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)




## INDEF-R BLOCK

## (360° ROTATIMG COVER)

## TRIPLE SUPER GEAR

## Capacity - 1t to 10t

CHAIN PULLEY BLOCK

# INDEX

1 Important Information & Warning 4

2 General Safety 10

3 Safety Recommendations and Practices for Hoist Users 13

4 General Information 14

5 Installation and Commissioning 16

6 Operating Instructions 17

7 Maintenance 20

8 Spare parts 27

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 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.


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 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.

Chain pulley blocks are designed for lifting loads vertically and should not be used for pulling horizontally or at an angle (As per IS 3832 Clause 4.1.1 A7).

Never lift with the point of the hook (As per IS 3832 Clause 4.1.1 A8)

Never run the load chain out too far. When the block is run out beyond the extended dimensions, an excessive and dangerous load is imposed at the load chain slack end anchorage (As per IS 3832 Clause 4.1.1 A9).

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

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



**INFORMATION**

THIS SYMBOL INDICATES TIPS AND USEFUL INFORMATION.

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 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.


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 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.

Indef Manufacturing Limited © 2024

## 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, the chain stripper and chain guide roller is designed to snap in the event of the wrong usage of the rope hoist. As per IS 3832-2005 the angular lifting / pulling of dead weight is not allowed in chain pulley block. Ref : IS 3832 ANNEX A Clause 4.1.1 sub clause A7, A8, A9 which clearly mentions the operational requirement of hoist. If any user puts the chain of hoist to such an application, the chain stripper and chain guide roller will not allow to perform the lifting. The chain stripper will break 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.

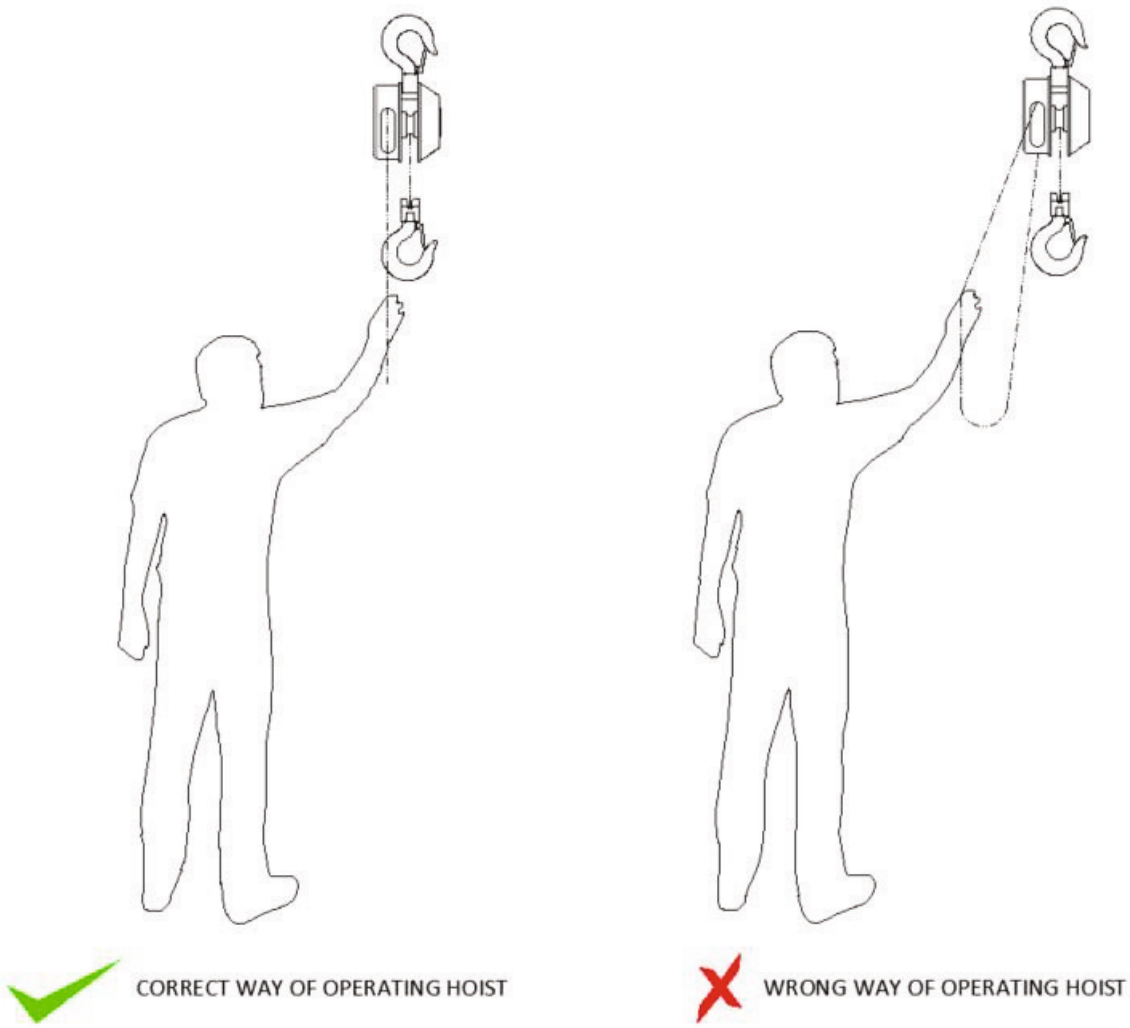
If hoist not used in proper way as mentioned above the warranty claims will not be accepted.
Indicative list of parts not coverd under warrenty.


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## Indicative list of parts not covered under warranty:

| | |
|---|---|
| 1 | Guide Roller |
| 2 | Safety latch assembly |
| 3 | Bearings |
| 4 | Chain Stripper |
| 5 | Brake Disc |
| 6 | Load Chain |
| 7 | Hand Chain |

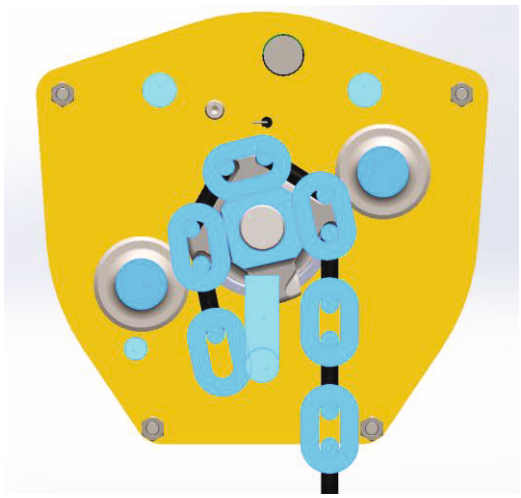
## Bad practice of cross pulling the Hand chain :-

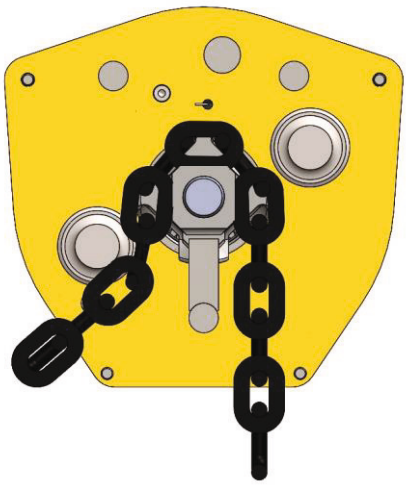


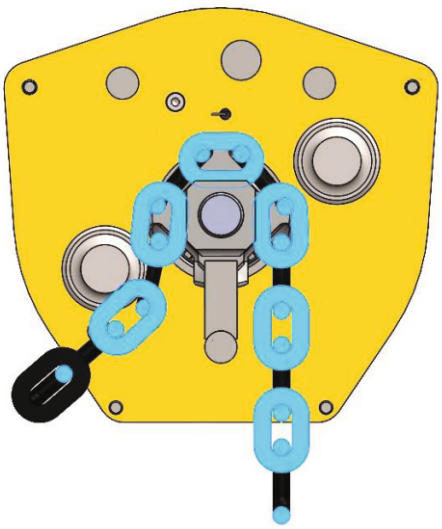

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

**Bad practice of cross pulling the Load :-**









# 1. GENERAL SAFETY

## 1.1 INTRODUCTION

HERCULES HOISTS LIMITED has taken all practical care in the design and manufacture of its “Indef” brand products to ensure that they are safely constructed. However, the use of material handling equipments presents hazards, which cannot be prevented by mechanical means and are related to the manner in which the material handling equipments are used.

Operators must be competent, physically and mentally fit and properly trained in the safe operation of material handling equipments and the handling of loads.

Safety Instructions must form part of the safety rules for any plant where any material handling equipment is used, serviced or repaired.


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

It is impossible to foresee all operating conditions and it must remain the responsibility of the operator to anticipate and avoid any unsafe conditions not covered in detail in this manual.

No machine is entirely safe unless it properly maintained. It is important to practice a programme of periodic inspection and preventative maintenance.

The tripple spur gear hand hoist detailed within this manual is designed to raise and lower loads using the equipment supplied for the specific purpose. The equipment must not be used for any other purposes.

The safety information must be read and understood by all personnel before commencing operation or maintenance.

## 1.2 STATUTORY AND LOCAL REGULATIONS AND PROCEDURES

The system must be operated in accordance with statutory and local regulations and procedures. It is the responsibility of all personnel working in the installation to be familiar with all statutory and local regulations and for those regulations to be strictly enforced.

## 1.3 MAXIMUM SAFE WORKING LOAD

The maximum safe working load (SWL) of the hoist is indicated by a label on the hoist. Under no circumstances must a load greater than the SWL be hoisted.

## 1.4 ACCESS TO HOIST OPERATING AREAS

There is risk of collision between personnel and a load, or of being crushed by a load during hoist operation. Access to a hoist operating area during operation is restricted to authorised personnel only. Under no circumstances are unauthorised personnel permitted to enter the operating areas. Personnel permitted to enter the operating area must be aware of any load movement and must take all necessary precautions to ensure that contact with a moving hoist, or its load, is avoided.

## 1.5 PROTECTIVE CLOTHING AND EQUIPMENT

All personnel engaged in maintenance and inspection work are to wear protective clothing and equipment, such as safety footwear, harnesses when working at height and safety helmets as appropriate and any other protective clothing called for under local site regulations.

## 1.6 PROTECTION DEVICES AND SAFETY FEATURES

Under no circumstances shall any safety device or safety feature be removed, modified or disabled, excepting those features where specific override facilities are provided for maintenance purposes.

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 1.7 RETURNING TO SERVICE

At the end of any maintenance work and before returning a hoist to service, ensure that all tools, parts and materials are removed and any protective guards removed for access are correctly secured.

## 1.8 UNAUTHORISED USE

Under no circumstances must the hoist be used for any unauthorised purpose, such as towing, which is beyond the operating instructions contained within the Operation and Maintenance manual.

To avoid the risk of injury or death to personnel, or damage to equipment, all following safety precautions must be observed.

## 1.9 MAINTENANCE ABOVE GROUND LEVEL

When carrying out maintenance above ground level, care must be taken to ensure that all tools, spares, and other equipment are secured to prevent falling onto any personnel present within the vicinity.

Identify the danger area beneath the working area and isolate it with ropes, or similar, and post warning notices.

## 1.10 FASTENERS

When assembling / refitting components using fasteners such as torque loaded bolts, nyloc nuts or split pins etc. always use new fasteners. Do not re-use old fasteners.

## 1.11 SCAFFOLDING / LIFTING EQUIPMENT

Some maintenance tasks, such as the removal and fitting of the hoist may require the erection of scaffolding and / or lifting equipment to provide a safe, stable platform. It is necessary for the scaffolding or lifting equipment to be erected by qualified scaffolding / lifting equipment erection personnel.

Under no circumstances must unqualified personnel erect scaffolding or lifting equipment.

## 1.12 CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH

Substances used on the crane, such as lubricants, are subject to the Control Of Substances Hazardous to Health (COSHH). It is the responsibilty of all personnel who may come into contact with such substances to obtain the relevant information data sheet from the supplier of the substance concerned and to familiarise themselves with the hazard and to take the necessary steps as advised by the data sheet(s).


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 2. SAFETY RECOMMENDATIONS AND PRACTICES FOR HOIST USERS

Indef desires to assure safe use of the equipment it produces.

Safety begins with properly designed and manufactured equipment. The use of the mechanical handling equipment is subject to hazards, which cannot be eliminated by sense.

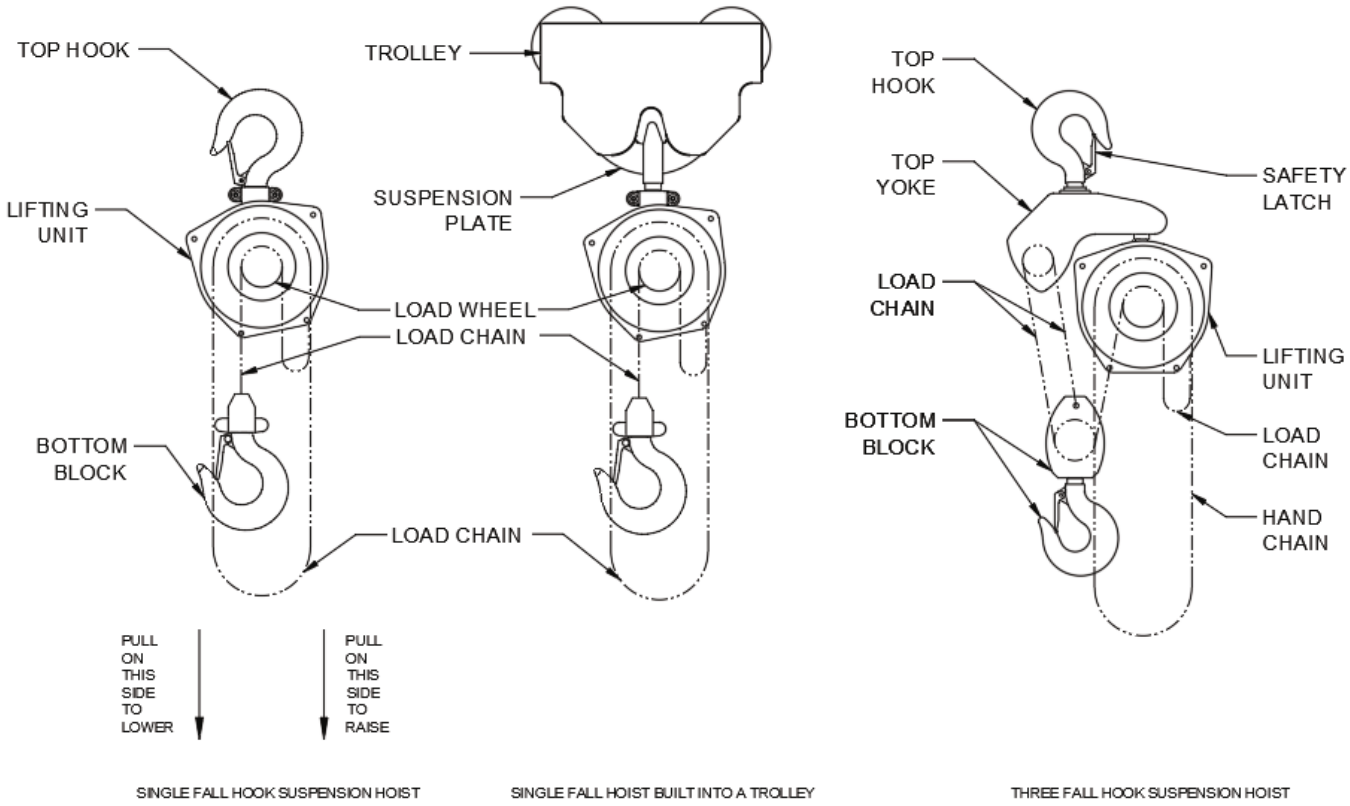
When the equipment enters service in the field, Indef has no direct control over inspection, maintenance, or operation. Safety in the field is the responsibility of the user.

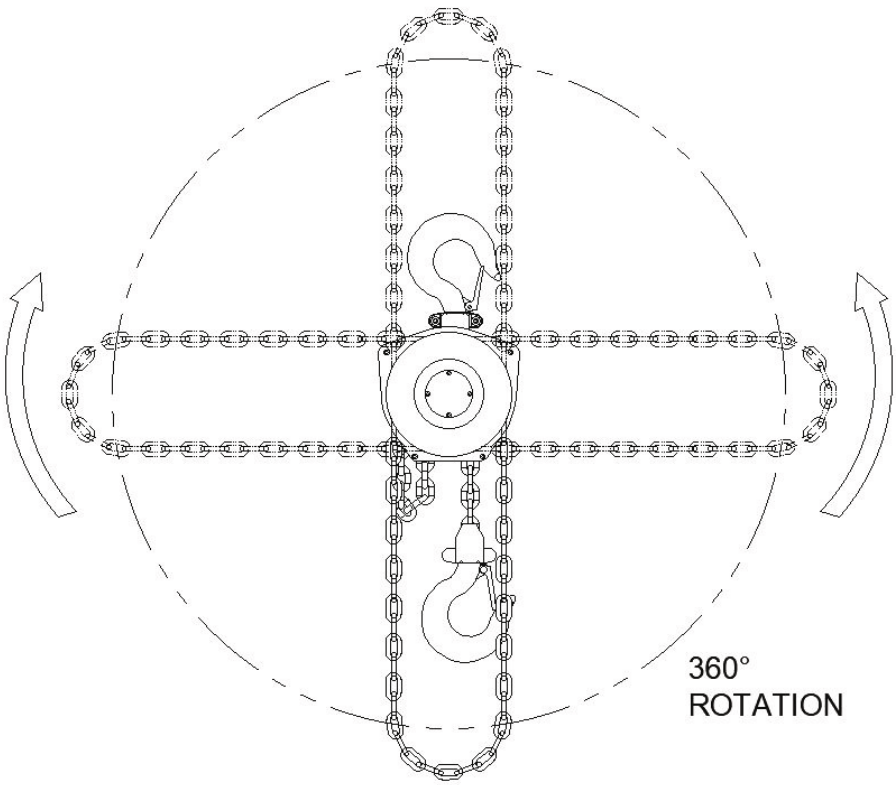
Most accidents involving hoists are the result of violating safety rules during operation and / or lack of inspection and maintenance procedures.

Indef recognises that most companies who use hoists implement a safety program in their establishments. Where a conflict exists between instructions contained in this manual and a similar regulation applied by an individual company, the more stringent of the two shall take precedent.

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 3. GENERAL INFORMATION




TYPICAL VIEW OF HAND CHAIN
WHEEL COVER ROTATION

**FIGURE 1 TYPICAL HOIST ARRANGEMENTS**


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 3.1 RANGE

Hoists are available in capacities of 1000 kg To 10T.

Technical Data : As per Name plate on Hoist.

Ambient operating temperature between-10 Deg.C to +50 Deg.C.

| Capacity | MT | 1 | 2 | 3 | 5 | 8 | 10 |
|---|---|---|---|---|---|---|---|
| No. of Falls | | 1 | 2 | 1 | 2 | 3 | 4 |
| Running Pull on Hand Chain | Kgs. | 25 | 28 | 34 | 41 | 46 | 43 |
| Velocity Ratio | | 45 | 90 | 78 | 156 | 234 | 312 |
| Weight at 3 Mtrs Lift (Approx.) | Kgs. | 10 | 11 | 20 | 59 | 94 | 130 |
| Extra Weight per additional mtr lift (Approx.) | Kgs. | 1.8 | 2.6 | 3.0 | 5.7 | 7.9 | 10.1 |

Hook suspension units are manufactured in each capacity for use on any suitable suspension point. Alternatively, hoists can be hung into push or hand-geared travelling trolleys.

Close lift travelling hoists comprise standard units without top hooks and built into push or geared trolleys.

## 3.2 HOIST ARRANGEMENTS

All hoists comprise a single lifting unit, together with a load chain, bottom block, and top suspension arrangement. Figure 1 shows typical arrangements. Hoists with two, four and six falls are similar to the three-fall hoist arrangement.

| HOIST CAPACITY | LOAD CHAIN | | HAND CHAIN | |
|---|---|---|---|---|
| | SIZE mm | LENGTH Mtrs. | SIZE mm | LENGTH Mtrs. |
| 1T | 6.3 | Lift + 0.44 | 5 | Lift x 2 |
| 2T | 6.3 | 2 x Lift + 0.61 | 5 | Lift x 2 |
| 3T | 10 | Lift + 0.44 | 5 | Lift x 2 |
| 5T | 10 | 2 x Lift + 1 | 5 | Lift x 2 |
| 8T | 10 | 3 x Lift + 1.2 | 5 | Lift x 2 |
| 10T | 10 | 4 x Lift + 1.5 | 5 | Lift x 2 |

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

# 4. INSTALLATION AND COMMISSIONING

## 4.1 PRE-INSTALLATION CHECKS

1. Check for transit damage.
2. Check that all fasteners and joints are tight and secure.
3. Check the capacity of the lifting unit and bottom block.
4. Check that the load chain is in good order and not twisted.

## 4.2 HOOK SUSPENSION HOISTS

The suspension point should be of a correct size to admit the top hook of the hoist, and allow it to rest properly on the saddle. It must be adequate to support the hoist while it is being operated at its maximum capacity (safe working load).

## 4.3 PHYSICAL CLEARANCES

1 The hoist must hang free of all obstructions.

2 The suspension point must be in such a position, that the load hook, and any anticipated load, can be raised and lowered free of obstructions.

3 Travelling hoist: The path of the hoist, the load hook and any anticipated load must be free of obstruction.

## 4.4 LUBRICATION

It is essential to lubricate the load chain before it is put into use. Brush or swab oil from the whole length of chain. Ensure proper lubrication to the point of contact between the links. Please check every month.

## 4.5 COMMISSIONING

All units are tested, in accordance with Statutory requirements, and a test Certificate is supplied.

On completion of installation, before the hoist is put into regular service, the following procedure should be carried out.

1 Check that all joints and fasteners are tight and secure.

2 Operate the hoist with both no load and full load and check that the operation is smooth at all times.

3 Check operation of hoist brake, under light load and full load conditions.

4 Travelling units - run throughout the full extent of the runway, ensuring adequate clearance at all times.


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

# 5. OPERATING INSTRUCTIONS

## SAFE WORKING LOAD

The safe working load is that load indicated on the hoist unit capacity plate. This is the maximum load that may safety be lifted with the hoist. Under no circumstances should a load greater than the SWL be suspended from the hoist.

## CARE AND USE OF THE HOIST

1 As with all lifting appliances, care is necessary in the use of the hoist and proper and safe working routines should always be observed.

2 Careless or rough handling or failure to maintain the hoist may result in a dangerous failure of the unit.

3 Always examine the hoist carefully before you use it - your life may be at stake. Look for cracks or damage, particularly with hooks and load chain. Check that the hooks are not distorted and that the safety catches are fitted and close properly. Note: an apparently ill-fitting safety catch can be an indication of a distorted hook.

4 Examine the hoist and load chain regularly. Do not use the hoist if it is damaged or parts are missing or if the load chain is worn or damaged.

5 Check that any slings or attachments are in good order.

6 Keep the load chain clean and oiled to prevent undue damage or wear. When in use, avoid dragging the load chain through dirt or mud.

7 When the hoist is used outdoors or in a corrosive environment, ensure that it is regularly and adequately lubricated.

8 In an abrasive environment, cleanliness is extremely important. Do not over lubricate.

9 When working at height or carrying the hoist take adequate care of the safety of those below.

10 Do not exceed the safe working load of the hoist.

11 Do not operate the hoist if you do not have a clear view of the bottom block and the load.

12 For a hoist fitted onto a runway check that:

a) the length of the runway is clear of obstructions and in good order.

b) end stops are fitted, at both ends of the runway and that they are secure and in good condition.

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## "DO" AND "DO NOT" FOR SAFE HOIST OPERATION

The following operating practices are recommended to avoid unsafe operating practices which can lead to personal injury or equipment / property damage.

### 5.1.1 "Do's" for Hoist Users

DO the following when operating lifting equipment

- DO read and understand General Safety and the all relevant operating instructions provided within this manual.
- DO be familiar with all controls and warnings located on the equipment.
- DO ensure that a firm footing is maintained when operating lifting equipment.
- DO ensure that load slings or other approved attachments are of the correct size/rating and seated in the hook saddle.
- DO use hook safety latches, ensure that the hook latch is closed and is not supporting any part of the load.
- DO ensure that the load is free to move and is clear all obstructions.
- DO ensure that the hoist, bottom block and the hook are directly in line with the direction of loading before commencing a lift.
- DO take up all slack carefully, lift a few inches, check the balance of the load and check the load holding action before continuing.
- DO make sure that all personnel remain clear of a suspended load.
- DO warn personnel of an approaching load.
- DO avoid swinging the load or load hook.
- DO report any malfunction, unusual performance or damage to lifting equipment to a supervisor promptly.
- DO use the manufacturers recommended replacement parts when repairing a hoist.

### 5.1.2 "Do Nots" For Hoist Users

The following DO NOTs must be observed when operating lifting equipment.

- DO NOT use damaged lifting equipment.
- DO NOT use the load chain as a sling, or wrap the chain around the load.

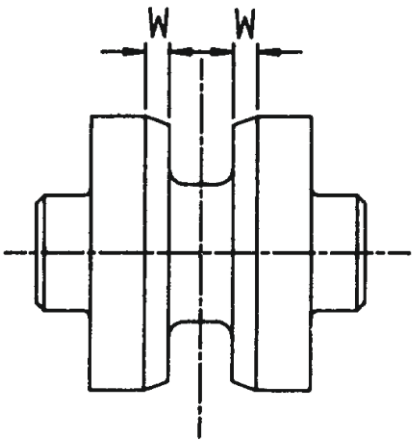

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

- DO NOT attempt to raise a load unless the load is centred under the hoist.

- DO NOT apply the load to the tip of the hook.
- DO NOT lift more than the rated load.
- DO NOT lift a load if binding prevents equal loading on all load chains.
- DO NOT use the hoist to lift, support, or transport personnel.
- DO NOT drag the chain or hook along the floor or across other objects.
- DO NOT allow attention to be diverted from operating the lifting equipment.
- DO NOT raise / travel or lower loads above other personnel.
- DO NOT leave a suspended load unattended.
- DO NOT adjust or repair lifting equipment unless qualified.

The friction discs and the faces of the hub, ratchet ring and hand chain wheel must be kept clear of all lubricants.

Never lubricate any friction discs. F ailure of the brake will result in the load falling.




Width of wear pattern (w) must not exceed 3 mm.

**FIGURE 2: PERMITTED WEAR OF CHAIN GUIDE ROLLER**

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

# 6. MAINTENANCE

Statutory regulations require that the hoists should be inspected and certified at regular intervals by a competent person. This is a safety measure, and to fulfil both this requirement and to obtain the most efficient and reliable operation, the hoist should be regularly serviced and maintained.

## ROUTINE EXAMINATION

The hoist should be regularly inspected for damage and wear and to ensure that it is operating smoothly. Where the hoist is used infrequently, a visual check should be made of the hoist each time it is used.

The following is a guide to routine checks which should be carried out on a hoist, which is used in normal operation conditions. Where a hoist in used or stored outdoors or in corrosive or abrasive conditions, inspection and lubrication must be attended to more frequently.

### LUBRICATION

Lubrication must be carried out regularly, at the intervals specified and when the hoist is dismantled for overhaul or repair.
In high duty use or in abrasive, corrosive or hot environments, the hoist may require more frequent attention and the frequencies given below must be regarded as a minimum.

| Part | Lubricant | | Application | Frequency |
|---|---|---|---|---|
| | Shell | HP | | |
| Load Chain | Omala 320 | Parthan EP-320 | Oil can, brush or swab. Ensure whole length of chain is clean and adequately lubricated. Pay particular attention to the point of contact between the links (i.e.. chain saddles). | 3 monthly |
| Hand Chain | Omala 320 | Parthan EP-320 | Oil can, brush or swab. Keep the whole length of the chain clean and lightly lubricated. | 6 monthly |
| Hook, shank and thrust face (500 kg, 1 t, 2t and 3t; hoists) | | Tisona-M2 | Clean hooks and swivel halves and repack. To remove swivel halves, remove lifting unit gear cover (item 6) and withdraw hook pin (item 59). | 2 yearly |
| Hook Thrust Bearings (5t and over hoists) | | Tisona–M2 | Clean and repack. | 2 yearly |
| Load Wheel Needle Bearings | | Tisona-M2 | Pressure packed on assembly. | No re-lubrication required |
| Spur Gearing | | Tisona-M2 | Clean all gears and apply fresh lubricant to all gear teeth. | 14 monthly |
| Plain Bearings (gear cover, side plates & load wheel) | | Tisona-M2 | Liberally smear the inside of all bushes. | 14 monthly |


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

| | | | | |
|---|---|---|---|---|
| Needle and Roller Bearings | | Tisona-M2 | Pressure packed on assembly. | No re-lubrication required |
| Driving Shaft | | Tisona-M2 | Clean shaft and apply fresh grease over entire surface of shaft. | 14 monthly |
| Ratchet Ring | Omala 320 | Parathan EP-320 | Lightly smear bore and teeth only. | 14 monthly |
| Hand chain Wheel or Load Limiter Hub | Omala 320 | Parathan EP-320 | Lightly smear the bore only. | 14 monthly. |

### 6.1.1 Inspection Check- List

| | | |
|---|---|---|
| Capacity indication | Inspect monthly. | There must be a clear indication of capacity. |
| **HOOK TOP / BOTTOM** | | |
| Deformation of Hook | Inspect visually | There must be no deformation of the hook. Safety catch must close against the tip of the hook (see Figure 1). |
| Damage to the Hook | Inspect visually | There must be no cracks, or serious damage. |
| Bend in the Neck of Hook | Inspect visually | Hook must hang square to lifting unit or top yoke (top hook) or to side plates (bottom block). |
| Suspension Pin | Inspect visually | Must not be bent, cracked or worn. |
| Sides Plates and Suspension Plates | Inspect visually | There must be no cracks, damage or wear. |
| Rivets, Bolts and Nuts | Inspect visually | All fasteners must be tight. |
| Safety Catch | Inspect visually | Must close properly. |
| Chain | Inspect visually | Must be properly lubricated and free from rust and dust. |
| Slack End Pin and Chain Anchor | Inspect. visually | Must not be bent. |
| Chain Wheels | Inspect visually | Chain pockets must not be deformed. Must rotate freely. |
| Ratchet Wheel and Pawl | Inspect visually before dismantling brake (see below) | Wear on the ratchet teeth profile and pawl should not be excessive - pawl must engage fully in the ratchet teeth. The pawl should not be rusted. Check that the pawl stud is secure and that the circlip is retaining the pawl. |
| Load Wheels and Chain Wheels | Inspect visually | Clean out load wheel chain pockets and check that they are not deformed. |
| Spur Wheels and Pinions | Inspect visually | Clean off all lubricant and check that gear teeth are not chipped, damaged or worn. Re-lubricate. |
| Hand Chain Wheel | Inspect visually | Chain pockets must not be deformed. |
| Chain Guide Rollers | Inspect visually | Must not be damaged, worn (refer to Fig. 2) or deformed and must rotate freely. |
| Stripper | Inspect visually | Tip of stripper must not be seriously flattened or damaged. (if in doubt consult a competent lifting engineer or fit new items). |

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## FUNCTIONS

| | | |
|---|---|---|
| Lifting and Lowering | Lift and lower a light load (approx. 25 kg) | Hoist should operate smoothly and easily. Pawl should click during lifting. |
| Braking | Lift and lower the full safe working load | Lifting and lowering operations should be smooth without any of the following defects.<br>1 Load fails if hand chain released.<br>2 Load fails while lowering.<br>3 Load slips. |


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## 6.2 DISMANTLING THE HOIST

Refer to Fig. 3 and proceed as follows:

**OPTIONAL PARTS**

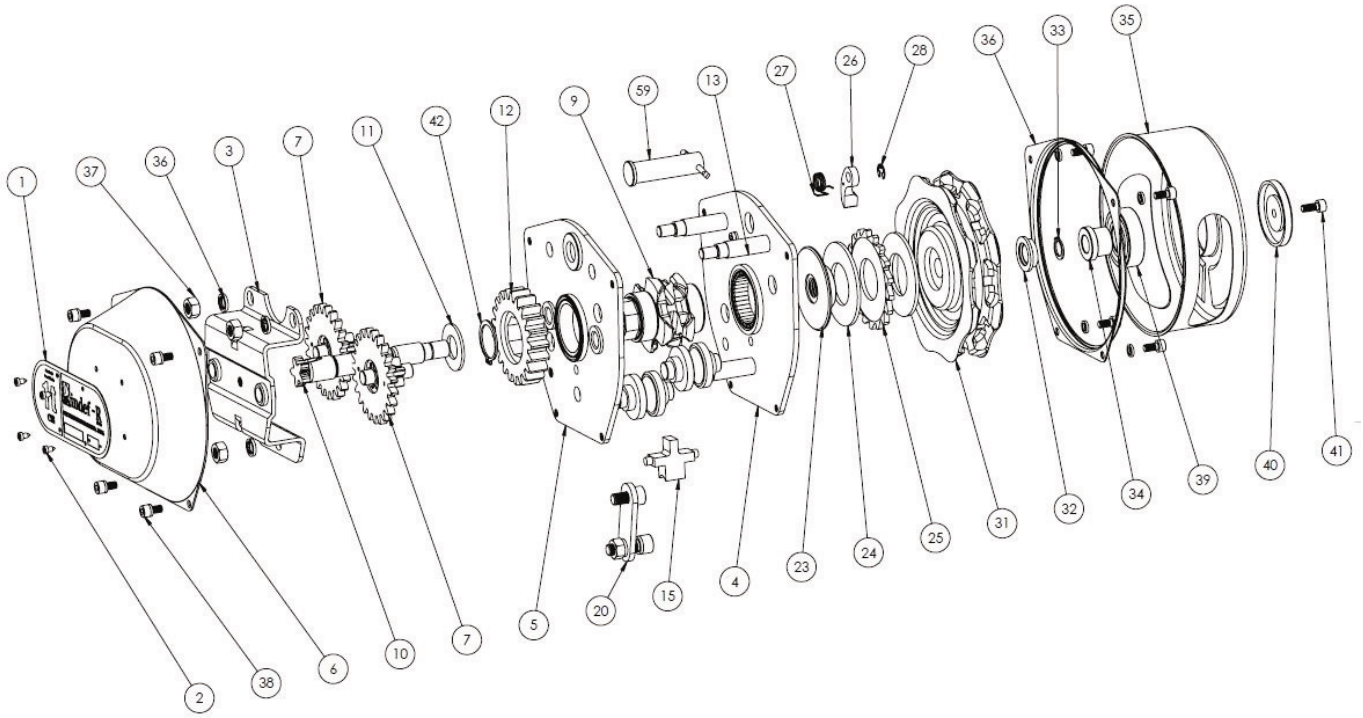



**FIGURE 3. LIFTING UNIT**

### 6.2.1 Dismantling Lifting Unit

Proceed as follows:

1 Remove m5 bolt (item 41)

2 Remove end cap (item 40)

3 Remove the 360 degree rotating hand chain wheel cover (item 35) & cover housing (item 36) by removing four bolts (item 38).

4 Lift off hand chain.

5 Remove bearing (item 39), distance spacer (item 34) & A12 circlip (item 33).

6 Take out end washer (item 32).

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

7 Now grip the end of the driving shaft (item 10) and unscrew the hand chain wheel (item 31).

8 Remove the friction washers, ratchet ring, and disc hub (items 24, 25, 23).

9 If required remove the pawl (item 26) and spring (item 27) by removing the circlip (item 28).

10 Remove the gear cover (item 6) by removing four bolts (item 38).

11 Remove gearbox bracket (item 3) by removing three nuts and washers (item 36 & 37).

12 Remove the two spur wheel assemblies (item 7).

13 Withdraw the top hook pin (item 59) and remove the top hook by removing split cottar pin on other end of pin or trolley suspension plate.

14 Withdraw the chain end anchor plate (item 20).

15 Withdraw the drive shaft (item 10) and lift off the washer (item 11).

16 Lift off the side plate (item 5) complete with spur wheel (item 12) and load wheel (item 9).

17 Remove the chain guide rollers (item 16) and chain stripper (item 15).

18 If required separate the spur wheel (item 12) and load wheel (item 9) from the side plate (item 5).

19 Examine the bearings. If the bearings or stay bolts are damaged or the pawl stud is loose, the complete side plate assembly must be replaced.

### 6.2.2 Re-assembly

The components are reassembled in reverse order. Note the following:

1 The intermediate spur wheels (item 7) and the load spur wheel (item 12) should be aligned with the S and O marks

2 Components should be cleaned and lubricated as listed in the lubrication instructions.

3 The brake components must be assembled according to the Brake Assembly instructions - see next column (6.2.3)

4 If a new load wheel has been fitted a new load chain must be fitted.

5 The six nuts (item 37) securing the gear bracket and hand chain wheel side plate must be tightened.

6 Fit the load chain.

7 If a hoist has a trolley and this has been dismantled, refer to Trolley Adjustment instructions.


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

8 After, re-assembly, the complete hoist should be tested, by a competent person. Checks should include a light load test of approximately 25 kg and the full safe working load.

### 6.2.3 Brake Assembly

The brake assembly comprises the disc hub (item 23), the friction washers (item 24), ratchet ring (item 25), hand wheel (item 31) and circlip (item 33).

1 When assembling the brake tighten the disc hub (item 23) and hand chain wheel (item 31) finger tight only.

2 The circlip (item 33) should be fitted after end washer is placed (item 32).

3 Fit the hand chain.

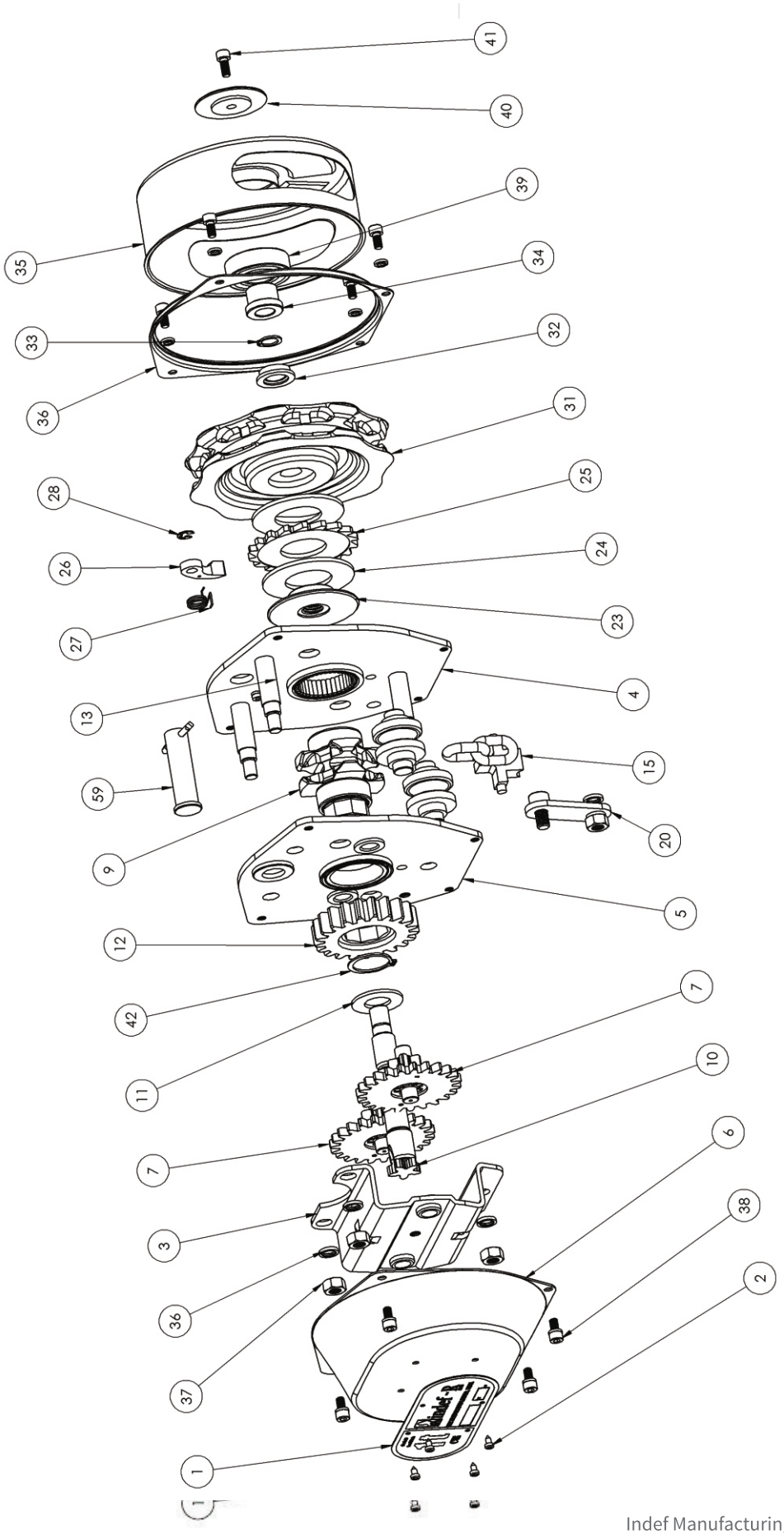
4 Suspend a load of 1.5 x SWL on the load hook. The brake must sustain this, If the load is not sustained, the brake is not acting fully. However, the brake is self-adjusting and providing that the brake components are not damaged or excessively worn, it is only necessary to support the load and operate the hand chain until the brake gap is closed.

5 Operate the hoist up and down a short distance.

6 Check that the hoist is operating correctly and refit the cover(s).

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

## FIGURE 4. LIFTING UNIT




Indef Manufacturing Limited © 2024



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

## 7. SPARE PARTS

To ensure compatibility of parts, it is recommended that spares be obtained from Authorised dealers of INDEF. When ordering spare parts, quote the hoist serial number, the hoist capacity, the item number, description, part number and quantity required.

### LIFTING UNIT SPARE PARTS

Quantities given are for one lifting unit.

| ITEM NO | DESCRIPTION | Qty | DRAWING NO. | | | | | |
|---|---|---|---|---|---|---|---|---|
| | CAPACITY IN TONNES | | 1T | 2T | 3T | 5T | 8T | 10T |
| 2 | SELF TAPPING SCREW | 4 | STPH08140000 | STPH08140000 | STPH08140000 | STPH08140000 | STPH08140000 | STPH08140000 |
| 4 | SIDE PLATE (H. C. WHEEL SIDE) ASSLY | 1 | CSMM002004A | CSMM002004A | CSOM002004A | CSOM002004A | CSOM002004A | CSOM002004A |
| 5 | SIDE PLATE (GEAR BOX SIDE) ASSLY | 1 | CSMM002005A | CSMM002005A | CSOM002005A | CSOM002005A | CSOM002005A | CSOM002005A |
| 6 | GEAR COVER ASSLY | 1 | CSMM002006A | CSMM002006A | CSOM002006A | CSOM002006A | CSOM002006A | CSOM002006A |
| 7 | DRIVE SHAFT SPUR WHEEL ASSLY | 2 | CSMM002007A | CSMM002007A | CSOM002007A | CSOM002007A | CSOM002007A | CSOM002007A |
| 9 | LOAD CHAIN WHEEL ASSLY | 1 | CSMM002009A | CSMM002009A | CSOM002009A | CSOM002009A | CSOM002009A | CSOM002009A |
| 10 | DRIVE SHAFT | 1 | CTMM773010A | CTMM773010A | CSOM813210A | CSOM813210A | CSOM813210A | CSOM813210A |
| 11 | THRUST WASHER | 1 | CMAM353011B | CMAM353011B | CMDM353011B | CMDM353011B | CMDM353011B | CMDM353011B |
| 12 | LOAD SPUR WHEEL | 1 | CSMM773012A | CSMM773012A | CSOM813012A | CSOM813012A | CSOM813012A | CSOM813012A |
| 15 | CHAIN STRIPPER | 1 | CSMM383015A | CSMM383015A | CSOM383015A | CSOM383015A | CSOM383015A | CSOM383015A |
| 16 | CHAIN GUIDE ROLLER | 2 | CSMM083016A | CSMM083016A | CSOM083016A | CSOM083016A | CSOM083016A | CSOM083016A |
| 20 | CHAIN END ANCHOR PLATE | 1 | CSMM313018A | CSMM313018A | CSOM313018A | CSOM313018A | CSOM313018A | CSOM313018A |
| 21 | CHAIN STOP BOLT | 1 | ASFM08016000 | ASFM08016000 | ASFM08016000 | ASFM08016000 | ASFM08016000 | ASFM08016000 |
| 23 | DISC HUB | 1 | CSMM373023A | CSMM373023A | CSOM373023A | CSOM373023A | CSOM373023A | CSOM373023A |
| 24 | FRICTION WASHER | 2 | CSMM143024A | CSMM143024A | CSOM143024A | CSOM143024A | CSOM143024A | CSOM143024A |
| 25 | RATCHET RING | 1 | CSMM313025A | CSMM313025A | CSOM823025A | CSOM823025A | CSOM823025A | CSOM823025A |
| 26 | RATCHET PAWL | 1 | CSMM822026A | CSMM822026A | CSOM083026A | CSOM083026A | CSOM083026A | CSOM083026A |
| 27 | PAWL SPRING | 1 | CSMM242027A | CSMM242027A | CSOM242271A | CSOM242271A | CSOM242271A | CSOM242271A |
| 28 | CIRCLIP | 1 | EXCRC0050000 | EXCRC0050000 | EXCRC0070000 | EXCRC0070000 | EXCRC0070000 | EXCRC0070000 |
| 31 | HAND CHAIN WHEEL | 1 | CSMM023031A | CSMM023031A | CSOM023031A | CSOM023031A | CSOM023031A | CSOM023031A |
| 32 | END WASHER | 1 | CTMM833032A | CTMM833032A | CSOM833232A | CSOM833232A | CSOM833232A | CSOM833232A |
| 33 | CIRCLIP | 1 | EXCRA0120000 | EXCRA0120000 | EXCRA0120000 | EXCRA0120000 | EXCRA0120000 | EXCRA0120000 |
| 34 | DISTANCE SPACER | 1 | CTMM313038A | CTMM313038A | CSOM313138A | CSOM313138A | CSOM313138A | CSOM313138A |
| 35 | HAND CHAIN WHEEL COVER | 1 | CTMM313035A | CTMM313035A | CSOM313350A | CSOM313350A | CSOM313350A | CSOM313350A |
| 36 | COVER HOUSING | 1 | CTMM313036A | CTMM313036A | CSOM313360A | CSOM313360A | CSOM313360A | CSOM313360A |
| 37 | HEX NUT | 6 | HNMM008000YZ | HNMM008000YZ | HNMM012000YZ | HNMM012000YZ | HNMM012000YZ | HNMM012000YZ |
| 38 | ALLEN BOLT | 8 | ASFM05010000 | ASFM05010000 | ASFM05010000 | ASFM05010000 | ASFM05010000 | ASFM05010000 |
| 39 | BEARING | 1 | BBR06004ZZ00 | BBR06004ZZ00 | BBR062010000 | BBR062010000 | BBR062010000 | BBR062010000 |
| 40 | END CAP | 1 | CTMM313040A | CTMM313040A | CSMM313137A | CSMM313137A | CSMM313137A | CSMM313137A |
| 41 | ALLEN BOLT | 1 & 3 | ASFM05016000 | ASFM05016000 | ASFM06010000 | ASFM06010000 | ASFM06010000 | ASFM06010000 |
| 43 | LOAD CHAIN | as per requirement. | CHAL630190IS | CHAL630190IS | CHAL100300IS | CHAL100300IS | CHAL100300IS | CHAL100300IS |
| 44 | HAND CHAIN | as per requirement. | CHHYN0502253 | CHHYN0502253 | CHHYN0502253 | CHHYN0502253 | CHHYN0502253 | CHHYN0502253 |
| 49 | CHAIN SUSPENSION | 2 | - | CSMCM313119A | - | - | - | - |
| 59 | TOP HOOK PIN | 1 | CSMU323059A | CSMU323059A | CMDU323059B | CMDU323059B | CMDU323059B | CMDU323059B |
| | JOINING LINK | 1 | CHJL050225YZ | CHJL050225YZ | CHJL050225YZ | CHJL050225YZ | CHJL050225YZ | CHJL050225YZ |

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

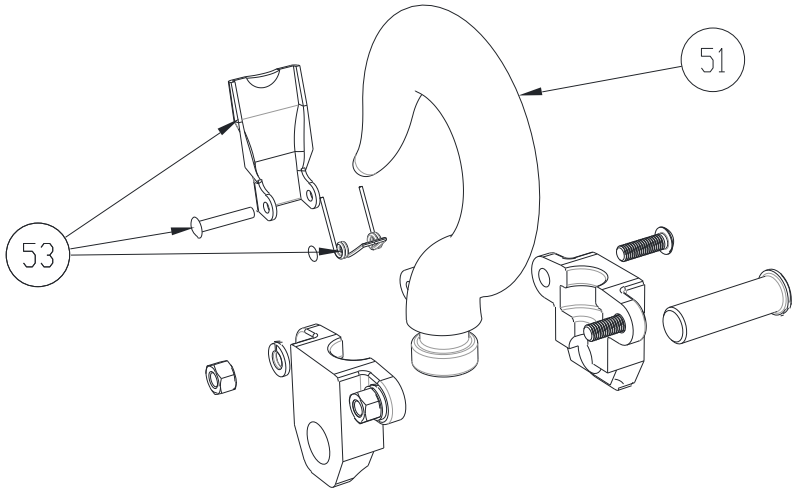



Figure 5 : 1 T, 2T, 3T TOP HOOK ASSEMBLY

## SPARE PARTS

| ITEM NO | DESCRIPTION | QTY. | DRAWING NUMBER | | |
|---|---|---|---|---|---|
| | **CAPACITY IN TONNES** | | **1T** | **2T** | **3T** |
| | TOP HOOK ASSEMBLY | 1 | 5220501P | 5220502P | 5220503P |
| 51 | HOOK | 1 | CSOU073079A | CABU073154A | CIHU081051A |
| 53 | SAFETY LATCH COMPLETE | 1 | CMBU003053A | CMBU003053A | CMDU003053A |

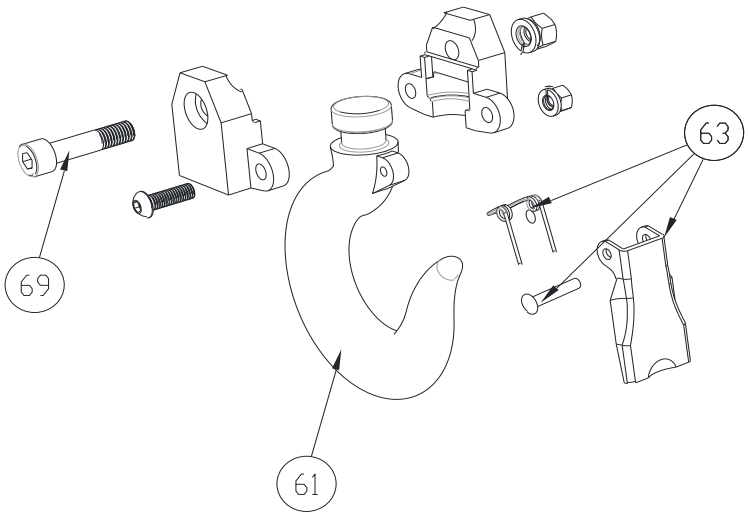



Figure 6 : 1T, 3T BOTTOM HOOK ASSEMBLY

## SPARE PARTS

| ITEM NO | DESCRIPTION | QTY. | DRAWING NUMBER | |
|---|---|---|---|---|
| | **CAPACITY IN TONNES** | | **1T** | **3T** |
| | BOTTOM HOOK ASSEMBLY | 1 | 5220601P | 5230603P |
| 61 | HOOK | 1 | CSOU073079A | CIHU081051A |
| 63 | SAFETY LATCH COMPLETE | 1 | CMBL003053A | CMDU003053A |
| 69 | SOCKET HEAD CAP SCREW | 1 | CMBL203069A | CIHL203069A |


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

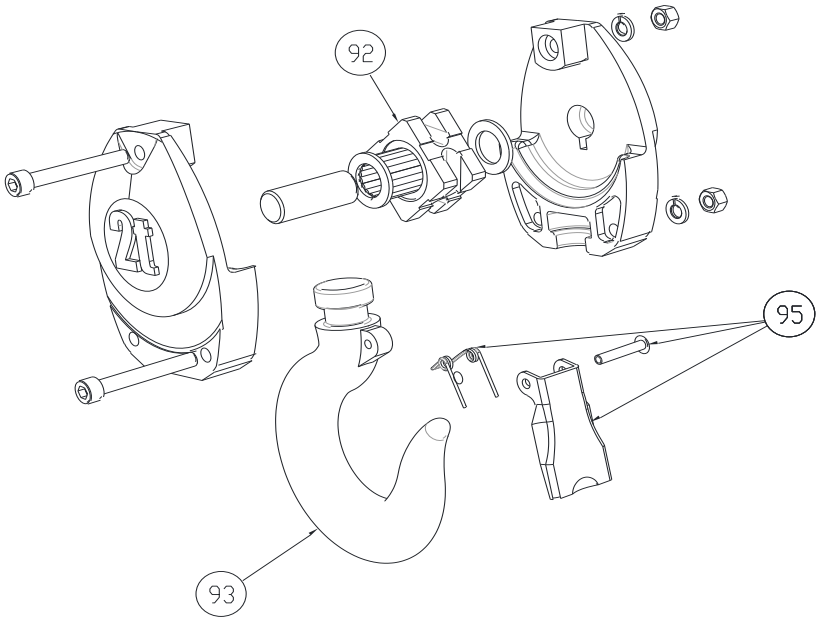
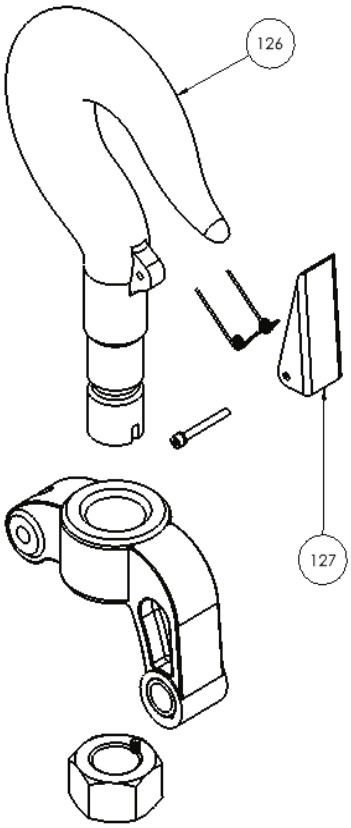



Figure 7 : 2T BOTTOM HOOK ASSEMBLY

## SPARE PARTS

| ITEM NO | DESCRIPTION | QTY. | DRAWING NUMBER |
|---|---|---|---|
| | **CAPACITY IN TONNE** | | **2T** |
| | BOTTOM HOOK ASSEMBLY | 1 | 5220602P |
| 93 | HOOK | 1 | CABU073154A |
| 95 | SAFTY LATCH COMPLETE | 1 | CMBU003053A |
| 92 | LOAD CHAIN WHEEL ASSEMBLY | 1 | CIDL003640A |

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice




| ITEM NO | DESCRIPTION | QTY | DRAWING NUMBER |
|---|---|---|---|
| | CAPACITY IN TONNES | | 5T |
| | BOTTOM HOOK ASSEMBLY | 1 | 5230505P |
| 126 | HOOK | 1 | CCBU073078A |
| 127 | SAFTY LATCH COMPLETE | 1 | CCBS003127B |

Figure 8 : 5T TOP HOOK ASSEMBLY

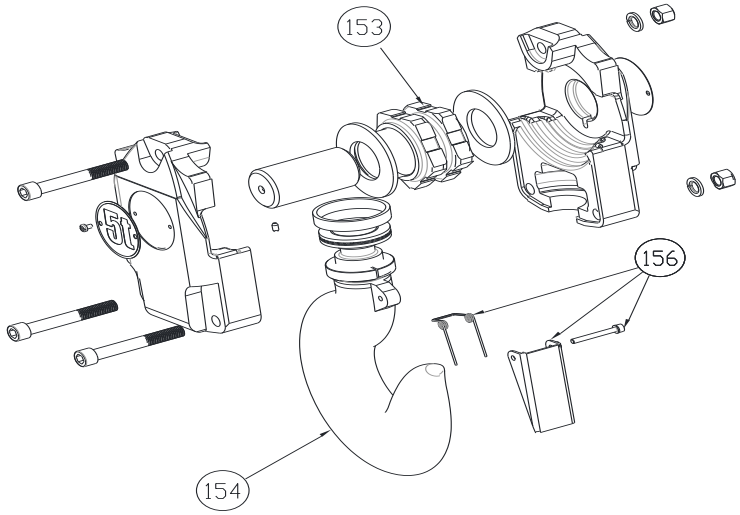



Figure 9 : 5T BOTTOM HOOK ASSEMBLY

| ITEM NO | DESCRIPTION | QTY | DRAWING NUMBER |
|---|---|---|---|
| | CAPACITY IN TONNES | | 5T |
| | BOTTOM HOOK ASSEMBLY | 1 | 1230603P |
| 154 | HOOK | 1 | CIIL003154B |
| 153 | LOAD CHAIN WHEEL ASSEMBLY | 1 | CIIL003153B |
| 156 | SAFTY LATCH COMPLETE | 1 | CCBS003127B |


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

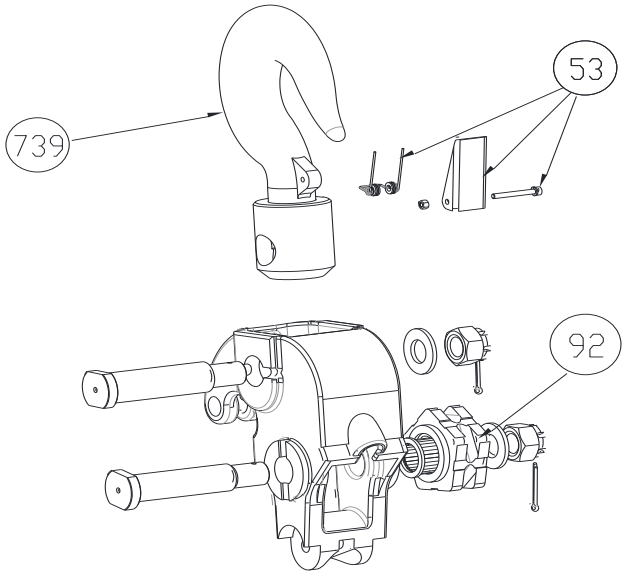



Figure 10 : 8T TOP HOOK ASSEMBLY

| ITEM NO | DESCRIPTION | QTY | DRAWING NUMBER |
|---|---|---|---|
| | CAPACITY IN TONNES | | 8T |
| | TOP HOOK ASSEMBLY | 1 | 5230508P |
| 53 | SAFTY LATCH COMPLETE | 1 | CCBS113126A |
| 739 | TOP HOOK WITH LATCH ASSLY CONSISTING OF PART 739,713,720,52 | 1 | CGQU003739A |
| 92 | LOAD CHAIN WHEEL ASSLY CONSISTING OF PART 100,92,99,98,751 | 1 | CGQU003749A |

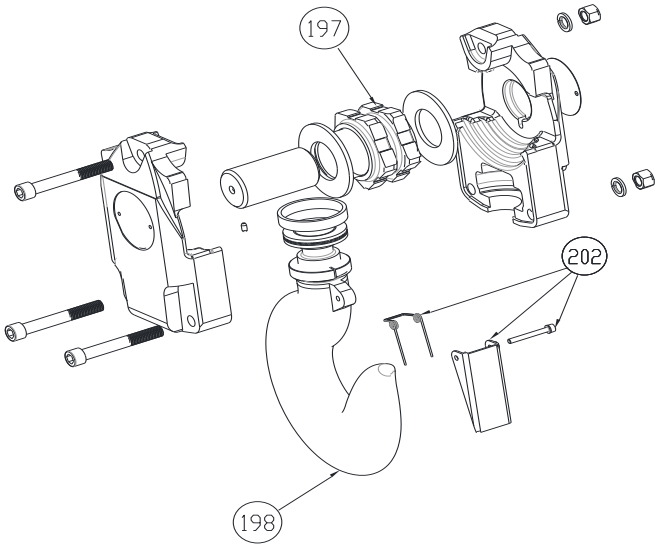



Figure 11 : 8T BOTTOM HOOK ASSEMBLY

| ITEM NO | DESCRIPTION | QTY | DRAWING NUMBER |
|---|---|---|---|
| | CAPACITY IN TONNES | | 8T |
| | BOTTOM HOOK ASSEMBLY | 1 | 1620603P |
| 202 | SAFTY LATCH COMPLETE | 1 | CCDS003176A |
| 197 | LOAD CHAIN WHEEL ASSLY CONSISTING OF PART 185, 191, 193, 197 | 1 | CIIL003153B |
| 198 | BOTTOM HOOK WITH LATCH ASSEMBLY ASSLY CONSISTING OF PART 198, 195, 201, 194 | 1 | CIJL003198A |

Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

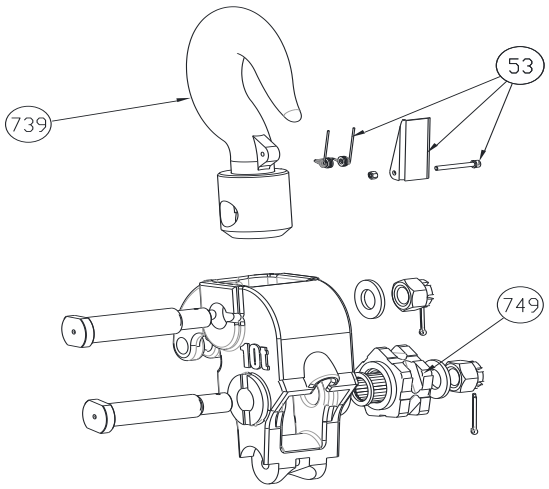



Figure 12 : 10T TOP HOOK ASSEMBLY

| ITEM NO | DESCRIPTION | QTY | DRAWING NUMBER |
|---|---|---|---|
| | CAPACITY IN TONNES | | 10T |
| | TOP HOOK ASSEMBLY | 1 | 5230510P |
| 53 | SAFETY LATCH | 1 | CCBS113126A |
| 739 | TOP HOOK WITH LATCH ASSLY CONSISTING OF PART 739, 713, 720, 52 | 1 | CGQU003739A |
| 749 | LOAD CHAIN WHEEL ASSLY CONSISTING OF PART 752, 749, 753, 750, 751 | 1 | CGQU081749A |

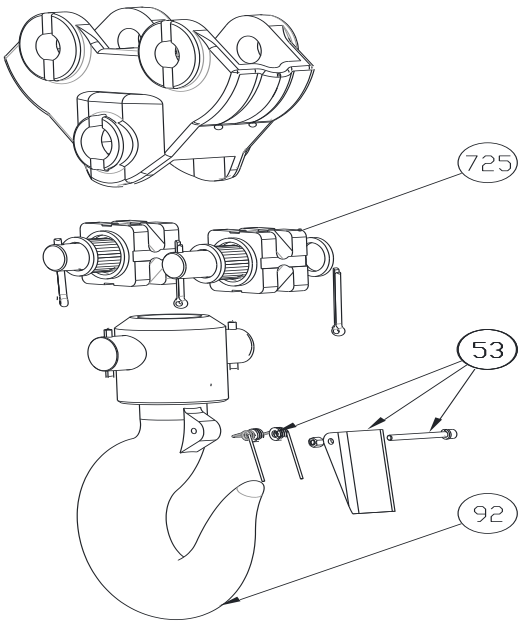


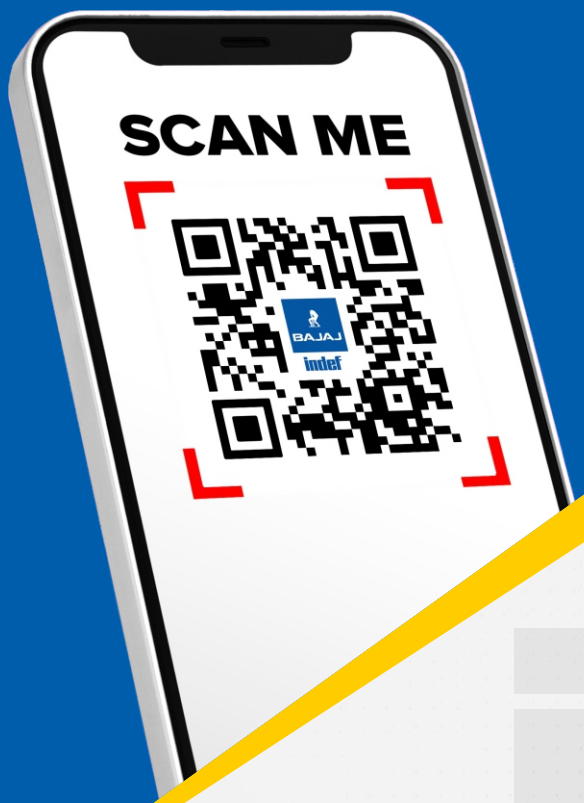

Figure 13 : 10T BOTTOM HOOK ASSEMBLY

| ITEM NO | DESCRIPTION | QTY | DRAWING NUMBER |
|---|---|---|---|
| | CAPACITY IN TONNES | | 10T |
| | BOTTOM HOOK ASSEMBLY | 1 | 1620604P |
| 53 | SAFTY LATCH COMPLETE | 1 | CCBS003127B |
| 725 | BOTTOM HOOK LOAD CHAIN WHEEL ASSLY CONSISTING OF PART 100,92,99,98,721 | 2 | CGPL003092A |
| 92 | BOTTOM HOOK ASSEMBLY COMLETE CONSISTING OF PART 739,713,720,52 | 1 | CGQU003739A |


Indef Manufacturing Limited © 2024
Note :- Due to continuous development and improvement specification listed above may be changed without notice

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.

© 2024 Indef Manufacturing Ltd. All rights reserved.




BAJAJ
indef

www.indef.com | enquire@indef.com | +91 (22) 489-33303

Office No. 501-504, Shelton Cubix, Plot No. 87, Sector-15, CBD-Belapur, Navi Mumbai - 400 614, India.

CODE NO: 41 : DO : 1707/MAN/INDEF-R/09-2024