



# VULCAN

## HOIST - PALAN

**XT Series Chain Block**

**Operation manual**





# Safety and Warnings

Failure to read and comply with the contents of this manual can result in serious bodily injury or death, and property damage. 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.

Equipment described herein should not be used in conjunction with other equipment unless necessary safety requirements for all applicable devices have been taken. The company shall have no liability to the client for any loss, damage or other claims for compensation arising from the misuse of the equipment. Modifications to upgrade, rerate, or otherwise alter this equipment shall be authorized only by the original equipment manufacturer.

- Do NOT use a chain block for lifting, supporting or transporting people
- Do NOT use two or more chain blocks together to lift a load beyond the rated capacity of any one of the individual chain blocks
- Do NOT lift loads beyond the rated capacity of the chain block
- Do NOT lift or transport loads over or near people
- Do NOT let an unqualified person use the machine
- Do NOT install equipment onto beams of unknown capacity
- When a chain block is used with accessories, all accessories must have the same working load as the chain block or higher. Otherwise, take the lowest working load as the effective working load
- Do NOT operate damaged or malfunctioning device
- Do NOT operate manual equipment with anything other than manual power
- Do NOT remove or obscure labels
- Do NOT suspend a load for extended period of time or leave load unattended

Use only Vulcan authorized replacement parts in the service and maintenance of Vulcan equipment.

Failure to comply with any of limitations may result in bodily injury or death.

## Before use

Chain block operators shall be required to read this manual, the warnings contained in this manual, instructions and warning labels on the chain block or lifting system. The operator shall also be required to be familiar with the chain block controls before being authorized to operate the chain block or lifting system.

Do NOT use the chain block if there are deep nick, gouges or stretch on hook. Contact Vulcan Hoist or the distributor of the chain block and replace the hook.

- Check if all warnings and nameplates are clear and visible every day
- Check the chain block before daily use according to the daily inspection procedure
- Estimate the weight of the load and choose a chain block of suitable rated capacity
- Ensure hooks are not damaged, deformed and they rotate freely with no roughness
- Ensure the running of the brake system is normal
- Lubricate load chain according to recommendations

## During operation

- Do NOT use a twisted, kinked, damaged or stretched load chain
- Do NOT use the chain block chain as a sling
- Do NOT use the chain block as a support
- Do NOT support a load on the tip of the hook
- Do NOT run the load chain over sharp edges
- Do NOT weld or cut a load suspended by a chain block
- NEVER use a damaged chain block or a chain block that is not working properly
- NEVER swing a suspended load
- NEVER use the chain block chain as a welding electrode
- NEVER operate a chain block so far that the bottom hook touches the chain block body
- NEVER operate a chain block if excessive noise occurs

# Operation Instructions

This chain block has been designed for vertically lifting and lowering loads, by hand, under normal atmospheric conditions of the work place. However, since dealing with heavy loads may involve unexpected danger, all safety rules must be followed.

To ensure a safe working environment, the operator must be aware of the following points while using the chain block:

- The operator must have a clear and unobstructed view of the entire travel area before operating the chain block. When not possible, a second or more persons must serve as scouts in the nearby area
- The operator must check if the entire travel area is safe and secure before operating the chain block

To operate the chain block:

- Face the hand chain wheel side of the chain block
- Pull the hand chain clockwise to raise the load and counter clockwise to lower the load
- The clicking sound of the pawl when load is being raised indicates normal operation

# Inspection

Daily inspection is performed by the operator each day before using the chain block. Periodic inspection is performed by a qualified service personnel who has the authority to remove the equipment from service.

Periodic inspection is performed at the intervals specified below:

- Normal service – six months
- Heavy service – weekly to monthly
- Severe service – daily to weekly
- Infrequent service – after each use

The purpose of these inspections is to determine whether parts have worn out beyond their limits. If any deficiencies are found during an inspection, the equipment must be tagged immediately as “out of service”.

Contact Vulcan Hoist for further instructions. The lifter must remain “out of service” until repairs are completed in compliance with Vulcan’s instructions.

Dated records of all inspection and maintenance procedures are to be maintained by an appointed person as a permanent record.

## Daily Inspection

Item	Method	Criteria	Action
<b>Name plate</b>	Visual	Warnings and notes are clear and visible	Replace
<b>Function</b>	Functional	Face the hand chain wheel side of the chain block. Pull the chain clockwise to raise the load and counter clockwise to lower it. The clicking sound of the pawl when load is being raised indicates the proper operation of the chain block	Repair/Replace
<b>Hook</b>	Visual	No wear, deformation or damage. The hook swivel rotates freely	Replace
<b>Hook latches</b>	Visual	No deformation or structural flaws	Replace
<b>Load chain</b>	Visual	No structural flaws (deformation, kinks, knots), no rust or corrosion. Surface must be well lubricated	Oil load chain, replace the load chain
<b>Other</b>	Visual	No missing fasteners or split pins. No damage on the chain block body. Chain stopper is not damaged and working properly	Replace

## Periodic inspection

Item	Method	Criteria	Action
<b>Hook stretch &amp; wear</b>	Measure	The hook throat opening should not be greater than 1.05 of the dimension measured at the time of purchase. Any surface wear should not result in dimension change of more than 10% of the original value measured at the time of purchase	Replace
<b>Hook surface flaws</b>	Visual	Hook surface should be free of rust, weld splatter, deep nicks or gouges	Replace
<b>Hook rotation</b>	Visual Functional	Hook should rotate freely	Replace
<b>Hook yoke</b>	Visual Functional	Hook yoke should have no slack or missing rivets, nuts, or bolts	Replace
<b>Hook latch</b>	Visual	Proper positioning and smooth working	Replace
<b>Load Chain wear</b>	Measure	The chain elongation compared to the original chain length should be no greater than 2.5%	Replace
<b>Load chain surface flaws</b>	Visual	Chain should be free of twists, kinks or knots	Replace
<b>Load Chain rust</b>	Visual	Should be free from rust and well lubricated	Oil, Replace if rust
<b>Bottom hook pin deformation</b>	Visual	Replace the hook pin if there is obvious deformation, surface dips or other signs of surface wear	Replace
<b>Bottom hook pin rust</b>	Visual	Should be free from rust and well lubricated	Oil, Replace if rust
<b>Top/bottom hook pin hole</b>	Visual	Replace if pin hole has elongated in a teardrop shape or the hole diameter is 2.5% larger than the original dimension measured at the time of purchase	Replace
<b>Brake rust</b>	Visual	Should be free from rust	Replace
<b>Brake friction disc</b>	Visual	Free from cracks or other flaws	Replace
<b>Brake disc wear</b>	Visual	Friction disc must have a uniform thickness and shall not be worn more than 0.5mm	Replace
<b>Brake disc flatness</b>	Visual	Clearance should be uniform. Internal part should not be thicker than external part	Replace
<b>Brake pawl</b>	Visual	Free from surface wear or deformation	Replace
<b>Brake pawl spring</b>	Visual	No deformation, actuates smoothly	Replace
<b>Brake ratchet disc</b>	Measure	External diameter of ratchet disc should not be lower than 2.5% of original dimension at time of purchase	Replace
<b>Lifting system load sheave</b>	Visual	Free from surface wear or deformation	Replace
<b>Lifting system gear</b>	Visual	Free from surface wear or deformation	Replace
<b>Lifting system gear box</b>	Visual	Free from surface wear or deformation	Replace
<b>Lifting system hand wheel</b>	Visual	Free from surface wear or deformation. When turning the pocket wheel, the chain should not touch the chain block body	Replace
<b>Body hook pin hole</b>	Measure	Pin hole must not be stretched into an oval. The diameter must not be larger than 2.5% of original dimension. Take diameter measurements all around the hole	Replace
<b>Body guide plate</b>	Visual	Free from surface wear or deformation	Replace
<b>Body chain stopper ring</b>	Visual	Free from surface wear or deformation	Replace
<b>Function lifting/lowering</b>	Functional	No abnormal difficulty in lifting and lowering a load	Overhaul and service
<b>Function brake</b>	Functional	Confirm that load can be lifted, load does not slip slowly and load does not fall when operator releases the hand chain	Overhaul and service

# Maintenance

Incorrect maintenance may result in serious bodily injury or death. Only trained and competent personnel could maintain this equipment. After performing any maintenance on the chain block, always test chain block according to this manual before returning it to service.

## Caution

- Make sure no clothes, fingers or hands are caught in the chain, idle sheave or other moving parts
- Never operate the chain block during maintenance
- Always inspect all the components if there is abnormal difficulty in lifting/lowering a load
- Never perform maintenance on the chain block while it is supporting a load
- Always wipe off all dirt and water from the chain block
- Always store the chain block in a dry and clean place

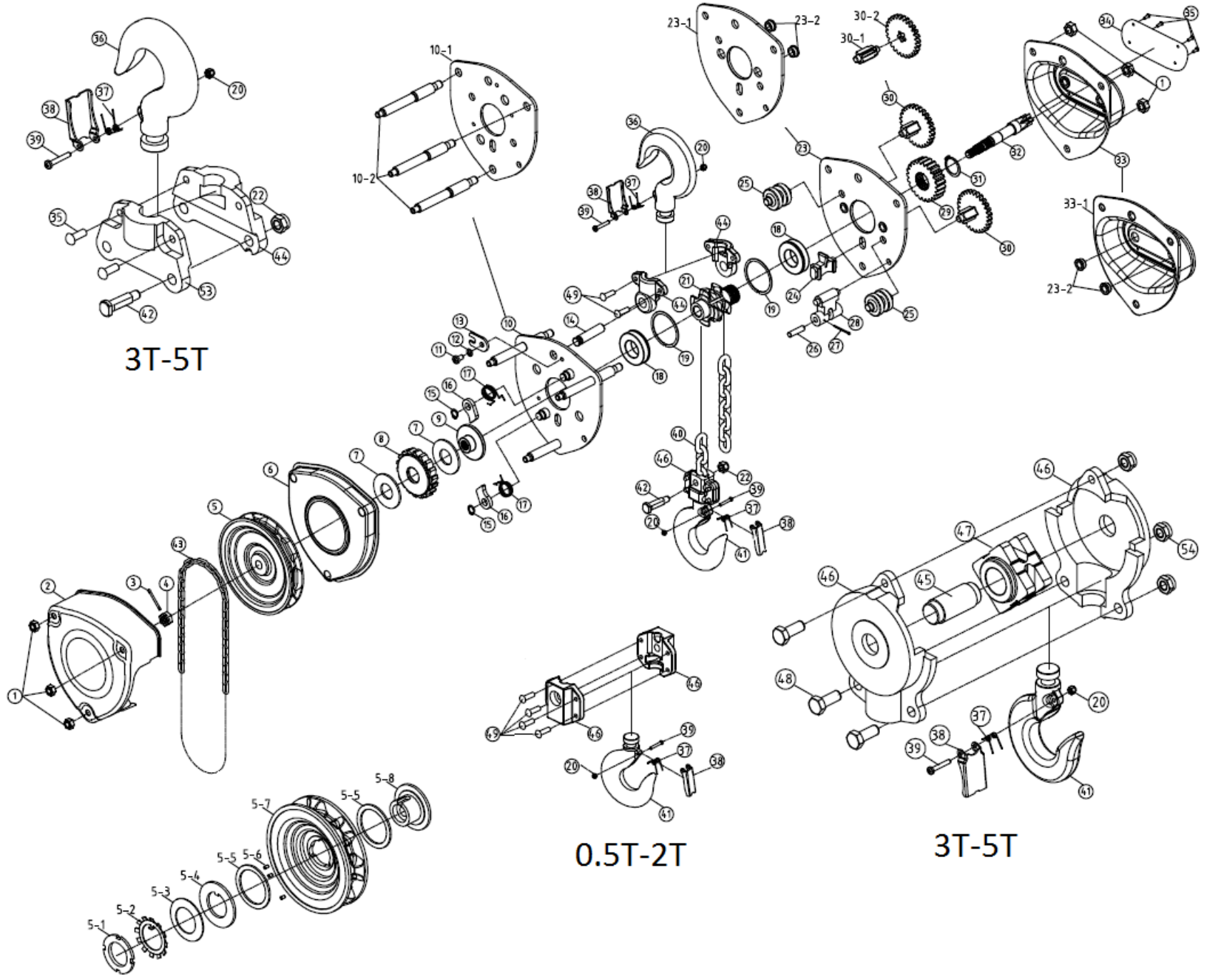
## Lubrication

- Make sure to lubricate the load chain, hook latches, top/bottom hook pin and hook yoke
- Load chain must be lubricated well with machine oil
- Lubricate load chain weekly, or more frequently, depending on severity of service
- Lubricate load chain more frequently in corrosive environments
- Recommended lubricant for this product is Chevron Way Lubricant ISO 68



# Troubleshooting

Problem	Cause	Action
<b>The pawl clicks properly, but fails to lift the load</b>	Worn friction plates. When used at high frequency without performing maintenance regularly, the friction plates will wear down. This will create gaps between the friction disc and hand wheel and cause the brake to slip	Disassemble and replace the friction plates
<b>The pawl produces no sound and fails to lift the load</b>	The pawl has been improperly assembled. If the pawl is assembled facing the other way, or otherwise assembled incorrectly, it will not cleanly mesh with the ratchet disc	Disassemble and then reassemble parts correctly
<b>The pawl produces no sound and fails to lift the load</b>	The pawl is not moving smoothly. Unless maintenance is performed regularly, dirt will adhere to the grease on the pawl and pawl shaft. Movement will become sluggish and the pawl will remain stuck in the kicked back position	Disassemble, clean and lubricate parts then reassemble parts correctly
<b>The chain is tight when lifting, even without a load (A squeaking noise can be heard at times)</b>	Worn gear teeth or worn bearing. Unless maintenance is performed regularly, greased parts will dry, resulting in excessive wear and damage affecting the meshing of the gears	Disassemble and replace pinion, load gear, gear case, side plate and ball bearing
<b>Improper lowering or the chain is very tight when lowering</b>	The brake is too tight. This is due to shock during work or because the load was left suspended for a long period of time and the brake tightened	Free the brake forcibly by jerking the hand chain. Inspect components for any permanent damage and replace parts as necessary
<b>Improper lowering or the chain is very tight when lowering</b>	The brake is rusted. Unless maintenance and lubrication is performed regularly, rusting will occur	Disassemble and replace parts as necessary
<b>The chain block drops the load when the instant lowering is started or slips gradually</b>	The braking surface is dirty. During assembly, the braking surface must be wiped clean of dirt	Disassemble and then reassemble parts correctly
<b>The chain block drops the load when the instant lowering is started or slips gradually</b>	The braking surface is oily. The braking surface must not be allowed to become soiled with grease or machine oil because it is a dry-type brake	Disassemble, clean and reassemble parts. Do not oil or grease the braking surface or friction plates



No.	Description	Qty
1	Hand wheel cover hex nut	6
2	Hand wheel cover	1
3	Split pin	1
4	Hex slot nut	1
5	Hand wheel	1
5-1	Ovld. protection, locking nut	1
5-2	Ovld. protection, brake seat ring	1
5-3	Ovld. protection, spring	1
5-4	Ovld. protection, clamp	1
5-5	Ovld. protection, friction disc	2
5-6	Ovld. protection, roll pin	3
5-7	Ovld. protection, ratchet gear	1
5-8	Ovld. protection, brake seat	1
6	Brake disc cover	1
7	Friction plate	2
8	Ratchet gear	1
9	Brake seat	1
10	Left side plate assembly	1
10-1	Left side plate	1
10-2	Support pin	3
11	Screw of lock plate	1
12	Spring washer of lock plate	1
13	Lock plate	1

No.	Description	Qty
14	Pin of top hook	1
15	Snap ring	2
16	Pawl	2
17	Spring of pawl	2
18	Bearing A	2
19	Snap ring	2
20	Bottom hook housing hex nut	2
21	Chain sprocket	1
22	Bottom hook housing hex nut	1
23	Right side plate assembly	1
23-1	Right side plate	1
23-2	Steel ring	2
24	Stripper	1
25	Guide roller	2
26	Suspension plate pin	1
27	Split pin	1
28	End anchor	1
29	Splined gear	1
30	Disc gear assembly	2
30-1	Primary gear	2
30-2	Secondary gear	2
31	Snap ring	1
32	Pinion shaft	1

No.	Description	Qty
33	Gear cover assembly	1
33-1	Gear cover assembly	1
23-2	Steel ring	2
34	Name plate	1
35	Name plate rivet	4
36	Top hook housing B	1
37	Safety latch spring	2
38	Safety latch spring	2
39	Safety latch pin	2
40	Load chain	1
41	Bottom hook housing hex nut	1
42	Bottom hook housing pin	1
43	Hand chain	1
44	Top hook housing A (0.5T-2T)	2
44	Top hook housing A (3T-5T)	1
45	Bottom hook shaft	1
46	Bottom hook housing B	2
47	Bottom hook idler	1
48	Bottom hook housing B bolt	3
49	Bottom hook housing rivet	4
53	Top hook housing B	1
54	Bottom hook housing hex nut	3

## BEAM CLAMP

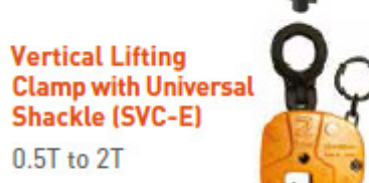
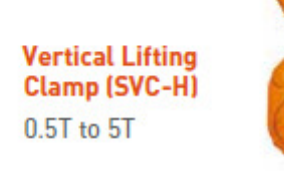


## NOVA LIFTING CLAMPS



\* Nova lifting clamps and beam clamp have a 1-year warranty.

## SUPER LIFTING CLAMPS



\* Super lifting clamps have a 2-year warranty.

SERVICES



RENTAL



TESTING AND CERTIFICATION



MAINTENANCE AND REPAIR



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