Tiger

# SUB-SEA LEVER HOIST INSTRUCTION GUIDE

-please pass onto the operator


S. W. L.

**3.00TONNE**

SERIAL NUMBER

**1301024**

CE

Tiger UK

# INSTRUCTIONS FOR USE

## PRE-USE

Upon receiving the hoist, either from the supplier or from stores, check immediately for any evidence of damage. Following any specific installation instructions for your lifting operation and the general guidelines below. Try the hoist before your lift to ensure that it is operating correctly.

## SELECTING THE CORRECT TIGER LEVER HOIST

Tiger Lever hoists are available in a range of capacities. Select the lever hoist to be used and plan the lift taking the following into account:

**Capacity:** Use the hoist whose capacity is nearest but greater than the intended lift.

**Range:** Select the hoist with the correct amount of load chain or as close as possible to the amount needed to perform the lift.

Tiger hoists are designed for use at any attitude and may be used both for lifting and pulling applications. Consult the supplier if the lever hoist is to be used in areas of high risk, with hazardous substances, eg acids or chemicals, or subjected to extremes of temperature.

## USING TIGER LEVER HOISTS SAFELY

Do not attempt lifting operations unless you understand the use of the equipment and the slinging procedures.

Do not use defective Tiger hoists or accessories.

Check the slinging arrangement ensuring that the Tiger hoist is safely rigged and that chains are not twisted, or out of alignment.

When using a 6 Tonne twin fall hoist, always make sure that the bottom hook has not been turned inside out, creating a twist in the load chain. Fig. 1.

Ensure that the load is correctly seated in the hook. Fig. 1.

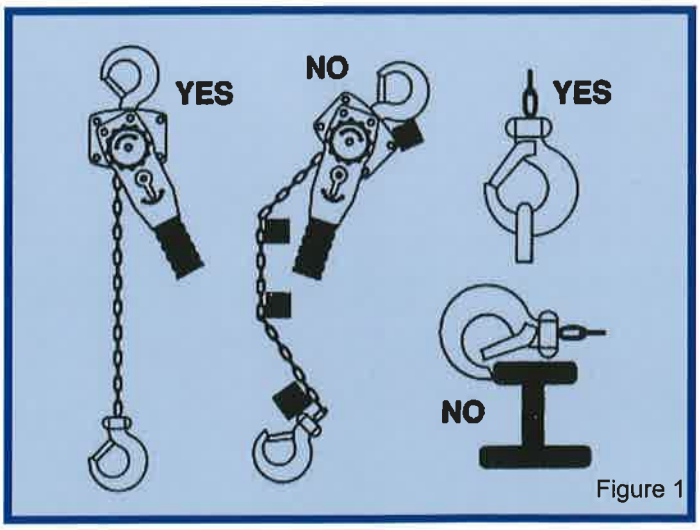


Figure 1

Do not wrap the load chain around the load or use the load chain as a sling. Fig. 2.

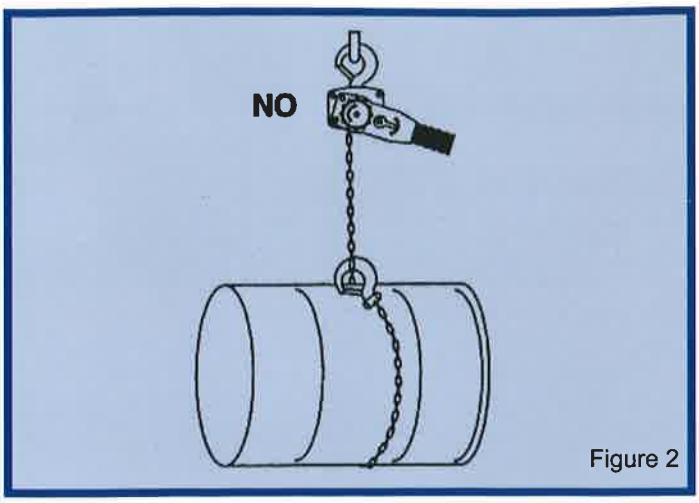


Figure 2

Do not use the hoist to suspend people or to lift loads over people.

Do not lift or suspend a load with two hoists(Fig. 3) unless the hoists have been fitted with fleeting adaptors and hooks by the manufacturer. In these circumstances the lifting operation should be approved by a competent person.

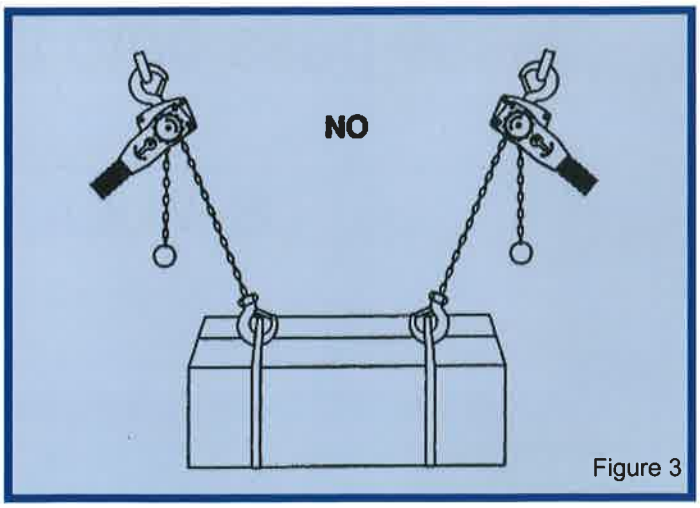


Figure 3

Check the load is free to move before commencing and that any landing area has been prepared.

Raise the load just clear, and then halt the lift to check the integrity of the lever hoist, slinging method etc.

Do not extend the operating lever, eg with a tube, to force the hoist to operate.

## STORING AND HANDLING TIGER LEVER HOISTS

Never return damaged Tiger's to storage. They should be stored dry, clean and protected from corrosion.

Store lever hoists hung from the suspension hook with the chains raised clear of the ground.

Lever hoists should not be dropped, thrown or dragged across the floor.

Never galvanise or subject the chain, or other load bearing parts, to any other plating process without the express approval of the supplier.

## LOAD CHAIN FREEWHEEL OPERATION

The unique dual brake mechanism featured in the Tiger Lever Hoist enables free movement of the load chain whilst preventing light load slip and accidental load release.

To make slight adjustments to the position of the load chain, move the change lever to the central position marked N (Fig. A).In this position the grip ring can be rotated clockwise or counter clockwise to move the chain up or down.

To make major adjustments to the position of the load chain, move the change lever to the central position marked N and then turn the central free wheel dial to line up with the marks on the grip ring (Fig. B).The load chain can now be pulled through the hoist to the required position.

*Figure A*

*Figure B*

If a load is attached to the hoist neither of the free wheel options in Fig. A or Fig. B will operate and the brake will remain active.

Following a chain free wheel adjustment the change lever is moved into either the up or down position (Fig. C and D) for lifting or lowering operation.

*Figure C*

*Figure D*

## ADJUSTABLE CHAIN END STOP

IMCA guidance note D 028 Rev. 1 "The Use of Chain Lever Hoists in the Offshore Environment" requires measures to avoid single point failures in static or multiple rigging points. The Tiger Lever Hoist is fitted with a travelling chain end stop to specifically address points in section 7.2 of these guidance notes.

If the end stop is to be used then it should be positioned as shown if Fig. Ebefore the load is lowered. Once the load is being lowered the chain stop can be returned to its normal position (Fig. F).

*Figure E*

*Figure F*

If a hoist has been left rigged under load for an extended period of time it is good practice to first lift the load slightly before lowering it.

## IN-SERVICE INSPECTION AND MAINTENANCE

Follow any specific maintenance instructions issued by the supplier but in particular keep load chains lubricated and free of debris. Check the operation of the brake. Brakes must be kept free of oil, grease etc. Never replace the load chain with a longer one without consulting the supplier. Regularly inspect the lever hoist and, in the event of the following defects, refer the hoist to a Competent Person for thorough examination: **wear**; damage to hooks and fittings; damage or distortion to travelling end stop;**chains** worn, bent, notched, stretched, cracked, corroded, do not hang freely, twisted or jumps during operation; load slips or will not lift; damaged hoist casing bent or cracked operating lever; illegible markings.

## THOROUGH EXAMINATIONS

In accordance with the Lifting Operations and Lifting Equipment Regulations a Through Examination of the equipment must be carried out by a Competent Person, at periods defined in the Regulations, and a Report of this examination must be kept on file.

# INSPECTION CRITERIA

## LOAD CHAIN

The load chain should be regularly inspected for nicks, gouges, weld splatter, corrosion, heat discolouration or distorted links. If any of these problems are detected then the hoist should be referred to a competent person for further action.

To remove the chain for inspection, disconnect the chain end stop TS-23, place the hoist in free wheel position and pull the chain out of the hoist. Remove the hook TS-40.

During thorough inspections the following points should be followed.

1. Clean the chain thoroughly before inspection.
2. Inspection should be in a well lit place.
3. In addition to the points above the chain should be checked for interlink wear and stretch. Replace the chain if the measurements exceed those shown in *Fig G* and *Table 1*.

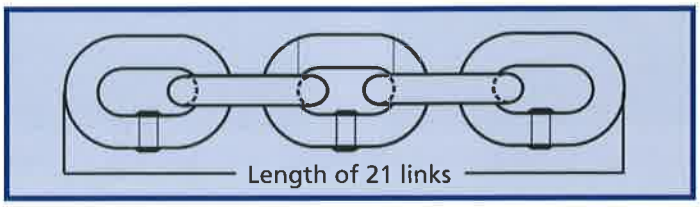



*Figure G*

| Capacity Tonnes | Diameter of Chain Wire | Maximum allowable Gauge Length |
|---|---|---|
| 0.8 | 6.3 mm | 21 links = 421.6 mm |
| 1.5 | 7.1 mm | 21 links = 467.4 mm |
| 3 | 10 mm | 21 links = 668.0 mm |
| 6 | 10 mm | 21 links =668.0 mm |

*Table 1*

## HOOKS

The hooks should be regularly inspected for nicks, gouges, weld splatter, corrosion, heat discolouration, distortion and functioning latches. If any of these problems are detected then the hoist should be referred to a competent person for further action.

Hooks will yield under excessive loads so the throat opening must be regularly checked. If the dimesions exceed those shown in *Fig. H* and *Table 2* then the hook should be replaced.

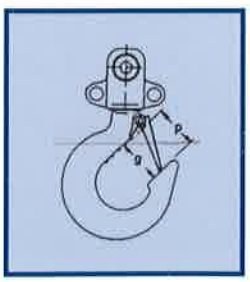


*Figure H*

## CAUTION

Any hook that is twisted or has throat opening in excess of acceptable maximum indicates abuse or overloading of hoist. Other load bearing components of hoist should be inspected for damage.

| Capacity Tonnes | Hook Throat Opening g (mm) | |
|---|---|---|
| | New Hook g equals | Replace when g equals |
| 0.8 | 30 mm | 32 mm |
| 1.5 | 38 mm | 41 mm |
| 3 | 41 mm | 45 mm |
| 6 | 56 mm | 61 mm |

*Table 2*

## Inspection procedure is as follows:

1. Measure throat opening from metal to metal of hook. (g - Fig. H). Do NOT measure from latch (p - Fig. H).
2. Maximum allowable wear on bearing point of the hook is 10%.
3. More than 10% twist from plane of hook is sufficient to warrant replacement of hook.
4. Check latch for damage. Make sure it closes securely.
5. Excessive damage from chemicals or deformation are reasons for replacing hook. Repairs by welding and or reshaping are not recommended.
6. Use dye penetrant, magnetic particle or other suitable method for detecting cracks.

## WARNING

Please be aware that to make the Lever Hoist work properly, there is a minimum weight load (of 2% of the S.W.L.) requirement as follows:

**800 kg - 35.2 lbs. (16 kg)**
**1½ tonnes - 88 lbs. (30 kg)**
**3 tonnes - 110 lbs. (60 kg)**
**6 tonnes - 150 lbs. (120 kg)**
**10 tonnes - 440 lbs. (200 kg)**

## WARNING

The equipment described in this brochure is not designed for, and should not be used for lifting, supporting or transporting any persons.

The hoist should not be used in conjunction with other equipment. Any safety devices applicable to the system must be installed by the user.

Any modifications to upgrade, create or otherwise alter the hoist should only be authorised by the original equipment manufacturer or qualified professional engineer.

Failure to comply with any limitations outlined herein may result in serious injury.

# ASSEMBLY INSTRUCTIONS

## Disassembly of Handle and Brake

Refer to illustrated Parts List. Following the order of parts in illustrations, disassemble from right to left.

Check handle, grip ring, ratchet gear, brake disc, retaining spring and hub for any signs of deforming.

## Disassembly of Gear and Centre (body)

Refer to illustrated Parts List. Following the order of parts in illustrations, disassemble from left to right

Check gear cover, gears, side plate, top hook, hook pin, guide, load sheave, pinion shaft and sideplate for deforming.

## NOTE

For Top Hook Inspection and Maintenance, see HOOKS

## Reassembly

Refer to illustrated Parts List. Reassemble in reverse order of above disassembly.

a) Before assembling, wash all parts well with cleaning oil or similar.

b) Assemble gears. Refer to Figures I and J.
Align gears as follows:
**800kg and 1½ Tonnes**
Notice the marks (R&L) on the gears,
place "R" gear on right side, "L" gear on left side.
These two marks (R&L) must be on horizontal centre line, facing toward centre as shown (Fig. I).

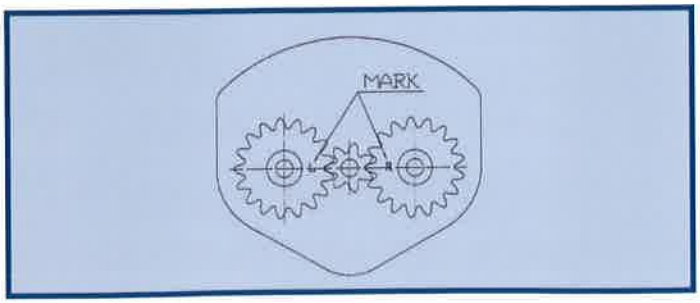



*Figure I*

**3 Tonnes, 6 Tonnes and 10 Tonnes**
Notice the marks "O" on the gears,
place "O" mark face to sheave on horizontal centreline on right side, place the other "O" mark face to up direction on vertical centreline on left side as shown(Fig. J).

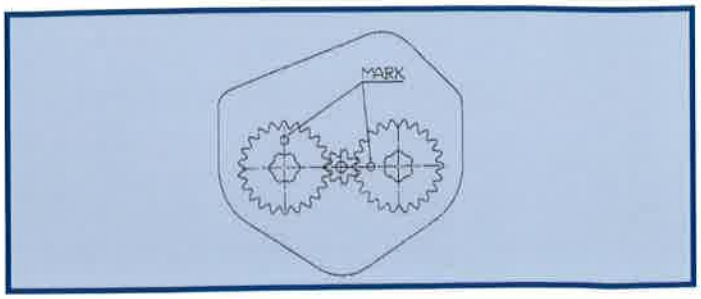



*Figure J*

c) DO NOT lubricate the two brake discs (Parts TS-13 and N-28) or the friction surfaces contacting them.

d) Replace the Ratchet Gear with brake disc TS-29 if the thickness is less than 1.5mm or the discs have worn to the bottom of the grooves.

## ASSEMBLY OF GRIP RING FREE WHEEL

With the hoist in the position shown in Fig. K, screw the TS-34 grip ring clockwise on to the TS-3 pinion shaft until you hear the ratchet gear clicking over the pawls within the hoist. Then move the change lever into the up position. Insert the TS-36 spring as shown in Fig. L.


Fig. K


Fig. L

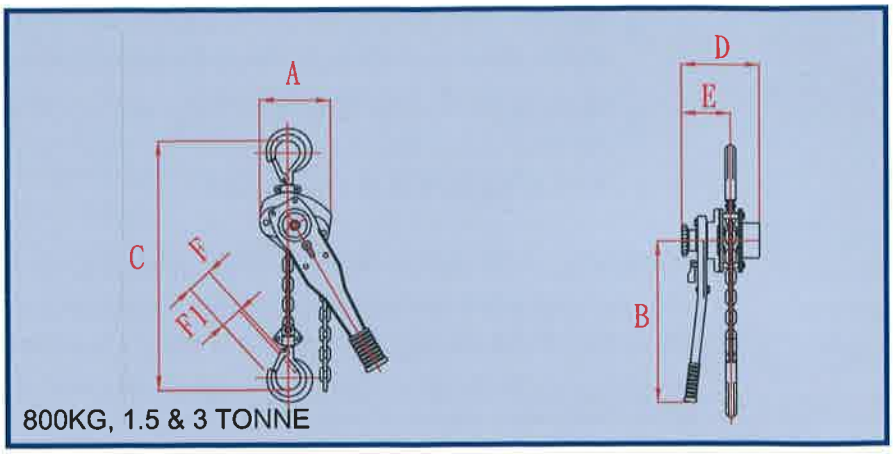

Fig. M

With the indicator marks on the top and bottom of the TS-34 grip ring pointing at the 12 o'clock and 6 o'clock position, fit the TS-38 free wheel switch to the first spline to the left side of the first convex grip on the TS-34 grip ring as shown in Fig. M.

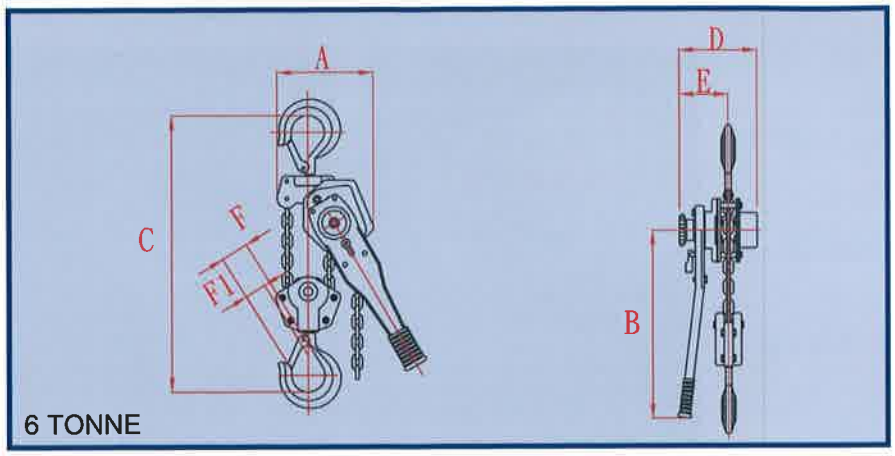

Fig. N

Holding the TS-34 and TS-38 in position, fit the TS-32 washer and TS-39 pinion nut and tighten ANTI-CLOCKWISE. As in Fig. N.
Following assembly, always carry out tests to the relevant standard.

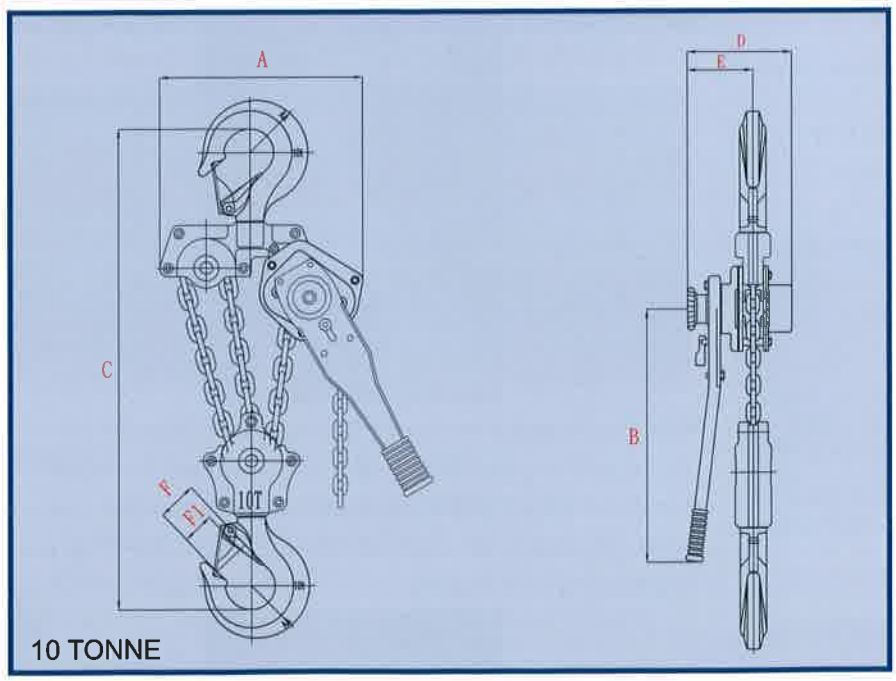
# DIMENSIONS



800KG, 1.5 & 3 TONNE



6 TONNE



10 TONNE

# Tiger SUB SEA LEVER HOIST

## ALWAYS:

- Store and handle lever hoists correctly.
- Inspect lever hoists and accessories before use and before placing into storage.
- Ensure any support fits freely into the seat of the hook and does not exert a side thrust on the point.
- Check the operation of the brake.
- Check that the bottom hook will reach its lowest point without running the chain against the stop.
- Adopt safe slinging practices and follow the instructions for the safe use of the equipment used.
- Check that the load chain is aligned correctly and has no twists in it between the hoist body and the bottom hook.

## NEVER:

- Expose lever hoists to chemicals, particularly acids, without consulting the supplier.
- Replace the load chain with a longer one without consulting the supplier.
- Extend the lever or use undue effort to force the lever hoist to operate.
- Throw, drop or drag a lever hoist.
- Allow oil or grease to come into contact with the brake.
- use multi-fall hoists that have misaligned or twisted load chain.

## DIMENSIONS FOR TIGER LEVER HOIST

| Cap. (tonnes) | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | F1 (mm) | Load Chain Size(mm) | Load Chain No. of Falls | Mass Kg 1.5 Mtr | Pulling Effort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.80 | 128 | 240 | 275 | 158 | 99 | 30 | 26 | 6.3 | 1 | 7.2 | 23 kg |
| 1.50 | 154 | 360 | 320 | 172 | 104 | 38 | 34 | 7.1 | 1 | 10.2 | 26 kg |
| 3.00 | 182 | 360 | 400 | 195 | 108 | 43 | 38 | 10.00 | 1 | 18 | 38 kg |
| 6.00 | 242 | 360 | 570 | 195 | 108 | 57 | 52 | 10.00 | 2 | 28 | 40 kg |
| 10.00 | 370 | 360 | 630 | 195 | 108 | 71 | 56 | 10.00 | 3 | 36 | 47 kg |

Pulling Effort complete with Extension Handle: 3 tonnes = 22 kg  6 tonnes = 23.5 kg  1 0 tonnes =2 7.5 kg

## WARNING

This hoist should not be installed,operated or maintained by any person who has not read all the contents of these General Instructions. Failure to read and comply with these instructions or any of the limitations noted herein can result in serious injury and / or damage to property.

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SUB SEA

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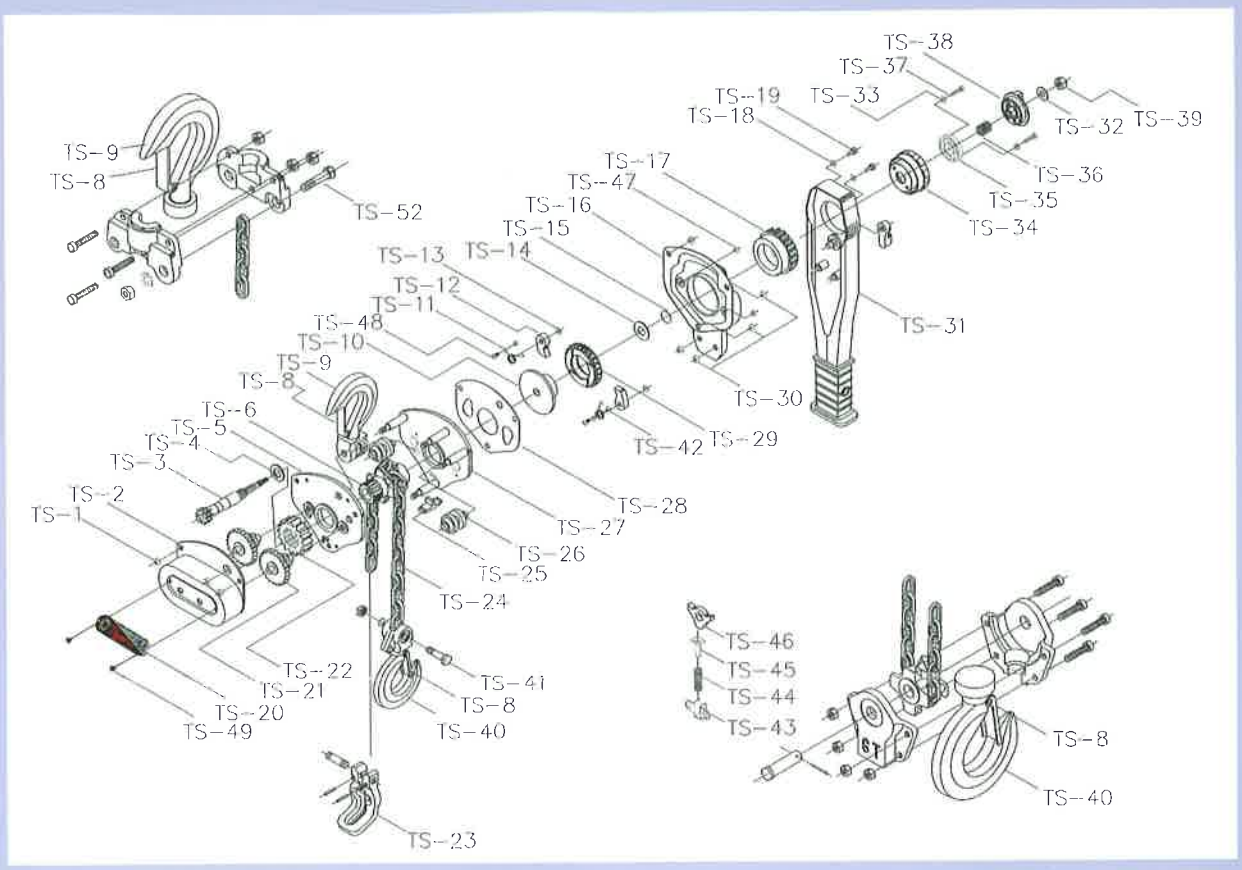


**To Order Parts:** When ordering replacement parts, please specify Capacity, Part No. and Quantity.
The user should only use manufacturer authorised original replacement parts in the service and manufacture of the hoist.

| Part No. | Quantity | Part Name | Part No. | Quantity | Part Name |
|---|---|---|---|---|---|
| TS-1 | 4 | Nut for Gear Cover | TS-27 | 1 | Wheel-side Plate Assembly |
| TS-2 | 1 | Gear Cover | TS-28 | 1 | Gasket |
| TS-3 | 1 | Pinion Shaft | TS-29 | 1 | Ratchet Gear with Brake Disc |
| TS-4 | 1 | Pinion Shaft Washer | TS-30 | 2 | Nut for Handle Cover |
| TS-5 | 1 | Gear-side Plate | TS-31 | 1 | Handle Assembly |
| TS-6 | 1 | Load Sheave | TS-32 | 1 | Washer |
| TS-8 | 2 | Safety Latch Set | TS-33 | 2 | Spring Washer |
| TS-9 | 1 | Top Hook Assembly | TS-34 | 1 | Grip Ring |
| TS-10 | 1 | Disc Hub | TS-35 | 1 | Guide Plate |
| TS-11 | 2 | Pawl Spring | TS-36 | 1 | Pushing Spring |
| TS-12 | 2 | Brake Pawl | TS-37 | 2 | Screw for Guide Plate |
| TS-13 | 2 | Snap Ring for Pawl Pin (1.5 Ton) | TS-38 | 1 | Switch Set for Free Wheel |
| TS-14 | 1 | Spring Disc | TS-39 | 1 | Pinion Nut |
| TS-15 | 1 | Snap Ring for Pinion Shaft | TS-40 | 1 | Bottom Hook Assembly |
| TS-16 | 1 | Brake Cover with Handle Cover | TS-41 | 1 | Bottom Hook Pin |
| TS-17 | 1 | Change Gear | TS-42 | 2 | Nut for Pawl Spring |
| TS-18 | 2 | Spring Washer | TS-43 | 1 | Spring Stand |
| TS-19 | 2 | Screw for Handle | TS-44 | 1 | Pushing Up Spring |
| TS-20 | 1 | Label | TS-45 | 1 | Pushing Up Pin |
| TS-21 | 2 | Pinion Gear | TS-46 | 1 | Change Pawl |
| TS-22 | 1 | Load Gear | TS-47 | 2 | Nut for Brake Pawl Pin |
| TS-23 | 1 | Load Chain Anchoring Set | TS-48 | 2 | Screw for Pawl Pin |
| TS-24 | 1 | Load Chain | TS-49 | 2 | Screw for Label |
| TS-25 | 1 | Chain Stripper | TS-52 | 1 | Chain-End-Fixing Screw |
| TS-26 | 2 | Load Chain Guide | | | |

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# CERTIFICATE OF ADEQUACY

**Certificate No MDC 691**
**SGS United Kingdom Ltd is a Notified Body appointed by the DTI under the Machinery Directive 2006/42/EC**
**Appointment Number 0353.**

| | |
|---|---|
| Date of Issue | **25th January 2010** |
| SGS Reference | **CST132723/1** |
| Details of Product | **Chain Hoist / Models: CB - 0.5/1/1.5/2/3/5/3-S/10**<br>**Lever Hoist / Models: LB - 0.25/0.5/0.75/1/1.5/3/6/10**<br>**Plain Trolley / Models: PT - 0.5/1/2/3/5/10**<br>**Geared Trolley / Models: GT - 0.5/1/2/3/5/10**<br>**Beam Clamp / Models: BC – 1000/2000/3000/5000**<br>**Hand Winch / Models : BHW – 800(N)/1200(N)/1800(N)/2600(N), SF-2200/5000** |
| Date of Receipt | **13th January 2010** |
| Date of Assessment | **20th January to 25th January 2010** |
| Assessment Performed | **Assessed for compliance with the requirements of Annex VII of the Machinery Directive 2006/42/EC (Technical File)** |
| Conclusion | **In the opinion of SGS the submitted technical file referenced as CST132723/1 satisfies the requirements of the Machinery Directive 2006/42/EC** |
| Applicable Standards | **EN ISO 12100-1: 2003+A1: 2009, EN ISO 12100-2: 2003+A1: 2009, EN ISO 14121-1: 2007, ISO/TR 14121-2: 2007, EN 13157: 2004+A1: 2009** |
| Issue No. | **1** **Valid until 24th January 2015** |

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