

OPERATING & MAINTENANCE INSTRUCTION MANUAL WITH SPARE PART LIST

(Guarantee Will be Void if not used as Instructed in this Manual)



CH-IV (PROTON)

Capacity - 5t, 10t, 15t, 20t

ELECTRIC CHAIN HOIST

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Important Information and Warnings

Terms and Summary

This manual provides important information for personnel involved with the installation, operation and maintenance of this product. Although you may be familiar with this or similar equipment, it is strongly recommended that you read this manual before installing, operating or maintaining the product.

Danger, Warning, Caution and Notice - Throughout this manual there are steps and procedures that can present hazardous situations. The following signal words are used to identify the degree or level of hazard seriousness.

DANGER :- Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury, and property damage

WARNING :- Warning indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury, and property damage.

CAUTION :- Caution indicates a potentially hazardous situation which, if not avoided, may result minor or moderate injury or property damage.

NOTICE :- Notice is used to notify people of installation, operation, or maintenance information which is important but not directly hazard-related.

CAUTION

These general instructions deal with the normal installation, operation, and maintenance situations encountered with the equipment described herein. The instructions should not be interpreted to anticipate every possible contingency or to anticipate the final system, crane, or configuration that uses this equipment. For systems using the equipment covered by this manual, the supplier and owner of the system are responsible for the system's compliance with all applicable industry standards, and with all applicable federal, state and local regulations/codes.

This manual includes instructions and parts information for a variety of trolley and hoist types. Therefore, all instructions and parts information may not apply to any one type or size of specific trolley or hoist. Disregard those portions of the instructions that do not apply.

Record your hoist and trolley's Product Code and Serial Number on the front cover of this manual for identification and future reference to avoid referring to the wrong manual for information or instructions on installation, operation, inspection, maintenance, or parts

Use only Indef authorized replacement parts in the service and maintenance of this trolley.

CAUTION

Equipment described herein is not designed for and **MUST NOT** be used for lifting, supporting, or transporting people, or for lifting or supporting loads over people.

Equipment described herein should not be used in conjunction with other equipment unless necessary and/or required safety devices applicable to the system, crane, or application are installed by the system designer, system manufacturer, crane manufacturer, installer, or user.

Modifications to upgrade, rerate, or otherwise alter this equipment shall be authorized only by the original equipment manufacturer.

Failure to read and comply with any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.

The angle between rope and plane perpendicular to the axis of the drum shall not exceed 5° (As per IS 3938 6.1.1.2).

Hoists shall not be operated unless the hoist unit is centered over the load, except when authorized by a qualified person who has determined that the components of the hoist and its mounting will not be overstressed. Should it be necessary to pick a load that is not centered under the hoist unit, precautions should be taken to control the swing of the load when it is picked clear of its support.

DANGER

HAZARDOUS VOLTAGES ARE PRESENT IN THE CONTROL BOX, OTHER ELECTRICAL COMPONENTS, AND CONNECTIONS BETWEEN THESE COMPONENTS.

Before performing ANY mechanical or electrical maintenance on the equipment, de-energize (disconnect) the main switch supplying power to the equipment; and lock and tag the main switch in the de-energized position.

Only trained and competent personnel should inspect and repair this equipment.

**Information**

This symbol indicates tips and useful information.

Warning Tag and Labels

The warning tag illustrated below in Figure is supplied with each hoist and trolley shipped from the factory. If the tag is not attached to the pendant cord for your hoist/trolley, order a tag from your dealer and fix it. Read and obey all warnings attached to this Hoist/Trolley. Tag is not shown in actual size.

WARNING

IMPROPER use of powered Hoist could result in death
Or serious injury.

To avoid these hazards:

- ▶ ALWAYS read owner's manual and safety instructions.
- ▶ Do NOT lift more than rated load.
- ▶ Do NOT lift or transport loads over or near people.
- ▶ Do NOT use a hoist for lifting supporting or transporting people.
- ▶ Do NOT operate unless load is centered under hoist.
- ▶ Do NOT support a load on the tip of the hook
- ▶ Do NOT use a hoist if the hook latch is missing or broken.
- ▶ Do NOT remove or obscure the warning labels.
- ▶ Do NOT run the load chain or wire rope over a sharp edge.
- ▶ Do NOT use the load chain or wire rope as a sling.
- ▶ Do NOT operate beyond the travel limits of the hook or load block.
- ▶ Do NOT use a twisted, kinked, damaged, or stretched load chain or wire rope.
- ▶ Do NOT operate a wire rope hoist with a wire rope that is not properly seated in its groove.

CONDITIONS WHERE WARRANTY WILL BE VOID / NOT APPLICABLE

HHL does not provide reimbursement for maintenance and visit charges for items such as: brake adjustments, lubrication oil changes, or any other item or activity deemed solely by HHL to be maintenance related.

HHL will not be liable for damage or malfunction and consequently warranty resulting from:

- a. Lack of maintenance.
- b. Use of improper or insufficient lubricants
- c. Supply voltage high/low or insufficient.
- d. Environmental conditions (including but not limited to extreme temperatures, humidity and corrosive environments).
- e. Outdoor applications where HHL is not intimated and recommendations for protection from the elements are not followed.
- f. Misuse or abuse (including but not limited to overloading, shock loading, or side / angular lifting / pulling).
- g. Use of parts other than genuine HHL replacement parts.
- h. Improper repairs or maintenance.
- i. Modifications not approved by HHL.
- j. Improper handling of product after it leaves HHL factory.
- k. Fire, accidents, or acts of God or nature, including but not limited to floods, hurricanes and lightning.
- l. Any piece of equipment not supplied by Hercules Hoists Limited, is installed on products.
- m. Malfunction or damage caused by items added to Hercules Hoists Limited products, including but not limited to controls and control components.
- n. Relocation of hoist / equipment without proper installation and commissioning by HHL / ABP.
- o. Misalignment in existing / installed Crane rail and hoist monorail, improper existing power feed track.

Operational cause Note

Overhead crane & hoists are typically designed to lift objects vertically. The specific guide lines are mentioned in respective IS standard .

Sometimes, however, operators attempt to make a side pull or cross pull or use the hoist horizontally to lift an object that is not directly underneath it.

This can cause damage to hoist.

Probable failures/Risks:

- ▶ Side pulling can cause damage to various hoist parts – Load Chain Wheel, Chain Guide Roller, Chain Stripper, Hook and hook latch assembly, in electric Chain Hoists the load chain guide and chain stripper and in Wire Rope Hoists the rope drum, rope guide and the rope itself.
- ▶ Additionally, it may place the operator and personnel working near the crane at risk for injury.
- ▶ One of the main risks for an operator is load swing, which can damage the load or cause injury to the operator. In extreme cases, there might be a load drop.
- ▶ A rope that has been worn by side pulls may also snap and lead to a loss in control of the load.
- ▶ Cross pull or side pull may affect on monorail beam flanges, the beam web may deflect / distort, and beam flanges may wear causing uneven sides of beam.
- Preventing side pulls could lead to increases in both the safety and the lifetime of the components, customer should be educated at every interaction opportunity.
- The unfortunate prevalence of cross pulling-related accidents and maintenance needs repeated replacement of parts like chain guider roller, chain stripper, hook latch assembly, rope guide related parts i.e set of rope guide ring, spring and rope guide joining bracket.

Operational Note:

- Please be aware that as a safety feature, this rope guide ring is designed to snap in the event of the wrong usage of the rope hoist. As per IS 3938-2005 the angular lifting / pulling of dead weight is not allowed in wire rope hoist. If any user puts the rope hoist to such an application, the rope guide ring will not allow to perform the lifting. The rope guide ring will break if the fleet angle is more than 5 Deg. including angle between point of lift and dead weight kept on floor.
- The specific instruction in Do's and Don'ts is given hoist operating and maintenance manual. Those guidelines are based on past experience and safety standards of operation.
- The hoist in tandem application cannot be used because the load lifting speed and effort are not balanced in manual hoisting operation. Most important is load required to be centered under hoist and load line of trolley centre and hook seating diameter centre should match. The hoists are designed for lifting load vertically. This phenomenon is applicable for all hoisting equipment's.

If hoist not used in proper way as mentioned above the warranty claims will not be accepted.
Indicative list of parts not covered under warranty.

Indicative list of parts not covered under warranty:

1	Hoist Motor Winding
2	Load Chain
3	Safety Latch assembly
4	Brake Disc – Hoist and Trolley
5	Brake Coil – Hoist and Trolley
6	Hoist and Cross Travel Limit Switch
7	Trolley Motor Winding
8	Pendent control
9	Relay and Fuse
10	Chain Guide
11	Chain Stripper
12	VFD / Inverter
13	Special Control Switch Gear
14	Control Transformer

This can cause damage to hoist

COMMISSIONING CHECK LIST

1. I-Beam Flange width : Check actual width of beam, adjust washers to make equal running clearance on all trolley wheels.
2. Dimensional clearance : Ensure that enough clearance is available for hoist & trolley movement.
3. Power supply system : Ensure that 'T' section in case of trailing cable system or bus bar in case of Akapp system is parallel in both axis w.r.t. Beam in straight or curved path. Trolley pushers are designed correctly so that there is no pressure on trolley or current collector during travel.
4. Trolley Limit Switch (Optional) : Proper actuators are provided on beam for the stopping of CT.
5. Oil level & fasteners: Check levels are correct & all fasteners are correctly tightened.
6. Power supply Voltage : Check voltage in all 3 phases. R=Y=B= report under or over voltage.
7. Limit Switch : Check all limit switches like over hoisting, over lowering, right & left & emergency Check the direction of motions w.r.t. Pendant buttons change phase sequence if required. This is very important safety requirement.
8. Sufficiency of lift : Set the bottom Limit switch so that hook touches the floor & no further Loosening of chain takes place. Set the top limit switch so that safe headroom is maintained between hoist body and lower block.
9. Angular Loading : Check that equipment is not subjected to angular loading. Ensure that equipment is installed at proper place proper hook approaches are used to prevent this.
10. Overloading, Extra heavy duty : Observe there is no overloading and excessive use of hoist.
11. Counter weight assembly : Ensure that counter weights are correctly assembled for balancing of trolley bolts are properly locked & tightened.
12. Noise level : Observed that there is no abnormal noise in Hoist and travel motion.
13. Oiling : Apply oil to the chain for full length. Ensure free movement.
14. Name plate data: Note hoist, motor nos. & record them on Instruction manual for future use.
15. Instruction Manual: Read instruction manual of each product carefully & act accordingly.
16. Abnormal factors : Excessive dust, temp, humidity, chemical fumes, leakages etc. Report them.
17. Brake setting : Ensure that brake operation is not sluggish & load is not slipping. This is to certify that equipment is commissioned on and found satisfactory for use.

COMMISSIONING / OPERATING INSTRUCTION MANUAL

HIGHER CAPACITY CHAIN ELECTRIC HOIST

1. Unpacking for Erection :

Open the packing box from Top' up to half the box height. For hoist with trolley, check the distance between wheel flanges. It should be approx. 5 mm more than the width of runway beam flange but not more than 10 mm. If necessary adjust the trolley, taking care to fit equal number of washers on both side between trolley side plate and square suspension plate.

In case the trolley can't be pushed in from one end of the runway beam, it must be opened and fitted back after the hoist has been fitted under the beam.

For lifting up the hoist, bring the whole box under the beam, hang the hoist on the lifting device and only now open the box completely and unscrew the hoist from the two angles which are bolted to the box frame.

2. Power supply :

Connect the hoist to 415V, 3 phase power supply. (DO NOT FORGET TO CONNECT EARTHING) press a bush button.

All push buttons along with limit switches will now be functioning properly.

3 Limit Switches :

Limit switches are provided for both hoisting and lowering. These trip the supply in event of accidental Over hoisting OR Over lowering. These are safety devices and hence, it is recommended to use the hoist in always in its extreme positions.

4. Cautions :

Don't make any change in circuit. And connection must be done as per the circuit diagram only.

5. Maintenance :

The hoist requires hardly any maintenance. Check from time to time the oil levels, indicator on the gear box. The oil level may be visible, but may be less than the half in height of the sight glass. Don't fill up more oil as to 1/2 or 3/4 of the sight glass. It may spoil the oil seals due to high oil pressure generated by the gears in motion. Drain oil once in a year and replace by new. (We recommend petrosil (Gulf-oil)) Harmony - 53.

For repair of the gear box, mark the identification lines on gearbox plate to gear box housing, the hoist should be brought down to rest vertical on the motor cover. After changing the parts, assembly is to be done in the same sequence as dismantling.

6. Take care for following points :

Each bearing in the inner plate of the gear box must sit on a distance washer and the taper roller bearings in the outer plate are to be exactly adjusted by sheet metal washers. Measure the depth frame plate to outer ring of the taper roller bearing with a depth gauge.

This measure gives thickness of the washer to be fitted. Uniform thickness is important

Fit bearing covers with a good sealing compound to gear box plate, allow it to dry for sometime before putting the parts together,

Load chain should be well lubricated at all times. Lubricate the chain with any medium Viscosity oil on no load condition. Then run the hoist on load condition only for sometime to ensure that the oil has penetrated the link chain joints.

Put few drops of oil regularly on all moving parts of limit switch to have them always efficient to keep away breakdowns.

Guideline for checking chain wear

- i) While measuring, there should not be any twist in chain and it should be held loose.
- ii) It should be measured within ± 1 mm accuracy and it should be measured at an interval of 2 metres.

Recommended max, 'X' for 17 links in mm-(D-12 mm)-609 mm

At any place if X is more, it is NOT advisable to use.

7. Hoist motor fitting :

If the motor had been removed, fit the main shaft first and then the motor, to fit the motor, release the motor and turn the motor shaft on the fan to and from until the coupling parts match.

For fitting the main shaft, slightly hammering may be necessary, but see always, the main shaft pinion is counter held on the gear box side in its centre and not on the ball bearing. The cap, which is closing the ball bearing, should be removed at this time.

8. Brake adjustment :

No any adjustment need to be done until the load needs more time to stop after releasing the push button by lowering. There will be slow increase of stopping time due to linear wear, but never sudden full slip of load. For adjustment of the brake, remove the motor cover. Open the nut under the plate on which the magnets are fitted one by one and tighten at the same time the nuts which are installed on the outside of the plate,

Control the nut opening correctly by moving them a quarter or half turn. So the brake magnets remains adjusted parallel but the gap gets reduced. It is better to check by a feeler gauge. The gap should be 0.6 to 0.7 mm uniform then, turn all counter nuts, which are fitted on the springs by the same amount

At least open the lock nuts of two 8 mm brake releasing screws and tighten the screws. Now the fan must run free and easily when moved by hand without friction otherwise, the gap of the brake magnets have to be increased slightly. At last bring the brake releasing screws back and lock with the nut, fit motor cover.

NOTE :- Never run the hoist with power with released brake

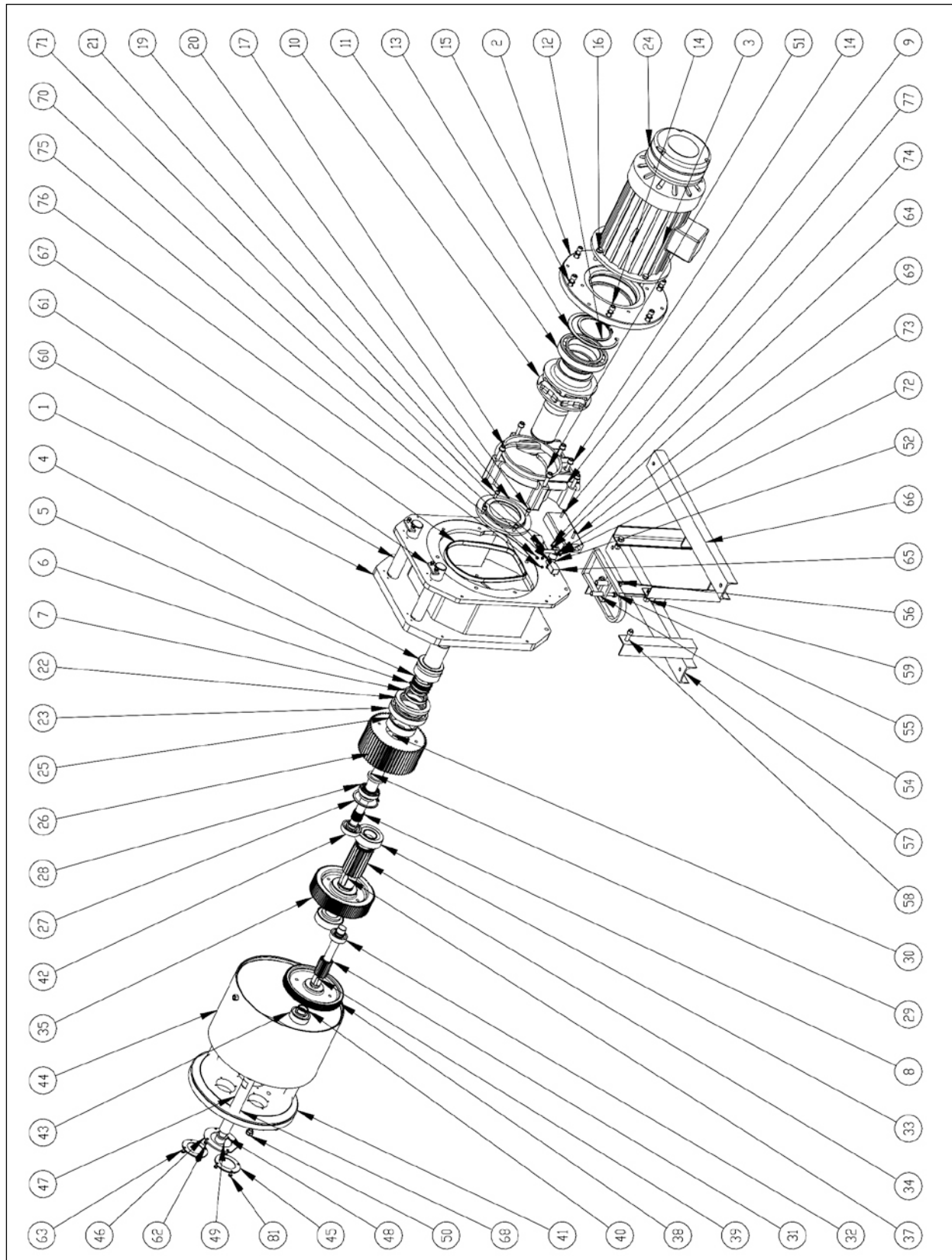
TROUBLE SHOOTING

TROUBLE	CAUSE	HOW TO SET RIGHT
Hoist does not start No contractor operates.	Phase sequence wrong or one phase failed or limit switch operated.	Change to phases of main supply. Check with lamp. Check movement of limit switch levers.
Hoist does not start Contractors are working.	Brake not opening or motor defect or overloaded.	Remove brake cover and see movement of brake plate. Check without load
Operation interrupted Chattering of contractors.	Loose connection or wire broken, current collector contact poor.	Tighten all connections. Check wires. Check sitting of shoe & free movement of arm
Push button gets stuck.	Push button sections shifted	Tighten the housing screw.
Braking time too long.	Brake liner is worn.	Adjust brake as per Instructions.
Brake & motor overheats	Brake not properly opening incorrect air-gap.	Check brake air gap (see the instructions).
Causes of excessive load chain wear.	Lack of lubrication excessive duty/load	Lubricate chain with harmony – 53 or equivalent oil. Check load & No of start / stop per day.
Fast wear load chain wheel.	Excessive worn out chain	Refer guide lines for chain.

SAFE OPERATING PROCEDURES FOR OVERHEAD CRANES / HOISTS & SLINGS

DO Not	CAUTIONS	DO
- Lift more than rated capacity of Hoist. - Operate Hoist with twisted, kinked or damaged hoist-rope - Operate if rope is not seated in drum or sheave grooves. - Lift unless load slings are centered on hook. - Lift people or travel with people on load. - Make side pulls which misalign rope with hoist. - Operate unless all travel limit devices are functioning. - Lower below point where less than two full wraps of rope remain on hoist drum. - Use upper limit switch to stop hoist limit which is emergency stop only. - Leave operating position with suspended load on hook. - Permit load to contact obstacles. - Exceed recommended duty cycle. - Use Hoist Rope or chain as a sling or as an earthing for welding. - Divert his attention while operating. - Remove or obliterate warning label - Exceed fuse rating.	WHENEVER LEAVING OR PARKING ANY HOIST OR CRANE - Raise all hook to-but not through-limit switches. - Place all controls in off position - Place main power switch in off position. - Make visual check for any dangerous condition & report any defect immediately. - Report to supervisor when Hoist is not in operation. - Take up slacks, than start load slowly. - Keep chains free from twists, knots & knits. - Lift form Center of hooks. Avoid lifting form points. - Distribute load evenly on all legs. - Inspect chain regularly. Remember elongation of links is a sign of overloading. - A sharp edge can cut the lift of your sling. Use blocking padding or a corner saddle. - Remove knots large enough for the load. - Don't jerk loads- jerking may double the stress in your sling. Lift load gradually. 	- Test hoist & travel limit devices at a start of each shift. - Position the Hoist so that lifting appliance is directly over the load. - Take load gently & avoid shock loads. - Ensure the travel path is clear before traveling. - Sound warning single when approaching personnel. - Balancer the loading sling before lifting more than few inches. - Test hoist brakes whenever lifting load approaching rated load capacity. Lift load a few inches & test hoist brakes before making complete lift. - Make visual checks on equipment at reasonable intervals & report the defects immediately. - Use controller to "stop" hoist not limit switch. - Watch for proper rigging on load before lifting. - Know standard hand signals. - Check Lubricants. - Check for proper phasing. - Always anchor outdoor hoists when not attended. - Keep load block safely overhead when not in use.

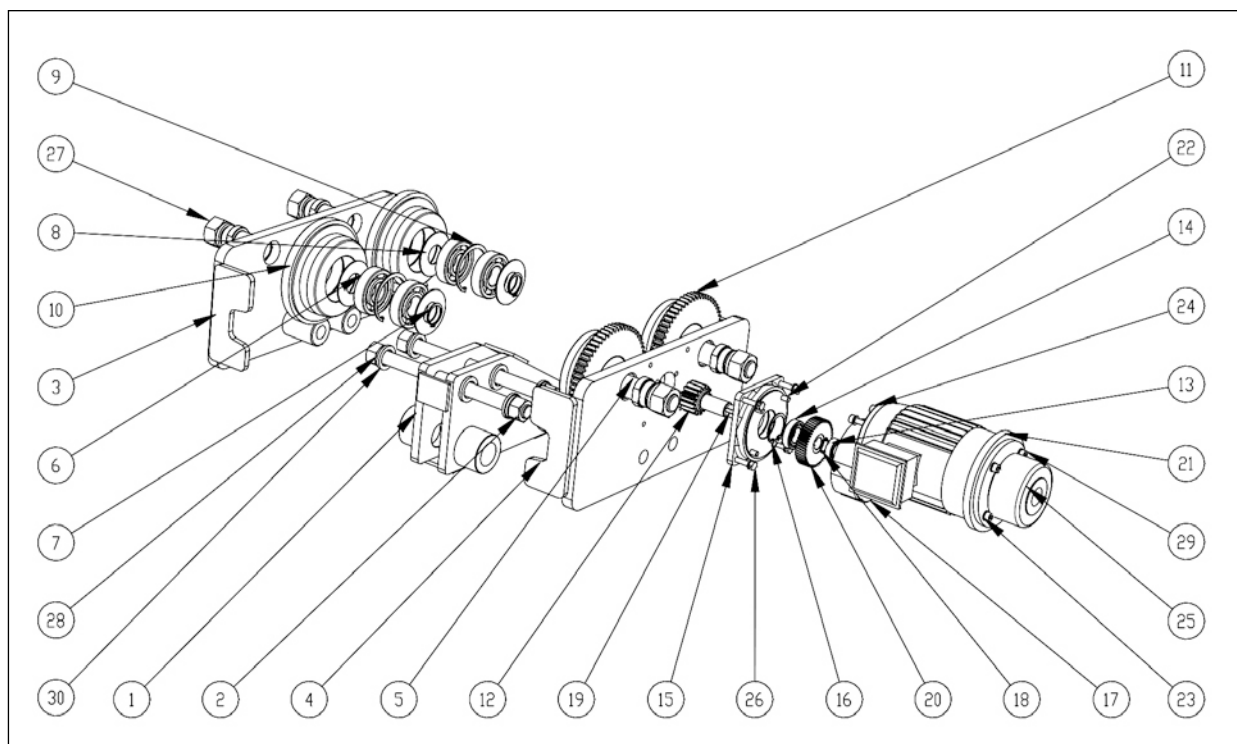
MAINS SPARE PART LIST – 5T/10T/15T/20T



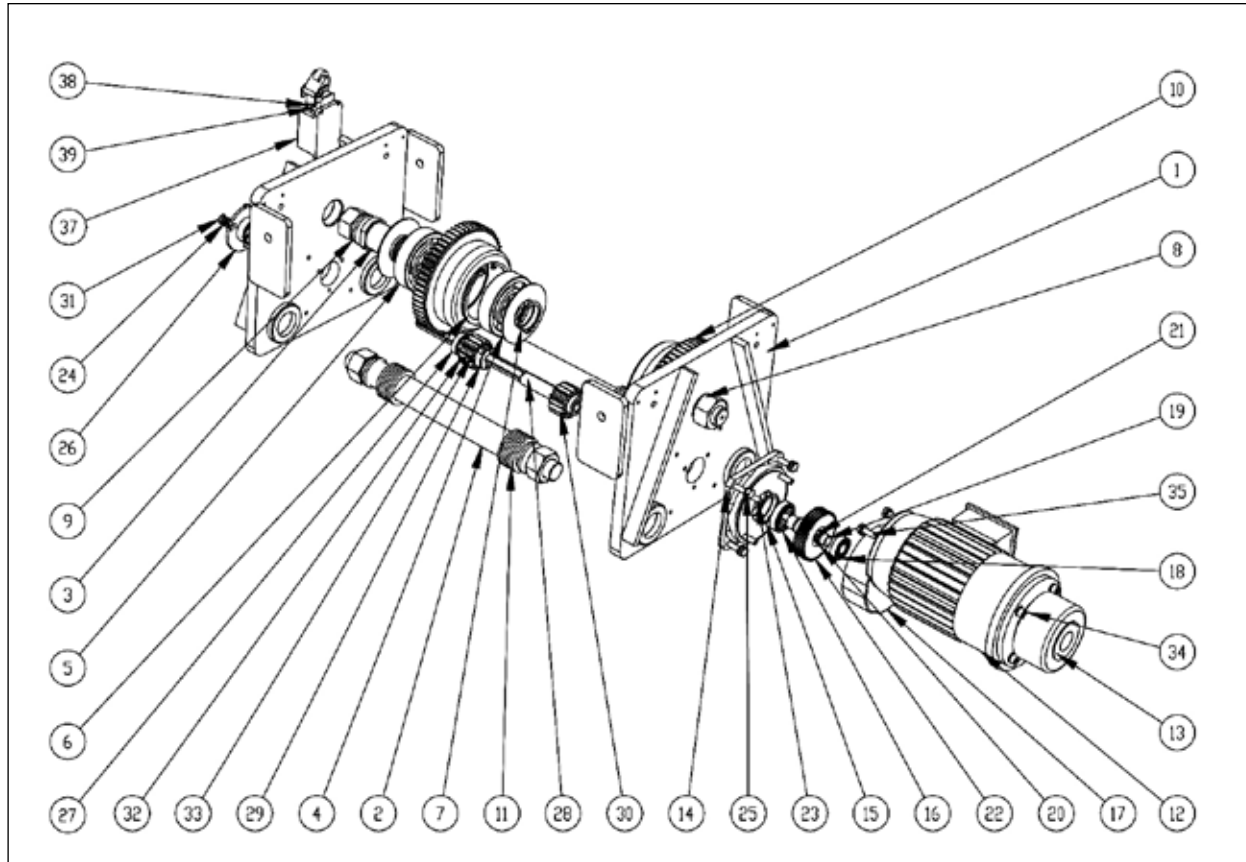
PART NO.	PART CODE	DESCRIPTION	QTY.
1	EKCM133003B	HOUSING	1
2	EKCM013030B	MOTER END SHIELD FRAME	1
3	XMRP271000*	HOIST MOTOR	1
4	UCCA823393B	HALF GEAR COUPLING HUB	1
5	EKCM823392B	HALF GEAR COUPLING HUB	1
6	EXCRA0650000	EXTERNAL CIRCLIP A 65	1
7	OS0650851000	OIL SEAL 65*85*10	1
8	EKCM813021B	MAIN SHAFT	1
9	EKCM013004B	CHAIN GUIDE	1
10	EKCM373010B	LOAD CHAIN WHEEL	1
11	BBR06024RS00	BALL BEARING 6024-2RS/ZZ	1
12	EXCRA1200000	EXTERNAL CIRCLIP A120	1
13	INCRB1800000	INTERNAL CIRCLIP B180	1
14	ASHM12040000	ALLEN SCREW (SHCS) M 12*40	8
15	FLSPWB120000	FLAT SPRING WASHER B12	21
16	HBHM12040088	H T HEX BOLT M12 X 40 (GR. 8.8)	6
17	ASHM12120000	ALLEN SCREW M12*120	1
18	ASHM12130000	ALLEN SCREW M12*130	4
19	EKCM833283A	OIL SEAL HOUSING	1
20	ASHM08035000	ALLEN SCREW (SHCS) M8*35	4
21	FLSPWB080000	FLAT SPRING WASHER B-8	4
22	OS1001301200	OIL SEAL 100*130*12	1
23	BBR06018ZZ00	BALL BEARING 6018	1
24	XBDS0240ELA	HOIST BRAKE	1
25	EKCM833241A	SPACER	1
26	EKCM813024B	DRUM GEAR	1
27	EXCRA0880000	EXTERNAL CIRCLIP A 88	1
28	BBR060090000	BALL BEARING 6009	1
29	OS0450600800	OIL SEAL 45*60*8	1
30	KB2500140750	KEY BER25*14*75	1
31	EKCM813221A	FIRST BACK GEAR PINION	1

PART NO.	PART CODE	DESCRIPTION	QTY.
32	BTR322060000	TAPER ROLLER BEARING 32206	1
33	BTR323090000	TAPER ROLLER BEARING 32309	2
34	EKCM813231B	SECOND BACK GEAR PINION	1
35	EKCM813232B	SECOND BACK GEAR	1
36	EXCRA0550000	EXTERNAL CIRCLIP A55	1
37	KB1600100500	KEY -BER 16*10*50	1
38	EKCM813222B	FIRST BACK GEAR	1
39	KB1000800350	KEY - BER 10*8*35	1
40	EXCRA0350000	EXTERNAL CIRCLIP A35	1
41	EKCM053027A	GEAR BOX PLATE	1
42	BBR063060000	BALL BEARING 6306	1
43	BTR323060000	TAPPER ROLLER BEARING 32306	1
44	EKCM123029A	CASING TUBE	1
45	PCCA833273A	GEARBOX CAP FOR 1 BACK GEAR	2
46	Y1CA833272AE	CAP FOR FIRST BACK GEAR	1
47	EKCM823025B	GEAR BOX BOLT *CH4-25	3
48	FLSPWB240000	FLAT SPRING WASHER B24	3
49	ASHM24055000	ALLEN SCREW (SHCS) M24*55	3
50	PACE173301A	OIL LEVEL INDICATOR 3/8 BSP	1
51	EKCM053005A	CHAIN STRIPPER	1
52	EKCM833091A	LIMIT SWITCH AXLE	1
53	EXCRA0280000	EXTERNAL CIRCLIP A28	1
54	EKCM133090A	LIMIT SWITCH AXLE LEVER	1
55	HBMM10080088	HT HEX BOLT M 10*80 GR:8.8	2
56	FLSPWB100000	FLAT SPRING WASHER B10	2
57	EKCM133077A	PACKING GIRDER	1
58	HBHM06055088	HT HEX BOLT M6*55 GR:8.8	2
59	HNMM012000YZ	HEX NUT M12	4
60	EKDF823061B	SUSPENSION PIN	2
61	CIKU853320A	KEEPER PLATE	4
62	HBHM06020088	HT HEX BOLT M6*20. GR 8.8	12

PART NO.	PART CODE	DESCRIPTION	QTY.
63	FLSPWB060000	FLAT SPRING WASHER B6	20
64	EACM112309A	SPRING PLATE*EHII-309	1
65	XLSE0010SLZ	LIMIT SWITCH	2
66	EKCM133077A	PACKING GIRDER	1
67	EACM183007A	GASKET	1
68	RC0200000000	RUBBER CORD 2DIA	1
69	EDCM113092A	LIMIT SWITCH BOX	1
70	EACM243314A	PLUNGER SPRING	1
71	EDCM243910A	PLUNGER SPRING	1
72	ASHM04035000	ALLEN SCREW M4*35	2
73	FLSPWB040000	FLAT SPRING WASHER B4	2
74	HNMM004000YZ	HEX NUT M4	8
75	MSFM04030000	CHEESE HEAD MACHINE SCREW M4*30	4
76	SQSPW0040000	SQUARE SPRING WASHER 4MM	4
77	MSFM06055000	CHEESE HEAD MACHINE SCREW M6*55	2
78	HBHM20090088	HT HEX BOLT M 20*90	1
79	FLSPWB200000	FLAT SPRING WASHER B20	1
80	HNMM020000YZ	HEX NUT M20	1
81	HBHM06016088	HT HEX BOLT M6*16	8
82	CHAL16048800	LOAD CHAIN	1
Please refer for Motor Part Code ‘*’ Details (BBL, IND)			

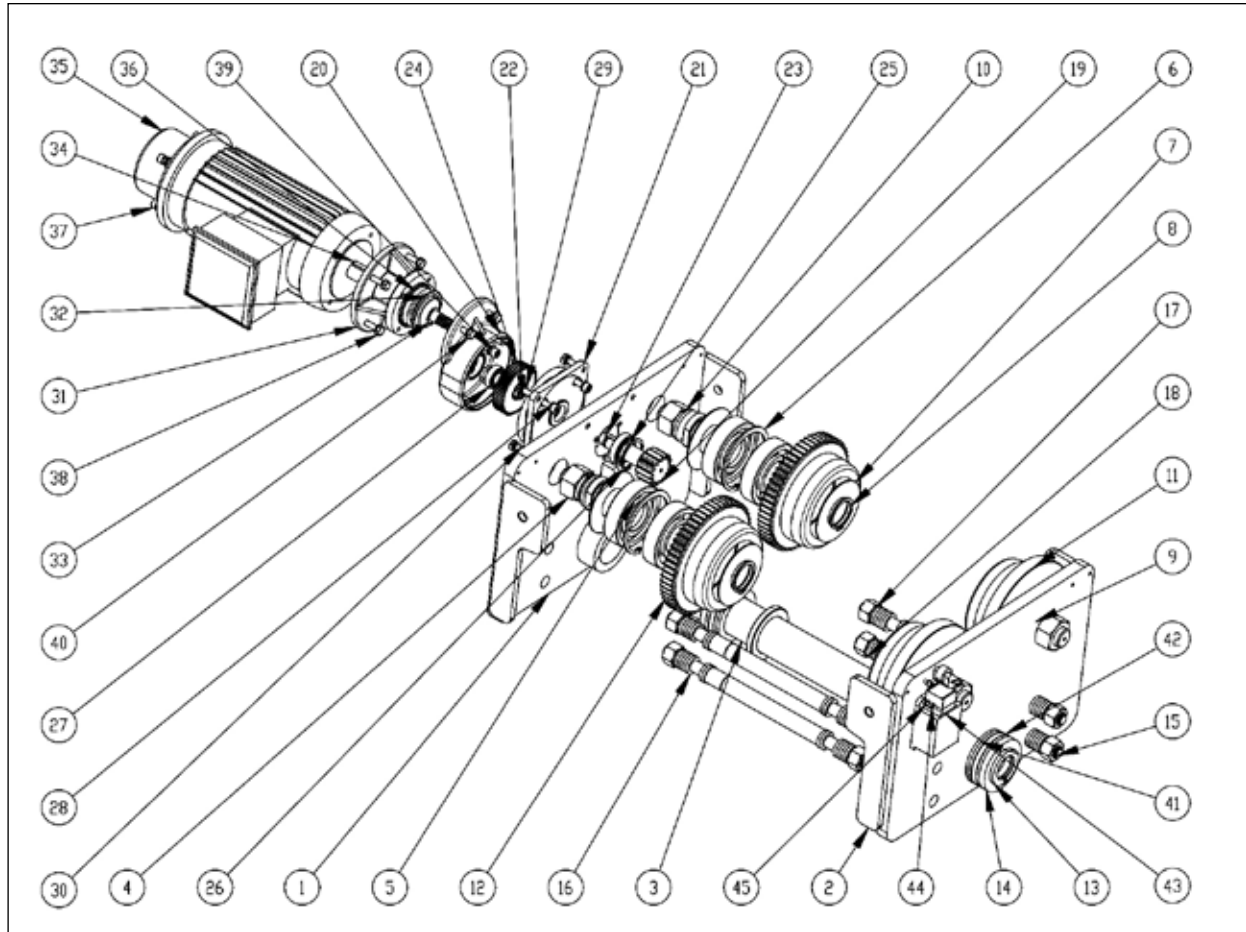
ELECTRIC TROLLEY - 5T

PART NO.	PART CODE	DESCRIPTION	QTY.
1	EKAU123210A	HOIST SUSPENSION, 5T, CH4-210	1
2	REDM833401A	CROSS BOLT 2T PUSH/ GEARED TROLLEY WITH M24 HEX.NUT	2
3	URCF133012A	TROLLEY SIDE PLATE (PLAIN WHEEL SIDE)	1
4	URCF133011A	TROLLEY SIDE PLATE (GEAR WHEEL SIDE)	1
5	PBCF823015B	WHEEL AXLE WITH M30 NUT	4
6	BBR063070000	BALL BEARING 6307	8
7	EXCRA0350000	EXTERNAL CIRCLIP A35	4
8	PBCF113016A	BALL BEARING COVER	8
9	INCRB0800000	INTERNAL CIRCLIP B80	4
10	PBCG013014A	PLANE WHEEL (STRAIGHT & TAPERED)	2
11	PBCG013013A	GEARED WHEEL (STRAIGHT & TAPERED)	2
12	EDCF813017C	WHEEL PINION	1
13	BBR060030000	BALL BEARING 6003	1
14	BBR060050000	BALL BEARING 6005	1
15	PACF013028B	GEAR BOX COVER	1
16	INCRB0470000	INTERNAL CIRCLIP B 47	1
17	PACF023029B	GEAR BOX HOUSING	1
18	EXCRA0200000	EXTERNAL CIRCLIP A20	1
19	KO0600600180	KEY 6X6X18	1
20	PACF813031B	GEAR WHEEL, NO.OF TEETH 50	1
21	XMRP028000*	TROLLEY MOTOR	1
22	ASFM08030000	ALLEN SCREW M 8*30	4
23	FLSPWB080000	FLAT SPRING WASHER B-8	16
24	ASFM08025000	ALLEN SCREW M 8*25	4
25	XBAP0060SYT	TROLLEY BRAKE	1
26	PACF193112B	MODIFIED HT HEX BOLT 8*30	4
27	FLSPWB300000	FLAT SPRING WASHER B30	4
28	FLSPWB240000	FLAT SPRING WASHER B24	4
29	ASFM08020000	ALLEN SCREW M 8*20	4
30	PACF113023A	SPACER 33 I.D * 50 * 5	12
Please refer for Motor Part Code ‘**’ Details (REM/IND/ELE)			

ELECTRIC TROLLEY - 10T

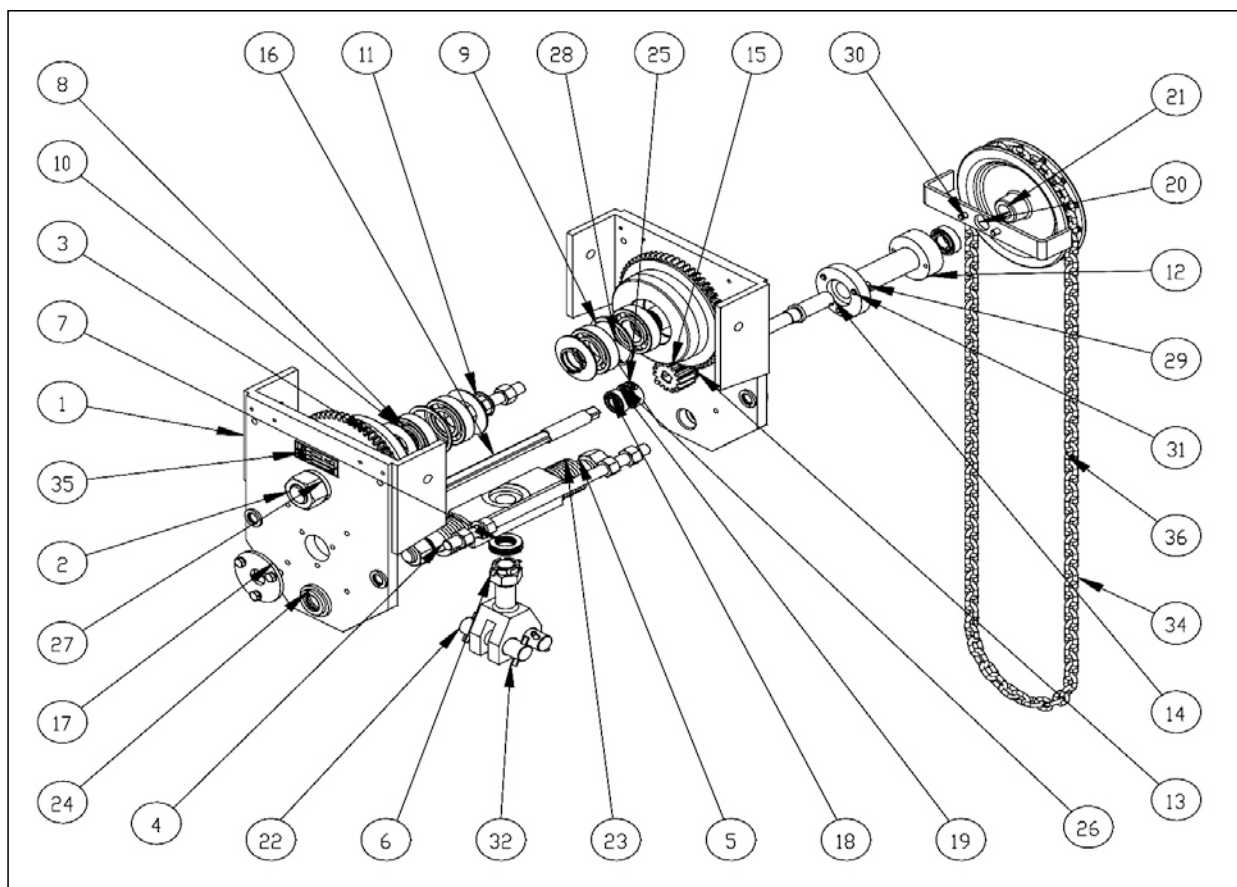
PART NO.	PART CODE	DESCRIPTION	QTY.
1	UDC5133011A	BOGIE TROLLEY GEAR SIDE PLATE	2
2	PBCF823025B	LOAD AXLE (F.W.125 TO 210MM) WITH M30 NUT	2
3	PCCF823015B	WHEEL AXLE WITH M30 NUT	2
4	PCCF113016A	BALL BEARING COVER	4
5	BBR063090000	BALL BEARING 6309	4
6	INCRB1000000	INTERNAL CIRCLIP B 100	2
7	EXCRA0450000	EXTERNAL CIRCLIP A45	2
8	FLSPWB300000	FLAT SPRING WASHER B30	6
9	PACF113023A	SPACER 33 I.D * 50 * 5	6
10	PCCF013013A	GEARED WHEEL STRAIGHT & TAPER WHEEL	2
11	PCCF113252A	WASHER FOR LOAD AXLE	24
12	XMRP030000*	TROLLEY MOTOR	1

PART NO.	PART CODE	DESCRIPTION	QTY.
13	XBAP0060SYT	TROLLEY BRAKE	1
14	PACF013028B	GEAR BOX COVER	1
15	INCRB0470000	INTERNAL CIRCLIP B 47	1
16	BBR060050000	BALL BEARING 6005	1
17	PACF023029B	GEAR BOX HOUSING	1
18	BBR060030000	BALL BEARING 6003	1
19	PACF813022C	DRIVE SHAFT	1
20	EXCRA0200000	(A) EXTERNAL CIRCLIP A 20	1
21	KO0600600180	KEY 6X6X18	1
22	PACF813031B	GEAR WHEEL, NO.OF TEETH 50	1
23	ASFM08030000	ALLEN SCREW M 8*30	4
24	FLSPWB080000	FLAT SPRING WASHER B8	19
25	PACF193112B	MODIFIED HT HEX BOLT 8*30	4
26	PACF833021B	BEARING HOUSING	1
27	BBR06003ZZ00	BALL BEARING 6003-ZZ/2RS	1
28	PBCF823018C	PINION SHAFT	1
29	PACF833020B	CLAMPING WASHER	1
30	PACF823017C	WHEEL PINION	2
31	HBHM08016088	HT HEX BOLT M8*16	3
32	ASHM05020000	ALLEN SCREW M5*20	1
33	FLSPWB050000	FLAT SPRING WASHER B-5	1
34	ASFM08020000	ALLEN SCREW (SHCS) M 8*20	4
35	HBHM08025088	HT HEX BOLT M8*25 GR 8.8	2
36	ASFM08025000	ALLEN SCREW M 8*25	2
37	XLSP0090SLZ	LIMIT SWITCH	1
38	ASFM06016000	ALLEN SCREW (SHCS) M6*16	2
39	FLSPWB060000	FLAT SPRING WASHER B6	2
Please refer for Motor Part Code '** Details (REM/IND/ELE)			

ELECTRIC TROLLEY - 15T/20T

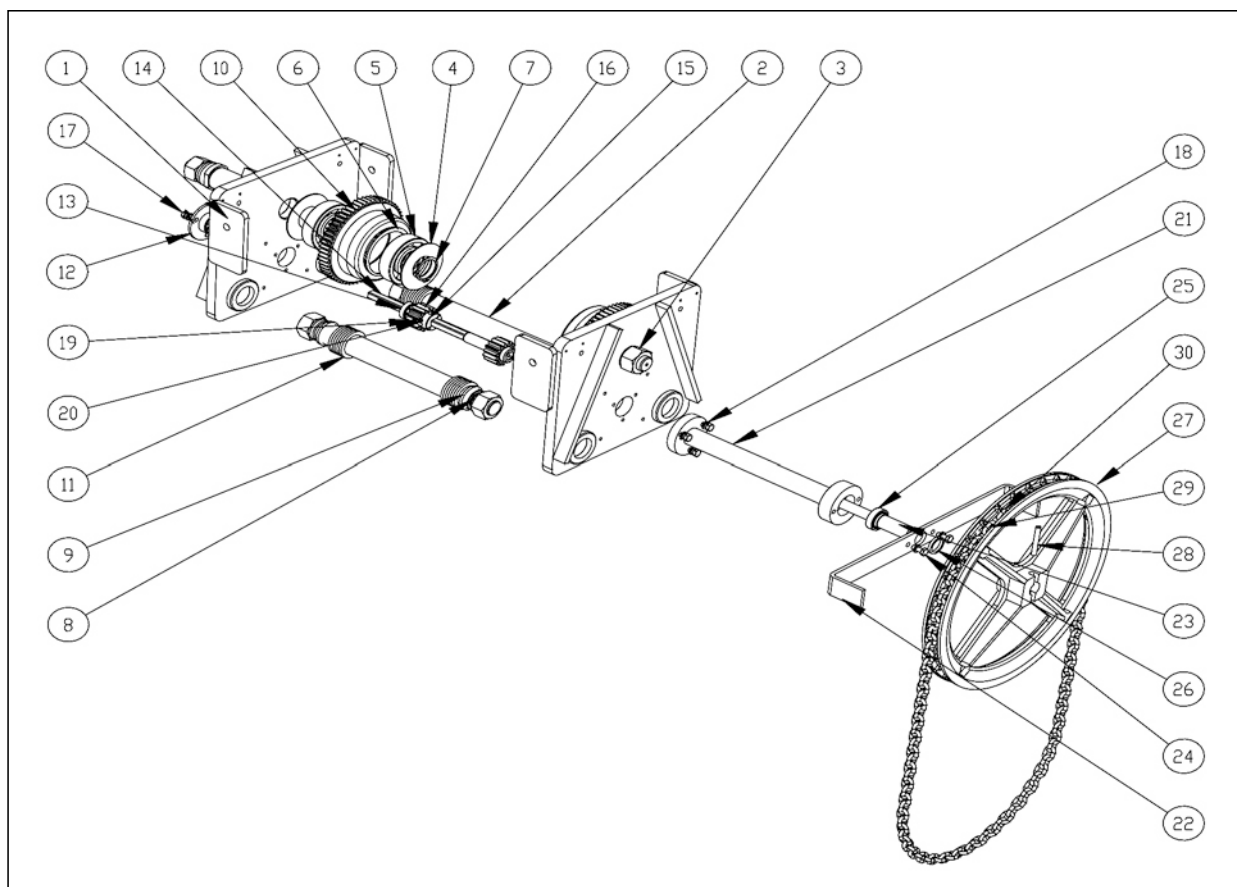
PART NO.	PART CODE	DESCRIPTION	QTY.
1	UDC4133011A	GEAR SIDE TROLLEY PLATE	1
2	UDC4133012A	PLAIN SIDE TROLLEY PLATE	1
3	UDC4823025B	LOAD AXLE WITH M36 HEX.NUT	1
4	PCCF823015B	WHEEL AXLE WITH M30 NUT	4
5	BBR063090000	BALL BEARING 6309	8
6	INCRB1000000	INTERNAL CIRCLIP B 100	4
7	PCCF113016A	BALL BEARING COVER	8
8	EXCRA0450000	EXTERNAL CIRCLIP A45	4
9	PACF113023A	SPACER 33 I.D * 50 * 5	4
10	FLSPWB300000	FLAT SPRING WASHER B30	4
11	PCCF013014A	PLAIN WHEEL STRAIGHT & TAPER	2
12	PCCF013013A	GEARED WHEEL STRAIGHT & TAPER	2
13	FLSPWB360000	FLAT SPRING WASHER B-36	2

PART NO.	PART CODE	DESCRIPTION	QTY
14	UDC4833253A	PLAIN WASHER(4/1)	2
15	UDC4833027A	DISTANCE BOLT	4
16	TQCM113024A	SPACER	56
17	FLSPWB180000	FLAT SPRING WASHER B 18	8
18	HNMM018000YZ	HEX NUT M18 YELLOW ZINC PLATED	8
19	EDCF813017C	INTEGRATED WHEEL PINION	1
20	GACN013029B	GEAR BOX HOUSING	1
21	PACF013028B	GEAR BOX COVER	1
22	EXCRA0200000	(A) EXTERNAL CIRCLIP A 20	1
23	KO0600600180	KEY 6X6X18	1
24	PACF813031B	GEAR WHEEL, NO.OF TEETH 50	1
25	BBR060050000	BALL BEARING 6005	1
26	INCRB0470000	INTERNAL CIRCLIP B 47	1
27	BBR060030000	BALL BEARING 6003	1
28	ASFM08030000	ALLEN SCREW M 8*30	4
29	FLSPWB080000	FLAT SPRING WASHER B8	20
30	PACF193112B	MODIFIED HT HEX BOLT 8*30	4
31	UDC4013383B	ADAPTER (MOTOR B14, FRAME 90S)	1
32	INCRB0620000	INTERNAL CIRCLIP B 62	1
33	UDC4133037B	PINION (MOTOR FRAME 90S)	1
34	XMRP522000*	TROLLEY MOTOR	1
35	XBAP0060SYT	TROLLEY BRAKE	1
36	OS0480620800	OIL SEAL 48*62*8	1
37	ASFM08020000	ALLEN SCREW (SHCS) M 8*20	4
38	HBHM08030088	HT HEX BOLT 8*30 GRADE 8.8	4
39	ASFM08025000	ALLEN SCREW M 8*25	2
40	HBHM08025088	HT HEX BOLT M8*25 GR 8.8	2
41	UDC4833251A	SPACER 4/1	6
42	UDC4833252A	SPACER 4/1	4
43	XLSP0090SLZ	LIMIT SWITCH	1
44	ASFM05016000	ALLEN SCREW (SHCS) M 5*16	2
45	FLSPWB050000	FLAT SPRING WASHER B-5	2
Please refer for Motor Part Code '** Details (REM/IND/ELE)			

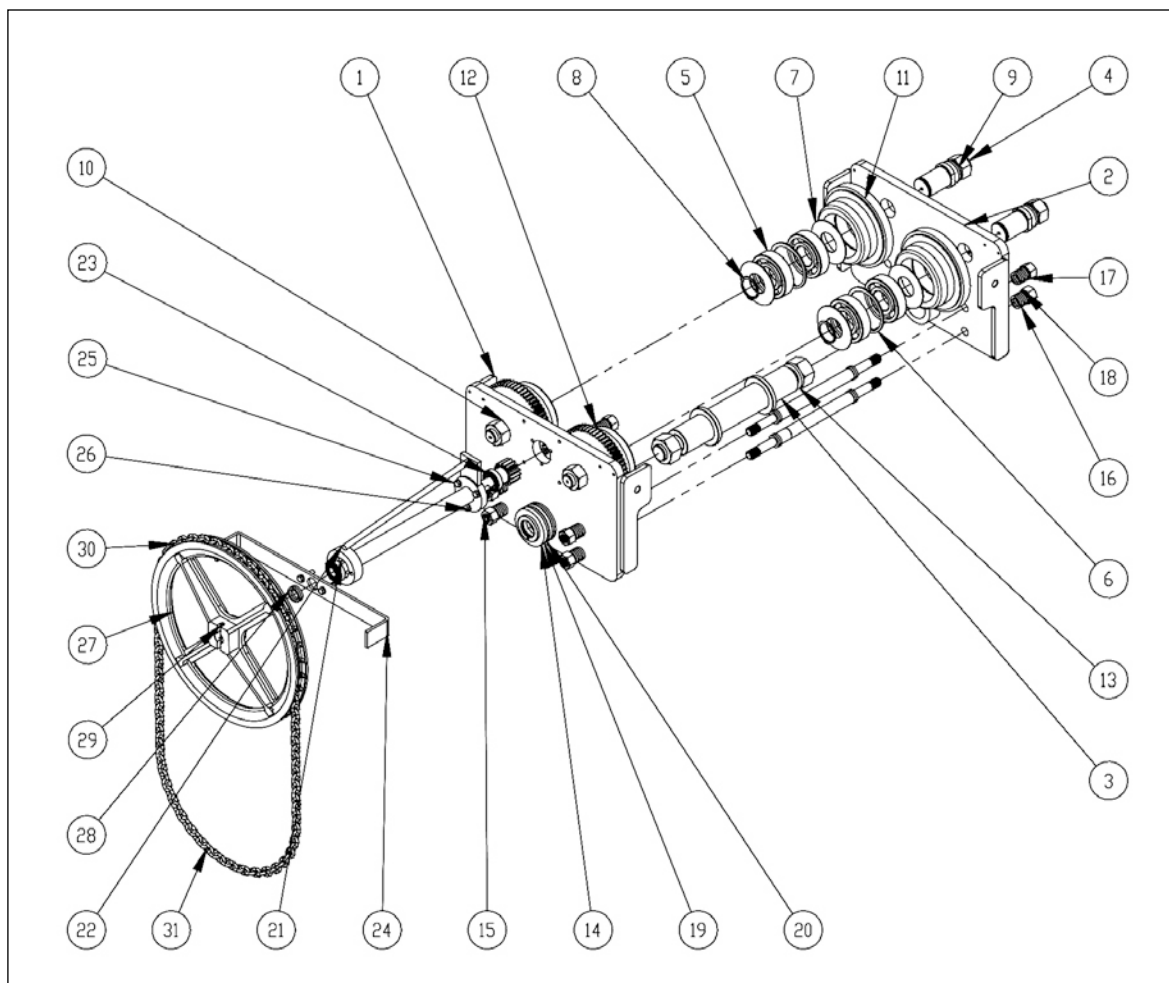
GEARED TROLLEY - 5T

PART NO.	PART CODE	DESCRIPTION	QTY.
1	PBCF133001B	SIDE PLATE GT	2
2	PBCF823015B	WHEEL AXLE	2
3	PBCG013013A	GEARED WHEEL	2
4	PCCF833027A	DISTANCE BOLT	2
5	PBCN053064A	LOAD AXLE	1
6	PGCF863604A	SUSPENSION	1
7	BTB511080000	THRUST BEARING 51105	1
8	BBR063070000	BALL BEARING 6207-ZZ/2RS	4
9	INCRB0800000	INTERNAL CIRCLIP B72	2
10	PBCF113016A	BEARING COVER	4
11	EXCRA0350000	EXTERNAL CIRCLIP A 35	2
12	PACG133028A	DRIVE SHAFT HOUSING	1

PART NO.	PART CODE	DESCRIPTION	QTY.
13	BBR06004ZZ00	BALL BEARING 6004ZZ	2
14	PACG823022D	DRIVE SHAFT	1
15	PACF823017C	WHEEL PINION	2
16	PBCF823018C	PINION SHAFT	1
17	PACF833021B	BEARING HOUSING	1
18	BBR06003ZZ00	BALL BEARING 6003-ZZ/2RS	1
19	PACF833020B	CLAMPING WASHER	1
20	PACG852024A	HAND CHAIR GUIDE	1
21	MECM023022A	HAND CHAIN WHEEL	1
22	PGCF823612B	HOIST SUSPENSION BOLT	2
23	PACF113023A	SPACER 33 I.D * 50 * 5	18
24	FLSPWB300000	FLAT SPRING WASHER B24	2
25	FLSPWB050000	FLAT SPRING WASHER B-5	1
26	ASFM05016000	ALLEN SCREW M5*20	1
27	FLSPWB300000	FLAT SPRING WASHER B30	2
28	FLSPWB160000	FLAT SPRING WASHER B16	8
29	FLSPWB080000	FLAT SPRING WASHER B8	8
30	HBHM08016088	HEX BOLT M8*16	5
31	HBHM08020088	HT HEX BOLT 8*20 GRADE 8.8	3
32	DSP080045000	DOWEL SPRING PIN 8*45	4
33	DSP060040000	DOWEL SPRING PIN 6*40	1
34	CHHYN0601804	HAND CHAIN 6 * 19	as per req
36	CHJL060180YZ	JOINING LINK	1

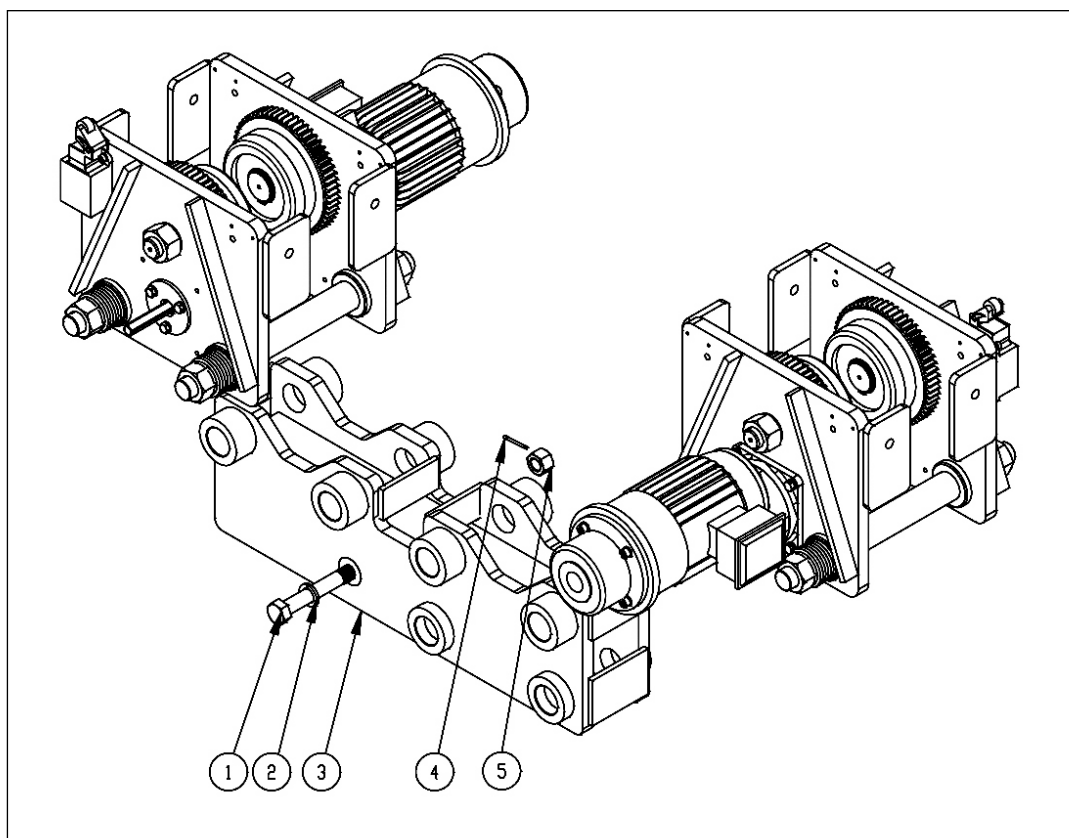
GEARED TROLLEY - 10T

PART NO.	PART CODE	DESCRIPTION	QTY.
1	UDC5133011A	TROLLEY GEAR SIDE PLATE	2
2	PBCF823025B	LOAD AXLE	2
3	PCCF823015B	WHEEL AXLE	2
4	PCCF113016A	BALL BEARING COVER	4
5	BBR063090000	BALL BEARING 6309	4
6	INCRB1000000	INTERNAL CIRCLIP B 100	2
7	EXCRA0450000	EXTERNAL CIRCLIP A45	2
8	FLSPWB300000	FLAT SPRING WASHER B30	6
9	PACF113023A	SPACER 33 I.D * 50 * 5	6
10	PCCF013013A	GEARED WHEEL	2
11	PCCF113252A	WASHER FOR LOAD AXLE	24
12	PACF833021B	BEARING HOUSING	1
13	BBR06003ZZ00	BALL BEARING 6003-ZZ/2RS	1
14	PBCF823018C	PINION SHAFT	1
15	PACF833020B	CLAMPING WASHER	1
16	PACF823017C	WHEEL PINION	2
17	HBHM08016088	HT HEX BOLT 8*16	6
18	FLSPWB080000	FLAT SPRING WASHER B8	8
19	ASHM05020000	ALLEN SCREW M5*20	1
20	FLSPWB050000	FLAT SPRING WASHER B-5	1
21	UDC5133028C	DRIVE SHAFT HOUSING	1
22	TPCM853117A	HAND CHAIN GUIDE	1
23	PCCZ823022C	DRIVE SHAFT	1
24	HBHM08020088	HT HEX BOLT 8*20	2
25	BRB060040000	BALL BEARING 6004	1
26	TKCM883013A	WASHER 26*33.7*5	1
27	TKCM021011A	HAND CHAIN WHEEL	1
28	DSP080060000	DOWEL SPRING PIN 8*60	1
29	CHHYN0601804	HAND CHAIN 6*19	AS PER REQU.
30	CHJL060180YZ	JOINING LINK	1

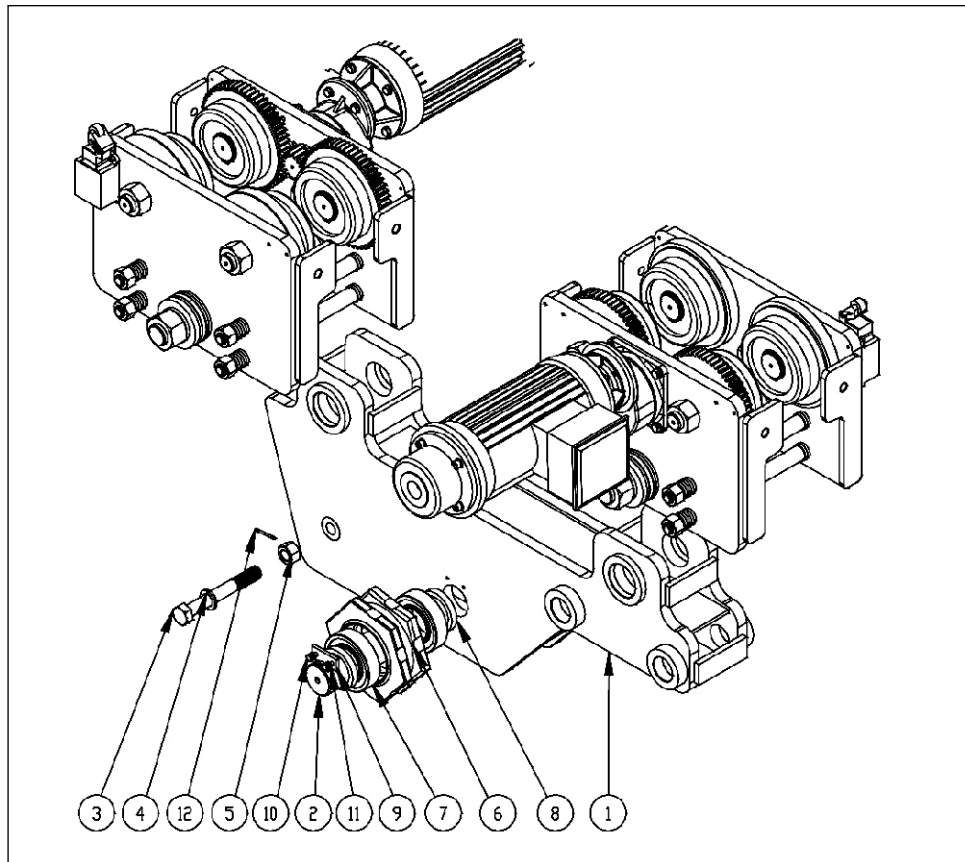
GEARED TROLLEY – 15T/20T

PART NO.	PART CODE	DESCRIPTION	QTY.
1	UDC4133011A	GEAR SIDE TROLLEY PLATE	1
2	UDC4133012A	PLAIN SIDE TROLLEY PLATE	1
3	UDC4823025B	LOAD AXLE	1
4	PCCF823015B	WHEEL AXLE WITH M30 NUT	4
5	BBR063090000	BALL BEARING 6309	8
6	INCRB1000000	INTERNAL CIRCLIP B 100	4
7	PCCF113016A	BALL BEARING COVER	8
8	EXCRA0450000	EXTERNAL CIRCLIP A45	4
9	PACF113023A	SPACER 33 I.D * 50 * 5	4
10	FLSPWB300000	FLAT SPRING WASHER B30	4
11	PCCF013014A	PLAIN WHEEL	2
12	PCCF013013A	GEARED WHEEL	2
13	FLSPWB360000	FLAT SPRING WASHER B-36	2
14	UDC4833253A	PLAIN WASHER	2
15	UDC4833027A	DISTANCE BOLT	4
16	TQCM113024A	SPACER	56
17	FLSPWB180000	FLAT SPRING WASHER B 18	8
18	HNMM018000YZ	HEX NUT M18	8
19	UDC4833251A	SPACER	6
20	UDC4833252A	SPACER	4
21	UDC4813018B	DRIVE SHAFT	1
22	TPCM133019A	DRIVE SHAFT HOUSING	1
23	BBR06005ZZ00	BALL BEARING 6005-ZZ	2
24	TPCM853117A	HAND CHAIN GUIDE	1
25	HBHM08035088	HEX BOLT 8*35	5
26	FLSPWB080000	FLAT SPRING WASHER B8	5
27	TKCM021011A	HAND CHAIN WHEEL	1
28	TKCM883013A	WASHER 26*33.7*5	2
29	DSP080060000	DOWEL SPRING PIN 8*60	1
30	CHHYN0601804	HAND CHAIN 6*19	AS PER REQ.
31	CHJL060180YZ	JOINING LINK	1

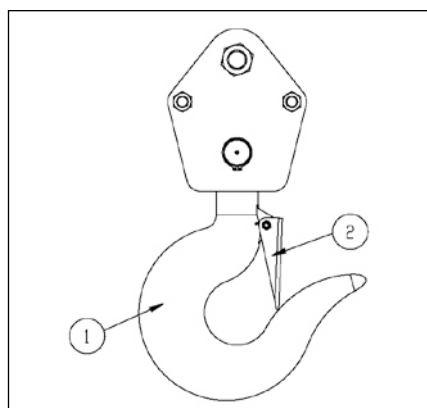
HOIST SUSPENSION ARM - 10T



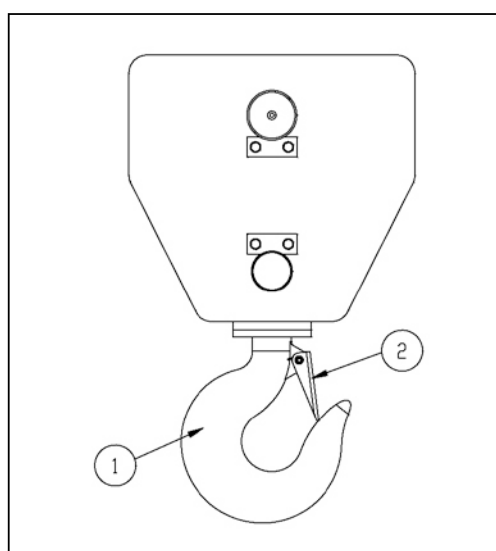
PART NO.	PART CODE	DESCRIPTION	QTY.
1	EKDL193013A	CHAIN SUSPENSION BOLT	1
2	FLSPWB200000	FLAT SPRING WASHER B 20	1
3	EKBUI33021A	MAIN ARM	1
4	SCP040300000	SPLIT COTTER PIN 4*30	1
5	HNMM020000YZ	HEX NUT M20 YELLOW ZINC PLATED	1

HOIST SUSPENSION ARM - 15T/20T

PART NO.	PART CODE 15T	PART CODE 20T	DESCRIPTION	QTY.
1	EKDU123021A	EKEU133021A	MAIN ARM	1
2	EKDL823012B	EKDL823012B	LOAD CHAIN WHEEL AXLE *CH4-12	1
3	-	EKDL193013A	CHAIN SUSPENSION BOLT	1
4	-	FLSPWB200000	FLAT SPRING WASHER B20	1
5	-	HNMM020000YZ	HEX NUT M20 YELLOW ZINC PLATED	1
6	EKCL013011B	EKCL013011B	LOAD CHAIN WHEEL *CH4-11	1
7	BCR0NJ221100	BCR0NJ221100	CYLINDRICAL ROLLER BEARING NJ2211	2
8	EKDU833211A	EKDU833211A	SPACER *CH4-211	2
9	CIKU853320A	CIKU853320A	KEEP PLATE(34150408)*INDEF-M 10T/320	2
10	HBHM06020088	HBHM06020088	HT HEX BOLT M6*20.GR 8.8	4
11	FLSPWB060000	FLSPWB060000	FLAT SPRING WASHER B6	4
12	-	SCP040300000	SPLIT COTTER PIN 4*30	1

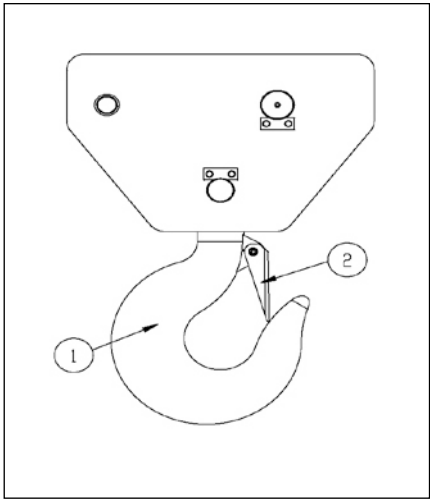
LOWER BLOCK – 5T

PART NO.	PART CODE	DESCRIPTION	QTY.
	0760602P	LOWER BLOCK ASSLY	
1	CCBU003078A	HOOK WITH SAFETY LATCH ASSLY	1
2	CCDS003204A	HOOK LATCH ASSLY	1

LOWER BLOCK – 10T

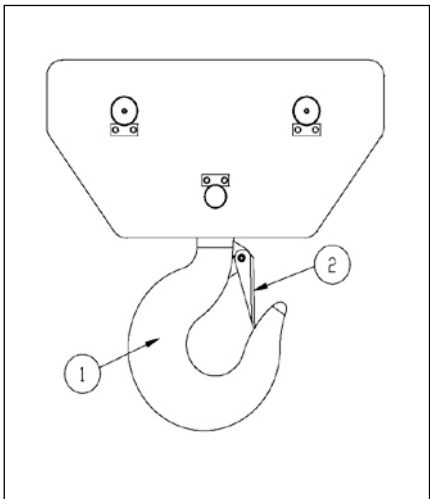
PART NO.	PART CODE	DESCRIPTION	QTY.
	0760601P	LOWER BLOCK ASSLY	
1	CGQU003712A	HOOK WITH SAFETY LATCH ASSLY	1
2	CCES003210B	HOOK LATCH ASSLY	1

LOWER BLOCK – 15T



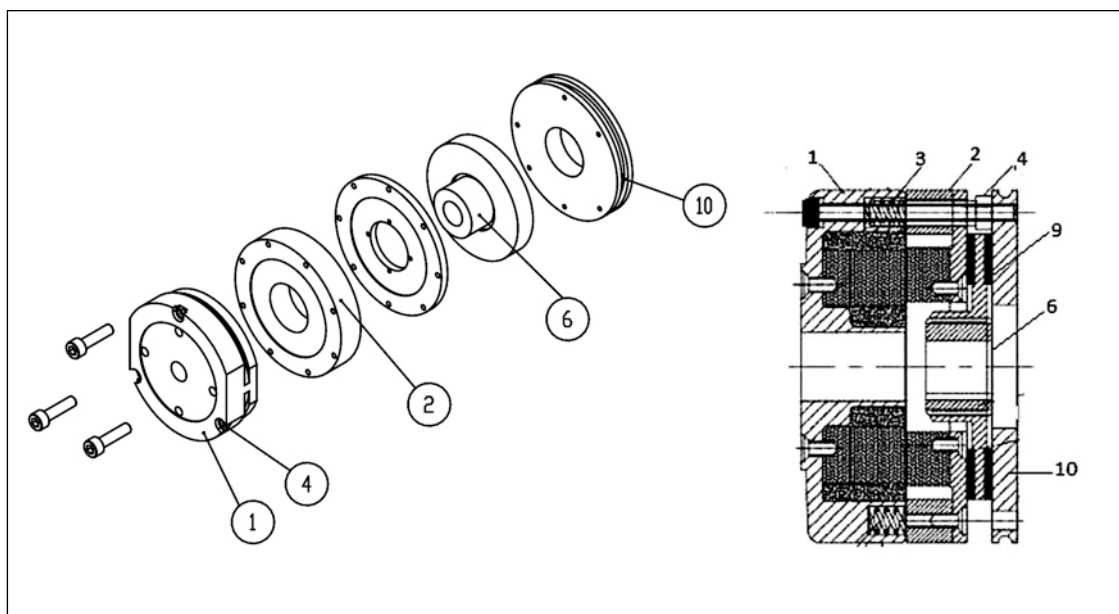
PART NO.	PART CODE	DESCRIPTION	QTY.
	0760603P	LOWER BLOCK ASSLY	
1	CCFL003160A	HOOK WITH SAFETY LATCH ASSLY	1
2	CCFS003165B	HOOK LATCH ASSLY	1

LOWER BLOCK – 20T



PART NO.	PART CODE	DESCRIPTION	QTY.
	0760604P	LOWER BLOCK ASSLY	
1	CCFL003160A	HOOK WITH SAFETY LATCH ASSLY	1
2	CCFS003165B	HOOK LATCH ASSLY	1

TROLLEY BRAKE SPARE PART LIST



PART NO.	PART CODE	DESCRIPTION
	XBAP0060SYT	MAIN BRAKE
1	XBAP01610SSYT	STATOR
2		ARMATURE ASSEMBLY
3		TUBULAR SPRING EACH SET
4	XBAP87210SSYT	MOUNTING FLANGE ASSLY
6		BRAKE DISC & BRAKE LINER (ROTOR / GEAR HUB)
10	XBAP00510SYT	MOUNTING FLANGE

TROLLEY & BRAKE

MAINTENANCE / REPAIR

TROUBLE	POSSIBLE CAUSE	REQUIRED ACTION
Brake does not apply No braking action	No mains voltage. Stator (coil) open. Armature plate Jammed (without moment)	Check supply voltage. Brake coil resistance to be checked as per the technical data. Springs, guide bushes must be checked and overhauled (cleaned properly).
Brake action too slow, insufficient braking effect	Oil or grease on the friction lining Spring are present/broken Brake lining worn-out	Replace rotor, prevent oil/grease from coming in contact with friction liner. Dismantle brake, loosen sleeves insert new springs. Replace rotors (armature plate and flange if very badly worn-out).

To ensure safe & trouble free operation, Spring Loaded Brakes must be checked and maintained at regular intervals. SYTCO Spring Loaded Brakes are wear – resistant and designed for trouble free longer life. The Friction Liners are subject to function -related wear. The Brakes must be checked and readjusted at regular intervals & if necessary, it should be replaced.

PRINCIPLE OF OPERATION :: This type of brake consists of stator, Armature, Rotor & Mounting flange. Current is given to stator (coil), the armature plate is attracted to the stator against the spring force thus releasing the rotor. When current is off, strong compression springs push the armature plate back to its position thus clamping the rotor in between armature & mounting flange and providing necessary braking torque.

INSTALLATION : Mounting flange (10) has to be mounted on motor/machine body which should be at right angle to the motor/machine shaft as well as centered internally and externally may be with the help of spigot. The hub (6) has to be fitted on shaft with the help of key and axial retainer (circlip) and Rotor (9) on that. Stator (1) with Armature Assembly (2) has to be fitted on the Mounting flange (10) with the help of provided Allen bolt (8) through adjustment Hollow Bushes (4). The air gap should be adjusted by adjustable Hollow Bushes. To reduce air gap, rotate all bushes equally clockwise. Air gap should be within limits as per following table, initially it should be nominal.

Brake size	05	10	20	40	70	90	160	250
Nominal air gap mm	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.5
Maximum air gap mm	0.5	0.7	0.7	0.7	0.8	1.0	1.0	1.0

MAINTANENCE : SYTCO Fail Safe Brakes are almost maintenance free. For this periodicity depends on application to application, operating frequency, system inertia to be stopped etc. air gap can be adjusted by rotating adjustable Hollow Bushes to reduce air gap. Rotate all bushes anti-clockwise and check from all sides by filler gauge and vice-versa.

TYPICAL CASES OF WRONG FITMENT

Typical case of uneven air gap in brake disc: This should be noticed and avoided during preventive maintenance.



Typical case of stator resting bolt head, which will restrict the stator lateral movement of brake disc: This should be noticed and avoided during preventive maintenance.



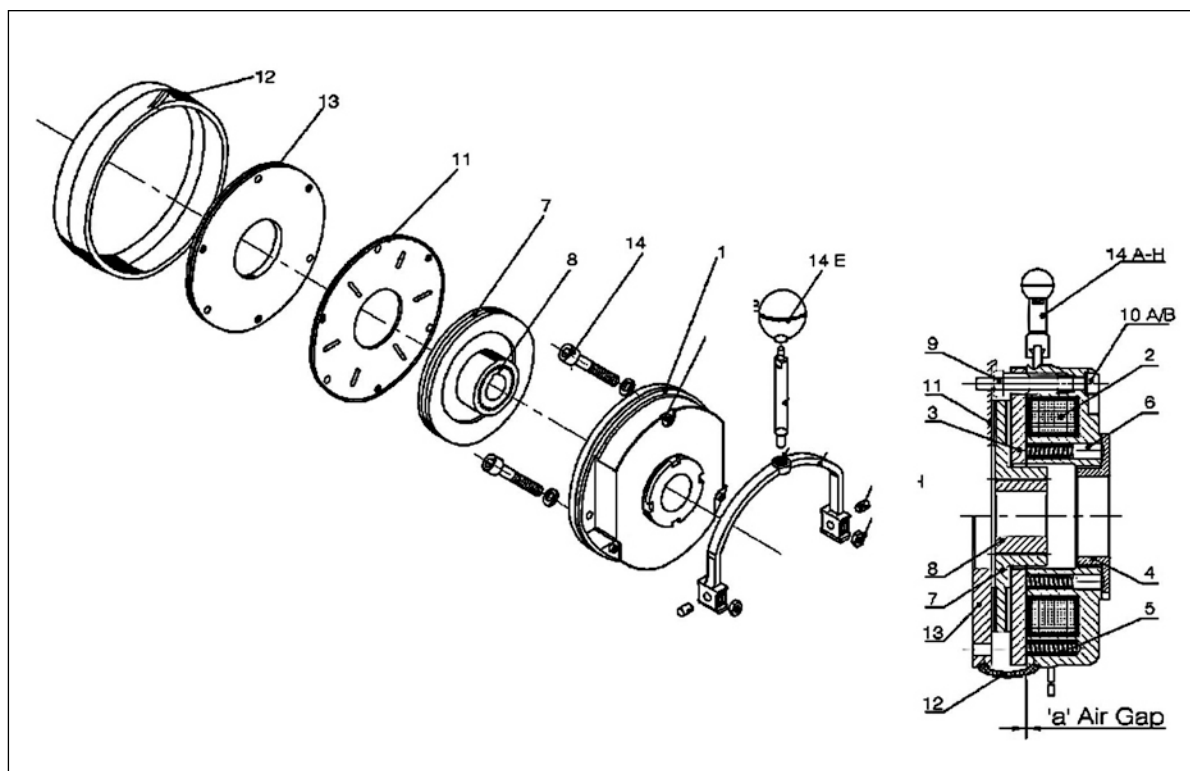
Typical case of stator fitting, the half-moon slot is to clear the bolt head, brake housing fitment wrong, which will obstruct the stator lateral movement of brake disc: This should be noticed and avoided during preventive maintenance.



TYPICAL CASES OF WRONG WIRING

The RYB colour code of connecting cables to be maintained and wiring connections to be followed accordingly. The supply voltage is $415 \pm 10\%$ for all AC brakes. The power supply fluctuations will have effect on brake coil first than motor as coil are more sensitive than motor windings.

HOIST BRAKE SPARE PART LIST



PART NO.	PART CODE	DESCRIPTION
	XBDS0240ELA	MAIN BRAKE
1	XBDS0242ELA	STATOR ARMATURE ASSEMBLY
2		STATOR
3		ARMATURE PLATE
14	XBDS0247ELA	HAND RELEASE ASSEMBLY
4		TARQUE ADJUSTMENT RING
5		COMPRESSION SPRING
6		COMPRESSION PARTS
7		ROTOR
8		HUB
9	XBDS0250ELA	ADJUSTMENT TUBE
10		MOUNTING BOLT & WASHER
11		FRICTION PLATE
12		RUBBER SEAL
13		MOUNTING FLANGE



HOIST BRAKE

SAFETY PRECAUTIONS

- 1. To prevent electrical mishaps be sure to disconnect the power to the brake from its source before attempting to service or repair.
- 2. Look down or secure any load hold by this brake prior to service or repair
- 3. If this brake has been supplied with a manual hand release, do not override the brake by securing the hand release in an open position
- 4. Do not operate brake in atmospheres with explosive gases and dusts or corrosive substances

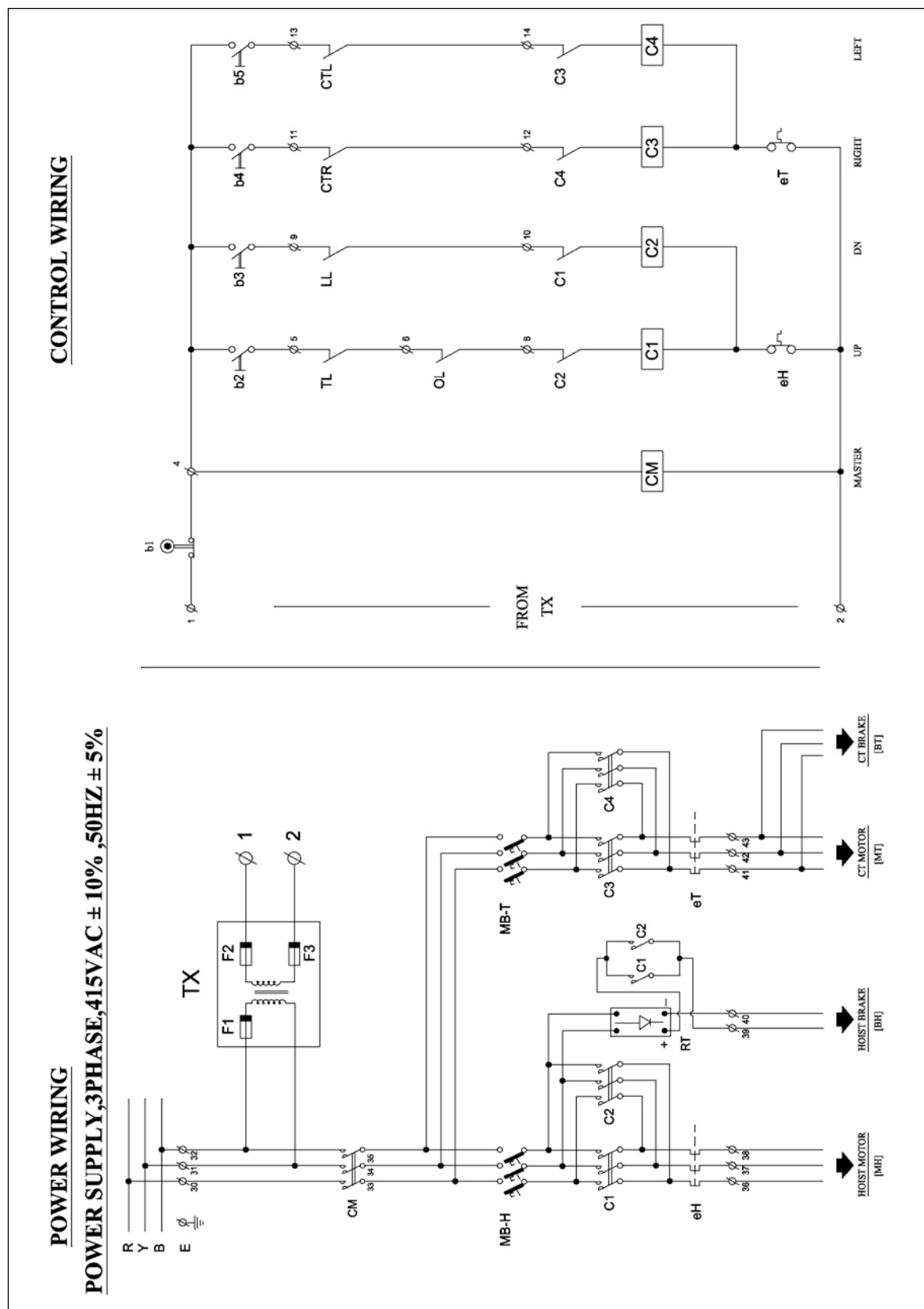
This brake can operate in non explosive dust or with optional seal in water splash and Almaden Atmospheres.

- 5. When storing or installing the friction rotor, ensure that oil or grease is kept from the friction material surface.

Air gap Hand Release Value

SIZE	06	08	10	12	14	16	18	20	25
a' MIN.	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5
a' MAX.	0.5	0.6	0.6	1.0	1.1	1.4	1.4	1.6	2.2

WIRING DIAGRAM



ELECTRICAL SPARE PARTS - 5T

PART CODE	DESCRIPTION	QTY
XCPP249000A	Enclosure for Baseplate XCPP249001A Size 525X525X170 mm (1.6mm Thickness)	1
XCPP249001A	Baseplate for Enclosure XCPP249000A Size 450X450X3 mm	1
XCTP0002AVA	Control Transformer Primary 415VAC & Secondary 110VAC,100VA	1
XMCP0179TMA	Siemens Make MCCB 63A/25KA Cat No 3VT1706-2DC36-0AA0 - Hoist Motor	1
XMCP0120MDA	Siemens Make MCB 3P 4A Cat No 5SL43047RC - ET Motor	1
XMCP0949TMA	Siemens Make Contactor 63A/110VAC Cat No 3TF4702 0AF0 ZA01 - Master & Hoist Motor	3
XACP0850TMA	Siemens Make Contactor 9A/110VAC Cat No 3TF3001 0AF0 - ET Motor	2
XERE0290TMA	Siemens Make Overload Relay 16-25A Cat No 3UA52 00-2C - Hoist Motor	1
XORP0350TMA	Siemens Make Overload Relay 1-1.6A Cat No 3UA50 00-1A - ET Motor	1
XRFE0050ELA	Solid State Rectifier 440VAC / 190VDC, Rating 2A	1
XLSE0010SLZ	Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XPBP0003HHL	Indef Make 5 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed, Right/Left Single Speed)	1

ELECTRICAL SPARE PARTS - 10T

PART CODE	DESCRIPTION	QTY
XCPP249000A	Enclosure for Baseplate XCPP249001A Size 525X525X170 mm (1.6mm Thickness)	1
XCPP249001A	Baseplate for Enclosure XCPP249000A Size 450X450X3 mm	1
XCTP0002AVA	Control Transformer Primary 415VAC & Secondary 110VAC,100VA	1
XMCP0179TMA	Siemens Make MCCB 63A/25KA Cat No 3VT1706-2DC36-0AA0 - Hoist Motor	1
XMCP0040MDA	Siemens Make MCB 3P 10A Cat No 5SL43107RC - ET Motor	1
XMCP0949TMA	Siemens Make Contactor 63A/110VAC Cat No 3TF4702 0AF0 ZA01 - Master & Hoist Motor	3
XACP0850TMA	Siemens Make Contactor 9A/110VAC Cat No 3TF3001 0AF0 - ET Motor	2
XERE0290TMA	Siemens Make Overload Relay 16-25A Cat No 3UA52 00-2C - Hoist Motor	1
XORE0040SMA	Siemens Make Overload Relay 2.5-4.0A Cat No 3UA50 00-1E - ET Motor	1
XRFE0050ELA	Solid State Rectifier 440VAC / 190VDC, Rating 2A	1
XLSE0010SLZ	Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XPBP0003HHL	Indef Make 5 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed, Right/Left Single Speed)	1

ELECTRICAL SPARE PARTS - 15T/20T

PART CODE	DESCRIPTION	QTY
XCPP249000A	Enclosure for Baseplate XCPP249001A Size 525X525X170 mm (1.6mm Thickness)	1
XCPP249001A	Baseplate for Enclosure XCPP249000A Size 450X450X3 mm	1
XCTP0002AVA	Control Transformer Primary 415VAC & Secondary 110VAC,100VA	1
XMCP0179TMA	Siemens Make MCCB 63A/25KA Cat No 3VT1706-2DC36-0AA0 - Hoist Motor	1
XMCP0050MDA	Siemens Make MCB 3P 16A Cat No 5SX43167RC - ET Motor	1

PART CODE	DESCRIPTION	QTY
XMCP0949TMA	Siemens Make Contactor 63A/110VAC Cat No 3TF4702 0AF0 ZA01 - Master & Hoist Motor	3
XACP0522TMA	Siemens Make Contactor 16A/110VAC Cat No 3TF32 00 0AF0 - ET Motor	2
XERE0290TMA	Siemens Make Overload Relay 16-25A Cat No 3UA52 00-2C - Hoist Motor	1
XORE0130SMA	Siemens Make Overload Relay 4.0-6.3A Cat No 3UA52 00-1G - ET Motor	1
XRFE0050ELA	Solid State Rectifier 440VAC / 190VDC, Rating 2A	1
XLSE0010SLZ	Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XPBP0003HHL	Indef Make 5 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed, Right/Left Single Speed)	1

ELECTRICAL SPARE PARTS - GT/PT

PART CODE	DESCRIPTION	QTY
XCPP249000A	Enclosure for Baseplate XCPP249001A Size 525X525X170 mm (1.6mm Thickness)	1
XCPP249001A	Baseplate for Enclosure XCPP249000A Size 450X450X3 mm	1
XCTP0002AVA	Control Transformer Primary 415VAC & Secondary 110VAC,100VA	1
XMCP0179TMA	Siemens Make MCCB 63A/25KA Cat No 3VT1706-2DC36-0AA0 - Hoist Motor	1
XMCP0949TMA	Siemens Make Contactor 63A/110VAC Cat No 3TF47 02 0AF0 ZA01 - Master & Hoist Motor	3
XERE0290TMA	Siemens Make Overload Relay 16-25A Cat No 3UA52 00-2C - Hoist Motor	1
XRFE0050ELA	Solid State Rectifier 440VAC / 190VDC, Rating 2A	1
XLSE0010SLZ	Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XPBP0001HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed)	1

From harbouring a simple dream of becoming a provider of high-quality, truly Indian material handling solutions to becoming the national market leaders, **Bajaj Indef** has journeyed far and long. Right from our incorporation in 1962 till the present day, innovation, excellence, service and customer focus have been some of the key pillars that have carried us thus far and we only aim to take this legacy forward.

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