				mm	φ D	Standard dimension	φ 95	φ 125		When worn	φ 90	φ 115		t	Standard dimension	15	15		When worn	12	12		[Track wheels for overhead crane]					[Track wheels for double girder crane]					mm					φ D	Standard dimension	φ 155	φ 175	φ 220		When worn	φ 149	φ 167	φ 209		t	Standard dimension	φ 260	φ 340	φ 440		When worn	φ 247	φ 330	φ 427		<ul style="list-style-type: none"> Replace parts where exceeding their wear limit. Replace.
[Track wheels for low-head crane]				mm																																																											
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Check Item	Inspection Method	Discard Limit/Criteria	Remedy																																					
End carriage																																								
<ul style="list-style-type: none"> Missing or mispositioned snap rings Diameter of left and right track wheels 	<ul style="list-style-type: none"> Check visually. Measure with calipers or depress gauge. 	<ul style="list-style-type: none"> No snap rings must be missing or out of position. Difference in diameter between left and right must be within 1% or less. <table border="1"> <thead> <tr> <th colspan="3">[Track wheels for low-head crane]mm</th> </tr> </thead> <tbody> <tr> <td>Diameter</td> <td>φ 95</td> <td>φ 125</td> </tr> <tr> <td>Wear limit</td> <td>1.0</td> <td>1.2</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">[Track wheels for overhead crane]</th> </tr> <tr> <th colspan="4">[Track wheels for double girder crane]</th> </tr> <tr> <th colspan="4">mm</th> </tr> </thead> <tbody> <tr> <td>Diameter</td> <td>φ 155</td> <td>φ 175</td> <td>φ 220</td> </tr> <tr> <td>Wear limit</td> <td>1.5</td> <td>1.7</td> <td>2.2</td> </tr> <tr> <td>Diameter</td> <td>φ 260</td> <td>φ 340</td> <td>φ 440</td> </tr> <tr> <td>Wear limit</td> <td>2.6</td> <td>3.4</td> <td>4.4</td> </tr> </tbody> </table>	[Track wheels for low-head crane]mm			Diameter	φ 95	φ 125	Wear limit	1.0	1.2	[Track wheels for overhead crane]				[Track wheels for double girder crane]				mm				Diameter	φ 155	φ 175	φ 220	Wear limit	1.5	1.7	2.2	Diameter	φ 260	φ 340	φ 440	Wear limit	2.6	3.4	4.4	<ul style="list-style-type: none"> Put any out-of-place parts back in place. Replace parts where exceeding their wear limit.
[Track wheels for low-head crane]mm																																								
Diameter	φ 95	φ 125																																						
Wear limit	1.0	1.2																																						
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Wear limit	2.6	3.4	4.4																																					
<ul style="list-style-type: none"> Side roller wear 	<ul style="list-style-type: none"> Check visually or measure with calipers. 	<ul style="list-style-type: none"> Roller wear must not exceed the below figures. <table border="1"> <thead> <tr> <th colspan="5">mm</th> </tr> </thead> <tbody> <tr> <td>Standard dimension</td> <td>φ 90</td> <td>φ 110</td> <td>φ 125</td> <td>φ 150</td> </tr> <tr> <td>When worn</td> <td>φ 82</td> <td>φ 102</td> <td>φ 117</td> <td>φ 142</td> </tr> </tbody> </table>	mm					Standard dimension	φ 90	φ 110	φ 125	φ 150	When worn	φ 82	φ 102	φ 117	φ 142	<ul style="list-style-type: none"> Replace parts where exceeding their wear limit. 																						
mm																																								
Standard dimension	φ 90	φ 110	φ 125	φ 150																																				
When worn	φ 82	φ 102	φ 117	φ 142																																				
<ul style="list-style-type: none"> Greasing 	<ul style="list-style-type: none"> Check visually. 	<ul style="list-style-type: none"> The track wheel teeth and the tooth of the pinion L must be sufficiently greased. 	<ul style="list-style-type: none"> Grease where necessary. 																																					
<ul style="list-style-type: none"> Looseness in fixing bolts 	<ul style="list-style-type: none"> Try turning with a wrench. 	<ul style="list-style-type: none"> Fixing bolts must be sufficiently tight. 	<ul style="list-style-type: none"> Tighten where necessary. 																																					
Geared Motor																																								
7. Geared motor <ul style="list-style-type: none"> Electro-magnetic brake action Greasing 	<ul style="list-style-type: none"> Operate the crane forward and in reverse. Overhaul and check visually. 	<ul style="list-style-type: none"> The crane must com to a smooth stop when the brakes are applied. Parts must be sufficiently greased. Greased parts must not be overly dirty or contaminated with foreign matter. 	<ul style="list-style-type: none"> Adjust the brakes where necessary. Grease or degrease where necessary. Replace parts where necessary. 																																					
Catwalk																																								
8. Catwalk and inspection bridge <ul style="list-style-type: none"> Catwalk Rail 	<ul style="list-style-type: none"> Check visually. Check visually. 	<ul style="list-style-type: none"> The catwalk floor must not be slippery or prevent danger of tripping. The rail must be sturdy, safe and undamaged. 	<ul style="list-style-type: none"> Clean and / or inspect where necessary. Repair parts where necessary. 																																					

8. Track Wheel Disassembly and Assembly

⚠ DANGER : NEVER perform disassembly and assembly works on the crane while it is supporting a load.
Off-limits to the area under the crane during the above works.

Low-head cranes come with detachable track wheel axles, in order to shorten installation and maintenance work.

8.1 Disassembly

Disassemble as described here following. Refer to Figs 11 and 12 for help.

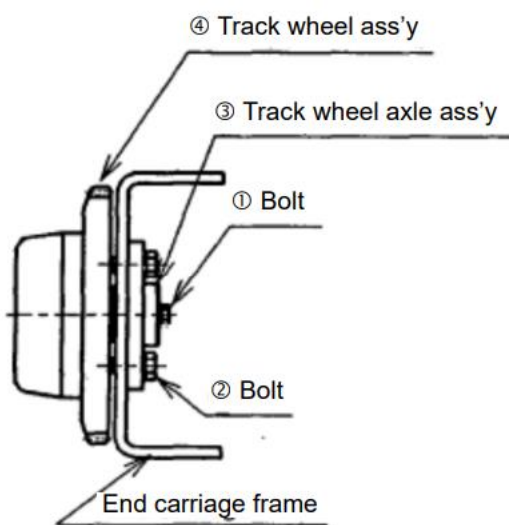


Fig. 11

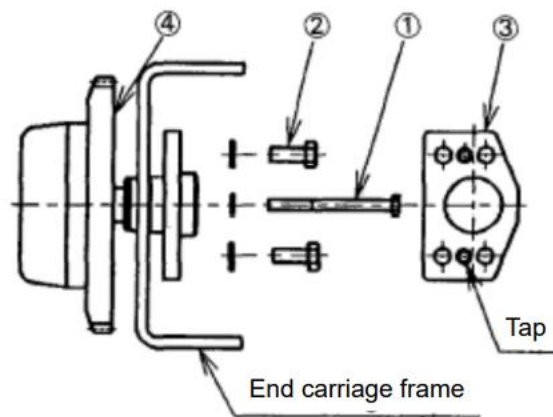


Fig. 12

Step 1: Remove bolt ①, while holding the track wheel ④ by hand.

Step 2: Remove bolt ②.

Step 3: Remove the axle ass'y ③ from the end carriage frame, by screwing into the tap holes (x2) on the axle ass'y with the bolt ②.

Step 4: Remove the track wheel ④ from the axle ass'y ③.

8.2 Assembly

After installing the crane or maintenance, reassemble the track wheels as shown in Fig. 13.

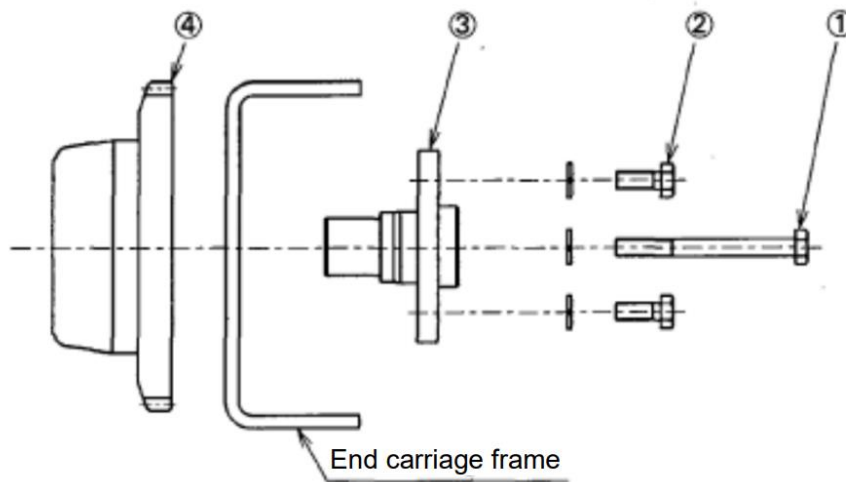


Fig. 13

Step 1: While holding the track wheel (4) by hand, pass the axle (3) through the end carriage frame and insert it inside the wheel bearing.

Step 2: While holding the track wheel (4) by hand, screw bolt (1) in until both the axle (3) and wheel (4) are fixed.

Step 3: Press on the axle (3) until properly in place on the end carriage frame.

Step 4: Screw bolt (2) into the end carriage frame, until the axle (3) is fixed to the end carriage frame.

[After assemble check]

After assemble parts, check the following points before setting the track wheels on the travel rails.

- (a) Make sure the wheels turn freely by hand.
- (b) Make sure bolts are sufficiently tight.

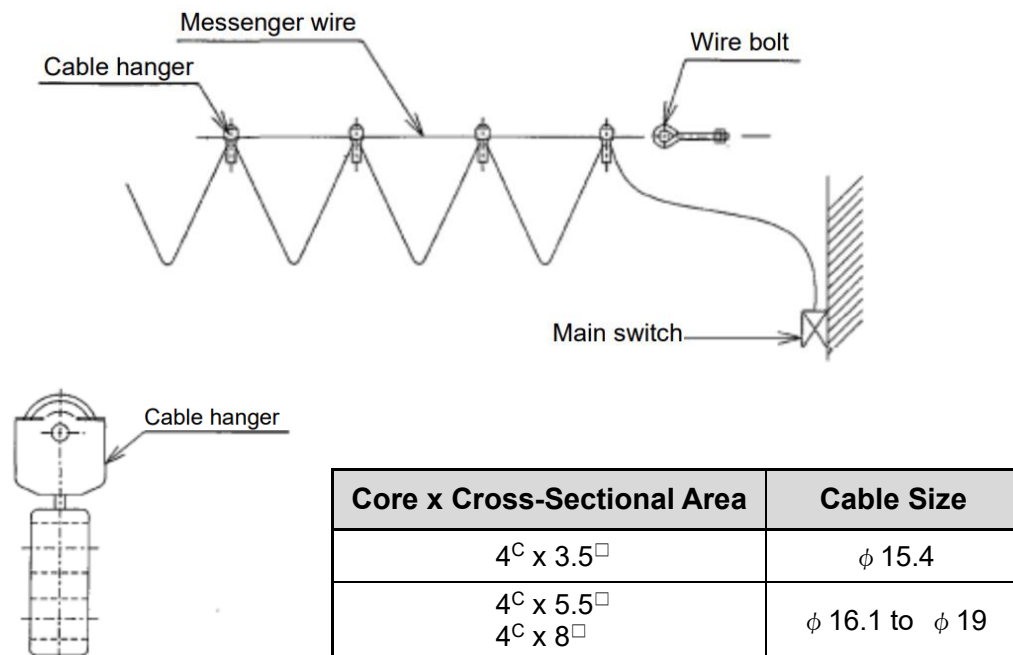
9. Power Supply Method

Power can be supplied from the source to the control box by a cable power supply, tro-reel, high tro-reel or trolley duct systems. But, for convenience sake, the simple cable power supply system is herein explained.

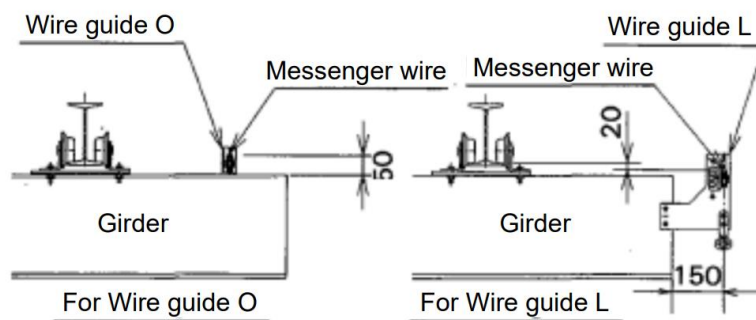
(a) Cable power supply system

This is the widest used means of supplying power to the crane because it is easy to arrange the cable.

- Use a messenger wire with a diameter between $\phi 3$ and $\phi 6$.
- Keep messenger wire length under 20m.
- Refer to the KITO Crane catalogue for allowed cable length.



String the messenger wire along the girder with either the wire guide O or wire guide L.



[For Wire guide O]

- The messenger wire can be strung along either the inside or outside of the span.

[For Wire guide L]

- The messenger wire can be strung along the outside of the span and anchored at the end of the girder.

10. Troubleshooting

Trouble	Cause	Remedy
<ul style="list-style-type: none"> The crane does not move smoothly. 	<ul style="list-style-type: none"> The end carriage is not set at a right angle to the girder or left and right end carriages are not parallel. Track wheels are unevenly worn. Due to wear in the track wheel flange, a gap has formed between the rail and wheel (rail swerves or runs on an incline). Pressure is unbalanced between left and right brakes. The wheel axle bolts are loose. A gap has formed between the side rollers and travel rail (most likely due to wear in the side roller). 	<ul style="list-style-type: none"> Set the end carriages at a right angle to the girder, and parallel with one another. Replace the wheels where necessary. Replace the wheels where necessary. Adjust the left and right brakes. Tighten bolts where necessary. Replace the side rollers where necessary.
<ul style="list-style-type: none"> The motor gets extremely hot. 	<ul style="list-style-type: none"> The motor is running on a single phase current. Voltage in the power supply has dropped. The brake circuit is disconnected. The rectifier is damaged. 	<ul style="list-style-type: none"> Rewire where necessary. Measure voltage in the power supply. Rewire where necessary. Replace the rectifier.
<ul style="list-style-type: none"> Buffers on the left and right end carriages do not contact the stoppers at the same time. 	<ul style="list-style-type: none"> The bolts coupling the end carriage to the girder are loose. 	<ul style="list-style-type: none"> Adjust parts so that contact is made at the same time, and tighten bolts where necessary.
<ul style="list-style-type: none"> Electrical shock 	<ul style="list-style-type: none"> The travel rail is not properly grounded. The end carriage is not properly grounded. The travel surface on the girder is coated with paint. Water or foreign matter has penetrated the electric parts. No dedicated earth wire is laid. 	<ul style="list-style-type: none"> Ground parts where necessary. Ground the end carriage at the travel rail. Remove paint from girder surface. Dry parts and remove any foreign matter where necessary. Lay a dedicated earth wire.

11.Warranty

KITO Corporation (“KITO”) extends the following warranty to the original purchaser (“Purchaser”) of new products manufactured by “KITO” (KITO’s Products).

- (1) “KITO” warrants that KITO’s Products, when shipped, shall be free from defects in workmanship and/or materials under normal use and service and “KITO” shall, at the election of “KITO”, repair or replace free of charge any parts or items which are proven to have said defects, provided that all claims for defects under this warranty shall be made in writing immediately upon discovery and, in any event, within one (1) year from the date of purchase of KITO’s Products by “Purchaser” and provided, further, that defective parts or items shall be kept for examination by “KITO” or its authorized agents or returned to KITO’s factory or authorized service center upon request by “KITO”.
- (2) “KITO” does not warrant components of products provided by other manufacturers. However to the extent possible, “KITO” will assign to “Purchaser” applicable warranties of such other manufacturers.
- (3) Except for the repair or replacement mentioned in (1) above which is “KITO”’s sole liability and purchaser’s exclusive remedy under this warranty, “KITO” shall not be responsible for any other claims arising out of the purchase and use of KITO’s Products, regardless of whether “Purchaser”’s claims are based on breach of contract, tort or other theories, including claims for any damages whether direct, indirect, incidental or consequential.
- (4) This warranty is conditional upon the installation, maintenance and use of KITO’s Products pursuant to the product manuals prepared in accordance with content instructions by “KITO”. This warranty shall not apply to KITO’s Products which have been subject to negligence, misuse, abuse, misapplication or any improper use or combination or improper fittings, alignment or maintenance.
- (5) “KITO” shall not be responsible for any loss or damage caused by transportation, prolonged or improper storage or normal wear and tear of KITO’s Products or for loss of operating time.
- (6) This warranty shall not apply to KITO’s Products which have been fitted with or repaired with parts, components or items not supplied or approved by “KITO” or which have been modified or altered.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

12 Parts List

■ Urethane Wheel Overhead Type Motorized End Carriage

Type : CEO010-9, CEO010-12, CEO010-15 · 18, CEO010-21
CEO020-9 · 12, CEO020-15, CEO020-18, CEO020-21
CEO030-9 · 12 · 15, CEO030-18, CEO030-21

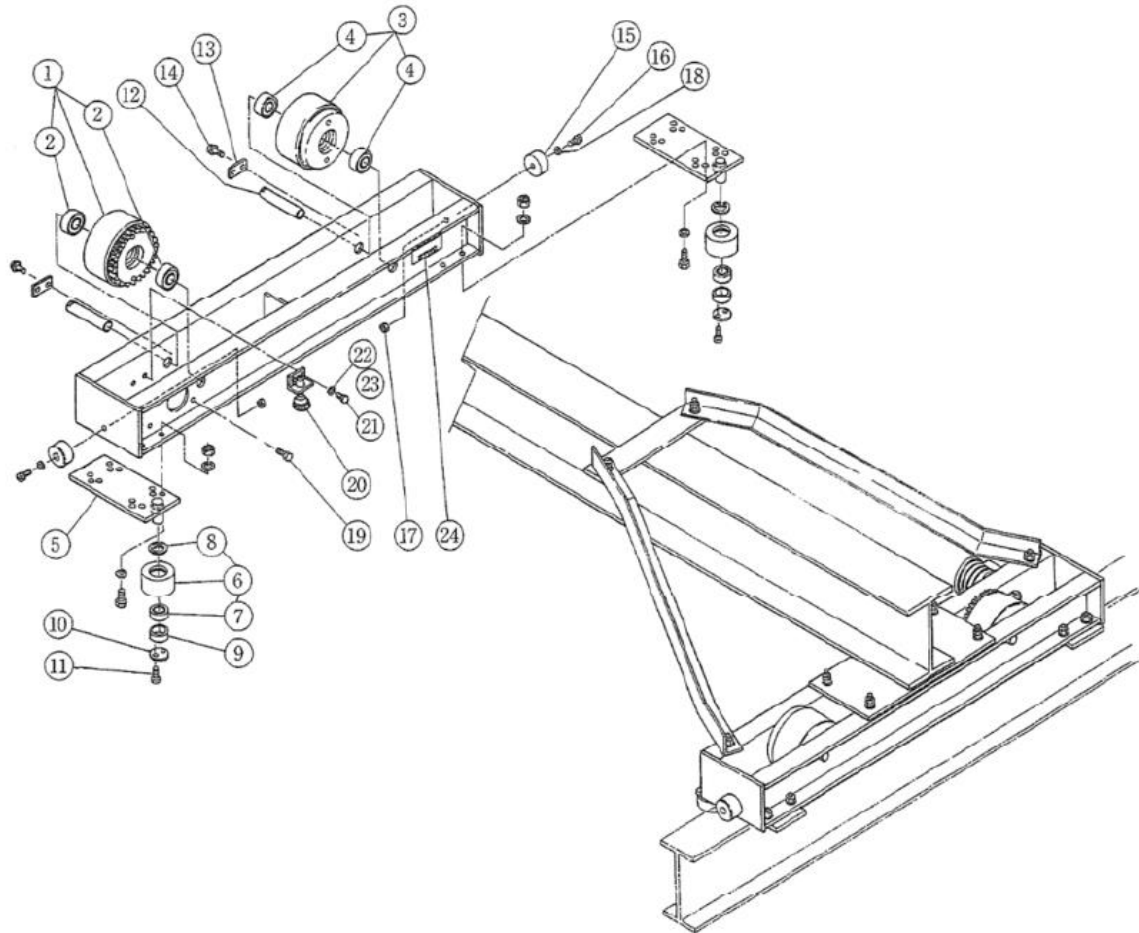


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type			Note
				CEO010-9	CEO010-15 · 18	CEO010-12 CEO020-9 · 12	
				Code			
			N6CO310V	N6CO610V	N6CO420V		
1	1101	Wheel A ass'y	2	N6CO310E1101	N6CO410E1101		
2	107	Ball bearing	4	J1GR020-06205	J1GR020-06306		
3	1102	Wheel B ass'y	2	N6CO310E1102	N6CO410E1102		
4	107	Ball bearing	4	J1GR020-06205	J1GR020-06306		
5	1108	Roller ass'y	4	N6CO310E1108			
6	112	Ball bearing	4	J1GR020-06205			For roller
7	110	Snap ring	4	J1SR000-00052			For roller
8	120	Roller washer	4	N6QO310E9120			
9.10	121	Socket bolt with Spring washer	4	J1BG1-0601515-			For roller axle
11	103	Track wheel axle	4	N6CO310E9103	N6CO410E9103		
12	105	Key plate	4	N2QO310-9105-			
13	151	Socket bolt with spring washer	8	J1BG1-0801818			For key plate
14	207	Buffer	4	N6QL210E9207			
15	258	Socket bolt	4	J1BE1-0803522			For buffer
16	259	Nut	4	J1NA001-10080			For buffer
17	260	Washer	4	J1WK011-10080			For buffer
18,19	360	Bolt with Spring washer	8	J1BH1-0803030	J1BH1-1003535		For geared motor installaion
20 21	380	Nut with Washer	8	J1BP9-1204025			For roller plate
22	1765	Ground wire assembly	2	N6CO310E1765			
23 24	781	Bolt with Spring washer	4	J1BH1-0802020			For ground wire
25	208	Name plate S	2	N6CO310E9208	N6CO610E9208	N6CO420E9208	

■ Urethane Wheel Overhead Type Motorized End Carriage

Type : CEO010-21

CEO020-15, CEO020-18, CEO020-21

CEO030-9 · 12 · 15, CEO030-18, CEO030-21

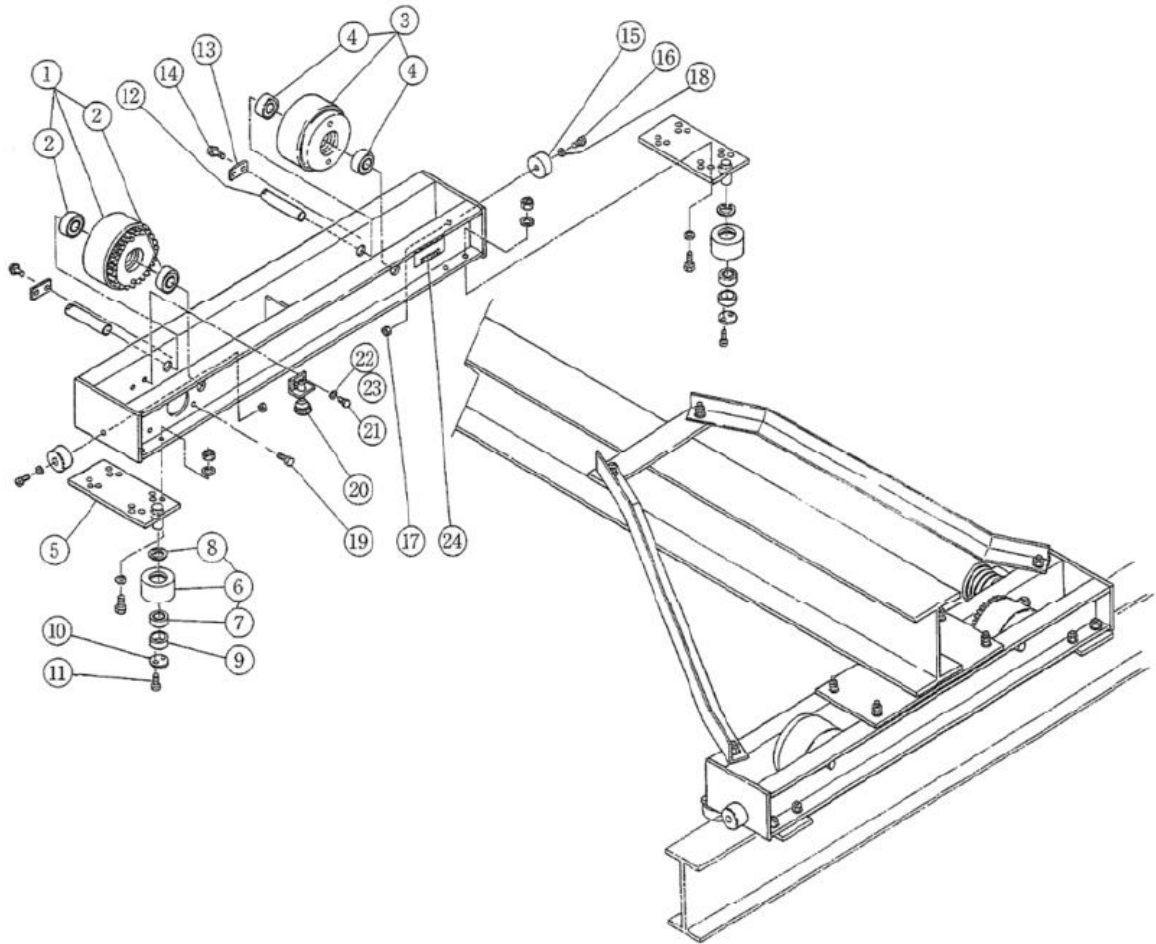


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type			Note
				CEO020-15 CE030-9 · 12 · 15	CEO020-18 CEO030-18	CEO010-21 CEO020-21 CEO030-21	
				Code			
N6CO530V	N6CO630V	N6CO730V					
1	1101	Wheel A ass'y	2	N6CO520E19511			
2	107	Ball bearing	4	J1GR0B0-06307			
3	1102	Wheel B ass'y	2	N6CO520E19521			
4	107	Ball bearing	4	J1GR0B0-06307			
5	1108	Roller ass'y	4	N6CO520E1108			
6	112	Ball bearing	4	J1GR020-06206			For roller
7	110	Snap ring	4	J1SR000-00062			For roller
8	120	Roller washer	4	N6QO350E9120			
9,10	121	Socket bolt with Spring washer	4	J1BG1-0601515			For roller axle
11	103	Track wheel axle	4	N6CO520E9103			
12	105	Key plate	4	N2QO310-9105			
13	151	Socket bolt with spring washer	8	J1BG1-0801818	J1BG1-0802020		For key plate
14	207	Buffer	4	N6QL210E9207			
15	258	Socket bolt	4	J1BE1-0803522			For buffer
16	259	Nut	4	J1NA001-10080			For buffer
17	260	Washer	4	J1WK011-10080			For buffer
18,19	360	Bolt with Spring washer	8	J1BH1-1003535			For geared motor installaion
20 21	380	Nut with Washer	8	J1BP9-1605030	J1BP9-1605530		For roller plate
22	1765	Ground wire assembly	2	N6CO420E1765			
23 24	781	Bolt with Spring washer	4	J1BH1-0802020			For ground wire
25	208	Name plate S	2	N6CO530E9208	N6CO630E9208	N6CO730E9208	

■ **Urethane Wheel Overhead Type Motorized End Carriage**

Type : CEO050-9 · 12, CEO050-15 · 18, CEO050-21
CEO075-18, CEO075-21

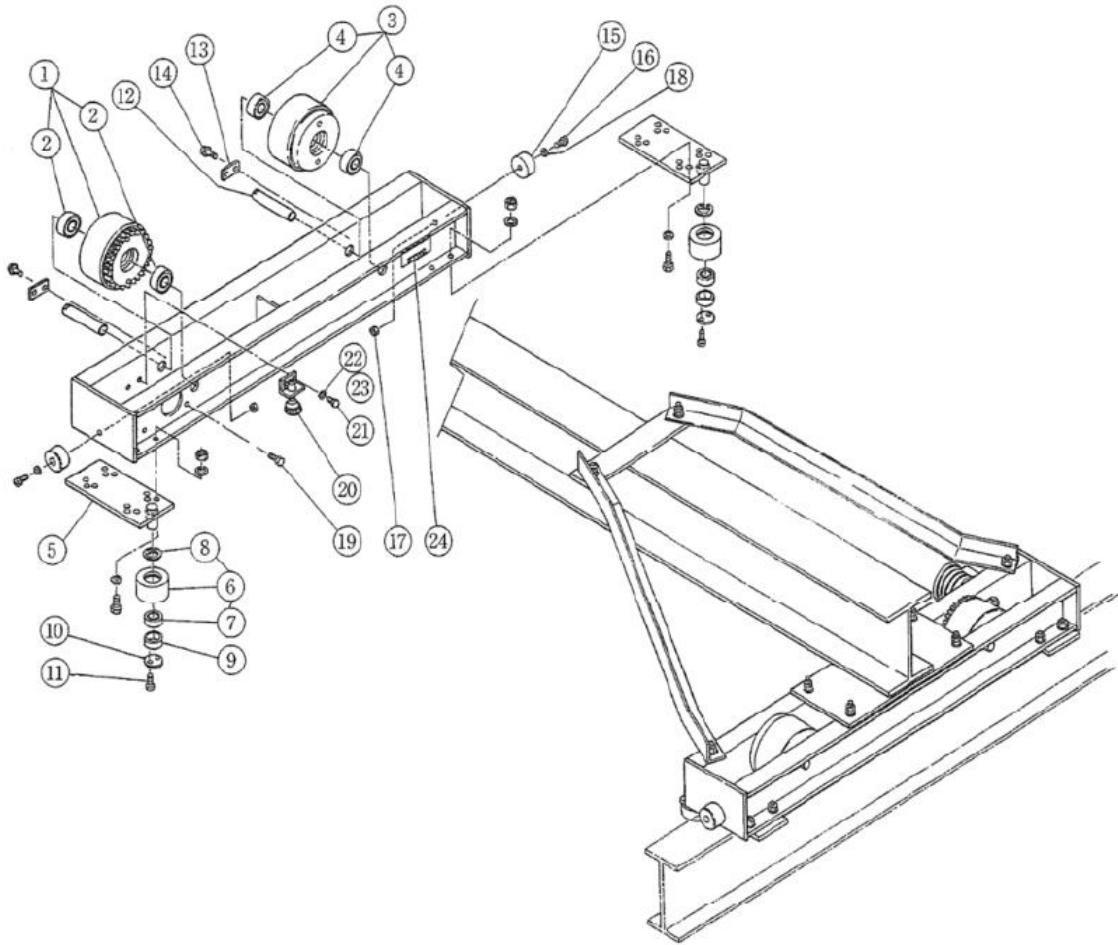


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note
				CEO050-9 · 12	CEO050-15 · 18	CEO075-18	CEO050-21 CEO075-21	
				Code				
				N6CO450V	N6CO650V	N6CO675V	N6CO775V	
1	1101	Wheel A ass'y	2	N6CO520E1951	N6CO550E1951	N6CO575E1101		
2	107	Ball bearing	4	J1GR020-06307	J1GR020-0630	J1GR020-06310		
3	1102	Wheel B ass'y	2	N6CO520E1952	N6CO550E1952	-		
4	107	Ball bearing	4	J1GR020-06307	J1GR020-06308	J1GR020-06310		
5	1108	Roller ass'y	4	N6CO520E1108	N6CO550E1108			
6	112	Ball bearing	4	J1GR020-06206	J1GR020-06207	J1GR020-06207		For roller
7	110	Snap ring	4	J1SR000-00062	J1SR000-00072			For roller
8	109	Roller axle	4	N6CO520E9109	N6CO550E9109			For roller axle
9	120	Roller washer	4	N6QO350E9120	N6CO550E9120	N6CO550E9120		For roller axle
10	121	Socket bolt with Spring washer	4	J1BG1-0601515	J1BG1-0801818			For roller axle
11	103	Track wheel axle	4	N6CO520E9103	N6CO550E9103	N6CO575E9103		
12	105	Key plate	4	N2QO310-9105		N6WO915E9105	N4QO411E9105	
13	151	Socket bolt with Spring washer	8	J1BG1-0801818	J1BG1-0802020	J1BG1-0802222		For key plate
14	207	Buffer	4	N6QL210E9207		N6QO375E9207		
15	258	Socket bolt	4	J1BE1-0803522				For buffer
16	259	Nut	4	J1NA001-10080				For buffer
17	260	Waher	4	J1WK011-10080				For buffer
18.19	360	Bolt with Spring washer	8	J1BH1-1003535	J1BH1-1205030	J1BH1-1203838		For geraed motor installation
20 21	380	Nut with Washer	8	J1BP9-1605030	J1BP9-1605530			For roller plate
22	1765	Ground wire assembly	2	N6CO420E1765				
23 24	781	Bolt with Spring washer	4	J1BH1-0802020				For ground wire
25	208	Name plate S	2	N6CO450E9208	N6CO650E9208	N6CO675E9208	N6CO775E9208	

■ Urethane Wheel Overhead Type Motorized End Carriage

Type : CEO075-12

CEO100-12, CEO100-18 · 21, CEO100-18H · 21H

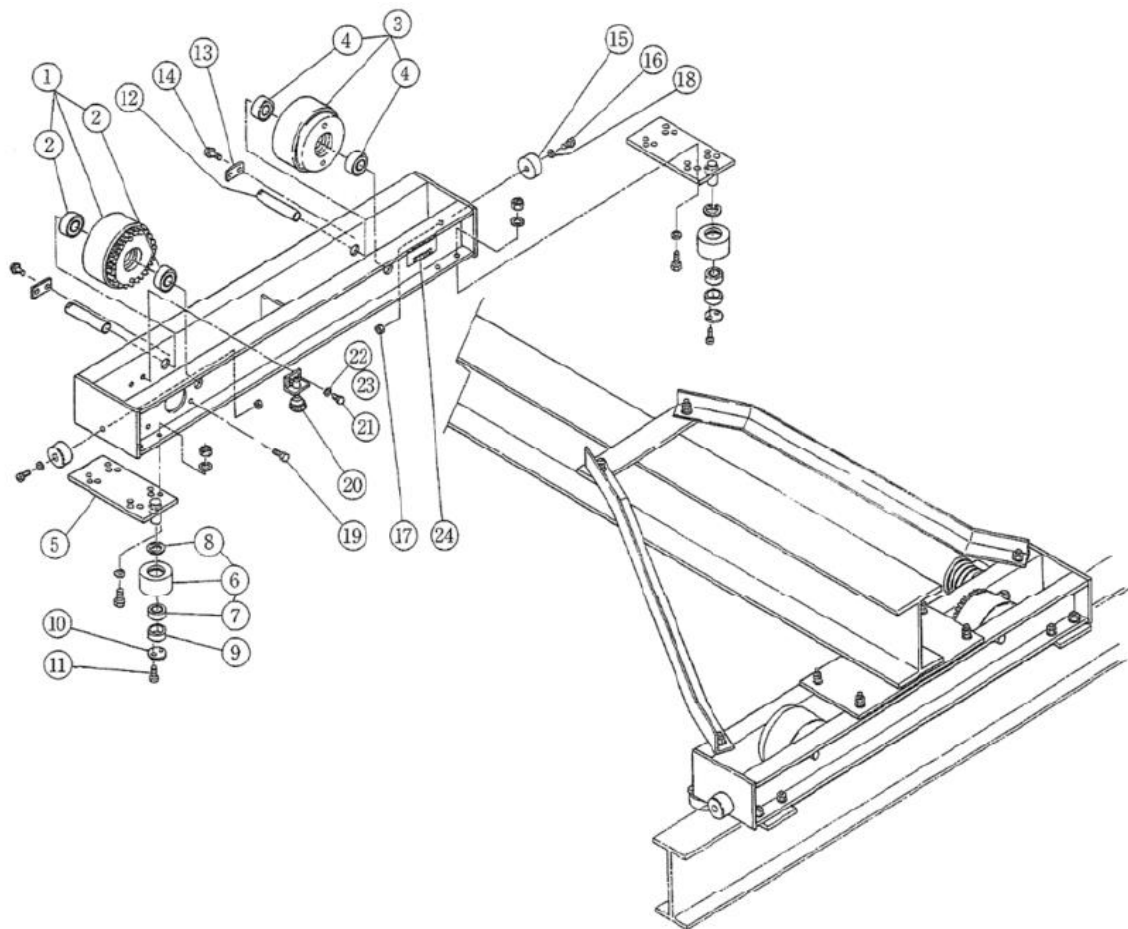


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type			Note
				CEO075-12 CEO100-12	CEO100-18 · 21	CEO100-18H · 21H	
				Code			
				N6CO411V	N6CO711V	N6CB711V	
1	1101	Wheel A ass'y	2 (4)	N6CO575E1101	N6CO511E1101		4 for CEO100-18H · 21H
2	107	Ball bearing	4 (8)	J1GR020-06310	J1GR020-06312		8 for CEO100-18H · 21H
3	1102	Wheel B ass'y	2	N6CO575E5102	N6CO511E5102	-	
4	107	Ball bearing	4	J1GR020-06310	J1GR020-06312	-	
5	1108	Roller ass'y	4	N6CO550E1108	N6CO511E1108		
6	112	Ball bearing	4	J1GR020-06207	J1GR020-06308		For roller
7	110	Snap ring	4	J1SR000-00072	J1SR000-00090		For roller
8	109	Roller axle	4	N6CO550E9109	-		For roller axle
9	120	Roller washer	4	N6CO550E9120	N6QO375E9120		For roller axle
10	121	Socket bolt with Spring washer	4	J1BG1-0801818			For roller axle
11	103	Track wheel axle	4	N6CO575E9103	N6CO511E9103		
12	105	Key plate	4	N4QO411E9105			
13	151	Socket bolt with spring washer	8	J1BG1-0802222			For key plate
14	207	Buffer	4	N6QO375E9207			
15	258	Socket bolt	4	J1BE1-0803535			For buffer
16	259	Nut	4	J1NA001-10080			For buffer
17	260	Waher	4	J1WB011-10080			For buffer
18.19	360	Bolt with Spring washer	8(16)	J1BH1-1203838			For geraed motor installation, 16 for CEO100-18H · 21H
20 21	380	Nut with Washer	8	J1BP9-1605530	J1BP9-2006535		For roller plate
22	1765	Ground wire ass'y	2	N6CO420E1765			
23 24	781	Bolt with Spring washer	4	J1BH1-0802020			For ground wire
25	208	Name plate S	2	N6CO411E9208	N6CO711E9208	N6CB711E9208	

■ Urethane Wheel Overhead Type Double Girder Motorized End Carriage

Type : CWEO030-15, CWEO030-21, CWEO030-27

CWEO050-15, CWEO050-21

CWEO075-15

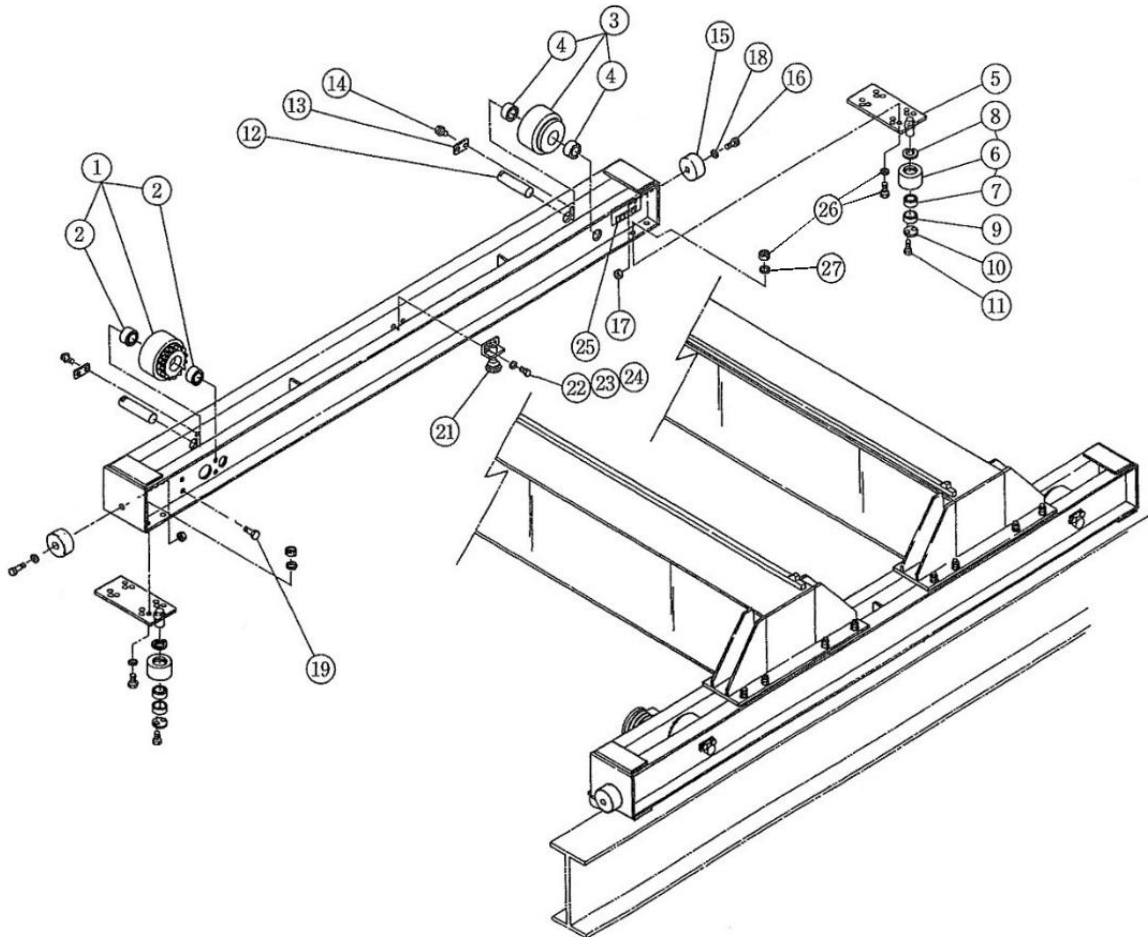


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note
				CWEO030-15	CWEO030-21 CWEO050-15	CWEO030-27	CWEO050-21 CWEO075-15	
				Code				
N6KO530V		N6KO730V		N6KO930V		N6KO575V		
1	1101	Wheel A ass'y	2	N6CO520E1951	N6CO550E1951	N6CO750E1951	N6CO575E1101	
2	107	Ball bearing	4	J1GR020-06307	J1GR020-06308	J1GR020-06309	J1GR020-06310	
3	1952	Wheel B ass'y	2	N6CO520E1952	N6CO550E1952	N6CO750E1952	N6CO575E5102	
4	107	Ball bearing	4	J1GR020-06307	J1GR020-06308	J1GR020-06309	J1GR020-06310	
5	1108	Roller ass'y	4	N6CO520E1108	N6CO550E1108			
6	110	Snap ring	4	J1SR000-00062	J1SR000-00072			For roller
7	112	Ball bearing	4	J1GR020-06206	J1GR020-06207			For roller
8	109	Roller axle	4	N6CO520E9109	N6CO550E9109			
9	120	Roller washer	4	N6QO350E9120	N6CO550E9120			For roller axle
10	121	Socket bolt with Spring washer	4	J1BG1-0601515	J1BG1-0801818			For roller axle
11	103	Track wheel axle	4	N6CO520E9103	N6CO550E9103	N6CO750E9103	N6CO575E9103	
12	105	Key plate	4	N2QO310-9105			N4QO411E9105	
13	151	Socket bolt with spring washer	8	J1BG1-0801818		J1BG1-0802020	J1BG1-0802222	For key plate
14	207	Buffer	4	N6QO375E9207				
15	258	Socket bolt	4	J1BE1-0803535				For buffer
16	259	Nut	4	J1NA001-10080				For buffer
17	260	Washer	4	J1WB011-10080				For buffer
18.19	360	Bolt with Spring washer	8	J1BH1-1003535	J1BH1-1205555	J1BH1-1205050	J1BH1-1203838	For geared motor installation
20 21	380	Nut with Washer	4	J1BH1-0802020				For roller plate
22	1765	Ground wire ass'y	2	N6CO420E1765				
23 24	781	Bolt with Spring washer	4	J1BH1-0802020				For ground wire
25	208	Name plate S	2	N6KO530E9208	N6KO730E9208	N6KO930E9208	N6KO575E9208	

■ **Urethane Wheel Overhead Type Double Girder Motorized End Carriage**
[4 Wheel Drive Style]

Type : CWEO050-27, CWEO075-21, CWEO075-27

CWEO100-15, CWEO100-21, CWEO100-27, CWEO150-15, CWEO150-21

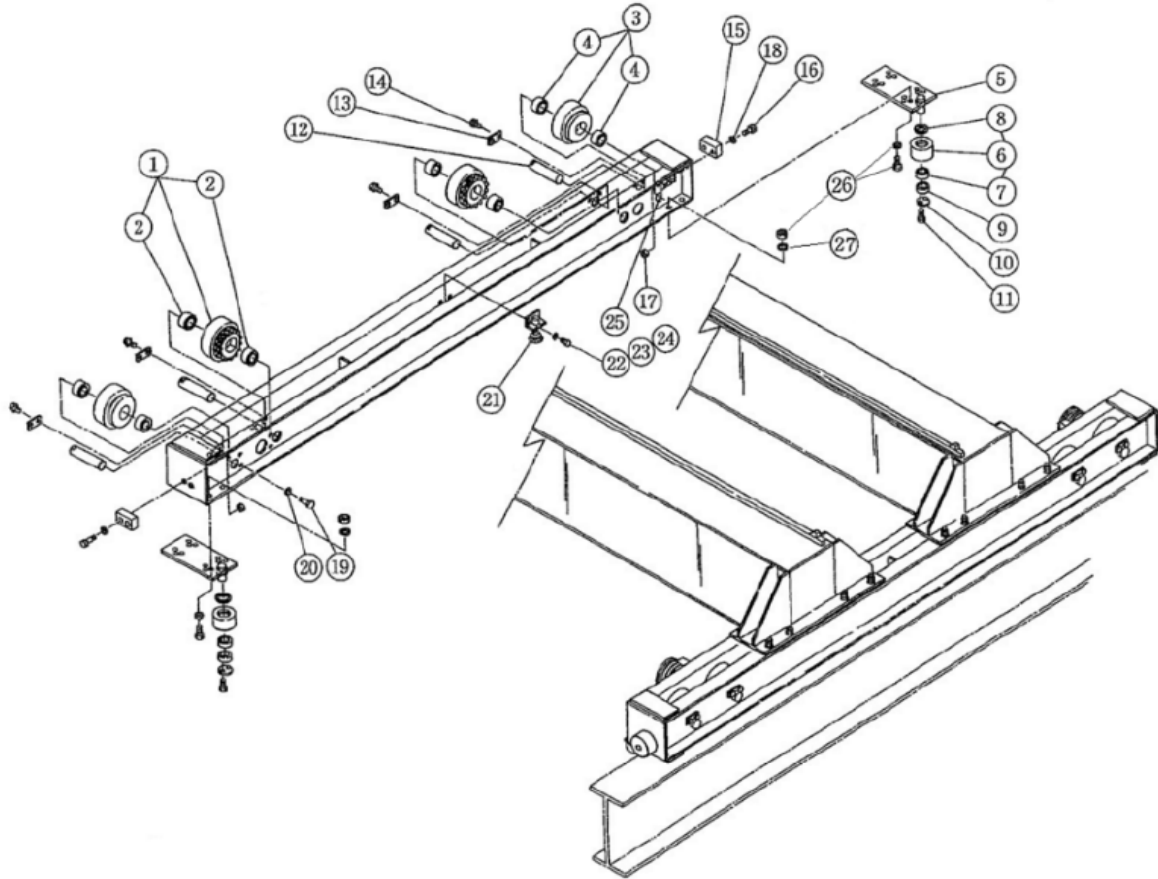


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note
				CWEO050-27 CWEO075-21 CWEO100-15	CWEO075-27 CWEO100-21	CWEO150-15	CWEO100-27 CWEO150-21	
				Code				
				N6KO775V	N6KO975V	N6KO515V	N6KO715V	
1	1101	Wheel A ass'y	4	N6CO550E1951	N6CO750E1951	N6CO575E1101		
2	107	Ball bearing	8	J1GR020-06308	J1GR020-06309	J1GR020-06310		
3	1952	Wheel B ass'y	4	N6CO550E1952	N6CO750E1952	N6CO575E5102		
4	107	Ball bearing	8	J1GR020-06308	J1GR020-06309	J1GR020-06310		
5	1108	Roller ass'y	4	N6CO550E1108	N6CO511E1108			
6	110	Snap ring	4	J1SR000-00072	J1SR000-00090			For roller
7	112	Ball bearing	4	J1GR020-06207	J1GR020-06308			For roller
8	109	Roller axle	4	N6CO550E9109	-			
9	120	Roller washer	4	N6CO550E9120	N6QO375E9120			For roller axle
10	121	Socket bolt with Spring washer	4	J1BG1-0801818				For roller axle
11	103	Track wheel axle	8	N6CO550E9103	N6CO750E9103	N6CO575E9103		
12	105	Key plate	8	N2QO310-9105		N4QO411E9105		
13	151	Socket bolt with spring washer	16	J1BG1-0802020		J1BG1-0802525		For key plate
14	207	Buffer	4	N6QO375E9207		N6WO511E9207		
15	258	Socket bolt	8 (4)	J1BE1-0803535		J1BE1-1205536		For buffer, 4 for CWEO075-21 & CWEO075-27
16	259	Nut	8 (4)	J1NA001-10080		J1NA001-10120		For buffer, 4 for CWEO075-21 & CWEO075-27
17	260	Washer	8 (4)	J1WB011-10080		J1WB011-10120		For buffer, 4 for CWEO075-21 & CWEO075-27
18.19	360	Bolt with Spring washer	16	J1BH1-1205050		J1BH1-1203838		For geared motor installation
20	381	Nut	8	J1NA008-40160	J1NA008-40200			For roller plate
21	382	Washer	8	J1WB011-10160	J1WB011-10200			For roller plate
22	1765	Ground wire ass'y	2	N6CO420E1765				
23 24	781	Bolt with Spring washer	4	J1BH1-0802020-				For ground wire
25	208	Name plate S	2	N6KO775E9208	N6KO975E9208	N6KO515E9208	N6KO715E9208	

■ Urethane Wheel Overhead Type Double Girder Motorized End Carriage
[4 Wheel Drive Style]

Type : CWEO150-27, CWEO200-15, CWEO200-21, CWEO200-27

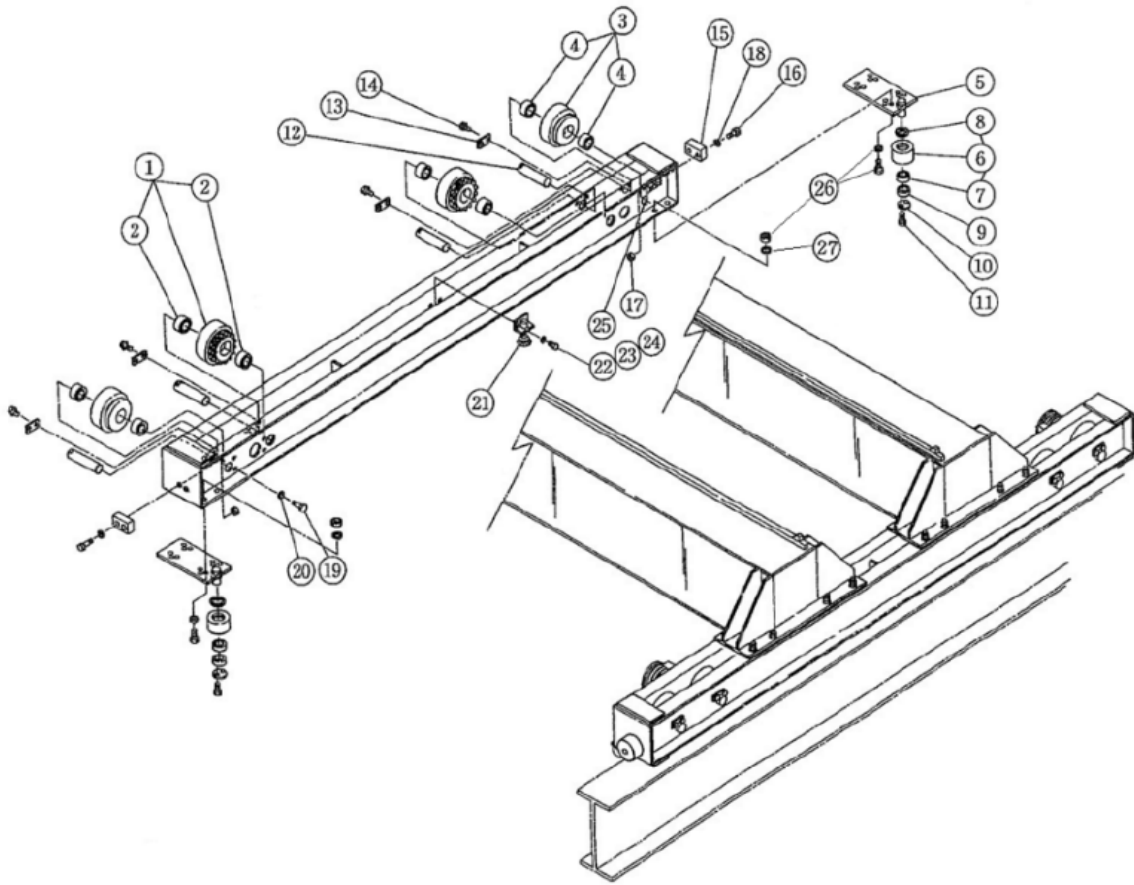


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type			Note
				CWEO200-15	CWEO150-27 CWEO200-21	CWEO200-27	
				Code			
				N6KO521V	N6KO721V	N6KO921V	
1	1101	Wheel A ass'y	4	N6CO511E1101			
2	107	Ball bearing	8	J1GR020-06312			
3	1102	Wheel B ass'y	4	N6CO511E5102			
4	107	Ball bearing	8	J1GR020-06312			
5	1108	Roller ass'y	4	N6CO511E1108			
6	110	Snap ring	4	J1SR000-00090			For roller
7	112	Ball bearing	4	J1GR020-06308			For roller
8	109	Roller axle	4	-			
9	120	Roller washer	4	N6QO375E9120			For roller axle
10	121	Socket bolt with Spring washer	4	J1BG1-0801818			For roller axle
11	103	Track wheel axle	8	N6CO511E9103			
12	105	Key plate	8	N6WO915E9105			
13	151	Socket bolt with spring washer	16	J1BG1-0802525	J1BG1-0802828		For key plate
14	207	Buffer	4	N6WO521E9207			
15	258	Socket bolt	8	J1BE1-1205536			For buffer,
16	259	Nut	8	J1NA001-10120			For buffer,
17	260	Washer	8	J1WB011-10120			For buffer,
18 19	360	Bolt with Spring washer	16	J1BH1-1203838			For geared motor installation
20	381	Nut	8	J1NA008-40200			For roller plate
21	382	Washer	8	J1WB011-10200			For roller plate
22	1765	Ground wire ass'y	2	N6CO420E1765-			
23 24	781	Bolt with Spring washer	4	J1BH1-0802020-			For ground wire
25	208	Name plate S	2	N6KO521E9208	N6KO721E9208	N6KO921E9208	

■ Overhead Geared Motor

Type : G1MO025S – □, G1MO025L – □, G1MO025H – □, G1MO040T – □

□ : Power Sources

E : 200V 50Hz, 200-220V 60Hz

Z : 380-415V 50Hz, 440-460V 60Hz

B : 220V 50Hz, 208-230V 60Hz

380V 50Hz, 380-460V 60Hz

① Geared motor assembly

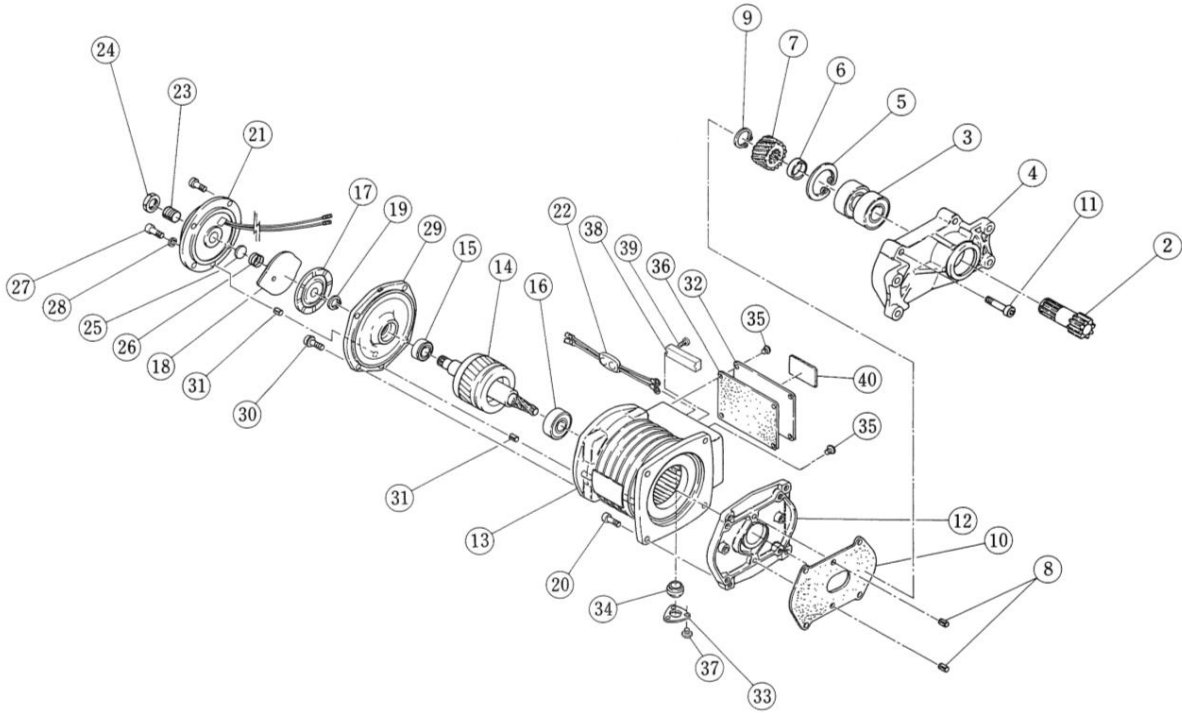


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note
				G1M0025S-□	G1M0025L-□	G1M0025H-□	G1M0040T-□	
				Code				
				G1J □ 025S	G1J □ 025L	G1J □ 025H	G1J □ 040T	
				Travel Speed m/min.(50/60Hz)				
20/24	10/12	30/36	30/36					
1	1303	1 set of Geared motor	2	G1JE025S1303	G1JE025L1303	G1JE025H1303	G1JE040T1303	
				G1JZ025S1303	G1JZ025L1303	—	G1JZ040T1303	
				G1JB025S1303	G1JB025L1303	—	G1JB040T1303	
2	301	Pinion	2	G1JE025S9301				
3	302	Ball bearing	4	J1GR020-06204				For pinion
4	303	Gear box A	2	G1JE025S9303				
5	304	Snap ring	2	J1SR000-00047				For gear box A
6	305	Collar A	2	G1JE025S9305				
7	307	Gear #2	2	G1JE025S9952	G1JE025L9307	G1JE040T9307		
8	308	Spring pin	4	G1JE025S9308				For gear box A, B
9	309	Snap ring	2	J1SS000-00020				For pinion
10	310	Gear box packing	2	G1JE025S9310				
11	313	Socket bolt	8	J1BE1-0604024				For gear box A
		Spring washer	—	—				
		Socket bolt with spring washer	—	—				
12	401	Gear box B	2	G1JE025S9401				
13	5501	Stator assembly	2	G1JE025S5501		G1JE025S5501	G1JE040T5501	Code : G1JE
				G1JZ025S5501		-	G1JZ040T5501	Code : G1JZ
				G1JB025S5501		-	G1JB040T5501	Code : G1JB
14	5502	Rotor assembly	2	G1JE025S5911	G1JE025S5502	G1JE025H5502	G1JE040T5502	
15	508	Ball bearing	2	J1GR050-06002			J1GR0C0-06202	For motor axle/ brake side
16	509	Ball bearing	2	J1GR0C0-06005	J1GR050-06204	J1GR0C0-06005		For motor axle/ gear side
17	512	Brake disk	2	G1JE025S9512				
18	513	Armature	2	G1JE025S9513				
19	514	Snap ring	2	J1SS000-00015				For motor axle
20	515 516	Socket bolt	8	J1BE1-0602222			—	For motor frame
		Spring washer	—	—				
		Socket bolt with spring washer	8	—			J1BG1-0602222	
21	5610	Electromagnetic coil assembly	2	G1JE025S5610				
22	602	Rectifier	2	G1JE025S9602				
23	603	Adjusting bolt	2	G1JE025S9603				For brake adjustment
24	604	Lock nut	2	G1JE025S9604				For brake adjustment
25	605	Spring holder	2	G1JE025S9605				
26	606	Brake spring	2	G1JE040S9606				
27 28	607 608	Socket bolt	8	J1BE1-0604024			—	For electromagnetic coil
		Spring washer	8	J1WS011-20060				
		Socket bolt with spring washer	8	—			J1BG1-0602020	
29	609	Brake bracker	2	G1JE025S9609			G1JE040S9609	
30	611 612	Socket bolt	—	—				For brake bracket
		Spring washer	—	—				
		Socket both with spring washer	8	—			J1BG1-0602020	
31	616	Spring pin	4	J1PS11-06001				For brake bracket, electromagnetic coil
32	701	Terminal cover	2	G1JE025S9701				
33	703	Cable holder	2	G1JE025S9703				
34	704	Cable packing 14	2	G1JE025S9704				
35	705	Round head screw	10	J1AP2-4001010				
36	707	Terminal cover packing	2	G1JE025S9707				
37	710	Round head screw	6	J1AP2-4001010				
38	805	Terminal 6P	2	ECP1206AA				
39	806	Round head screw	4	J1AP2-4001212				
40	702	Name plate TS	2	G1JE025S9702				

■ Overhead Geared Motor

Type : G1MO040S – □, G1MO040L – □, G1MO040H – □, G1MO075T – □

□ : Power Sources

E : 200V 50Hz, 200-220V 60Hz

Z : 380-415V 50Hz, 440-460V 60Hz

B : 220V 50Hz, 208-230V 60Hz

380V 50Hz, 380-460V 60Hz

① Geared motor assembly

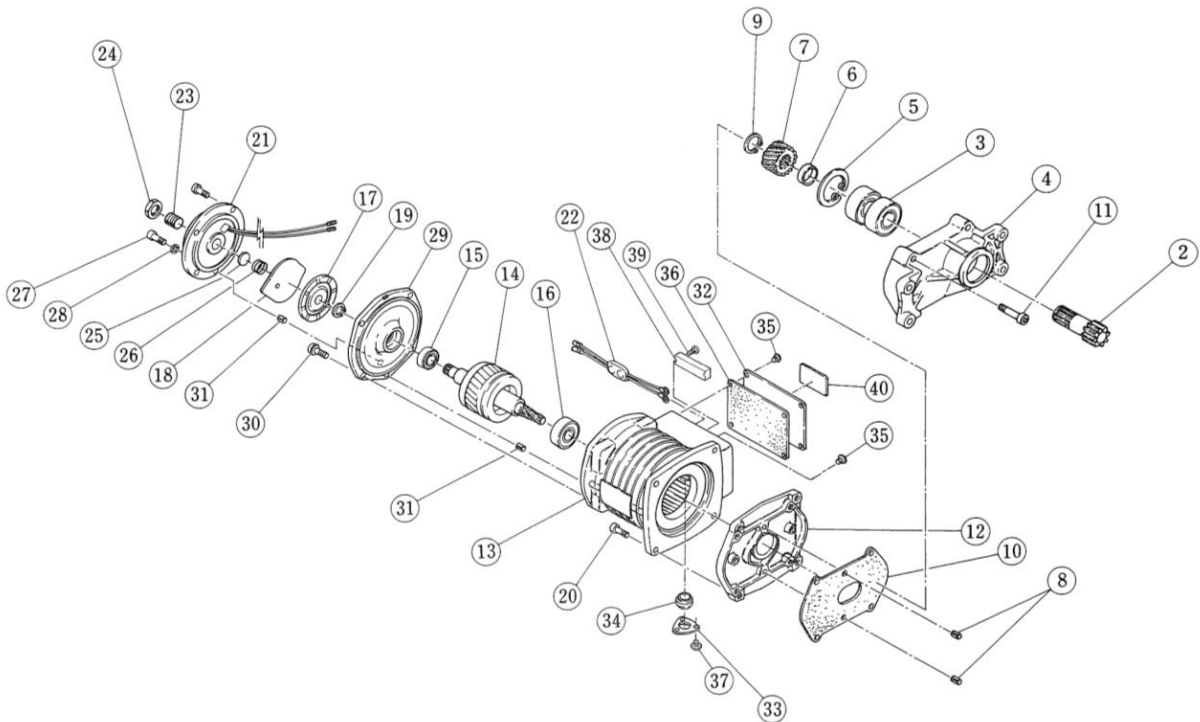


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note	
				G1M0040S□	G1M0040L□	G1M0040H□	G1M0075T□		
				Code					
				G1J □ 040S	G1J □ 040L	G1J □ 040H	G1J □ 075T		
				Travel Speed m/min.(50/60Hz)					
20/24	10/12	30/36	30/36						
1	1303	1 set of Geared motor	2	G1JE040S1303	G1JE040L1303	G1JE040H1303	G1JE075T1303		
				G1JZ040S1303	G1JZ040L1303	—	G1JZ075T1303		
				G1JB040S1303	G1JB040L1303	—	G1JB075T1303		
2	301	Pinion	2	G1JE040S9301					
3	302	Ball bearing	4	J1GR0B0-06305				For pinion	
4	303	Gear box A	2	G1JB040S9303					
5	304	Snap ring	2	J1SR000-00062				For gear box A	
6	305	Collar A	2	G1JE040S9305				For pinion	
7	307	Gear #2	2	G1JE040S9952	G1JE040L9307	G1JE040H9307			
8	308	Spring pin	4	G1JE025S9308				For gear box A, B	
9	309	Snap ring	2	J1SS000-00025				For pinion	
10	310	Gear box packing	2	G1JE040S9310					
11	313	Socket bolt	8	J1BE1-0605024				For gear box A	
		Spring washer	—	—					
		Socket both with spring washer	—	—					
12	401	Gear box B	2	G1JE040S9401					
13	5501	Stator assembly	2	G1JE040S5501			G1JE075S5501	Code : G1JE	
				G1JZ040S5501			—	G1JZ075S5501	Code : G1JZ
				G1JB040S5501			—	G1JB075S5501	Code : G1JB
14	5502	Rotor assembly	2	G1JE040S5911	G1JE040S5502	G1JE040H5502	G1JE075T5502		
15	508	Ball bearing	2	J1GR0C0-06202			J1GR050-06004	For motor axle/ brake side	
16	509	Ball bearing	2	J1GR050-06204		J1GR0C0-06005		For motor axle/ gear side	
17	512	Brake disk	2	G1JE025S9512			G1JE075S9512		
18	513	Armature	2	G1JE025S9513			G1JE075S9513		
19	514	Snap ring	2	J1SS000-00015			J1SS000-00020	For motor axle	
20	515 516	Socket bolt	8	J1BE1-0802222				For motor frame	
		Spring washer	—	—					
		Socket both with spring washer	—	—					
21	5610	Electromagnetic coil assembly	2	G1JE025S5610			G1JE075S5610		
22	602	Rectifier	2	G1JE025S9602					
23	603	Adjusting bolt	2	G1JE025S9603			G1JE075S9603	For brake adjustment	
24	604	Lock nut	2	G1JE025S9604			G1JE075S9604	For brake adjustment	
25	605	Spring holder	2	G1JE025S9605			G1JE075S9605		
26	606	Brake spring	2	G1JE040S9606			G1JE075S9606		
27	607 608	Socket bolt	—	—				For electromagnetic coil	
		Spring washer	—	—					
		Socket both with spring washer	8	J1BG1-0602020			—		
28	608	Socket both with spring washer	6	—			J1BG1-0602020		
29	609	Brake bracket	2	G1JE040S9609			G1JE075S9609		
30	611 612	Socket bolt	—	—				For brake bracket	
		Spring washer	—	—					
		Socket bolt with spring washer	8	J1BG1-0602020					
31	616	Spring pin	4	J1PS11-060012				For brake bracket, electromagnetic coil	
32	701	Terminal cover	2	G1JE040S97013					
33	703	Cable holder	2	G1JE025S9703					
34	704	Cable packing 14	2	G1JE025S9704					
35	705	Round head screw	10	J1AP2-4001010					
36	707	Terminal cover packing	2	G1JE040S9707					
37	710	Round head screw	6	J1AP2-4001010					
38	805	Terminal 6P	2	ECP1206AA					
39	806	Round head screw	4	J1AP2-4001212					
40	702	Name plate TS	2	G1JE025S9702					

Overhead Geared Motor

Type : G1MO075S – □, G1MO075L – □, G1MO075H – □, G1MO150T – □

□ : Power Sources

E : 200V 50Hz, 200-220V 60Hz

Z : 380-415V 50Hz, 440-460V 60Hz

B : 220V 50Hz, 208-230V 60Hz

380V 50Hz, 380-460V 60Hz

① Geared motor assembly

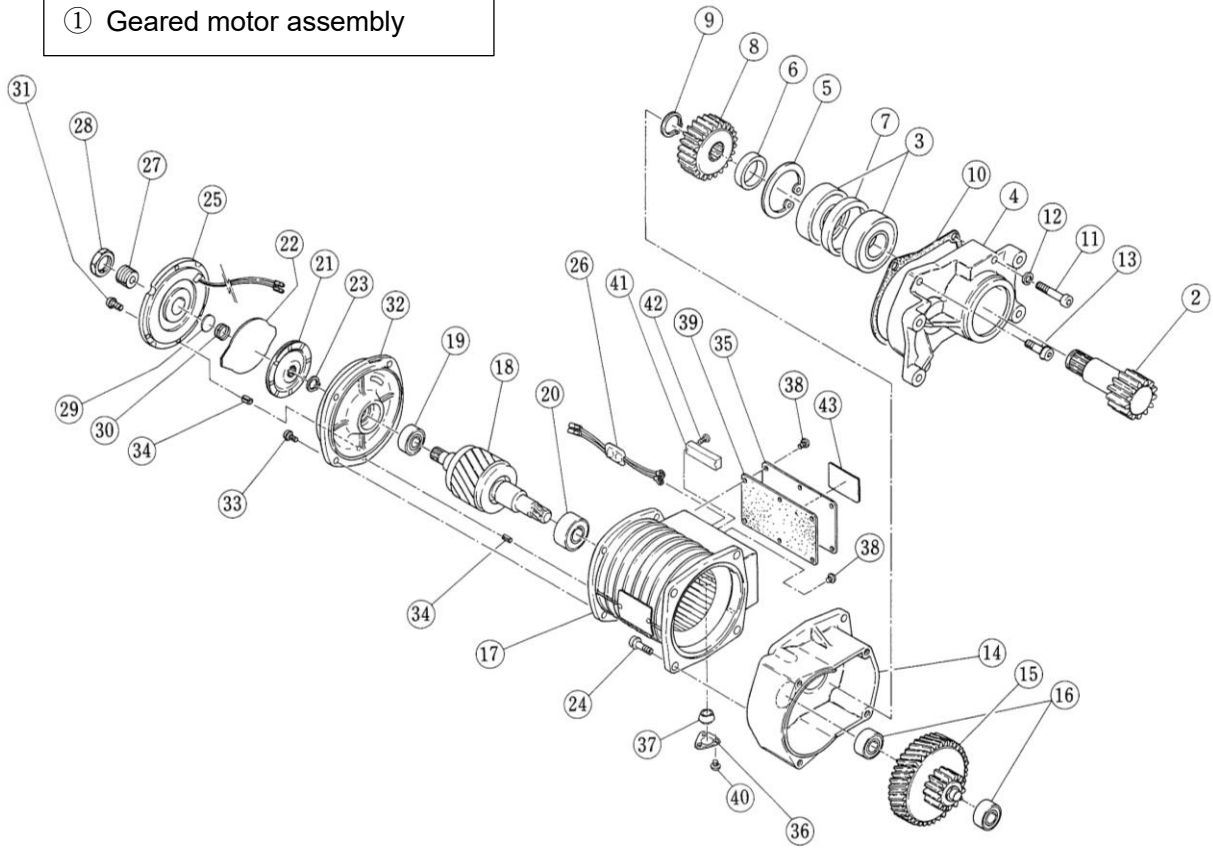


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note
				G1M0075S-□	G1M0075L-□	G1M0075H-□	G1M0150T-□	
				Code				
				G1J □ 075S	G1J □ 075L	G1J □ 075H	G1J □ 150T	
				Travel Speed m/min.(50/60Hz)				
20/24		10/12	30/36	30/36				
1	1303	1 set of Geared motor	2	G1JE075S1303	G1JE075L1303	G1JE075H1303	G1JE150T1303	
				G1JZ075S1303	G1JZ075L1303	G1JZ075H1303	G1JZ150T1303	
				G1JB075S1303	G1JB075L1303	-	G1JB150T1303	
2	301	Pinion	2	G1JE075S9301				
3	302	Ball bearing	4	J1GR020-06306				For pinion
4	303	Gear box A	2	G1JE075S9303				
5	304	Snap ring	2	J1SR000-00072				For gear box A
6	305	Collar A	2	G1JE075S9305				
7	306	Collar B	2	G1JE075S9306				
8	411	Gear #4	2	G1JE075S9954	G1JE075L9411	G1JE075H9954	G1JE150T9954	
9	309	Snap ring	2	J1SS000-00025				For pinion
10	310	Gear box packing	2	G1JE075S9310				
11	313	Socket bolt	4	J1BE1-0806028				For gear box A
		Spring washer	-	J1WS011-20080				
12	314	Socket bolt with spring washer	-					For gear box A
		Socket bolt	-					
13	315 316	Spring washer	-					For gear box A
		Socket bolt with spring washer	4	J1BG1-0803030				
14	401	Gear box B	2	G1JE075S9401			G1JE150T9401	
15	5307	Gear #2 assembly	2	G1JE075S5921	G1JE075L5307	G1JE075H5921	G1JE150T5921	
16	413	Ball bearing	4	J1GR050-06203				For gear #2 assembly
17	5501	Stator assembly	2	G1JE075S5501			G1JE150S5501	Code : G1JE
				G1JZ075S5501			G1JZ150S5501	Code : G1JZ
				G1JB075S5501			-	G1JB150S5501
18	5502	Rotor assembly	2	G1JE075S5911	G1JE075S5502	G1JE075S5911	G1JE150T5911	
19	508	Ball bearing	2	J1GR050-06004			J1GR050-06204	For motor axle/brake side
20	509	Ball bearing	2	J1GR0C0-06005	J1GR050-06204	J1GR0C0-06005	J1GR050-06206	For motor axle/gear side
21	512	Brake disk	2	G1JE075S9512				
22	513	Armature	2	G1JE075S9513				
23	514	Snap ring	2	J1SS000-00020				For motor axle/brake disk side
24	515 516	Socket bolt	8	J1BE1-0802222			-	For motor frame
		Spring washer	-					
		Socket bolt with spring washer	8				J1BG1-1002525	
25	5610	Electromagnetic coil assembly	2	G1JE075S5610			G1JE150S5610	
26	602	Rectifier	2	G1JE025S9602				
27	603	Adjusting bolt	2	G1JE075S9603				For brake adjustment
28	604	Lock nut	2	G1JE075S9604				For brake adjustment
29	605	Spring holder	2	G1JE075S9605				
30	606	Brake spring	2	G1JE075S9606			G1JE150S9606	
31	607 608	Socket bolt	-					For electromagnetic coil
		Spring washer	-					
		Socket bolt with spring washer	6	J1BG1-0602020				
32	609	Brake bracket	2	G1JE075S9609			G1JE150S9609	
33	611 612	Socket bolt	-					For brake bracket
		Spring washer	-					
		Socket bolt with spring washer	8	J1BG1-0602020			J1BG1-0802222	
34	616	Spring pin	4	J1PS11-060012				For brake bracket, electromagnetic coil
35	701	Terminal cover	2	G1JE040S9701			G1JE150S9701	
36	703	Cable holder	2	G1JE025S9703				
37	704	Cable packing 14	2	G1JE025S9704				
38	705	Round head screw	10	J1AP2-4001010			-	
			14				J1AP2-4001010	
39	707	Terminal cover packing	2	G1JE040S9707			G1JE150S9707	
40	710	Round head screw	6	J1AP2-4001010				
41	805	Terminal 6P	2	ECP1206AA				
42	806	Round head screw	4	J1AP2-4001212				
43	702	Name plate TS	2	G1JE025S9702				

■ Overhead Geared Motor

Type : G1MO150S – □, G1MO150L – □, G1MO150H – □

□ : Power Sources

E : 200V 50Hz, 200-220V 60Hz

Z : 380-415V 50Hz, 440-460V 60Hz

B : 220V 50Hz, 208-230V 60Hz

380V 50Hz, 380-460V 60Hz

① Geared motor assembly

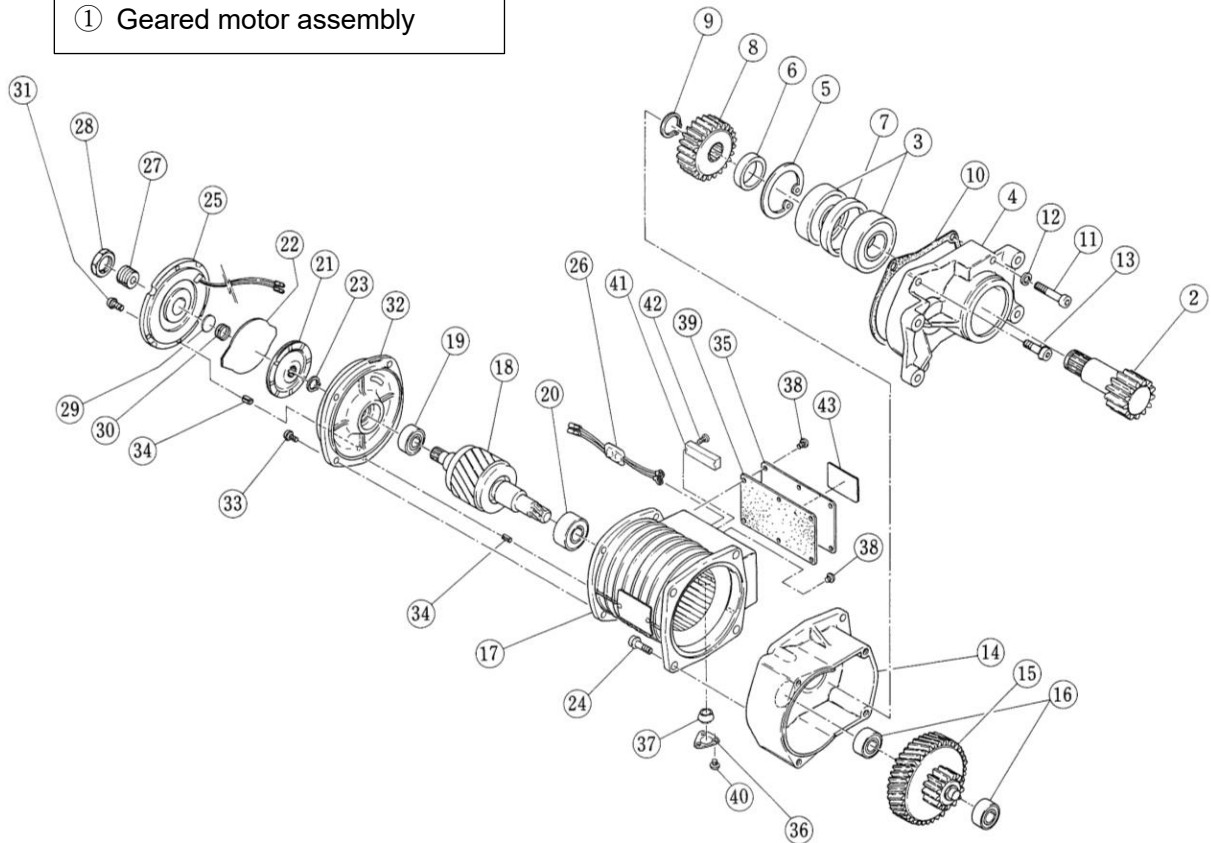


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type			Note
				G1MO150S-□	G1MO150L-□	G1MO150H-□	
				Code			
				G1J□ 150S	G1J□ 150L	G1J□ 150H	
				Travel Speed m/min.(50/60Hz)			
20/24	10/12	30/36					
1	1303	1 set of Geared motor	2	G1JE150S1303	G1JE150L1303	G1JE150H1303	
				G1JZ150S1303	—	G1JZ150H1303	
				G1JB150S1303	—	—	
2	301	Pinion	2	G1JE150S9301			
3	302	Ball bearing	4	J1GR020-06309			For pinion
4	303	Gear box A	2	G1JE150S9303			
5	304	Snap ring	2	J1SR000-00100			For gear box A
6	305	Collar A	2	G1JE150S9305			
7	306	Collar B	2	G1JE150S9306			
8	411	Gear #4	2	G1JE150S9954	G1JE150L9411	G1JE150H9954	
9	309	Snap ring	2	J1SS000-00035			For pinion
10	310	Gear box packing	2	G1JE150S9310			
11	313	Socket bolt	4	J1BE1-1006532			For gear box A
		Spring washer	4	J1WS011-20100			
		Socket bolt with spring washer	—	—			
12	314	Socket bolt	—	—			For gear box A
		Spring washer	—	—			
		Socket bolt with spring washer	4	J1BG1-1003030			
13	315	Gear box B	2	G1JE150S9401			
14	401	Gear box B	2	G1JE150S9401			
15	5307	Gear #2 assembly	2	G1JE150S5921	G1JE150L5307	G1JE150H5921	
16	413	Ball bearing	4	J1GR050-06303			For gear #2 assembly
17	5501	Stator assembly	2	G1JE150S5501			Code : G1JE
				G1JZ150S5501	—	G1JZ150S5501	Code : G1JZ
				G1JB150S5501	—	—	Code : G1JB
18	5502	Rotor assembly	2	G1JE150S5911	G1JE150S5502	G1JE150S5911	
19	508	Ball bearing	2	J1GR050-06204			For motor axle/brake side
20	509	Ball bearing	2	J1GR0C0-06007	J1GR050-06305	J1GR0C0-06007	For motor axle/gear side
21	512	Brake disk	2	G1JE075S9512			
22	513	Armature	2	G1JE075S9513			
23	514	Snap ring	2	J1SS000-00020			For motor axle
24	515	Socket bolt	—	—			For motor frame
		Spring washer	—	—			
		Socket bolt with spring washer	8	J1BG1-1002525			
25	5610	Electromagnetic coil assembly	2	G1JE150S5610			
26	602	Rectifier	2	G1JE025S9602			
27	603	Adjusting bolt	2	G1JE075S9603			For brake adjustment
28	604	Lock nut	2	G1JE075S9604			For brake adjustment
29	605	Spring holder	2	G1JE075S9605			
30	606	Brake spring	2	G1JE150S9606			
31	607	Socket bolt	—	J1BG1-0602020			For electromagnetic coil
		Spring washer	—	—			
		Socket bolt with spring washer	6	J1BG1-0602020			
32	609	Brake bracket	2	G1JE150S9609			
33	611	Socket bolt	—	—			For brake bracket
		Spring washer	—	—			
		Socket bolt with spring washer	8	J1BG1-0802222			
34	612	Spring pin	4	J1PS11-060012			For brake bracket, electromagnetic coil
35	701	Terminal cover	2	G1JE150S9701			
36	703	Cable holder	2	G1JE025S9703			
37	704	Cable packing 14	2	G1JE025S9704			
38	705	Round head screw	14	J1AP2-4001010			
39	707	Terminal cover packing	2	G1JE150S9707			
40	710	Round head screw	6	J1AP2-4001010			
41	805	Terminal 6P	2	ECP1206AA			
42	806	Round head screw	4	J1AP2-4001212			
43	702	Name plate TS	2	G1JE025S9702			

■ Urethane Wheel Low-head Type Motorized End Carriage

Type : CEL010-9, CEL020-9

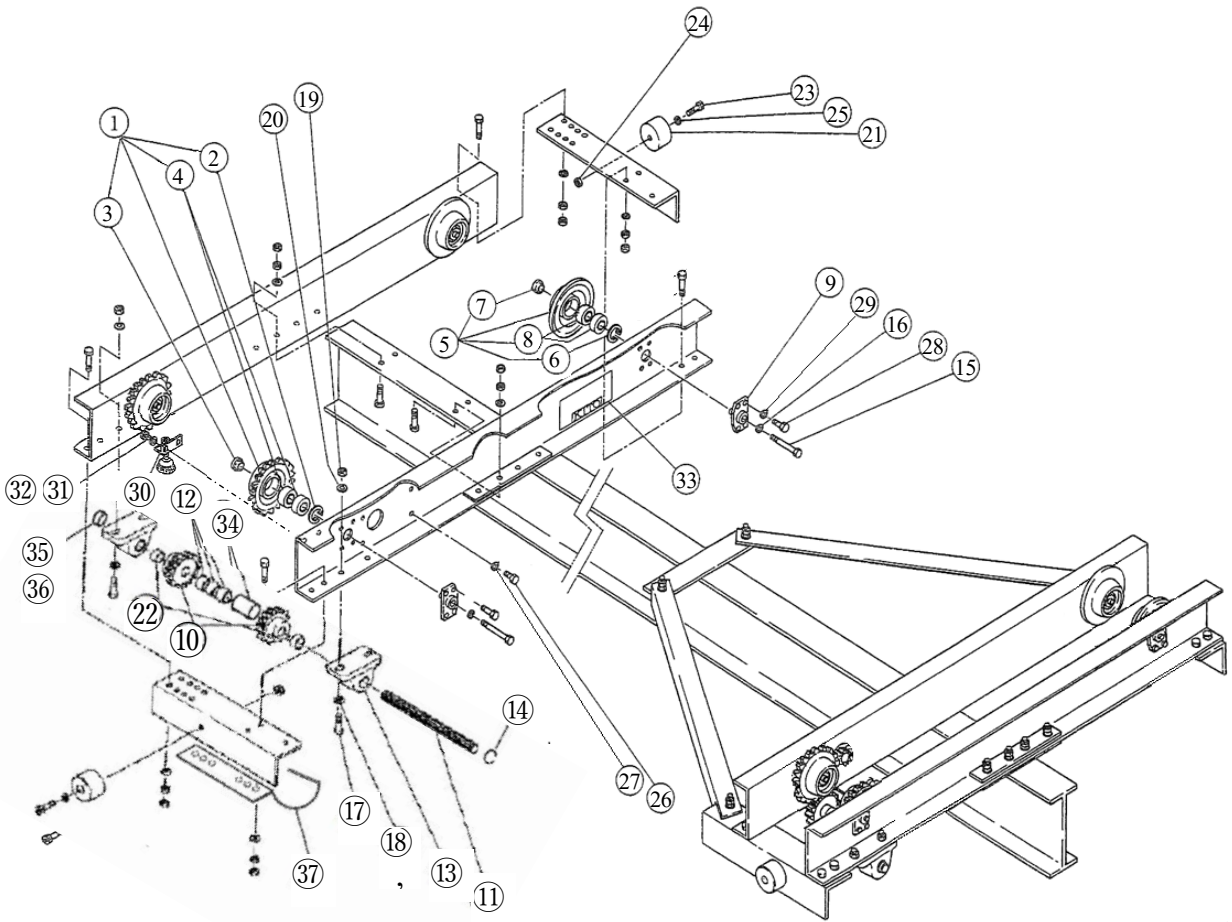


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type		Note
				CEL010-9	CEL020-9	
				Code		
				N6CL310V	N6CL320V	
1	1101	Wheel A ass'y	4	N6CL210E1101	N6CL220E1101	
2	105	Snap ring	4	J1SR000-00052	J1SR000-00062	For track wheel
3	106	Bush	4	N6QL210E9106	N6QL520E9106	For track wheel
4	107	Ball bearing	8	J1GR020C06205	J1GR020C06007	For track wheel
5	1102	Wheel B ass'y	4	N6CL210E1102	N6CL220E1102	
6	105	Snap ring	4	J1SR000-00052	J1SR000-00062	For track wheel
7	106	Bush	4	N6QL210E9106	N6QL520E9106	For track wheel
8	107	Ball bearing	8	J1GR020C06205	J1GR020C06007	For track wheel
9	5103	Track wheel axle ass'y	8	N6QL210E5103	N6QL520E5103	
10	113	Pinion L	4	N6QL210E9113	N6QL520E9113	
11	655	Pinion axle L	2	N6QL210E9655		
12	115	Collar A	6	N6QL210E9115		
13	116	Pillow block	4	J1UC01-204000		
14	117	Snap ring	2	J1SS000-00020		
15	121	Bolt	8	J1BA1-0808022		For track wheel installation
16	122	Spring washer	8	J1WS011-20080		For track wheel installation
17	151	Bolt	8	J1BA1-1004040		For pillow block
18	152	Washer	8	J1WB011-10100		For pillow block
19	153	Nut	8	J1NA001-10100		For pillow block
20	154	Spring washer	8	J1WS011-20100		For pillow block
21	207	Buffer	4	N6QL210E9207		
22	209	Collar B	4	N6QL210E9209		
23	258	Socket bolt	4	J1BE1-0803535		For buffer
24	259	Nut	4	J1NA001-10080		For buffer
25	260	Washer	4	J1WK011-10080		For buffer
26,27	360	Bolt with Spring washer	8	J1BH1-0802828	J1BH1-0803232	For geared motor installation
28,29	363	Bolt with Spring washer	32	J1BH1-0802020	J1BH1-0802525	For track wheel axle ass'y
30	1765	Ground Wire ass'y	1	N6CO310E1765		
31	781	Bolt with Spring washer	2	J1BH1-0802020		For ground wire
32	783	Washer	2	J1WB011-10080		For ground wire
33	208	Name plate S	2	N6CL310E9208	N6CL320E9208	
34	652	Collar C	2	N6QL210E9652		
35	653	Collar D	2	N6QL210E9653		For collar D
36	654	Set screw	4	J1TB011-06008		
37	651	Gear cover	2	N6QL210E9651	N6QL220E9651	

■ Low-head Geared Motor

Type : G1ML025S – □, G1ML025L – □, G1ML025H – □, G1ML040T – □

□ : Power Sources

E : 200V 50Hz, 200-220V 60Hz

Z : 380-415V 50Hz, 440-460V 60Hz

B : 220V 50Hz, 208-230V 60Hz

380V 50Hz, 380-460V 60Hz

① Geared motor assembly

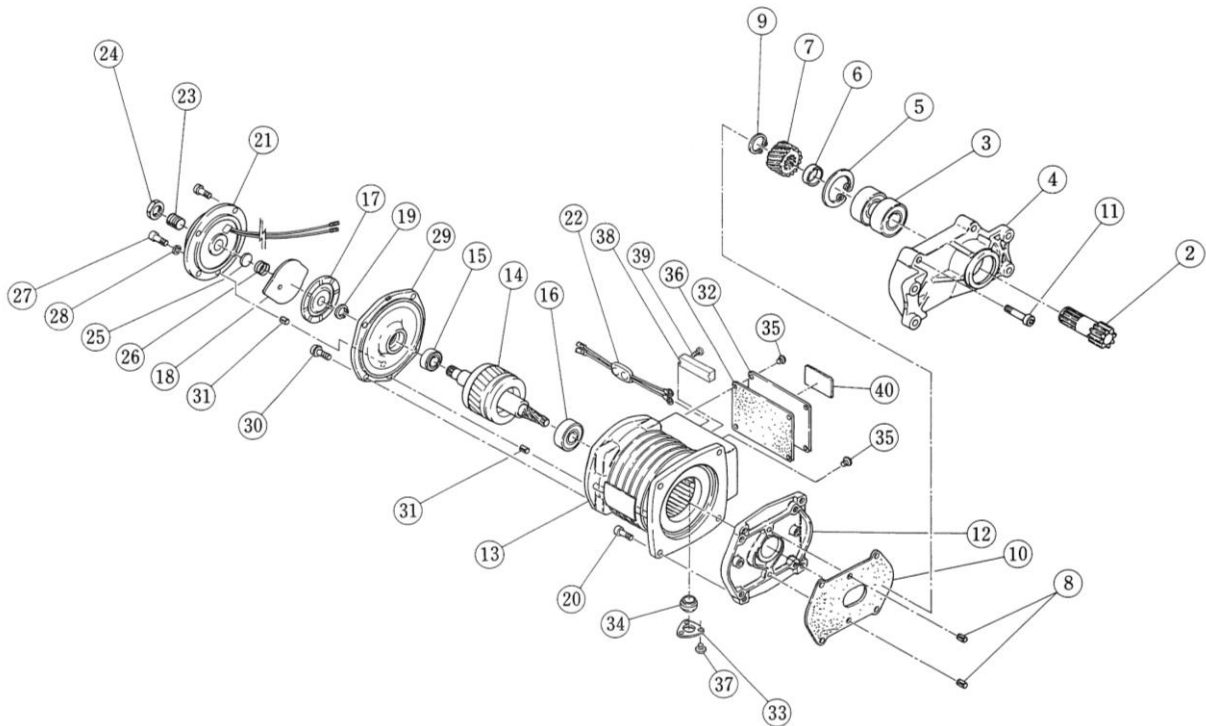


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note
				G1ML025S-□	G1ML025L-□	G1ML025H-□	G1ML040T-□	
				Code				
				G1C □ 025S	G1JC □ 025L	G1C □ 025H	G1C □ 040T	
				Travel Speed m/min.(50/60Hz)				
20/24	10/12	30/36	30/36					
1	1303	1 set of Geared motor	2	G1CE025S1303	G1CE025L1303	G1CE025H1303	G1CE040T1303	
				G1CZ025S1303	G1CZ025L1303	G1CZ025H1303	G1CZ040T1303	
				G1CB025S1303	G1CB025L1303	-	G1CB040T1303	
2	301	Pinion	2	G1CE025S9301				
3	302	Ball bearing	4	J1GR020-06204				For pinion
4	303	Gear box A	2	G1JE025S9303				
5	304	Snap ring	2	J1SR000-00047				For gear box A
6	305	Collar A	2	G1JE025S9305				
7	307	Gear #2	2	G1JE025S9952	G1JE025L9307	G1JE040T9307		
8	308	Spring pin	4	G1JE025S9308				For gear box A, B
9	309	Snap ring	2	J1SS000-00020				For pinion
10	310	Gear box packing	2	G1JE025S9310				
11	313	Socket bolt	8	J1BE1-0604024				For gear box A
		Spring washer	-	-				
		Socket bolt with spring washer	-	-				
12	401	Gear box B	2	G1JE025S9401				
13	5501	Stator assembly	2	G1JE025S5501		G1JE025S5501	G1JE040T5501	Code : G1JE
				G1JZ025S5501		-	G1JZ040T5501	Code : G1JZ
				G1JB025S5501		-	G1JB040T5501	Code : G1JB
14	5502	Rotor assembly	2	G1JE025S5911	G1JE025S5502	G1JE025H5502	G1JE040T5502	
15	508	Ball bearing	2	J1GR050-06002			J1GR0C0-06202	For motor axle/brake side
16	509	Ball bearing	2	J1GR0C0-06005	J1GR050-06204	J1GR0C0-06005		For motor axle/gear side
17	512	Brake disk	2	G1JE025S9512				
18	513	Armature	2	G1JE025S9513				
19	514	Snap ring	2	J1SS000-00015				For motor axle
20	515 516	Socket bolt	8	J1BE1-0602222			-	For motor frame
		Spring washer	-	-			-	
		Socket bolt with spring washer	8	-			J1BG1-0602222	
21	5610	Electromagnetic coil assembly	2	G1JE025S5610				
22	602	Rectifier	2	G1JE025S9602				
23	603	Adjusting bolt	2	G1JE025S9603				For brake adjustment
24	604	Lock nut	2	G1JE025S9604				For brake adjustment
25	605	Spring holder	2	G1JE025S9605				
26	606	Brake spring	2	G1JE040S9606				
27 28	607 608	Socket bolt	8	J1BE1-0604024			-	For electromagnetic coil
		Spring washer	8	J1WS011-20060			-	
		Socket bolt with spring washer	8	-			J1BG1-0602020	
29	609	Brake bracker	2	G1JE025S9609			G1JE040S9609	
30	611 612	Socket bolt	-	-			-	For brake bracket
		Spring washer	-	-			-	
		Socket both with spring washer	8	-			J1BG1-0602020	
31	616	Spring pin	4	J1PS11-06001				For brake bracket, electromagnetic coil
32	701	Terminal cover	2	G1JE025S9701				
33	703	Cable holder	2	G1JE025S9703				
34	704	Cable packing 14	2	G1JE025S9704				
35	705	Round head screw	10	J1AP2-4001010				
36	707	Terminal cover packing	2	G1JE025S9707				
37	710	Round head screw	6	J1AP2-4001010				
38	805	Terminal 6P	2	ECP1206AA				
39	806	Round head screw	4	J1AP2-4001212				
40	702	Name plate TS	2	G1JE025S9702				

■ Low-head Geared Motor

Type : G1ML040S – □, G1ML040L – □, G1ML040H – □, G1ML075T – □

□ : Power Sources

E : 200V 50Hz, 200-220V 60Hz

Z : 380-415V 50Hz, 440-460V 60Hz

B : 220V 50Hz, 208-230V 60Hz

380V 50Hz, 380-460V 60Hz

① Geared motor assembly

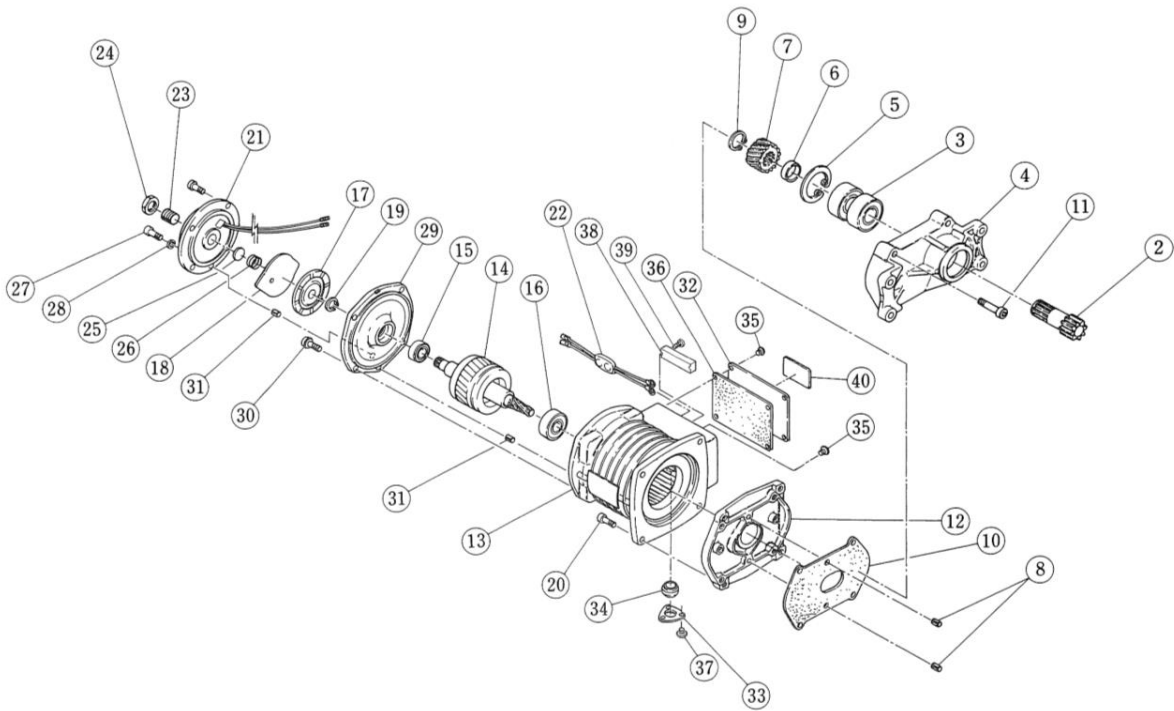


Fig. No.	Parts No.	Parts Name	Q'ty per Unit	Type				Note	
				G1ML040S-□	G1ML040L-□	G1ML040H-□	G1ML075T-□		
				Code					
				G1C □ 040S	G1C □ 040L	G1C □ 040H	G1C □ 075T		
				Travel Speed m/min.(50/60Hz)					
20/24	10/12	30/36	30/36						
1	1303	1 set of Geared motor	2	G1CE040S1303	G1CE040L1303	G1CE040H1303	G1CE075T1303		
				G1CZ040S1303	G1CZ040L1303	—	G1CZ075T1303		
				G1CB040S1303	G1CB040L1303	—	G1CB075T1303		
2	301	Pinion	2	G1CE040S9301					
3	302	Ball bearing	4	J1GR0B0-06305				For pinion	
4	303	Gear box A	2	G1JB040S9303					
5	304	Snap ring	2	J1SR000-00062				For gear box A	
6	305	Collar A	2	G1JE040S9305				For pinion	
7	307	Gear #2	2	G1JE040S9952	G1JE040L9307	G1JE040H9307			
8	308	Spring pin	4	G1JE025S9308				For gear box A, B	
9	309	Snap ring	2	J1SS000-00025				For pinion	
10	310	Gear box packing	2	G1JE040S9310					
11	313	Socket bolt	8	J1BE1-0605024				For gear box A	
		Spring washer	—	—					
		Socket both with spring washer	—	—					
12	401	Gear box B	2	G1JE040S9401					
13	5501	Stator assembly	2	G1JE040S5501			G1JE075S5501	Code : G1JE	
				G1JZ040S5501			—	G1JZ075S5501	Code : G1JZ
				G1JB040S5501			—	G1JB075S5501	Code : G1JB
14	5502	Rotor assembly	2	G1JE040S5911	G1JE040S5502	G1JE040H5502	G1JE075T5502		
15	508	Ball bearing	2	J1GR0C0-06202			J1GR050-06004	For motor axle/ brake side	
16	509	Ball bearing	2	J1GR050-06204		J1GR0C0-06005		For motor axle/ gear side	
17	512	Brake disk	2	G1JE025S9512			G1JE075S9512		
18	513	Armature	2	G1JE025S9513			G1JE075S9513		
19	514	Snap ring	2	J1SS000-00015			J1SS000-00020	For motor axle	
20	515 516	Socket bolt	8	J1BE1-0802222				For motor frame	
		Spring washer	—	—					
		Socket both with spring washer	—	—					
21	5610	Electromagnetic coil assembly	2	G1JE025S5610			G1JE075S5610		
22	602	Rectifier	2	G1JE025S9602					
23	603	Adjusting bolt	2	G1JE025S9603			G1JE075S9603	For brake adjustment	
24	604	Lock nut	2	G1JE025S9604			G1JE075S9604	For brake adjustment	
25	605	Spring holder	2	G1JE025S9605			G1JE075S9605		
26	606	Brake spring	2	G1JE040S9606			G1JE075S9606		
27	607 608	Socket bolt	—	—				For electromagnetic coil	
		Spring washer	—	—					
		Socket both with spring washer	8	J1BG1-0602020		—			
28	608	Socket both with spring washer	6	—		J1BG1-0602020			
29	609	Brake bracket	2	G1JE040S9609			G1JE075S9609		
30	611 612	Socket bolt	—	—				For brake bracket	
		Spring washer	—	—					
		Socket bolt with spring washer	8	J1BG1-0602020					
31	616	Spring pin	4	J1PS11-060012				For brake bracket, electromagnetic coil	
32	701	Terminal cover	2	G1JE040S97013					
33	703	Cable holder	2	G1JE025S9703					
34	704	Cable packing 14	2	G1JE025S9704					
35	705	Round head screw	10	J1AP2-4001010					
36	707	Terminal cover packing	2	G1JE040S9707					
37	710	Round head screw	6	J1AP2-4001010					
38	805	Terminal 6P	2	ECP1206AA					
39	806	Round head screw	4	J1AP2-4001212					
40	702	Name plate TS	2	G1JE025S9702					

13. Sample Check Lists (Monthly and Yearly Inspection)

Model No.	Manufacturing No.			Date Installed	Inspection No.
Location	Type of Crane	Rated Load		Crane Manufacturing No.	Inspection Valid Until

○: Good △: Replace or adjust next time. ×: Requires replacement or adjustment immediately.

Check List		Date Checked					
Hoist							
Body	Outer appearance						
	Abnormal noise						
	Gear oil						
	Top pin						
	Plug-socket connection						
	Name plate						
Push button switches	Performance test						
	Wiring						
Brake	Performance						
Limit switches	Limit lever/Lever pin coupling						
	Cross guide movement						
	Stopper						
	Performance test						
Load chain/ Wire rope	Outer appearance						
	Abnormal noises						
	Wear						
Accessories	Suspender/Bottom yoke						
	Idle sheave						
	Chain spring						
	Hook shape/dimension						
	Hook movement						
	Hook latch						
	Chain container						
	Idle sheave						
Motorized/Manual Trolley							
Push button switches	Operation test						
	Wiring						
Traverser	Name plate						
	Traverse test						
	Motor reduction gear-to-frame installation						
	Wheel surface/Teeth wear						
	Snap ring for fixing wheels*						
	Frame deformation						

○: Good △: Replace or adjust next time. ×: Requires replacement or adjustment immediately.

Check List		Date Checked					
Electric/Manual Trolley							
Traverser	Suspension shaft/Bolts						
	Side rollers						
	Hand wheel/Hand chain						
	Suspender						
Crane							
Electric parts	Control box						
	Contactors/ Transformer						
Travel rails	Outer appearance						
	Wear in travel surface						
	Grounding*						
Girders	Name plate						
	Wear						
	Stoppers						
End carriage	Wear in wheel travel surface						
	Snap ring for fixing wheels*						
	Frame deformation						
	Side rollers						
	Buffers						
Drive mechanism	Grease						
	Motor brake						
	Soft run						
	Hand wheel/Hand chain						
Collector Arm							
Collector arm	Messenger wire tautness						
	Cable hangers						
	T-shaped hangers						
	Cable						
	Plug-socket connection						
	Fuse capacity*						
	Grounding*						
	Incoming power supply voltage*						
	Insulation resistance						
	Load test						
	Checked by						
	Supervised by						

*: Check yearly.

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