

OPERATION – SERVICE – PARTS

TUGIT2

**Manually Operated Short Handle
Lever Hoist**



A3140-XXX

Sold & Serviced by
Morgan Aero 1450 80th Street SW Everett WA U.S.A.
425/438.9600

SAFETY PRECAUTIONS

WARNING!

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in *death* or *serious injury*. To avoid such a potentially hazardous situation, the operator shall:

1. **NOT** operate a malfunctioning or unusually performing hoist.
2. **NOT** operate the hoist until you have thoroughly read and understood this Operating, Maintenance and Parts Manual.
3. **NOT** lift or pull more than rated load for the hoist
4. **NOT** use damaged hoist or hoist that is NOT working properly.
5. **NOT** use a hoist with twisted, kinked, damaged, or worn load chain.
6. **NOT** operate with an lever extension (cheater bar).
7. **NOT** attempt to "free chain" the hoist
8. **NOT** use the hoist to lift, support or transport people.
9. **NOT** lift loads over people and make sure all personnel remain clear of the supported load.
10. **NOT** attempt to lengthen the load chain or repair damaged load chain.
11. **Protect** the hoist's load chain from any damaging contaminants.
12. **NOT** operate hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
13. **NOT** use load chain as a sling or wrap load chain around load.
14. **NOT** apply the load to the tip of the hook or to the hook latch.
15. **NOT** apply load unless load chain is properly seated in the chain sprocket's.
16. **NOT** apply load if bearing prevents equal loading on all load supporting chains
17. **NOT** operate beyond the limits of the load chain travel.
18. **NOT** leave load supported by the hoist unattended unless specific precautions have been taken.
19. **NOT** operate the hoist unless load attachments are seated properly.
20. **NOT** operate a hoist unless all persons are and remain clear of the supported load.
21. **REPORT** malfunctions or unusual performance of hoist and do not re-use until checked by qualified persons.

22. **BE** familiar with operation controls, procedures, and warnings.

CAUTION!

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in injury to persons or damage to equipment. To avoid such a potentially hazardous situation the operator shall:

1. **MAINTAIN** a firm footing or be otherwise secured when operation the hoist.
2. **CHECK** brake function by tensioning the hoist prior to each lift.
3. **USE** hook latches.
4. **MAKE** sure the hook latches are closed and not supporting any parts of the load.
5. **MAKE** sure the load is free to move and will clear all obstructions.
6. **AVOID** swinging the load.
7. **KEEP** a firm grip on the lever until operation stroke is completed and the lever is at rest.
8. **INSPECT** the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
9. **USE** only recommended parts when repairing the unit.
10. **LUBRICATE** load chain per maintenance manual
11. **NOT** operate except with manual power.
12. **NOT** permit more than one operator to pull on lever at the same time. More than one operator is likely to cause hoist overload.
13. **NOT** allow attention to be diverted from proper operation of the hoist.
14. **NOT** adjust or repair the hoist unless qualified to perform such adjustments or repairs.

OPERATION

General

Keep the hoist and chain clean to insure proper operation.

Do not use on loads beyond the operating range of the hoist.

Do not use for lifting people or for lifting loads over people.

Do not leave a load on the hoist unattended.

Read and understand this manual prior to operating hoist.

Do not hold or pull on load chain while operating hoist.

Stay alert, Watch what you are doing. Use common sense.

Do not operate hoist when under the influence of alcohol, drugs or medication that may cause diminished control.

To lift load

Properly attach hoist per tooling manual.

Move the lever trigger to the "UP" position. Operate lever in an up and down motion.

When pulling or lifting move the load only enough to slightly load the unit, then check to be sure that the attachments to the load connections are firmly seated and positively connected.

Insure that the load and the path of load movement is clear and free of obstructions.

NEVER under any circumstance use a lever extension or any form of "cheater bar" to operate hoist.

To lower load

Move the lever trigger to the "DN" position. Operate the lever in an up and down motion.

After lifting operation is complete inspect the hoist as directed in the inspection section.

MAINTENANCE

Inspection

To maintain continuous and satisfactory operation, a regular periodic inspection procedure must be initiated so that worn, damaged and missing parts can be replaced before the unit becomes unsafe. The frequency of inspection must be determined by user procedures, regulations and requirements.

Under normal usage use the following as a guide to proper inspection.

When the unit is subjected to heavy usage or dusty, gritty, moist or corrosive atmospheric conditions, shorter time periods between inspections must be used. Inspection must be made of all parts for unusual wear, corrosion or damage, in addition to those specifically mentioned in the schedule. Make certain that the unit is complete and contains all parts including end rings.

Any part's that are deemed unserviceable must be replaced with new parts before the unit is returned to service. It is very important that the unserviceable parts be destroyed and disposed of to prevent their possible future use as a repair item. All the proper repair parts and required service can be obtained through Morgan Aero.

Frequent Inspections

These inspections are by the operator or other designated personnel. Frequent inspections are to be performed prior to each use and are to include the following:

1. Check for free movement of the lever and direction control trigger.
2. Operate hoist with no load and check for visual signs or abnormal noises that could indicate a potential problem.
3. Check brake for evidence of slippage.
4. Check chain for lubrication, worn or damaged links or foreign object contamination.
5. Check attach point's for any evidence of cracking, bending or other damage.
6. Check lever and directional trigger for damage and proper operation.

Any deficiencies noted during pre-use inspection must be corrected before using the hoist.

Periodic Inspections

These are visual inspections by an appointed person who records conditions to provide a basis for a continuing evaluation of the hoist. Periodic inspections are to be performed semi-annually or as specified by owners regulations and procedures and should include the following:

1. All items listed under "Frequent Inspections"
2. Evidence of loose or damaged screw's and fasteners.
3. Evidence of worn, corroded, cracked or distorted upper and lower attach points, frame, end ring, attach block, covers, lever, suspension bolt, gears, bearings, pawls, pawl springs, lever cover, ratchet hub, stripper and ratchet.
4. Evidence of worn, glazed or oil contaminated friction discs. Frictions discs should be replaced if their thickness is less than .075 inch (2mm).

NOTE: To perform some of the periodic inspections it will be necessary to partially disassemble the hoist. Refer to the Disassembly and Assembly procedure sections.

Any deficiencies noted during the periodic inspection must be corrected before using the hoist.

Load Chain

Chain should feed smoothly into and away from the hoist. If chain binds, jumps or is noisy, first clean and lubricate it. If trouble persists, inspect chain and mating parts for wear, distortion or other damage.

ALWAYS insure the chain is free from knots and kinks.

Clean chain with a non-caustic, non-acid type solvent and make a link by link inspection for nicks, gouges, twisted links, cracks in the weld area, wear and stretching. Chain with any of these defects must be replaced.

When replacing chain the entire length must be replaced. Never attempt to repair, lengthen or modify the hoist load chain. Load chain is special chain manufactured to precise tolerances for use on specific lever hoists. NEVER use any chain that is not supplied by the hoist manufacturer or personal injury or equipment damage could result.

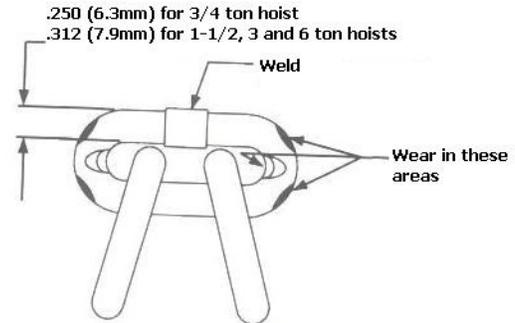


Fig. 1

For the following procedure refer to Fig. 1. Slack the portion of the chain that normally passes over the liftwheel. Examine the interlink area for the point of maximum wear (polishing). Measure and record the stock diameter at this point of the link. Then measure stock diameter in the same area on a link that does not pass through the liftwheel (use a link adjacent to the end ring for this purpose). Compare these two measurements. If the stock diameter of the worn link is 0.010 inches (.254mm), or more, less than the stock diameter of the unworn link, the chain must be replaced.

Also check the chain for stretch. Use a vernier caliper as shown in Figure 2.

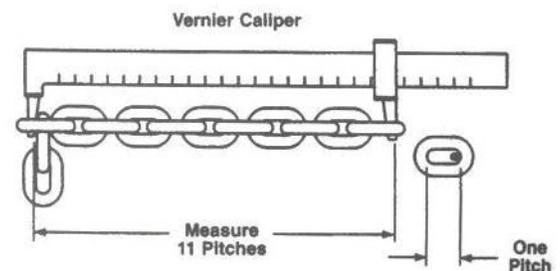


Fig. 2

Select an unused, unstretched section of chain (usually at the loose end) and measure and record the length over 11 chain links (pitches). Measure and record the same length on a worn section of chain. Obtain the amount of stretch and wear by subtracting the measurement of the unworn section from the measurement of the worn section. If the result (amount of stretch and wear) is greater than .145 inch (3.7mm), the chain must be replaced.

Use only a knife edge caliper to eliminate possibility of false reading by not measuring full pitch length. Note that worn chain can be an indication of worn hoist components. For this reason, the hoist's frame, stripper, and liftwheel should be examined

for wear and replaced as necessary when replacing worn chain.

The load chain is specially heat treated, hardened and dimensioned and should never be repaired.

Do not use replaced chain for other purposes such as lifting or pulling. Load chain may break suddenly without visual deformation. For this reason, cut replaced chain into short lengths to prevent its use after disposal.

Chain Lubrication

A small amount of lubricant will greatly increase the life of load chain. Do not allow the chain to run dry. Keep it clean and lubricate at regular intervals with a good quality chain and bar lubricant. (Lubriplate or equal). Normally, weekly cleaning and lubrication is satisfactory, but under hot and dirty conditions, it may be necessary to clean the chain at least once a day and lubricate it several times between cleanings.

When lubricating the chain, apply sufficient lubricant to obtain natural run-off and full coverage, especially in the interlink area.

Lubrication

For lubrication locations refer to exploded hoist view and parts list.

Be sure to always use the highest quality lubricant available. Use new, not used oil. Never use discarded motor, crankcase or gear lubricant's.

Except for lubricating the load chain frequently, the hoist requires no additional lubrication, unless it has been disassembled for cleaning, inspection and/or repairs. If the unit has been disassembled, remove the old lubricant from the parts and apply new lubricants as follows.

1. A light coat of Texaco Novatex #2 or equal, grease to:
 - Needle bearings in gear cover (673-5) and frame (673-2).
 - Inside of pinion bushing (673-25).
 - Outside surface of cam pins (673-47).
 - Outside surface of suspension bolt (673-48)
 - Spline of lift wheel (673-10).
 - Outside surface of locking pins (673-78).
2. A light coat of Lubrico M32 or equal grease to inside diameter of lever head (673-39).

3. A light coat of Moly-Duolube #67 or equal dry film lubricant to threads and spline of pinion (763-9).
4. A light oil to any moving portion of upper and lower attach points

When lubricating parts adjacent to the load brake, DO NOT use an excessive amount of lubricant which could seep onto the brake surfaces. If brake surfaces become contaminated with any lubricant they must be replaced.

Preventative Maintenance

A preventative maintenance program should be established to prolong the useful life of the hoist and maintain its reliability and continued safe use. The program should include frequent and periodic inspections with particular attention paid to cleaning and lubrication of various components using the recommended lubricants.

Recommended Spare Parts

At a minimum, it is advisable to keep on hand for each hoist in operation the following:

Ref. No.	Desc.	Qty.
673-13	Friction disc	2
673-53	End ring	1
NA	Lubricant's	As req.

Disassembly

Pay careful attention when disassembling and lay parts out in logical order for ease of assembly. When disassembling and assembling refer to the exploded view and parts list. These show proper relationship of the parts, part names and the required quantity of parts.

Assembly

Assemble unit in reverse order of disassembly. Insure all parts are clean and free of damage. Lubricate as required and as noted in Lubrication section of this manual.

Chain Removal & Installation

If the load chain has worn or been damaged to the point it is necessary to have it changed it is recommended the complete unit be returned to the supplier. If the chain needs replacement there are many other parts of the hoist that may need inspection, repair or replacement. A new proof load must be done and current certification issued.

Testing

If a hoist has not been used or tested in the previous 12 months it must be tested prior to use.

To test the hoist, first operate in the unloaded state. Check for satisfactory operation in the up and down mode.

Next apply a light load equal to approximately 50 LB's time's the number of load supporting strands of load chain. Again check for proper operation in the up and down mode.

As a final test apply 125% of the rated load for the hoist and check for proper operation in the up and down mode.

If any abnormality is detected during any of the above test have the hoist checked by qualified personnel prior to operation.

NOTE:

The free wheeling feature on this hoist has been disabled and removed. However, the tail chain can be pulled to remove excess chain length from load chain but only if no load is applied.

PARTS LIST

(For units with short 12" handle)

Due to the requirements of tooling there may be differences on some hoist models. To receive proper replacement parts please provide the serial number of your hoist when ordering parts.

Ref.	Qty. Req.	Description	Part Number
673-1	1	Liftwheel bearing	MA88442
673-10	1	Liftwheel	MA73332
673-11	1	Liftwheel gear	MA73325
673-12	1	Friction hub	MA73350
673-13	2	Friction disc	MA73742
673-14	1	Ratchet hub	MA73323
673-15	1	Chain guide (stripper)	MA73745
673-17	1	Lever cover	MA73152
673-19	2	Pawl	MA73728
673-2	1	Frame	MA73331Y
673-20	1	Spring	MA73743
673-21	2	Pawl spring	MA73731
673-22	2	Pawl shaft	MA73733
673-23	1	Ratchet	MA73326
673-24	1	Ratchet bushing	MA73741
673-25	1	Pinion bushing	MA73730
673-26	1	Pinion washer	MA73729
673-27	2	Lever cover screw	MA73715
673-28	6	Cover screw	MA73736
673-3	1	Pinion bearing, frame end	MA88439
673-31	1	Stripper pin snap ring	
673-32	2	Pawl snap ring	MA73738
673-33	1	Suspension bolt snap ring	MA73734
673-34	1	Stripper pin	MA73739
673-39	1	Lever assembly	MA73604Y
673-4	4	Frame pin	MA73737
673-40	1	Expansion plug	MA940801
673-41	1	Lever plunger spring	MA40735
673-42	1	Lever plunger spring pin	MA983766
673-43	1	Trigger	MA40113Y
673-45	1	Trigger pin	MA983768
673-46	1	Lever plunger	MA40462
673-48	1	Suspension bolt	MA73770
673-49	1	Hook block, drilled	MA40142
673-5	1	Gear cover	MA73328Y
673-50	1	Hook block, tapped	MA40143
673-51	1	Hook block screw	MA40855
673-52	A/R	Load chain	Contact Supplier
673-53	1	End ring	MA40471
673-54	1	Capacity label	MA73751
673-55	1	I.D. label	MA73900
673-6	1	Pinion bearing, gear end	MA88441
673-63	1	Lower hook washer	MA50454

673-64	1	Lower hook nut	MA40382
673-65	1	Lower hook nut pin	MA982335
673-66	3	Lower hook block screw	MA940812
673-67	3	Lower hook block screw lock washer	MA940830
673-68	3	Lower hook block screw nut	MA945820
673-7	1	Liftwheel bearing	MA88439
673-70	1	Lower sheave	MA40166
673-71	2	Lower hook block	MA40689Y
673-73	1	Upper hook nut	MA40382
673-74	1	Upper hook nut pin	MA982335
673-75	1	Hoist hanger	MA73324Y
673-76	1	Dead end pin	MA40851
673-77	1	Upper hook block assembly	MA73607
673-78	2	Lock pin	MA73342
673-8	1	Brake cover with seal	MA73329Y
673-9	1	Pinion	MA73348

Parts Ordering Information

All repair parts and maintenance can be obtained through:

Morgan Aero
1450 80th. Street S.W.
Everett, WA USA
425.438.9600

When contacting the supplier about parts please include the following information:

Serial Number
Model Number
Capacity

This information can be found stamped in the main body of the hoist.

