

OPERATING & MAINTENANCE INSTRUCTION MANUAL WITH SPARE PART LIST

(Guarantee will be void if not used as instructed in this manual)



ALL PURPOSE CHAIN ELECTRIC HOIST

HC+

Capacity - 250 Kg to 5000 Kg

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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.



DANGER WARNING

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

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 chain and plane perpendicular to the axis of the drum shall not exceed 5° (As per IS 6547 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.



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.

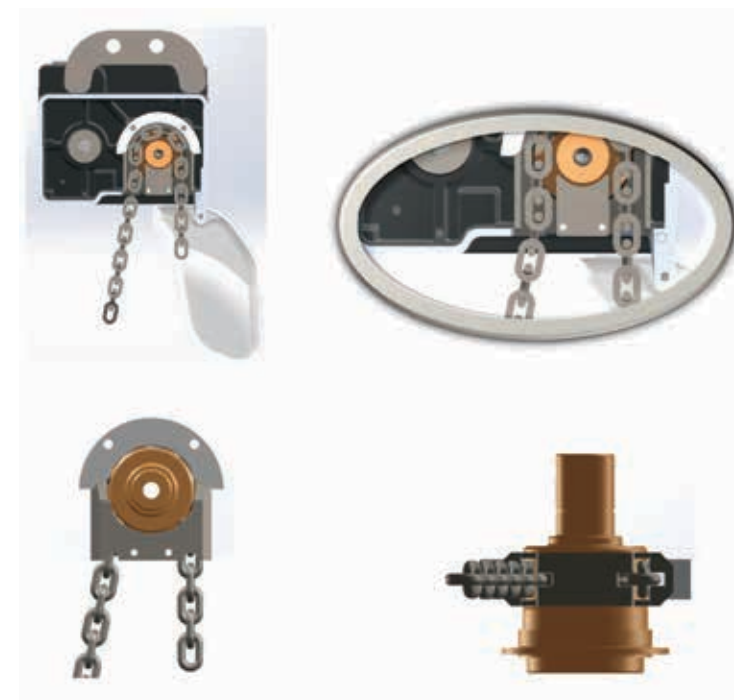
If hoist not used in proper way as mentioned above the warranty claims will not be accepted.
Indicative list of parts not covered under warranty.



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 CHECKLIST (CEH)

1. I-Beam Flange width : Check actual width of beam, adjust washers to make equal running clearance on all trolley wheels.
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PREVENTIVE MAINTANANCE CHECK LIST OF CRITICAL ITEMS

Sr. No.	Description	Daily	Weekly	Monthly	Every Three Months
1.	Hoist Brake Slippage		Yes		
2.	Hoist Chain Wear - Visible	Yes			
3.	Up Down limit switch operation	Yes			
4.	Oil level of gear boxes			Yes	
5.	Chain oiling				Yes
6.	Hoist motor brake air gap			Yes	
7.	Limit switches (Hoist, Trolley)		Yes		
8.	Panel loose wire, contactors			Yes	
9.	Trolley wheel for wear				Yes
10.	Chain guides & bolts				Yes
11.	Gear / pinions				Yes
12.	Coupling motor / gearbox side				Yes
13.	Trolley, Hoist Fasteners			Yes	
14.	Chain End stop / Bolt				Yes
15.	Cleaning of all exposed parts			Yes	

Note:

Above period is based on average use Frequency of checking can be changed based on actual observation. Please refer manual for more information.



2. Safety Instructions

2.1 Symbols



Safety at work

This symbol marks all information on safety at work where risks to life and limb are entailed.



Warning of electric voltage

Covers such as hoods and caps which are marked with this symbol may only be opened by instructed personnel and after the equipment has been disconnected.



Warning of suspended load

It is forbidden for persons to stand under suspended loads. This entails risks to life and limb!



Safety in operation

Information marked with this symbol must be observed to avoid damage to the hoist or the goods transported.

In these operating instructions these symbols mark particularly important information on risks and safety in operation.

2.2 Use for intended purpose



- Chain hoists are intended solely for lifting freely movable loads. According to design, they are for stationery or mobile use.
- Do not carry out any alterations or modifications. Additional fitments must not prejudice safety.

Not allowed :

- Exceeding the safe working load.
- Transporting person.
- Pulling loads at an angle.
- Tearing loose pulling or towing loads.
- Manipulating the overload cut-off.
- Slack chain.



2.3 Safety-conscious operation



Our chain hoists are constructed according to the state of the art and equipped with an overload cut-off to prevent overloads. In spite of this dangers may arise due to incorrect use or use for an unintended purpose.

- Read the operating instructions before starting to work with the chain hoist.
- Observe the Duties of crane operator.
- Always work in a safety-conscious manner and avoid risks.
Before starting work find out where the EMERGENCY STOP facility is (usually in the control pendant - optional feature.)
- Do not use the emergency limit (final limit switch for highest and lowest hook position) as an operational limit.
- Report damage and defects to the chain hoist to the person responsible immediately. Do not use the chain hoist until the damage has been repaired.
- Do not remove information plates from the chain hoist. Replace illegible or damaged plates.

2.4 Organisational safety precautions



- Only direct persons to operate the hoist if they have been trained or instructed in its use. Observe the legal minimum age!
- At regular intervals, check that work is being carried out in a safety-conscious manner.
- Observe the intervals specified for periodic tests. File the test reports in the test log book.
- Store the operating instructions within easy reach where the chain hoist is operated.

2.5 General regulations



- Safety regulations and accident prevention regulations.
- National regulations.
- Regulations listed in the EC declaration of conformity.



2.6 Installation, commissioning, maintenance and repairs



Installation, commissioning, maintenance and repairs may only be carried out by skilled personnel.



- Use only original spare parts for repairs, otherwise the guarantee will expire.
- Do not carry out any alterations or modifications.
- Additional fitments must not prejudice safety.

If the chain hoist is constantly operated outside and exposed to the elements, we recommend fitting a small roof or at least “parking” the chain hoist under a roof.

2.7 Guarantee

The guarantee expires if these operating instructions are not observed for installation, operation, inspection and maintenance.

2.8 Periodic tests



Hoists and cranes must be tested by a qualified person at least once a year. The results of the test must be recorded and filed in the test log book.

The remaining service life of the hoist according to FEM 9.755 is also established during this test. All tests must be initiated by the operator.

2.9 After Sales Service

With the purchase of this chain hoist you have decided on a high-quality piece of lifting equipment. Our after sales service will give you advice on its correct use. In order to preserve the safety and constant availability of your chain hoist we recommend concluding a maintenance contract according to which we undertake the recurrent tests for you.

Repairs will be carried out quickly and economically by our trained personnel

3.0 Getting to know the chain hoist

The chain hoist indef-HC+ is compact in its construction. It is suitable for a great variety of applications. The chain hoists HC2+, HC3+, HC4+, HC5+ and HC6+ are practically identical as regards construction and method of functioning. They differ only with regard to the permissible lifting capacities.

HC2+ / HC3+

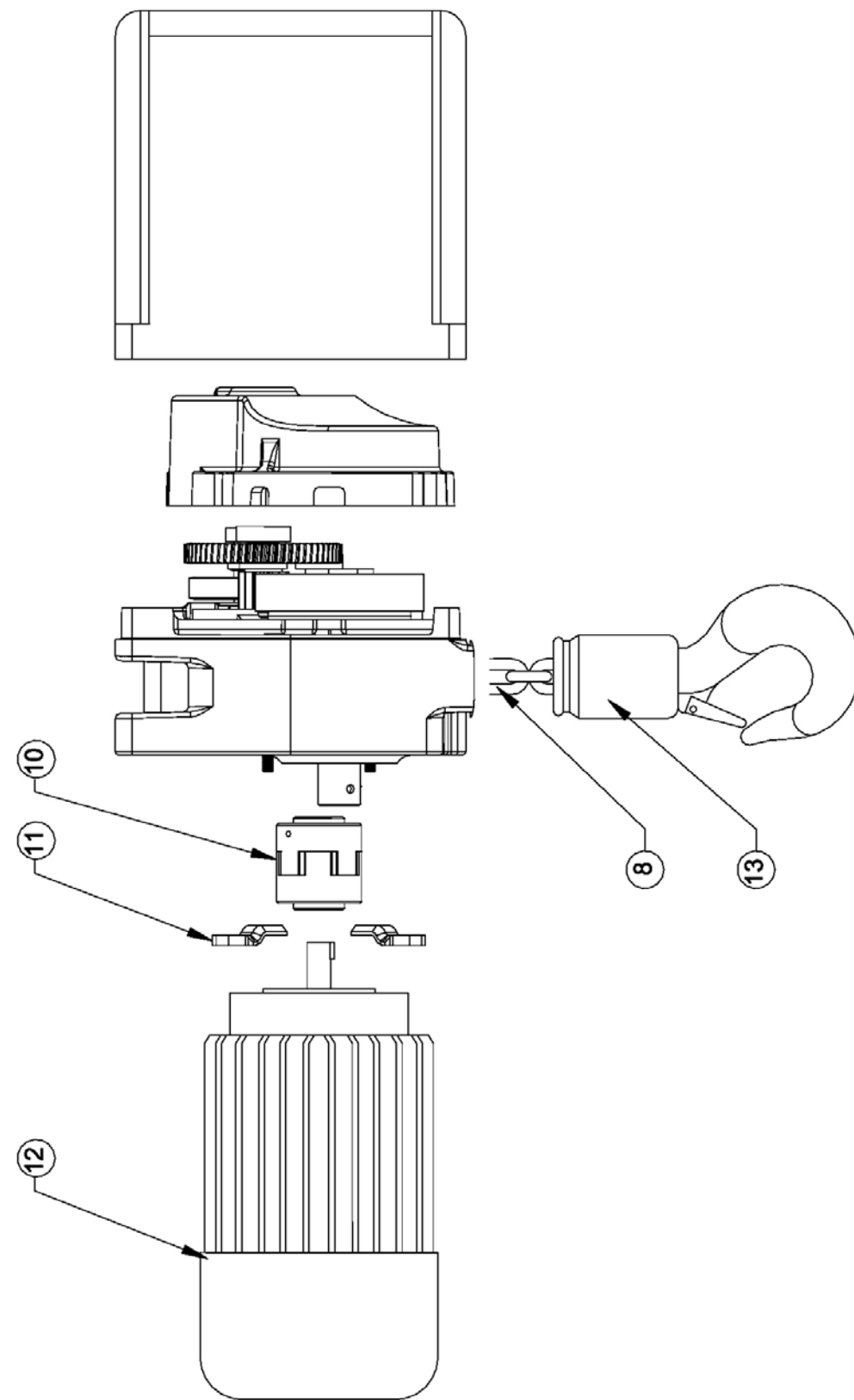


Figure 1



HC4+ / HC5+ / HC6+

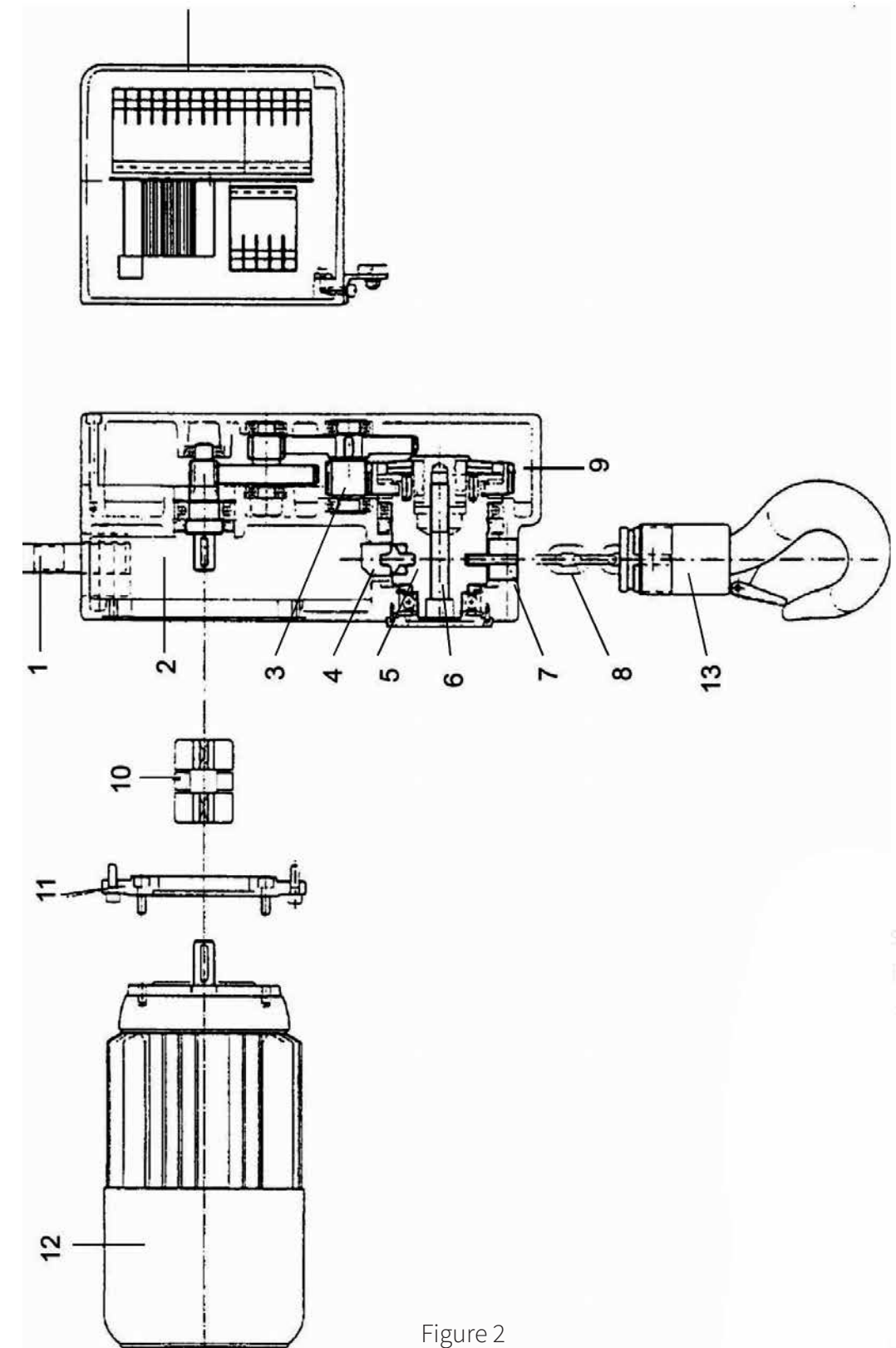


Figure 2



4.0 Installing the chain hoist

4.1 Scope of supply

Unpack the electric chain hoist and check the supply. The scope of supply is dependant upon the chain hoist version ordered (see order acknowledgement and delivery note).

4.2 Standard version

- Chain hoist with load chain and controls.
- Chain box.
- Operating instructions with declaration of conformity, circuit diagrams.
- If ordered, trolley.

4.3 Mechanical installation

For ease of installation, suspend the chain hoist at eye level.

4.3.1 Installing the chain box

Fig. # 2 shows the positions of the fixing bolts.

- Chain stopper is on the penultimate link of the unattached chain end.
- Fit chain box.

4.3.2 Hook block

Check the attachment of the bottom hook block. The bottom hook block is firmly bolted to the chain, the hook rotates (# 3).

4.3.3 Preparation of chain hoist with trolley

For fixed installations use normally the middle hole in the suspension bracket.

Be aware that the support dimension and material are in congruence with the load and the supports distance.

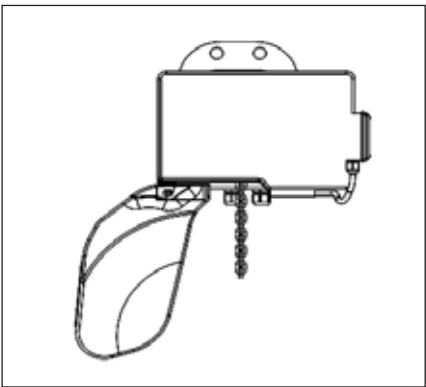
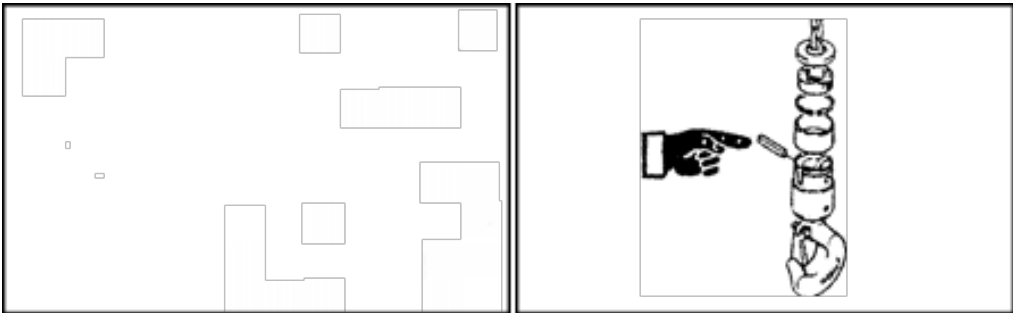


Figure 3

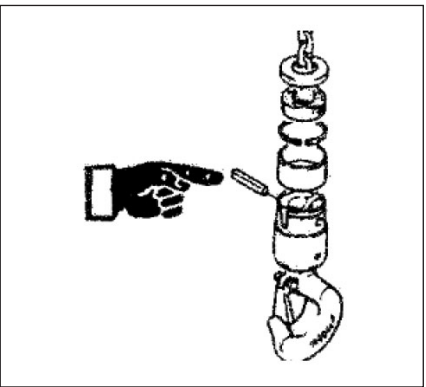


Figure 4

4.3.4 Preparation of chain hoist with trolley

- Clean running surfaces of runway and wheels. They must be free of dirt, oil and paint.
- Adjust play of wheel flanges 1-2mm each side. To do so, move spacing washers from the outside to the inside. The number of spacing washers mounted inside on the right and left hand sides may not differ by more than one.
- Secure the nut with the spring washer.

The chain hoist must always be suspended from the centre of the trolley.

4.3.5 INSTALLATION ON CHAIN HOIST

- **ATTACH TROLLEY TO CHAIN HOIST AS SHOWN IN FIG. # 4**

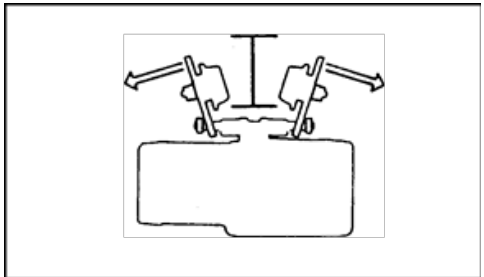


Figure 5

capacity kg.	type	speed
250	HC2 025 NH	8
	HC2 025 DH	8/2.6
500	HC2 050 NL	4
	HC2 050 DL	4/1.3
	HC3 050 NH	8
	HC3 050 DH	8/2.6

capacity kg.	type	speed
1000	HC3 100 NL	4
	HC3 100 DL	4/1.3
	HC4 100 NH	8
	HC4 100 DH	8/2.6
2000	HC4 200 NL	4
	HC4 200 DL	4/1.3
	HC4 200 NH	8
	HC4 200DH	8/2.6
2500	HC4 250 NL	4
	HC4 250 DL	4/1.3
3000	HC5 300 NL	4
	HC5 300 DL	4/1.3



4.4 Electrical connection



The chain hoist may only be connected up by a skilled electrician.

4.4.1 Connection to mains

- Check that the mains voltage corresponds to that given on the rating plate.
- Connect cable according to circuit diagram.

4.4.2 Check direction of motion lifting / lowering

- Briefly press control buttons for lifting and lowering. The direction of motion of the load hook must correspond to the symbols/descriptions on the control buttons.
If the load hook moves in the wrong direction, 2 phases of the supply cable must be interchanged.
- Fit end cover and fix carefully.

4.4.3 Decommissioning

- Cut power to chain hoist at main isolator.
- Disconnect electrical connections.
- Remove chain hoist:
 - dismantle trolley;
 - unhook chain hoist.
- Clean chain hoist and oil thinly.

5.0 Commissioning and Operating chain hoist

5.1 Commissioning

The chain hoist was tested in the manufacturer's works in accordance with the Machine Directive. Commissioning must be carried out by a qualified person. The following tests must be carried out.

- Chain hoist completed with the correct original accessories supplied.
- Check that all electrical equipment has been correctly selected and is present.
- Electrical connection.
- Check tightness of bolt connections.
- Check trolley. Running surfaces and flanges are free of dirt, oil and paint. The wheel gearing is greased. Buffers and end stops are fitted and undamaged.



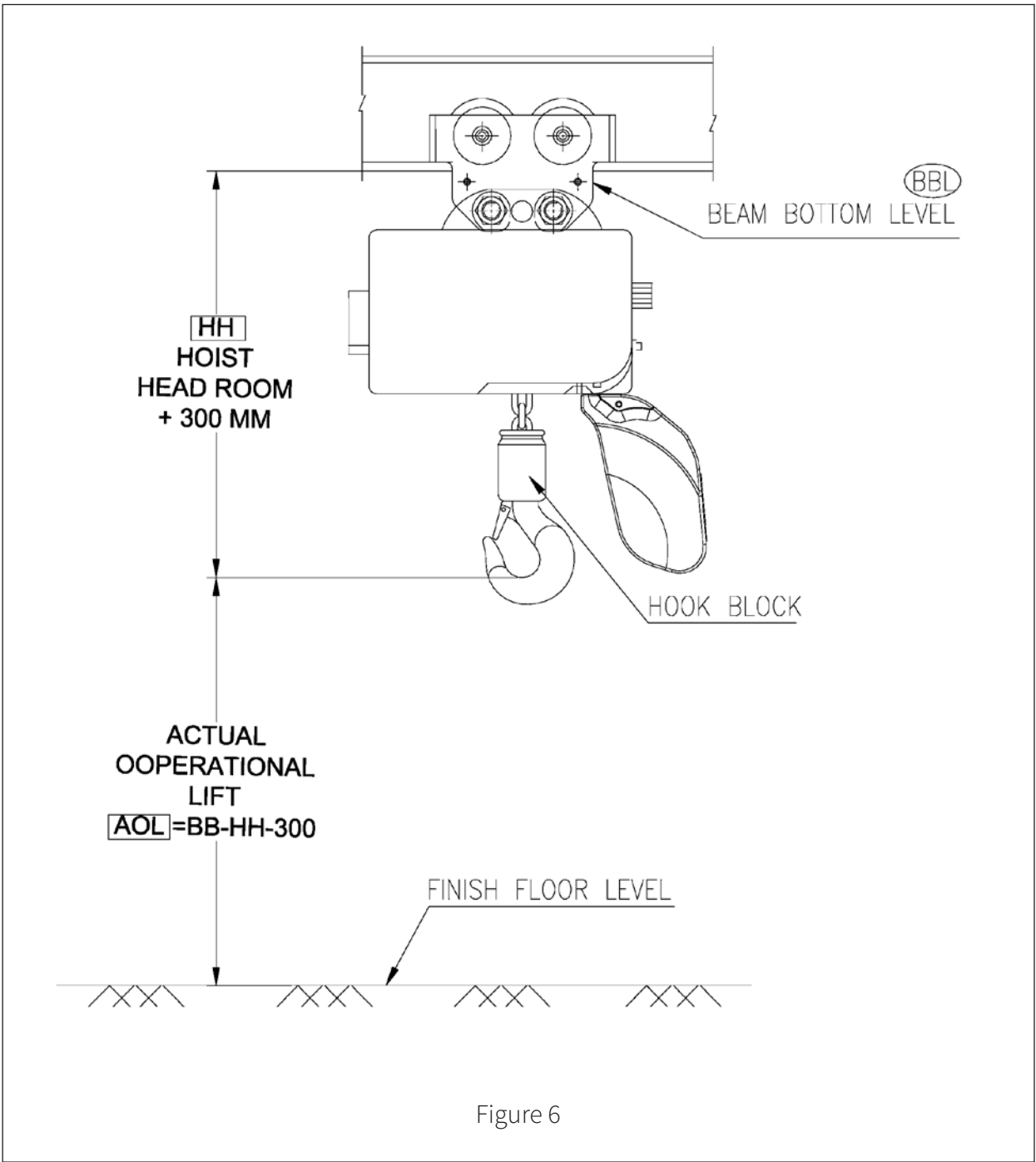
- Check oil level.
- Check load chain. The load chain is clean and oiled.



- Check chain anchorage. The chain stopper is firmly attached.
- Check slipping clutch.(Over load clutch) To do so, run the chain hoist carefully into the top and bottom hook positions. Let clutch slip for a few seconds only (max 3 set). The chain stays in place, the motor continues to turn giving slipping noise from gear box.
- While checking Top / Bottom most position, see that hoist selected is of correct lift i.e. after hook touches ground level / top level enough chain (min. 300 mm.) remains loose above end Stopper/ Hook Block. (Fig. - 5)
- Check brake. To do so, attach nominal load. Lift load approx 20cm and stop chain hoist. The load must not move downwards. Then run the hoist briefly downwards and stop the load. Slipping of load up to 10cm are normal.
- Confirmation that commissioning has been duly carried out in the test book in section Confirmation of commissioning.
- Chain hoist in conjunction with a crane system are subjected to a test load before commissioning.

5.2 Duties of crane operator

- The operator must ensure that :
 - the load is securely attached (the chain is a supporting element and not a fixing element);
 - no one is in the danger area of the moving load.
- The operator must be able to see the whole working area. If this is not the case :
 - have someone who can see the whole working area guide the crane operator;
 - use a chain hoist with an operational limit.
- If slack chain occurs (sagging chain), tighten the chain before starting to lift (if possible with slow speed)



5.3 Operation of motion functions



Operation is described here. Do not use inching operation or press several buttons simultaneously.

Moving

Press button on control pendant. The directions of motion are shown by suitable symbols.

1st-step

Fast motions are activated in single speed hoist & slow motions are activated in cases of 2 speed hoist (optional)

2nd-step

Fast motions are activated by 2nd-step for 2 speed hoist (optional)

Emergency stop (Optional feature)

Press EMERGENCY STOP button. The load hook stands still immediately, the trolley stops. All functions are inoperative.

6.0 Inspecting and servicing chain hoist

6.1 Maintenance intervals

The maintenance intervals given are suited to a chain hoist used in mechanism group 1 Am. If the hoist is classified in a different mechanism group according to FEM 9511 the intervals given must be adapted on the basis of the following table:

ISO Classification	M3	M4	M5	M6	M7
FEM Classification	1Bm	1Am	2m	3m	4m
Dividing Factor	1	1	2	4	8

Example

Check chain anchorage.
Mechanism group 1 Am: every 12 weeks.
Mechanism 2m : every 6 weeks.

Frequency for 1 Am
Dividing Factor = 12 = 6 weeks. & etc.



Daily

Check brake function

Attach safe working load. Lift load approx. 20 cm and stop chain hoist. The load must not move downwards. Then brief downwards run, stop load by releasing switch. Slippage of load- up to 10 cm are normal.

Check load chain

If wear is visible at joints, see chapter Checking load chain.

Check slipping clutch

Run chain hoist into top and bottom final position. The chain stops, the motor continues to turn giving some slipping noise from gear box. Allow the clutch to slip for max 3 seconds only (see chapter Adjusting slipping clutch).

Every three months

Check chain anchorage

The chain stopper is screwed tight.

Bottom hook block

Check load hook, casing and chain pulley for wear, damage, deformation. See hoist data sheet for permissible hook opening.

Load chain

Clean and oil.

Annually

Check Grease level thickness

Check bolt connections

See Checking bolt connections.

Check trolley

Running surfaces and flanges are free of dirt, oil and paint. Buffers and end stops are undamaged.

Wheel gearing

Grease.



Check load hook, suspension bracket

If deformation or cracks are visible, replace load hook or suspension eye immediately.

Check slipping clutch

Attach nominal load and lift approx. 20 cm. The slipping clutch must not be activated. If necessary, set slipping clutch to 1.25 times nominal load (see Adjusting slipping clutch).

Measure brake lifting path

See Adjusting brake.

Every 5 year

Gearing Grease

Change Grease

6.2 Maintenance work

Regular maintenance increases the safety and extends the service life of the chain hoist. Maintenance work on the chain hoist may only be carried out by skilled personnel. Maintenance work beyond that described in this section may only be carried out by the manufacturer or his trained service personnel. Use only original spare parts for repairs.

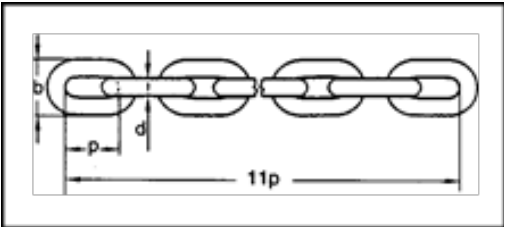


Figure 7

hoist	Ød mm	p mm	11p mm	b mm
HC2+	6	18	198	20,2
HC3+	7	21	231	23,6
HC4/5/6+	10	28	308	34

6.3 Checking load chain

- Run chain hoist under load. If load cracking noises can be heard, check chain, load chain wheel and if present chain pulleys for wear.
- Check joints of chain for wear.
- Check chain dimensions, measure the length of the chain over 11 links. The chain dimensions in mm may not exceed the values given in the following table.

If the chain exhibits wear, or if the limit dimensions are not observed, it must be replaced immediately (see Replacing load chain).

6.4 Checking bolt connections

- Check all bolt connections for tightness.
 - Tighten bolt connections up to M12 with a torque spanner.
 - Tighten larger bolt connections duly by hand.



6.5 Replacing load chain

Use only original chains in the quality prescribed.



- Lower chain hoist to shortly above the lowest point.
- Remove bottom hook block.
- Remove chain stopper.
- Run chain out of chain hoist.
- Hang new chain in pull-in device.
- Push pull-in device into the chain guide on the load side.

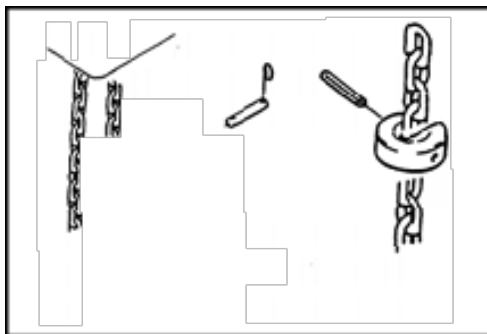


Figure 8

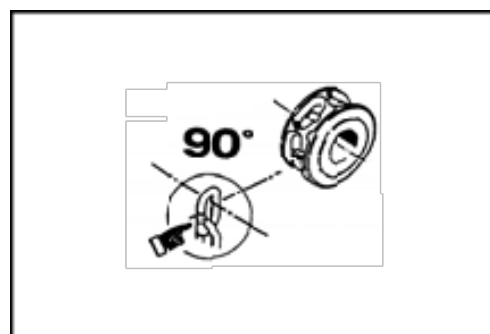


Figure 8

- Pull in chain using inching operation and at the same time pushing the chain.
- Refit chain stopper, chain box, bottom hook block.
- Grease / oil new chain.



The welds of the vertical chain links must point to the outside (fig. # 8).

6.6 Adjusting brake

Adjustment of the braking torque

The braking torque is proportional to the compression of the spring 2, which may be altered by handling the nuts 3, unscrewing to reduce and screwing to increase (fig. # 9).

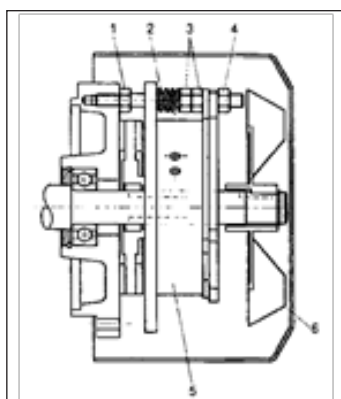


Figure 10

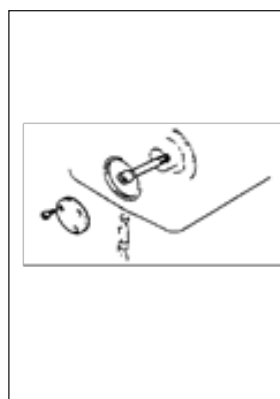


Figure 11



Figure 12



Air Gap Adjustment for the brake clearance

The brake clearance (i.e. the distance between the two cores of the electromagnet and of the mobile anchor) should be 0,1 ? 0,3 mm wide. Check periodically the clearance because the wear and tear of the brake disc will cause it to increase more and more.

6.7 Adjusting slipping clutch

- Attach 1.1 times nominal load to chain hoist.
- Lever off end cover with a screwdriver (fig. # 10).
- Adjust slipping clutch at the adjusting screw (fig. # 11). Turning to the right = reaction forces increases.

Turning to the left = reaction force decreases.

- Adjust slipping clutch until the load attached is just lifted.

If the slipping clutch can no longer be adjusted, the brake / slipping clutch unit must be replaced. Turn the adjusting screw gradually. On no account tighten it so far that the cup springs form a solid block; the clutch / brake lining could be damaged by the increased pressure of the clutch disc at its junction with the brake pinion.



Danger of injury !

Remove Allen key from setscrew before switching motor on. It could be flung away when the motor accelerates.

- Activate the lifting function, the attached load must just be lifted.
- Secure the setting of the slipping clutch, tighten nut.
- Fit screw cap.

6.8 Grease change

Give grease quantity to be filled & its specifications.

6.9 Replacing Gear Box



Gear must be replaced only by the manufacturer or his authorized partners.



6.10 General overhaul

(Safe Working Period overhaul)



800 hours apply as theoretical full load lifetime for chain hoists classified in mechanism group 1 Am to FEM 9511. If full load lifetime is expired then, the chain hoist must be overhauled by the manufacturer.

Components being in the power flux may only be overhauled by the manufacturer or his authorised partners.

6.11 Fault finding

What is to be done if....?

6.11.1 Chain hoist does not work

Chain hoist is switched off. Switch on.

Temperature control (if existent) has reacted. Allow to cool off.

Emergency stop activated. Release emergency stop.

Fuse triggered. Fit new fuse or switch on automatic circuit breaker.

Power supply interrupted.

Reconnect power supply.

6.11.2 Heavy loads can no longer be lifted

Overload. Reduce load.

Slipping clutch is incorrectly set or worn. Adjust slipping clutch if nominal load is no longer lifted (see Adjusting slipping clutch).

6.11.3 Slippage of load more than 10 cm

Brake lining worn. Adjust brake, if necessary replace brake disc.

6.11.4 Direction of motion does not correspond to symbols on control pendant

Power supply wrongly connected. Interchange 2 phases of power supply.

6.11.5 Loud noises when loads are lifted or lowered

Chain worn. Replace load chain (see Replacing load chain). Load chain wheel or chain guide worn.

Replace load chain wheel or chain guide (contact after-sales service).

Chain drive elements not lubricated.

Lubricate chain drive elements.

Grease level should be of 0.2 mm.



Sr. No.	Model	Motor	Speed	Motor	Flange Drg.No. Please	Coupling Drg.No. check make	Spacer Drg.No.	Motor motor behind coup.	Remarks key to be cut by
3	HC2+	71	Single	XMRB169000COL	UGCA703126A	UFCA003125A	2.5mm	NA	DIA14 ID
4	HC2+	80	Double	XMRB169000COL	UGCA703126A	UFCA003125A	2.5mm	NA	DIA14 ID
5	HC3+	80	Single	XMRB171000COL	UGCA703126A	UGCA003125A	NA	NA	--
6	HC3+	90	Double	XMRB171000COL	UGCA703126A	UGCA003125A	NA	NA	--
7	HC4+	90	Single	XMRB167000COL	UHCA703026B	UHCA003025A	8.5mm	13mm	DIA24 ID
8	HC4+	100	Single	XMRB173000COL	UHCA703026B	UHCA003025A	8.5mm	13mm	DIA28 ID
9	HC4+	100	Double	XMRB167000COL	UHCA703026B	UHCA003025A	8.5mm	13mm	DIA28 ID
10	HC5+	100	Single	XMRP255000COL	UHCB703026B	UHCB003025A	8.5mm	13mm	DIA28 ID
11	HC5+	112	Double	XMRP255000COL	UHCB703026B	UHCB003025A	8.5mm	13mm	DIA28 ID
12	HC6+	112	Single	XMRP257000COL	UHCB703026B	UHCB003025A	8.5mm	13mm	DIA28 ID
13	HC6+	112	Double	XMRP257000COL	UHCB703026B	UHCB003025A	8.5mm	13mm	DIA28 ID

Air Gap Adjustment for the brake clearance

NOTE :

- 2.5mm thick spacer with key way to be assembled on motor shaft behind coupling in HC-2+ as per Drg.No. UFCM833551A
- 8.5mm thick spacer with key way to be assembled on motor shaft behind coupling in HC-4+ as per Drg. No. UHCM833551A
- 8.5mm thick spacer with key way to be assembled on motor shaft behind coupling in HC-5+ & HC-6+ as per Drg. No. UHCM833553A
- Motor shaft Key to be cut half in height for 13mm length in HC4/HC5/HC6 hoist as per Drg.No. UHCM823552A



COEL BRAKE MOTORS SPARE PARTS LIST

KW/RPM	SINGLE SPEED/ DOUBLE SPEED	FRAME	PROD.	CODE NO P.NO6	ELECTOMAGNET	BRACK DISK P.NO.12	DRAW ROD KIT P.NO. 18	TER BOX P.NP.21	TERMINAL BORD P.NO.24	B14/B5 FLANGE P.NO.32/30
0.55/1500	Single Speed	F71C4	HC2+	XMRB169000COL	XMRB169006A	XMRB169012A	XMRB169018A	XMRB169021A	XMRB169024A	XMRB169032A
0.9/1500	Single Speed	F80B4	HC3+	XMRB171000COL	XMRB172006A	XMRB172012A	XMRB171018A	XMRB169021A	XMRB169024A	XMRB173032A
1.84/1500	Single Speed	F90LB4	HC4+	XMRB167000COL	XMRB172006A	XMRB172012A	XMRB167018A	XMRB167021A	XMRB169024A	XMRB167032A
2.0/1500	Single Speed	F100LA4	HC4+	XMRB173000COL	XMRB172006A	XMRB172012A	XMRB173018A	XMRB167021A	XMRB169024A	XMRB174032A
3.5/1500	Single Speed	F100LB4	HC5+	XMRB255000COL	XMRB172006A	XMRB172012A	XMRB172018A	XMRB167021A	XMRB169024A	XMRB174032A
4.5/1500	Single Speed	F112MB4	HC6+	XMRB257000COL	XMRP256006A	XMRP256012A	XMRP256018A	XMRB167021A	XMRP256024A	XMRB256032A
0.55/1500-0.18/500	Double Speed	FDA80/C4/12	HC2+	XMRB169000COL	XMRB171006A	XMRB172012A	XMRB153018A	XMRB169021B	XMRB169024A	XMRB153032A
0.85/1500-0.3/500	Double Speed	FDA90LA4/12	HC3+	XMRB171000COL	XMRB172006A	XMRB172012A	XMRB172018A	XMRB172021B	XMRB169024A	XMRB172032A
1.7/1500-0.6/500	Double Speed	FDA100MB4/12	HC4+	XMRB167000COL	XMRB172006A	XMRB172012A	XMRB174018A	XMRB172021B	XMRB169024A	XMRB174032A
2.5/1500-0.8/500	Double Speed	FDA112MB4/12	HC4+	XMRB173000COL	XMRP256006A	XMRP256012A	XMRP256018A	XMRB172021B	XMRP256024A	XMRP256032A
3.5/1500-1.2/500	Double Speed	FDA112MB4/12	HC5+	XMRB255000COL	XMRP256006A	XMRP256012A	XMRP256018A	XMRB172021B	XMRP256024A	XMRP256032A
4.5/1500-1.5/500	Double Speed	FDA112MB4/12	HC6+	XMRB257000COL	XMRP256006A	XMRP256012A	XMRB258018A	XMRB172021B	XMRP256024A	XMRP256032A



7.0 Technical data

Hoist standard electric motors

7.1 Cooling

Motors are air-cooled by means of external surface ventilation (IC 01.41). Standard motors have radial flow fan allowing fully reversible rotation. Reference standards are IEC 34-6.

7.2 Bearings

Motors are equipped with ball bearings both at driving end (1) and non driving (2) end.

7.3 Lubrication

Motor bearings have life-time lubrication. The standard grease is a lithium based one.

bearing size	1	2
Frame 63	6202 2Z	6202 2Z
Frame 71	6203 2Z	6004 2Z
Frame 80	6204 2Z	6204 2Z
Frame 90	6205 2Z	6205 2Z
Frame 100	6206 2Z	6205 2Z
Frame 112	6207 2Z	6207 2Z

7.4 Insulation

The components of the insulation system were selected so as to ensure good protection against chemically aggressive gases, vapours, dust, oil and air humidity. All materials used for insulating the winding and winding ends correspond to insulating classes F.

7.5 Brake

Fail safe electro-magnetic A.C.Brake is fitted on non-driving end of motor.



7.6 Chain

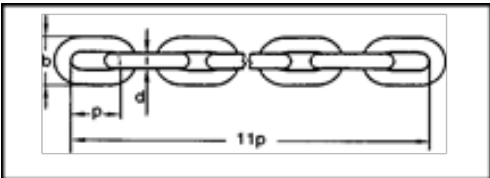


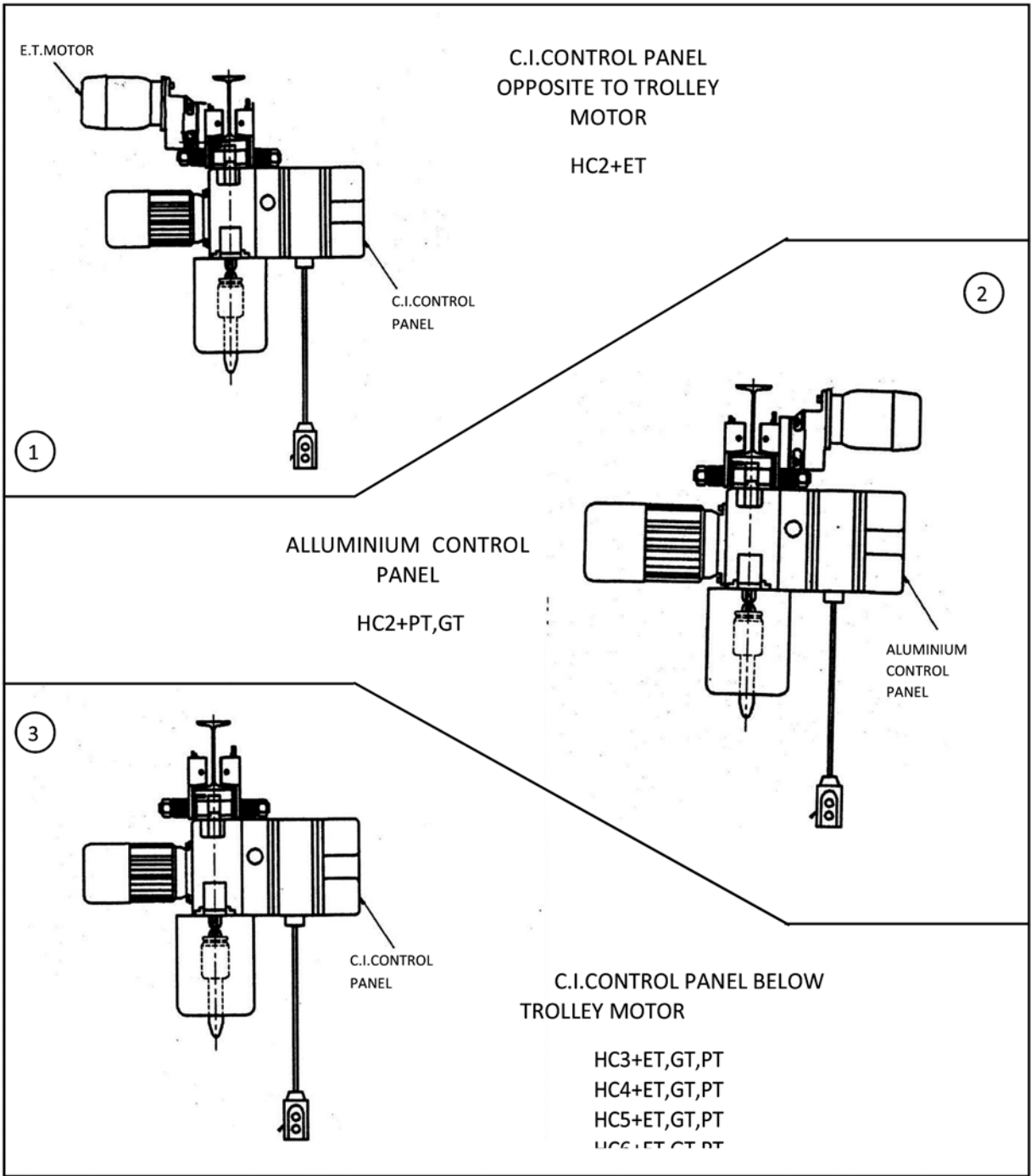
Figure 13

hoist	Ød mm	p mm	11p mm	b mm	weight kg/m	capacity kg	test load kN	minimum breaking load kN
HC2+	6	18	198	20,2	0,80	700	28	45
HC3+	7	21	231	23,6	1,1	1 000	40	60
HC4/5/6+	10	28	308	34	2,2	2 000	80	125

7.7 Lubricants

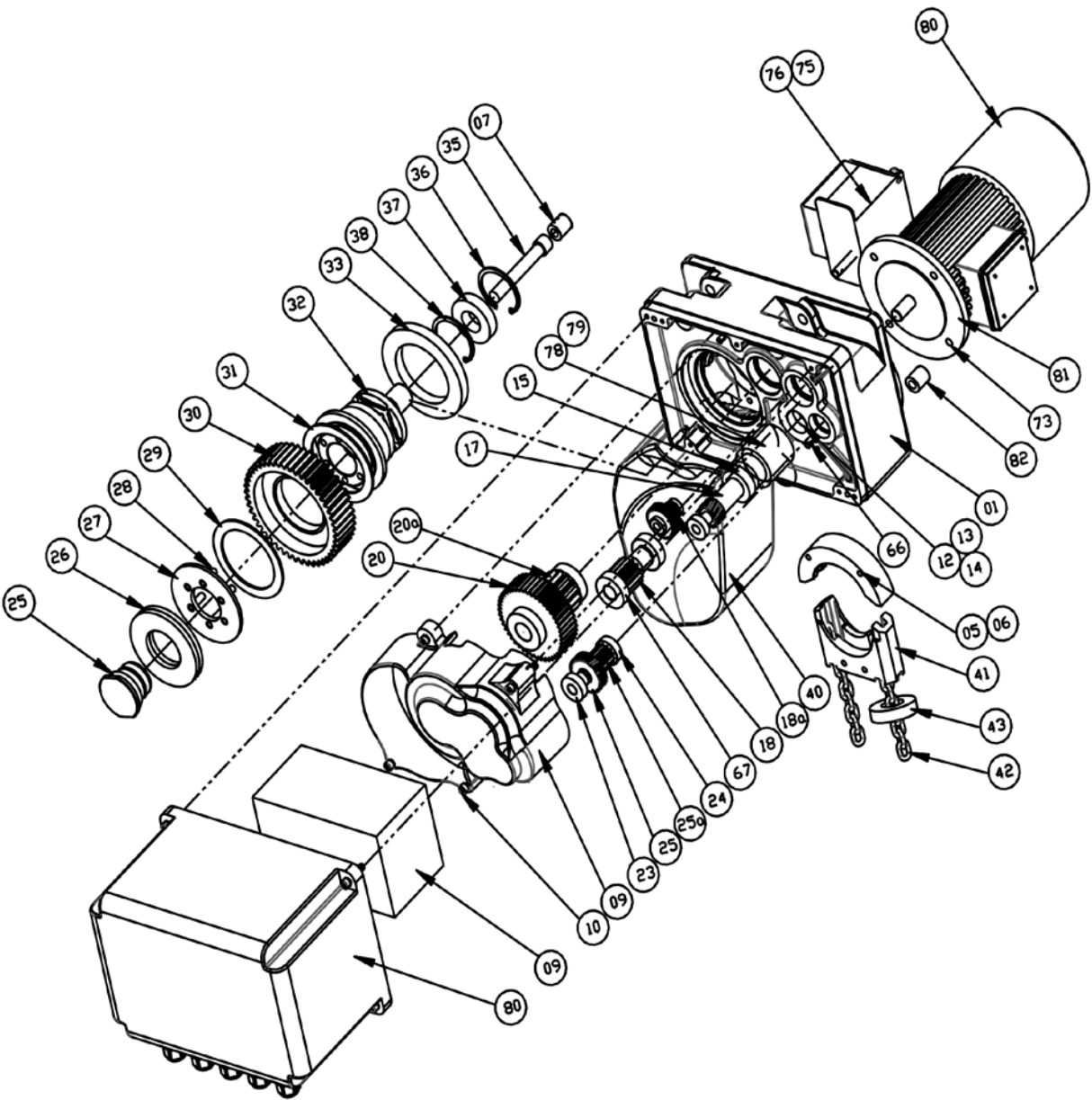
FLubrication Point	Qty.	Grease	Grease
Hoist Gear Box	HC2+	30 gm.	Kluberplex AG 11-462
	HC3+	50 gm.	
	HC4+	80 gm.	
	HC5+	80 gm.	
	HC6+	80 gm.	
Chain	as required	Any medium viscosity oil	

HC+ HOIST BALANCING ARRANGEMENT ON TROLLEE





INDEF HC+ ASSEMBLY



Spare Parts

Part Description No.	Qty.	Drawing Number		
		HC2+	HC3+	HC4/HC5/HC6+
01 Main Gear Box Body	1	UFCM043105B	UGCM043105B	UHCM043205B
03 Allen Screw	2	ASFM05010000	ASFM05012000	ASFM05012000
05 Chain Guide	1	UFCM973013A	UGCM973013A	UHCM973013A
06 Allen Screw	6	ASHM06055000	ASHM08060000	ASHM08070000
07 Spacer	2	UFCM653014A	UGCM653114A	UHCM653014A
08 Allen Screw	2	ASFM06060000	ASFM06070000	ASHM08100000
09 Gear Box cover	1	UFCM043106B	UGCM043106B	UHCM043106B
10 Allen Screw	4	ASHM06055000	ASFM06060000	ASHM08100000
11 Dowel Pin	2	DP0500160000	DP0500160000	DP0800200000
12 Ball Bearing	3	BBR060010000	BBR060020000	BBR062020000
13 External Circlip	3	EXCRA0200000	EXCRA0250000	EXCRA0250000
14 Internal Circlip	4	INCRB0420000	INCRB0520000	INCRB0520000
15 Ball Bearing	1	BBR060040000	BBR062050000	BBR062050000
17 Main Shaft (HIGH SPEED)	1	UFCH813024B	UGCG813124A	UHCH813022C
17 Main Shaft (LOW SPEED)	1	UFCG813022B	UGCG813124A	UHCG813022C
25 1st Back Gear Wheel	1	UFCH813018B	UGCH813018B	UHCH813021B
25 1st Back Gear Wheel (LOW SPEED)	1	UFCG813018B	UGCG813018B	UHCG813021C
25a 1st Back Gear Pinion (HIGH SPEED)	1	-	UGCH813017B	UHCG813020C
18 2nd Back Gear Wheel	1	UFCG813017B	UGCG813017B	UHCG813019C
18a 2nd Back Gear Pinion	1	UFCG813016B	UGCG813016B	UHCG813018C
20 3rd Back Gear Wheel	1	-	-	UHCG813017C
20a 3rd Back Gear Pinion	1	-	-	UHCG813016C
23 Ball Bearing 607	3	BBR060020000	BBR060040000	BBR062060000
24 Ball Bearing 607	3	BBR060020000	BBR060040000	BBR062060000
25 Clutch Plug	1	UFCM823008B	UGCM823008B	UHCM823008C
26 Disc Spring Washer	2	DCW360071004	DCW900046005	DCW125640008
27 Pressure Pad	1	UFCM653009A	UGCM653009A	UHCM653009A



Part Description No.	Qty.	Drawing Number		
		HC2+	HC3+	HC4/HC5/HC6+
28 Dowel Spring Pin	4	DSP060016000	DSP080020000	DSP100030000
29 Friction Disc	2	UFCM143011A	UGCM143011A	UHCM143011A
30 Bull Gear Assy	1	UFCM003015B	UGCM003015B	UHCM003015B
31 Friction Disc	2	UFCM143011A	UGCM143011A	UHCM143011A
32 Load chain wheel	1	UFCM823078B	UGCM823078B	UHCM823078B
33 Ball Bearing	1	BBR618130000	BBR618160000	BBR016020000
81 Motor Flange	1	UGCA703126A	UGCA703126A	UHCA703026B
82 Spacer (Motor Shaft)	1	UFCA833551A	UGCM833551A	UHCM833551A
35 Allen Screw	1	ASHM12080000	ASHM14090000	ASHM16110000
36 Internal Circlip	4	INCRB0550000	INCRB0620000	INCRB0720000
37 Ball Bearing	1	BBR06006ZZ00	BBR06007ZZ00	BBR06207ZZ00
38 Internal Circlip	4	INCRB0550000	INCRB0620000	INCRB0720000
39 External Circlip	3	EXCRA0300000	EXCRA0350000	EXCRA0350000
40 Chain collector	1	UECM213481A	UECM213481A	URCM213481A
41 Chain Stripper	1	UFCM133112A	UGCM133112A	UHCM133112A
42 Chain (state length)	-	CHAGS0601808	CHAGS0702108	CHAGS1002808
43 Stopper	1	UFCM653039A	UGCM653039A	UHCM653039A
44 Dowel Spring Pin	1	DSP040020000	DSP050045000	DSP050045000
66 Key	1	KB0500500180	KB0600600250	KB0600600250
67 Ball Bearing	1	BBR060010000	BBR060020000	BBR062050000
69 Allen Screw	4	ASFM03010000	ASFM05012000	ASFM05012000
73 Hex Bolt	4	UECM193046A	UGCM193046A	UHCM193046A
80 Motor (Single Speed)	1	XMRB169000COL	XMRB171000COL	XMRB167000COL
80 Motor (Double Speed)	1	XMRB153000COL	XMRB172000COL	XMRB174000COL
75 Rotary L. Switch Bracket	1	UECM133382A	UECM133382A	UHCM133082A
76 Rotary Limit Switch	1	XMIS000029A	XMIS000029A	XMIG000064A
77 Dowel Pin 4 x 20	1	DSP040020000	DSP040020000	DSP040020000
78/79Coupling	1	UFCA003125A	UGCA003125A	UHCA003025A

Upper Hook Suspension

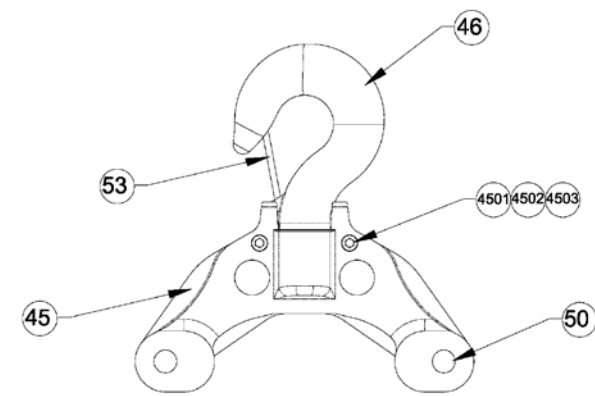


Figure 14

Part No.	Description	Qty.	HC2+	HC3+	HC4+
	Upper Block Complete Assy.	1	2410501P	1430501P	1440402P
45	Hook suspension	2	UECU013145A	UGCU013145A	UHCU013045A
46	Top Hook with safety latch	1	UECU002046A	CAAS003130A	CIEU001051A
53	Safety Catch complete	1	UECU003053A	CAAS113321A	CMBU003053A
50	Pin for upper block	2	UFCM823050B	UGCM823050B	UHCM823050B
4501	MS Hex Bolt	2	HBMM06030046	HBMM06030046	HBMM06030046
4502	Hex Nut	2	HNMM00600000	HNMM00600000	HNMM00600000
4503	Flat Spring Washer	2	FLSPWB060000	FLSPWB060000	FLSPWB060000

Part No.	Description	Qty.	Drawing Number HC5+	HC6+
	Upper Block Complete Assy.	11	1450401P	1520401P
45	Hook suspension	2	UQCU013045A	UQCU013045A
46	Top Hook with safety latch	1	CIEU001051A	URCU002046A
50	Pin for upper block	2	UHCM823050B	UHCM823050B
53	Safety Catch Assy. complete	1	CMDU003053A	CCBS113126A
4501	MS Hex Bolt	2	HBMM06030046	HBMM06030046
4502	Hex Nut	2	HNMM00600000	HNMM00600000
4503	Flat Spring Washer	2	FLSPWB060000	FLSPWB060000



Hoist View (HC2+/HC3+/HC4+)

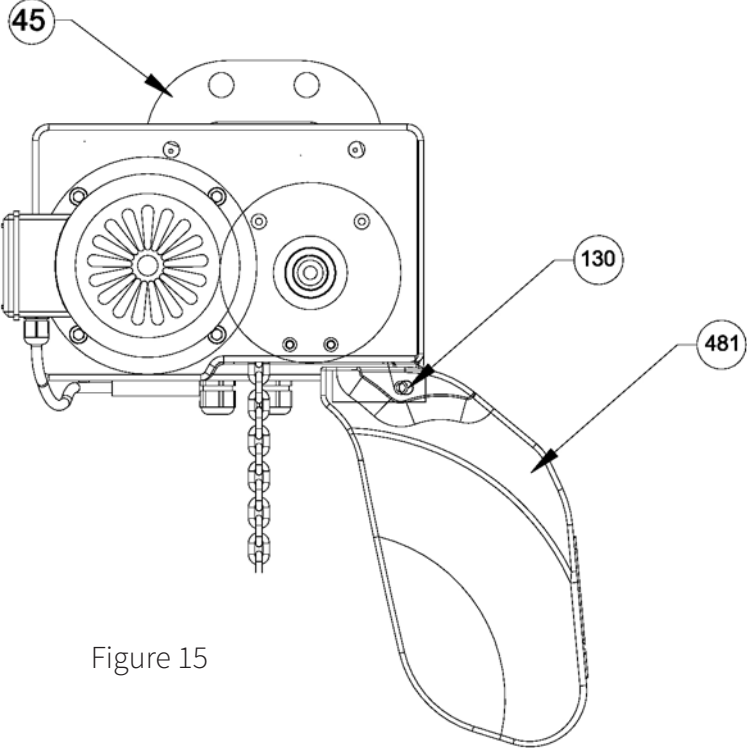


Figure 15

Part No.	Description	Qty.	HC2+	HC3+	HC4+
45	Suspension Plate	2	UFCU653041A	UGCU653041A	UHDU653045A
130	Pin For Chain Collector	4	UECM653030A	UECM653030A	UHCM653130A
481	Chain collector	8	UECM213481A	UECM213481A	URCM213481A



Hoist View (HC5+/HC6+)

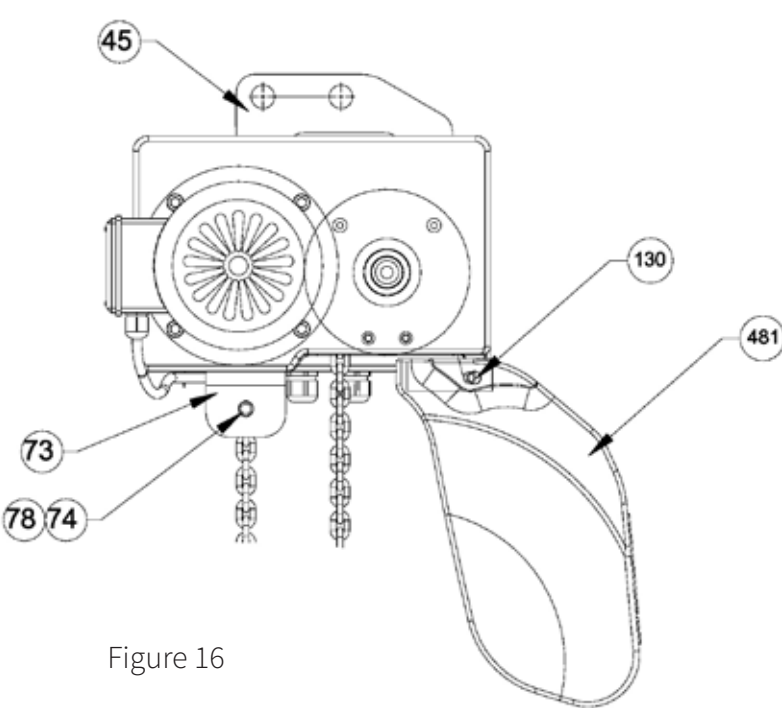


Figure 16

Part No.	Description	Qty.	HC5+/HC6+
45	Suspension Plate	2	UHDU653045A
73	Chain End Suspension	1	UQCU1863073A
74	Chain End Suspension Pin	2	UQCU203076B
78	Plain Washer	4	PLW1702803SZ
130	Pin For Chain Collector	4	UHCM653130A
481	Chain collector	8	URCM213481A



‘C’ Arm Hoist View (HC5+/HC6+)

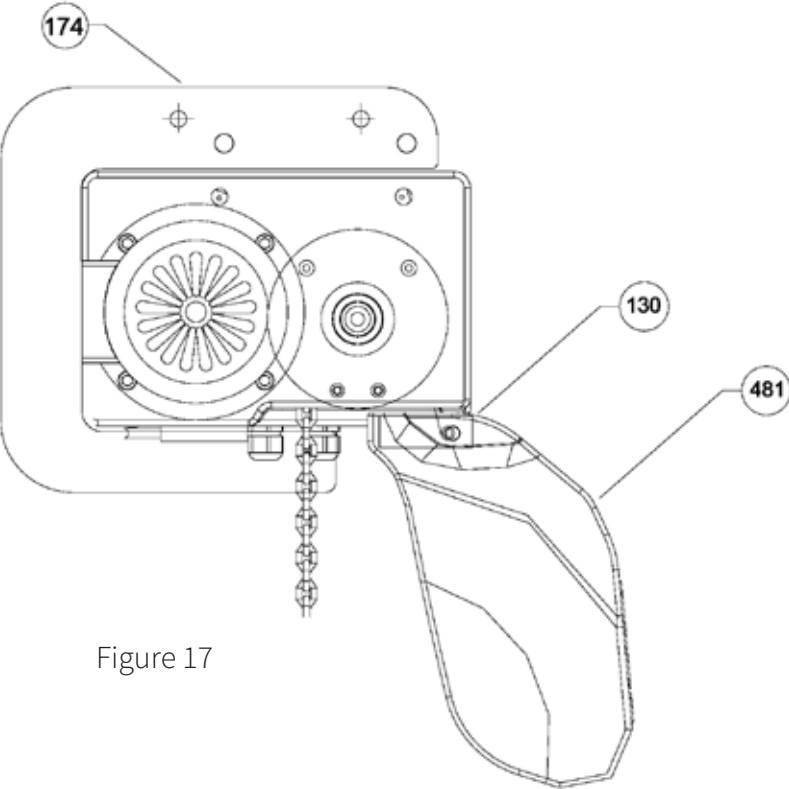


Figure 17

Part No.	Description	Qty.	HC5+/HC6+
174	Hoist Suspension Arm	1	UHCU133174A
130	Pin For Chain Collector	4	UHCM653130A
481	Chain collector	8	URCM213481A

Lower Block Assembly (HC2+/HC3+/HC4+)

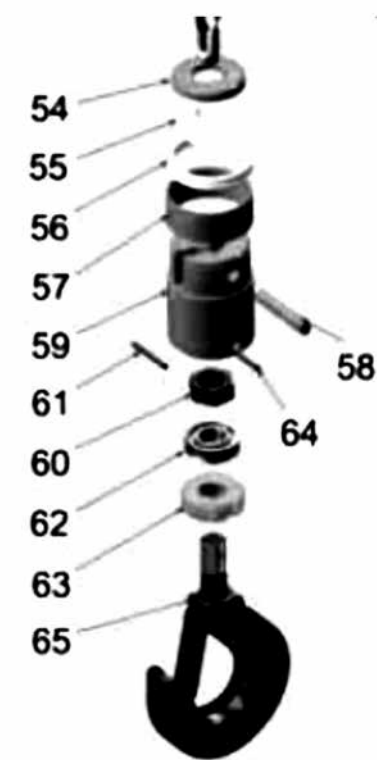


Figure 18

Part No.	Description	Qty.	Drawing Number		
			HC2+	HC3+	HC4+
	Lower Block Complete Assy.	1	1420601P	1430601AP	1440602P
54	Washer	2	UFBL653036A	UGBL653036A	UHBL653036A
55	Washer	2	UFBL183037A	UGBL183037A	UHBL183037A
56	Snap Ring	1	SR0450000000	SR0500000000	SR0650000000
57	Sleeve	1	UFBL653035A	UGBL873035A	UHBL653035A
58	Lower Block Pin	1	UFBL203038B	UGBL203038A	UHBL203038C
59	Lower Block Body	1	UFBL823033A	UGBL823033A	UHBL823033A
60	Hex nut	1	HNMM01600000	HNMM02000000	HNMM024F0000
61	Dowel Spring	1	DSP040025000	DSP040030000	DSP040030000
62	Thrust Bearing	1	BTB511030000	BTB511040000	BTB521050000
63	Nut	1	UFBL823034A	UGBL823034A	UHBL823034A
64	Grub Screw	1	GSFM06008000	GSFM06008000	GSFM080010000
65	Lower hook with safety latch	1	UFBL003320A	UGBL003032A	UHBL003320A



Lower Block Assembly (HC5+/HC6+)

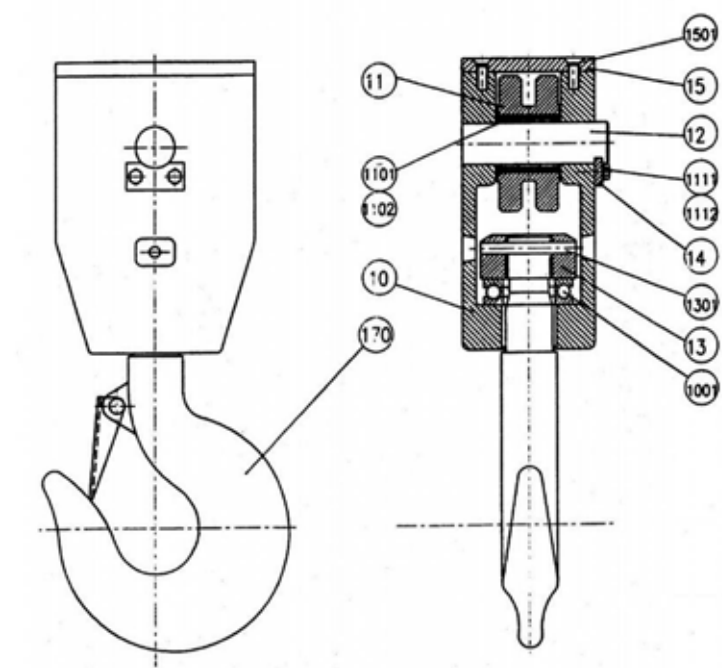


Figure 19

Part No.	Description	Qty.	Drawing Number	
			HC5+	HC6+
	Lower Block Complete Assy.	1	1450603P	1520602P
10	Lower Block Body	1	UQCL133010A	URCL133010A
11	Load Chain Wheel	1	UQCL823011A	UQCL823011A
12	Wheel Axle	1	UQCL823012A	UQCL823012A
13	Hook Nut	1	UQCL733013A	URCL733013A
14	Locking plate	1	UQCL853014A	UQCL853014A
15	Lower Block Cover	1	UQCL043015A	UQCL043015A
170	Lower Hook With Latch Assly.	1	UQCL003170A	UBCK003170A
1001	Thrust Bearing	1	BTB513060000	BTB512080000
1101	Needle Roller Bearing	3	HK3516000000	HK3516000000
1102	Inner Ring LR	3	IRLR30351650	IRLR30351650
1111	HT Hex Bolt	2	HBHM06016088	HBHM06016088
1112	Flat Spring Washer	2	FLSPWBO60000	FLSPWBO60000
1301	Dowel Spring Pin	1	DSP050050000	DSP060075000
1501	Counter Sunk Screw	2	KSFMO8020000	KSFMO8020000

SPARE PARTS FOR TROLLEY MOTOR BRAKE

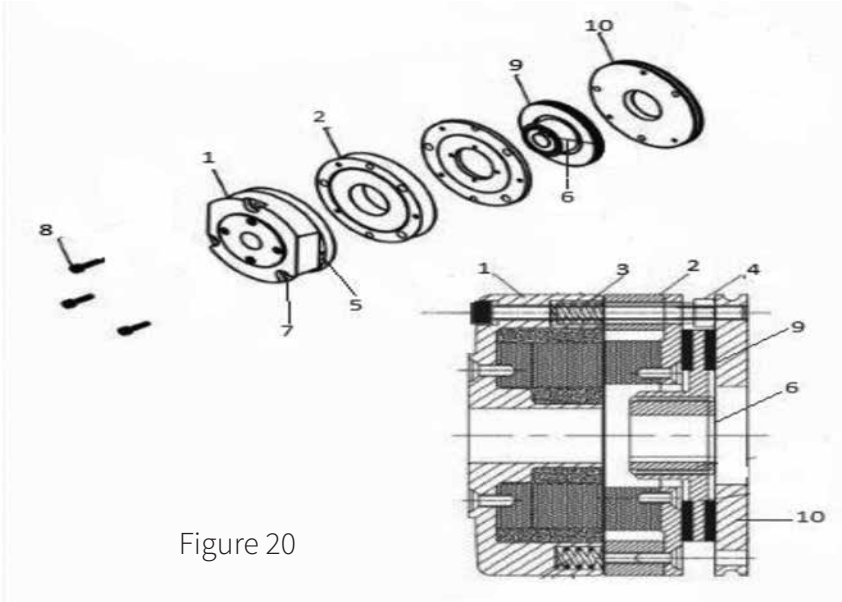


Figure 20

BRAKE COMPONENTS

PART NO.	PART CODE	DESCRIPTION
	XBAP0050SYT	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		MOUNTING FLANGE



PARE PARTS FOR TROLLEY MOTOR WITH BRAKE (OPTIONAL)

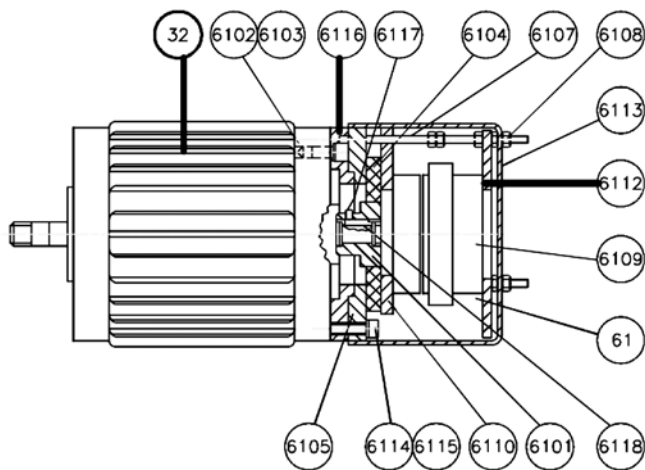


Figure 21

Part No.	Description	Code No.	Qty.
32	Motor	XMRPO28000A	1
61	Brake Complete	XBAP0050PTA	1
6101	Brake Disc Bush	XBAP0058PTA	1
6102	Allen Screw M8*20	ASFM08020000	4
6103	Sq. Spring Washer for M8	SQSPWB080000	4
6104	Brake Liner Disc	XBAP0051PTA	1
6105	Brake Plate	XBAP0052PTA	1
6107	Load Spring	XBAP0053PTA	3
6108	Hex. Nut M8	HNMM00800000	15
6109	Brake Coil	XBAP0054PTA	1
6110	Armature plate	XBAP0055PTA	1
6112	Magnet Plate	XBAP0056PTA	1
6113	Brake Cover	XBAP0057PTA	1
6114	Allen Screw M8*25	ASFM08025000	3
6115	Spring Washer B.8	FLSPWB080000	3
6116	Adaptor	XBAP0059PTA	1
6117	Grub Screw M6x10	SLGSM0601000	1
6118	Key 5*5*18	KB0500500180	1

GEARED ROTARY LIMIT SWITCH

HOIST MODEL	HC2+	HC3+	HC4+	HC5+	HC6+
Ht. of Lift in mtrs	Geared Rotary Limit Switch				
3	XMIS000029A	XMIS000029A	XMIG000064A	XMIG000064A	XMIG000064A
6	XMIS000029A	XMIS000029A	XMIG000064A	XMIG000064A	XMIG000064A
9	XMIS000029A	XMIS000029A	XMIG000064A	XMIG000064A	XMIG000064A
12	XMIS000029A	XMIS000029A	XMIG000064A	XMIT000071A	XMIT000071A
15	XMIS000029A	XMIS000029A	XMIG000064A	XMIT000071A	XMIT000071A
18	XMIS000029A	XMIS000029A	XMIG000064A	XMIT000071A	XMIT000071A
21	XMIS000029A	XMIS000029A	XMIG000064A	XMIT000071A	XMIT000071A
24	XMIS000027A	XMIS000029A	XMIG000065A	XMIG000066A	XMIG000066A
27	XMIS000027A	XMIS000029A	XMIG000065A	XMIG000066A	XMIG000066A
30	XMIS000027A	XMIS000027A	XMIG000065A	XMIG000066A	XMIG000066A
33	XMIS000027A	XMIS000029A	XMIG000065A	XMIG000066A	XMIG000066A
36	XMIS000027A	XMIS000027A	XMIG000065A	XMIG000066A	XMIG000066A
39	XMIS000028A	XMIS000027A	XMIG000065A	XMIG000066A	XMIG000066A
42	XMIS000028A	XMIS000027A	XMIG000065A	XMIG000066A	XMIG000066A



GEARED TROLLEY (HC2+/HC3+/HC4+/HC5+)

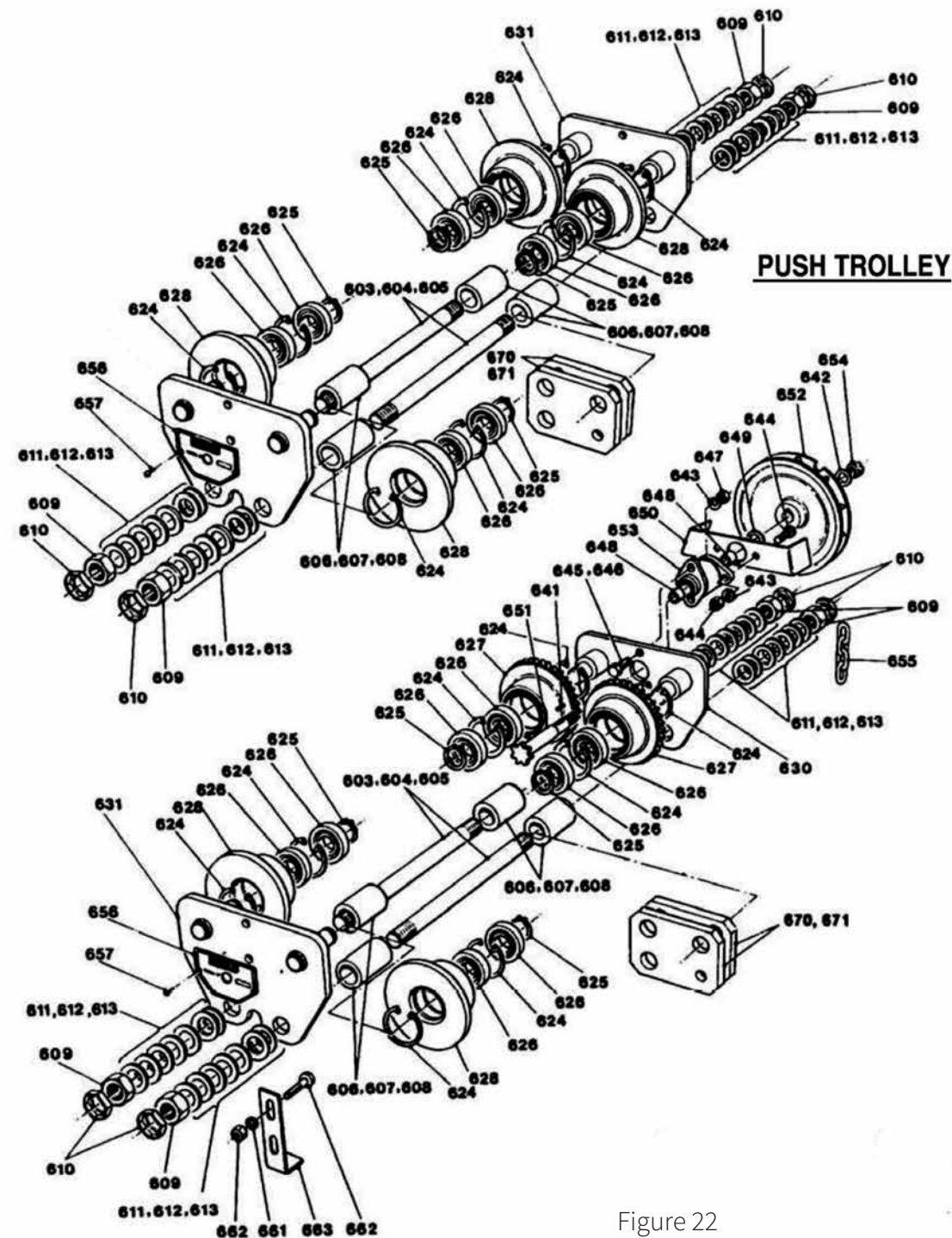


Figure 22

4. TROLLEY SPARE PARTS (PUSH / HARD GEARED TYPE)

Part No.	Description	Qty	Drawing Number		
	Capacity in Kgs.		500	1000	3000
603	Cross bolt				
	(Range 1)	2	RAAM833203A	RCAM833201A	REAM833201A
	(Range 2)	2	RAB833301A	RCBA833301A	REBM833301A
	(Range 3)	2	RADM833401A	RCDM833401A	REDM833401A
606	Distance Tube				
	Range 1	4	RACM873204A	RCDM873204A	REAM873204A
	Range 2	8	RACM873204A	RCDM873204A	REAM873204A
	Range 3	16	RACM873204A	RCDM873204A	REAM873204A
609	Nut	4	HNMM0160000Z	HNMM0200000Z	HNMM0240000Z
610	Spring Washer	4	FLSPWB160000	FLSPWB200000	FLSPWB240000
611	Adjusting Washer	*	RACM833205A	RCCM833205A	RECM833205A
624	Cir clip, (Internal)	4	INCRB0350000	INCRB0420000	INCRB0520000
625	Cir clip (External)	4	EXCRA0170000	EXCRA0200000	EXCRA0250000
626	Ball Bearing	4	BBR06003RS00	BBR06004RS00	BBR06205RS00
627	Geared Runner	2	-	RDCM003108A	RFCM003108A
628	Ungeared Runner	2/4	RACM823104A	RCCM823104A	RECM823104A
630	Geared Side Plate	1	-	RDCM002010A	RFCM002010A
631	Push Trolley Side Plate	2	RACM002001A	RCCM002001A	RECM002001A
	Ungeared Side Plate	1	-	RDCM002001A	RFCM002001A
641	Parallel Key	1	-	RBCT823907A	RBCT823907A
642	Washer 1	-	RBCT833905A	RBCT833905A	-
643	Spring Washer	4	-	FLSPWB080000	FLSPWB80000
644	Bolt and Nut	2	-	HNMM0080000Z	HNMM0080000Z
				HBHM08025088	HBHM08025088
				HNMM0080000Z	HNMM0080000Z
				HBHM08025088	HBHM08025088
648	Bronze Bush	2	-	RBCT063906A	RBCT063906A
649	Traverse Shaft Washer	1	-	RBCT833912A	RBCT833912A
650	Hand Chain Guard	1	-	RBCT313904A	RBCT313904A
651	Traverse Shaft	1	-	RBCT823903A	RBCT823903A
652	Hand Chain Wheel	1	-	RBCT013901A	RBCT013901A
653	Traverse Sleeve	1	-	RBCT043902A	RBCT043902A
654	Binx Nut	1	-	HNBM0120000Z	HNBM0120000Z
655	Hand Chain (2B-600)	11g	CHMH05022500	CHMH05022500	CHMH05022500
	Nameplate-Push Trolley	1	RACH173008	RCCH173008A	RECH173008A
656	Geared Trolley			RDCH173008A	RFCH173008A
661	Spring Washer	2	-	FLSPWB080000	FLSPWB080000
662	Bolt and Nut	2	-	HNMM0080000Z	HNMM0080000Z
				HBHM08035088	HBHM08035088
663	Anti Tip Stop	1	-	RDCM313019A	RDCM313019A
670	Suspension Plate	1	RACH053009B	RCCH053009A	RECH053009A
675	Cross Bolt	2	RAAM833203A	RCAM833201A	REAM833201B
676	Nut	2	HNMM0160000Z	HNMM0200000Z	HNMM0240000Z
677	Spring Washer	2	FLSPWB160000	FLSPWB200000	FLSPWB240000
678	Adjusting Washer	6	RACM833205A	RCCM833205A	RECM833205A
680	Distance Tube	4	RACM873204A	RCDM873204A	REDM873204A
681	Adaptor plate	2	RADM313403A	RCDM313403A	REDM313403A
682	Distance Tube/piece	2	RACM873204A	RCDM873204A	REDM873204A

B = Bottom of girder to floor dimension.
* Quantity varies with capacity and track width.



ELECTRIC TROLLEY (HC2+/HC3+/HC4+/HC5+)

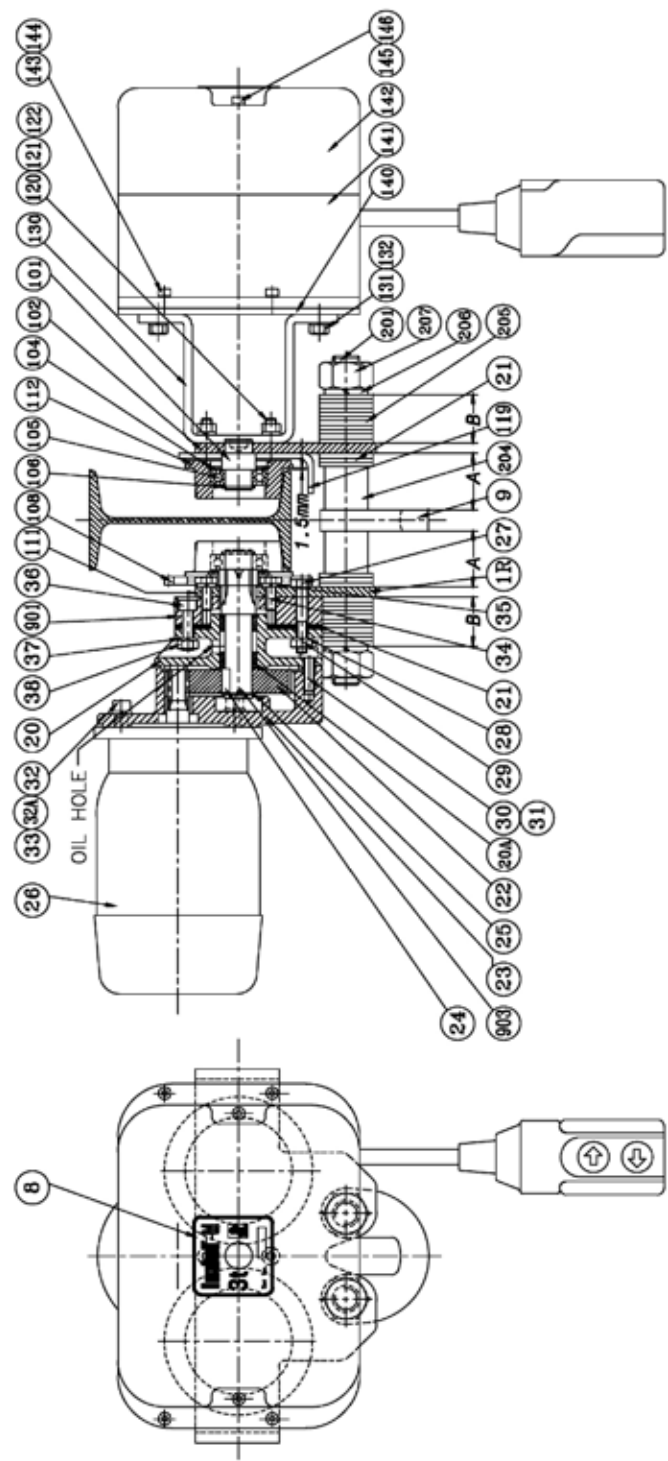


Figure 23

5. SPARE PARTS FOR ELECTRIC TROLLEY

Part No.	Description	Qty	Drawing Number	
			1000	3000
1R	Side plate with pins	1	RDCM002001A	RFCM002001A
10R	Side plate with pins	1	RGCM002010A	RHCM002010A
104	Runner (Plain)	2	RCCM823104B	RECM823104B
105	Bearing	2	BBR06004RS00	BBR06205RS00
106	Circlip	2	EXCRA0200000	EXCRA0250000
119	Anti tipping stop	1	RDCM313019A	RDCM313019A
120	Bolt	2	HBHM08035088	HBHM08035088
121	Nut	2	HNMM0800000Z	HNMM0800000Z
122	Washer	2	FLSPWB080000	FLSPWB080000
112	Circlip	2	INCRB04200000	INCRB05200000
108	Geared Runner	2	RDCM003108A	RFCM003108A
109	Bearing	2	BBR06004RS00	BBR06205RS00
110	Circlip	2	EXCRA0200000	EXCRA0250000
112	Circlip	2	INCRB04200000	INCRB05200000
901	Adaptor Plate	1	RGCT053901A	RGCT053901A
903	Pinion	1	RGCT813903C	RGCT813903C
20	Bearing Block	1	MCCM023020A	MCCM023020A
20A	Bush	2	MCCM033020A	MCCM033020A
21	Spacer	2	MBCM113021A	-----
22	Gear Wheel	1	PACF813031A	PACF813031A
23	Gear Box Housing	1	MCCM023023A	MCCM023023A
26	Motor (10mpm)	1	XMRP039000REM	XMRP039000REM
24	Key	1	K00600600180	K00600600180
25	Circlip	1	EXCRA0200000	EXCRA0200000
27	Bolt	2	HBHM08025088	HBHM08025088
28	Washer	3	FLSPWB080000	FLSPWB080000
29	Nut	3	HNMM0800000	HNMM0800000
30	Bolt	4	HBMM08025046	HBMM08025046
31	Washer	4	FLSPWB080000	FLSPWB080000
32	Screw	2	ASFM08025000	ASFM08025000
32A	Bolt	2	HBHM08025088	HBHM08025088
33	Washer	4	FLSPWB080000	FLSPWB080000
34	Bolt	2	HBHM08020088	HBHM08020088
35	Washer	2	FSLPWB080000	FLSPWB080000
36	Bolt	1	HBHM08025088	HBHM08025088
37	Washer	1	FLSPWB080000	FLSPWB080000
38	Nut	1	HNMM0800000	HNMM0800000
130	Bracket		RGCM132131A	RGCM132131A
131	Bolt	2	HBMM08012046	HBMM08012046
132	Spacer	2	FLSPWB080000	FLSPWB080000
140	Counter Plate	1	UECE653003A	UECE653003A
141	Panel Housing	1	UECE043001A	UECE043001A
142	Panel Cover	1	UECE043002A	UECE043002A
143	Screw	4	ASFM05012000	ASFM05012000
144	Washer	4	FLSPWB050000	FLSPWB050000
145	Screw	2	ASHM06080000	ASHM06080000
146	Washer	2	FLSPWB060000	FLSPWB060000
* optional speed				



INDEF M ET SPARE FOR RANGE 1

PART NO	DESCRIPTION	DRAWING NO 1000 KG	QTY	DRAWING NO 3000 KG	QTY
201	CROSS NUT	RCAM833201A	2	REAM833201B	2
204	DISTANCE TUBE	RCDM873204A	4	REAM873204A	4
205	WASHER	RCCM833205A	72	RECM833205A	56
206	WASHER	FLSPWB200000	4	FLSPWB240000	4
207	NUT	HNMM020000YZ	4	HNMM024000YZ	4
9	HOOK SUSPENSION	RCCH053009B	1	RECH053009B	1

INDEF M ET SPARE FOR RANGE 2

PART NO	DESCRIPTION	DRAWING NO 1000 KG	QTY	DRAWING NO 3000 KG	QTY
201	CROSS NUT	RCDM833401A	2	REBM833301A	2
204	DISTANCE TUBE	RCDM873204A	8	REAM873204A	8
205	WASHER	RCCM833205A	80	RECM833205A	52
206	WASHER	FLSPWB200000	4	FLSPWB240000	4
207	NUT	HNMM020000YZ	4	HNMM024000YZ	4
9	HOOK SUSPENSION	RCCH053009B	1	RECH053009B	1

INDEF M ET SPARE FOR RANGE 3

PART NO	DESCRIPTION	DRAWING NO 1000 KG	QTY	DRAWING NO 3000 KG	QTY
201	CROSS NUT	RCDM833401A	2	REDM833401A	2
201A	CROSS NUT	RCDM833405A	2	REDM833402A	2
204	DISTANCE TUBE	RCDM873204A	8	REAM873204A	8
204A	DISTANCE TUBE	RCDM873404A	2	REDM873204A	2
205	WASHER	RCCM833205A	128	RECM833205A	84
206	WASHER	FLSPWB200000	8	FLSPWB240000	8
207	NUT	HNMM020000YZ	8	HNMM024000YZ	8
9	HOOK SUSPENSION	RCCH053009B	1	RECH053009B	1
9A	HOOK SUSPENSION			REDM313403A	1



ET TROLLEY & SPARE PARTS (HC6+)

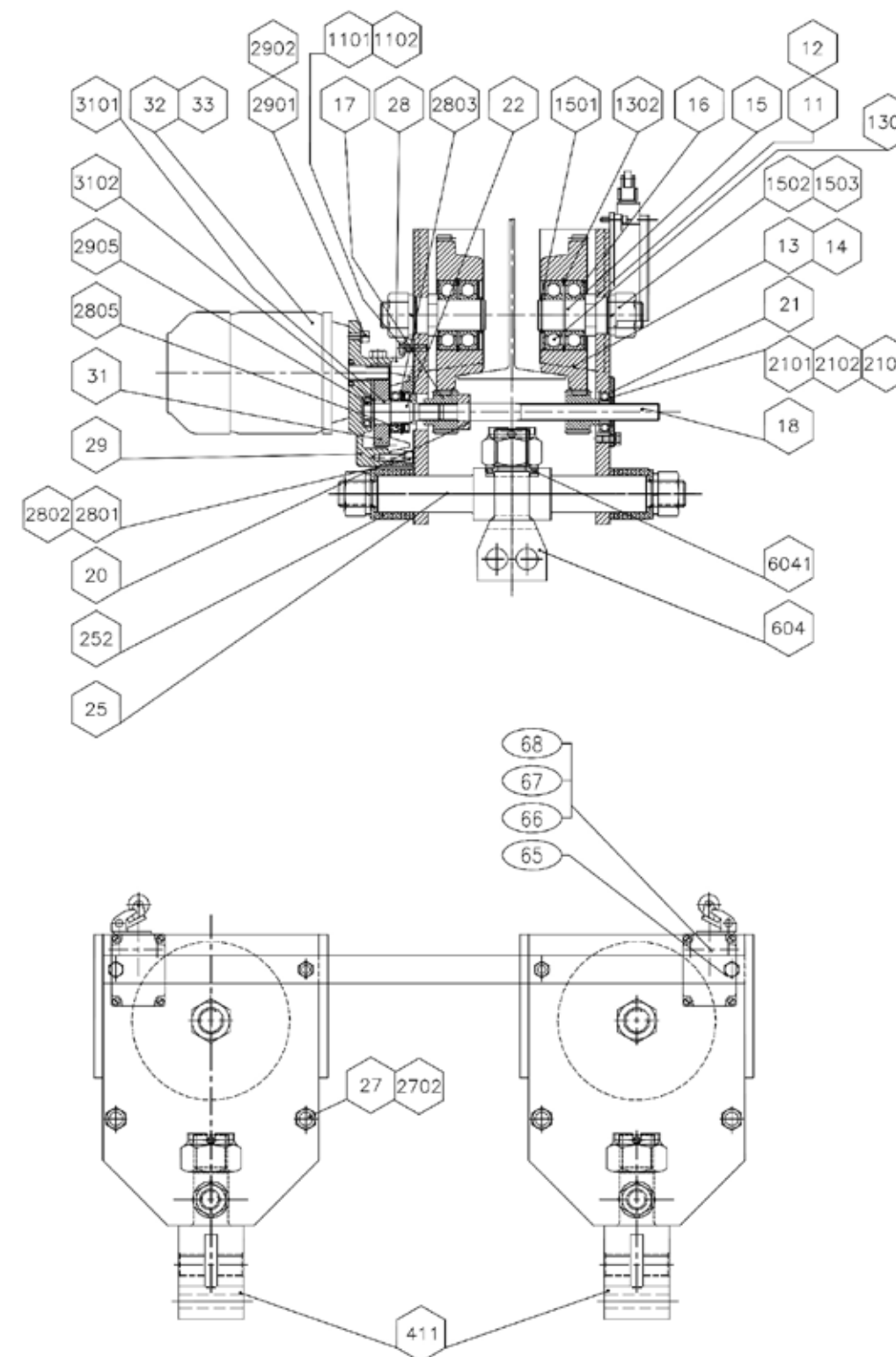
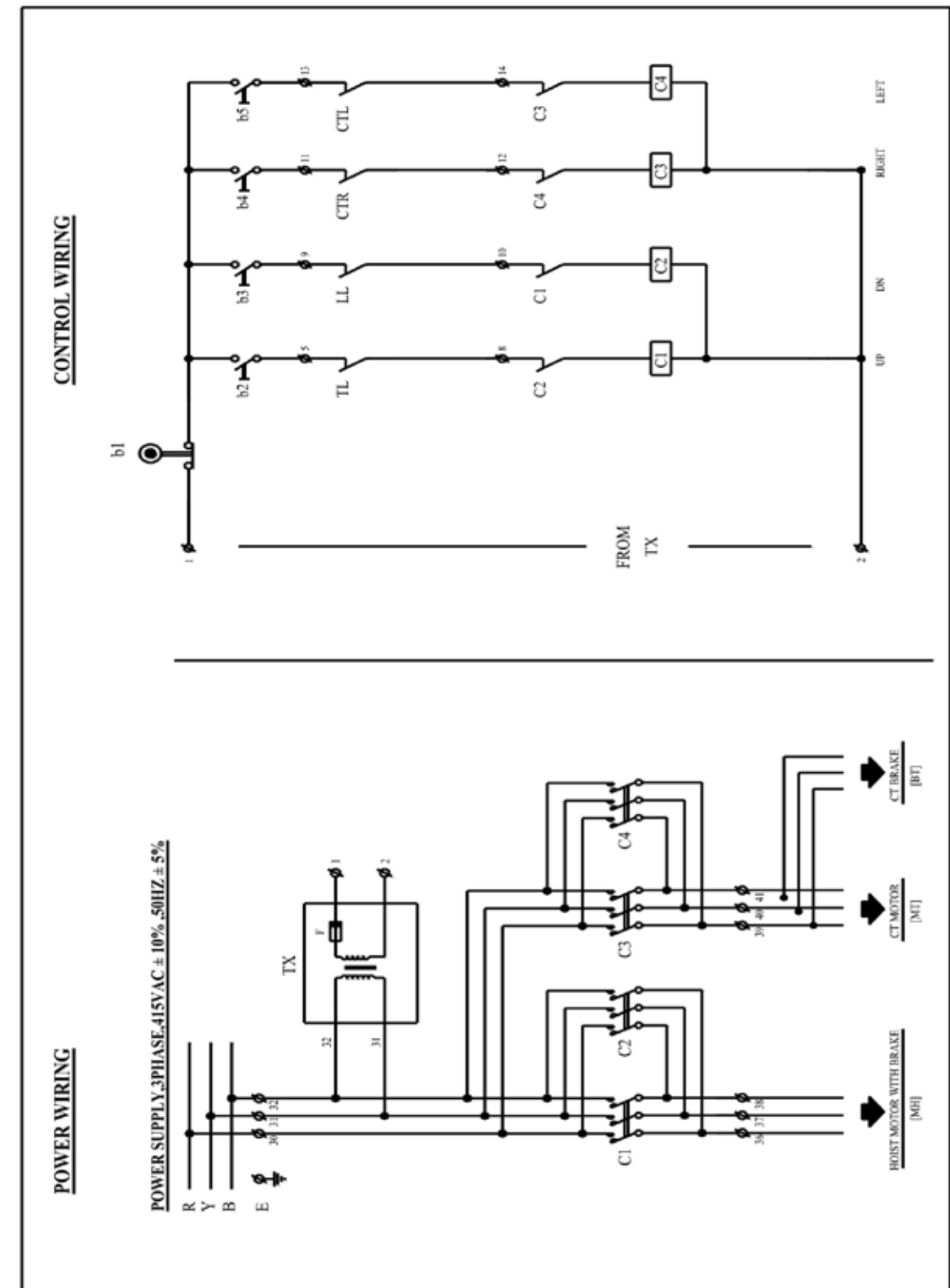


Figure 24



Part No	Item Code	Description	Qty
411	URCM133411A	HOIST SUSPENSION	02
68	FLSPWB050000	WASHER	04
67	ASFM05016000	ALLEN SCREW	04
66	XLSP009000A	LIMIT SWITCH	02
65	PACF133650A	LIMIT SWITCH PLATE	01
65	PACF133651A	LIMIT SWITCH PLATE	01
6041	BTB511080000	THRUST BEARING	02
604	PGCF863604A	HOIST SUSPENSION	02
33	XBAPO050PTA	TROLLEY BRAKE	01
32	XMRP028000A	MOTOR TESC	01
3102	EXCRA0200000	EXTERNAL CIRCLIP A 20	01
3101	KB0600600180	KEY BER 6 x 6 x 18	01
31	PACF813031B	GEAR	01
2905	BBR060030000	BALL BEARING 6003	01
2902	FLSPWB080000	FLAT SPRING WASHER	04
2901	ASFM08025000	ALLEN SCREW M8 x 25	04
2805	BR0600500000	BALL BEARING 6005	01
2803	INCRB04700000	INTERNAL CIRCLIP B 47	01
2802	SQSPW080000	SQUARE SPRING WASHER B8	04
2801	ASFM08030000	ALLEN SCREW	04
29	PACF023029B	GEAR BOX HOUSING	01
28	PACF013028B	GEAR BOX COVER	01
2702	FLSPWB160000	FLAT SPRING WASHER B16	04
27	PCCF833027A	DISTANCE BOLT	04
252	PCCF113252A	WASHER	48
25	PBCN053064A	LOAD AXLE	02
22	PACF813022C	DRIVE SHAFT	01
2103	FLSPWB080000	FLAT SPRING WASHER	03
2102	HBHM08016088	MS HEX BOLT M8 x 16	03
2101	BBR06003ZZ00	BALL BEARING 6003ZZ	01
1503	FLSPWB30000	FLAT SPRING WASHER B30	04
1502	PACF113023A	SPACER	04
1501	EXCRA0350000	EXTERNAL CIRCLIP A 35	04
1302	INCRB0800000	INTERNAL CIRCLIP B 80	04
1301	BBR063070000	BALL BEARING 6307	08
1102	FLSPWB080000	FLAT SPRING WASHER B8	04
1101	PACF193112A	MODIFIED HT HEX BOLT M8*30	04
21	PACF833021B	BEARING HOUSING	01
20	PACF833020B	CLAMPING WASHER	01
18	PBCF823018C	PINION SHAFT	01
17	PACF823017C	WHEEL PINION (SQ.HOLE)	02
16	PBCF113016A	BEARING COVER	08
15	PBCF823015A	WHEEL AXLE	04
14	PBCG013014A	PLAIN WHEEL	02
13	PBCG013013A	GEAR WHEEL	02
12	PBCF133010B	PLAIN WHEEL SIDE PLATE	02
11	PBCF133001B	GEAR WHEEL SIDE PLATE	02

SINGLE SPEED



**ELECTRICAL SPARE PARTS FOR HC2/HC3 SINGLE SPEED WITH G.T./P.T**

Item Code	Description	Qty
XCPP501000A	M S Enclosure including base plate suitable for HC2+/HC3+	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	1
XPBP0001HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed)	1

ELECTRICAL SPARE PARTS FOR HC2/HC3 SINGLE SPEED WITH ET

Item Code	Description	Qty
XCPP502000A	M S Enclosure including base plate suitable for HC2+/HC3+ Single Speed With ET	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	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 FOR HC4 SINGLE SPEED WITH G.T./P.T

Item Code	Description	Qty
XCPP004000A	M S Enclosure including base plate suitable for HC4/HC5/HC6	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0521TMA	Schneider Make Contactor 12A/24VAC Cat No LC1D12 B7	2
XPBP0001HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed)	1

**ELECTRICAL SPARE PARTS FOR HC4 SINGLE SPEED WITH ET**

Item Code	Description	Qty
XCPP004000A	M S Enclosure including base plate suitable for HC4/HC5/HC6	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0521TMA	Schneider Make Contactor 12A/24VAC Cat No LC1D12 B7	2
XACP0620SMA	Schneider Make Contactor 9A/24VAC Cat No LC1D09 B7	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 FOR HC5 SINGLE SPEED WITH G.T./P.T

Item Code	Description	Qty
XCPP004000A	M S Enclosure including base plate suitable for HC4/HC5/HC6	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0630SMA	Schneider Make Contactor 18A/24VAC Cat No LC1D18 B7	2
XPBP0001HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed)	1

ELECTRICAL SPARE PARTS FOR HC5 SINGLE SPEED WITH ET

Item Code	Description	Qty
XCPP004000A	M S Enclosure including base plate suitable for HC4/HC5/HC6	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0630SMA	Schneider Make Contactor 18A/24VAC Cat No LC1D18 B7	2
XACP0620SMA	Schneider Make Contactor 9A/24VAC Cat No LC1D09 B7	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



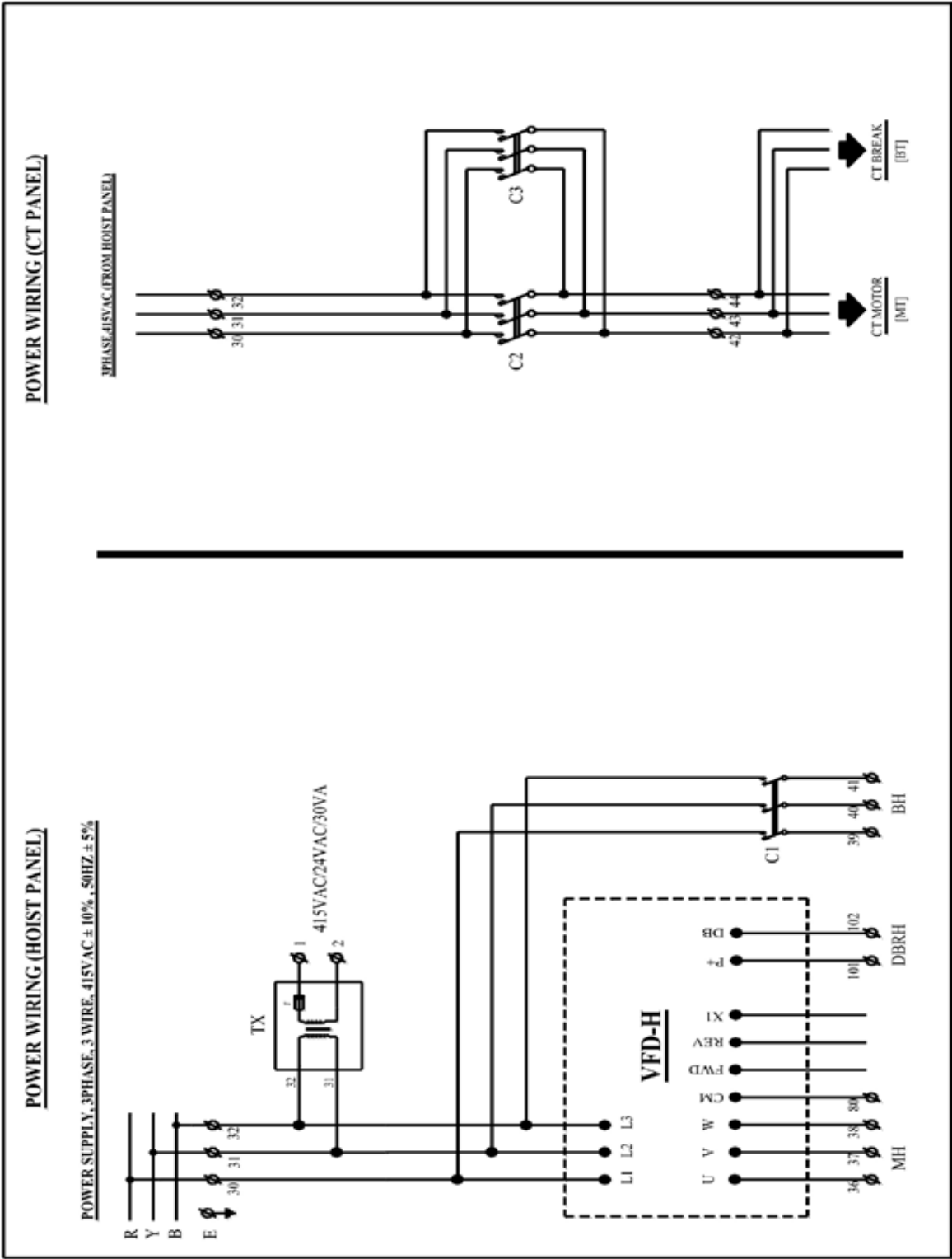
ELECTRICAL SPARE PARTS FOR HC6 SINGLE SPEED WITH G.T./P.T

Item Code	Description	Qty
XCPP004000A	M S Enclosure including base plate suitable for HC4/HC5/HC6	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0771TMA	Schneider Make Contactor 25A/24VAC Cat No LC1D25 B7	2
XPBP0001HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Single Speed)	1

ELECTRICAL SPARE PARTS FOR HC6 SINGLE SPEED WITH ET

Item Code	Description	Qty
XCPP004000A	M S Enclosure including base plate suitable for HC4/HC5/HC6	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XACP0771TMA	Schneider Make Contactor 25A/24VAC Cat No LC1D25 B7	2
XACP0620SMA	Schneider Make Contactor 9A/24VAC Cat No LC1D09 B7	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

DOUBLE SPEED





ELECTRICAL SPARE PARTS FOR HC2/HC3 DOUBLE SPEED WITH G.T./P.T

Item Code	Description	Qty
XCPP601000A	M S Enclosure including base plate suitable for HC2+/HC3+	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XADS0160FJI	Fuji Make 0.75KW 3 Phase AC Drive Cat No FRN0004C2S-4A	1
XACP0590TMA	Schneider Make Contactor 6A/24VAC Cat No LC1K0601 B7	1
XPBP0002HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Double Speed)	1

ELECTRICAL SPARE PARTS FOR HC2/HC3 DOUBLE SPEED WITH ET

Item Code	Description	Qty
XCPP601000A	M S Enclosure including base plate suitable for HC2+/HC3+	1
XCPP010000A	M S Enclosure including base plate suitable for Single ET	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XADS0160FJI	Fuji Make 0.75KW 3 Phase AC Drive Cat No FRN0004C2S-4A	1
XACP0590TMA	Schneider Make Contactor 6A/24VAC Cat No LC1K0601 B7	1
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	1
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XPBP0116HHL	Indef Make 5 Way Pendant (Emergency Stop With 2 NC (Turn to Release),Hoist/Low Double Speed, Right/Left Single Speed)	1



ELECTRICAL SPARE PARTS FOR HC4 DOUBLE SPEED WITH G.T./P.T

Item Code	Description	Qty
XCPP701000A	M S Enclosure including base plate suitable for HC4+/HC5+/HC6+	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XADS0110FJI	Fuji Make 2.2KW 3 Phase AC Drive Cat No FRN0007C2S-4A	1
XACP0590TMA	Schneider Make Contactor 6A/24VAC Cat No LC1K0601 B7	1
XPBP0002HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Double Speed)	1

ELECTRICAL SPARE PARTS FOR HC4 DOUBLE SPEED WITH ET

Item Code	Description	Qty
XCPP701000A	M S Enclosure including base plate suitable for HC4+/HC5+/HC6+	1
XCPP010000A	M S Enclosure including base plate suitable for Single ET	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XADS0110FJI	Fuji Make 2.2KW 3 Phase AC Drive Cat No FRN0007C2S-4A	1
XACP0590TMA	Schneider Make Contactor 6A/24VAC Cat No LC1K0601 B7	1
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	1
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XPBP0116HHL	Indef Make 5 Way Pendant (Emergency Stop With 2 NC (Turn to Release),Hoist/Low Double Speed, Right/Left Single Speed)	1

ELECTRICAL SPARE PARTS FOR HC5/HC6 DOUBLE SPEED WITH G.T./P.T

Item Code	Description	Qty
XCPP701000A	M S Enclosure including base plate suitable for HC4+/HC5+/HC6+	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XADS0030FJI	Fuji Make 3.7KW 3 Phase AC Drive Cat No FRN0011C2S-4A	1
XACP0590TMA	Schneider Make Contactor 6A/24VAC Cat No LC1K0601 B7	1
XPBP0002HHL	Indef Make 3 Way Pendant (Emergency Stop (Turn to Release), Hoist/Low Double Speed)	1

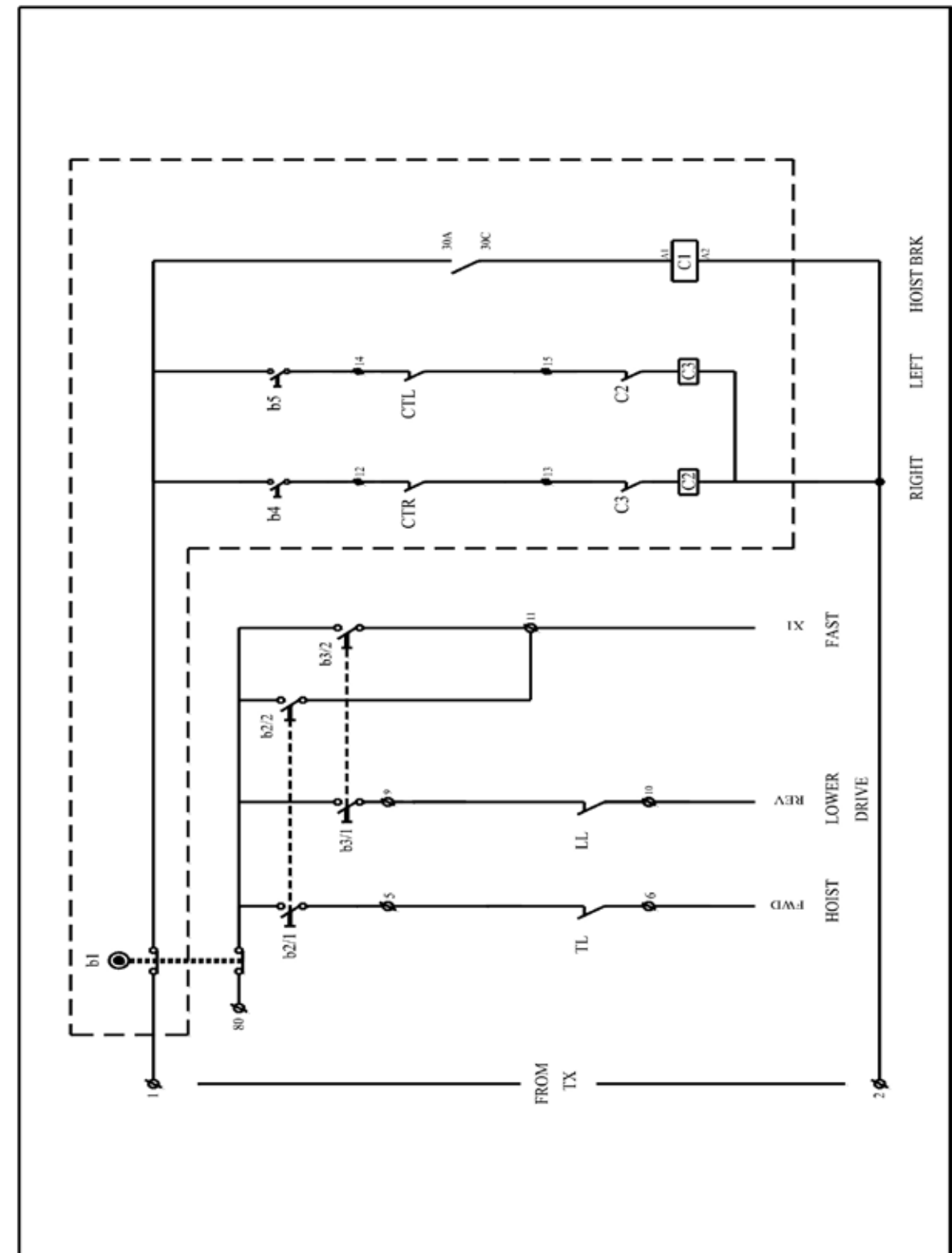


ELECTRICAL SPARE PARTS FOR HC5/HC6 DOUBLE SPEED WITH ET

Item Code	Description	Qty
XCPP701000A	M S Enclosure including base plate suitable for HC4+/HC5+/HC6+	1
XCPP010000A	M S Enclosure including base plate suitable for Single ET	1
XCTP0010AVA	Control Transformer Primary 415VAC & Secondary 24VAC,30VA	1
XADS0030FJI	Fuji Make 3.7KW 3 Phase AC Drive Cat No FRN0011C2S-4A	1
XACP0590TMA	Schneider Make Contactor 6A/24VAC Cat No LC1K0601 B7	1
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	1
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2
XPBP0116HHL	Indef Make 5 Way Pendant (Emergency Stop With 2 NC (Turn to Release),Hoist/Low Double Speed, Right/Left Single Speed)	1



DOUBLE SPEED





ELECTRICAL SPARE PARTS FOR HC5/HC6 DOUBLE SPEED WITH ET

DRIVE PARAMETERS (FUJI)					
Fundamental Functions F Group			Motor Parameters P Group		
Parameter	Description	Value	Parameter	Description	Value
F01	Frequency Command 1	0 (Up/Dn Commands on Key Pad)	P02	Rated Motor Power	Motor KW on Name Plate
F02	Operation Method	1(Terminal Command Fwd/Rev)	P03	Rated Motor Current	Motor Current on Name Plate
F03	Maximum Frequency	60 Hz	P04	Auto Tuning	0 (Disable)
F04	Standard Motor Freq.	50 Hz	P99	Motor 1 Selection	4 (Other Motors)
F05	Rated Motor Voltage	415VAC			
F06	Maximum Output Voltage	415VAC			
F07	Acceleration Time	1 Sec			
F08	Deceleration Time	1 Sec			
F11	Overload Current	120% of FLC			
F12	Maximum Current Hold Time	5 Sec			
F15	Maximum Frequency	50 Hz			
F16	Minimum frequency	5 Hz			
F22	DC Injection Time	0.0 Sec			
F37	Auto Torque Boost	2			
F39	Stop Frequency	1			
F42	Control Mode Selection	Vector Control 1			
Control Functions C Group			Extension Terminal Functions E Group		
Parameter	Description	Value	Parameter	Description	Value
C05	Maximum Frequency	50 Hz	E27	Relay Function	57 (Brake Signal)

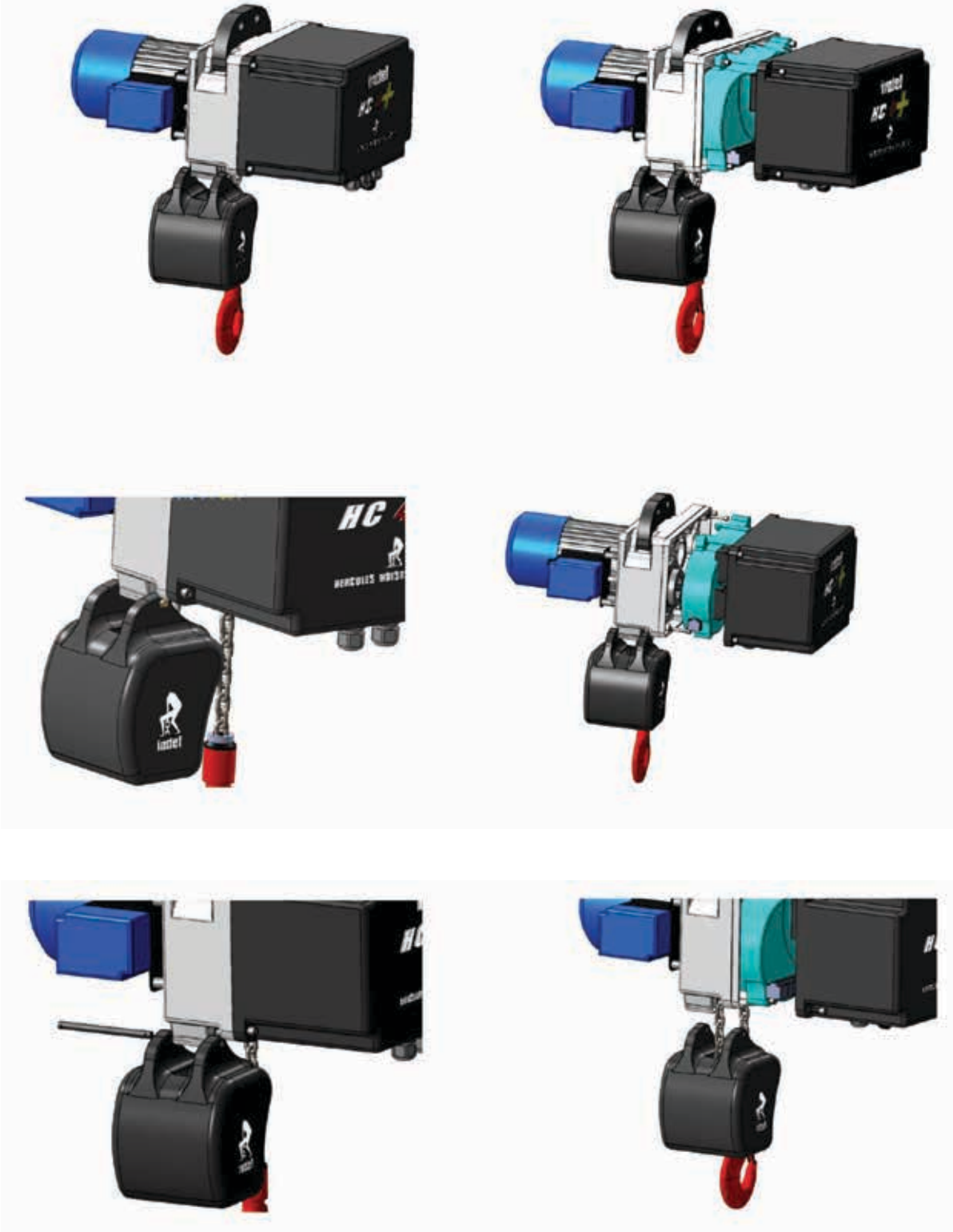
Pendent / Pendent Cable

Description	Speed	Number of Ways	Make	Qty.	Drawing Number
Without Master Contractor	Single Speed	2	Taiwan	1	XPBE01100TT
	Double Speed	2	IEC	1	XPBP0700IEC
With Master Contractor	Single Speed	3	IEC	1	XPB0670IEC
	Double Speed	3	IEC	1	XPB0710IEC
Description	Speed	Number of Ways	Make	Qty.	Drawing Number
Without Master Contractor	Single Speed	4	Taiwan	1	XPBE01200TT
	Double Speed	4	IEC	1	XPBP0720IEC
With Master Contractor	Single Speed	5	IEC	1	XPBP0690IEC
	Double Speed	5	IEC	1	XPBP0730IEC
Control Switch Cable 1.5 sq.mm. x 6 core	Single Speed/	--	--	(L-0.4)	XCBP045000
	+ Double Speed /	--	mts.	--	
	Single Speed + E.T./	--	--	--	
	+ Double Speed	--	--	--	
	+ Electric Trolley	--	--	--	

* L = L Lift in meters

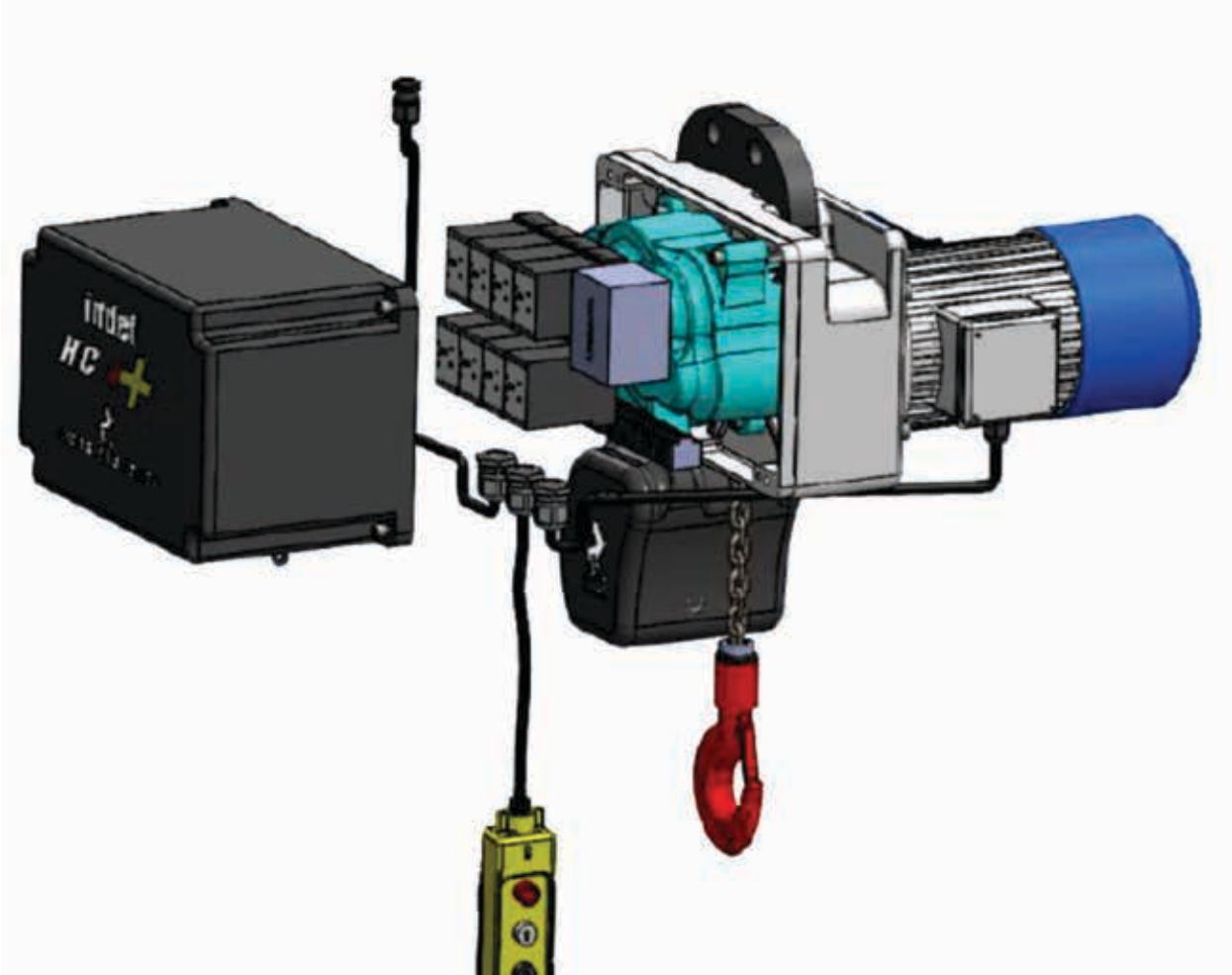
MAINTENANCE

DISMANTLING THE CHAIN COLLECTOR BOX

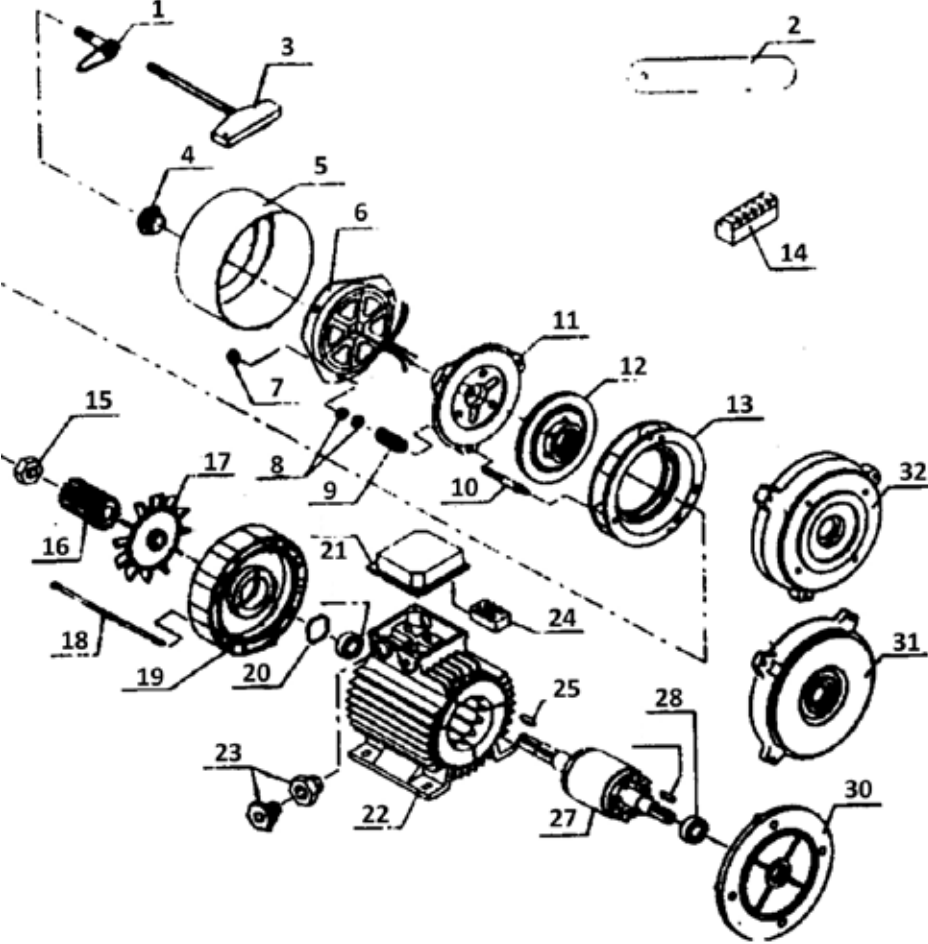




CONTROL CABLE



In case of order, always indicate reference number and motor type

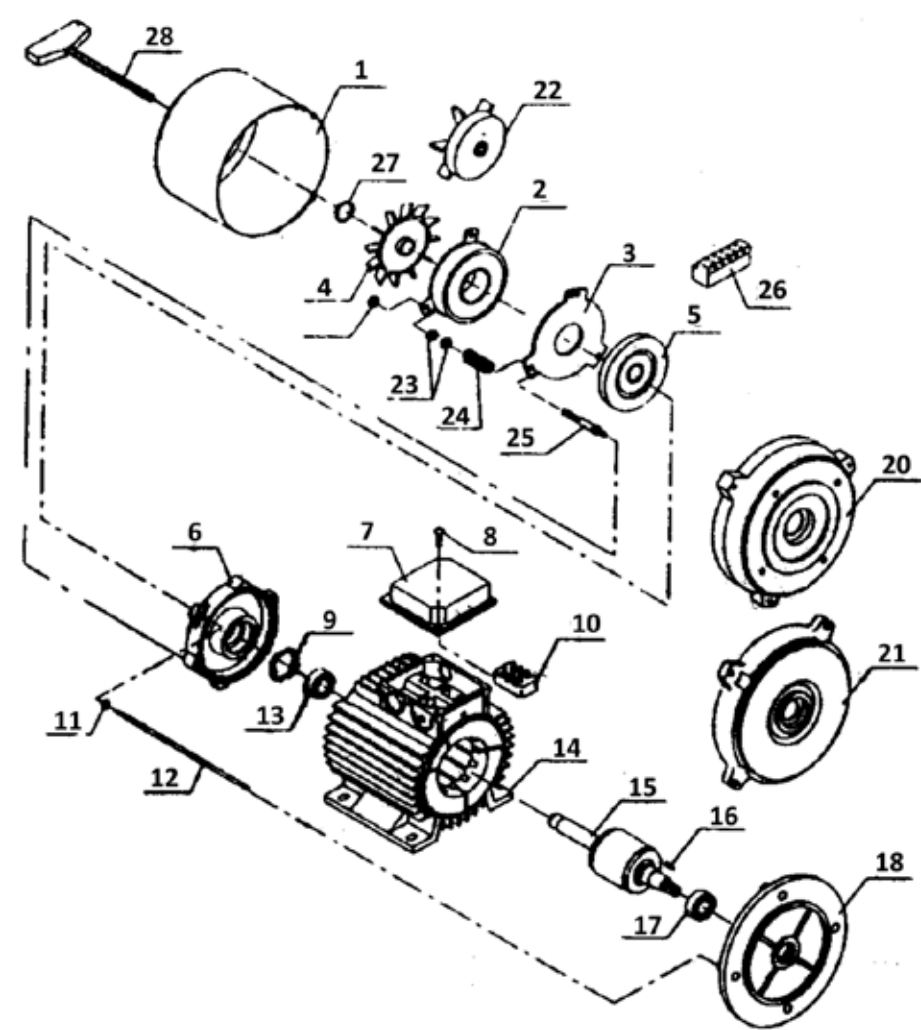


1	Manual release screw	12	Brake disk	22	Motor framework
2	0.3 mm thickness gauge	13	Conveyor with friction track	23	Pipe union
3	Key for manual rotation	14	Rectifier (half or complete wave)	24	Terminal board
4	Cap locking screw	15	Seeger ring or gear locking ring	25	Brake side key
5	Brake protection cap	16	Toothed hub	26	Brake side bearing
6	Three-phase electromagnet (or D.C. monophase)	17	Fan	27	Rotor shaft group
7	Magnet locking nut	18	Drawrod with nuts	28	Control side bearing
8	Adjustment nuts	19	Brake side shield	29	Control side key
9	Brake spring	20	Compensation ring	30	B5 flange shield
10	Guide stud bolt	21	Single or double terminal board box	31	Front shield
11	Mobile anchor			32	B14 flange shield



Description of spare parts for FK-FKL Series Hoist Motors

In case of order, always indicate reference number and motor type



1	Brake protection cap	11	Drawrod locking nut	21	Front shield
2	Electromagnet	12	Drawrod	22	Heavy Fan
3	Mobile anchor	13	Rear Bearing	23	Adjustment nuts
4	Cooling Fan	14	Motor framwork	24	Brake Spring
5	Brake Disc	15	Rotor shaft group	25	Guide stud bolt
6	Shield with friction track	16	Control side key	26	Rectifier
7	Base cover	17	Front bearing	27	Nut
8	Screws for base cover	18	Flange B5	28	Key for manual rotation
9	Compensation ring	19	Block Magnet	29	Brake side key
10	Terminal board	20	B14 Flnge shield		

Motor Details and VFD details

Item	HC+2 DS with VFD	HC+3 DS with VFD	HC+4 DS with VFD	HC+5 DS with VFD	HC+6 DS with VFD
Motor (KW)	0.55KW	0.90KW	1.84KW	3.50KW	4.50KW
Motor (Current)	1.7A	2.5A	4.3A	6.4A	8.2A
Drive (KW)	0.75KW	0.75KW	2.2KW	3.70KW	3.70KW
Drive (Current)	2.5A	2.5A	5.5A	9.0A	9.0A
Cat No	FRN0004C2S -4A	FRN0004C2S -4A	FRN0007C2S -4A	FRN0011C2S -4A	FRN0011C2S -4A
Braking Resistor Ratings	200E/300W	200E/300W	160E/800W	130E/1.5KW	130E/1.5KW

Quick reference table of alarm codes

ALARM CODE	NAME	ALARM CODE	NAME
OC1	Overcurrent occurred during acceleration	L In	Input phase loss protection
OC2	Overcurrent occurred during deceleration	OPL	Output phase loss protection
OC3	Overcurrent occurred when running at a constant speed	OH1	Overheat protection for heat sink
OU1	Overvoltage occurs during the acceleration	OH2	External alarm input
OU2	Overvoltage occurs uring the deceleration	dbH	Overheat protection for braking resistor
OU3	Overvoltage occurs during running at constant speed	OL1	Electronic thermal overload relay
LU	Undervoltage protection	OLU	Overload protection



VFD Parameters

Fundamental Functions F Group			Motor Parameters P Group		
Parameter	Description	Value	Parameter	Description	Value
F01	Frequency Command 1	0 (Up/Dn Commands on Key Pad)	P02	Rated Motor Power	Motor KW on Name Plate
F02	Operation Method	1 (Terminal Command Fwd/Rev)	P03	Rated Motor Current	Motor Current on Name Plate
F03	Maximum Frequency	60 Hz	P04	Auto Tuning	0 (Disable)
F04	Standard Motor Freq.	50 Hz	P99	Motor 1 Selection	4 (Other Motors)
F05	Rated Motor Voltage	415VAC			
F06	Maximum Output Voltage	415VAC	Application Functions J Group		
F07	Acceleration Time	1 Sec	J68	Brake Release Current	50% of FLC
F08	Deceleration Time	1 Sec	J69	Brake Engage Freq.	5 Hz (Minimum Freq)
F11	Overload Current	120% of FLC	J70	Brake Engage Time	0.5 Sec
F12	Maximum Current Hold Time	5 Sec	J71	Brake Release Freq.	5 Hz (Minimum Freq)
F16	Minimum frequency	5 Hz	J72	Brake Release Time	0.20 Sec
F22	DC Injection Time	0.0 Sec			
F37	Auto Torque Boost	2	High Performance Functions H Group		
F39	Stop Frequency	1	H03	Factory Reset	01 (Press Stop + Up/Dn)
F42	Control Mode Selection	Vector Control 1	H07	Ramp Type	0 Linear
			H11	Stop Configuration	0 Normal Deceleration
Control Functions C Group			Extension Terminal Functions E Group		
Parameter	Description	Value	Parameter	Description	Value
C05	Maximum Frequency	50 Hz	E27	Relay Function	57 (Brake Signal)

Sink / Source Shortlink shall be in Sink Place.

Motor Details and VFD details

ALARM CODE	Possible Causes	What to Check and Suggested Measures
OC1,OC2,OC3	The inverter output terminals were short-circuited.	Remove the part that short-circuited (including replacement of the wires, relay terminals and motor).
	Ground faults occurred at the inverter output terminals	Remove the part that short-circuited (including replacement of the wires, relay terminals and motor).
	Loads were too heavy	i) If the load is too heavy, decrease it or raise the inverter capacity. .ii) If there are any sudden changes, make the load variations smaller or raise the inverter capacity. Iii) Enable instantaneous overcurrent limiting (H12 = 1).
	The value set for torque boost (F09) was too large. (F37 = 0, 1, 3, or 4)	Lower the value for torque boost (F09) if the motor is not going to stall.
	The acceleration/ deceleration time was too short.	i) Increase the acceleration/deceleration time (F07, F08, E10,E11, and H54). ii) Enable current limiting (F43). iii) Raise the inverter capacity.
OU1,OU2,OU3	The power supply voltage was over the range of the inverter's specifications	Decrease the voltage to within that of the specifications
	The acceleration time was too short.	i) Increase the acceleration time (F07, E10, and H54). ii) Select the S-curve pattern (H07). iii) Consider the use of a braking resistor.
	The deceleration time was too short for the moment of inertia for load	i) Increase the deceleration time (F08, E11, and H54). ii) Enable automatic deceleration (H69=1). iii) Set the rated voltage (at base frequency) (F05) to 0 to improve braking ability. iv) Consider the use of a braking resistor.
	Loads were suddenly removed	Consider the use of a braking resistor



ALARM CODE	Possible Causes	What to Check and Suggested Measures
	Braking load was too heavy	i) Set the rated voltage (at base frequency)(F05) to 0 to improve braking ability. ii) Consider the use of a braking resistor.
LU	An instantaneous power failure occurred	i) Reset the alarm. ii) If you want to restart running the motor by not treating this condition as an alarm, set F14 to “4” or “5,” depending on the load.
	The power to the inverter was switched back on too soon (with F14 = 1)	Make the interval longer for re-power on.
	The power supply voltage did not reach the range of the inverter’s specifications	Increase the voltage to within that of the specifications.
	Peripheral equipment for the power circuit malfunctioned, or the connection was incorrect	Replace any faulty peripheral equipment, or correct any incorrect connections
	Other loads were connected to the same power system and required a large current to start running to the extent that it caused a temporary voltage drop on the supply side.	Reconsider the power system configuration
	Inverter’s inrush current caused the power voltage drop because power transformer capacity was insufficient.	Reconsider the capacity of the power transformer.
	Main circuit power input wires broken.	Repair or replace the wires.
	The terminal screws for the main circuit power input of the inverter were not tight enough.	Tighten the terminal screws screws to the recommended torque.

ALARM CODE	Possible Causes	What to Check and Suggested Measures
LIn	Interphase unbalance rate of three-phase voltage was too large.	i) Connect an AC reactor (ACR) or a DC reactor (DCR) to lower the rate. ii) Raise the inverter capacity
	Overload cyclically occurred.	If the ripple is large, raise the inverter capacity.
	Single-phase voltage was inputted to the inverter instead of three-phase voltage input.	Obtain a new inverter that meets the power supply specifications.
OPL	Inverter output wires are broken.	Replace the output wires.
	Wire for motor winding are broken.	Replace the motor.
	The terminal screws for inverter output were not tight enough.	Tighten the terminal screws to the recommended torque.
	A single-phase motor has been connected.	Single-phase motors cannot be used. Note that the FRENIC-Mini only drives three-phase induction motors.
OH1	Temperature around the inverter exceeded that of inverter specifications.	i) Lower the temperature around the the inverter (e.g., ventilate the enclosure well). ii) Lighten the load.
	Accumulated running time of the cooling fan exceeded the standard period for replacement, or the cooling fan malfunctioned.	Replace the cooling fan.
	Air vent is blocked.	i) Increase the clearance. ii) Clean the heat sink.
	Load was too heavy.	i) Lighten the load (e.g. lighten the load before the overload protection occurs using the overload early warning (E34). ii) Decrease the motor sound (carrier frequency) (F26). iii) Enable the overload protection control (H70).
OH2	An alarm function of the external equipment was activated.	Remove the cause of the alarm that occurred.



ALARM CODE	Possible Causes	What to Check and Suggested Measures
	Connection has been performed incorrectly. Incorrect settings.	Connect the wire for the alarm signal correctly. Correct the assignment.
dbH	Braking load was too heavy.	i) Lighten the braking load. ii) Reconsider the choice of the braking resistor in order to improve braking ability. Resetting the data of function codes F50 and F51 is also required.
	The deceleration time was too short.	i) Increase the deceleration time (F08, E11, and H54). ii) Reconsider the choice of the braking resistor in order to improve the braking ability. Resetting the data of function codes F50 and F51 is also required.
	Incorrect values have been set for the data of function codes F50 and F51.	Reconsider and change the data of function codes F50 and F51.
OL1	Load was too heavy.	Lighten the load (e.g., lighten the load before overload occurs using the overload early warning (E34)).
	The acceleration/deceleration time was too short.	Increase the acceleration / deceleration time (F07, F08, E10, E11 and H54).
	The characteristics of electronic thermal did not match those of the motor overload.	i) Reconsider the data of function codes P99, F10 and F12. ii) Use an external thermal relay.
	Activation level for the electronic thermal relay was inadequate.	Reconsider and change the data of function code F11.
OLU	Air vent is blocked.	i) Increase the clearance. ii) Clean the heat sink.
	Load was too heavy.	i) Lighten the load (e.g. lighten the load before the overload protection occurs using the overload early warning (E34).

ALARM CODE	Possible Causes	What to Check and Suggested Measures
		ii) Decease the motor sound (carrier frequency) (F26). iii) Enable the overload protection control (H70).
	The acceleration/deceleration time was too short.	Increase the acceleration/deceleration time (F07, F08, E10, E11 and H54).

ELECTRICAL SPARE PARTS FOR HC2+/HC3+ DOUBLE SPEED WITHOUT ET

Item Code	Description	Qty
XCTP0010AVA	Avetronics/Prince/Powerex Make Control Transformer 415V/24V,30VA	1.00
XACP0590TMA	SCHNEIDER MAKE CONTACTOR 6A/24V CAT NO LC1K0601 B7	1.00
XPBE0002HHL	Indef (Giovenzana) Make 3 Way Pendant (Emergency Stop,Hoist/Low Double Speed)	1.00
XADS0160FJI	Fuji Make 0.75KW 3 Phase AC Drive Cat No FRN0004C2S-4A	1.00



ELECTRICAL SPARE PARTS FOR HC2+/HC3+ DOUBLE SPEED WITHOUT ET

Item Code	Description	Qty
XCTP0010AVA	Avetronics/Prince/Powerex Make Control Transformer 415V/24V,30VA	1.00
XACP0590TMA	SCHNEIDER MAKE CONTACTOR 6A/24V CAT NO LC1K0601 B7	1.00
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	1.00
XPBP0116HHL	Indef Make 5 Way Pendant (Emergency Stop With 2 NC (Turn to Release),Hoist/Low Double Speed, Right/Left Single Speed)	1.00
XADS0160FJI	Fuji Make 0.75KW 3 Phase AC Drive Cat No FRN0004C2S-4A	1.00
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2.00

ELECTRICAL SPARE PARTS FOR HC4+ DOUBLE SPEED WITHOUT ET

Item Code	Description	Qty
XCTP0010AVA	Avetronics/Prince/Powerex Make Control Transformer 415V/24V,30VA	1.00
XACP0590TMA	SCHNEIDER MAKE CONTACTOR 6A/24V CAT NO LC1K0601 B7	1.00
XPBE0002HHL	Indef (Giovenzana) Make 3 Way Pendant (Emergency Stop,Hoist/Low Double Speed)	1.00
XADS0110FJI	Fuji Make 2.2KW 3 Phase AC Drive Cat No FRN0007C2S-4A	1.00



ELECTRICAL SPARE PARTS FOR HC4+ DOUBLE SPEED WITH ET

Item Code	Description	Qty
XCTP0010AVA	Avetronics/Prince/Powerex Make Control Transformer 415V/24V,30VA	1.00
XACP0590TMA	SCHNEIDER MAKE CONTACTOR 6A/24V CAT NO LC1K0601 B7	1.00
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	1.00
XPBP0116HHL	Indef Make 5 Way Pendant (Emergency Stop With 2 NC (Turn to Release),Hoist/Low Double Speed, Right/Left Single Speed)	1.00
XADS0110FJI	Fuji Make 2.2KW 3 Phase AC Drive Cat No FRN0007C2S-4A	1.00
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2.00

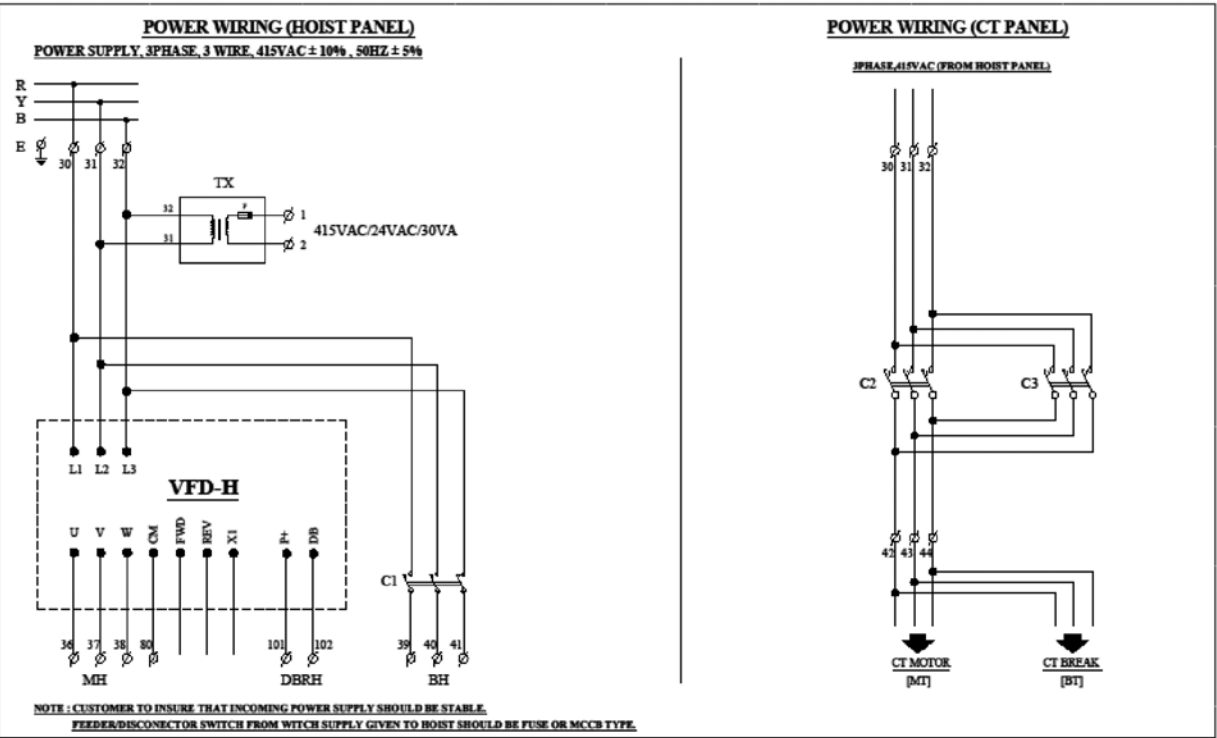
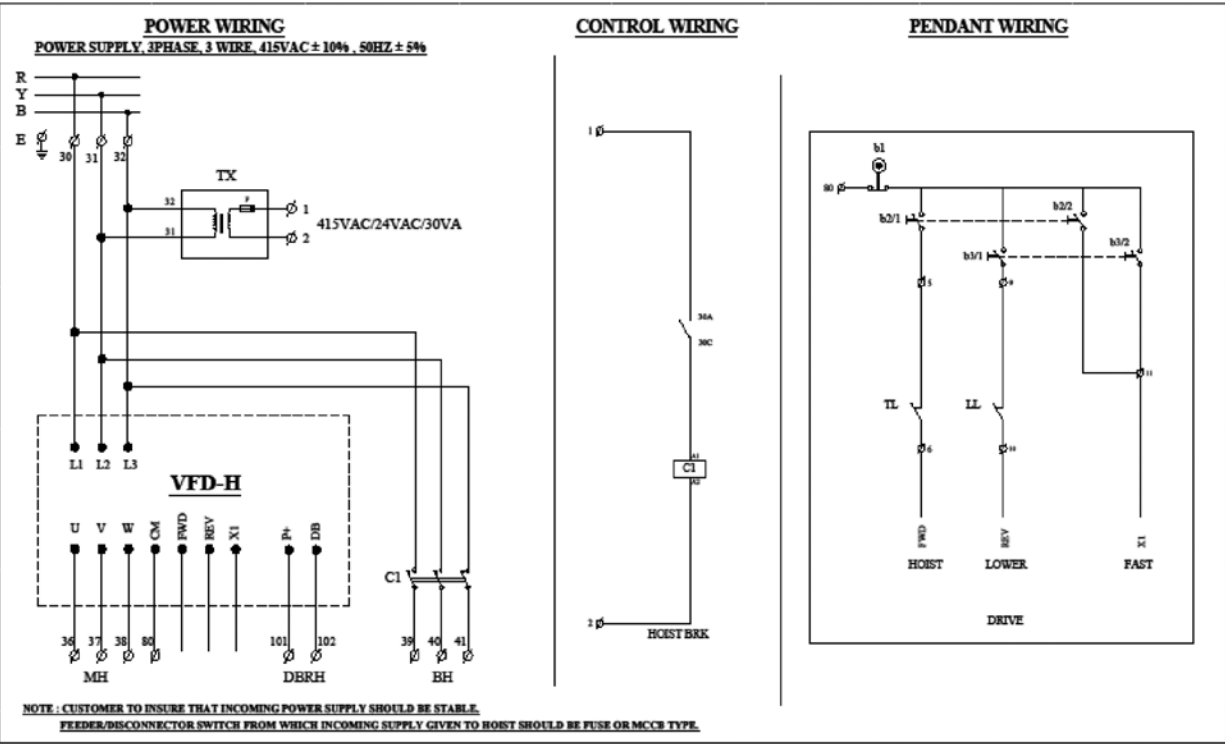
ELECTRICAL SPARE PARTS FOR HC5+/HC6+ DOUBLE SPEED WITHOUT ET

Item Code	Description	Qty
XCTP0010AVA	Avetronics/Prince/Powerex Make Control Transformer 415V/24V,30VA	1.00
XACP0590TMA	SCHNEIDER MAKE CONTACTOR 6A/24V CAT NO LC1K0601 B7	1.00
XPBE0002HHL	Indef (Giovenzana) Make 3 Way Pendant (Emergency Stop,Hoist/Low Double Speed)	1.00
XADS0030FJI	Fuji Make 3.7KW 3 Phase AC Drive Cat No FRN0011C2S-4A	1.00



ELECTRICAL SPARE PARTS FOR HC5+/HC6+ DOUBLE SPEED WITH ET

Item Code	Description	Qty
XCTP0010AVA	Avtronics/Prince/Powerex Make Control Transformer 415V/24V,30VA	1.00
XACP0590TMA	SCHNEIDER MAKE CONTACTOR 6A/24V CAT NO LC1K0601 B7	1.00
XACP0250TMA	Schneider Make Reversing Contactor 9A/24VAC Cat No LC2K0901 B7	1.00
XPBP0116HHL	Indef Make 5 Way Pendant (Emergency Stop With 2 NC (Turn to Release),Hoist/Low Double Speed, Right/Left Single Speed)	1.00
XADS0030FJI	Fuji Make 3.7KW 3 Phase AC Drive Cat No FRN0011C2S-4A	1.00
XLSP0090SLZ	Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500VAC	2.00



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Issue	000	Revision	R0	Revision summary
Issue Date	11.06.2020	Revision Date		

HERCULES HOISTS LIMITED

C.T.S. No.43/2B, 43/5, 45/2, Near Naik Navre Chemicals

At Village - Dhamani, Tal. - Khalapur, Dist. - Raigad, Khopoli - 410202 (M.S.)

E-mail : csga@indef.com

Tel. 02192-662502/503/555 Fax : 02192-662504

501-504, 5th Floor , Shelton Cubix, Plot No. 87, CBD Belapur,

Navi Mumbai 400 614. Maharashtra, INDIA

P: +91 22-45417300

www.indef.com