

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton® Lever Chain Hoists

Description

Dayton lever chain hoists are designed for pulling, tensioning and lifting.

▲ WARNING Do not use this hoist for lifting, supporting, or transporting people or lifting or supporting loads over people.

Always operate, inspect and maintain this hoist in accordance with American National Standards Institute Safety Code (ASME B30.21) and any other applicable safety codes and regulations. Refer all communications to the nearest Dayton Distributor.

General Safety Information

This manual provides important information for all personnel involved with the safe installation, operation and proper maintenance of this product. Even if you feel you are familiar with this or similar equipment, you should read this manual before operating the product.

DANGER, WARNING, CAUTION AND NOTE:

Throughout this manual there are steps and procedures which, if not followed, may result in a hazard. The following signal words are used to identify the level of potential hazard.

▲ DANGER is used to indicate the presence of a hazard which *will* cause *severe* injury, death, or substantial property damage if the warning is ignored.

▲ WARNING is used to indicate the presence of a hazard which *can* cause *severe* injury, death, or substantial property damage if the warning is ignored.

▲ CAUTION is used to indicate the presence of a hazard which *will* or *can* cause *minor* injury or property damage if the warning is ignored.

NOTE: is used to notify people of installation, operation, or maintenance

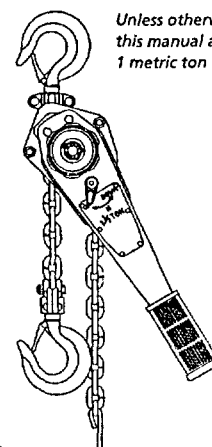
information which is important but not hazard-related.

▲ WARNING Hoists are designed to provide a 4 to 1 safety factor. The supporting structures and load-attaching devices used in conjunction with this hoist must provide adequate support to handle all hoist operations, plus the weight of the hoist and attached equipment. This is the customer's responsibility. If in doubt, consult a registered structural engineer.

Dayton hoists are manufactured in accordance with the latest ASME B30.21 standards.

The National Safety Council, Accident Prevention Manual for Industrial Operations, Eighth Edition and other recognized safety sources make a common point: Employees who work near cranes or assist in hooking on or arranging a load should be instructed to keep out from under the load. From a safety standpoint, one factor is paramount: conduct all lifting operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load.

The United States Occupational Safety and Health Act of 1970 generally places the burden of compliance with the user, not the manufacturer. Many



Unless otherwise noted, tons in this manual are metric tons, 1 metric ton = 2,200 lbs

Figure 1

OSHA requirements are not concerned or connected with the manufactured product but are, rather, connected with the final installation. It is the owner's and user's responsibility to determine the suitability of a product for any particular use. It is recommended that all applicable industry, trade association, federal, state and local regulations be checked. Read all operating instructions and warnings before operation.

Rigging: It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques. See ASME B30.9 for rigging information, American National Standards Institute, 1430 Broadway, New York, NY 10018.

This manual has been produced to provide dealers, mechanics, operators and company personnel with the information required to install, operate, maintain and repair the products described herein. It is extremely important that mechanics and operators be familiar with the servicing procedures of these prod-

Dayton® Lever Chain Hoists

General Safety Information (Continued)

ucts, or similar products, and be physically capable of conducting the procedures. This personnel shall have a general working knowledge that includes:

1. Proper and safe use and application of mechanics of common hand tools as well as special Dayton or recommended tools.
2. Safety procedures, precautions and work habits established by accepted industry standards.

Dayton Electric Mfg. Co. cannot know of, or provide, all the procedures by which product operations or repairs may be conducted and the hazards and/or results of each method. If operation or maintenance procedures not specifically recommended by the manufacturer are conducted, it must be ensured that product safety is not endangered by the actions taken. If unsure of an operation or maintenance procedure or step, personnel should place the product in a safe condition and contact supervisors and/or the factory for technical assistance.

WARNING TAG

Each hoist is supplied from the factory with a multi-language warning tag shown. If the tag is not attached to your unit, order a new tag and install it. Refer to the parts list for the part number. Read and obey all warnings and other safety information attached to this hoist. Tag may be shown smaller than actual size.

Specifications

The lever chain hoist can be mounted to the suspension shaft of a trolley or a permanent mounting structure. The hoist is designed to lift and lower loads up to rated capacity with minimal lever effort.

▲ WARNING

Failure to follow these warnings may result in death, severe injury or property damage:

- Do not operate before reading operation and maintenance manual.
- Do not lift or pull more than rated load.
- Do not lift people or loads over people.
- Do not operate with twisted, kinked or damaged chain or rope.
- Do not operate if damaged or malfunctioning.
- Do not operate when chain or rope cannot form straight line with load.
- Do not operate lever hoist or puller with handle extension.
- Do not operate with other than manual power.
- Do not remove or obscure warning labels.
- Do not operate puller with less than 3 wraps of rope on drum.



To determine your basic hoist configuration refer to the capacity and lot number nameplate located on the hand lever for model number information.

Installation

Prior to installing the hoist, carefully inspect it for possible shipping damage. Hoists are supplied fully lubricated from the factory. Lubrication of the load chain is recommended before initial hoist operation.

▲ WARNING Owners and users are advised to examine specific, local or other regulations, including American National Standards Institute and/or OSHA Regulations, which may apply to a particular type of use of this product, before installing or putting hoist to use.

Lever chain hoists can be used in any position provided they are rigged to pull in a straight line from top hook to bottom hook.

The hoist body must be positioned so that it does not contact the load or support members when in use. Ensure hand lever movement is unrestricted.

When operating in limited areas suitable lifting attachments or slings must be used to prevent hoist body and hand lever from being obstructed. Ensure load chain is lubricated prior to hoist operation.

▲ CAUTION Ensure the hoist top and bottom hooks are properly rigged and the hook latches are engaged, prior to use.

INITIAL OPERATING CHECKS

Operate the hoist with a test load (10% of rated capacity) by raising and lowering this load several times. Verify the brake operation by lowering the same load to check load does not slip when lowering stops.

NOTE: Each time a load is lifted, the operation of the brake should be checked by raising the load slightly and stopping to ensure the brake will hold the load before proceeding to lift the load.

Models 3TP92G thru 3TP99G and 3TR01G

Installation (Continued)

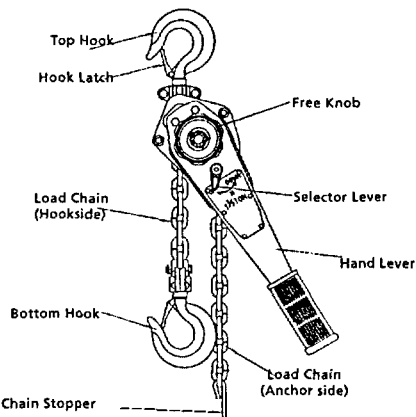


Figure 2

Familiarize operators and personnel responsible for hoist installation and service with ASME B30.21 specifications and this manual prior to placing the unit into service. All the requirements of this specification, including testing should be met before approving hoist for operation.

Operation

The following warnings and operating instructions have been adopted in part from American National Standard ASME B30.21 and are intended to

avoid unsafe operating practices which might lead to injury or property damage.

Dayton recognizes that most companies who use hoists have a safety program in force in their plants. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow personnel trained in safety and operation of this product to operate the hoist.
2. Only operate a hoist if you are physically fit to do so.
3. When a "DO NOT OPERATE" sign is placed on the hoist, do not operate the hoist until the sign has been removed by designated personnel.

4. Before each shift, the operator should inspect the hoist for wear or damage.
5. Never use a hoist which inspection indication is worn or damaged.
6. Periodically, inspect the hoist thoroughly and replace worn or damaged parts. (Refer to the "INSPECTION" Section)
7. Lubricate the hoist regularly. Refer to "LUBRICATION" Section.
8. Do not use hoist if hook latch has been sprung or broken.
9. Check that the hook latches are engaged before using.
10. Never splice a hoist chain by inserting a bolt between links.
11. Only lift loads less than or equal to the rated capacity of the hoist. Refer to "SPECIFICATIONS" section.
12. Never use the hoist load chain as a sling.
13. Never operate a hoist when the load chain is not centered under the hook. DO not "side pull" or "yard"

Model No.	Capacity (metric tons)*	Pull to lift rated load		Load Chain size (mm)	Wt of chain per 1 ft. (0.3m) of lift		No. of chain falls	Hoist Net Weight with standard 5 ft. (1.52 m) of lift			
		lb	kg		lb	kg		lb	kg	ft	m
3TP92G 3TP93G 3TP94G	3/4	68	31	6 x 18	0.53	0.24	1	15	7	10 20 5	3 6 1.5
3TP95G 3TP96G 3TP97G	1½	73	33	7.1 x 21	0.73	0.33	1	24	11	10 20 5	3 6 1.5
3TP98G 3TP99G 3TR01G	3	75	34	10 x 30	1.48	0.67	1	44	20	10 20 5	3 6 1.5

(*) One metric ton= 2,200 lbs.

Dayton® Lever Chain Hoists

Operation (continued)

14. Never operate a hoist with twisted, kinked, "capsized" or damaged load chain.
 15. Do not force a chain or hook into place by hammering.
 16. Never insert the point of the hook into a chain link.
 17. Be certain the load is properly seated in the saddle of the hook and the hook latch is engaged.
 18. Do not support the load on the tip of the hook.
 19. Never run the load chain over a sharp edge. Use a sheave.
 20. When using two hoists to suspend one load, select two hoists each having a rated capacity equal to or more than the load. This provides adequate safety in the event of a sudden load shift.
 21. Pay attention to the load at all times when operating the hoist.
 22. Always ensure that you, and all other people, are clear of the path of the load. Do not lift a load over people.
 23. Never use the hoist for lifting or lowering people, and never allow anyone to stand on a suspended load.
 24. Ease the slack out of the chain and sling when starting a lift. Do not jerk the load.
 25. Do not swing suspended load.
 26. Do not leave a load suspended when the hoist is unattended or not in use.
 27. Never weld or cut on a load suspended by the hoist.
 28. Never use the hoist chain as a welding electrode.
 29. Do not operate hoist if chain jumping, excessive noise, jamming, overloading, or binding occurs.
 30. Keep the load from hitting the load chain.
 31. Do not use a cheater bar or extended handle.
 32. Never place your hand inside the throat area of a hook.
 33. After use, or when in a non-operational mode, the hoist should be secured against, unauthorized and unwarranted use.
 34. Only operate the hoist with manual power.
- The four most important aspects of hoist operation are:
1. Follow all safety instructions when operating the hoist.
 2. Allow only personnel trained in safety and the operation of this hoist to operate the hoist.
 3. Subject each hoist to a regular inspection and maintenance procedure.
 4. Be aware of the hoist capacity and weight of load at all times.

▲ WARNING *The hoist is not designed or suitable for lifting, lowering or moving persons. Never lift loads over people.*

POSITIONING UNLOADED HOOK (NEUTRAL POSITION)

Refer to Figure 2.

Check that the load chain stopper (Ref. No. 38) is securely fastened in the last link of the free end of the load chain. The load chain stopper is intended to

prevent the load chain from becoming disengaged from the hoist and is not intended to support the full load

▲ CAUTION *To prevent injury or property damage always remove load from hoist before shifting in the free knob. Ensure the load is properly seated in the saddle of the bottom hook.*

In the NEUTRAL position the hand lever does not engage the ratchet gear. The hand lever free-wheels until the selector lever is shifted to the UP or DOWN position.

1. Set the selector lever to NEUTRAL (center) position.
2. Grasp and pull one side of the load chain or turn free knob in the counter clockwise direction.
3. Connect hook to load. Pull the anchor side of load chain or turn free knob in the clockwise direction until chain slack is removed.
4. If it does not easily pull the anchor side of load chain, pull on the unloaded end of the chain, then pull the anchor side of load chain.

LIFTING LOAD (UP POSITION - HAUL IN)

Refer to Figure 3.

The following procedure assumes the hoist is in the NEUTRAL (center) position and the hook is attached to a load, but the hoist is not supporting the load.

Models 3TP92G thru 3TP99G and 3TR01G

Operation (Continued)

▲ WARNING NEVER touch the free knob when the hoist is lifting load.

1. Pull anchor end of load chain until slack is removed.
2. Place selector lever in the UP position.
3. Rotate the free knob clockwise.
4. Rotate (ratchet) hand lever in the clockwise direction to raise (haul in) load.

NOTE: Ratchet may not engage and raise (haul in) load until all chain slack is removed and hoist is supporting load weight. If hand lever movement does not produce lifting, apply tension to the anchor side of load chain while ratcheting until slack is removed and the hoist begins lifting the load. If the hoist does not operate properly under load, remove the load, inspect and repair hoist.

LOWERING LOAD (DOWN POSITION - PAYOUT) Refer to Figure 3.

▲ WARNING Do not continue to lower the hoist after the chain stopper has contacted the hoist body as damage may occur to the hoist resulting in a falling load which can cause severe injury, death or property damage.

The following procedure assumes the hoist selector lever is in the UP position, the hoist is holding a load and the operator wants to lower (payout) the load:

1. Place selector lever in the DOWN position.
2. Rotate (ratchet) hand lever in the counter clockwise direction to lower (payout) load.

▲ CAUTION To prevent injury or property damage always lower loads until the load chain becomes slack before shifting to the NEUTRAL position.

STORING THE HOIST

1. Always store the hoist in a no load

condition.

2. Switch the selector lever to NEUTRAL (center position).
3. Wipe off all dirt and water.
4. Oil the chain, hook pins and hook latch pins. (Refer to lubrication section for oil type)
5. Hang in a dry place.
6. Before returning hoist to service follow instructions for "Hoists not in Regular Use" in the "INSPECTION" section.

Maintenance INSPECTION

▲ WARNING All new, altered or modified equipment should be inspected and tested by personnel trained in safety, operation and maintenance of this equipment to ensure safe operation at rated specifications before placing equipment in service.

Frequent and periodic inspections should be performed on equipment in regular service. Frequent inspections are visual examinations performed by

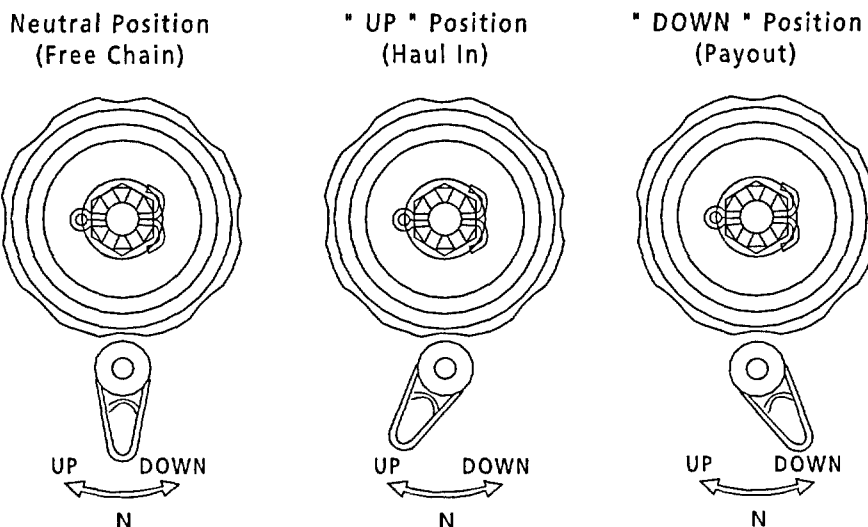


Figure 3

Dayton® Lever Chain Hoists

Maintenance (Continued)

operators or service personnel and include observations made during routine equipment operation. Periodic inspections are thorough inspections conducted by personnel trained in the safety, operation and maintenance of this equipment. ASME B30.21 states inspection intervals depend upon the nature of the critical components of the equipment and the severity of usage.

Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective action to be taken before the condition becomes dangerous.

Deficiencies revealed through inspection, or noted during operation, must be reported to designated personnel trained in safety, operation and maintenance of this equipment. A determination as to whether a condition constitutes a safety hazard must be decided, and the correction of noted safety hazards accomplished and documented by written report before placing the equipment in service.

RECORDS AND REPORTS

Inspection records, listing all points requiring periodic inspection should be maintained for all load bearing equipment. Written reports, based on severity of service, should be made on the condition of critical parts as a method of documenting periodic inspections. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available for review.

NOTE: The external placement of coded marks on equipment identifying completed inspections and operationally certified equipment is an acceptable method of documenting periodic inspections in place of written records.

LOAD CHAIN REPORTS

Records should be maintained documenting the condition of load chain removed from service as part of a long-range load chain inspection program. Accurate records will establish a relationship between visual observations noted during frequent inspections and the actual condition of the load chain as determined by periodic inspection methods.

FREQUENT INSPECTION

The lever chain hoist should be inspected at the beginning of each shift. Visual inspections should also be conducted during regular service for any damage or evidence of malfunction which appears between regular inspections.

OPERATION

Check for visual signs or abnormal noises which could indicate a potential problem. Make sure hoist functions properly. Check chain feed through hoist. If chain binds, jumps, or is excessively noisy or "clicks", clean and lubricate the chain. If problem persists, the chain and load sheave may have to be replaced. Do not operate the hoist until all problems have been determined and corrected.

HOOKS

Check for wear or damage, increased throat width, bent shank or twisting of hook. Replace hooks which exceed the

throat opening discard width (15%) shown in Table 1, refer to Figure 4 or exceed a 10° twist, refer to Figure 5. If the hook latch snaps past the tip of the hook, the hook is sprung and must be replaced. Check hooks swivel easily and smoothly. Repair or lubricate as necessary.

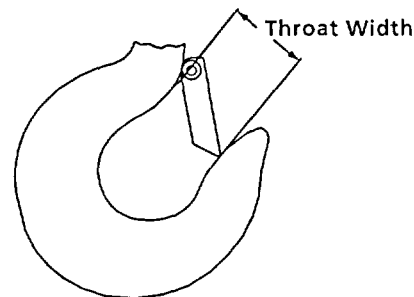


Figure 4

Table 1- Hook Inspection

Model No.	Throat width		Discard width	
	in	mm	in	mm
3TP92G				
3TP93G	1.06	27	1.22	31
3TP94G				
3TP95G				
3TP96G	1.34	34	1.54	39
3TP97G				
3TP98G				
3TP99G	1.65	42	1.90	48.3
3TR01G				

HOOK LATCHES

Check the operation of the hook latches. Replace if broken or missing.

Models 3TP92G thru 3TP99G and 3TR01G

Maintenance (Continued)

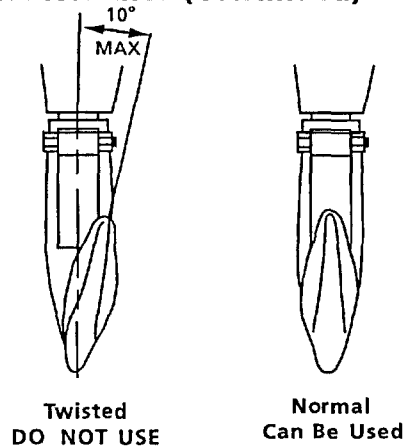


Figure 5

CHAIN

Refer to Figure 6. Examine each link for bending, cracks in weld areas or shoulders, transverse nicks and gouges, weld splatter, corrosion pits, striation (minute parallel lines) and chain wear; including bearing surfaces between chain links. Replace a chain that fails any of the inspections. Check lubrication and lubricate if necessary. Refer to "Load Chain" in "LUBRICATION" section.

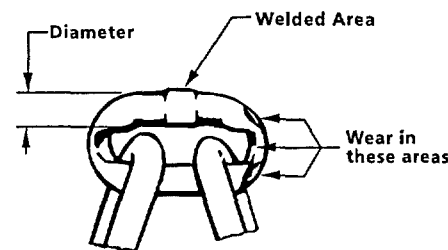


Figure 6

NOTE: The full extent of chain wear cannot be determined by visual inspection. At any indication of chain wear, inspect chain and load sheave in

accordance with instructions in "Periodic Inspection."

A worn load chain may cause damage to the load sheave. Inspect the load sheave and replace if damaged or worn.

LOAD CHAIN REEVING

Refer to Figure 8.

Make sure welds on standing links are away from load sheave. Reinstall chain if necessary. Check that the chain stopper is installed in the last link of the load chain. Adjust as required.

HAND LEVER

Check for cracks, bending and other damage. Replace if necessary.

PERIODIC INSPECTION

According to ASME B30.21, frequency of periodic inspection depends on the severity of usage:

NORMAL	HEAVY	SEVERE
yearly	semiannually	quarterly

Disassembly may be required for HEAVY or SEVERE usage. Keep accumulative written records of periodic inspections to provide a basis for continuing evaluation. Inspect all items in "Frequent Inspection". Also inspect the following:

FASTENERS

Check rivets, cap-screws, nuts, cotter pins and other fasteners on hooks and hoist body. Replace if missing and tighten or secure if loose.

ALL COMPONENTS

Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check gears, shafts,

bearings, sheaves, chain guides, springs and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.

HOOKS

Inspect hooks for cracks. Use magnetic particle or dye penetrant to check for cracks. Inspect hook retaining parts. Tighten, repair or replace if necessary. Refer to the latest edition of ASME B30.10 (Hooks) for additional hook inspection information.

CHAIN SHEAVES

Check for excessive wear or damage. Replace if necessary.

BRAKE

Ensure proper operation. Brake should not slip with test load (rated capacity). If load test indicates the need, disassemble. Brake discs must be free of oil, any grease, unglazed and uniform in thickness. Refer to "MAINTENANCE" section for allowable brake disc wear. Check all other brake surfaces for wear, deformation or foreign deposits. Inspect gear teeth, pawl and pawl spring for damage. Check that brake pawl stops counter clockwise rotation of ratchet gear. Clean and replace damaged components as necessary.

SUPPORTING STRUCTURE

If a permanent structure is used, inspect for continued ability to support load.

LABELS AND TAGS

Check for presence and legibility. Replace if necessary.

LOAD CHAIN

Measure the chain for stretching by measuring across five link sections all along the chain length (refer to Figure 7). When any five links in the working length reach or exceed the discard

Dayton® Lever Chain Hoists

Maintenance (Continued)

length shown in Table 2, replace the entire chain. Always use a genuine Dayton replacement chain.

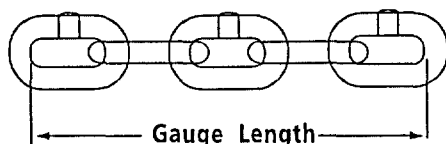


Figure 7

Table 2 - Load Chain Length Inspection

Model No.	Chain Size	Normal Length		Discard Length	
		mm	in	mm	in
3TP92G	6 x 18	3.54	90	3.63	92.3
3TP93G					
3TP94G					
3TP95G	7.1 x 21	4.13	105	4.23	107.6
3TP96G					
3TP97G					
3TP98G	10 x 30	5.91	150	6.06	153.7
3TP99G					
3TR01G					

CHAIN STOPPER

Ensure chain stopper is installed in the last link of the free end of the load chain. Replace if missing or damaged. Refer to "Attaching End of Load Chain" in "MAINTENANCE" Section.

HOISTS NOT IN REGULAR USE

1. Hoists which have been idle for a period of one month or more, but less than one year, shall be given an inspection conforming with the requirements of "Frequent Inspection" before being placed into service.
2. Hoists which have been idle for a period of over one year shall be

given a complete inspection conforming with the requirements of "Periodic Inspection" before being placed into service.

3. Standby hoists shall be inspected at least semiannually in accordance with the requirements of "Frequent Inspection". In abnormal operating conditions, equipment should be inspected at shorter intervals.

LUBRICATION

GENERAL

Thread lubricant or an anti-seize compound use is recommended for threaded shafts, capscrews, and nuts. Unless otherwise stated, remove old lubricant, clean the part with an acid free solvent and apply a new coating of lubricant to the part before assembly.

GEARS (Ref. No. 30)

Remove nuts (Ref. No. 43) and lockwashers (Ref. No. 42) on side of hoist opposite hand lever and remove gear cover (Ref. No. 31). Remove old grease on gears (Ref. No. 30) and replace with new grease after cleaning with acid free solvent. For temperatures -20° to 50° F (-29° to 10° C) use EP 1 grease or equivalent. For temperatures 30° to 120° F (-1° to 49° C) use EP 2 grease or equivalent.

LOAD CHAIN

▲ WARNING Failure to maintain clean and well lubricated load chain may result in chain failure causing injury, death or substantial property damage.

1. Lubricate each link of the chain weekly. Apply new lubricant over existing layer.

2. In severe applications or corrosive environments, lubricate more frequently than normal.
3. Lubricate hook and hook latch pivot points with the same lubricant used on the load chain.
4. To remove rust or abrasive dust buildup, clean chain with an acid free solvent. After cleaning, lubricate the chain.
5. Use LUBRI-LINK-GREEN® or a SAE 50 to 90W EP oil.

▲ WARNING Never perform maintenance on the hoist while it is supporting a load. Before performing maintenance, tag hoist:

- DO NOT OPERATE -

EQUIPMENT BEING REPAIRED.

Only allow personnel trained in the operation and service of this product to perform maintenance.

After performing any maintenance on the hoist, test to 125% of its rated capacity before returning to service, (Testing to 150% of rated capacity might be required to comply with standards and regulations set forth in areas outside of the USA.)

INSTALLING NEW LOAD CHAIN

Refer to Figure 8.

1. Ensure welds of "standing" links on the new load chain are facing away from the load sheave (Ref. No. 13).
2. Ensure load chain (Ref. No. 27) is reeved between load sheave (Ref. No. 13) and chain guides (Ref. No. 29).
3. Bottom hook assembly (Ref. No. 26) must be on left fall of load chain (Ref. No. 27) and right fall must have a chain stopper (Ref. No. 38) attached to the end link.

Models 3TP92G thru 3TP99G and 3TR01G

Maintenance (Continued)

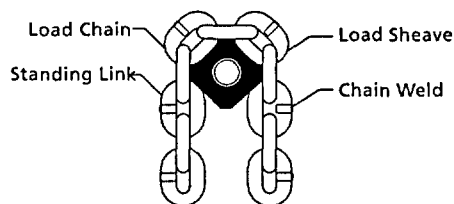


Figure 8

NOTE: Right and left designations are as viewed from the hand lever side of the hoist.

GENERAL DISASSEMBLY

The following instructions provide the necessary information to disassemble, inspect, repair, and assemble the hoist. Parts drawings of the hoist assembly are provided in the Parts Section.

If a hoist is being completely disassembled for any reason, follow the order of the topics as they are presented. It is recommended that all maintenance work on the hoist be performed on a bench in a clean dust free area.

In the process of disassembling the hoist, observe the following:

1. Never disassemble the hoist any further than is necessary to accomplish the needed repair. A good part can be damaged during the course of disassembly.
2. Never use excessive force when removing parts. Tapping gently around the perimeter of a cover or housing with a soft hammer, for example, is sufficient to break the seal.
3. Do not apply heat to a part to free it for removal, unless the part being

heated is already worn or damaged beyond repair and no additional damage will occur to other parts.

In general, the hoist is designed to permit easy disassembly and assembly. The use of heat or excessive force should not be required.

4. Keep the work area as clean as practical, to prevent dirt and other foreign matter from getting into bearings or other moving parts.
5. When grasping a part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members, machined surfaces and housings.
6. Do not remove any part which is press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.

spring shaft (Ref. No. 21) and spring (Ref. No. 20) from lever (Ref. No. 3).

5. Carefully pry change wheel (Ref. No. 4) from hub (Ref. No. 6).

HOIST DISASSEMBLY

Accessing brake end

1. Remove cotter pin (Ref. No. 32) and nut (Ref. No. 33) from pinion shaft (Ref. No. 19).
2. Lift off free knob (Ref. No. 2).
3. Remove two capscrews (Ref. No. 35) and lockwashers (Ref. No. 36) from lever (Ref. No. 3). Remove two nuts (Ref. No. 44) and lockwashers (Ref. No. 45) from opposite side of lever. Lift off lever (Ref. No. 3).
4. Remove change pawl (Ref. No. 22),

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Maintenance (Continued)

6. Remove the three nuts (Ref. No. 43) and lockwashers (Ref. No. 42) from the threaded side plate spacers (Ref. No. 11). Remove brake cover assembly (Ref. No. 5).
7. Secure pinion shaft (Ref. No. 19) to prevent rotation and unscrew hub (Ref. No. 6).
8. Remove brake discs (Ref. No. 7) and ratchet (Ref. No. 8).
9. Secure pinion shaft (Ref. No. 19) to prevent rotation and unscrew brake hub (Ref. No. 10).
10. Remove retainer rings (Ref. No. 37) from posts on side plate assembly (Ref. No. 11). Remove pawls (Ref. No. 23) and springs (Ref. No. 24).

Accessing Gear End

1. Remove the three nuts (Ref. No. 43) and lockwashers (Ref. No. 42) from the side plate threaded spacers. (Ref. No. 11).
2. Remove gear cover (Ref. No. 31).
3. Remove gears (Ref. No. 30).
4. Remove retainer ring (Ref. No. 41) from load sheave (Ref. No. 13) if complete hoist is to be disassembled.

Accessing Load Sheave

Follow steps 1 through 10 in "Accessing Brake End" and steps 1 through 4 in "Accessing Gear End".

1. Slide out pinion shaft (Ref. No. 19) from the gear end.
2. Carefully remove side plate assembly (brake side) (Ref. No. 11) to avoid loosening rollers (Ref. No. 39).
3. Remove rollers (Ref. No. 39), guide roller (Ref. No. 29), chain stripper

(Ref. No. 28), guide block (Ref. No. 16) and top hook (Ref. No. 14) with anchor pin (Ref. No. 15).

4. Pry gear (Ref. No. 18) from load sheave (Ref. No. 13). Remove load sheave from side plate assembly (gear side) (Ref. No. 17).
5. If necessary tap side plate threaded spacers (Ref. No. 11) from side plate assembly (gear side) (Ref. No. 17).

Bottom Hook Disassembly

1. On single fall hoists remove nut (Ref. No. 40) from hook (Ref. No. 26) shank and slide out pin (Ref. No. 25). Lift off bottom hook (Ref. No. 26).

CLEANING

Clean all hoist component parts in solvent (except for the brake discs). The use of a stiff bristle brush will facilitate the removal of accumulated dirt and sediments on the gears, shafts and housings. Dry each part using low pressure, filtered compressed air. If the brake discs are oil soaked, they must be replaced.

INSPECTION

All disassembled parts should be inspected to determine their fitness for continued use. Pay particular attention to the following.

1. Inspect all gears for worn, cracked, or broken teeth.
2. Inspect shafts for ridges caused by wear. If ridges caused by wear are apparent on shafts, replace the shaft.
3. Inspect all threaded items and replace those having damaged threads.

4. Inspect the brake discs for oil. If the brake discs are oil-soaked, replace the brake discs.
5. Measure the thickness of the brake discs. Refer to Brake Disc Table for discard thickness.

Table 3 - Brake Disc

Model No.	New Disc Thickness		Discard Thickness	
	in	mm	in	mm
All Models	0.098	2.5	0.079	2

REPAIR

Actual repairs are limited to the removal of small burrs and other minor surface imperfections. Use a fine stone or emery cloth for this work.

1. Worn or damaged parts must be replaced. Refer to the applicable parts listing for specific replacement parts information.
2. Inspect all remaining parts for evidence of damage. Replace or repair any part which is in questionable condition. The cost of the part is often minor in comparison with the cost of redoing the job.

Models 3TP92G thru 3TP99G and 3TR01G

Maintenance (Continued)

- Smooth out all minor nicks, burrs, or galled spots on shafts, bores, pins or spacers.
- Polish the edges of all shaft shoulders to remove small nicks which may have been caused during handling.
- Remove all nicks and burrs, caused by lockwashers.

HOIST ASSEMBLY

Load sheave assembly

- Install side plate threaded spacers in side plate assembly (gear side) (Ref. No.17).
- Install load sheave (Ref. No. 13) in side plate assembly (Ref. No. 17).
- Apply grease to rollers (Ref. No. 39) and position them in the groove of the bearing race (Ref. No. 12) located on the plain end of the load sheave (Ref. No. 13).
- Install guide roller (Ref. No. 29), chain stripper (Ref. No. 28), guide block (Ref. No. 16) and top hook (Ref. No. 14) on anchor pin (Ref. No. 15) in side plate assembly (Ref. No. 17).
- Carefully install side plate assembly (brake end) (Ref. No. 11) to engage the locating diameters of parts installed in step 4. Ensure all rollers (Ref. No. 39) remain in position.
- Push side plates (Ref. No. 11 and Ref. No. 17) together to ensure all parts are located and secure.

Gear end assembly

Follow steps 1 through 6 described in "Load Sheave Assembly".

- Install gear (Ref. No. 18) on load sheave (Ref. No. 13). Install retainer

ring (Ref. No. 41) on load sheave (Ref. No. 13) to secure gear (Ref. No. 18).

- Install pinion shaft (Ref. No. 19) through the center of load sheave (Ref. No. 13).
- Install gears (Ref. No. 30) so gear teeth are correctly timed and spigots locate in bearing sleeves in side plate (Ref. No. 17). Refer to "Gear Timing" section.
- Apply a thick coat of grease as recommended in the "LUBRICATION" section to all gear teeth. Install gear cover (Ref. No. 31) over gears (Ref. No. 30) to locate and engage gear spigots.
- Secure gear cover with three nuts (Ref. No. 43) and lockwashers (Ref. No. 42).

Brake end assembly

Follow steps 1 through 6 described in "Load Sheave Assembly" and steps 1 through 5 described in "Gear End Assembly".

CAUTION *The brake will not operate properly if there is oil or grease on the brake discs (7).*

- Thread brake hub (Ref. No. 10) onto pinion shaft (Ref. No. 19) until snug. Stepped side of brake hub must face out.
- Install springs (Ref. No. 24) and pawls (Ref. No. 23) on side plate assembly (brake end) (Ref. No.11) posts and secure with retainer rings (Ref.No. 37).
- Install first brake disc (Ref. No. 7) followed by ratchet disc (Ref. No. 8) and second brake disc (Ref.

No. 7). Ratchet disc teeth must engage the two pawls (Ref. No. 23) mounted on side plate assembly (Ref. No. 11). Counterclockwise rotation of the ratchet disc must be possible. Install brake spring (Ref. No. 9).

- Secure load sheave (Ref. No. 13) to prevent rotation and thread hub (Ref. No. 6) onto pinion shaft (Ref. No.19) until snug.
- Install brake cover assembly (Ref. No. 5) on side plate assembly (Ref. No. 11). Brake cover assembly will locate on spacers. Secure with lockwashers (Ref. No. 42) and nuts (Ref. No. 43).
- Install change wheel (Ref. No. 4) on hub (Ref. No. 6). Tapered bore side of change wheel must be toward hub.
- Install spring (Ref. No. 20), spring shaft (Ref. No. 21) and change pawl (Ref. No. 22) in lever (Ref. No. 3).
- Install lever assembly on brake cover assembly (Ref. No.5). Threaded posts on lever must engage the holes in the brake cover assembly. Secure with lockwashers (Ref. No. 42) and nuts (Ref. No. 43).
- Install capscrews (Ref. No. 44) and lockwashers (Ref. No. 45).
- To assist further assembly move selector lever to the UP position. Clockwise rotation of the lever (Ref. No. 3) is needed to make the sound of "Ka,Ka,Ka....."

Dayton® Lever Chain Hoists

Maintenance (Continued)

11. Install free knob (Ref. No. 2). Install and tighten nut (Ref. No. 33) until snug and then back nut off 3/4 turn align slot with pin hole in pinion shaft (Ref. No. 19). Install cotter pin (Ref. No. 32) but do not bend ends apart. Counter clockwise rotate free knob (Ref. No. 2) to make hub (Ref. No. 6) loosed then rotate load sheave (Ref. No. 13) by hand to ensure whether it can be rotated. If not, back off nut one more slot and retest. Install and bend cotter pin ends apart.

CAUTION *Ensure the hoist will properly shift from UP, DOWN and NEUTRAL positions using the selector lever. After counter clockwise rotation of the free knob, ensure the brake disengages and that the load chain can be pulled in both directions without sticking or binding*

Bottom hook assembly

On single fall hoists place last link of load chain in slot of hook shank and install pin (Ref. No. 25) to anchor, load chain, then install and tighten self-lock nut (Ref. No. 40).

GEAR TIMING

For proper operation, timing marks on the gears (Ref. No. 30) must be in the correct positions. The timing marks are circular impressions near the center of gear (Ref. No. 30). Refer to Figure 10.

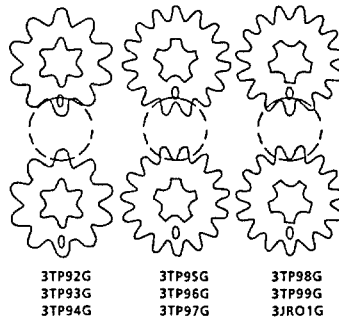


Figure 10
LOAD TEST

Prior to initial use, all new, extensively repaired, or altered hoists shall be load tested by or under the direction of a person trained in the operation and maintenance of this hoist, and a written report furnished confirming the rating of the hoist. Test hoist to 125% of the rated hoist capacity. Testing to more than 125% may be necessary to comply with standards and regulations set forth in areas outside of the USA.

The use of other than genuine Dayton replacement parts may adversely affect the safe operation of this product.

Models 3TP92G thru 3TP99G and 3TR01G

Troubleshooting

This section provides basic troubleshooting information. Specific causes to problems are best identified by

thorough inspections performed by personnel instructed in safety, operation and maintenance of this equipment. The chart below provides a brief

guide to common hoist symptoms, probable causes and remedies.

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Hoist will not hold rated load	Brake may be slipping	Inspect and adjust or repair as described in the "INSPECTION" and "MAINTENANCE" sections
Hoist will not lift load	1. Excess slack in load chain 2. Hoist is overloaded 3. Hoist is in NEUTRAL (N) mode	1. Pull down on load chain while ratcheting until slack is removed and the hoist begins lifting the load. Refer to "OPERATION" section 2. Reduce load to within rated capacity 3. Ensure selector lever is in UP position. Refer to "OPERATION" section
Load chain binds	1. Damaged load chain, pinion shaft, gears or sheaves 2. Load chain not installed properly (twisted, kinked or "capsized")	1. Disassemble and inspect components as described in the "MAINTENANCE" and "INSPECTION" sections 2. Inspect and adjust or repair as described in the "INSPECTION" and "MAINTENANCE" sections
Load hook latch does not work	1. Latch broken 2. Load hook bent or twisted	1. Replace hook latch 2. Inspect load hook as described in "INSPECTION" section. Replace if necessary
Hoist will not free chain	Without counterclockwise rotation of the free knob	Refer to "OPERATION" section

For Repair Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:

Grainger Parts
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

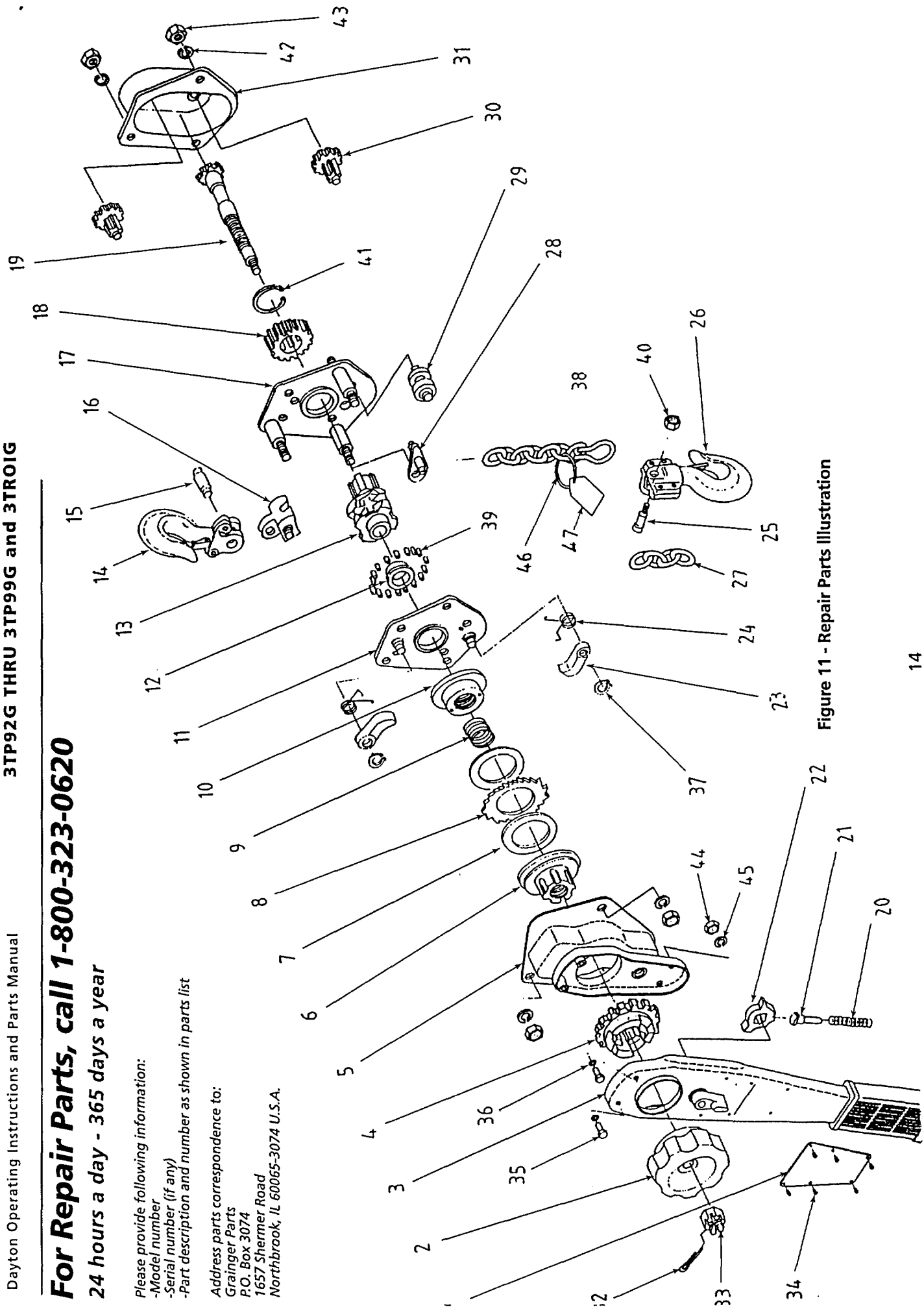


Figure 11 - Repair Parts Illustration

Repair parts list

Reference No.	Description	Part No. For Models:			Qty.
		3TP92G 3TP93G 3TP94G	3TP95G 3TP96G 3TP97G	3TP98G 3TP99G 3TR01G	
1	Capacity Label	71317663G 71317671G 71317689G	71317697G 71317705G 71317713G	71317721G 71317739G 71317747G	1
2	Free Knob	71291223G	71291223G	71291223G	1
3	Lever	71291181G	71291199G	71291199G	1
4	Change Wheel	71291165G	71291173G	71291173G	1
5	Brake Cover Assembly	71291140G	71291157G	71291132G	1
6	Hub	71291116G	71291124G	71292171G	1
7	Brake Disc	71291058G	71291066G	71291074G	2
8	Ratchet	71291082G	71291090G	71291108G	1
9	Brake Spring	72290001G	72290001G	72290002G	1
10	Brake Hub	71291660G	71480867G	71291678G	1
11	Side Plate Assembly (Brake End)	71481634G	71481642G	71481659G	1
12	Bearing Inner Race	71290837-1G	71290845-1G	71290852-1G	1
13	Load Sheave	71290837-2G	71290845-2G	71290852-2G	1
14	Top Hook Assembly	71480651G	71480669G	71480677G	1
15	Pin	71291835G	71291843G	71291850G	1
16	Guide Block	71291710G	71291728G	71291736G	1
17	Side Plate Assembly (Gear End)	71481675G	71481683G	71481691G	1
18	Gear Set	71290787G	71280795G	71290779G	1
19	Pinion Shaft	71289896G	71289904G	71289912G	1
20	Spring	71291603G	71291603G	71291603G	1
21	Spring Shaft	71291629G	71291629G	71291629G	1
22	Change Pawl	71291645G	71291645G	71291645G	1
23	Pawl	71290985G	71290993G	71290993G	2
24	Pawl Spring	71290951G	71290969G	71290969G	2
25	Pin	71481555G	71481550G	71481568G	1
26	Bottom Hook Assembly	71480685-1G	71480693-1G	71480701-1G	1
27	Load Chain	LC618-G10G-10FT LC618-G10G-20FT LC618-G10G-5FT	LCC015G-10FT LCC015G-20FT LCC015G-5FT	LC1030-G10G-10FT LC1030-G10G-20FT LC1030-G10G-5FT	1 1 1
28	Stripper	71291744G	71291751G	71291769G	2
29	Guide	71481709G	71481717G	71481725G	1
30	Gear	71289920G	71289938G	71289946G	1
31	Gear Cover	71289862G	71289870G	71289888G	1
32	Cotter Pin	71291280G	71291280G	71291280G	1
33	Nut	71291454G	71291454G	71291454G	1
34	Rivet For Label	72290101G(5)	72290101G(6)	72290101G(6)	()
35	Capscrew	71291520G	71291520G	71291520G	2
36	Lockwasher	71291546G	71291546G	71291546G	2
37	Retainer Ring	71291017G	71291025G	71291025G	2
38	Chain Stopper	71291686G	71291694G	71291702G	1
39	Roller	71290860G(34)	71290878G(37)	71290880G(24)	()
40	Self-lock Nut	71481584G	71481600G	71481618G	1
41	Retainer Ring	71289953G	71290761G	71292163G	1
42	Lockwasher	71291595G	71480800G	71480818G	6
43	Nut	71291579G	71291587G	71480792G	6
44	Nut	71291579G	71291579G	71291579G	2
45	Lockwasher	71291595G	71291595G	71291595G	2
46	Ring	HRE20A-283G	HRE20A-283G	HRE20A-283G	1
47	Warning Label	71301097G	71301097G	71301097G	1

Dayton® Lever Chain Hoists

LIMITED WARRANTY

DAYTON ONE-YEAR LIMITED WARRANTY Lever Chain Hoists, Models covered in this manual, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see **PROMPT DISPOSITION** below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.

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