BAJAJ indef

YOUR WINNING COLLABORATOR

# OPERATING & MAINTENANCE INSTRUCTION MANUAL WITH SPARE PART LIST

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




## iR SERIES

**Capacity - 1t to 20t**

## WIRE ROPE 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.


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## WARNING

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.

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**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 fixit 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 lables.
- 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.


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## 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.

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**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 ad 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 cantered 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.


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## Indicative list of parts not covered under warranty:

| | |
|---|---|
| 1 | Hoist Motor Winding |
| 2 | Wire Rope |
| 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 | Control Transformer |
| 11 | Rope Guide |
| 12 | Special Control Switchgears |

### This can cause damage to hoist









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## COMMISSIONING CHECK LIST (WRH)

1. **Limit Switch:** Check all limit switches like over hoisting, over lowering, right & left & emergency Check the direction of motions w.r.t. Pendent buttons change phase sequence if required. This is very important safety requirement.

2. **Sufficiency of lift:** Set the bottom Limit switch so that hook touches the floor & no further Loosening of wire rope takes place. Set the top limit switch so that safe headroom is maintained between hoist body and lower block. Ensure that rope is not rubbing between L.B.

3. **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.

4. **Counter weight assembly:** Ensure that counter weights are correctly assembled for balancing of trolley bolts are properly locked & tightened.

5. **Noise level:** Observed that there is no abnormal noise in Hoist and travel motion.

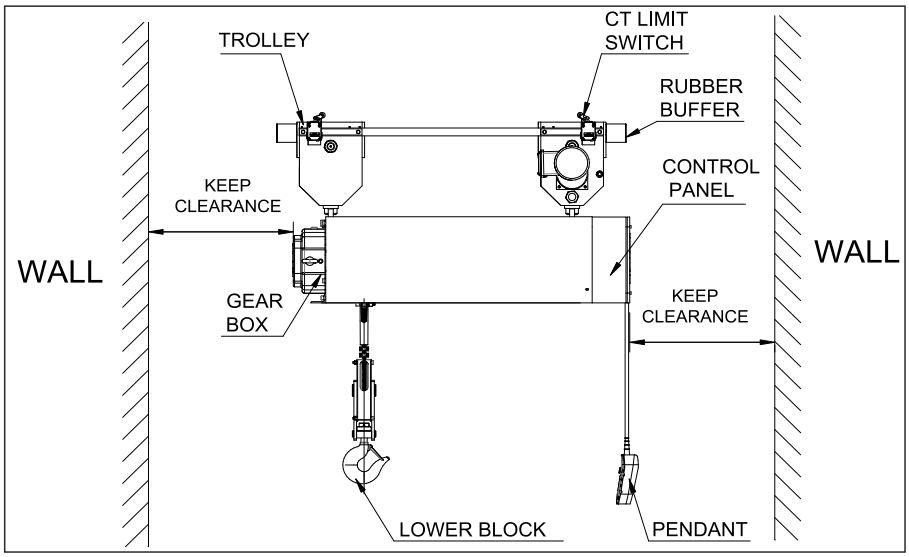
6. **Greasing:** Apply grease to the rope for full length & rope guide & ensure free movement

7. **Name plate data:** Note hoist, motor serial number & record them on Instruction manual for future use.

8. **Abnormal factors:** Excessive dust, temp, humidity, chemical fumes, leakages etc. Report them.

9. **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.

10. Commissioning must be under supervision of HHL trained technician / engineer. If not done warranty will be void.





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## ERECTION & COMMISSIONING

**Transport :** Hoist has been designed for ease of erection. After removing side & top frames of wooden box, you will find Hoist is bolted on the wooden bottom frame like pallet, which can be easily lifted by forklift truck.

**Installing Trolley :** Before erection of the hoist adjust flange width of Trolley to suit beam size by providing equal number of washers on both sides between trolley side plate & the suspension of the hoist. Check the distance between the wheel flanges. It should be 3 to 4 mm more than the width of runway beam flange. After adjusting the flange width, greasing of wire rope, trolley gear, and pinions and then install the hoist on beam and remove wooden bottom frame and packing girders.

**Power supply :** Connect the hoist to 415V, 3 phase power supply with 4mm sq., upto 15T & for 20T 6mm sq. Copper cable. Do not forget to connect Earthing.
Now, cautiously operate hoisting push button & observe lower block movement. In case it is coming down then interchange phase sequence.
Recheck the directions cautiously & operation of top & bottom limit switches, adjust limit switches if required.
When everything is set observe movement from top to bottom of lower block without load. Then Lift the load by few cms. & observe that brake is holding the load.
Now operate cross travel motion & fix proper end stoppers on beam so that proper clearance is maintained with motor, gear box & wall. For the CT Limit switch actuation beam / monorail.
Installation of trailing cable/busbar conductor system for power supply during CT motor

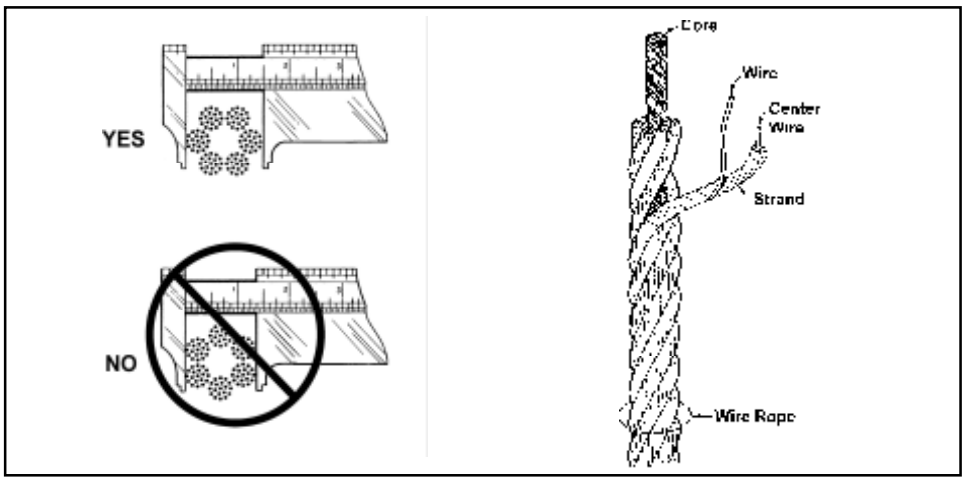
## TROUBLE SHOOTING

| TROUBLE | CAUSE | HOW TO SET RIGHT |
|---|---|---|
| Hoist does not start<br>No contractor operates. | Phase sequence wrong or one phase failed or limit switch operated. | Change to phases of main supply.<br>Check with lamp.<br>Check movement of limit switch levers. |
| Hoist does not start<br>Contractors are working. | Brake not opening or motor defect or overloaded. | Remove brake cover and see movement of brake plate.<br>Check without load |
| Operation interrupted.<br>Chattering of contractors. | Loose connection or wire broken, current collector contact poor. | Tighten all connections.<br>Check wires.<br>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). |

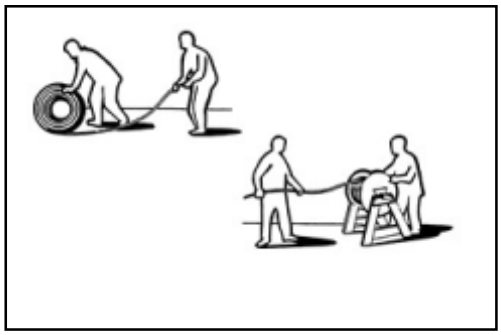
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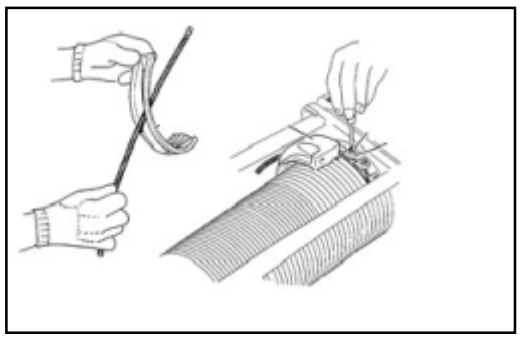
## Wire Rope Installation

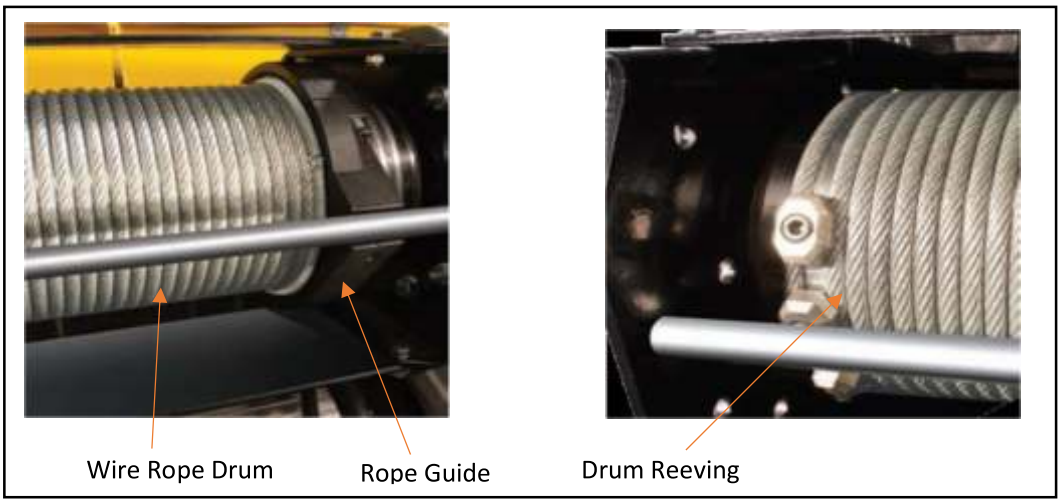
Correct Method of Measuring Rope




Wire Rope Drum, Rope Guide & Drum reeving










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# SAFE OPERATING PROCEDURES FOR OVERHEAD CRANES / HOISTS & SLINGS

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

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## SAFETY RECOMMENDATION

The following safety recommendations represent the accumulated experience of the M/s. Hercules Hoists Ltd. In regard to the most likely cause of personal injury & damage to equipment. Careful compliance with the following recommendations will prevent the majority of common accidents.

1) Before leaving the control station of hoist & crane the following precautions must be observed:
   - Spot the approved location for entering or leaving the hoist & crane.
   - Lower the load the ground.
   - Raise all hooks to the upper limit switch.
   - Place all controls in "off" position.
   - Plaice the main power switch in the off position.
   - Make a visual check for any abnormal or dangerous conditions & report any defect immediately.
   - Outdoor crane must have the brake & anchor set securely so as to prevent movement caused by wind.
   - Crane operators should never leave the crane during the work shift unless it is absolutely necessary. When necessary to leave, notify proper authority & properly secure the crane or Hoist. Never Depend on a holding Brake to suspend a load unless the operator is at controls, alert & in a positing of readiness to handle the load.

2) An operator must not eat, read, sleep, or otherwise divert his attention while operating the hoist. Practical jokes should be absolutely forbidden, & the use of alcohol or other intoxicants must not be tolerated. An operator who is given a prescription drug by a Physician should obtain written assurance that it will not prevent him form operating the crane and hoist in a safe manner, before returning to work.
3) The operator or person in charge should see to that:
   - Loads are well secured before being lifted & slings are adequate & properly arranged for the load.
   - Slings are not kinked & the load is well secured & balanced.
   - All loose items such as tools or chips are removed form both the crane & Hoist before beginning the lift.
   - The load does not come in contact with any obstruction while lifting or traveling.
   - Sudden starts & stops are avoided; bumping into runway stops is prohibited.
   - The hoists line is vertical before the starting the lift, slack in the line is removed slowly, & all workmen are clear before beginning the lift.
   - No crane load, lifting magnet, grapple, or bucket should come near the heads of workman or in any way endanger their safety. Non-operating personnel should be warned, or told to leave the immediate area, when making lifts.
   - No one rides the hook or Bucket. The hoist or cranes is not intended to be used as a passenger elevator.
   - No one rides the crane while it is in operation except with the permission of the operation & in the operators cab.
   - All stop signals are obeyed, regardless of who gives them.
   - Other than emergency, stop signals are to be accepted from only one person at a time, unless special arrangements are made in advance for a specific list.
   - Standards hoist or crane signal are used & loads are not moved unless the standard are clearly given, seen & understood.


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4. The operator should test the holding brake by moved the controller to the OFF position when a load is first lifted, & when the load is only a few inches above its starting position, to assure the ability of brakes to hold the load. If load is held, the brake are operating property. If the brake does not function properly, take maximum control of the hoist motor & lower it slowly to rest. Report the condition to appropriate supervisor immediately & not make any other lifts until the condition has been corrected.

5. Never get on or off a hoist or crane when it is in motion. Never adjust, repair, or lubricate moving machinery.

6. Keep the machine clean & in good working order. Oil or grease can cause serious fails, & dirt in working parts will cause excessive wear & consequent possible failure.

7. Lower the load to the ground before attempting any repairs or adjustments.

8. Always replace all protective guards & panels before operating the crane or hoist.

9. Keep cable in good operating condition, paying particular attention to the following:
   - A kinked cable is no longer safe. When a new cable has been installed, work light loads for a short period of time to allow the cable to adjust itself to work strains.
   - Be careful to install cable clamps correctly.
   - Inspect all cables for kinked or broken wire on a regular basis. Preferably daily.

10 Never exceed the rated capacity of the crane Hoist. Be sure to include the weight of the blocks, hooks, & special handling devices when figuring the total weight of a load, & know you are not exceeding capacity when preparing to lift a load.

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11. Never use a crane for side pulling. It was not designed nor intended for such use. This practice may cause electrical as well as Mechanical damage & will endanger personnel.
12. If a rope has been allowed to become slack, make sure that the rope is properly seated on the drum & in the shelves before a load is lifted.
13. Never lower the block to a position where less than two full wraps remain on the drum. If all cable is removed from the drums, be sure it is rewound in correct direction to prevent cable damage & to ensure correct operation of the hoist limit switches.
14. Never block out safety devices, such as limit switches, in order to allow operation of the crane or hoist in a manner not intended by the Manufacturer.
15. Do not lift loads with excess sling Hooks hanging loose. This is very dangerous condition. Never allow excess chain, hook, cable, sling, or any similar device to be suspended beneath the hoist or crane.
16. If electrical Power fails, place all controllers in the OFF position & keep them there until power is restored. This will prevent sudden & unexpected movement when power is restored.
17. Never remove a DO NOT OPERATE card from control without checking to see that it is safe to do so even if you have placed the card yourself. Someone else may be depending on that card to prevent the CRANE or HOIST form being operated.
18. Use fuses of specified size. Blown fuses are both a sign of trouble & the main protection afforded the electrical system.
19. Never contact another hoist or crane on the same runway if it is possible to avoid so doing. When this must be done, check first to see that all concerned are aware that it will be done & that they are properly warned. Then contact the hoist or crane to be pushed at the slowest possible speed & push it at very slow speed. Never move or bump a crane or hoist that has a warning flag or sign displayed.
20. While inspecting, repairing, cleaning lubricating, or maintaining a carne or Hoist, a warning flag should be locked in the OFF position. When someone other than the operator is doing the work, the operator must remain at controls, alert for possible danger to the work man, unless specifically informed to the contrary by his supervisor.
21. In handling molten metal or other similarly hazardous material, the most rigid inspections of all load bearing items are required. Written records of the inspections required, showing date, name of inspector, & inspections performed are absolute essential to safe operation. The latest test methods, including Magna flux, D-Ray, Ultra sound device, & the various dye checks should be used to insure the safety of cranes & Hoists.
22. All overhead Cab operated Cranes or hoist must be equipped with warning bell or siren, which should be sounded when the crane is going to the moved & at any other time that safety requires.
23. Whenever the hoist is being serviced, repaired, lubricated or otherwise maintained, it must be moved to a position over an area where no one will be endangered by filling material. If this is not possible, the area beneath the crane or hoist must be roped off & personnel must be warned of reason for the precaution if possible.


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24. Repairs & adjustment should be made only by properly designated & authorized personnel. When a hoist is bring repaired the maintenance man assigned is in charge of all phases of all phases of crane movement & operation, & his instructions should ordinarily be obeyed without question. Only if his instructions are contrary to safe operating practices should be operator question then. Under these circumstances, the maintenance supervisor should be contacted at once for a decision.

25. Limit switches are Safety Devices, not operating Control. Never actuate them unnecessarily during normal crane or hoist operation, Following Procedure should be used when checking limit switch:

- Always move the crane to an open area, away from personnel & equipment's.
- Be sure no load is on the hoist lines.
- Slowly run the hook block up to about three (3) feet below the limit switch trip mechanism & stop the hoist motion.
- Proceed to raise the hook block slowly.
- If the limit switch dose not operate at the point at which it should, lower the hook block out of contact with the limit switch trip mechanism & notify proper supervisory authority at once.
- Similar procedure should be adopted for other limit switch testing as well.

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## RECOMMENDED INSPECTION AND MAINTENANCE SCHEDULE

| TIME INTERVAL | INSPECTION OR MAINTENANCE |
|---|---|
| **Daily or start of each shift (visual)** | ■ Check operation of all functional mechanisms including limit switch operation, brakes and control. Report any defect found to properly authorized supervisor & notify the next operator of the defects at the change of the shift.<br>■ Visually inspect each component of the crane normally used in lifting the load, traveling or lowering the load. This inspection should include, but not be limited to, the items as follow :<br>a. Wire Rope: Inspect for kinks or broken wire or evidence of improper spooling on drum & replace seriously damaged ropes immediately.<br>b. A functional operating mechanisms such as sheaves, drums & brakes.<br>c. Visually inspect entire crane for the sings of damage which might cause unsafe immediately.<br>d. All limit switches of hoisting, Lowering, Cross Travel or swiveling.<br>e. Inspect hooks, lower blocks, and all load bearing components for damage. |
| **1 - 3 Months** | ■ The result of monthly inspection should be carefully recorded in the suitable log book, in full details, & should be details, & should be dated signed by the inspector.<br>■ The purpose of the monthly inspection is to find & correct any wear, damage, or defect, which should affect the safe operation of the machine. This should include the items listed under the daily inspection as well as the following:<br>Inspect the Electrical Controls.<br>a. Check hoist gearbox oil level.<br>b. Inspect the entire crane or hoist for structural damages.<br>c. Inspect for cracked or worn sheave, drums, wheels, rails.<br>d. Inspect for worn, cracked or distorted components such as pins, bearing, shaft & gears.<br>e. The current collector system should be thoroughly checked & maintained. The contact tips & case of DSL systems should be checked & |


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## RECOMMENDED INSPECTION AND MAINTENANCE SCHEDULE

| TIME INTERVAL | INSPECTION OR MAINTENANCE |
|---|---|
| | f.Inspect for excessive wear on brake system parts, linings, pawls, & ratchets. Be sure pawls & ratchets operate correctly, are in good condition & are properly lubricated. Check the conditions of the fire extinguisher, if furnished.<br>g.Inspect all motors, controls, & conductor systems which might in any way affect the safety of the machine.<br>h.Entire crane or hoist structure, especially surrounding the drive should be thoroughly cleaned. |
| **6 Months** | ■Lower Block<br>■Rope Guide<br>■Lubricate hoist wire rope, Lower block, outboard bearing cartridge at grease fitting. |
| **ANNUALLY** | At least annually, the crane hook should be inspected for check by magnetic particle or other suitable crack testing inspection method, to determine that no cracks are discernible. A 15% increase in the throat measurement of hook or a 10% bend in the hook shall be considered cause for replacement. |

The above visual & operational checks will take only a few minutes at the beginning of each shift, & are absolutely necessary to ensure safe operation.

*** Complete inspection, disassembly and maintenance required. It is recommended that your HERCULES HOISTS LIMITED repair Station be contacted for this service.**

**INSPECTION WHEN REQUIRED :**

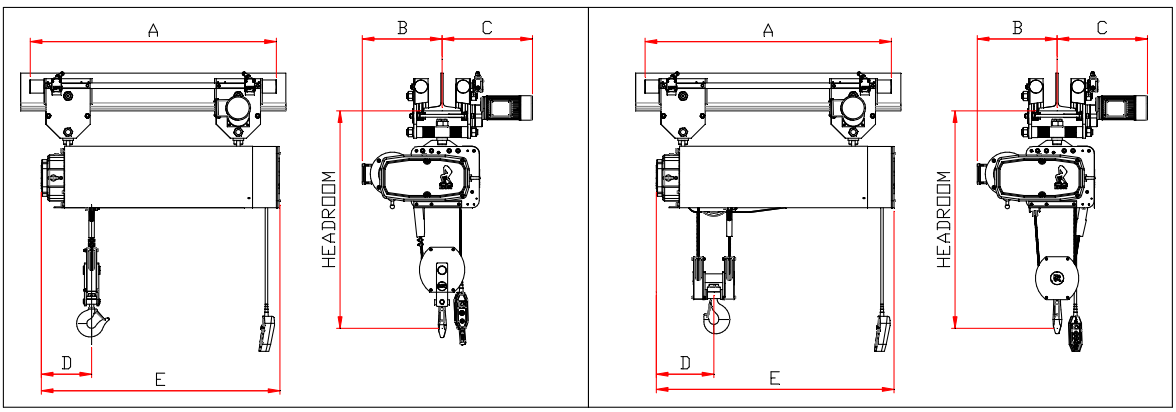
The third type of inspection concerns individual incidents which apply sudden & unusual stress, or possible damage due to any cause. All such incidents which might affect the safe operation of crane should be followed by an immediate & thorough inspection of the crane, using all necessary non-destructive test methods. All repairs found necessary should be made before the machine is returned to service.

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Note :- Due to continuous development and improvement specification listed above may be changed without notice

## TECHNICAL INFORMATION

**iR - 010 - 21 - 06 - BT - ST**

- **iR Model**
- **Capacity**
  - 010 - 1T
  - 020 - 2T
  - 016 - 1.6T
  - 032 - 3.2T
  - 040 - 4T
  - 025 - 2.5T
  - 050 - 5T
  - 100 - 10T
  - 063 - 6.3T
  - 125 - 12.5T
  - 075 - 7.5T
  - 150 - 15T
  - 200 - 20T
- **Falls**
  - 21- 2 Fall
  - 41- 4 Fall
- **LIFT**
  - 06 - 6 MTRS
  - 09 - 9 MTRS
  - 12 - 12 MTRS
  - 15 - 15 MTRS
  - 18 - 18 MTRS
  - 21 - 21 MTRS
  - 24 - 24 MTRS
- **Type**
  - BT - BOOGIE TROLLEY
  - FS - FOOT MOUNTED
  - SH - SHORT HEADROOM
- ST - STANDARD EXECUTION
  NS - NON STANDARD






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# TECHNICAL INFORMATION

| Hoist Model | Capacity | Design Duty Class | Reeving | Lifting Speed | Hoist Motor | Head Room | Rope Dia. | Monorail Beam | | Cross Travel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ton | FEM | No. of Falls | MPM | kW | mm | mm | Width Range mm | Thickness mm | Kw | MPM | Wheel Dia mm | No of wheels |
| | | | | | | | | | | KW x number of motor | | | |
| **IR-010-21-BT** | 1 | 2 m | 2 | 6 | 1.3 | 1150 | 8 | 90-180 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-020-41-BT** | 2 | 2 m | 4 | 3.0MPM - Upto 15M HOL<br>3.3MPM - Above 15M HOL | 1.3 | 1150 | 8 | 90-180 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-016-21-BT** | 1.6 | 2 m | 2 | 7 | 2.5 | 1250 | 8 | 90-180 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-032-41-BT** | 3.2 | 2 m | 4 | 3.5MPM - Upto 15M HOL<br>4.0MPM - Above 15M HOL | 2.5 | 1150 | 8 | 90-180 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-020-21-BT** | 2 | 2 m | 2 | 6 | 2.5 | 1250 | 10 | 90-180 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-040-41-BT** | 4 | 2 m | 4 | 3.0MPM - Upto 15M HOL<br>3.3MPM - Above 15M HOL | 2.5 | 1150 | 10 | 90-180 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-025-21-BT** | 2.5 | 2 m | 2 | 8 | 4.1 | 1350 | 10 | 125-210 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-050-41-BT** | 5 | 2 m | 4 | 4 | 4.1 | 1250 | 10 | 125-210 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-050-21-BT** | 5 | 2 m | 2 | 8 | 8.1 | 1750 | 13 | 125-210 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-100-41-BT** | 10 | 2 m | 4 | 4 | 8.1 | 1650 | 13 | 125-210 | 20 | 0.37 x 2 | 17 | 140 | 4 |
| **IR-063-21-BT** | 6.3 | 2 m | 2 | 8 | 10.5 | 1750 | 13 | 125-210 | 20 | 0.37 x 1 | 17 | 140 | 4 |
| **IR-125-41-BT** | 12.5 | 2 m | 4 | 4 | 10.5 | 1650 | 13 | 125-210 | 20 | 0.55 x 2 | 17 | 140 | 8 |
| **IR-075-21-BT** | 7.5 | 2 m | 2 | 7 | 10.5 | 2000 | 16 | 125-210 | 25 | 0.37 x 2 | 17 | 140 | 4 |
| **IR-150-41-BT** | 15 | 2 m | 4 | 3.5 | 10.5 | 2000 | 16 | 125-210 | 25 | 0.55 x 2 | 17 | 140 | 8 |
| **IR-100-21-BT** | 10 | 2 m | 2 | 7 | 14 | 2000 | 16 | 125-210 | 25 | 0.37 x 2 | 17 | 140 | 4 |
| **IR-200-41-BT** | 20 | 2 m | 4 | 3.5 | 14 | 2000 | 16 | 125-210 | 25 | 0.55 x 2 | 17 | 140 | 8 |

| Typical GA Dimensions | | | | | | | | | | | | | | | | | Approx. Weight, Kg | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lift 6 m | | Lift 9 m | | Lift 12 m | | Lift 15 m | | Lift 18 m | | Lift 21 m | | Lift 24 m | | | | | Lift 6 m | Lift 9 m | Lift 12 m | Lift 15 m | Lift 18 m | Lift 21 m | Lift 24 m |
| A | E | A | E | A | E | A | E | A | E | A | E | A | E | B | C | D | | | | | | | |
| 925 | 880 | 1075 | 1030 | 1210 | 1170 | 1365 | 1320 | 1505 | 1460 | 1665 | 1620 | 1805 | 1760 | 460 | 505-550 | 290 | 300 | 320 | 340 | 355 | 370 | 390 | 410 |
| 1215 | 1170 | 1505 | 1460 | 1805 | 1760 | 2115 | 2070 | 2035 | 1990 | 2255 | 2210 | 2485 | 2440 | 460 | 505-550 | 330 | 365 | 390 | 410 | 425 | 440 | 460 | 485 |
| 905 | 850 | 1025 | 980 | 1175 | 1130 | 1275 | 1230 | 1405 | 1360 | 1535 | 1490 | 1665 | 1620 | 460 | 505-550 | 290 | 300 | 320 | 340 | 355 | 370 | 390 | 410 |
| 1175 | 1130 | 1405 | 1360 | 1665 | 1620 | 2115 | 2070 | 2035 | 1990 | 2255 | 2210 | 2485 | 2440 | 460 | 505-550 | 330 | 365 | 390 | 410 | 425 | 440 | 460 | 485 |
| 925 | 880 | 1075 | 1030 | 1210 | 1170 | 1365 | 1320 | 1505 | 1460 | 1665 | 1620 | 1805 | 1760 | 460 | 505-550 | 290 | 340 | 360 | 385 | 400 | 415 | 435 | 455 |
| 1215 | 1170 | 1505 | 1460 | 1805 | 1760 | 2115 | 2070 | 2205 | 2160 | 2460 | 2415 | 2715 | 2670 | 460 | 505-550 | 330 | 370 | 395 | 415 | 430 | 445 | 465 | 490 |
| 895 | 875 | 1025 | 1005 | 1175 | 1155 | 1275 | 1255 | 1405 | 1385 | 1535 | 1515 | 1665 | 1645 | 475 | 525-570 | 270 | 340 | 360 | 385 | 400 | 415 | 435 | 455 |
| 1175 | 1155 | 1405 | 1385 | 1665 | 1645 | 1925 | 1905 | 2185 | 2165 | 2440 | 2420 | 2695 | 2675 | 475 | 525-570 | 350 | 405 | 435 | 455 | 475 | 490 | 410 | 535 |
| 1205 | 1240 | 1205 | 1240 | 1315 | 1350 | 1415 | 1450 | 1525 | 1570 | 1625 | 1660 | 1735 | 1770 | 550 | 535-580 | 440 | 420 | 445 | 460 | 480 | 500 | 520 | 540 |
| 1315 | 1350 | 1525 | 1560 | 1735 | 1770 | 1945 | 1980 | 2155 | 2180 | 2365 | 2400 | 2575 | 2610 | 550 | 535-580 | 550 | 510 | 550 | 570 | 595 | 620 | 650 | 675 |
| 1205 | 1240 | 1205 | 1240 | 1315 | 1350 | 1415 | 1450 | 1525 | 1570 | 1625 | 1660 | 1735 | 1770 | 550 | 535-580 | 440 | 610 | 650 | 665 | 685 | 710 | 740 | 780 |
| 1315 | 1350 | 1525 | 1560 | 1735 | 1770 | 1945 | 1980 | 2155 | 2180 | 2365 | 2400 | 2575 | 2610 | 550 | 535-580 | 550 | 810 | 850 | 910 | 975 | 1010 | 1080 | 1115 |
| 1370 | 1275 | 1370 | 1275 | 1480 | 1385 | 1555 | 1460 | 1680 | 1585 | 1755 | 1660 | 1880 | 1785 | 600 | 535-580 | 500 | 620 | 665 | 675 | 695 | 725 | 755 | 795 |
| 1480 | 1385 | 1680 | 1585 | 1880 | 1785 | 2080 | 1985 | 2280 | 2185 | 2480 | 2385 | 2680 | 2585 | 600 | 535-550 | 550 | 840 | 870 | 925 | 995 | 1060 | 1100 | 1180 |
| 1370 | 1275 | 1370 | 1275 | 1480 | 1385 | 1555 | 1460 | 1680 | 1585 | 1755 | 1660 | 1880 | 1785 | 600 | 535-580 | 500 | 635 | 685 | 700 | 720 | 755 | 780 | 830 |
| 1480 | 1385 | 1680 | 1585 | 1880 | 1785 | 2080 | 1985 | 2280 | 2185 | 2480 | 2385 | 2680 | 2585 | 600 | 535-550 | 550 | 865 | 885 | 950 | 1050 | 1100 | 1190 | 1250 |

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**BOGGIE TROLLEY**



**FOOT MOUNTED**



**SHORT HEADROOM**

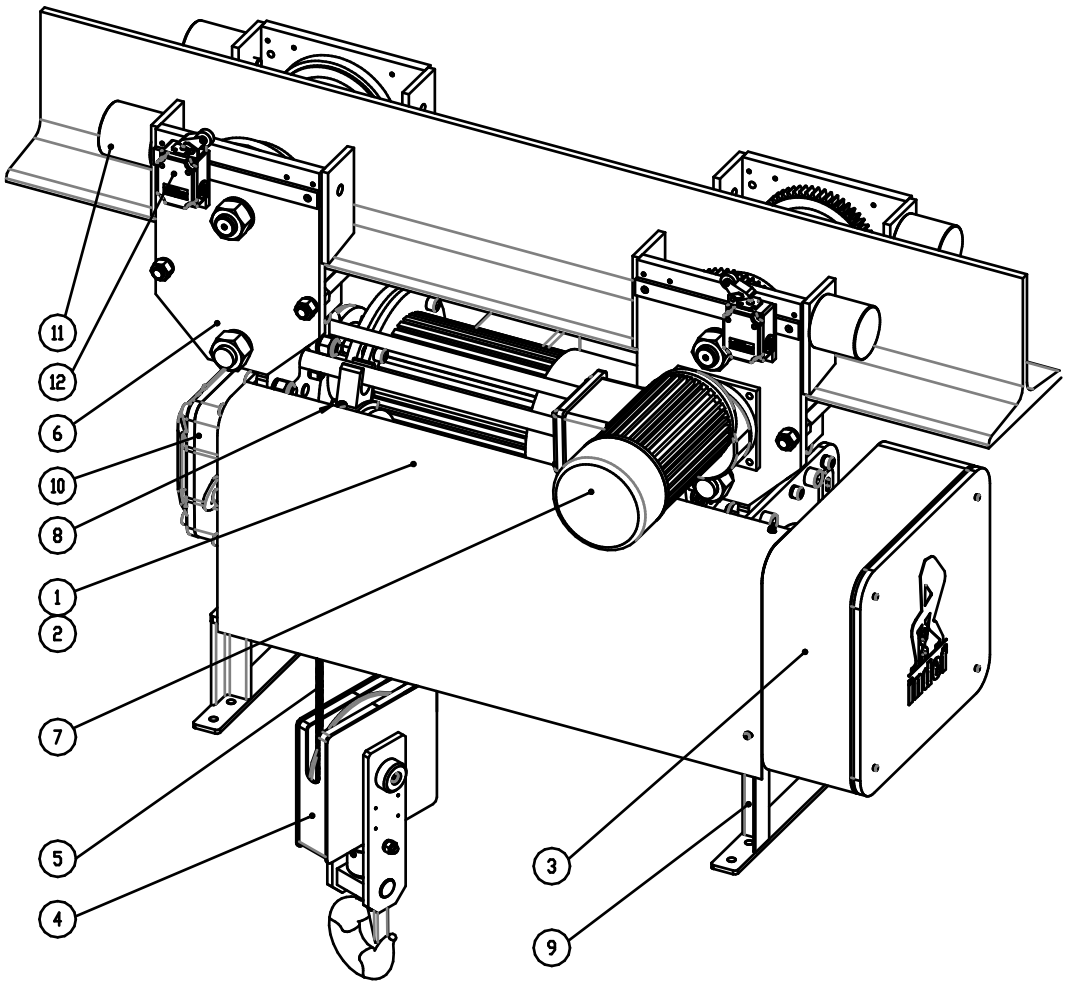




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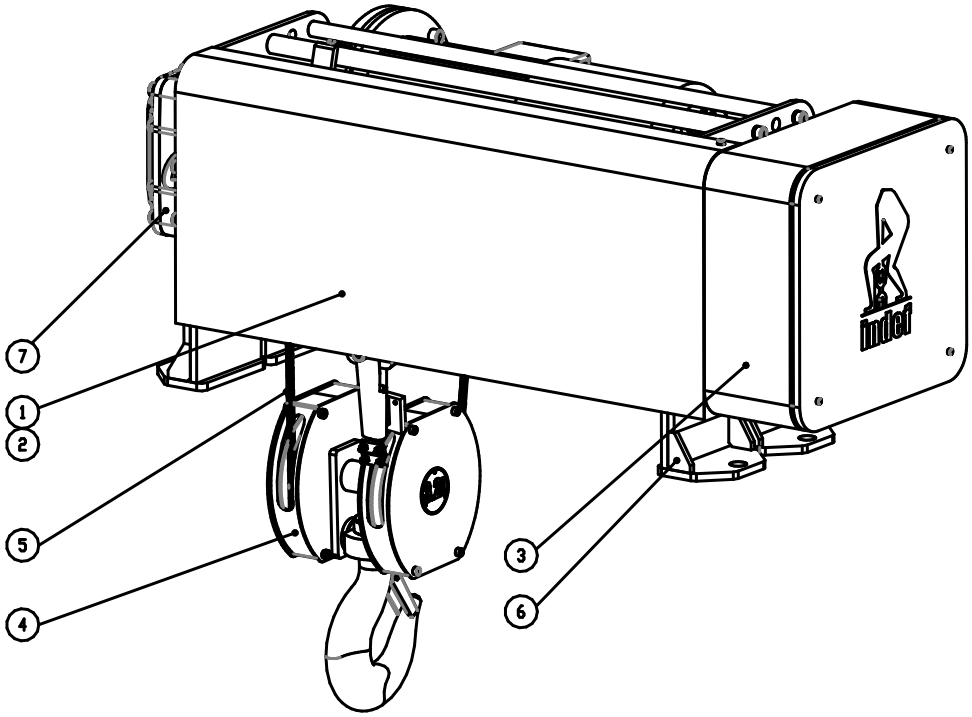
## HOIST ASSEMBLY




| PART NO. | DESCRIPTION |
|---|---|
| 1 | MAINS ASSEMBLY |
| 2 | ROPE INSERTION GROUP |
| 3 | CONTROL PANEL |
| 4 | LOWER BLOCK |
| 5 | WIRE ROPE |
| 6 | BOGGIE ET |
| 7 | TROLLEY MOTOR |
| 8 | UP/DOWN LIMIT SWITCH |
| 9 | PACKING STAND |
| 10 | HOIST GEAR BOX |
| 11 | RUBBER BUFFER |
| 12 | TROLLEY LIMIT SWITCH |

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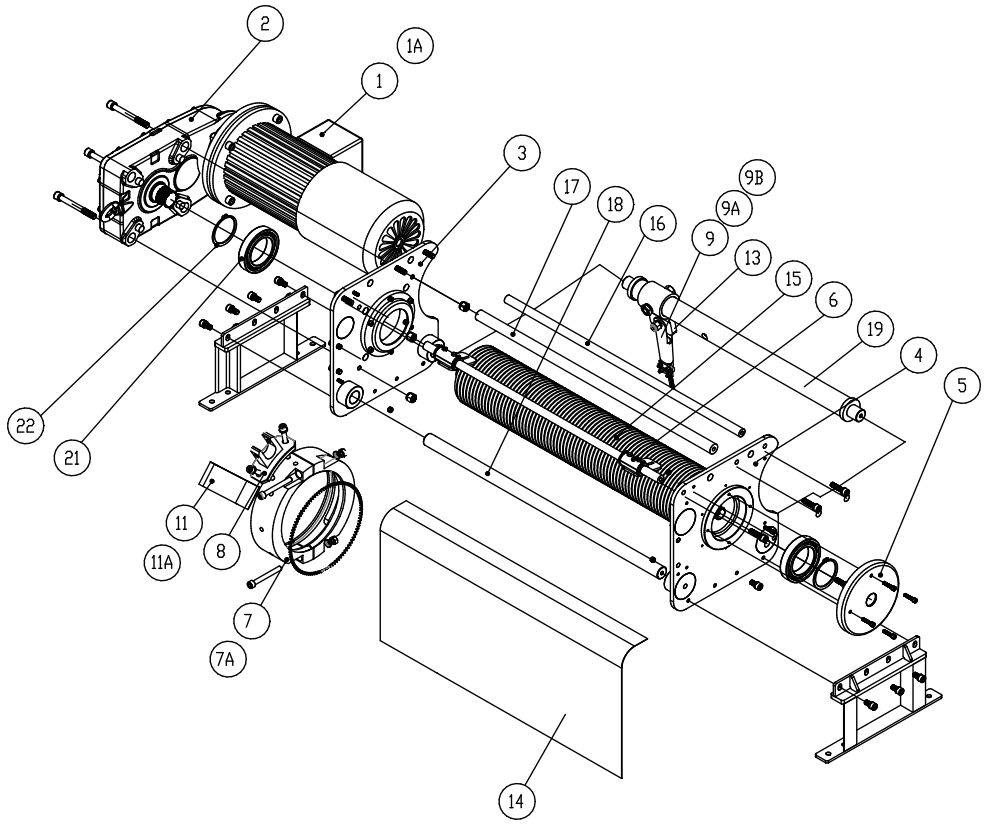
## FOOT MOUNTED HOIST ASSEMBLY



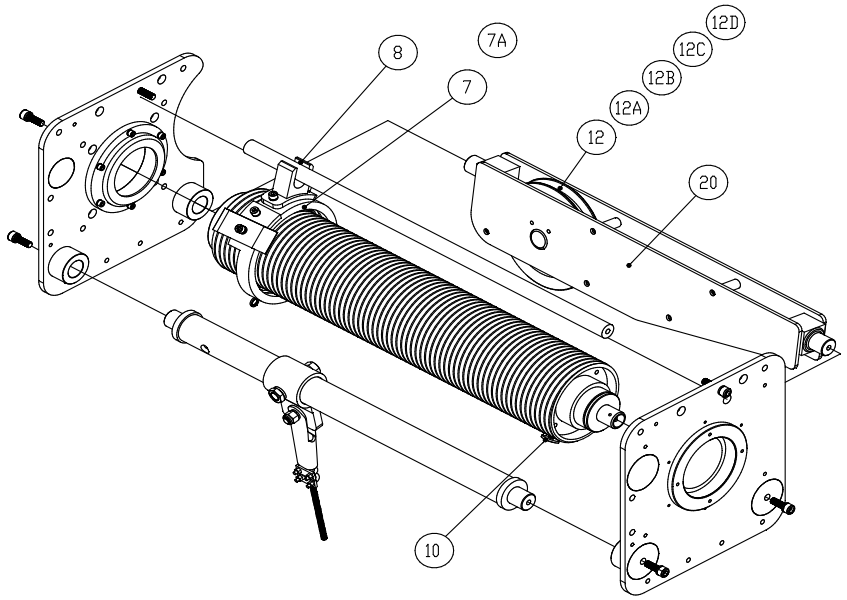

| PART NO. | DESCRIPTION |
|---|---|
| 1 | MAINS ASSEMBLY |
| 2 | ROPE INSERTION GROUP |
| 3 | CONTROL PANEL |
| 4 | LOWER BLOCK |
| 5 | WIRE ROPE |
| 6 | PACKING STAND |
| 7 | HOIST GEAR BOX |


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## MAINS SPARE PART LIST – 2 FALL




## MAINS SPARE PART LIST – 4 FALL




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Note :- Due to continuous development and improvement specification listed above may be changed without notice

| SR. NO. | DESCRIPTION | QTY | iR-010-21 iR-020-41 | iR-020-21 iR-040-41 | iR-016-21 iR-032-41 | iR-025-21 iR-050-41 | iR-050-21 iR-100-41 | iR-063-21 iR-125-41 | iR-075-21 iR-150-41 | iR-100-21 iR-200-41 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | HOIST MOTOR | 1 | XMRB175000MEG | XMRB176000MEG | XMRB176000MEG | XMRB177000MEG | XMRB178000MEG | XMRB179000MEG | XMRB179000MEG | XMRB180000MEG |
| 1A | HOIST BRAKE | 1 | XBAP2040SYT | XBAP2010SYT | XBAP2010SYT | XBAP2020SYT | XBDS2240ELA | XBDS2180ELA | XBDS2180ELA | XBDS2180ELA |
| 2 | HOIST GEAR BOX | 1 | GBM013055TGL | GBM025055TGL | GBM025045TGL | GBM041048TGL | GBM081076TGL | GBM105076TGL | GBM140110TGL | |
| 3 | SHOULDER PLATE GEAR BOX SIDE | 1 | HNCA133510AA | | | | HPCA133510AA | | HKCA133510A | |
| 4 | SHOULDER PLATE RLS SIDE | 1 | HNCA133610AA | | | | HPCA133610AA | | HKCA133610A | |
| 5 | BEARING CAP ON SHOULDER | 4 | HGCA833116A | | | HHCA833116A | HCCA833116A | | UKCA833116A | |
| 6 | LIMIT SWITCH MOUNTING BRACKET | 2 | HHCA133651A | | | HHCA133651A | HPCA133751A | | HKCA133651A | |
| 7 | ROPE GUIDE RING | 1 | HNCA013201B | HNCA013201B | UPCA013200B | UQCA013200B | HPCA013200B | | HKCA013200B | |
| 7A | TENSION SPRING | 1 | PFCY243831A | | | PNCY243831A | URCA243033A | | UDCA243034A | |
| 8 | ROPE GUIDE RING GUIDE | 1 | HGCA133201A | | | UQCA133201A | HPCA133201A | | HKCA133201A | |
| 9 | WIRE ROPE SUSPENSION | 1 | UACA133861A | UBCA133861A | UACA133861A | UBCA133861A | UCCA133761A | | UDCA133761A | |
| 9A | SUSPENSION KEY | 1 | UACA863762B | UBCA013762A | UACA863762B | UBCA013762A | UCCA013762A | | UDCA013762A | |
| 9B | BULL DOG GRIP | 2 | BDG080000000 | BDG100000000 | BDG080000000 | BDG100000000 | BDG140000000 | | BDG180000000 | |
| 10 | ROPE CLAMP | 2 | PNCY133014A | | PECA133014A | UBCA863170A | UCCA863170A | | ZICB863170A | |
| 11 | ROPE GUIDE RING JOINING BRACKET | 2 | HNCY862841A | | PFCY862841A | -- | -- | -- | -- | -- |
| 11A | ACTUATOR FOR UP/DOWN LIMIT SWITCH | 1 | HHCA133752A | | | HHCA133652A | HCCA133652A | | HKCA133652A | |
| 12 | GUIDE PULLEY (FOR 4 FALL) | 1 | UACK013026B | UACK013026B | UACK013026B | UBCK013026B | UCCK013026B | | UDCK013026A | |
| 12A | GUIDE PULLEY AXLE (FOR 4 FALL) | 1 | UACK823027B | UACK823027B | UACK823027B | UBCK823027B | HCCK823027A | | UCCK823027B | |
| 12B | LOCKING PLATE (FOR 4 FALL) | 1 | UACK653029A | UACK653029A | UACK653029A | UBCK653029A | UBCK653029A | | UBCK653029A | |
| 12C | BALL BEARING | 2 | BBR06207ZZ00 | | | | BBR06212ZZ00 | | BBR060320000 | |
| 12D | INTERNAL CIRCLIP | 1 | INCRB0720000 | | | | INCRB1100000 | | INCRB1500000 | |
| 13 | LIMITER SUSPENSION BOLT | 1 | UBCA693580A | | | UBCA693380A | HCCA693038A | | UDCA693380A | |
| 14 | HOIST COVER | 1 | HN*A113001A | | HG*A113002A | HH*A113002A | HP*A113002AA | | HK*A113002A | |
| 15 | ROPE DRUM | 1 | HN*A133001B | | HG*A133001B | UQ*A133001B | HP*A133001A | | HK*A133001A | |
| 16 | CONNECTING ROD | 2 | HN*A832034A | | UQ*A832034A | UQ*A832034A | HP*A832034A | | HK*A832034A | |
| 17 | SLIDING ROD FOR ROPE GUIDE RING | 2 | HN*A832124A | | UQ*A832124A | UQ*A832124A | | | | |
| 18 | SUSPENSION TIE ROD (2 FALL) | 1 | HN*A832224A | | HH*A832124A | | HCBA832124A | | HK*A832124A | |
| 19 | ROPE SUSPENSION BRACKET | 1 | HN*A133350A | | HG*A133350A | HH*A133350A | HP*A133350AA | | HK*A133350A | |
| 20 | PULLEY SUSPENSION BRACKET (4 FALL) | 1 | HN*A133250A | | HG*A133250A | HH*A133250A | HP*A133250AA | | HK*A133250A | |
| 21 | BALL BEARING | 2 | BBR06014ZZOU | | | | BBR06024RSOU | | BBR06314ZZ00 | |
| 22 | EXTERNAL CIRCLIP | 2 | EXCRA0700000 | | | | EXCRA1200000 | | EXCRA1600000 | |
| | WIRE ROPE | | WRS008060360 | WRS01006K36P | WRS00806K26P | WRS01006K36P | WRS01306K36P | | WRS016035070 | |
| **Please refer for Motor Part Code '*' Details (BBL, IND)** | | | | | | | | | | |



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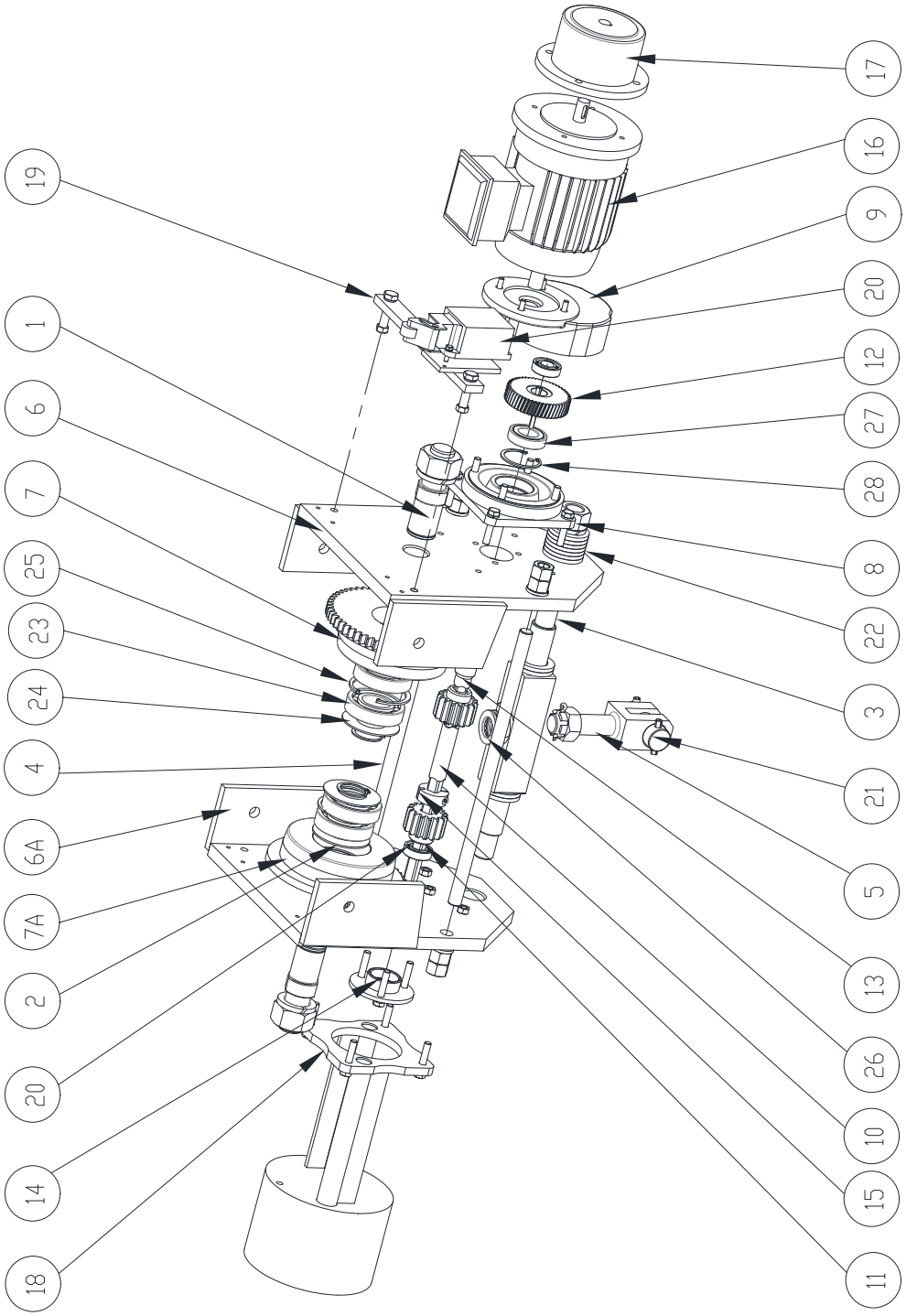
**Please refer table for Part Code '*' Details**

| 2 FALL LIFT | 4 FALL LIFT | PART CODE '*' |
|---|---|---|
| 6 | | A |
| 9 | | C |
| 12 | 6 | B |
| 15 | | K |
| 18 | 9 | D |
| 21 | | L |
| 24 | 12 | E |
| | 15 | F |
| | 18 | G |
| | 21 | H |
| | 24 | I |

**For example :- 2 Fall 6 Mtr. iR-010-21 Rope Drum code – HNAA133001B.**

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## TROLLEY SPARE PART LIST





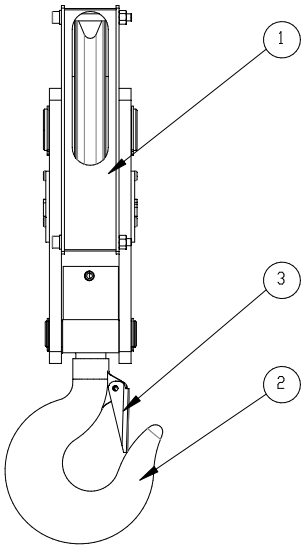

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| PART NO | DESCRiPTiON | QTY | iR-010-21 / iR-020-21<br>iR-016-21 / iR-020-41 | iR-032-41 / iR-040-41<br>iR-050-41 | iR-025-21 | iR-050-21<br>iR-063-21 | iR-100-41 / iR-125-41<br>iR-075-21 / iR-150-41 | iR-100-21<br>iR-200-41 |
|---|---|---|---|---|---|---|---|---|
| 1 | WHEEL AXLE | 2 | PACG823015B | PBCF823015B | PACG823015B | PCCF823015B | UDCA823015A | HKCA823015A |
| 2 | BEARING COVER | 4 | TQCM113022A | PBCF113016A | TQCM113022A | PCCF113016A | U1CF113016AD | PCCF113016A |
| 3 | LOAD AXLE | 2 | PACN843064A | PBCN053064A | PACN843064A | PBCN053064A | UPCA053064A | HKCA053064A |
| 4 | DISTANCE BOLT | 4 | PCCF833027A | | | | HCCA832040A<br>PCCF833027A | U1CF833027AD |
| 5 | TROLLEY SUSPENSION | 1 | HGCA133260A | HGCA133160A | HGCA133060A | HPCA133060A | UPC2822677A | UDC6823061A |
| 6 | GEARED SIDE PLATE | 2 | HBCA133011A | PBCF133001B | PACF053011B | PCCF133001B | HPCA133011A | HKCA133011A |
| 6A | PLAIN SIDE PLATE | 2 | HBCA133012A | PBCF133010B | PACF053012B | PCCF133010B | - | HKCA133012A |
| 7 | GEARED WHEEL | 2 | PACG013013A | PBCG013013A | PACG013013A | PCCF013013A | UDCA083232AD | PCCF013013A |
| 7A | PLAIN WHEEL | 2 | PACG013014A | PBCG013014A | PACG013014A | PCCF013014A | - | PCCF013014A |
| 8 | GEAR BOX COVER | 1 | PACF013028B | | | PACF013028B | | |
| 9 | GEAR BOX HOUSING | 1 | PACF023029B | | | PACF023029B | | |
| 10 | PINION SHAFT | 1 | PBCF823018C | | | PBCF823018C | | |
| 11 | WHEEL PINION | 2 | PACF823017C | | | PACF823017C | U1CF823017A | EDCF813017C |
| 12 | GEAR WHEEL | 1 | PACF813031B | | | PACF813031B | | |
| 13 | DRIVE SHAFT | 1 | PACF813022C | | | PACF813022C | | |
| 14 | BEARING HOUSING | 1 | PACF833021B | | | PACF833021B | | |
| 15 | CLAMPING WASHER | 1 | PACF833020B | | | PACF833020B | | |
| 16 | TROLLEY MOTOR | 1 | XMRP026000* | XMRP028000* | XMRP026000* | XMRP028000* | XMRP030000* / XMRP028000* | |
| 17 | TROLLEY BRAKE | 1 | XBAP0060SYT | | | | | |
| 18 | COUNTER WEIGHT | 1 | PNC4133069A | | | | | |
| 19 | LIMIT SWITCH MOUNTING BRACKET RH | 1 | PACF133650A | | | | | |
| 19 | LIMIT SWITCH MOUNTING BRACKET LH | 1 | PACF133651A | | | | | |
| 20 | LIMIT SWITCH | 2 | XLSP0090SLZ | | | | | |
| 21 | SUSPENSION PIN | 4 | PGCF823611B | PGCF823612B | PGCF823611B | PGCF823612B | | CNM048050000 |
| 22 | SPACER | | PACF113023A | | | | UDCX833251A | UDCX833251A |
| 23 | BALL BEARING | 4 | BBR062070000 | BBR063070000 | BBR06003ZZ00 | | BBR0631100000 | BBR06309ZZ00 |
| 24 | EXTERNAL CIRCLIP | 2 | EXCRA0350000 | | | | EXCRA0550000 | EXCRA0450000 |
| 25 | INTERNAL CIRCLIP | 2 | INCRB0720000 | INCRB0800000 | | | INCRB1200000 | INCRB1000000 |
| 26 | TAPER ROLLER BEARING | 1 | BTB511050000 | BBR06003ZZ00 | BTB511080000 | | BTB512120000 | |
| 27 | BALL BEARING | 1 | BBR060050000 | | | | | BBR06005ZZ00 |
| 28 | INTERNAL CIRCLIP | 1 | INCRB0470000 | | | | | |
| **Please refer for Motor Part Code '*' Details (REM/IND/ELE)** | | | | | | | | |

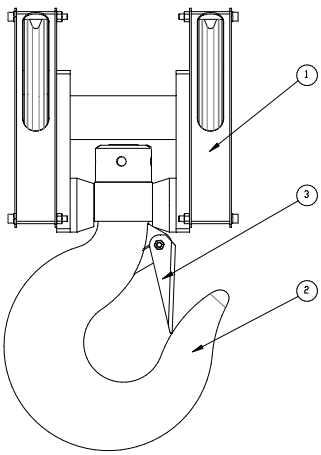
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## LOWER BLOCK



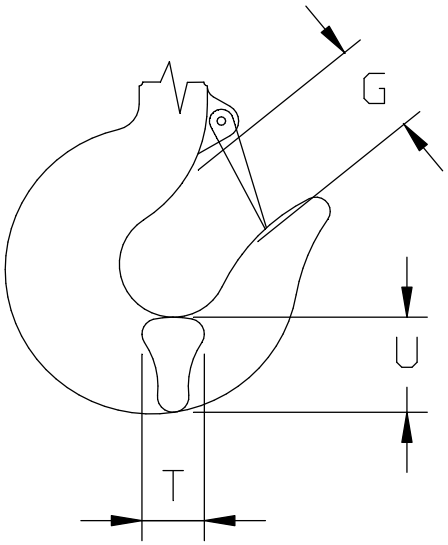

| LOWER BLOCK - 2 FALL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PART NO | DESCRIPTION | QTY | iR-010-21 | iR-020-21 | iR-016-21 | iR-025-21 | iR-050-21 / iR-063-21 | iR-075-21 / iR-100-21 |
| 1 | LOWER BLOCK ASSLY | | 0380601P | 0370601P | 1460602P | 1470606P | 1480601P / 7060602P | 1490604P |
| 2 | HOOK | 1 | PACJ073017A | PZCK073017A | PNCJ073017A | CBAT071343A | CCBU073078A | CCEU073233A |
| 3 | HOOK LATCH | 1 | CAAS113321A | CABS113353A | CABS113353A | | | |




| LOWER BLOCK - 4 FALL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PART NO | DESCRIPTION | QTY | iR-020-41 | iR-040-41 | iR-032-41 | iR-050-41 | iR-100-41 / iR-125-41 | iR-150-41 / iR-200-41 |
| 1 | LOWER BLOCK ASSLY | | 1460608P | 1460637P | 1460601P | 1470604P | 1480606P/ 1490603P | 1490515P / 1490615P |
| 2 | HOOK | 1 | UACA073017A | UACK073117A | UACK073017A | UBCK073017A | UCCK073017A/ CCFU073016A | CCFU073016A |
| 3 | SAFETY LATCH | 1 | CBAS113420A | | | | PCCX113031A/ CCFS243033A | |


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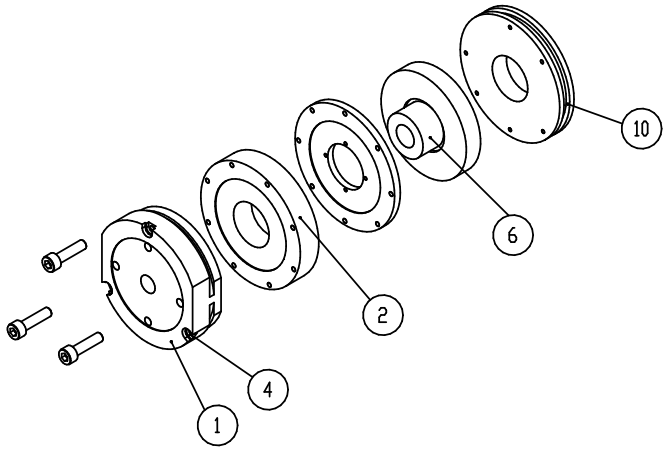
## BOTTOM HOOK DIMENSIONS

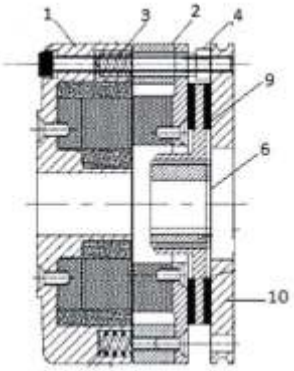



| MODEL | DIMN. 'G' (MM) | DIMN. 'U' (MM) | DIMN. 'T ' (MM) |
|---|---|---|---|
| IR-010-21 | 31.5 | 30.7 | 20 |
| IR-020-41 | 47.5 | 40 | 25.7 |
| IR-016-21 | 47.5 | 40 | 25.7 |
| IR-032-41 | 42.5 | 47.5 | 30.7 |
| IR-020-21 | 42.5 | 47.5 | 30.7 |
| IR-040-41 | 40.6 | 60.2 | 40.6 |
| IR-025-21 | 42.5 | 47.5 | 30.7 |
| IR-050-41 | 35 | 56 | 35.5 |
| IR-050-21 | 75 | 80 | 50 |
| IR-100-41 | 95 | 100 | 63 |
| IR-063-21 | 35 | 56 | 35.5 |
| IR-125-41 | 95 | 100 | 63 |
| IR-075-21 | 57 | 80 | 50 |
| IR-150-41 | 95 | 100 | 63 |
| IR-100-21 | 57 | 80 | 50 |
| IR-200-41 | 95 | 100 | 63 |

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Note :- Due to continuous development and improvement specification listed above may be changed without notice

## HOIST & TROLLEY BRAKE SPARE PART LIST




| PART NO. | DESCRIPTION | TROLLEY BRAKE | HOIST BRAKE | | |
|---|---|---|---|---|---|
| | | iR-010-21 TO iR-200-41 | iR-010-21, iR-040-41, iR-016-21, iR-032-41, iR-020-21, iR-040-41, iR-025-21, iR-050-41 | | |
| | MAIN BRAKE | XBAP0060SYT | XBAP2040SYT | XBAP2010SYT | XBAP2240SYT |
| 1 | STATOR | XBAP01610SSYT | XBAP01620SSYT | XBAP04322SSYT | XBAP02370SSYT |
| 2 | ARMATURE ASSEMBLY | | | | |
| 3 | TUBULAR SPRING EACH SET | | | | |
| 4 | MOUNTING FLANGE ASSLY | XBAP87210SSYT | XBAP87220SSYT | XBAP51222SSYT | XBAP54170SSYT |
| 6 | BRAKE DISC & BRAKE LINER (ROTOR / GEAR HUB) | | | | |
| 10 | MOUNTING FLANGE | XBAP00510SYT | XBAP00520SYT | XBAP00622SYT | XBAP00520SYT |

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Note :- Due to continuous development and improvement specification listed above may be changed without notice

| Trouble | Possible cause | Required action |
|---|---|---|
| Break does not apply No braking action | No mains voltage. Stator (coil) open. | Check supply voltage. |
| | Armature plate Jammed (without moment) | 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 | Replace rotor, prevent oil/grease from coming in contact with friction liner. |
| | Spring are present/broken | Dismantle brake, loosen sleeves insert new springs. |
| | Brake limning worn-out | Replace rotors (armature plate and flange if very badly worn-out). |

**BRAKE**
MAINTENANCE / REPAIR

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 OPREATION :** 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 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.

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Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 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.



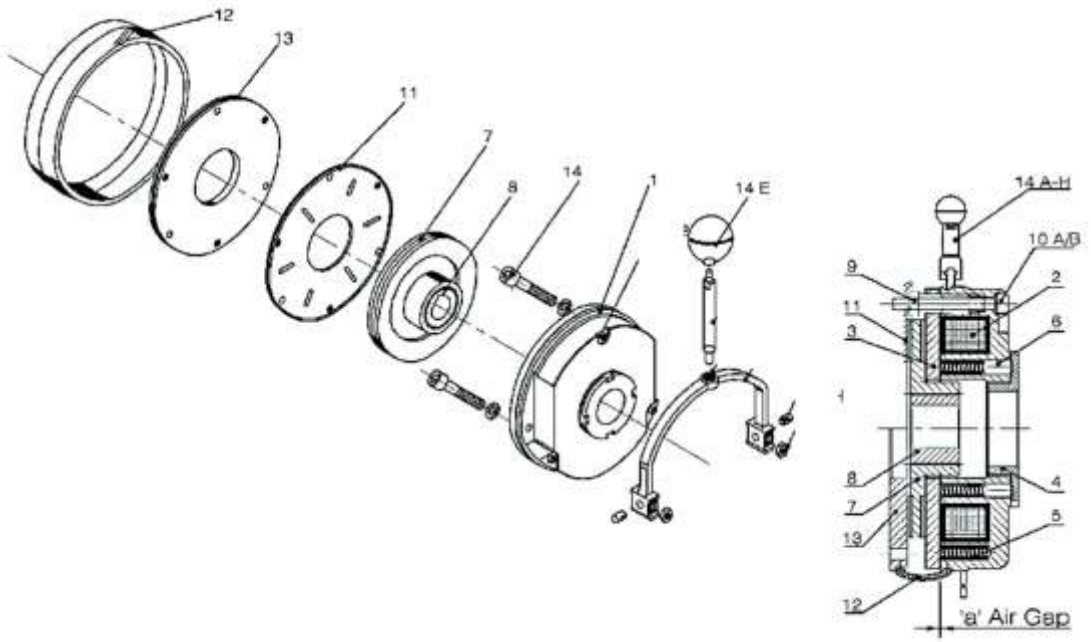
Typical case of stator fitting, the half-moon slot is to clear the bolt head, brake housing fitment wrong, which will obstruct the stator lateral movement of brake disc: This should be noticed and avoided during preventive maintenance.




**Typical case 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+/-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.


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## HOIST WITH DC BRAKE SPARE PART LIST




| iR-050-21, iR-100-41, iR-063-21, iR-125-41, iR-075-21, iR-150-41, iR-100-21, iR-2000-41 | | |
|---|---|---|
| **PART NO** | **DESCRIPTION** | **CODE** |
| | MAIN BRAKE | XBDS2180ELA |
| 1 | STATOR ARMATURE ASSEMBLY | XBDS0242ELA |
| 2 | STATOR | |
| 3 | ARMATUREPLATE | |
| 14 | HAND RELEASE ASSEMBLY | |
| 4 | TARQUE ADJUSTMENT RING | XBDS0247ELA |
| 5 | COMPRESSION SPRING | |
| 6 | COMPRESSION PARTS | |
| 7 | ROTOR | |
| 8 | HUB | |
| 9 | ADJUSTMENT TUBE | |
| 10 | MOUNTING BOLT & WASHER | XBDS0250ELA |
| 11 | FRICTION PLATE | |
| 12 | RUBBER SEAL | |
| 13 | MOUNTINGFLANGE | |

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Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 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.

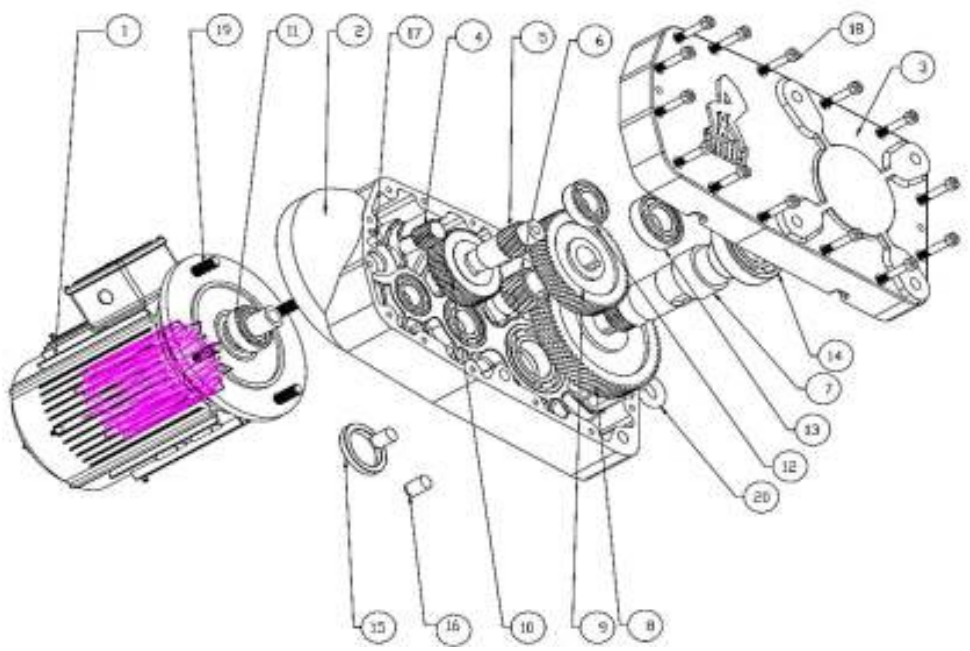
   This brake can operate in non explosive dust or with optional seal in water splash and Almaden Atmospheres.
5. When storing or installing the friction rotor, ensure that oil or grease is kept from the friction material surface.

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 |


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## HOIST GEAR BOX




| PART NO | DESCRIPTION | QTY. | iR-010-21 / iR-020-41 | iR-016-21 / iR-032-41 | iR-020-21 / iR-040-41 | iR-025-21 / iR-050-41 | iR-050-21 / iR-100-41 | iR-063-21 / iR-125-41<br>iR-075-21 / iR-150-41 | iR-075-21 / iR-150-41<br>iR-100-21 / iR-200-41 |
|---|---|---|---|---|---|---|---|---|---|
| | MAIN GEAR BOX | | GBM013055TGL | GBM025045TGL | GBM025055TGL | GBM041048TGL | GBM081076TGL | GBM105076TGL | GBM140110TGL |
| 1 | MOTOR | 1 | XMRB175000MEG | XMRB176000MEG | | XMRB177000MEG | | XMRB179000MEG | XMRB180000MEG |
| 2 | CASING | 1 | GBM013055001A | GBM025045001A | GBM025055001A | GBM041048001A | GBM041048001A | GBM105076001A | GBM140110001A |
| 3 | COVER | 1 | | | | | | | |
| 4 | INPUT SHAFT-1 | 1 | | | | | | | |
| 11 | BRG - 1 | 1 | | | | | | | |
| 15 | OIL SEAL | 3 | | | | | | | |
| 16 | DOWL PIN | 4 | | | | | | | |
| 17 | DOWL PIN | 2 | | | | | | | |
| 18 | ALLEN BOLT | 14 | | | | | | | |
| 19 | HEX BOLT | 4 | | | | | | | |
| 20 | EYE BOLT | 1 | | | | | | | |
| 5 | PIN - 2 | 1 | GBM013055002A | GBM025045002A | GBM025055002A | GBM041048002A | GBM041048002A | GBM105076002A | GBM140110002A |
| 10 | GEAR - 1 | 1 | | | | | | | |
| 12 | BRG - 2 | 2 | | | | | | | |
| 6 | PIN - 3 | 1 | GBM013055003A | GBM025045003A | GBM025055003A | GBM041048003A | GBM041048003A | GBM105076003A | GBM140110003A |
| 9 | GEAR - 2 | 1 | | | | | | | |
| 13 | BRG - 3 | 2 | | | | | | | |
| 7 | OUTPUT | 1 | GBM013055004A | GBM025045004A | GBM025055004A | GBM041048004A | GBM041048004A | GBM105076004A | GBM140110004A |
| 8 | GEAR - 3 | 1 | | | | | | | |
| 14 | BRG - 4 | 2 | | | | | | | |

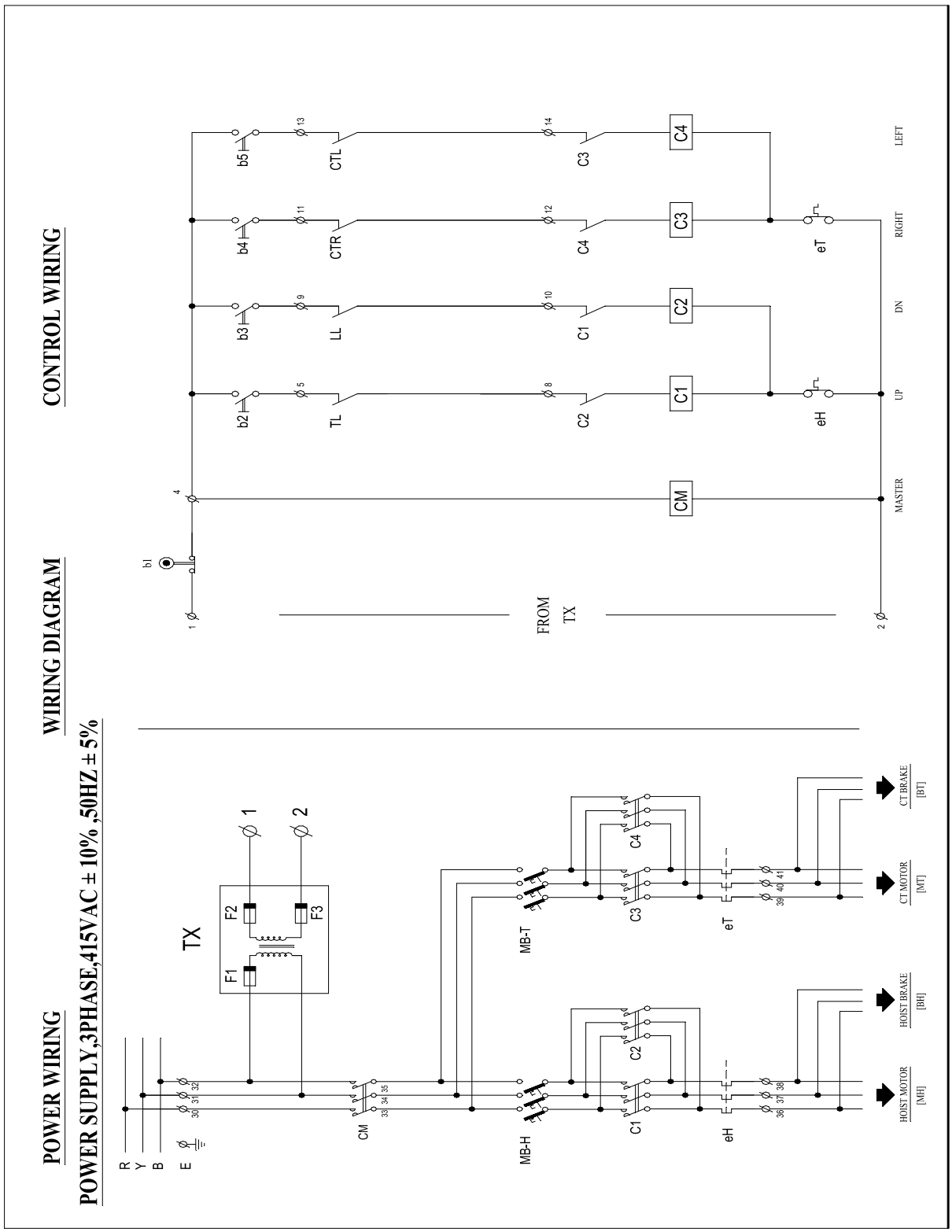
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Note :- Due to continuous development and improvement specification listed above may be changed without notice

## Oil for Gear Box

| MODEL | QTY. (LTR) | MAKE |
|---|---|---|
| IR-010-21 | 2.5 Ltrs | ISO-VG-320 |
| IR-020-41 | | |
| IR-016-21 | | |
| IR-032-41 | | |
| IR-020-21 | | |
| IR-040-41 | | |
| IR-025-21 | 3.7 Ltrs | |
| IR-050-41 | | |
| IR-050-21 | 6 Ltrs | |
| IR-100-41 | | |
| IR-063-21 | | |
| IR-125-41 | | |
| IR-075-21 | 8.5 Ltrs | |
| IR-150-41 | | |
| IR-100-21 | | |
| IR-200-41 | | |


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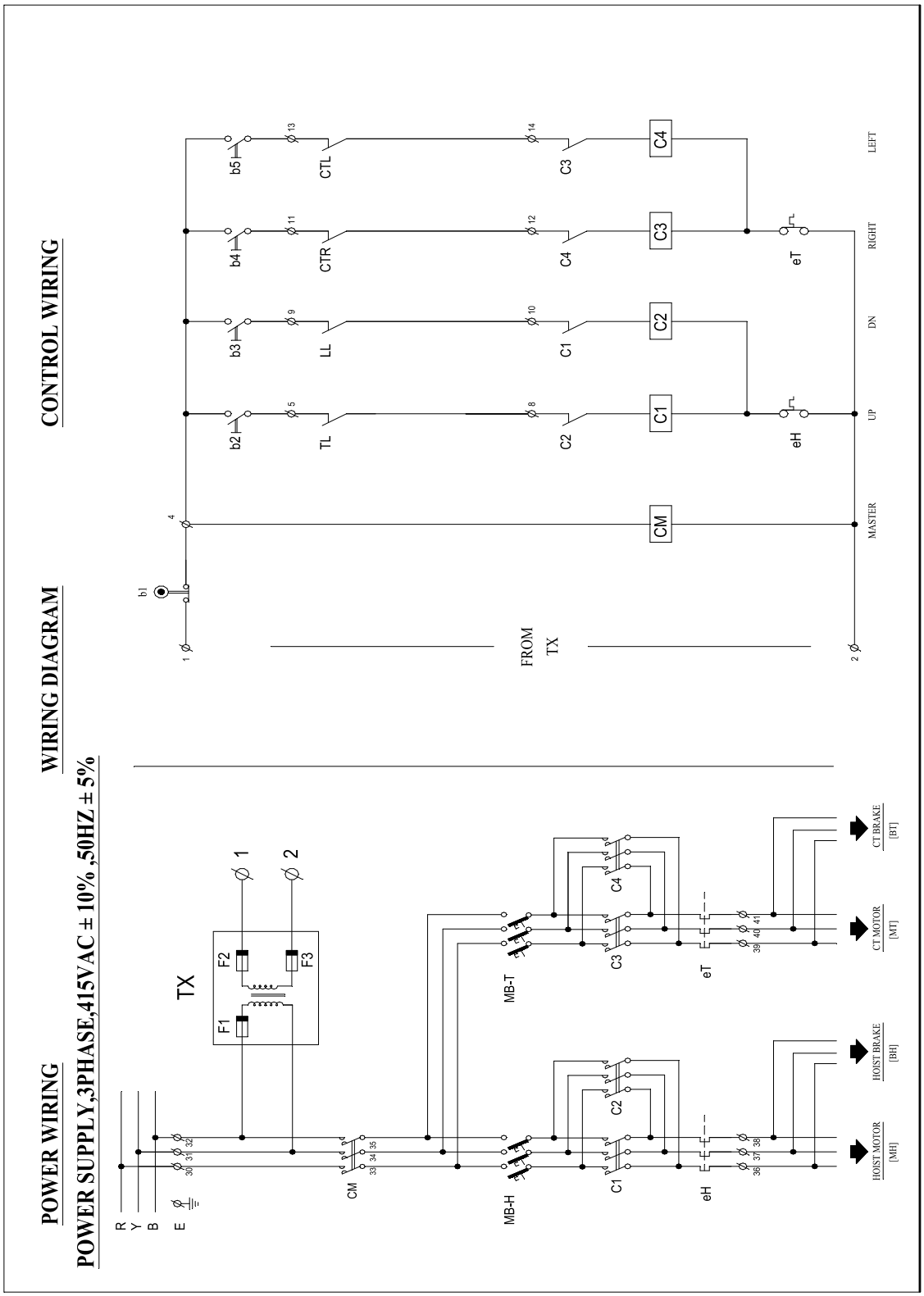
**iR-010-21 & iR-020-41**



| ELECTRICAL SPARE PARTS FOR IR01021,IR02041 FIXED OR WITH G.T./P.T | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP702000A | Enclosure for Baseplate XCPP702001A Size 375X350X130 mm | 1 |
| XCPP702001A | Baseplate for Enclosure XCPP702000A Size 330X305X2 mm | 1 |
| XCTP0031AVA | Avetronics/Prince/Powerex Make Control Transformer Primary 415VAC & Secondary 110VAC, 50VA (Fuse on Secondary Side) | 1 |
| XMCP0040MDA | Schneider Make MCB 3P 10A Cat No A9N3P10D - Hoist Motor | 1 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - Master & Hoist Motor | 3 |
| XORE0040SMA | Schneider Make Overload Relay 2.5 -4A Cat No LRD08 - Hoist Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XPBP0001HHL | Indef Make 3 Way Pendant (Emergency Stop,Hoist/Low Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR iR -010-21 & iR -020-41 + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP702000A | Enclosure for Baseplate XCPP702001A Size 375X350X130 mm | 1 |
| XCPP702001A | Baseplate for Enclosure XCPP702000A Size 330X305X2 mm | 1 |
| XCTP0031AVA | Avetronics/Prince/Powerex Make Control Transformer Primary 415VAC & Secondary 110VAC, 50VA (Fuse on Secondary Side) | 1 |
| XMCP0040MDA | Schneider Make MCB 3P 10A Cat No A9N3P10D - Hoist Motor | 1 |
| XMCP0120MDA | Schneider Make MCB 3P 4A Cat No A9N3P04D - ET Motor | 1 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - Master, Hoist Motor & ET Motor | 5 |
| XORE0040SMA | Schneider Make Overload Relay 2.5 -4A Cat No LRD08 - Hoist Motor | 1 |
| XORP0350TMA | Schneider Make Overload Relay 1 -1.6A Cat No LRD06 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

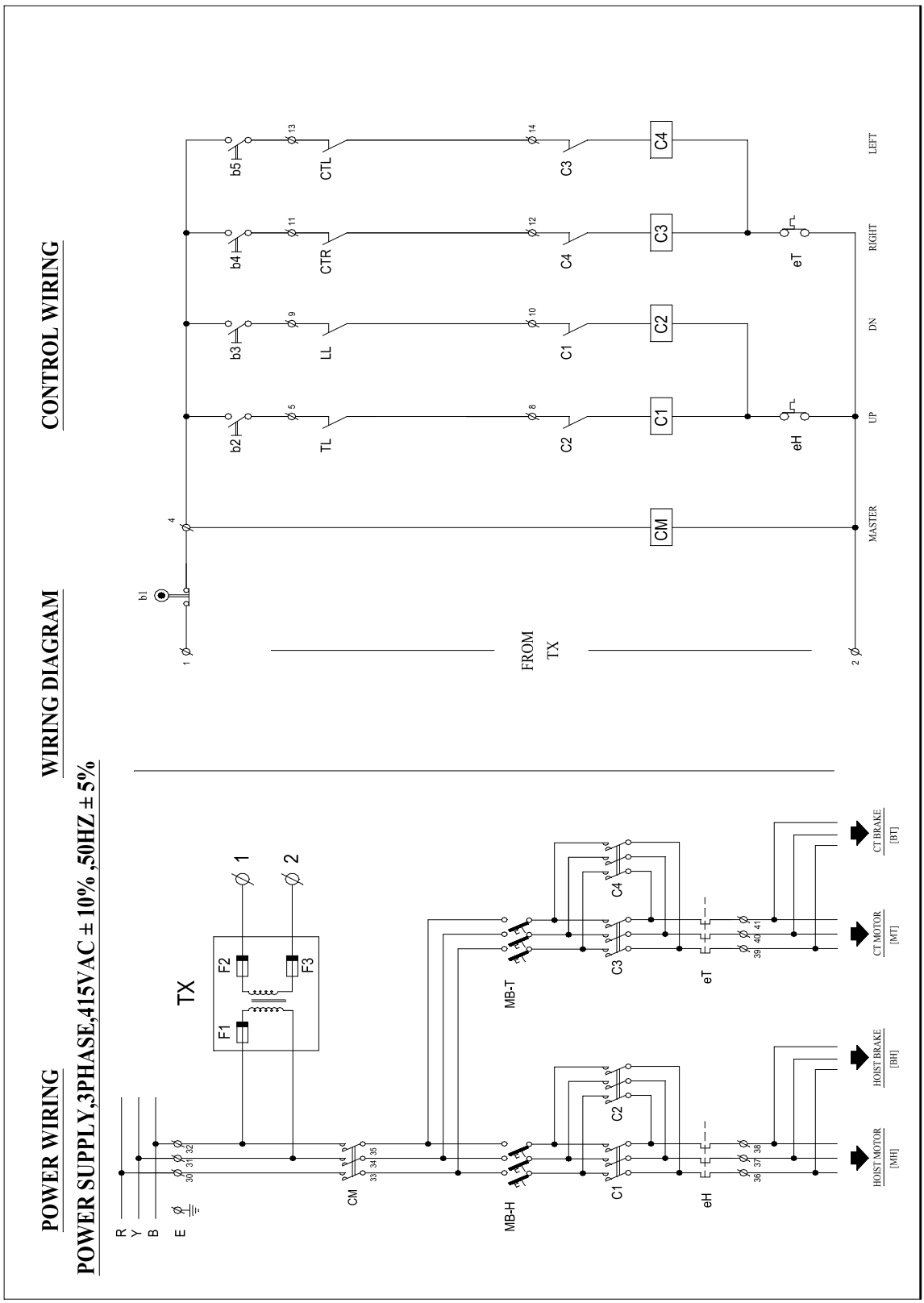

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POWER WIRING
POWER SUPPLY,3PHASE,415VAC ± 10% ,50HZ ± 5%
WIRING DIAGRAM
CONTROL WIRING
R
Y
B
E
TX
F1
F2
F3
CM
MB-H
MB-T
C1
C2
C3
C4
eH
eT
HOIST MOTOR [MH]
HOIST BRAKE [BH]
CT MOTOR [MT]
CT BRAKE [BT]
FROM TX
MASTER
UP
DN
RIGHT
LEFT
b1
b2
b3
b4
b5
TL
LL
CTR
CTL

| ELECTRICAL SPARE PARTS FOR IR01621,IR03241,IR02021,IR04041 FIXED OR WITH G.T./P.T | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP702000A | Enclosure for Baseplate XCPP702001A Size 375X350X130 mm | 1 |
| XCPP702001A | Baseplate for Enclosure XCPP702000A Size 330X305X2 mm | 1 |
| XCTP0031AVA | Avetronics/Prince/Powerex Make Control Transformer Primary 415VAC & Secondary 110VAC, 50VA (Fuse on Secondary Side) | 1 |
| XMCP0050MDA | Schneider Make MCB 3P 16A Cat No A9N3P16D - Hoist Motor | 1 |
| XACP0930TMA | Schneider Make Contactor 18A/110VAC Cat No LC1D18 F7 - Master & Hoist Motor | 3 |
| XORE0131TMA | Schneider Make Overload Relay 5.5 -8A Cat No LRD12 - Hoist Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XPBP0001HHL | Indef Make 3 Way Pendant (Emergency Stop,Hoist/Low Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR iR-016-21, iR-032-41, iR-020-21, iR-040-41 + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP702000A | Enclosure for Baseplate XCPP702001A Size 375X350X130 mm | 1 |
| XCPP702001A | Baseplate for Enclosure XCPP702000A Size 330X305X2 mm | 1 |
| XCTP0031AVA | Avetronics/Prince/Powerex Make Control Transformer Primary 415VAC & Secondary 110VAC, 50VA (Fuse on Secondary Side) | 1 |
| XMCP0050MDA | Schneider Make MCB 3P 16A Cat No A9N3P16D - Hoist Motor | 1 |
| XMCP0120MDA | Schneider Make MCB 3P 4A Cat No A9N3P04D - ET Motor | 1 |
| XACP0930TMA | Schneider Make Contactor 18A/110VAC Cat No LC1D18 F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0131TMA | Schneider Make Overload Relay 5.5 -8A Cat No LRD12 - Hoist Motor | 1 |
| XORP0350TMA | Schneider Make Overload Relay 1 -1.6A Cat No LRD06 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

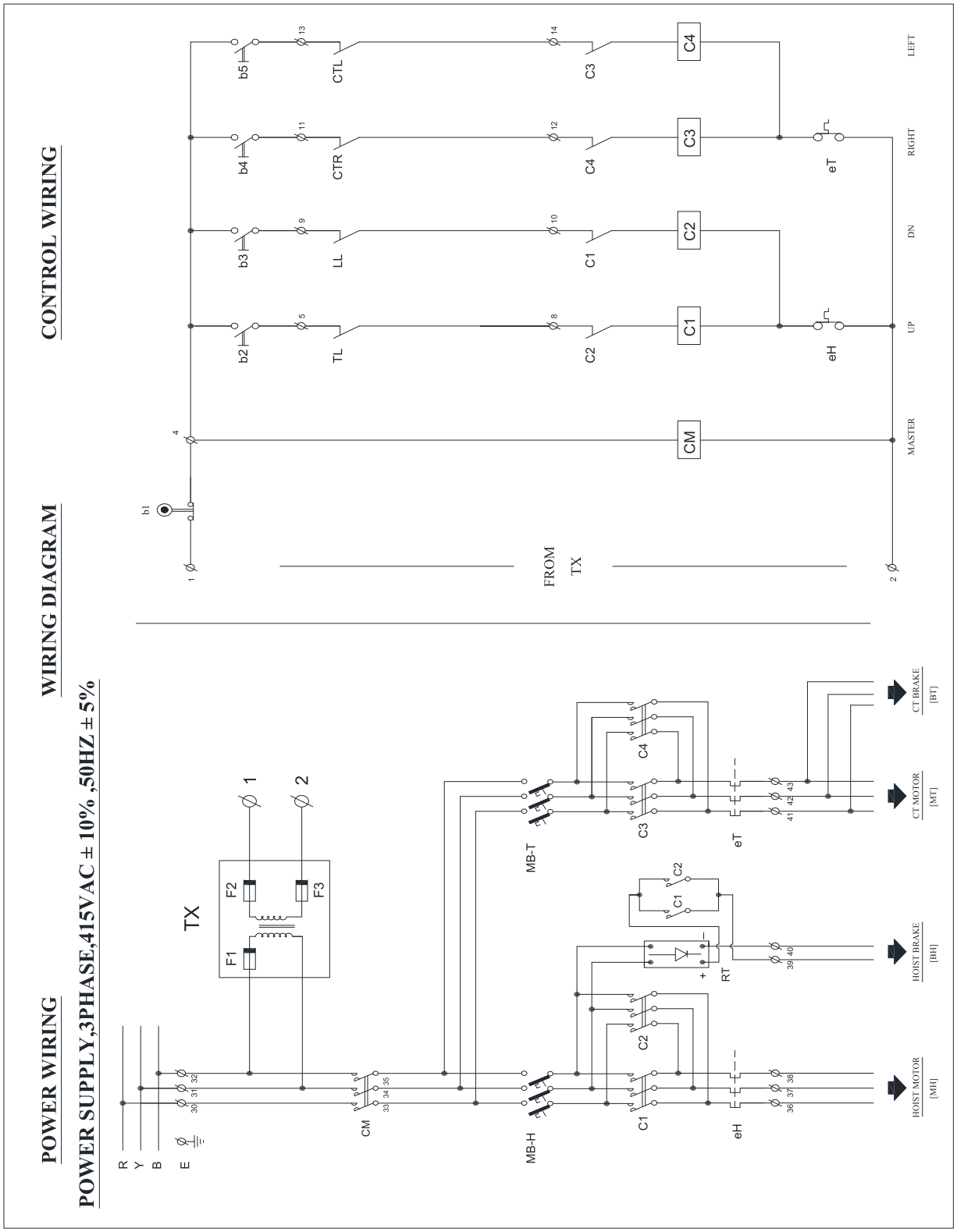

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Note :- Due to continuous development and improvement specification listed above may be changed without notice


POWER WIRING
POWER SUPPLY,3PHASE,415VAC ± 10% ,50HZ ± 5%
WIRING DIAGRAM
CONTROL WIRING
R
Y
B
E
TX
F1
F2
F3
CM
MB-H
MB-T
C1
C2
C3
C4
eH
eT
HOIST MOTOR [MH]
HOIST BRAKE [BH]
CT MOTOR [MT]
CT BRAKE [BT]
FROM TX
b1
b2
b3
b4
b5
TL
LL
CTR
CTL
MASTER
UP
DN
RIGHT
LEFT

| ELECTRICAL SPARE PARTS FOR IR01621,IR03241,IR02021,IR04041 FIXED OR WITH G.T./P.T | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP702000A | Enclosure for Baseplate XCPP702001A Size 375X350X130 mm | 1 |
| XCPP702001A | Baseplate for Enclosure XCPP702000A Size 330X305X2 mm | 1 |
| XCTP0031AVA | Avetronics/Prince/Powerex Make Control Transformer Primary 415VAC & Secondary 110VAC, 50VA (Fuse on Secondary Side) | 1 |
| XMCP0050MDA | Schneider Make MCB 3P 16A Cat No A9N3P16D - Hoist Motor | 1 |
| XACP0930TMA | Schneider Make Contactor 18A/110VAC Cat No LC1D18 F7 - Master & Hoist Motor | 3 |
| XORE0131TMA | Schneider Make Overload Relay 5.5 -8A Cat No LRD12 - Hoist Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XPBP0001HHL | Indef Make 3 Way Pendant (Emergency Stop,Hoist/Low Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR iR-016-21, iR-032-41, iR-020-21, iR-040-41+ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP702000A | Enclosure for Baseplate XCPP702001A Size 375X350X130 mm | 1 |
| XCPP702001A | Baseplate for Enclosure XCPP702000A Size 330X305X2 mm | 1 |
| XCTP0031AVA | Avetronics/Prince/Powerex Make Control Transformer Primary 415VAC & Secondary 110VAC, 50VA (Fuse on Secondary Side) | 1 |
| XMCP0050MDA | Schneider Make MCB 3P 16A Cat No A9N3P16D - Hoist Motor | 1 |
| XMCP0120MDA | Schneider Make MCB 3P 4A Cat No A9N3P04D - ET Motor | 1 |
| XACP0930TMA | Schneider Make Contactor 18A/110VAC Cat No LC1D18 F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0131TMA | Schneider Make Overload Relay 5.5 -8A Cat No LRD12 - Hoist Motor | 1 |
| XORP0350TMA | Schneider Make Overload Relay 1 -1.6A Cat No LRD06 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |


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POWER WIRING
POWER SUPPLY,3PHASE,415VAC ± 10% ,50HZ ± 5%
WIRING DIAGRAM
CONTROL WIRING
R
Y
B
E
TX
F1
F2
F3
CM
MB-H
MB-T
C1
C2
C3
C4
RT
eH
eT
HOIST MOTOR [MH]
HOIST BRAKE [BH]
CT MOTOR [MT]
CT BRAKE [BT]
FROM TX
b1
b2
b3
b4
b5
TL
LL
CTR
CTL
MASTER
UP
DN
RIGHT
LEFT

ELECTRICAL SPARE PARTS FOR IR-050-21 (5T), IR-100-41 (10T) FIXED OR WITH G.T./P.T

| Item Code | Description | QTY |
|---|---|---|
| XCPP705000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0949TMA | Schneider Make Contactor 50A/110VAC Cat No LC1D50 F7 - Master & Hoist Motor | 3 |
| XERE0290TMA | Schneider Make Overload Relay 16 -24A Cat No LRD22 - Hoist Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XPBP0001HHL | Indef Make 3 Way Pendant (Emergency Stop,Hoist/Low Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR IR -050-21 (5T) + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP705000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0120MDA | Schneider Make MCB 3P 4A Cat No A9N3P04D - ET Motor | 1 |
| XMCP0949TMA | Schneider Make Contactor 50A/110VAC Cat No LC1D50 F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XERE0290TMA | Schneider Make Overload Relay 16 -24A Cat No LRD22 - Hoist Motor | 1 |
| XORP0350TMA | Schneider Make Overload Relay 1 -1.6A Cat No LRD06 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR IR -100-41 (10T) + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP705000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0030MDA | Schneider Make MCB 3P 6A Cat No C60H3P6AD - ET Motor | 1 |
| XMCP0949TMA | Schneider Make Contactor 50A/110VAC Cat No LC1D50 F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XERE0290TMA | Schneider Make Overload Relay 16 -24A Cat No LRD22 - Hoist Motor | 1 |
| XORE0290TMA | Schneider Make Overload Relay 1.6 -2.5A Cat No LRD07 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

**iR-063-21 & iR-125-41**


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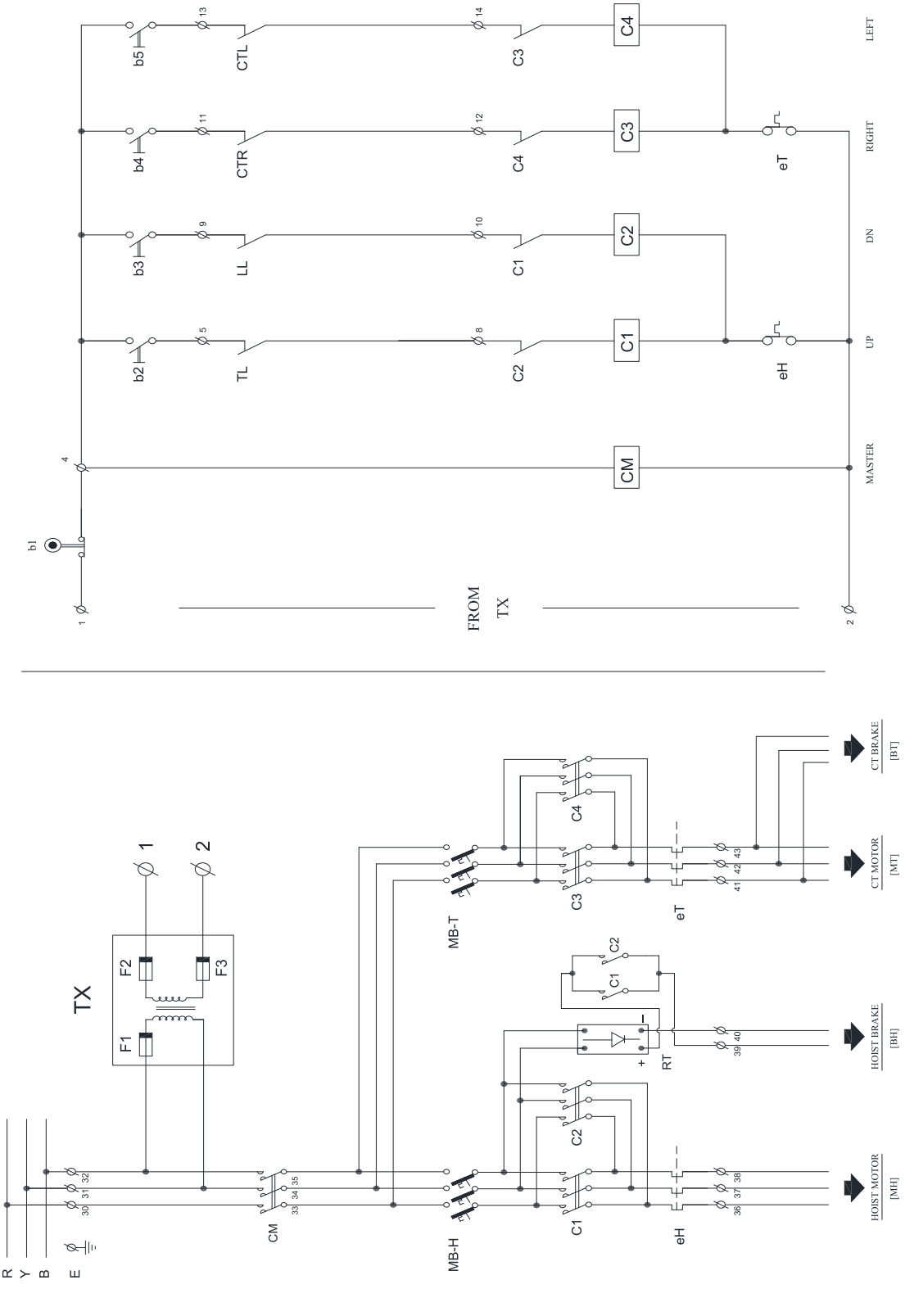
iR-063-21 & iR-125-41

## CONTROL WIRING

## WIRING DIAGRAM

## POWER WIRING

**POWER SUPPLY,3PHASE,415VAC ± 10% ,50HZ ± 5%**



## ELECTRICAL SPARE PARTS FOR IR-063-21 (6.3T), IR-125-41 (12.5T) FIXED OR WITH G.T./P.T

| Item Code | Description | QTY |
|---|---|---|
| XCPP705000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XPBP0001HHL | Indef Make 3 Way Pendant (Emergency Stop,Hoist/Low Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR IR-063-21 (6.3T) + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP705000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0120MDA | Schneider Make MCB 3P 4A Cat No A9N3P04D - ET Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XORP0350TMA | Schneider Make Overload Relay 1 -1.6A Cat No LRD06 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

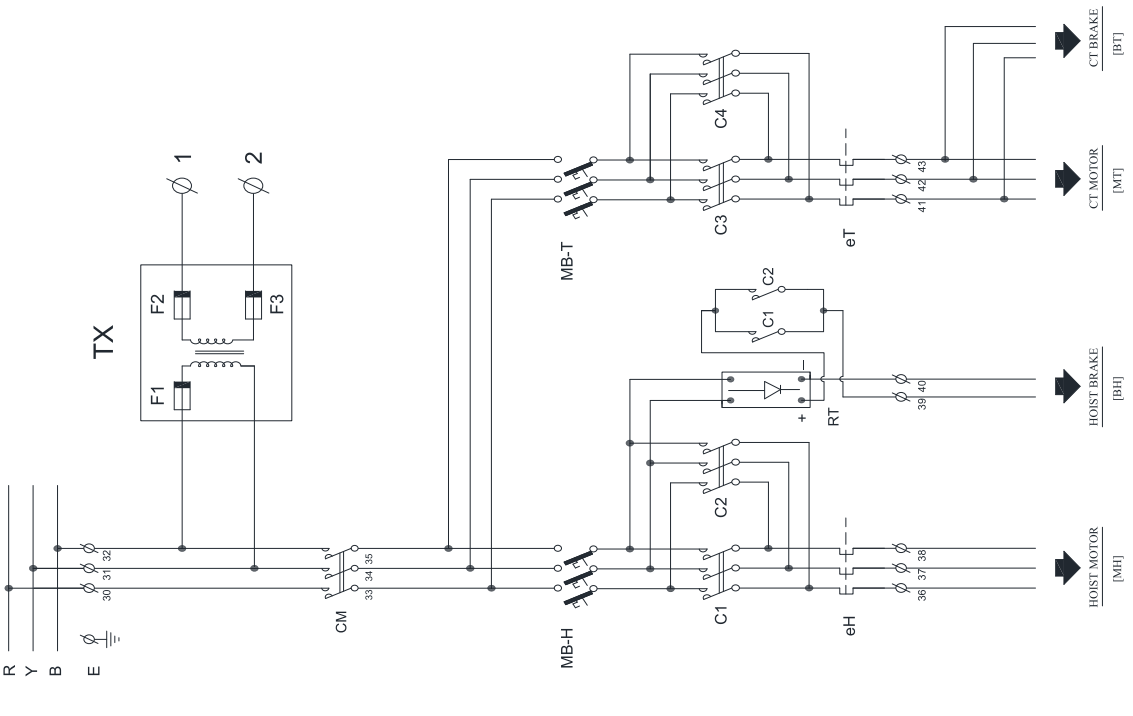
| ELECTRICAL SPARE PARTS FOR IR -125 -41 (12.5T) + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP705000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0040MDA | Schneider Make MCB 3P 10A Cat No A9N3P10D - ET Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XORE0040SMA | Schneider Make Overload Relay 2.5 -4A Cat No LRD08 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action , Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |


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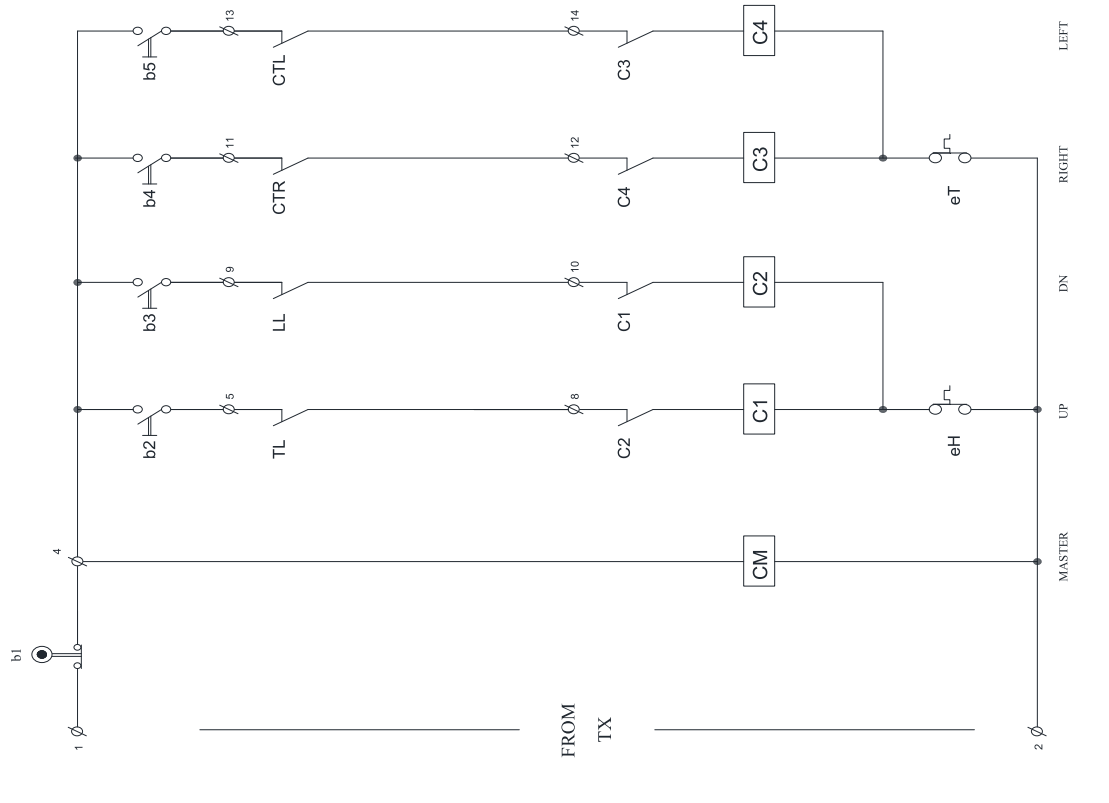
## POWER WIRING

### POWER SUPPLY,3PHASE,415VAC ± 10% ,50HZ ± 5%

## WIRING DIAGRAM




## CONTROL WIRING




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| ELECTRICAL SPARE PARTS FOR IR -075-21(7.5T), IR -150-41(15T) FIXEDORWITH G.T./P.T | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP707000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XPBP0001HHL | Indef Make 3 Way Pendant (Emergency Stop,Hoist/Low Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR IR -075-21 (7.5T) + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP707000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0030MDA | Schneider Make MCB 3P 6A Cat No A9N3P06D - ET Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XORE0290TMA | Schneider Make Overload Relay 1.6 -2.5A Cat No LRD07 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Acti on, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR IR -150-41 (15T) + ET | | |
|---|---|---|
| **Item Code** | **Description** | **QTY** |
| XCPP707000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0040MDA | Schneider Make MCB 3P 10A Cat No A9N3P10D - ET Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XORE0040SMA | Schneider Make Overload Relay 2.5 -4A Cat No LRD08 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action , Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

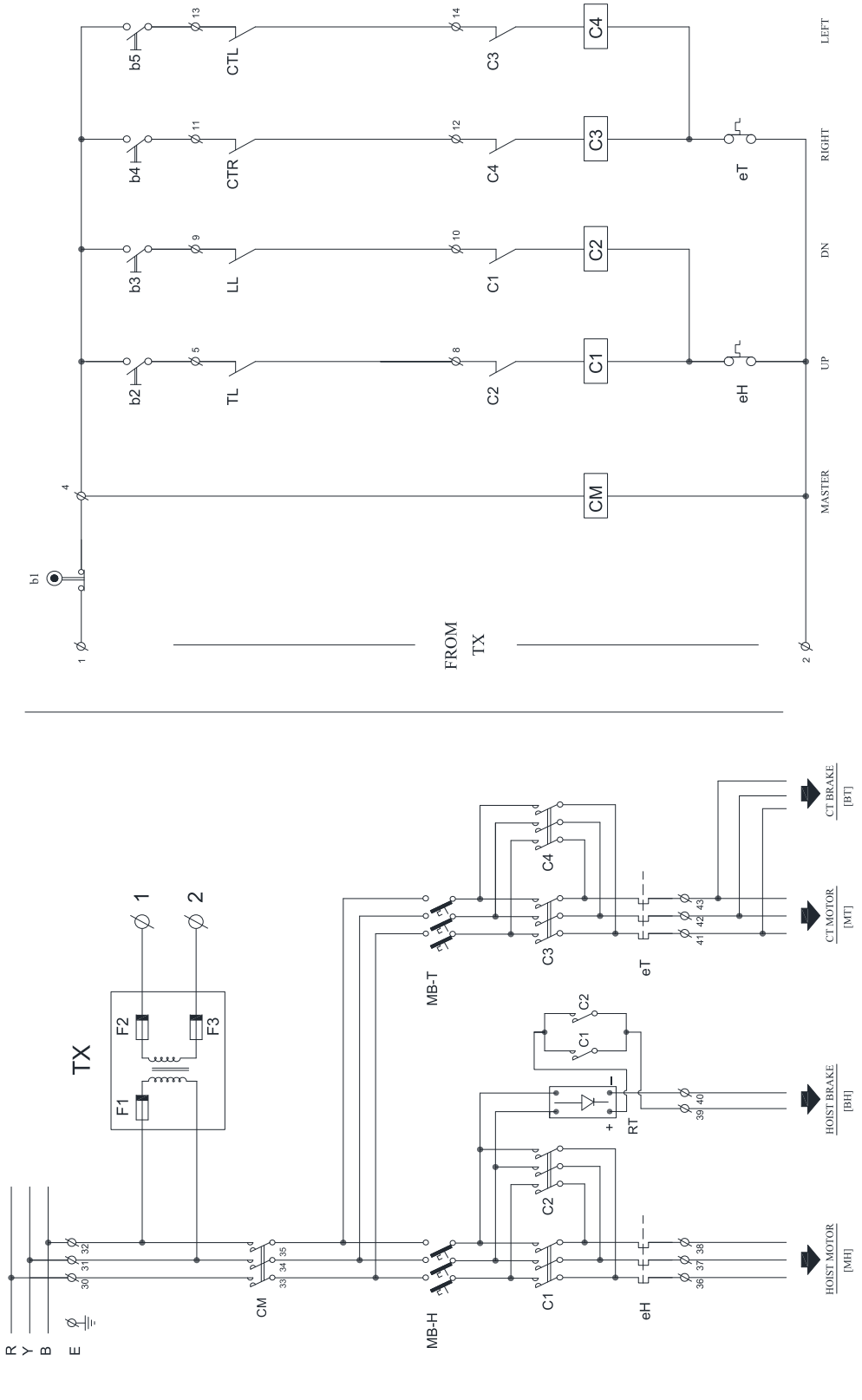

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## POWER WIRING

## POWER SUPPLY,3PHASE,415VAC ± 10% ,50HZ ± 5%

## WIRING DIAGRAM

## CONTROL WIRING



| ELECTRICAL SPARE PARTS FOR IR -100-21 (10T), IR -200-41 (20T) FIXED OR WITH G.T./P.T | | |
|---|---|---|
| Item Code | Description | QTY |
| XCPP707000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XPBP0001HHL | Indef Make 3 Way Pendant (Emergency Stop,Hoist/Low Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR IR-100-21 (10T) + ET | | |
|---|---|---|
| Item Code | Description | QTY |
| XCPP707000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0030MDA | Schneider Make MCB 3P 6A Cat No A9N3P06D - ET Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XORE0290TMA | Schneider Make Overload Relay 1.6 -2.5A Cat No LRD07 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |

| ELECTRICAL SPARE PARTS FOR IR -200-41 (20T) + ET | | |
|---|---|---|
| Item Code | Description | QTY |
| XCPP707000A | Enclosure for Baseplate XCPP705001A Size 600X540X150 mm | 1 |
| XCPP705001A | Baseplate for Enclosure XCPP705000A Size 520X460X2 mm | 1 |
| XCTP0002AVA | Avetronics/Prince Make Control Transformer Primary 415VAC ± 5%, ± 10% & Secondary 110VAC,100VA | 1 |
| | | |
| XMCP0179TMA | Schneider Make MCCB 3P/63A/25KA Cat No LV426255 - Hoist Motor | 1 |
| XMCP0040MDA | Schneider Make MCB 3P 10A Cat No A9N3P10D - ET Motor | 1 |
| XACP0960TMA | Schneider Make Contactor 65A/110VAC Cat No LC1D65A F7 - Master & Hoist Motor | 3 |
| XACP0850TMA | Schneider Make Contactor 9A/110VAC Cat No LC1D09 F7 - ET Motor | 2 |
| XORE0325TMA | Schneider Make Overload Relay 23 -32A Cat No LRD32 - Hoist Motor | 1 |
| XORE0040SMA | Schneider Make Overload Relay 2.5 -4A Cat No LRD08 - ET Motor | 1 |
| XLSP0070SLZ | Indef Make Limit Switch in Standard Housing, Angular Roller Lever 1NO+1NC, Normal Action , Rating 10A/500V Cat No. SL609N | 2 |
| XLSP0090SLZ | Indef Make Limit Switch in Oil Tight Housing, Normal Roller Lever 1NO+1NC, Normal Action, Rating 10A/500V Cat No.SL603N | 2 |
| XPBP0003HHL | Indef Make 5 Way Pendant (Emergency Stop,Hoist/Low Single Speed, Right/Left Single Speed) | 1 |


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Note :- Due to continuous development and improvement specification listed above may be changed without notice

## Wire Rope:

- For proper performance the Wire Rope must be maintained in a clean and well lubricated condition.
- The rope should be lubricated every 3 months (more frequently for heavier usage or severe conditions).
- To lubricate the rope, first remove any dirt, grime, moisture or other accumulations of contaminates. Then coat the Wire Rope with ENKLO 68 (M1-18-J-754) oil or equivalent. Ensure that the lubricant is applied to the entire surface of the rope over its entire length.
- For dusty environments, dry lubricants are suggested.
- For conditions not permitting lubricant to fall off the wire rope, consider using non-dripping motorcycle drive chain lubricant.

## Wire Rope Drum, Hook Block and Sheaves:

- The drum, hook block and sheaves should be lubricated every 3 months (more frequently for heavier usage or severe conditions).
- Lubricate the Drum, Hook Block and Sheaves with ENKLO 68 (M1-18-J-754) oil or MP GREASE 3 (SI-18-M-211) grease.
- For dusty environments, dry lubricants are suggested.
- For conditions not permitting lubricant to fall off the drum, hook block and sheaves, consider using non-dripping motorcycle drive chain lubricant.

## Trolley Wheels and Gears:

- The Trolley Wheels and Gears should be lubricated every 3 months (more frequently for heavier usage or severe conditions).
- Lubricate the Trolley Wheels and Gears with MP GREASE 3 (SI-18-M-211) grease.
- For dusty environments, dry lubricants are suggested.
- For conditions not permitting lubricant to fall off the trolley wheels and gears, consider using non- dripping motorcycle drive chain lubricant.

Hoist and Trolley Gearboxes – The hoist and trolley gearboxes are lubricated for life and should not need any lubricant replacement.

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## REEVING AND ADJUSTMENTS

### Reeving the bottom hook

1. Working from a scaffolding or lifting platform, remove the Retaining Ring (B) and Load Limiter Pin (D) from the Terminal Head Crossbar (A). Let the Load Limiter (C) rotate downward and remove the Terminal Head (F) from the Load Limiter (C) by pulling out the Terminal Head Pin (E). (see Figure 3-31).
2. From the ground, press the down button on the pendant until there is sufficient rope unwound to reeve the hoist. Take care not to activate the down limit switch.
3. Place the Bottom Block on the ground so that it is positioned perpendicular to the hoist, and insert the rope end into the bottom block as shown in Figure 3-32 for 2/1 and 4/1 reeved hoists (2 or 4 rope-falls). To make rope insertion easier, temporarily attach a wire to the end of the rope with adhesive tape and use the wire to pull the rope through the Bottom Block. Securely tie a string or cord to the end of the rope and pull the wire rope up to the hoist from the scaffolding/platform. For 4/1 reeved hoists thread the rope through the return pulley installed in the hoist, then back through the Bottom Block (see Figure 3-32).
4. Insert the end of the rope into the Terminal Head (F) and making sure at least 4 inches of rope extend beyond the Terminal Head (F). Install the Wedge (G) into the Terminal Head (F) and pull the rope until the Wedge (G) and the rope are tightly seated in the Terminal Head (F) (Figure 3-33).
5. WARNING Make certain the wire rope is tight against the Wedge (G) in the Terminal Head (F)
6. Attach the Rope Clamp (H) 2 inches from the Terminal Head (F) and fully tighten the nuts. Do NOT clamp the free end of the rope to the load bearing rope fall (the rope between the Terminal Head (F) and the Bottom Block) (Figure 3-34).
7. Reattach the Terminal Head (F) to the Load Limiter (C) with the Terminal Head Pin (E) and reattach the Load Limiter (C) to the Terminal Head Crossbar (A) using the Load Limiter Pin (D) and Retaining ring (B) (Figure 3-35).

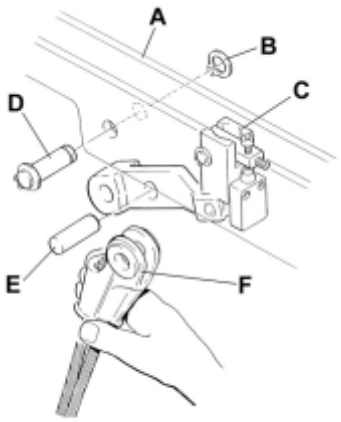
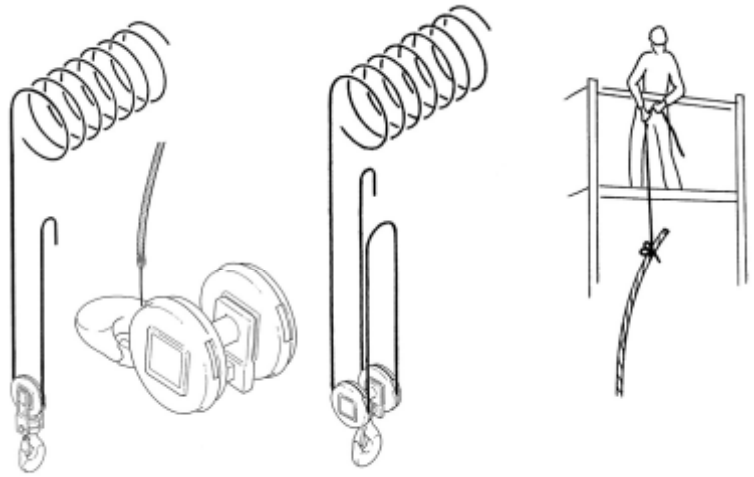


Figure 3-31 Remove Terminal Head


Figure 3-32 Reeve the Bottom Block


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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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BAJAJ
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Navi Mumbai - 400 614, India.

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