

OPERATION, SERVICE AND PARTS MANUAL

BUDGIT®

USA HAND CHAIN HOISTS

Rated Load	Model	Catalog Number	
		Hook Suspension	Lug Suspension
¼ Ton	Standard	8260	8301
		8260SR	8301SR
½ Ton	Standard	8261	8302
		8261SR	8302SR
1 Ton	Standard	8262	8303
		8262SR	8303SR
1½ Ton	Standard	8259	8300
		8259SR	8300SR
2 Ton (1 Load Chain)	Standard	8263	8304
		8263SR	8304SR
2 Ton (2 Load Chains)	Standard	8258	8299
		8258SR	8299SR
3 Ton	Standard	8264	8305
		8264SR	8305SR
4 Ton	Standard	8265	8306
		8265SR	8306SR
5 Ton	Standard	8266	8307
		8266SR	8307SR
6 Ton	Standard	8267	8308
		8267SR	8308SR



FOREWORD

This book is written to assist in installation, operation, maintenance and service for BUDGIT USA hand chain hoists. Study its contents thoroughly before attempting operation. By applying correct operating procedures and practicing the helpful maintenance suggestions, you will be assured optimum performance and service.

It will likely be a long time before you will need the repair and parts information included, so file this book for future reference.

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SECTION I - GENERAL DESCRIPTION

1-1. The BUDGIT USA hand chain hoist is a precision built spur geared hoist designed as a manually operated lifting mechanism for any type of lifting operation (other than lifting or lowering persons) within the rated load of the chain hoist. Operation is by endless hand chain.

▲WARNING

This equipment is not designed or suitable as a power source for lifting or lowering persons.

1-2. This book contains installation, operation, service and parts information for 1/4, 1/2, 1, 1-1/2, 2, 3, 4, 5 and 6 ton rated chain hoists. Two models of each rating for hook suspension hoists are included; the standard hoist and the spark resistant hoist. Also included are a number of models of lug suspension hoists. All hooks have hook latches as standard. The catalog number and model number of each hoist is found on the nameplate on the hoist frame. When ordering parts, always give the catalog and model number of the hoist.

1-3. All BUDGIT USA hand chain hoists are equipped with a Load Regulator which is designed to help guard against excessive overloads. The 1/4, 1/2 and 1 ton hoists are similar to each other. Differences that occur are due to load rating and in general affect hook and chain size. The 1-1/2 and single load chain 2 ton hoists, while similar to each other, differ from the other hoists in internal gearing as well as hook and chain

size. The two load chain 2 ton hoist is internally similar to the 1 ton hoist differing in parts of chain and hook size. The 3, 4, 5 and 6 ton hoists are internally similar to the 1-1/2 and single load chain 2 ton hoists differing in parts of chain and hook size. Hoist frames are aluminum alloy. For all models except spark resistant models; load chains are welded link type of special calibrated pitch and are heat treated low alloy steel; hand chains are welded link type and are of steel; and hooks are forged steel.

1-4. Spark resistant hoists have components and finishes intended for service in certain hazardous environments.

1-5. On the lug suspension hoist model the top hook has been replaced by a suspension lug which allows this hoist to be used with BUDGIT rigid mount I-beam trolleys. The 1 ton hoist requires a special push trolley; Catalog Number 905409.

1-6. Hoists with a letter suffix of B, C, D, E, For G to the catalog number have lifts of 10 feet, 12 feet, 15 feet, 20 feet, 25 feet and 30 feet respectively. Standard lift is 8 feet.

SECTION II - INSTALLATION

2-1. Install the chain hoist by connecting the upper hook to trolley or support (support must have sufficient strength to support weight of chain hoist plus applied load). Make sure hook latch is closed before using hoist.

▲WARNING

Do not suspend chain hoist from tip of hook.

2-2. If hand chain is of improper length (chain should hang about 2'-6" above floor) modify its length following instructions below (two wrenches may be used in place of a wrench and a vise):

a. Insert split connecting link in a vise so that three-quarters of the link is above the top of the vise jaws as shown in Figure 2-1.

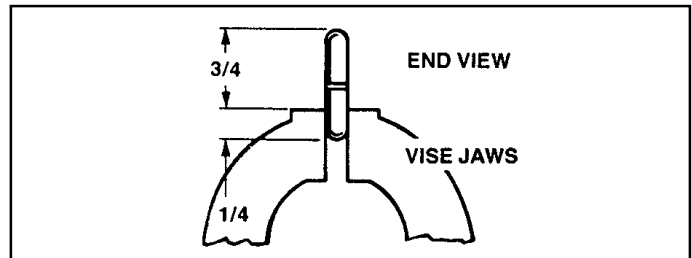


Figure 2-1.

b. Place wrench on top part of link, tighten jaws. Then twist link open wide enough to insert ends of chain to be joined. See Figure 2-2.

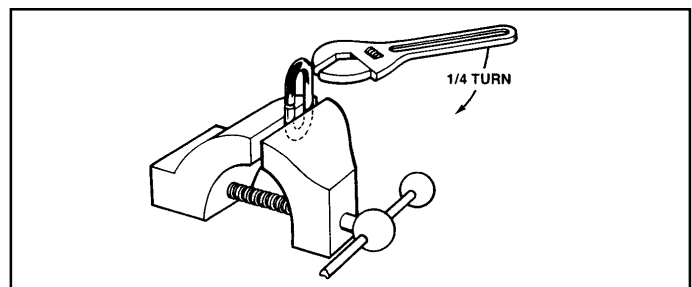


Figure 2-2.

c. Insert ends of chain on open link, make sure there is no twist in the chain.

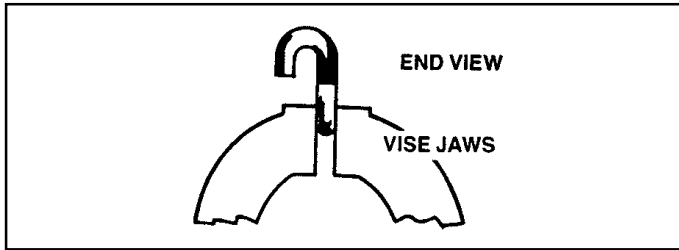


Figure 2-3.

d. Place wrench on top part of link, tighten jaws and twist back until link is closed.

2-3. For installation of a trolley hoist, follow the instructions given in the trolley literature.

SECTION III - OPERATION

3-1. GENERAL.

A BUDGIT USA hand chain hoist is an extremely versatile tool and will perform any number of load handling jobs when operated properly and its features are used to advantage. Operation is easy, once you have become acquainted with its convenient controls and their functions. Always practice hoist safety by applying the rules shown in the safety chart on the inside of the back cover.

⚠WARNING

This equipment is not designed or suitable as a power source for lifting or lowering persons.

3-2. TO RAISE LOAD HOOK.

While facing the hand chain wheel cover side of the hoist (this eliminates reaching over the wheel), pull down on the right hand chain to raise the load hook.

3-3. TO LOWER LOAD HOOK.

While facing the hand chain wheel cover side of the hoist, pull down on the left hand chain to lower the load hook.

3-4. OPERATING PRECAUTIONS.

Safe operation of an overhead hoist is the operator's responsibility. Listed below are some basic rules that can make an operator aware of dangerous practices to avoid and precautions to take for his own safety and the safety of others. Observance of these rules in addition to frequent examinations and periodic inspection of the equipment may save injury to personnel and damage to equipment. Also, see illustrated operating rules on the inside of the back cover of this manual.

⚠WARNING

DO read ANSI B30.16 Safety Standard for Overhead Hoists and the Operation, Service and Parts Manual.

DO be familiar with hoist operating controls, procedures, and warnings.

DO make sure the hoist suspension hook is securely attached to a suitable support.

DO maintain firm footing or be otherwise secured when operating hoist.

DO make sure that load slings or other approved single attachments are properly sized and seated in the hook saddle.

DO make sure the hook latch is closed and not supporting any part of the load.

DO make sure that load is free to move and will clear all obstructions.

DO take up slack carefully, check load balance, lift a few inches, and check load holding action before continuing.

DO make sure all persons stay clear of the suspended load.

DO avoid swinging of load or load hook.

DO protect load chain from weld spatter or other damaging contaminants.

DO promptly report any malfunction, unusual performance, or damage, of the hoist.

DO inspect hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.

DO use the hoist manufacturer's recommended parts when repairing a hoist.

DO use hook latches.

DO apply lubricant to load chain as recommended.

DO NOT lift more than rated load.

DO NOT use the hoist load limiting device to measure the load.

DO NOT use damaged hoist or hoist that is not working correctly.

DO NOT use hoist with twisted, kinked, damaged, or worn chain.

DO NOT lift a load unless chain is properly seated in chain wheel(s) or sprocket(s).

DO NOT use load chain as a sling or wrap load chain around the load.

DO NOT lift a load if any binding prevents equal loading on all supporting chains.

DO NOT apply the load to the tip of the hook.

DO NOT operate unless load is centered under hoist.

DO NOT operate hoist with other than manual power.

DO NOT permit more than one operator to pull on a single hand chain at one time.

DO NOT allow your attention to be diverted from operating the hoist.

DO NOT operate hoist beyond limits of load chain travel.

DO NOT use hoist to lift, support, or transport people.

DO NOT lift loads over people.

DO NOT leave a suspended load unattended unless specific precautions have been taken.

DO NOT allow sharp contact between two hoists or between hoist and obstructions.

DO NOT allow the chain or hook to be used as a ground for welding.

DO NOT allow the chain or hook to be touched by a live welding electrode.

DO NOT remove or obscure the warnings on the hoist.

DO NOT adjust or repair a hoist unless qualified to perform hoist maintenance.

DO NOT attempt to lengthen the load chain or repair damaged load chain.

The user is also here warned that **overloading of the hoist can take place by means other than applying a high hand chain force. Proper rigging and observance of the rules listed here can help avoid such external causes of overload. Use good common sense and judgment at all times.**

Never operate hoist with hooks that have opened up. See Figure 5-3.

The supporting structure or anchoring means must have a load rating at least equal to that of the hoist.

Hoist must not be used in locations that will not allow operator movement to be free of the load.

Before using the hoist, the operator shall be certain that all personnel in the area are clear of the load.

SECTION V - MAINTENANCE

5-1. GENERAL.

The following are preventive maintenance steps which should be performed periodically as operating conditions demand. Under most conditions, a yearly maintenance inspection is adequate. The entire hoist should be dismantled and its parts inspected for damage or wear and replaced as necessary. At reassembly, the hoist should be relubricated as outlined in paragraph 7-14. If the hoist has been subjected to extremely adverse conditions, such as excessive dirt or moisture, a more frequent maintenance inspection should be made. Visually check hoist after each use.

5-2. LOAD BRAKE.

If load brake shows a tendency to slip or drag, remove brake parts, as outlined in paragraph 7-5, and inspect brake friction surfaces for signs of damage, wear, dirt, or an oil film. Contact surfaces of brake flange, ratchet wheel and nut must be free of excessive scoring and clean. Faces of friction washers should be lightly wire brushed and buffed. Replace any worn parts. Load brake pawl should also be checked for signs of wear or damage.

Note

Be sure to keep brake friction surfaces free of oil at reassembly. Lubricate per paragraph 7-14.b.

5-3. LOAD CHAIN.

BUDGIT USA hand chain hoist link type load chain is made of extremely tough, hard surfaced, low alloy steel. However, it should be inspected regularly for wear (see Figure 5-1), rust or corrosion. Examine visually for gouges, nicks, weld splatter, corrosion or distorted links. Slacken chain and check bearing surfaces between links for wear. Case hardness of chain is about .010" to .015" deep. Chain must be replaced before the case is worn thru. Also check chain for elongation using a vernier caliper (see Figure 5-2). Chain with excessively pitted, corroded, nicked, gouged, twisted or worn links, should be replaced using factory approved chain. Never weld or attempt to repair coil load chain.

Note

On spark resistant models, coil load chains are stainless steel and must be inspected for wear and lubricated more frequently than the standard low alloy heat treated load chain.

3-5. LOAD REGULATOR.

A BUDGIT USA hand chain hoist should not be overloaded; however, if the hoist is subjected to excessive overload the Load Regulator unit will allow the hand chain to move without increasing the load on the hoist. When this condition occurs, the hoist will continue to support the overload; however, **the overload must be released as soon as possible.**

⚠ WARNING

The Load Regulator clutch can be affected by environmental conditions, use and wear to the point that it may not operate correctly. Regulator inspection, maintenance and testing is required. See Section VIII.

SECTION IV - LUBRICATION

4-1. LUBRICATION OF INTERNAL PARTS.

All internal operating parts of the BUDGIT USA hand chain hoist that require lubrication are prelubricated at time of assembly by the factory. Periodic greasing only is recommended, and intervals are dependent upon type of service. See Section V - Maintenance.

⚠ WARNING

Do Not Oil Load Brake. It is extremely important the load brake friction surfaces be kept free of any oil film, so do not apply oil internally.

4-2. LUBRICATION OF EXTERNAL PARTS.

a. Load chain should always be protected from wear with a light film of bar and chain oil, especially when subjected to damp or corrosive atmospheres.

b. Lubricate lower hooks at the swivel point with bar and chain oil periodically, as required. Lubricate upper hooks with a few drops of bar and chain oil.

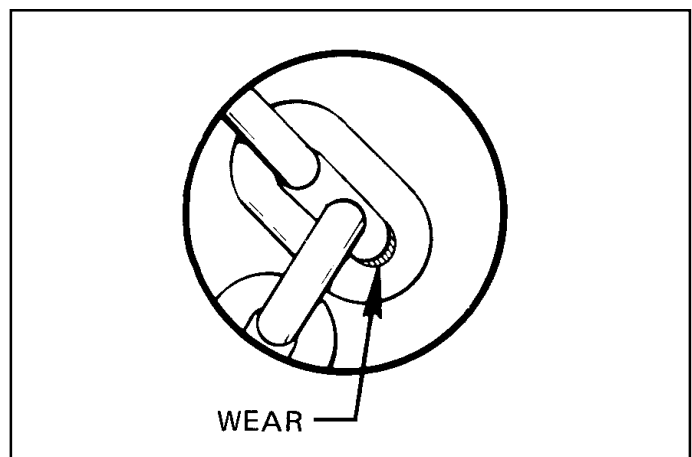


Figure 5-1. Check Chain Wear at Bearing Surfaces Between Links

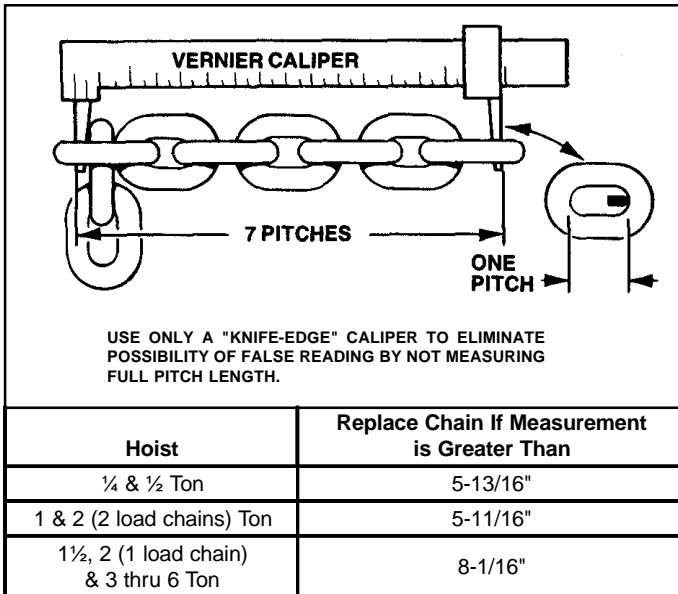


Figure 5-2. Checking Coil Chain Using Vernier Caliper

CAUTION

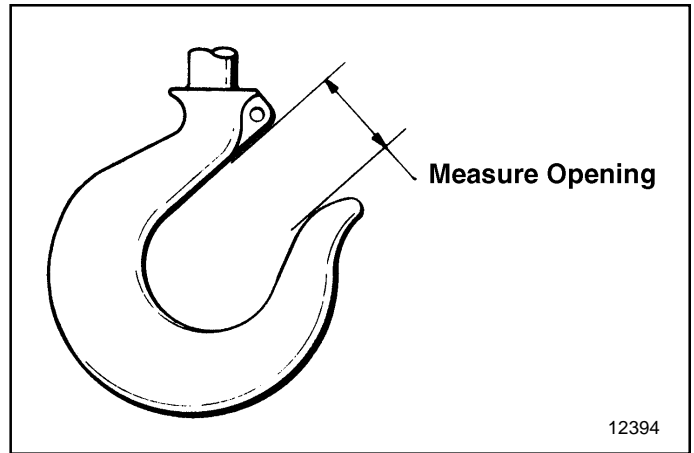
Do not assume that load chain is safe because it measures below replacement points given herein. Other factors, such as those mentioned in visual checks above, may render chain unsafe or ready for replacement long before elongation replacement is necessary.

⚠ WARNING

When replacing coil load chain, use only factory approved chain conforming to factory specifications for material, hardness, strength and link dimensions. Chain not conforming to BUDGIT hoist specifications may be dangerous as it will not fit in the load sprocket and chain guide correctly, causing damage to hoist, and it will wear prematurely, deform and eventually break.

5-4. HOOKS.

Inspect both hooks regularly for evidence of overloading or damage. Check for proper hook opening, Figure 5-3. If hook is opened beyond the given dimension, replace immediately. If hooks are damaged, dismantle hoist and inspect all parts thoroughly. Refer to Section VII for hook removal and installation instructions.



Hoist	Hook	Hook Throat Opening	
		Normal Opening	Replace Hook If Opening is Greater than
¼ & ½ Ton ¼, ½ & 1 Ton	Upper Lower	1-1/8"	1-9/32"
1 & 2 (2 load chains) Ton 1½ & 2 Ton	Upper Lower	1-1/4"	1-7/16"
1½ & 2 (1 load chain) Ton	Upper	1-3/8"	1-9/16"
3 & 4 Ton (except SR) 3 Ton 4 Ton (except SR)	Upper Lower Lower	1-1/2"	1-23/32"
3 & 4 Ton SR 5 & 6 Ton (except SR) 4 Ton SR 5 & 6 Ton (except SR)	Upper Upper Lower Lower	1-7/8"	2-5/32"
5 & 6 Ton SR 5 & 6 Ton SR	Upper Lower	2-1/4"	2-9/16"

Figure 5-3. Upper Hook Opening

⚠ WARNING

Hooks, upper or lower, damaged from chemicals, deformation or cracks or having more than 15 percent in excess of normal throat opening or more than 10 degrees twist from the plane of the unbent hook, or opened, allowing the hook latch to bypass hook tip **MUST BE REPLACED.**

Any hook that is twisted or has excessive throat opening, indicates abuse or overloading of the hoist. Other load bearing components of the hoist should be inspected for damage.

5-5. TESTING.

Regular testing of the hoist is required. See Section VIII.

SECTION VI - TROUBLE SHOOTING

Trouble	Probable Cause	Remedy
1. Hoist is hard to operate in hoisting direction.	<ul style="list-style-type: none"> a. Hoist is overloaded. b. Load chain is damaged, worn, elongated or binding between load chain sprocket and guide. c. Load chain dry, rusty, corroded or dirty with foreign material adhering to chain. d. Load chain sprocket worn or clogged with foreign material. e. Chain twisted. 	<ul style="list-style-type: none"> a. Reduce load to within rated hoist capacity. Hoist should be dismantled and thoroughly inspected for additional damage from overloading. b. Check chain for bent or twisted links, gouges or nicks. Check for wear between links and gauge chain per paragraph 5-3. Replace if necessary. c. Clean chain by tumble polishing or clean with solvent. Lubricate per Para. 4-2. d. Clean and inspect sprocket. Replace if necessary. e. Rereeve chain hoist keeping chain free of twist.
2. Load brake slips and chain hoist will not support load.	<ul style="list-style-type: none"> a. Brake friction surfaces coated with excessive oil or friction washers glazed. b. Brake parts worn or damaged. c. Load chain reeved incorrectly. d. Brake pawl hangs up. 	<ul style="list-style-type: none"> a. Remove and disassemble brake. Clean and buff friction washers or install new washers. Lubricate per Section 7-14.b. before reassembly. b. Remove brake parts. Inspect brake parts. Replace worn or damaged parts. c. Remove load chain and install correctly. (See Figure 7-8.) d. Check brake pawl engagement and brake pawl spring.
3. Load brake drags, hard to lower load. (Hand chain is hard to pull.)	<ul style="list-style-type: none"> a. Dirty or corroded internal parts. b. Brake friction surfaces scored. c. Load gearing damaged from overloading. d. Chain binding. 	<ul style="list-style-type: none"> a. Remove and disassemble brake. Clean and buff surfaces. Install brake. Lubricate per Section 7-14.b before reassembly. b. Refer to a. above. Replace if scored excessively. c. Remove damaged gears and install new gears. Hoist should be dismantled and thoroughly inspected for additional damage from overloading. d. See items 1.b., 1.c., and 1.d.
4. Chain hoist works erratically.	<ul style="list-style-type: none"> a. Load chain incorrectly installed. b. Load brake pawl or ratchet teeth worn or damaged c. Frame cracked or mutilated. d. Hand chain rubbing on cover. e. Hand chain hanging up in hand wheel. 	<ul style="list-style-type: none"> a. Remove load chain. Install chain correctly. (See Figure 7-8.) b. Remove load brake parts. Inspect parts. Replace damaged parts. c. Replace frame. d. Remove interference. e. Clean and lubricate hand chain.
5. Hooks opened.	<ul style="list-style-type: none"> a. Chain hoist overloaded. 	<ul style="list-style-type: none"> a. Replace opened hooks. Hoist should be dismantled and thoroughly inspected for additional damage from overloading.
6. Frame damaged.	<ul style="list-style-type: none"> a. Hoist subjected to overloading. b. Load chain run too far through chain block frame. c. Chain hoist subjected to extreme angular or side pulls, causing chain to bind. 	<ul style="list-style-type: none"> a. Load chain hoist only to rated capacity. Replace damaged frame. Hoist should be dismantled and thoroughly inspected for additional damage from overloading. b. Replace damaged frame. c. Operate chain hoist properly. Replace damaged frame.

(Continued on following page)

SECTION VI - TROUBLE SHOOTING (continued)

Trouble	Probable Cause	Remedy
6. Frame damaged. (continued)	d. Chain hoist damaged by dropping or throwing.	d. Disassemble chain hoist. Inspect chain hoist. Replace damaged parts and assemble chain hoist. Whenever the frame shows evidence of damage from misuse or rough handling, the hoist should be completely dismantled, all parts inspected and damaged or worn parts replaced, as outlined in Section VII. Always apply the safety rules shown on the inside of the back cover when using BUDGIT USA hand chain hoist.
7. Clutch slipping excessively.	a. Hoist is overloaded. b. Internal binding. c. Load brake locked up. d. Clutch worn.	a. Reduce load to within rated hoist capacity. Hoist should be dismantled and thoroughly inspected for additional damage from overloading. b. See item 6.d. c. See item 2.a. d. Replace clutch.

SECTION VII - DISASSEMBLY & REASSEMBLY

7-2. GENERAL.

The following disassembly procedure applies to all hoists except as specifically noted. A complete tear down procedure is given; however, when servicing specific parts, only a partial tear down may be required.

7-3. REMOVAL OF LOAD CHAIN.

a. To remove hook from end of load chain on single load chain hoists, remove snap ring at top of sleeve, slide sleeve from body halves and separate parts. See Figure 7-1.

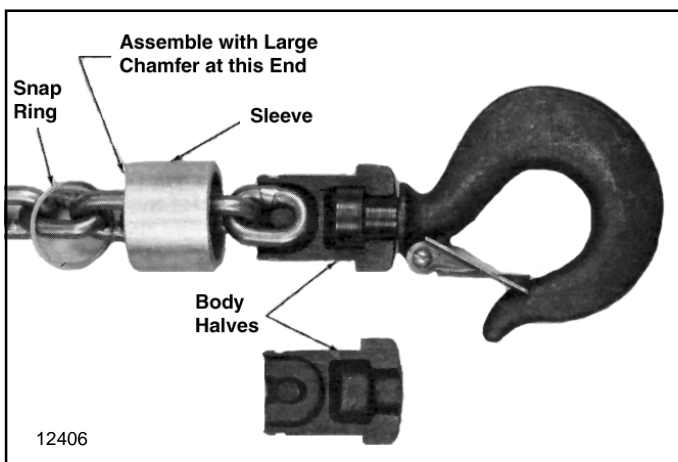


Figure 7-1. Lower Hook Connection

b. Remove hex socket head cap screw holding tail end of load chain to hoist frame.

c. Run load chain out of hoist by pulling on hand chain in lowering direction.

d. On two load chain 2 ton hoists, remove chain connection pin at upper hook bracket (see Figure 9-3a) and pull chain thru lower block; then follow steps b and c above.

e. On 3 and 4 ton hoists, remove one roll pin from chain anchor pin at upper hook bracket and remove chain anchor pin. See Figure 9-4. Pull chain thru lower block and then follow steps b and c above.

f. On 5 and 6 ton hoists, remove one retaining ring from chain anchor pin at lower block and remove chain anchor pin. See Figure 9-5. Pull chain thru upper hook assembly and lower block and then follow steps b and c above.

7-4. REMOVAL OF HAND CHAIN AND HAND CHAIN WHEEL.

a. If load chain has not been removed per paragraph 7-3, operate hoist in lowering direction.

b. Open split connecting link in hand chain (see paragraph 2-2) and pull hand chain from hoist.

c. Remove four hex socket button head cap screws holding hand chain wheel cover and lift off cover.

d. A self-locking nut on the end of the pinion shaft secures the hand chain wheel. Remove nut, flat washer, brake stop and hand chain wheel.

e. No disassembly of the hand chain wheel is to be attempted. The hand chain wheel contains the Load Regulator which is preset at the factory. Any adjustment should be undertaken only by an authorized BUDGIT repair station.

7-5. REMOVAL OF LOAD BRAKE PARTS.

a. Pull two friction washers and brake ratchet off shaft of brake flange while holding brake pawl open. See Figure 7-5.

b. Remove brake pawl spring. To remove pawl, take retaining ring off end of pawl pin and remove washer and pawl. Note relationship of spring retainer plate (if present) to stop in frame. Slide spacer washer and spring retainer plate (where they occur) off pawl pin.

c. Unscrewing the load brake flange (counterclockwise) from the pinion shaft, will require extra effort. The easiest way is; after removal of the sprocket gear on 1/4, 1/2, 1 and two load chain 2 ton models (see paragraph 7-6) or the intermediate gear on 1-1/2, single load chain 2, and 3 thru 6 ton models (see paragraph 7-7), turn the pinion counterclockwise with a 6

or 12 point 17 mm hex socket on a flex handle or ratchet and hold the load brake flange with a face spanner resting against the brake pawl pin (see Figure 7-2). If it becomes necessary to remove the load brake flange without removing any gearing, hold load brake flange with face spanner and turn pinion shaft with a 6" or larger crescent wrench fitted over the flat surface under the end thread on the pinion shaft.

d. Do not remove pawl pin unless damaged, requiring replacement. A self-locking hex nut secures the pawl pin to the frame. This is accessible in the opening in the frame near the upper hook nut (or lug mounting nut). See Figure 7-4.

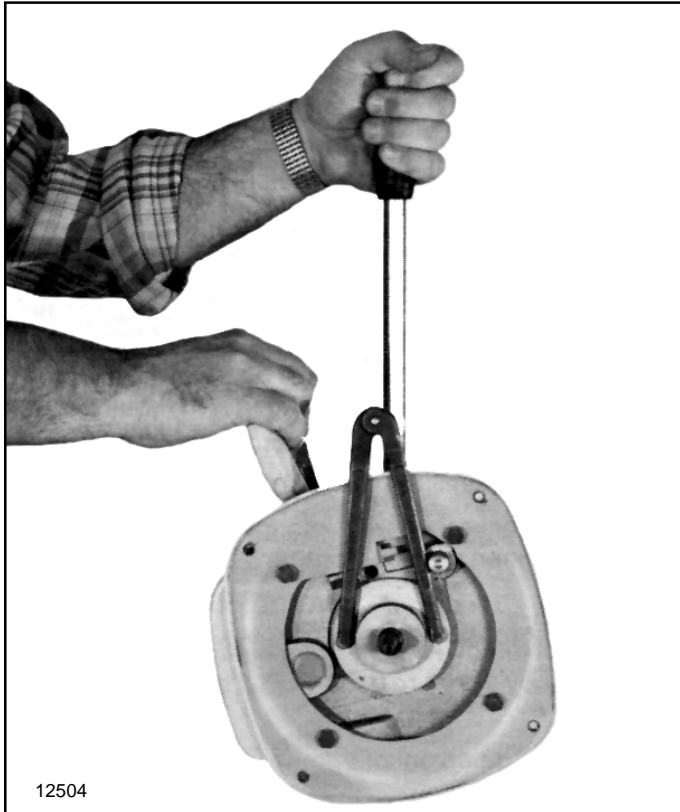


Figure 7-2. Removing Load Brake Flange

7-6. REMOVAL OF GEARING (1/4, 1/2, 1 and Two Load Chain 2 Ton Models).

a. Unscrew four hex socket button head cap screws holding gearcase cover and remove cover.

b. Lift out sprocket gear with integral chain sprocket (load chain must have been previously removed from hoist).

Note

Do not remove two bushings from their bores in the frame unless they show evidence of wear or damage and require replacement.

c. Remove retaining ring from pinion shaft (on hand wheel side of frame) and tap out pinion shaft. See Figure 7-3. Ball bearing should come out with pinion shaft.

Note

Do not remove needle roller bearing from frame unless it is worn or damaged and replacement is required.

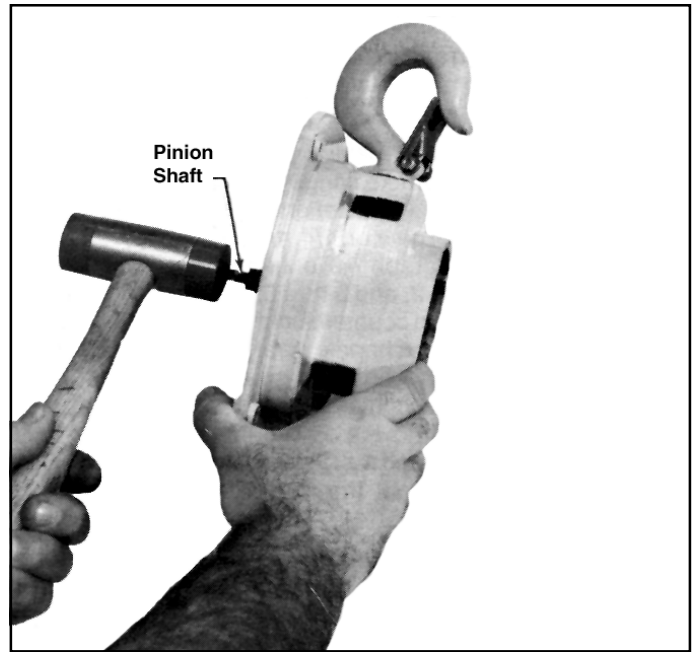


Figure 7-3. Removing Pinion Shaft

d. Pull chain guide out of frame.

7-7. REMOVAL OF GEARING (All Other Models).

a. Unscrew six hex socket button head cap screws holding gearcase cover and remove cover.

b. Lift out intermediate pinion with intermediate gear attached and with a washer on each end. To separate intermediate gear from pinion, press gear off shaft. A woodruff key joins the two.

Note

Do not remove needle roller bearings from frame unless they are worn or damaged and require replacement.

c. Remove pinion shaft as outlined in paragraph 7-6.c.

d. Lift out sprocket gear with integral chain sprocket (load chain must have been previously removed from hoist).

Note

Do not remove needle roller bearings from frame unless they are worn or damaged and require replacement.

e. Pull chain guide out of frame.

7-8. REMOVAL OF UPPER HOOK (Hook Suspension Models).

a. Align grooved pin in hook nut with opening in frame and drive out pin with drift punch. Use drift punch to hold nut while hook is being unscrewed.

b. Unscrew and remove hook, nut and washer.

Note

Keep hook and nut together as they are drilled at assembly and are not interchangeable.

7-9. REMOVAL OF SUSPENSION LUG (Lug Suspension Models).

a. For 1/4, 1/2, 1, 1-1/2 and single load chain 2 ton hoists, hold nuts with wrench and unscrew two flat head cap screws (hex head cap screws on 1-1/2 and single load chain 2 ton models) to remove suspension lug.

b. For two load chain 2 ton, 3 and 4 ton hoists, align grooved pin in upper block bolt with opening in frame and drive out pin with a drift punch. Use drift punch to hold nut while bolt is being unscrewed. Unscrew and remove bolt, nut and washer.

Note

Keep bolt and nut together as they are drilled at assembly and are not interchangeable.

c. For 5 and 6 ton hoists, hold self-locking nuts while unscrewing bolts.

7-10. DISASSEMBLY OF LOWER BLOCKS (3 Thru 6 Ton Hoists).

a. Remove spring pin in sprocket shaft; then remove sprocket shaft, sprocket, bearings and washers.

b. Remove cotter pin in hook nut; hold nut and unscrew hook; remove nut, thrust bearing and thrust washer.

7-11. REASSEMBLY.

7-12. GENERAL.

The procedure to be followed for reassembly is in reverse order of the disassembly steps outlined above. There are; however, certain precautionary steps that must be taken, as outlined in paragraphs 7-13 thru 7-21 below.

7-13. CLEANING AND INSPECTION OF PARTS.

a. Before assembly, all parts should be thoroughly cleaned and inspected to determine their serviceability. Do not wash shielded ball bearing (from pinion shaft) out with solvent. Also, hand chain wheel, which contains Load Regulator, should not be degreased.

b. Grease should be evident at joint between chain wheel and load brake nut and also chain wheel and regulator collar of Load Regulator. If not, test hoist per Section VIII to assure grease has not been baked or washed out by environmental conditions.

c. Replace parts that are excessively worn or damaged.

7-14. LUBRICATION OF PARTS.

a. Lubricate upper and lower hooks with bar and chain oil. Apply on hook shanks and surfaces between hook, frame, washer and nut on upper hooks. Apply on hook shanks and body halves on lower hooks. Lubricate hook bearings with MOLYKOTE BR2 Plus grease (by Dow Corning) or equal.

b. Lubricate gearing with MOLYKOTE BR2 Plus grease or equal. Apply same grease to sprocket bearing surfaces and apply a light film of this grease to sprocket bushings or bearings. On 1½ and 2 ton models, do the same for intermediate gear and pinion. Apply BR2 Plus grease to pinion bearing surfaces and apply a film of this grease to the pinion needle bearing. Lubricate load brake pawl with a small amount of BR2 Plus grease at support pin and ratchet engagement tip. While making sure that the load brake friction surfaces do not become greased, lubricate the ratchet inner bearing surfaces. For lubrication of the load brake threads, apply a small amount of BR2 Plus grease on the leading internal threads of the load brake nut which is part of the hand chain wheel assembly. When the hand chain wheel is assembled to the pinion shaft any excess grease will be brought to the end of the pinion shaft where it can be wiped off.

⚠ WARNING

It is extremely important that load brake friction surfaces be kept dry, as an oily film may cause slippage, thereby permitting a load to drop.

c. Load chain should be lubricated with a light film of bar and chain oil. It is important that the bearing surfaces between the links are lubricated. Note Figure 5-1.

7-15. INSTALLING SUSPENSION LUG (Lug Suspension Models).

a. For 1/4, 1/2 and 1 ton models, the flat head hex socket cap screws fastening the suspension lug to the hoist frame must be torqued to 70 to 80 foot-pounds.

b. The hex head cap screws for the 1-1/2, single load chain 2, 5 and 6 ton models must be torqued to 195 to 205 foot-pounds. The self-locking plastic material in the nuts must be undamaged and resilient.

c. On two load chain 2, 3 and 4 ton models (round nut with pin), be certain original nut is used. The nut side with the greater distance to the center of the hole on the 2 ton model should face the top of hoist. See Figure 7-4.

7-16. INSTALLING UPPER HOOKS (Hook Suspension Models).

When installing upper hook, be certain original nut is used. The nut side with the greater distance to the center of the hole should face the hook. See Figure 7-4.

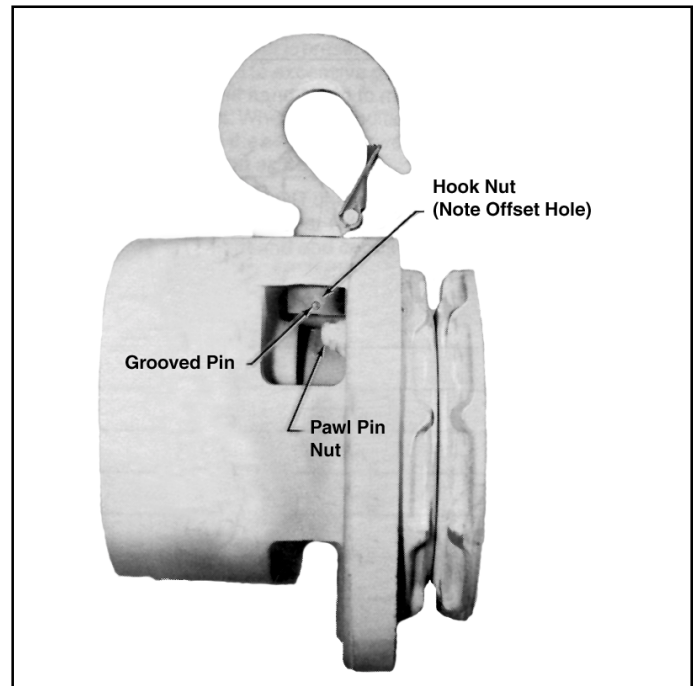


Figure 7-4. Installing Upper Hook and Nut

7-17. INSTALLING GEARING.

a. Before gearing is installed, be certain chain guide is properly seated in hoist frame.

b. Press ball bearing, if required, onto pinion shaft before installing pinion shaft.

c. On 1-1/2, single load chain 2 and 3 thru 6 ton models, press intermediate gear onto intermediate pinion shaft (with woodruff key in place) before installing in frame. Also, remember to replace the washers on each end of shaft.

7-18. INSTALLING LOAD BRAKE PARTS.

a. The threads between the pinion shaft and brake flange are to be clean and dry. Pretreat these threads only with LOCTITE Primer 'T'. Apply LOCTITE 680 to shaft threads 3/16" from thread relief (the inside edge). Set pinion shaft in hoist frame and lock with retaining ring. Assemble brake flange to pinion shaft. Torque flange to 25 foot-pounds.

b. After the load brake flange is in place, the order of assembly is; friction washer, then ratchet, then second friction washer. On the 1/4 and 1/2 ton models only, the friction washers are of different diameters. The large diameter friction washer goes on first, followed by the ratchet and then the smaller diameter friction washer. On the other models the light colored woven friction washer goes on first, followed by the ratchet and then the dark colored molded friction washer. The brake pawl and spring are then installed. The brake pawl spring has a closed end. On 1/4 and 1/2 ton hoist models, the open end must be installed to the pawl. On other models, the closed end must be installed to the pawl. The open end of the spring on 1 and two load chain 2 ton models goes against the adapter assembly. See Figure 7-5.



Figure 7-6. Brake Stop Position for 1/4 and 1/2 Ton Models

d. Install brake stop in position shown in Figure 7-6 for 1/4 and 1/2 ton models or in position shown in Figure 7-7 for other models.



Figure 7-7. Brake Stop Position for Other Models

e. To facilitate installation of the load chain, delay replacing hand chain and hand chain wheel cover until after load chain has been installed.

7-19. INSTALLING LOAD CHAIN

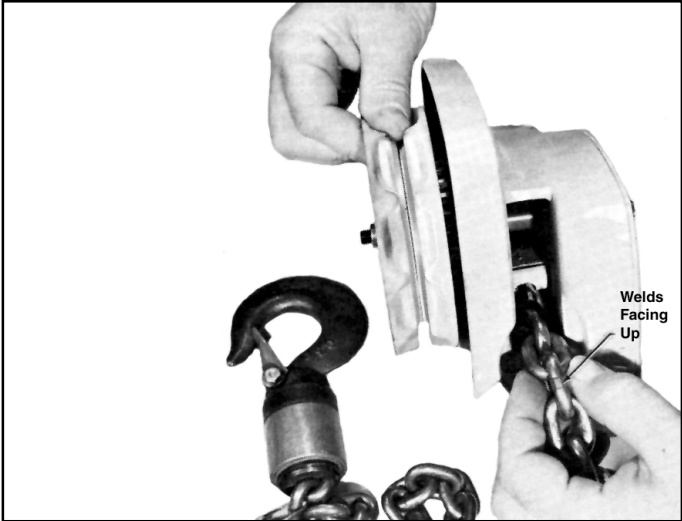


Figure 7-8. Installing Load Chain

CAUTION

Make sure the brake pawl spring is properly seated.

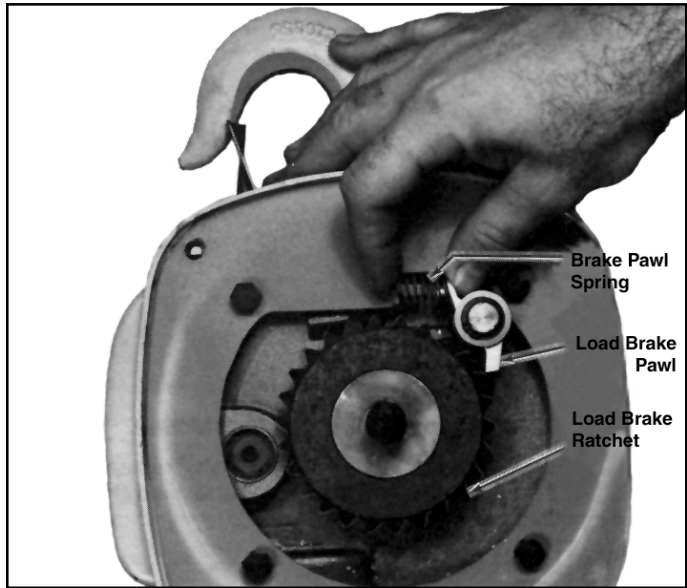


Figure 7-5. Installing Load Brake Pawl

c. Install hand wheel on pinion shaft. Turn clockwise thru several clicks of brake pawl to bring brake friction surfaces into contact before brake stop (see paragraph 7-18.d, for installation), flat washer and nut are installed. Lube should be in hand chain wheel threads so that excess is wiped **out**, not **in**.

⚠ WARNING

When installing load chain, it is possible to feed it into the wrong side of hoist, which will result in a reversed hoist action and the load brake will not function.

- Lay hoist on workbench. By rotating hand chain wheel, run load chain thru hoist. The first link into the hoist from the load side must be a horizontal link (into a horizontal pocket) so that the tail chain will be in the proper position for fastening to the hoist frame. Be sure the welded side of the chain links face up so they do not enter the vertical slots of the sprocket. Make sure chain is not twisted. See Figure 7-8.
- Attach tail end of load chain to hoist frame. On the 1-1/2, single load chain 2 and 3 thru 6 ton models only, there is a washer under the head of the hex socket head cap screw securing the chain.
- On the two load chain 2 and 3 thru 6 ton models, reeve the hoist in accordance with Figure 7-9. Make sure there is no twist in the chain.

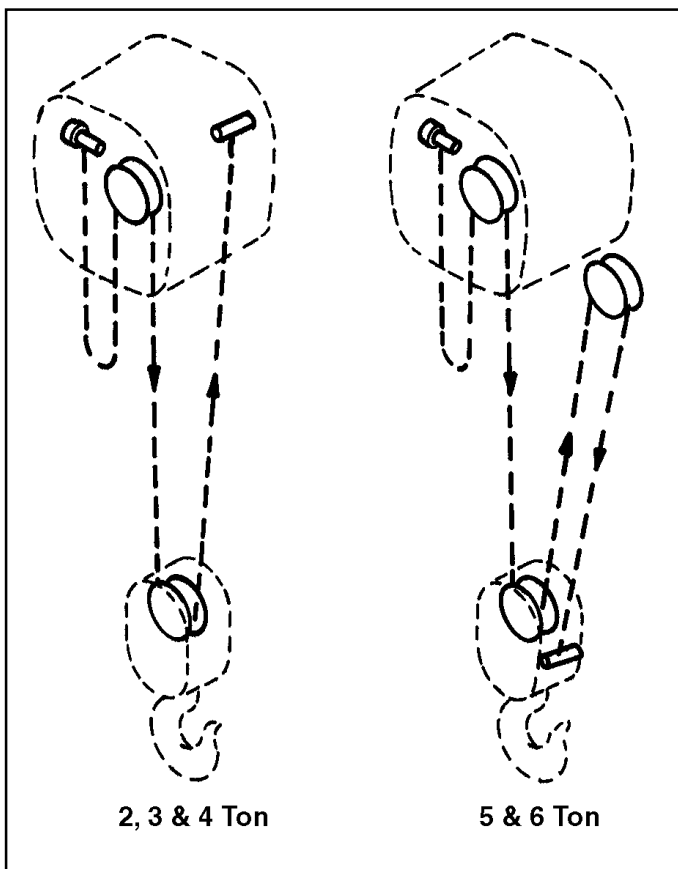


Figure 7-9. Reeving for 2 thru 6 Ton Models

- Anchor the end of the chain as shown in the proper parts list illustration. In order that the last link falls in the correct position to be anchored, the chain must have an even number of links.

7-20. ASSEMBLY OF LOWER BLOCK.

When installing sleeve on single load chain hoists, be certain large chamfer in one end is positioned as noted in Figure 7-1.

21. ASSEMBLY OF HAND CHAIN WHEEL COVER AHEAD CHAIN.

- Replace hand chain wheel cover and secure with four hex socket button head cap screws.
- Feed hand chain over hand chain wheel keeping chain welds facing away from wheel. Make sure chain is not twisted. Connect ends of hand chain with open split connecting link. Twist connecting link closed.
- Lubricate hand chain with a light, rust preventative oil.
- Check operation of hoist and test in accordance with paragraph 8-2.

IMPORTANT

After completion of reassembly and before being placed in service, the BUDGIT USA hand chain hoist should be tested with rated load to ensure safe operation.

SECTION VIII - SPECIAL LOAD REGULATOR INFORMATION

8-1. GENERAL.

- BUDGIT USA hand chain hoists are equipped with a Load Regulator in the hand chain wheel which is designed to help guard against excessive overloads.
- The Load Regulator is preset at the factory. If a BUDGIT chain hoist is subjected to excessive overload, the Load Regulator unit will allow the hand chain to move without increasing the load on the hoist. When this condition occurs, the hoist will continue to support the overload; however, **the overload must be released as soon as possible.**
- Testing of the BUDGIT chain hoist in accordance with paragraph 8-2 is necessary at regular intervals which should be determined by amount and conditions of use.

8-2. TEST PROCEDURE.

- Suspend hoist from an overhead structure capable of supporting several times the rated load of the hoist. Position hoist so that all parts of hoist and test load, when suspended on load hook, are free of obstructions and can hang in a straight line. Attach the load hook to a test load equal to the rated load of the hoist. Operate hand chain to lift the load. If slippage occurs and rated load cannot be lifted, the Load Regulator requires adjustment or replacement. Adjustment should be attempted only by an authorized BUDGIT repair station.
- If hoist operates properly with rated load on hook, it should next be tested with a load equal to two times rated load. With this overload attached to the load hook, complete slippage should occur. If hand chain wheel does not slip, the Load Regulator requires adjustment or replacement. Adjustment should be attempted only by an authorized BUDGIT repair station.
- For Load Regulator adjustment, the complete hoist must be returned to an authorized BUDGIT repair station. Alternatively, a new hand chain wheel containing the Load Regulator may be obtained from an authorized BUDGIT repair station.

SECTION IX - PARTS LIST

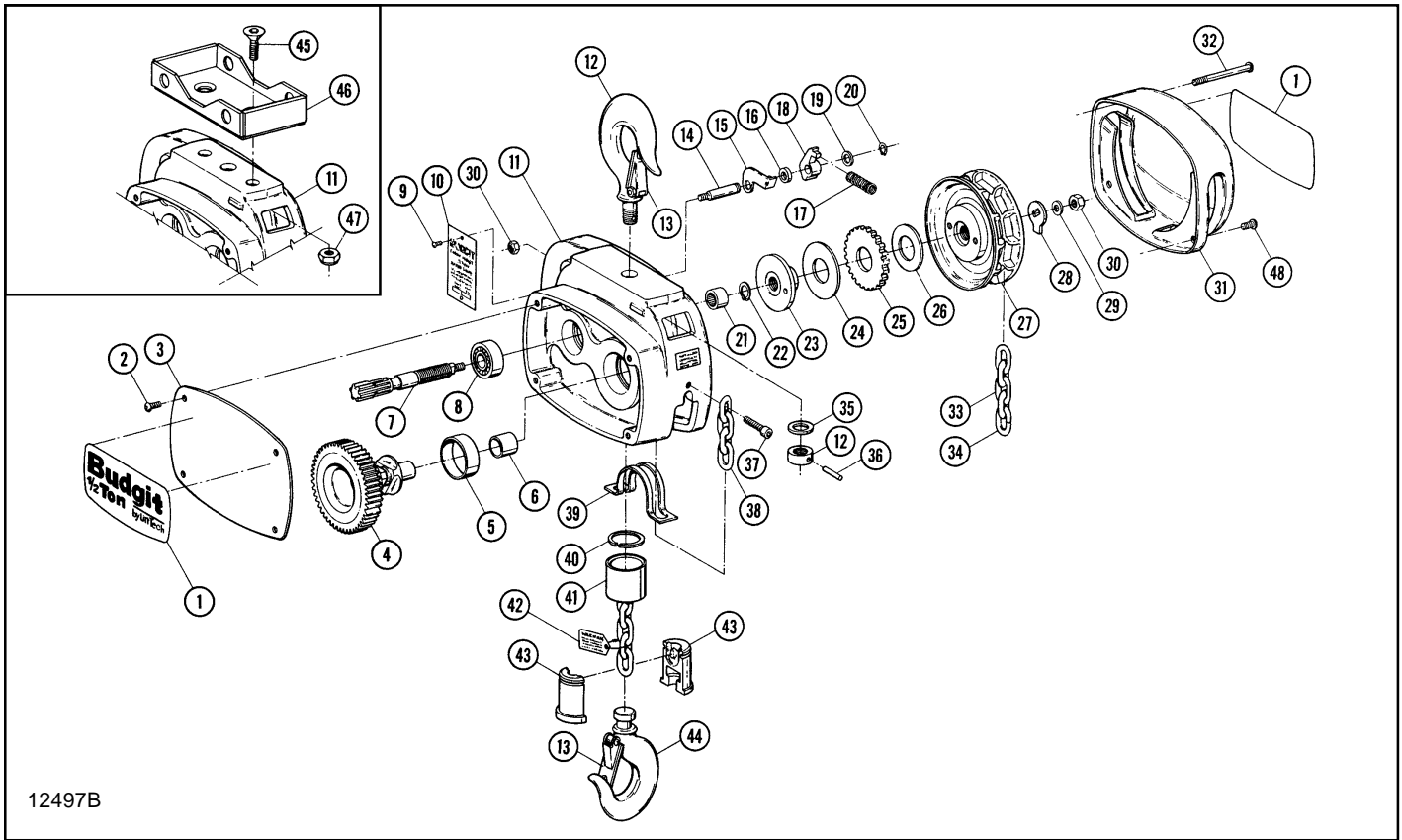


Figure 9-1. 1/4 and 1/2 Ton Models

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
1	Label - Capacity 1/4 Ton 1/2 Ton	BCH-101 BCH-102	BCH-101 BCH-102	BCH-101 BCH-102	2 2
2	Screw - Hex Socket Head (Self-Locking 1/4-20 x 5/8)	*	*	*	4
3	Cover - Gearcase	BCH-104	BCH-104	BCH-104	1
4	Gear - Sprocket	BCH-105	BCH-105	BCH-295	1
5	Bushing	BCH-106	BCH-106	BCH-106	1
6	Bushing	BCH-107	BCH-107	BCH-107	1
7	Shaft - Pinion	BCH-108	BCH-108	BCH-108	1
8	Bearing-Ball	BCH-109	BCH-109	BCH-109	1
9	†Screw-Self-Tapping (#2-32x1/8)	*	*	*	2
10	Nameplate 1/4 Ton 1/2 Ton	BCH-111 BCH-113	BCH-111 BCH-113	BCH-112 BCH-112	1 1
11	Frame	BCH-114	BCH-115	BCH-114	1
	Warning Label (on frame)	BCH-116	BCH-116	BCH-116	1
	Upper Hook & Nut Assembly	BCH-117	--	BCH-118	1
12	Latch Assembly				
	Upper Hook	BCH-119	--	BCH-120	1
	Lower Hook	BCH-119	BCH-119	BCH-120	1
14	Pin - Pawl	BCH-121	BCH-121	BCH-121	1
15	Plate - Spring Retainer	BCH-122	BCH-122	BCH-122	1
16	Washer - Spacer	BCH-123	BCH-123	BCH-123	1
17	Spring - Brake Pawl	BCH-124	BCH-124	BCH-124	1
18	Pawl - Brake	BCH-125	BCH-125	BCH-125	1

* Not available as individual parts.

† Drill .078" diameter holes thru frame when replacing metal tacks.

(Continued on following page)

Figure 9-1. 1/4 and 1/2 Ton Models (continued)

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
19	Washer - Flat	BCH-126	BCH-126	BCH-126	1
20	Ring - Retaining	BCH-127	BCH-127	BCH-127	1
21	Bearing - Needle	BCH-128	BCH-128	BCH-128	1
22	Ring - Retaining	BCH-129	BCH-129	BCH-129	1
23	Flange - Load Brake	BCH-130	BCH-130	BCH-130	1
24	Friction Washer-Brake	BCH-131	BCH-131	BCH-131	1
25	Ratchet - Brake	BCH-132	BCH-132	BCH-132	1
26	Friction Washer - Brake	BCH-133	BCH-133	BCH-133	1
27	Load Regulator Assembly				
	1/4 Ton	BCH-134	BCH-134	BCH-134	1
	1/2 Ton	BCH-135	BCH-135	BCH-135	1
28	Stop - Brake	BCH-136	BCH-136	BCH-136	1
29	Washer - Flat (5/16 N Pltd.)	*	*	*	1
30	Nut - Hex, Self-Locking (Thin 5/16-24 Pltd.)	*	*	*	2
31	Cover - Chain Wheel	BCH-139	BCH-139	BCH-139	1
32	Screw - Hex Socket Head	BCH-140	BCH-140	BCH-140	2
33	Chain - Hand				
	For 8' Lift	BCH-141	BCH-141	BCH-142	1
	For 10' Lift	BCH-143	BCH-143	BCH-144	1
	For 12' Lift	BCH-145	BCH-145	BCH-146	1
	For 15' Lift	BCH-147	BCH-147	BCH-148	1
	For 20' Lift	BCH-149	BCH-149	BCH-150	1
	For 25' Lift	BCH-151	BCH-151	BCH-152	1
	For 30' Lift	BCH-153	BCH-153	BCH-154	1
	For Non-Standard Lift (order chain length equal to two times lift, minus 1'**)	BCH-155	BCH-155	BCH-156	As Req'd.
34	Link - Open	BCH-157	BCH-157	BCH-157	1
35	Thrust Washer - Bearing	BCH-158	--	BCH-158	1
36	Pin - Grooved	BCH-159	--	BCH-159	1
37	Screw - Hex Socket Head (Self-Locking 1/4-20 x 1)	*	*	*	1
38	Chain - Load				
	For 8' Lift	BCH-161	BCH-161	BCH-260	1
	For 10' Lift	BCH-163	BCH-163	BCH-262	1
	For 12' Lift	BCH-165	BCH-165	BCH-264	1
	For 15' Lift	BCH-167	BCH-167	BCH-266	1
	For 20' Lift	BCH-169	BCH-169	BCH-268	1
	For 25' Lift	BCH-171	BCH-171	BCH-270	1
	For 30' Lift	BCH-173	BCH-173	BCH-272	1
	For Non-Standard Lift (order chain length equal to one times lift, plus 1' **)	BCH-175	BCH-175	BCH-274	As Req'd.
39	Guide - Chain	BCH-177	BCH-177	BCH-177	1
	Lower Block Assembly (includes ref. nos. 13, 40, 41, 43 & 44)	BCH-190	BCH-190	BCH-190	1
	Body & Sleeve Kit (includes ref. nos. 40, 41 & 43)	BCH-178	BCH-178	BCH-179	1
40	Ring - Retaining	BCH-180	BCH-180	BCH-180	1
41	Sleeve	BCH-181	BCH-181	BCH-182	1
42	Warning Tag Assembly	BCH-183	BCH-183	BCH-183	1
43	Body Half - Lower Block	BCH-184	BCH-184	BCH-184	2
44	Hook - Lower	BCH-185	BCH-185	BCH-186	1
45	Screw - Flat Head Socket (1/2-13x 1-1/4)	--	*	*	2
46	Weldment - Suspension Lug	--	BCH-188	BCH-188	1
47	Nut - Hex, Self-Locking (Thin 1/2-13)	--	*	*	2
48	Screw - Hex Socket Head (1/4-20 x 5/8)	*	*	*	2

* Not available as individual parts.

** Round up to next full foot of length

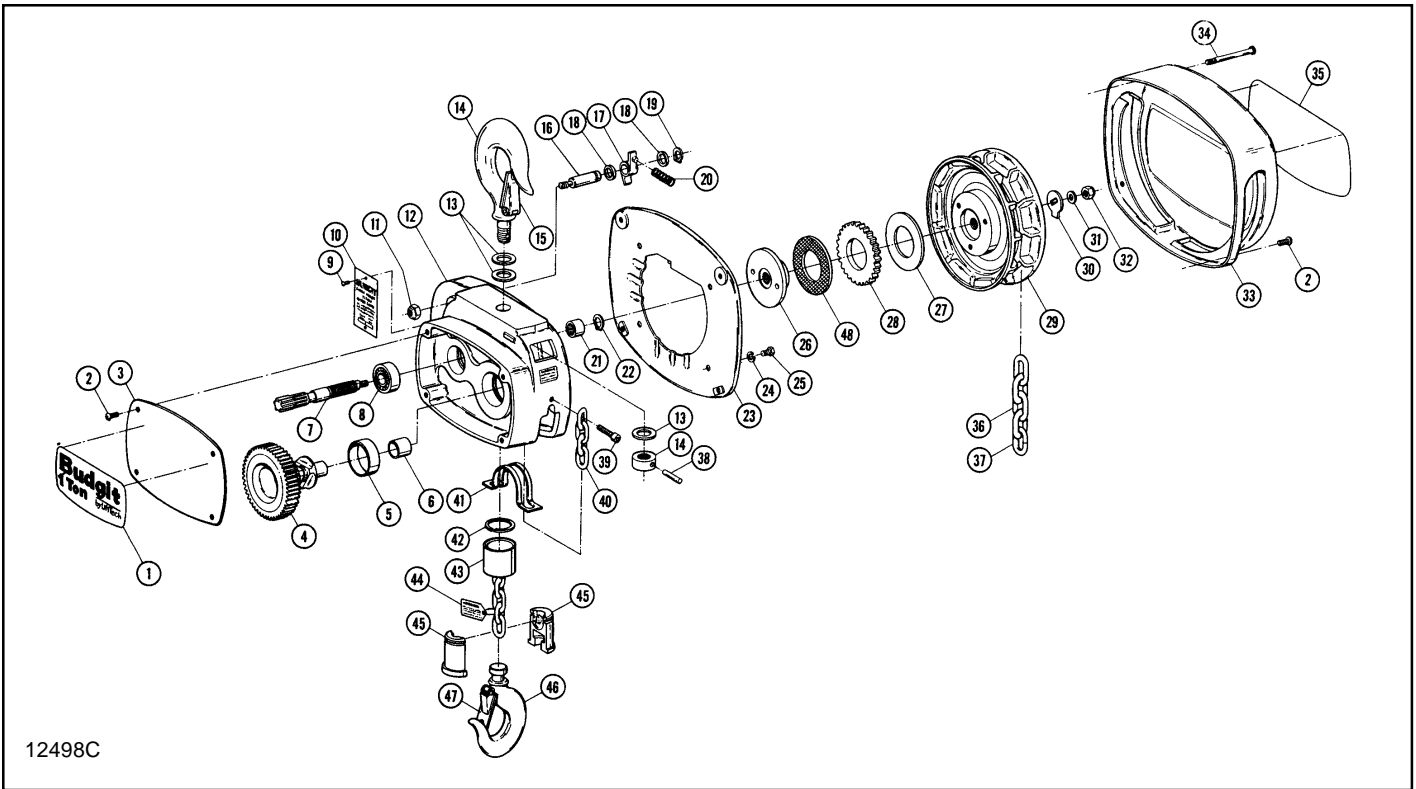


Figure 9-2. 1 Ton Hook Suspension Models

Ref. No.	Description	Part Number		Qty. Req'd
		Hook Suspension	Spark Resistant	
1	Label - Capacity	BCH-201	BCH-201	1
2	Screw - Hex Socket Head (Self-Locking 1/4-20 x 5/8)	*	*	6
3	Cover - Gearcase	BCH-203	BCH-203	1
4	Gear - Sprocket	BCH-204	BCH-295	1
5	Bushing	BCH-205	BCH-205	1
6	Bushing	BCH-206	BCH-206	1
7	Shaft - Pinion	BCH-207	BCH-207	1
8	Bearing - Ball	BCH-208	BCH-208	1
9	†Screw - Self-Tapping (#2-32 x 1/8)	*	*	2
10	Nameplate	BCH-210	BCH-211	1
11	Nut - Hex, Self-Locking (Thin 3/8-24 Pltd.)	*	*	1
12	Frame	BCH-213	BCH-213	1
	Warning Label (on frame)	BCH-214	BCH-214	1
13	Washer - Flat	BCH-215	BCH-215	3
14	Upper Hook & Nut Assembly	BCH-216	BCH-217	1
15	Latch Assembly - Hook	BCH-218	BCH-219	1
16	Pin - Pawl	BCH-220	BCH-220	1
17	Pawl - Brake	BCH-221	BCH-221	1
18	Washer - Flat	BCH-222	BCH-222	2
19	Ring - Retaining	BCH-223	BCH-223	1
20	Spring - Brake Pawl	BCH-224	BCH-224	1
21	Bearing - Needle	BCH-225	BCH-225	1
22	Ring - Retaining	BCH-226	BCH-226	1
23	Adaptor Assembly - Chain Wheel	BCH-227	BCH-227	1
24	Lockwasher - Spring (1/4Pltd.)	*	*	4
25	Screw - Hex Head (1/420 x 1/2 Pltd.)	*	*	4
26	Flange - Load Brake	BCH-230	BCH-230	1
27	Friction Washer - Hand Chain Side			1
	Commercial Hoists	BCH-297	BCH-297	
	Military Hoists Only	BCH-231	BCH-231	
28	Ratchet - Brake	BCH-232	BCH-232	
29	Load Regulator Assembly	BCH-233	BCH-233	1

* Not available as individual parts.

† Drill .078" diameter holes thru frame when replacing metal tacks.

(Continued on following page)

Figure 9-2. 1 Ton Hook Suspension Models (continued)

Ref. No.	Description	Part Number		Qty. Req'd
		Hook Suspension	Spark Resistant	
30	Stop - Brake	BCH-234	BCH-234	1
31	Washer - Flat (5/16 N Pltd.)	*	*	1
32	Nut - Hex, Self-Locking (Thin 5/16-24 Pltd.)	*	*	1
33	Cover - Chain Wheel	BCH-237	BCH-237	1
34	Screw - Hex Socket Head	BCH-238	BCH-238	2
35	Label - Capacity	BCH-239	BCH-239	1
36	Chain - Hand			
	For 8' Lift	BCH-240	BCH-241	1
	For 10' Lift	BCH-242	BCH-243	1
	For 12' Lift	BCH-244	BCH-245	1
	For 15' Lift	BCH-246	BCH-247	1
	For 20' Lift	BCH-248	BCH-249	1
	For 25' Lift	BCH-250	BCH-251	1
	For 30' Lift	BCH-252	BCH-253	1
	For Non-Standard Lift	BCH-254	BCH-255	As
	(order chain length equal to two times lift, minus 1**)			Req'd.
37	Link - Open	BCH-256	BCH-256	1
38	Pin - Grooved	BCH-257	BCH-257	1
39	Screw - Hex Socket Head (Self-Locking 5/16-18 x 3/4)	*	*	1
40	Chain - Load			
	For 8' Lift	BCH-259	BCH-260	1
	For 10' Lift	BCH-261	BCH-262	1
	For 12' Lift	BCH-263	BCH-264	1
	For 15' Lift	BCH-265	BCH-266	1
	For 20' Lift	BCH-267	BCH-268	1
	For 25' Lift	BCH-269	BCH-270	1
	For 30' Lift	BCH-271	BCH-272	1
	For Non-Standard Lift	BCH-273	BCH-274	As
	(order chain length equal to one times lift, plus 1' **)			Req'd.
41	Guide - Chain	BCH-275	BCH-275	1
	Lower Block Assembly (includes ref. nos. 42, 43, 45, 46 & 47)	BCH-298	BCH-296	1
	Body & Sleeve Kit (includes ref. nos. 42, 43 & 45)	BCH-276	BCH-277	1
42	Ring - Retaining	BCH-278	BCH-278	1
43	Sleeve	BCH-279	BCH-280	1
44	Warning Tag Assembly	BCH-281	BCH-281	1
45	Body Half - Lower Block	BCH-282	BCH-282	2
46	Hook - Lower	BCH-283	BCH-284	1
47	Latch Assembly - Hook	BCH-285	BCH-286	1
48	Friction Washer - Flange Side			1
	Commercial Hoists	BCH-297	BCH-297	
	Military Hoists Only	BCH-294	BCH-294	

* Not available as individual parts.

** Round up to next full foot of length.

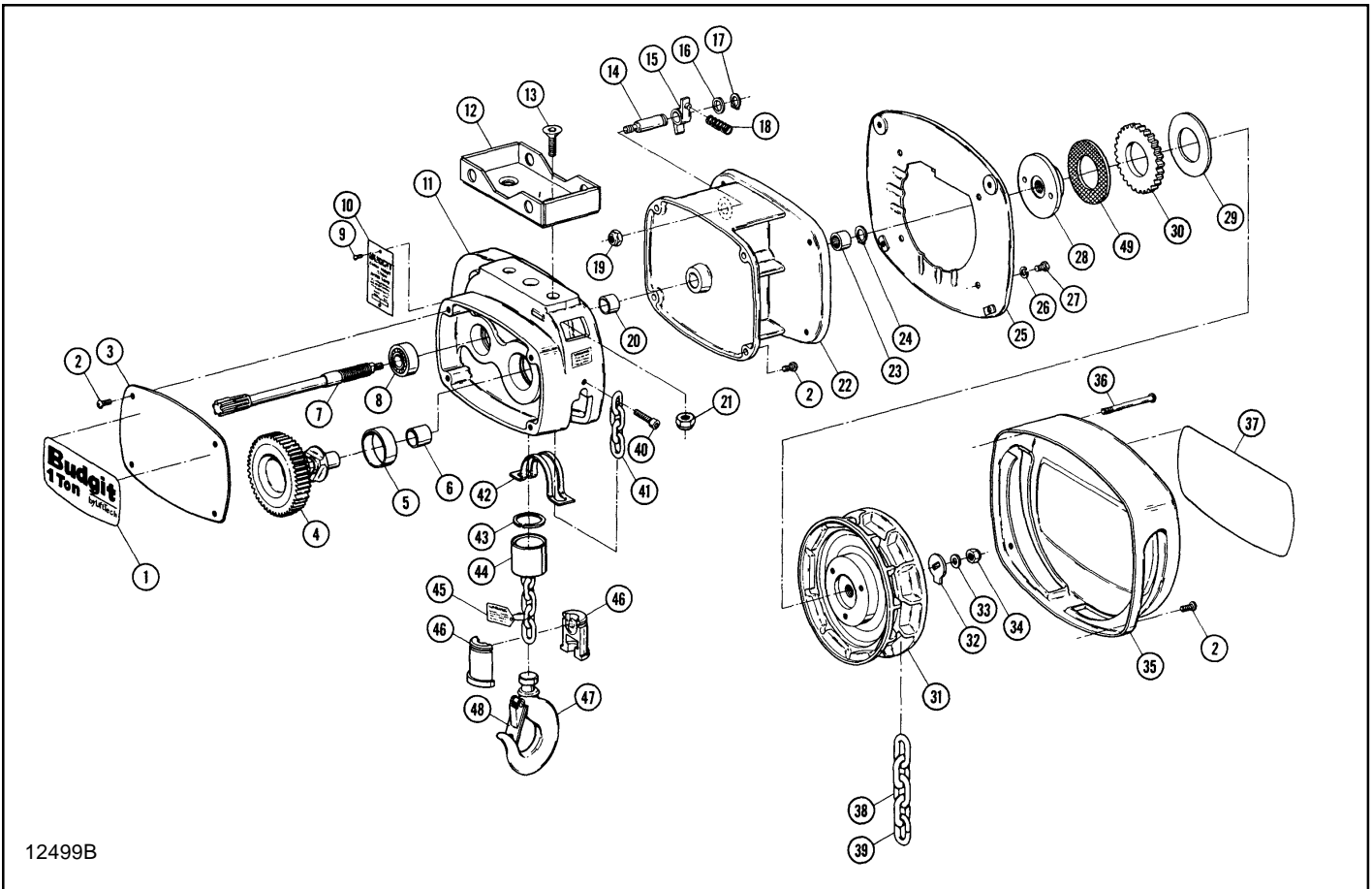


Figure 9-2a. 1 Ton Trolley Hoist Models

Ref. No.	Description	Part Number		Qty. Req'd
		Lug Suspension	Spark Resistant	
1	Label - Capacity	BCH-201	BCH-201	1
2	Screw - Hex Socket Head (Self-Locking 1/4-20 x 5/8)	*	*	10
3	Cover - Gearcase	BCH-203	BCH-203	1
4	Gear - Sprocket	BCH-204	BCH-295	1
5	Bushing	BCH-205	BCH-205	1
6	Bushing	BCH-206	BCH-206	1
7	Shaft - Pinion	BCH-287	BCH-287	1
8	Bearing - Ball	BCH-208	BCH-208	1
9	†Screw - Self-Tapping (12-32 x 1/8)	*	*	2
10	Nameplate	BCH-210	BCH-211	1
11	Frame	BCH-288	BCH-288	1
	Warning Label (on frame)	BCH-214	BCH-214	1
12	Weldment-Suspension Lug	BCH-289	BCH-289	1
13	Screw - Flat Head Socket (1/2-13 x 1-1/4)	*	*	2
14	Pin - Pawl	BCH-220	BCH-220	1
15	Pawl - Brake	BCH-221	BCH-221	1
16	Washer - Flat	BCH-222	BCH-222	1
17	Ring-Retaining	BCH-223	BCH-223	1
18	Spring - Brake Pawl	BCH-224	BCH-224	1
19	Nut - Hex, Self-Locking (Thin 3/8-24 Pltd.)	*	*	1
20	Bushing	BCH-291	BCH-291	1
21	Nut-Hex, Self-Locking (Thin 1/2-13)	*	*	2
22	Adaptor - Rigid Mount Chain Wheel	BCH-293	BCH-293	1
23	Bearing - Needle	BCH-225	BCH-225	1
24	Ring - Retaining	BCH-226	BCH-226	1

* Not available as individual parts.

† Drill .078" diameter holes thru frame when replacing metal tacks.

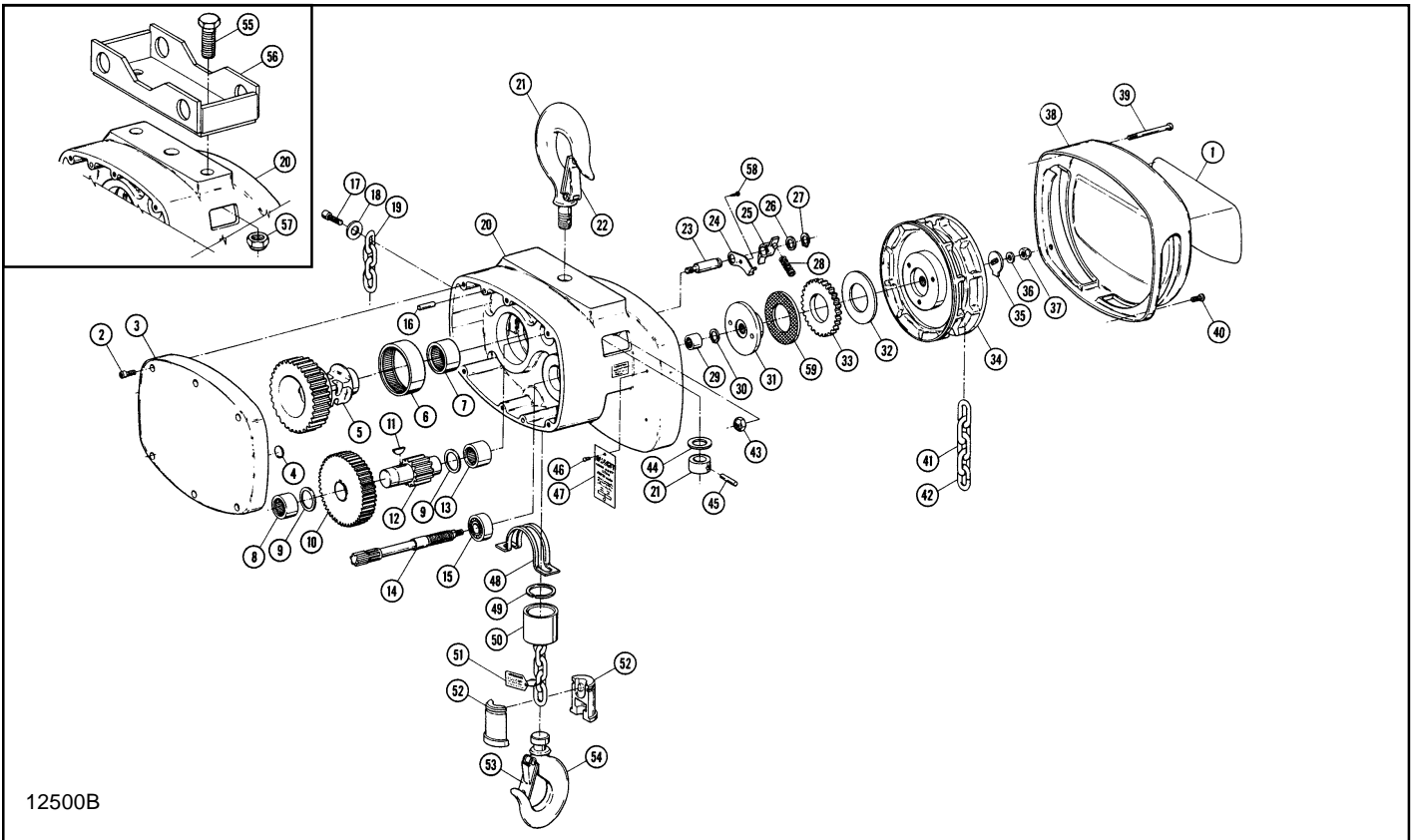
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Figure 9-2a. 1 Ton Trolley Hoist Models (continued)

Ref. No.	Description	Part Number		Qty. Req'd
		Lug Suspension	Spark Resistant	
25	Adaptor Assembly - Chain Wheel	BCH-227	BCH-227	1
26	Lockwasher	BCH-228	BCH-228	4
27	Screw - Hex Head (1/4-20 x 1/2 Pltd.)	*	*	4
28	Flange - Load Brake	BCH-230	BCH-230	1
29	Friction Washer - Hand Chain Side			1
	Commercial Hoists	BCH-297	BCH-297	
	Military Hoists Only	BCH-231	BCH-231	
30	Ratchet - Brake	BCH-232	BCH-232	1
31	Load Regulator Assembly	BCH-233	BCH-233	1
32	Stop - Brake	BCH-234	BCH-234	1
33	Washer - Flat (5/16 N Pltd.)	*	*	1
34	Nut - Hex, Self-Locking (Thin 5/16-24 Pltd.)	*	*	1
35	Cover - Chain Wheel	BCH-237	BCH-237	1
36	Screw- Hex Socket Head	BCH-238	BCH-238	2
37	Label - Capacity	BCH-239	BCH-239	1
38	Chain - Hand			
	For 8' Lift	BCH-240	BCH-241	1
	For 10' Lift	BCH-242	BCH-243	1
	For 12' Lift	BCH-244	BCH-245	1
	For 15' Lift	BCH-246	BCH-247	1
	For 20' Lift	BCH-248	BCH-249	1
	For 25' Lift	BCH-250	BCH-251	1
	For 30' Lift	BCH-252	BCH-253	1
	For Non-Standard Lift (order chain length equal to two times lift, minus 1 ^{**})	BCH-254	BCH-255	As Req'd.
39	Link - Open	BCH-256	BCH-256	1
40	Screw - Hex Socket Head (Self-Locking 5/16-18 x 1)	*	*	1
41	Chain - Load			
	For 8' Lift	BCH-259	BCH-260	1
	For 10' Lift	BCH-261	BCH-262	1
	For 12' Lift	BCH-263	BCH-264	1
	For 15' Lift	BCH-265	BCH-266	1
	For 20' Lift	BCH-267	BCH-268	1
	For 25' Lift	BCH-269	BCH-270	1
	For 30' Lift	BCH-271	BCH-272	1
	For Non-Standard Lift (order chain length equal to one times lift, plus 1 ^{**})	BCH-273	BCH-274	As Req'd.
42	Guide - Chain	BCH-275	BCH-275	1
	Lower Block Assembly (includes ref. nos. 43,44, 46, 47 & 48)	BCH-298	BCH-296	1
	Body & Sleeve Kit (includes ref. nos. 43, 44 & 46)	BCH-276	BCH-277	
43	Ring-Retaining	BCH-278	BCH-278	1
44	Sleeve	BCH-279	BCH-280	1
45	Warning Tag Assembly	BCH-281	BCH-281	1
46	Body Half - Lower Block	BCH-282	BCH-282	2
47	Hook - Lower	BCH-283	BCH-284	1
48	Latch Assembly - Hook	BCH-285	BCH-286	1
49	Friction Washer - Flange Side			1
	Commercial Hoists	BCH-297	BCH-297	
	Military Hoists Only	BCH-294	BCH-294	

* Not available as individual parts.

** Round up to next full foot of length.



12500B

Figure 9-3. 1½ and Single Load Chain 2 Ton Models

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
1	Label - Capacity 1-1/2 Ton 2 Ton	BCH-301 BCH-302	BCH-301 BCH-302	BCH-301 BCH-302	2 2
2	Screw - Hex Socket Head (Self-Locking 1/4 20 x 1)				6
3	Cover - Gearcase	BCH-304	BCH-304	BCH-304	1
4	Plug - Expansion (3/4 Dia.)	*	*	*	1
5	Gear - Sprocket	BCH-306	BCH-306	BCH-408	1
6	Bearing - Needle	BCH-307	BCH-307	BCH-307	1
7	Bearing - Needle	BCH-308	BCH-308	BCH-308	1
8	Bearing - Needle	BCH-309	BCH-309	BCH-309	1
9	Thrust Washer - Bearing	BCH-310	BCH-310	BCH-310	2
10	Gear - Intermediate	BCH-311	BCH-311	BCH-311	1
11	Key - Woodruff (No. 91)	*	*	*	1
12	Pinion - Intermediate	BCH-313	BCH-313	BCH-313	1
13	Bearing - Needle	BCH-314	BCH-314	BCH-314	1
14	Shaft - Pinion	BCH-315	BCH-315	BCH-315	1
15	Bearing - Ball	BCH-316	BCH-316	BCH-316	1
16	Pin - Dowel	BCH-317	BCH-317	BCH-317	2
17	Screw - Hex Socket Head (Self-Locking 3/8-16 x 1)	*	*	*	1
18	Washer - Flat (3/8 W Pltd.)	*	*	*	1
19	Chain - Load				
	For 8' Lift	BCH-320	BCH-320	BCH-321	1
	For 10' Lift	BCH-322	BCH-322	BCH-323	1
	For 12' Lift	BCH-324	BCH-324	BCH-325	1
	For 15' Lift	BCH-326	BCH-326	BCH-327	1
	For 20' Lift	BCH-328	BCH-328	BCH-329	1
	For 25' Lift	BCH-330	BCH-330	BCH-331	1
	For 30' Lift	BCH-332	BCH-332	BCH-333	1
	For Non-Standard Lift (order chain length equal to one times lift, plus 1' 1-1/2"**)	BCH-334	BCH-334	BCH-335	As Req'd.

* Not available as individual parts.

** Round up to next full foot of length.

(Continued on following page)

Figure 9-3. 1½ and Single Load Chain 2 Ton Models (continued)

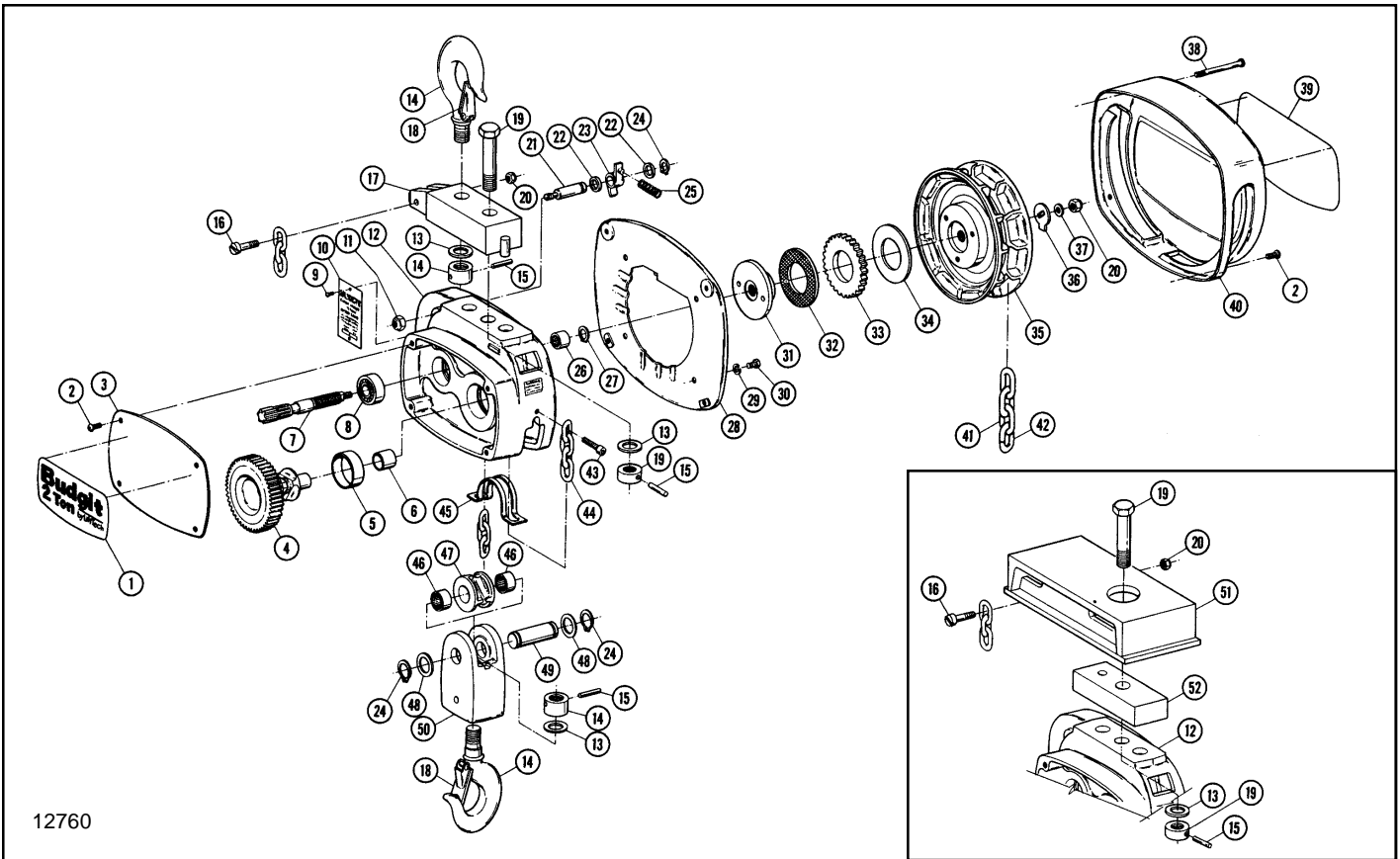
Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
20	Frame	BCH-336	BCH-337	BCH-336	1
	Warning Label (on frame)	BCH-338	BCH-338	BCH-338	1
21	Upper Hook & Nut Assembly	BCH-339	--	BCH-340	1
22	Latch Assembly-Hook	BCH-341	--	BCH-342	1
23	Pin - Pawl	BCH-343	BCH-343	BCH-343	1
24	Plate - Spring Retainer	BCH-344	BCH-344	BCH-344	1
25	Pawl - Brake	BCH-345	BCH-345	BCH-345	1
26	Washer - Flat	BCH-346	BCH-346	BCH-346	1
27	Ring - Retaining	BCH-347	BCH-347	BCH-347	1
28	Spring - Brake Pawl	BCH-348	BCH-348	BCH-348	1
29	Bearing - Needle	BCH-349	BCH-349	BCH-349	1
30	Ring - Retaining	BCH-350	BCH-350	BCH-350	1
31	Flange - Load Brake	BCH-351	BCH-351	BCH-351	1
32	Friction Washer - Hand Chain Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-352	BCH-352	BCH-352	
33	Ratchet - Brake	BCH-353	BCH-353	BCH-353	1
34	Load Regulator Assembly	BCH-354	BCH-354	BCH-354	1
35	Stop - Brake	BCH-355	BCH-355	BCH-355	1
36	Washer - Flat (5/16 N Pltd.)	*	*	*	1
37	Nut - Hex, Self-Locking	BCH-357	BCH-357	BCH-357	1
38	Cover - Chain Wheel	BCH-358	BCH-358	BCH-358	1
39	Screw - Hex Socket Head	BCH-359	BCH-359	BCH-359	2
40	Screw - Hex Socket Head	BCH-360	BCH-360	BCH-360	2
41	Chain - Hand				
	For 8' Lift	BCH-361	BCH-361	BCH-362	1
	For 10' Lift	BCH-363	BCH-363	BCH-364	1
	For 12' Lift	BCH-365	BCH-365	BCH-366	1
	For 15' Lift	BCH-367	BCH-367	BCH-368	1
	For 20' Lift	BCH-369	BCH-369	BCH-370	1
	For 25' Lift	BCH-371	BCH-371	BCH-372	1
	For 30' Lift	BCH-373	BCH-373	BCH-374	1
	For Non-Standard Lift (order chain length equal to two times lift, minus 1'**)	BCH-375	BCH-375	BCH-376	As Req'd.
42	Link - Open	BCH-377	BCH-377	BCH-377	1
43	Nut - Hex, Self-Locking	BCH-378	BCH-378	BCH-378	1
44	Washer-Thrust	BCH-379	--	BCH-379	1
45	Pin - Grooved	BCH-380	--	BCH-380	1
46	†Screw - Self-Tapping (#2-32 x 1/8)	*	*	*	2
47	Nameplate				
	1-1/2 Ton	BCH-382	BCH-382	BCH-383	1
	2 Ton	BCH-384	BCH-384	BCH-383	1
48	Guide - Chain	BCH-385	BCH-385	BCH-385	1
	Lower Block Assembly (includes ref. nos. 49, 50, 52 53 & 54)	BCH-409	BCH-409	BCH-410	1
	Body & Sleeve Kit (includes ref. nos. 49, 50 & 52)	BCH-386	BCH-386	BCH-387	1
49	Ring - Retaining	BCH-388	BCH-388	BCH-388	1
50	Sleeve	BCH-389	BCH-389	BCH-390	1
51	Warning Tag Assembly	BCH-391	BCH-391	BCH-391	1
52	Body Half - Lower Block	BCH-392	BCH-392	BCH-392	2
53	Latch Assembly - Hook	BCH-393	BCH-393	BCH-394	1
54	Hook - Lower	BCH-395	BCH-395	BCH-396	1
55	Bolt - Hex Head (3/4-10 x 2 Grade 5)	--	*	*	2
56	Weldment - Suspension Lug	--	BCH-398	BCH-398	1
57	Nut - Hex, Self-Locking (Thin 3/4-10)	--	*	*	2
58	††Screw - Self-Tapping (#10-16 x 1/4)	*	*	*	1
59	Friction Washer - Flange Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-401	BCH-401	BCH-401	

* Not available as individual parts.

** Round up to next full foot of length.

† Drill .078" diameter holes thru frame when replacing metal tacks.

†† Drill .159" diameter hole 3/16" deep when replacing metal tack.



12760

Figure 9-3a. 2 Load Chain 2 Ton Models

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
1	Label - Capacity 1-1-1/2 Ton 2 Ton	BCH-3001 BCH-3002	BCH-3001 BCH-3002	BCH-3001 BCH-3002	1 1
2	Screw - Hex Socket Head (Self-Locking 1/4-20 x 5/8)	*	*	*	6
3	Cover - Gearcase	BCH-203	BCH-203	BCH-203	1
4	Gear - Sprocket	BCH-204	BCH-204	BCH-295	1
5	Bushing	BCH-205	BCH-205	BCH-205	1
6	Bushing	BCH-206	BCH-206	BCH-206	1
7	Shaft - Pinion	BCH-207	BCH-207	BCH-207	1
8	Bearing - Ball	BCH-208	BCH-208	BCH-208	1
9	†Screw - Self-Tapping (#2-32x1/8)	*	*	*	2
10	Nameplate	BCH-211	BCH-211	BCH-211	1
11	Nut - Hex, Self-Locking (Thin 3/8-24 Pltd.)	*	*	*	1
12	Frame	BCH-213	BCH-213	BCH-213	1
	Warning Label	BCH-214	BCH-214	BCH-214	1
13	Washer - Flat	BCH-3003	--	BCH-3003	3‡
14	Upper Hook & Nut Assembly	BCH-3004	--	BCH-3005	1
	Lower Hook & Nut Assembly	BCH-3004	BCH-3004	BCH-3005	1
15	Pin - Grooved	BCH-257	--	BCH-257	3‡
16	Pin - Chain Connection	BCH-3006	BCH-3006	BCH-3006	1
17	Upper Hook Bracket	BCH-3007	--	BCH-3007	1

* Not available as individual parts.
 † Drill .078" diameter holes thru frame when replacing metal tacks.
 ‡ Quantities for trolley hoists only: Ref. No. 13 2 Req'd
 Ref. No. 15 2 Req'd

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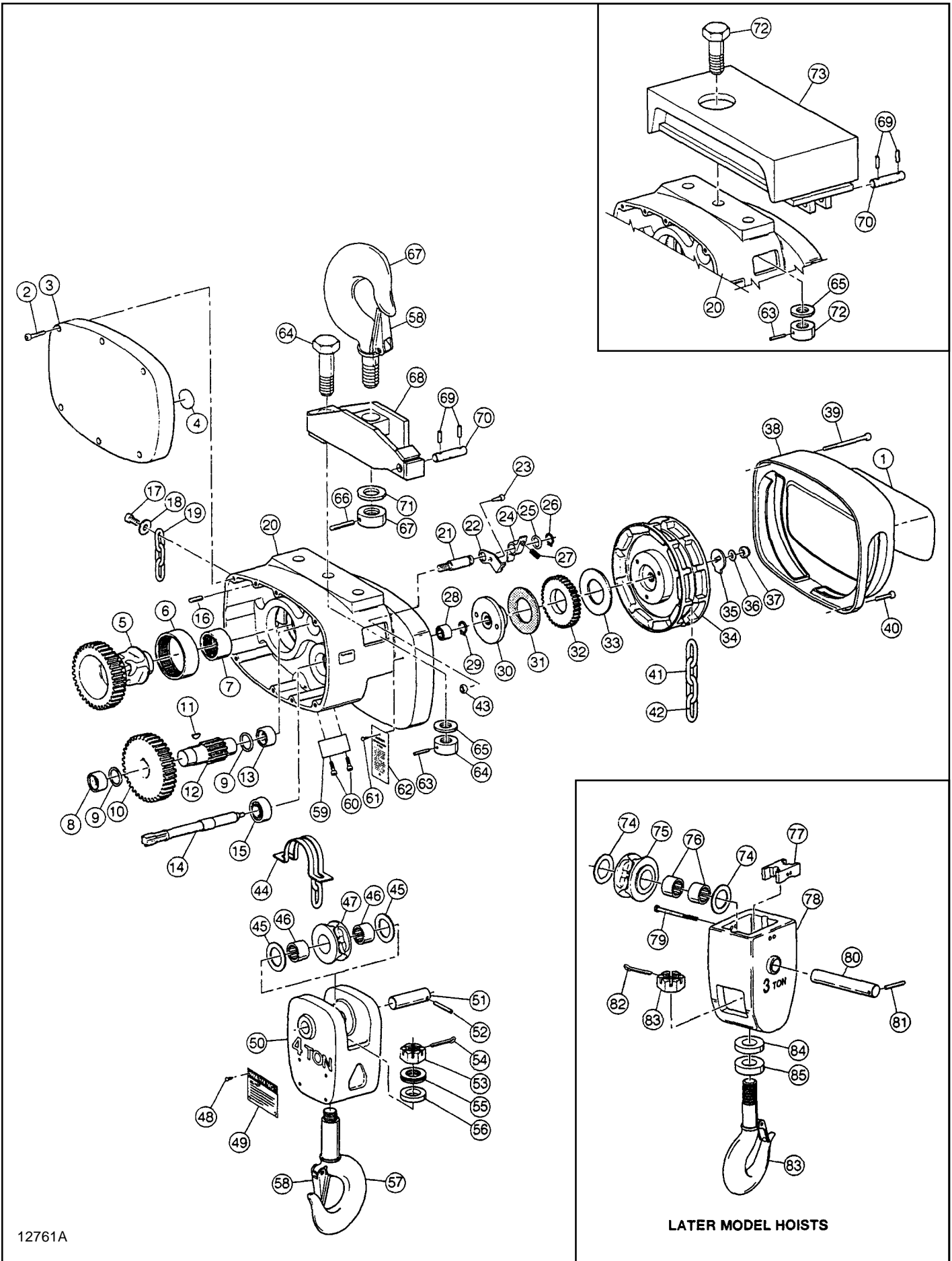
Figure 9-3a. 2 Load Chain 2 Ton Models (continued)

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
18	Latch Assembly- Hook	BCH-218	BCH-218	BCH-219	2‡
19	Bolt & Nut Assembly	BCH-3008	BCH-3008	BCH-3008	1
20	Nut - Hex, Self-Locking (Thin 5/16-24 Pltd.)	*	*	*	2
21	Pin - Pawl	BCH-220	BCH-220	BCH-220	1
22	Washer - Flat	BCH-222	BCH-222	BCH-222	2
23	Pawl - Brake	BCH-221	BCH-221	BCH-221	1
24	Ring - Retaining	BCH-223	BCH-223	BCH-223	3
25	Spring - Brake Pawl	BCH-224	BCH-224	BCH-224	1
26	Bearing - Needle	BCH-225	BCH-225	BCH-225	1
27	Ring - Retaining	BCH-226	BCH-226	BCH-226	1
28	Adaptor Assembly - Chain Wheel	BCH-227	BCH-227	BCH-227	1
29	Lockwasher - Spring (1/4 Pltd.)	*	*	*	4
30	Screw - Hex Head (1/4-20 x 1/2 Pltd.)	*	*	*	4
31	Flange - Load Brake	BCH-230	BCH-230	BCH-230	1
32	Friction Washer - Flange Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-294	BCH-294	BCH-294	
33	Ratchet - Brake	BCH-232	BCH-232	BCH-232	1
34	Friction Washer - Hand Chain Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-231	BCH-231	BCH-231	
35	Load Regulator Assembly	BCH-233	BCH-233	BCH-233	1
36	Stop - Brake	BCH-234	BCH-234	BCH-234	1
37	Washer - Flat (5/16 N Pltd.)	*	*	*	1
38	Screw - Hex Socket Head	BCH-238	BCH-238	BCH-238	2
39	Label - Capacity				
	1-1/2 Ton	BCH-3009	BCH-3009	BCH-3009	1
	2 Ton	BCH-3010	BCH-3010	BCH-3010	1
40	Cover - Chain Wheel	BCH-237	BCH-237	BCH-296	1
41	Chain - Hand				
	For 8' Lift	BCH-240	BCH-240	BCH-241	1
	For 10' Lift	BCH-242	BCH-242	BCH-243	1
	For 12' Lift	BCH-244	BCH-244	BCH-245	1
	For 15' Lift	BCH-246	BCH-246	BCH-247	1
	For 20' Lift	BCH-248	BCH-248	BCH-249	1
	For 25' Lift	BCH-250	BCH-250	BCH-251	1
	For 30' Lift	BCH-252	BCH-252	BCH-253	1
	For Non-Standard Lift (order chain length equal to two times lift, minus 1**)	BCH-254	BCH-254	BCH-255	As Req'd.
42	Link - Open	BCH-256	BCH-256	BCH-256	1
43	Screw - Hex Socket Head (Self-Locking 5/16-18 x 3/4)	*	*	*	1
44	Chain - Load				
	For 8' Lift	BCH-3011	BCH-3011	BCH-3012	1
	For 10' Lift	BCH-3013	BCH-3013	BCH-3014	1
	For 12' Lift	BCH-3015	BCH-3015	BCH-3016	1
	For 15' Lift	BCH-3017	BCH-3017	BCH-3018	1
	For 20' Lift	BCH-3019	BCH-3019	BCH-3020	1
	For 25' Lift	BCH-3021	BCH-3021	BCH-3022	1
	For 30' Lift	BCH-3023	BCH-3023	BCH-3024	1
	For Non-Standard Lift (order chain length equal to two times lift, plus 2**)	BCH-273	BCH-273	BCH-274	As Req'd.
45	Guide Chain	BCH-275	BCH-275	BCH-275	1
	Lower Block & Hook Assembly (includes ref. nos. 46 thru 50)				1
	1-1/2 Ton	BCH-3025	BCH-3025	BCH-3026	1
	2 Ton	BCH-3027	BCH-3027	BCH-3028	1
46	Bearings - Needle	BCH-3029	BCH-3029	BCH-3029	2
47	Sprocket	BCH-3030	BCH-3030	BCH-3031	1
48	Washer - Flat (9/16 N Pltd.)	*	*	*	2
49	Shaft - Sprocket	BCH-3032	BCH-3032	BCH-3032	1
50	Body - Lower Block				
	1-1/2 Ton	BCH-3033	BCH-3033	BCH-3033	1
	2 Ton	BCH-3034	BCH-3034	BCH-3034	1
51	Bracket - Lug Suspension	BCH-3035	BCH-3035	BCH-3035	1
52	Spacer - Lug	BCH-3036	BCH-3036	BCH-3036	1

* Not available as individual parts.

** Round up to next full foot of length

‡ Quantities for trolley hoists only: Ref. No. 18 1 Req'd



12761A

Figure 9-4. 3 and 4 Ton Models

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
1	Label - Capacity				
	3 Ton	BCH-421	BCH-421	BCH-421	1
	4 Ton	BCH-422	BCH-422	BCH-422	1
2	Screw- Hex Socket Head (Self-Locking 1/4-20 x 1)	*	*	*	6
3	Cover - Gearcase	BCH-304	BCH-304	BCH-304	1
4	Plug - Expansion (3/4 Dia.)	*	*	*	1
5	Gear-Sprocket	BCH-306	BCH-306	BCH-408	1
6	Bearing - Needle	BCH-307	BCH-307	BCH-307	1
7	Bearing - Needle	BCH-308	BCH-308	BCH-308	1
8	Bearing - Needle	BCH-309	BCH-309	BCH-309	1
9	Thrust Washer-Bearing	BCH-310	BCH-310	BCH-310	2
10	Gear - Intermediate	BCH-311	BCH-311	BCH-311	1
11	Key- Woodruff (No. 91)	*	*	*	1
12	Pinion - Intermediate	BCH-313	BCH-313	BCH-313	1
13	Bearing - Needle	BCH-314	BCH-314	BCH-314	1
14	Shaft - Pinion	BCH-315	BCH-315	BCH-315	1
15	Bearing - Ball	BCH-316	BCH-316	BCH-316	1
16	Pin - Dowel	BCH-317	BCH-317	BCH-317	2
17	Screw - Hex Socket Head (Self-Locking 3/8-16 x 1)	*	*	*	1
18	Washer - Flat (Plain 3/8 W Pltd.)	*	*	*	1
19	Chain - Load				
	For 8' Lift	BCH-423	BCH-423	BCH-424	1
	For 10' Lift	BCH-425	BCH-425	BCH-426	1
	For 12' Lift	BCH-427	BCH-427	BCH-428	1
	For 15' Lift	BCH-429	BCH-429	BCH-430	1
	For 20' Lift	BCH-431	BCH-431	BCH-432	1
	For 25' Lift	BCH-433	BCH-433	BCH-434	1
	For 30' Lift	BCH-435	BCH-435	BCH-436	1
	For Non-Standard Lift (order chain length equal to two times lift, plus 2'')	BCH-334	BCH-334	BCH-335	As Req'd.
20	Frame	BCH-437	BCH-437	BCH-437	1
	Warning Label	BCH-338	BCH-338	BCH-338	1
21	Pin - Pawl	BCH-343	BCH-343	BCH-343	1
22	Plate - Spring Retainer	BCH-344	BCH-344	BCH-344	1
23	†Screw - Self-Tapping (#10-16 x 1/4)	*	*	*	1
24	Pawl - Brake	BCH-345	BCH-345	BCH-345	1
25	Washer - Special	BCH-346	BCH-346	BCH-346	1
26	Ring - Retaining	BCH-347	BCH-347	BCH-347	1
27	Spring - Brake Pawl	BCH-348	BCH-348	BCH-348	1
28	Bearing - Needle	BCH-349	BCH-349	BCH-349	1
29	Ring - Retaining	BCH-350	BCH-350	BCH-350	1
30	Flange - Load Brake	BCH-351	BCH-351	BCH-351	1
31	Friction Washer - Flange Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-401	BCH-401	BCH-401	
32	Ratchet - Brake	BCH-353	BCH-353	BCH-353	1
33	Friction Washer - Hand Chain Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-352	BCH-352	BCH-352	
34	Load Regulator Assembly	BCH-354	BCH-354	BCH-354	1
35	Stop - Brake	BCH-355	BCH-355	BCH-355	1
36	Washer- Flat (Plain 5/16 N Pltd.)	*	*	*	1
37	Nut - Hex, Self-Locking (Thin 5/16-24)	*	*	*	1
38	Cover - Chain Wheel	BCH-358	BCH-358	BCH-358	1
39	Screw - Hex Socket Head	BCH-359	BCH-359	BCH-359	2
40	Screw - Hex Socket Head (Self-Locking 1/4-20 x 3/4)	*	*	*	2
41	Chain - Hand				
	For 8' Lift	BCH-361	BCH-361	BCH-362	1
	For 10' Lift	BCH-363	BCH-363	BCH-364	1
	For 12' Lift	BCH-365	BCH-365	BCH-366	1
	For 15' Lift	BCH-367	BCH-367	BCH-368	1
	For 20' Lift	BCH-369	BCH-369	BCH-370	1
	For 25' Lift	BCH-371	BCH-371	BCH-372	1
	For 30' Lift	BCH-373	BCH-373	BCH-374	1
	For Non-Standard Lift (order chain length equal to two times lift, minus 1'')	BCH-375	BCH-375	BCH-376	As Req'd.

* Not available as individual parts.

** Round up to next full foot of length.

† Drill .159" diameter hole 3/16" deep when replacing metal tack.

(Continued on following page)

Figure 9-4. 2, 3 and 4 Ton Models (continued)

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
42	Link - Open	BCH-377	BCH-377	BCH-377	1
43	Nut - Hex, Self-Locking (Thin 3/8-24)	*	*	*	1
44	Guide - Chain	BCH-385	BCH-385	BCH-385	1
	Lower Block & Hook Assembly (includes ref. nos. 45 thru 58)	BCH-438	BCH-438	BCH-439	1
	3 Ton				
	4 Ton	BCH-440	BCH-440	BCH-441	1
45	Washer - Hardened	BCH-442	BCH-442	BCH-442	2
46	Bearing - Needle	BCH-443	BCH-443	BCH-443	2
47	Sprocket	BCH-444	BCH-444	BCH-444	1
48	††Screw - Self-Tapping (#6-20 x 1/2)	*	*	*	4
49	Label - Warning	BCH-445	BCH-445	BCH-445	1
50	Body - Lower Block				
	3 Ton	BCH-446	BCH-446	BCH-446	1
	4 Ton	BCH-447	BCH-447	BCH-448	1
51	Shaft - Sprocket	BCH-449	BCH-449	BCH-449	1
52	Pin - Spring	BCH-450	BCH-450	BCH-450	1
53	Nut - Slotted	*			
	3 Ton				1
	7/8-14 Pltd.	*	*	--	
	7/8-9 Pltd.	--	--	*	1
	4 Ton	*	*	--	1
	7/8-14 Pltd.	--	--	*	
	1-8 Plain	*	*	*	1
54	Pin - Cotter (5/32 Dia. x 1-1/2)				1
55	Bearing - Thrust				
	3 Ton	BCH-451	BCH-451	BCH-451	1
	4 Ton	BCH-451	BCH-451	BCH-452	1
56	Washer - Thrust				
	3 Ton	BCH-453	BCH-453	BCH-453	1
	4 Ton	BCH-453	BCH-453	BCH-454	1
57	Hook - Lower				
	3 Ton	BCH-455	BCH-455	BCH-456	1
	4 Ton	BCH-457	BCH-457	BCH-458	1
58	Latch Assembly - Hook	BCH-459	--	BCH-460	2
		--	BCH-459	--	1
	Later Model Hoists:				1
	3 Ton	BCH-459	--	BCH-460	
	4 Ton	BCH-459	--	BCH-479	1
59	Stop - Lower Block	BCH-461	BCH-461	BCH-461	1
60	Screw - Hex Socket Head Self-Locking (1/4-20 x 5/8 Pltd.)	*	*	*	2
61	†††Screw - Self-Tapping (#2-32 x 1/8)	*	*	*	2
62	Nameplate	BCH-462	BCH-462	BCH-462	1
63	Pin - Grooved	BCH-463	BCH-463	BCH-463	1
	Later Model Hoists: Pin - Spring	BCH-480	BCH-480	BCH-480	1
64	Upper Block Bolt & Nut Assembly	BCH-464	--	BCH-464	1
	Later Model Hoists:	BCH-481	--	BCH-481	1
65	Washer - Thrust	BCH-465	BCH-465	BCH-465	1
	Upper Hook & Nut Assembly (Includes Ref. Nos. 58, 66 and 67)	BCH-468	--	BCH-469	1
	Later Model Hoists				
	3 Ton	BCH-468	--	BCH-482	1
	4 Ton	BCH-468	--	BCH-483	1
66	Pin - Grooved	BCH-470	--	BCH-470	1
	Later Model Hoists: Pin - Spring	BCH-480	--	BCH-480	1
67	Hook & Nut Assembly	BCH-471	--	BCH-472	1
	Later Model Hoists:	BCH-471	--	BCH-484	1
	3 Ton				
	4 Ton	BCH-471	--	BCH-485	1
68	Bracket - Upper Hook	BCH-473	--	BCH-474	1
69	Pin - Roll	BCH-475	BCH-475	BCH-475	2
70	Pin - Chain Anchor	BCH-476	BCH-475	BCH-476	1
71	Washer - Thrust	BCH-465	--	BCH-465	1

* Not available as individual parts.

** Round up to next full foot of length.

†† Drill .116" diameter hole 7/16" deep when replacing metal tack.

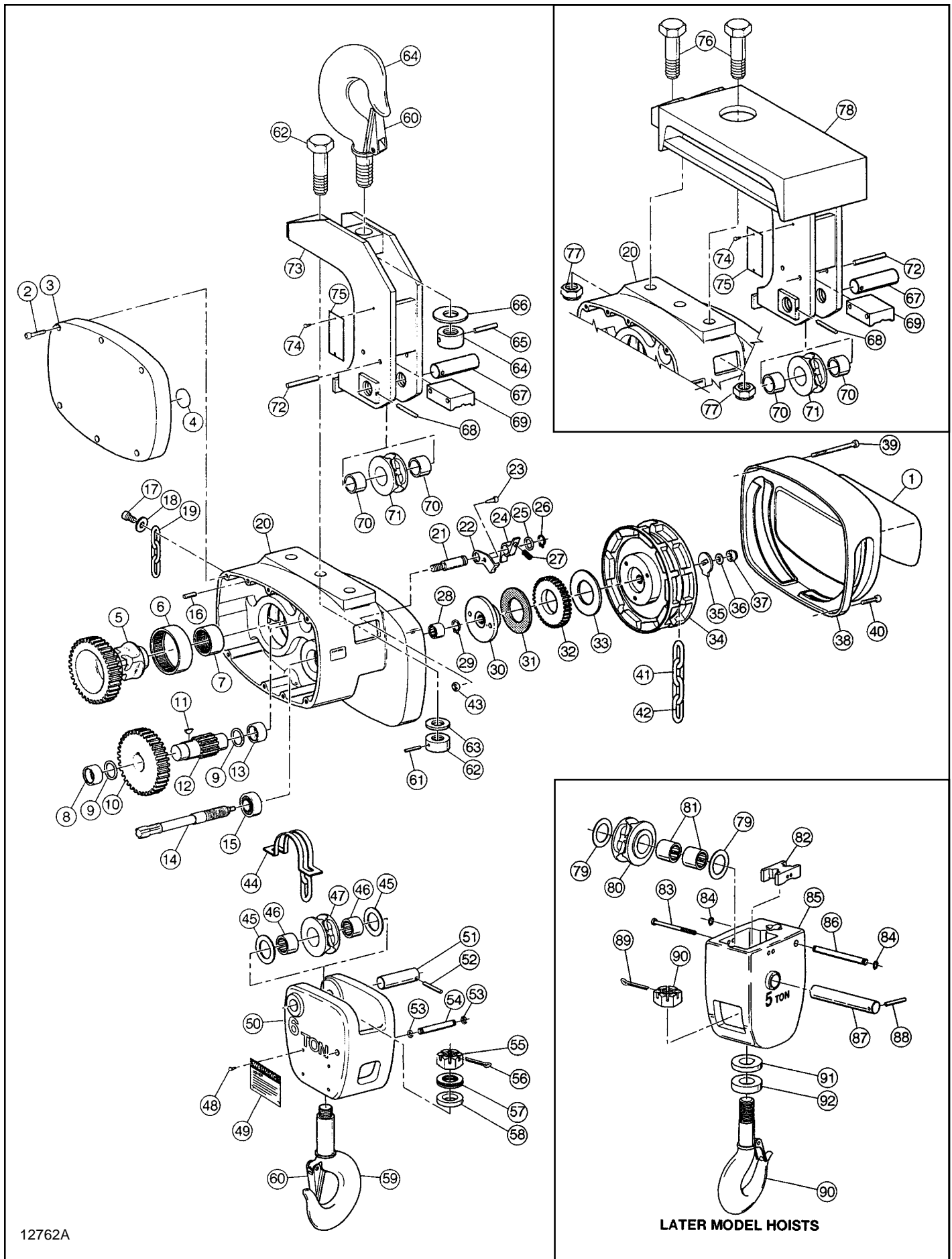
††† Drill .078" diameter holes thru frame when replacing metal tacks.

(Continued on following page)

Figure 9-4. 2, 3 and 4 Ton Models (continued)

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
72	Upper Bolt & Nut Assembly	--	BCH-477	--	1
	Later Model Hoists:	--	BCH-486	--	1
73	Bracket - Lug Suspension	--	BCH-478	--	1
	Later Model Hoists:				1
	Lower Block Assembly				
	3 Ton	BCH-1401	BCH-1401	BCH-1402	
	4 Ton	BCH-1403	BCH-1403	BCH-1404	
74	Hardened Washer	BCH-1405	BCH-1405	BCH-1405	2
75	Sprocket	BCH-1406	BCH-1406	BCH-1406	1
76	Needle Bearings	BCH-1407	BCH-1407	BCH-1407	2
77	Chain Guide	BCH-1408	BCH-1408	BCH-1408	1
78	Lower Block Body				1
	3 Ton	BCH-1409	BCH-1409	BCH-1410	
	4 Ton	BCH-1411	BCH-1411	BCH-1412	
79	Slotted Fillister Head Machine Screw - Plated (1/4-20 x 3)	BCH-1413	BCH-1413	BCH-1413	2
80	Sprocket Shaft	BCH-1414	BCH-1414	BCH-1414	1
81	Spring Pin - Plated (3/16 x 1-3/8)	BCH-1415	BCH-1415	BCH-1415	1
82	Cotter Pin (5/32 x 1-1/2)	BCH-1416	BCH-1416	--	1
	3 Ton - Cotter Pin (5/32 x 1-3/4)	--	--	BCH-1417	1
	4 Ton - Spring Pin - Plated (1/4 x 2)	--	--	BCH-1418	1
83	Hook				1
	3 Ton	BCH-1419	BCH-1419	BCH-1420	
	4 Ton	BCH-1421	BCH-1421	BCH-1422	
	Nut	*	*	*	1
	3 Ton	*	*	*	1
	4 Ton				
	Hook Latch				
	3 Ton	BCH-459	BCH-459	BCH-460	
	4 Ton	BCH-459	BCH-459	BCH-479	
84	Thrust Bearing				1
	3 Ton	BCH-1423	BCH-1423	BCH-1424	
	4 Ton	BCH-1423	BCH-1423	BCH-1425	
85	Load Washer				1
	3 Ton	BCH-1426	BCH-1426	BCH-1427	
	4 Ton	BCH-1426	BCH-1426	--	

* Not available as individual parts.



LATER MODEL HOISTS

Figure 9-5. 5 and 6 Ton Models

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
1	Label - Capacity				
	5 Ton	BCH-501	BCH-501	BCH-501	1
	6 Ton	BCH-502	BCH-502	BCH-502	1
2	Screw - Hex Socket Head (Self-Locking 1/4-20 x 1)	*	*	*	6
3	Cover - Gearcase	BCH-304	BCH-304	BCH-304	1
4	Plug - Expansion (3/4 Dia.)	*	*	*	1
5	Gear - Sprocket	BCH-306	BCH-306	BCH-408	1
6	Bearing - Needle	BCH-307	BCH-307	BCH-307	1
	Bearing - Needle	BCH-308	BCH-308	BCH-308	1
8	Bearing - Needle	BCH-309	BCH-309	BCH-309	1
9	Thrust Washer - Bearing	BCH-310	BCH-310	BCH-310	2
10	Gear-Intermediate	BCH-311	BCH-311	BCH-311	1
11	Key - Woodruff (No. 91)	*	*	*	1
12	Pinion - Intermediate	BCH-313	BCH-313	BCH-313	1
13	Bearing-Needle	BCH-314	BCH-314	BCH-314	1
14	Shaft - Pinion	BCH-315	BCH-315	BCH-315	1
15	Bearing-Ball	BCH-316	BCH-316	BCH-316	1
16	Pin - Dowel	BCH-317	BCH-317	BCH-317	2
17	Screw - Hex Socket Head (Self-Locking 3/8-16 x 1)	*	*	*	1
18	Washer - Flat (Plain 3/8 W Pltd.)	*	*	*	1
19	Chain - Load				
	For 8' Lift	BCH-503	BCH-503	BCH-504	1
	For 10' Lift	BCH-505	BCH-505	BCH-506	1
	For 12' Lift	BCH-507	BCH-507	BCH-508	1
	For 15' Lift	BCH-509	BCH-509	BCH-510	1
	For 20' Lift	BCH-511	BCH-511	BCH-512	1
	For 25' Lift	BCH-513	BCH-513	BCH-514	1
	For 30' Lift	BCH-515	BCH-515	BCH-516	1
	For Non-Standard Lift (order chain length equal to two times lift, plus 2**)	BCH-334	BCH-334	BCH-335	As Req'd.
20	Frame	BCH-437	BCH-437	BCH-437	1
	Warning Label	BCH-338	BCH-338	BCH-338	1
21	Pin - Pawl	BCH-343	BCH-343	BCH-343	1
22	Plate - Spring Retainer	BCH-344	BCH-344	BCH-344	1
23	†Screw - Self-Tapping (#10-16x114)	*	*	*	1
24	Pawl - Brake	BCH-345	BCH-345	BCH-345	1
25	Washer - Special	BCH-346	BCH-346	BCH-346	1
26	Ring - Retaining	BCH-347	BCH-347	BCH-347	1
27	Spring - Brake Pawl	BCH-348	BCH-348	BCH-348	1
28	Bearing - Needle	BCH-349	BCH-349	BCH-349	1
29	Ring - Retaining	BCH-350	BCH-350	BCH-350	1
30	Flange - Load Brake	BCH-351	BCH-351	BCH-351	1
31	Friction Washer - Flange Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-401	BCH-401	BCH-401	
32	Ratchet - Brake	BCH-353	BCH-353	BCH-353	
33	Friction Washer - Hand Chain Side				1
	Commercial Hoists	BCH-297	BCH-297	BCH-297	
	Military Hoists Only	BCH-352	BCH-352	BCH-352	
34	Load Regulator Assembly	BCH-354	BCH-354	BCH-354	1
35	Stop - Brake	BCH-355	BCH-355	BCH-355	1
36	Washer - Flat (Plain 5/16 N Pltd.)	*	*	*	1
37	Nut - Hex, Self-Locking (Thin 5/16-24)	*	*	*	1
38	Cover - Chain Wheel	BCH-358	BCH-358	BCH-358	1
39	Screw - Hex Socket head	BCH-359	BCH-359	BCH-359	2
40	Screw - Hex Socket Head (Self-Locking 1/4-20 x 3/4)	*	*	*	2
41	Chain - Hand				
	For 8' Lift	BCH-361	BCH-361	BCH-362	1
	For 10' Lift	BCH-363	BCH-363	BCH-364	1
	For 12' Lift	BCH-365	BCH-365	BCH-366	1
	For 15' Lift	BCH-367	BCH-367	BCH-368	1
	For 20' Lift	BCH-369	BCH-369	BCH-370	1
	For 25' Lift	BCH-371	BCH-371	BCH-372	1
	For 30' Lift	BCH-373	BCH-373	BCH-374	1
	For Non-Standard Lift (order chain length equal to two times lift, minus 1**)	BCH-375	BCH-375	BCH-376	As Req'd.

* Not available as individual parts.

** Round up to next full foot of length.

† Drill .159" diameter hole 3/16" deep when replacing metal tack.

(Continued on following page)

Figure 9-5. 5 and 6 Ton Models (continued)

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
39	Screw - Hex Socket head	BCH-359	BCH-359	BCH-359	2
40	Screw - Hex Socket Head (Self-Locking 1/4-20 x 3/4)	*	*	*	2
41	Chain - Hand				
	For 8' Lift	BCH-361	BCH-361	BCH-362	1
	For 10' Lift	BCH-363	BCH-363	BCH-364	1
	For 12' Lift	BCH-365	BCH-365	BCH-366	1
	For 15' Lift	BCH-367	BCH-367	BCH-368	1
	For 20' Lift	BCH-369	BCH-369	BCH-370	1
	For 25' Lift	BCH-371	BCH-371	BCH-372	1
	For 30' Lift	BCH-373	BCH-373	BCH-374	1
	For Non-Standard Lift (order chain length equal to two times lift, minus 1'**)	BCH-375	BCH-375	BCH-376	As Req'd.
42	Link - Open	BCH-377	BCH-377	BCH-377	1
43	Nut - Hex, Self-Locking (Thin 3/8-24)	--	*	*	1
44	Guide - Chain	BCH-385	BCH-385	BCH-385	1
	Lower Block & Hook Assembly (includes ref. nos. 45 thru 60)	BCH-517	BCH-517	BCH-518	1
	5 Ton				
	6 Ton	BCH-519	BCH-519	BCH-520	1
45	Washer - Hardened	BCH-442	BCH-442	BCH-442	2
46	Bearing - Needle	BCH-443	BCH-443	BCH-443	2
47	Sprocket	BCH-444	BCH-444	BCH-444	1
43	††Screw - Self-Tapping (#6-20 x 1/2)				4
49	Label - Warning	BCH-445	BCH-445	BCH-445	1
50	Body - Lower Block				
	5 Ton	BCH-521	BCH-521	BCH-522	1
	6 Ton	BCH-523	BCH-523	BCH-524	1
51	Shaft - Sprocket	BCH-449	BCH-449	BCH-449	1
52	Pin - Spring	BCH-450	BCH-450	BCH-450	1
59	Ring - Retaining	BCH-525	BCH-525	BCH-525	2
54	Pin - Chain Anchor	BCH-526	BCH-526	BCH-526	1
55	Nut - Slotted				
	5 Ton	*	*	--	1
	1-8 Thick				
	1-1/4-7 Pltd.	--	--	*	1
	6 Ton	*	*	--	1
	1-1/8-7				
	1-1/4-7 Pltd.	--	--	*	1
56	Pin - Cotter				
	(5/32 Dia.x 1-1/2)	*	*	--	1
	(1/4 Dia x 1-3/4)	--	--	*	1
57	Bearing-Thrust				
	5 Ton	BCH-452	BCH-452	BCH-527	1
	6 Ton	BCH-528	BCH-528	BCH-527	1
58	Washer - Thrust				
	5 Ton	BCH-454	BCH-454	--	1
	6 Ton	BCH-529	BCH-529	--	1
59	Hook - Lower				
	5 Ton	BCH-530	BCH-530	BCH-531	1
	6 Ton	BCH-532	BCH-532	BCH-531	1
60	Latch Assembly - Hook	BCH-460	--	BCH-533	2
		--	BCH-460	--	1
	Later Model Hoists:				
	5 Ton	BCH-460	--	BCH-533	1
	6 Ton	BCH-460	--	BCH-553	1
61	Pin - Grooved	BCH-463	--	BCH-463	1
	Later Model Hoists: Pin - Spring	BCH-554	--	BCH-554	1
62	Upper Block Bolt & Nut Assembly	BCH-534	--	BCH-534	1
	Later Model Hoists:	BCH-555	--	BCH-555	1
63	Washer - Thrust	BCH-465	--	BCH-465	1
64	Hook & Nut Assembly (Includes Ref. Nos. 60, 64, and 65)	BCH-537	--	BCH-538	1
	Later Model Hoists:				
	5 Ton	BCH-537	--	BCH-556	1
	6 Ton	BCH-537	--	BCH-557	1

* Not available as individual parts.

** Round up to next full foot of length.

†† Drill .116" diameter hole 7/16" deep when replacing metal tack.

(Continued on following page)

Figure 9-5. 5 and 6 Ton Models (continued)

Ref. No.	Description	Part Number			Qty. Req'd
		Hook Suspension	Lug Suspension	Spark Resistant	
65	Pin - Grooved	BCH-541	--	BCH-542	1
	Later Model Hoists: Pin - Spring	BCH-554	--	BCH-554	1
66	Washer-Thrust	BCH-543	--	BCH-543	1
67	Shaft - Sprocket	BCH-544	BCH-544	BCH-544	1
68	Pin - Spring	BCH-545	BCH-545	BCH-545	1
69	Guide - Chain	BCH-546	BCH-546	BCH-546	1
70	Bearing - Needle	BCH-548	BCH-548	BCH-548	2
71	Sprocket	BCH-549	BCH-549	BCH-549	1
72	Pin - Spring	BCH-550	BCH-550	BCH-550	2
73	Bracket - Upper Hook	BCH-551	--	BCH-551	1
74	†††Screw - Self-Tapping (#2-32 X 1/8)	*	*	*	2
75	Nameplate	BCH-462	BCH-462	BCH-462	1
76	Bolt - Hex Head (3/4-10 X 2 Grade 5)	--	BCH-552	--	2
77	Nut - Hex, Self-Locking (Thin 3/4-10)	--	*	--	2
78	Bracket - Lug Suspension	--	BCH-553	--	1
	Later Model Hoists:				1
	Lower Block Assembly				
	5 Ton	BCH-1501	BCH-1501	BCH-1502	
	6 Ton	BCH-1503	BCH-1503	BCH-1504	
79	Hardened Washer	BCH-1505	BCH-1505	BCH-1505	2
80	Sprocket	BCH-1506	BCH-1506	BCH-1506	1
81	Needle Bearings	BCH-1507	BCH-1507	BCH-1507	2
82	Chain Guide	BCH-1508	BCH-1508	BCH-1508	1
83	Slotted Fillister Head Machine Screw- Plated (1/4-20 x 3)	BCH-1509	BCH-1509	BCH-1509	2
84	Retaining Ring	BCH-1510	BCH-1510	BCH-1510	2
85	Lower Block Body				1
	5 Ton	BCH-1511	BCH-1511	BCH-1512	
	6 Ton	BCH-1513	BCH-1513	BCH-1514	
86	Chain Anchor Pin	BCH-1515	BCH-1515	BCH-1515	1
87	Sprocket Shaft	BCH-1516	BCH-1516	BCH-1516	1
88	Spring Pin - Plated (3/16 x 1-3/8)	BCH-1517	BCH-1517	BCH-1517	1
89	Cotter Pin (5/32 x 1-1/2)	BCH-1518	BCH-1518	--	1
	Spring Pin - Plated (1/4 x 2)	--	--	BCH-1519	1
90	Hook				1
	5 Ton	BCH-1520	BCH-1520	BCH-1521	
	6 Ton	BCH-1520	BCH-1520	BCH-1522	
	Nut	*	*	*	1
	Hook Latch				1
	5 Ton	BCH-460	BCH-460	BCH-533	
	6 Ton	BCH-460	BCH-460	BCH-553	
91	Thrust Bearing	BCH-1523	BCH-1523	BCH-1524	1
92	Load Washer	BCH-1525	BCH-1525	--	1

* Not available as individual parts.

††† Drill .078" diameter holes thru frame when replacing metal tacks.

SECTION X - CHAIN CONTAINERS

10-1. GENERAL.

The BUDGIT chain containers listed below are designed to fit the BUDGIT USA hand chain hoists in this manual only. Other hoists require different chain containers. All parts required for correct installation are packaged with the container assembly.

Hoist Rated Load	Standard Container		Spark Resistant Container	
	Lift Capacity	Catalog Number	Lift Capacity	Catalog Number
1/4 & 1/2 Ton	15'	902741	---	---
	25'	902742	20'	902760
	40'	902743	35'	902761
1 Ton	10'	902741	---	---
	20'	902742	15'	902760
	30'	902743	25'	902761
1½ & 2* Ton	15'	902750	10'	902765
	30'	902751	25'	902766
2** Ton	10'	902742	8'	902760
	15'	902743	12'	902761
3 & 4 Ton	8'	902750	---	---
	15'	902751	12'	902766
5 & 6 Ton	10'	902751	8'	902766

* Single Load Chain

** Two Load Chain

10-2. INSTALLATION INSTRUCTIONS.

The BUDGIT chain container is easily installed by following the instructions below.

- Operate hoist so that load hook is in its low position. This shortens the loop at the tail end of the load chain so that it will not interfere during installation of the container. It also allows the chain to correctly feed into the container when installation is complete.
- Remove small parts from shipping bag (packaged with container).
- Remove hex socket head screw (and washer on 1-1/2, single load chain 2, and 3 thru 6 ton models only) attaching tail end of load chain to hoist, save screw and allow chain to hang straight down.
- Hold chain container bracket onto hoist and fasten to underside of hoist with hex head screw. Connection to side of hoist is then to be in the following order: bracket, load chain, and the original hex socket head screw (and washer on 1-1/2, single load chain 2, and 3 thru 6 ton models only). See Figure 10-1.

CAUTION

Tail end of load chain must be connected to assure chain does not run out of hoist during lowering.

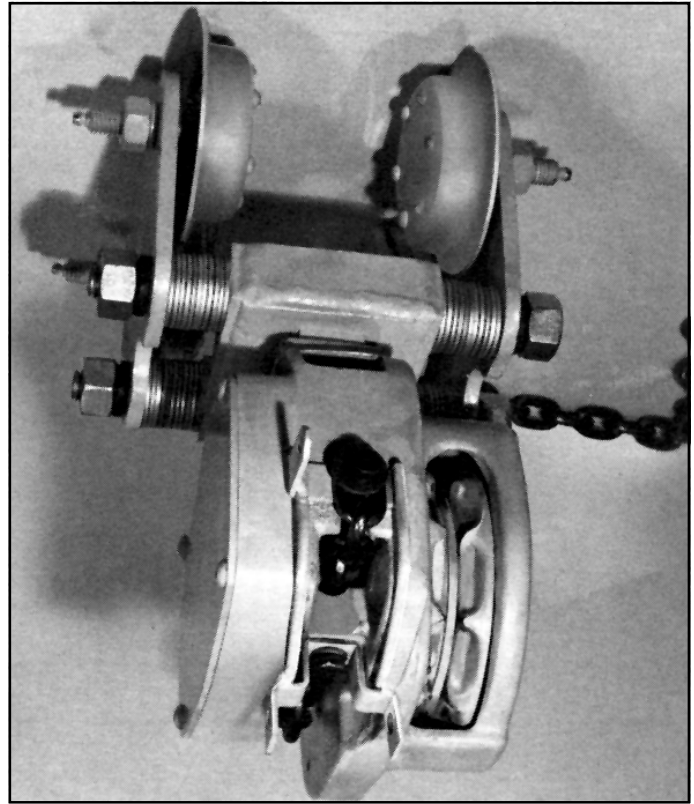


Figure 10-1. Chain Container Bracket

e. Attach hinged end of container to bracket. The hinge pin is a bolt with a self-locking nut.

f. Open, if not already open, split link (see paragraph 2-2) and connect one end of support chain to hole in chain container. See Figure 10-2. Twist link closed. Do not run load into bottom of container.

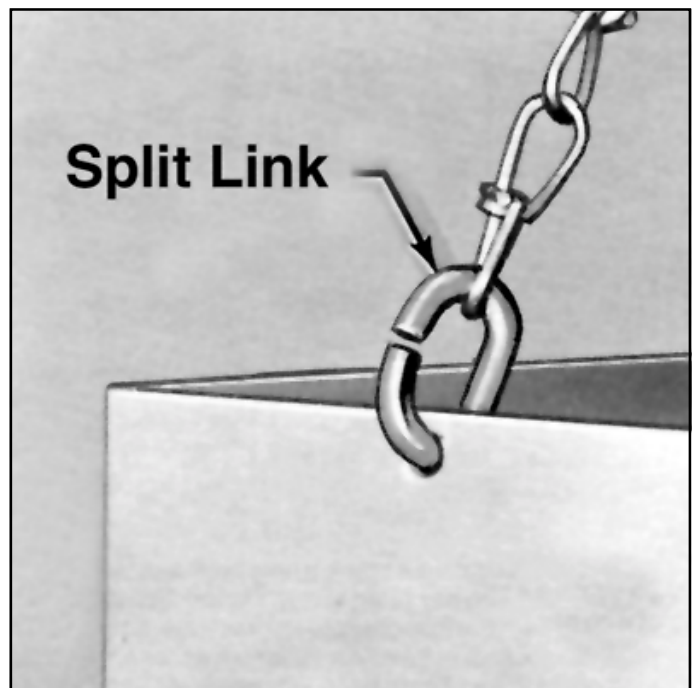


Figure 10-1. Chain Container Bracket

g. Open split link (see paragraph 2-2) and connect loose end of support chain to open hole in outstanding leg of chain container bracket. See Figure 10-3. Twist link closed.

CAUTION

Container must hang parallel to load chain. A tilted container will cause piling of chain with possible damage to hoist. If necessary, adjust container support chain. Do not run load into bottom of container.



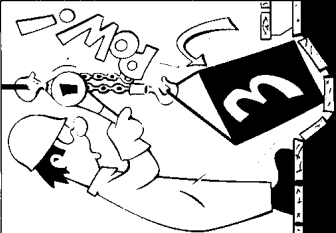
Figure 10-3. Complete Installation

Notes

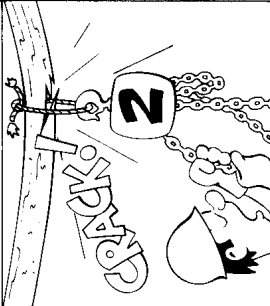
SAFE IS... KNOWING YOUR HOIST!
STUDY MANUFACTURER'S OPERATING INSTRUCTION MANUAL FOR CORRECT HOIST OPERATION. KNOW WHAT TO DO, -AND HOW TO DO IT! ... EVERYTIME!



SAFE IS... NEVER OVERLOADING!
ALWAYS BE SURE TO USE PROPER CAPACITY HOIST. ...IN DOUBTFUL WEIGHT SITUATIONS USE HOISTS WITH OVERLOAD PROTECTION DEVICES WHICH WILL REJECT DANGEROUS OVERLOADS.



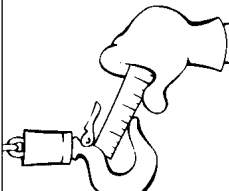
SAFE IS... MAKING SURE UPPER SUSPENSION WILL HOLD THE LOAD!



SAFE IS... RIGGING THE HOIST CORRECTLY!

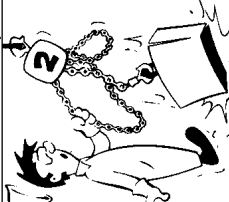
	ALWAYS KEEP LOAD CHAIN STRAIGHT!		SNAP HOOK LATCH OVER LOAD SLING!
	ALWAYS BALANCE LOAD IN SLING!		DON'T USE LOAD CHAIN AS A LOAD SLING!
	ALWAYS KEEP LOAD CHAIN STRAIGHT!		DON'T LET LOAD CHAIN PULL AGAINST HOIST!

SAFE IS... NEVER USING A HOIST WITH "OPENED" HOOKS!



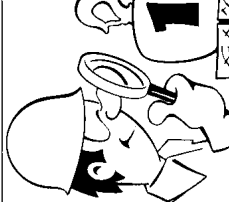
CHECK HOOKS OFTEN WITH SCALE OR GAUGE!

SAFE IS... NEVER USING A HOIST WITH SLIPPING BRAKE!




CHECK LOAD BRAKE OPERATION OFTEN!

SAFE IS... NEVER USING A DAMAGED HOIST!



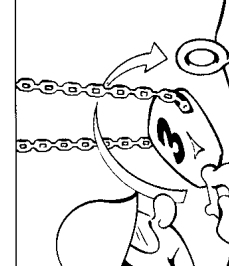
VISUALLY CHECK HOIST CONDITION!

SAFE IS... USING GOOD JUDGMENT!

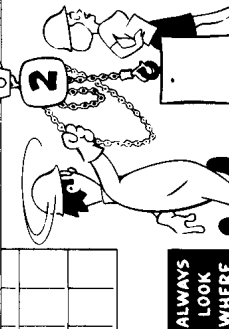


NEVER THROW OR DROP A HOIST!

SAFE IS... NEVER TWISTING CHAIN BY CAPSIZING LOWER BLOCK!

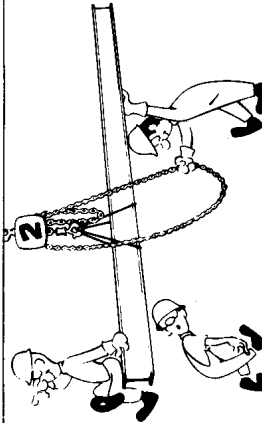


SAFE IS... ALWAYS MAKING SURE OF YOUR FOOTING!



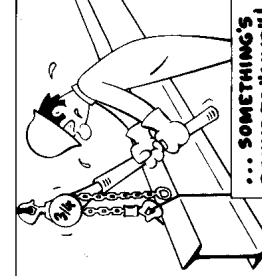
ALWAYS LOOK WHERE YOU'RE GOING!

SAFE IS... ALWAYS STAYING OUT FROM UNDER A SUSPENDED LOAD!




NEVER CARRY PEOPLE ON A HOIST OR THE LOAD. NEVER CARRY LOADS OVER PEOPLE!

SAFE IS... NEVER USING A PIPE (CHEATER) ON LEVER HOIST HANDLE!

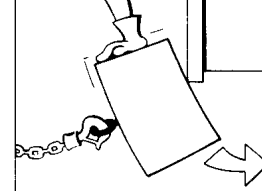


... SOMETHING'S BOUND TO "GIVE"!

SAFE IS... NEVER PERMITTING A WELDING TORCH TO HEAT LOAD CHAIN!



SAFE IS... NEVER APPLYING SHOCK LOAD TO CHAIN SUDDENLY!



SAFE IS... ALSO

- NEVER DRAGGING A LOAD CHAIN FROM UNDER THE LOAD!
- BEING A THOUGHTFUL, COURTEOUS WORKER!

Safe is Beautiful!

Recommended Spare Parts for Your Budgit USA Hand Chain Hoist

Certain parts of your hoist will, in time, require replacement under normal wear conditions. It is suggested that the following parts be purchased for your hoist as spares for future use.

Description	Quantity for One Hoist	Quantity for Five Hoist	Quantity for Ten Hoist
Brake Pawl	---	1	2
Friction Washer	2	4	6
Load Chain	---	1	2
Lower Hook	---	1	2
Hand Chain Wheel	---	---	1
Upper Hook Assembly	---	---	1

Note: When ordering parts always furnish Model and Catalog Number of Hoist and lift of hoist on which the parts are to be used.

Parts for your hoist are available from your local authorized **BUDGIT** repair station. For the location of your nearest repair station, write:

Yale•Lift-Tech
P.O. Box 769
Muskegon, MI 49443-0769

Phone: **800 742-9269**
Fax: **800 742-9270**

WARRANTY

WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

A. Seller warrants that its products and parts, when shipped, and its work (including installation, construction and start-up), when performed, will meet applicable specifications, will be of good quality and will be free from defects in material and workmanship. All claims for defective products or parts under this warranty must be made in writing immediately upon discovery and in any event, within one (1) year from shipment of the applicable item unless Seller specifically assumes installation, construction or start-up responsibility. All claims for defective products or parts when Seller specifically assumes installation, construction or start-up responsibility and all claims for defective work must be made in writing immediately upon discovery and in any event, within one (1) year from completion of the applicable work by Seller, provided; however, all claims for defective products and parts made in writing no later than eighteen (18) months after shipment. Defective items must be held for Seller's inspection and returned to the original f.o.b. point upon request. THE 'FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

B. Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall at its option either (i) repair or replace its product, part or work at either the original f.o.b. point of delivery or at Seller's authorized service station nearest Buyer or (ii) refund an equitable portion of the purchase price.

C. This warranty is contingent upon Buyer's proper maintenance and care of Seller's products, and does not extend to normal wear and tear. Seller reserves the right to void warranty in event of Buyer's use of inappropriate materials in the course of repair or maintenance, or if Seller's products have been dismantled prior to submission to Seller for warranty inspection.

D. The foregoing is Seller's only obligation and Buyer's exclusive remedy for breach of warranty and is Buyer's exclusive remedy hereunder by way of breach of contract, tort, strict liability or otherwise. In no event shall Buyer be entitled to or Seller liable for incidental or consequential damages. Any action for breach of this agreement must be commenced within one (1) year after the cause of action has accrued.

BUDGIT®

Recommended Spare Parts for Your Budgit USA Hand Chain Hoist

Certain parts of your hoist will, in time, require replacement under normal wear conditions. It is suggested that the following parts be purchased for your hoist as spares for future use.

Description	Quantity for One Hoist	Quantity for Five Hoist	Quantity for Ten Hoist
Brake Pawl	---	1	2
Friction Washer	2	4	6
Load Chain	---	1	2
Lower Hook	---	1	2
Hand Chain Wheel	---	---	1
Upper Hook Assembly	---	---	1

Note: When ordering parts always furnish Model and Catalog Number of Hoist and lift of hoist on which the parts are to be used.

Parts for your hoist are available from your local authorized **BUDGIT** repair station. For the location of your nearest repair station, write:

Yale•Lift-Tech

P.O. Box 769
Muskegon, MI 49443-0769

Phone: **800 742-9269**

Fax: **800 742-9270**

WARRANTY

WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

A. Seller warrants that its products and parts, when shipped, and its work (including installation, construction and start-up), when performed, will meet applicable specifications, will be of good quality and will be free from defects in material and workmanship. All claims for defective products or parts under this warranty must be made in writing immediately upon discovery and in any event, within one (1) year from shipment of the applicable item unless Seller specifically assumes installation, construction or start-up responsibility. All claims for defective products or parts when Seller specifically assumes installation, construction or start-up responsibility and all claims for defective work must be made in writing immediately upon discovery and in any event, within one (1) year from completion of the applicable work by Seller, provided; however, all claims for defective products and parts made in writing no later than eighteen (18) months after shipment. Defective items must be held for Seller's inspection and returned to the original f.o.b. point upon request. THE 'FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

B. Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall at its option either (i) repair or replace its product, part or work at either the original f.o.b. point of delivery or at Seller's authorized service station nearest Buyer or (ii) refund an equitable portion of the purchase price.

C. This warranty is contingent upon Buyer's proper maintenance and care of Seller's products, and does not extend to normal wear and tear. Seller reserves the right to void warranty in event of Buyer's use of inappropriate materials in the course of repair or maintenance, or if Seller's products have been dismantled prior to submission to Seller for warranty inspection.

D. The foregoing is Seller's only obligation and Buyer's exclusive remedy for breach of warranty and is Buyer's exclusive remedy hereunder by way of breach of contract, tort, strict liability or otherwise. In no event shall Buyer be entitled to or Seller liable for incidental or consequential damages. Any action for breach of this warranty must be commenced within one (1) year after the cause of action has accrued.