

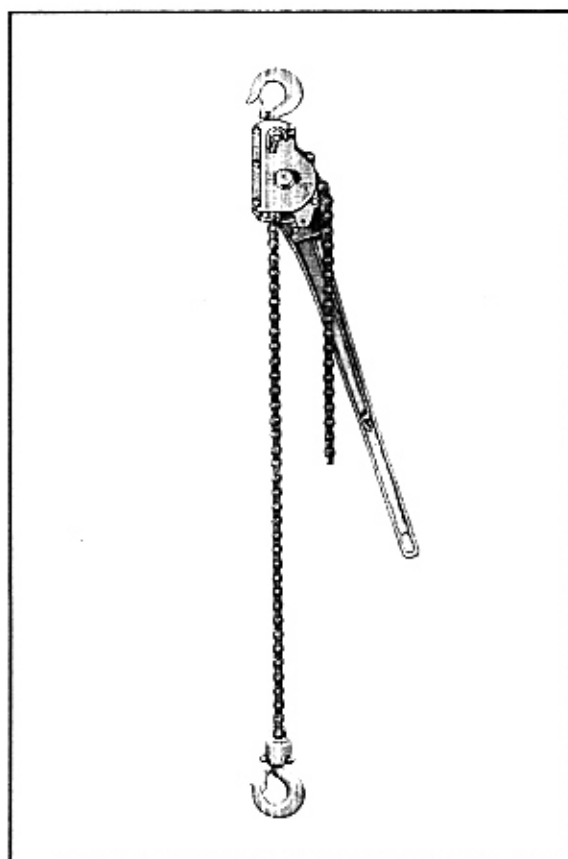
# Duff-Norton®

## OPERATING AND MAINTENANCE INSTRUCTIONS WITH PARTS LIST

## COFFING HOISTS®

PUBLICATION PART NO. G-680-3

### LEVER OPERATED ROLLER CHAIN HOISTS

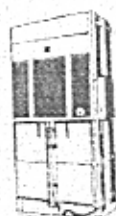


### G SERIES

#### IMPORTANT — CAUTION

This manual contains important information for the correct installation, operation and maintenance of the equipment described herein. All persons involved in such installation, operation and maintenance should be thoroughly familiar with the contents. To safeguard against the possibility of personal injury or property damage, follow the recommendations and instructions of this manual and keep it for further reference.

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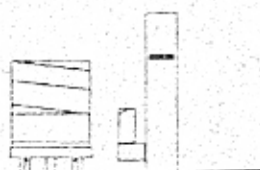
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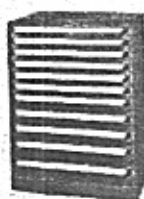
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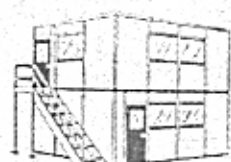


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## SECTION I

### INTRODUCTION

#### 1-1. General Information

This manual provides necessary and proper information for persons engaged in the operation and maintenance of the Coffing G Series Hoist. All persons operating or maintaining this hoist must be familiar with the information contained herein. Adherence to the precautions, procedures and maintenance practices described herein should ensure long and satisfactory use of your hoist with minimum danger to life, limb and property. If any operating or maintenance information herein seems inadequate for your particular problem, please call or write our service engineers. We solicit your suggestions for improvements to this manual.

#### NOTE

The information herein is directed to the proper use, care and maintenance of the G Series Hoist and does not comprise a handbook on the broad subject of rigging. Rigging can be defined as the process of lifting and moving heavy loads using hoists and other mechanical equipment. Skill acquired through specialized experience and study is essential to safe rigging operations. For rigging information, we recommend consulting a standard textbook on the subject.

#### 1-2. Hoist Construction

Safe operation is assured by the dual ratchet and pawl construction - at least one pawl is engaged at all times so that the load is always under positive control. Safety stops prevent the handle from spinning in case the operator's hand should slip off the handle. For convenience, a free chaining feature is provided so that when there is no load on the hoist a slight pressure on the latch permits the chain to be pulled through the hoist, either up or down, without operating the lever. The G Series Hoist is built to give years of rugged use. The sprocket ratchet, reversing mechanism and bearing pins are made of heat-treated alloy steel.

#### 1-3. Basic Hoist Data

The operator should be aware of the capabilities of his hoist. He must refrain from overloading. Overloading not only can cause damage to the hoist, but presents serious threats to persons around the hoist. See Table I for basic hoist data with which the user should be familiar.

**TABLE I. BASIC HOIST DATA**

Model No.	Load Rating (tons)	Standard Lift (in)	Av. Pull on Lever to Lift Full Load (lb)	Approx. Net Wt. (lb)	Min. Distance Between Hooks (in)	Lever Length (in)	Min. Incr. in Lifting Position (in)	Number of Chain Strands
AG	$\frac{3}{4}$	56 $\frac{1}{2}$	56	14	12 $\frac{1}{4}$	19	.625	1
AGI*	$\frac{3}{4}$	56 $\frac{1}{2}$	56	14	12 $\frac{1}{4}$	19	.313	1
ATG	1 $\frac{1}{2}$	57	60	17	14 $\frac{1}{4}$	19	.313	2
ATGI*	1 $\frac{1}{2}$	57	60	17	14 $\frac{1}{4}$	19	.156	2
FG	1 $\frac{1}{2}$	56 $\frac{1}{2}$	116	25	16 $\frac{1}{2}$	27 $\frac{1}{2}$	1.000	1
FGI*	1 $\frac{1}{2}$	56 $\frac{1}{2}$	116	25	16 $\frac{1}{2}$	27 $\frac{1}{2}$	.500	1
FTG	3	57	120	34	17 $\frac{1}{2}$	27 $\frac{1}{2}$	.500	2
FTGI*	3	57	120	34	17 $\frac{1}{2}$	27 $\frac{1}{2}$	.250	2
ZG-4 $\frac{1}{2}$	4 $\frac{1}{2}$	51	124	49	26 $\frac{1}{2}$	33 $\frac{1}{2}$	.333	3
ZG-6	6	53	124	59	26 $\frac{1}{2}$	33 $\frac{1}{2}$	.250	4
WG-9	9	60	124	120	30	33 $\frac{1}{2}$	.200	5
WG-11	11	60	124	130	30	33 $\frac{1}{2}$	.167	6
WG-13	13	60	124	140	30	33 $\frac{1}{2}$	.143	7
WG-15	15	60	124	150	30	33 $\frac{1}{2}$	.125	8

\*Double Pawls - can be operated with half strokes of lever for use in close quarters.



## SECTION II

### PREPARATION FOR USE

#### 2-1. Inspection Prior to Initial Use

Any new or repaired hoist, as well as the working area, should be carefully inspected prior to initial installation and use. The inspection should be made by or under the direction of a person familiar with hoist operations and industrial safety standards.

The following inspection criteria are recommended prior to initial installation and use. Additional inspection items should be added to satisfy local usage and safety requirements. All inspections of any kind should be logged or recorded, dated, signed and filed for reference purposes.

- a. Ensure that the supporting structures are strong enough to carry the intended loads. The supporting structure should have a safe load rating at least equal to that of the hoist. The supporting structure must be rigid and not subject to weakening due to repeated stresses from the hoist.
- b. Ensure that there is adequate working space to permit hoist operation. Normal operation should not require pulling or tugging around corners or obstructions. Also, there must be adequate space to permit the operator and others in the area to stand clear of the load and adjacent structures.

- c. Watch out for makeshift or compromising practices either during installation or subsequent operation of the hoist. Sometimes the "temporary" fix remains until an accident occurs.
- d. Perform the frequent inspections specified herein on a new hoist prior to initial use. When a hoist is repaired, perform the periodic inspections specified herein during repair.

#### 2-2. Installation

Secure the hoist to a suitable supporting member by use of the top hook. Make sure the hook latch is closed. Apply a small amount of lubriplate or equivalent between the hook and supporting member.

#### 2-3. Testing

Check the hoist through a few lifting and lowering cycles with no load on the hook. Check to see that slack chain can be taken up by pulling on free end of chain without operating lever. With control lever in "Down" position, push thumb latch and check that free chain can be obtained by pulling on lower hook. Attach a light load of approximately 50 pounds to the hook and check the hoist through a few lifting and lowering cycles. If operation appears normal, test hoist with the rated load. The hoist should operate smoothly in both the raising and lowering directions.

## SECTION III

### OPERATION

#### 3-1. Safety Considerations

This hoist is designed for proper operation within the limits of its rated capacity. The hoist has features designed to minimize the potential for injury due to failure of the hoist itself. However, here are some additional pointers which should be followed in order to ensure proper operation.

- a. Do not overload the hoist.
- b. Do not use a handle extender (cheater bar). The hoist is designed to lift or pull its rated capacity when a reasonable effort is exerted by one person (see Table I). If effort is excessive recheck the load and use a larger capacity hoist if necessary.
- c. Avoid side loading. Always pull in a straight line between hooks. Side loading over a sharp corner may fracture the hoist housing or load block and damage load chain.
- d. Be sure there are no twists in the load chain.
- e. Do not operate the hoist from an off-balance position. Operator should have firm footing or be otherwise secured before operating the hoist.
- f. Before raising or pulling a load, always check to see that it is held securely in the hook or sling, etc. Raise

the load only until the load chain is taut and then recheck the rigging before continuing to raise the load.

- g. Make sure the slings and other rigging have sufficient capacity to support the load and are in good condition.
- h. **DO NOT STAND BENEATH A LOAD!** Do not move a load in such a way as to endanger personnel.
- i. Do not wrap the load chain around a load. Use a SLING!
- j. Do not leave the hoist under load for extended or unattended periods unless specific precautions have been taken to provide protection.
- k. Do not TIP-LOAD any hook, as this will exert undue strain in the hook, resulting in hook failure.
- l. **DO NOT USE THE HOIST TO LIFT, SUPPORT OR OTHERWISE TRANSPORT PEOPLE.**

#### 3-2. Operation (See figure 3-1)

3-2.1 The hoist should be operated by qualified personnel only. The operator should familiarize himself with the hoist and its proper care. If adjustments or repairs are necessary or any damages known or suspected, he shall report the same promptly to the person authorized to cor-

rect the problem. He shall also notify the next operator of the damages upon changing shifts. If an "Out-of-Order" tag is on the hoist, the operator should not start operation until the tag has been removed by an authorized person. The operator should not engage in any practice which will divert his attention while operating the hoist.

**3-2.2 ATTACHING THE LOAD.** Attach load to bottom hook by means of slings or other approved devices. Make sure slings or other devices are seated properly in saddle of hook before lifting. Be sure hook latch is closed and working properly. Never wrap load chain around the load.

**3-2.3 TO RAISE OR PULL LOAD.** Turn side control lever to "Up" position. Raise lifting lever as high as it will go. Raise or pull the load by operating lifting lever up and down.

- a. Before lifting or pulling, make sure load chain is not kinked or twisted and that load will not contact any obstructions.
- b. Lift or pull load to the desired distance. Do not leave hoist under load for extended or unattended periods unless specific precautions have been taken to provide protection.

**3-2.4 TO LOWER OR REMOVE LOAD.** Turn side control lever to "Down" position. Lower or remove load by operating lifting lever up and down.

**SAFETY LOWERING.** In rare cases where load exactly counter-balances weight of the lifting lever, the hoist may "ratchet" of its own accord if the operator's hand is removed from the lifting lever while it is under load and hoist is in the "Down" position. To prevent this occur-

rence, it is recommended that an automatic safety feature of the hoist be employed each time a load is to be lowered. Immediately after turning side control lever to "Down" position, turn it back to the "Up" position. The load can then be lowered by a series of short strokes keeping the lever in the lower half of its normal operating arc. The hoist will continue to lower load until lifting lever is raised to its extreme limit which automatically reverses hoist mechanism to lifting position.

### CAUTION

**Do not release the lever while it is under load. Always complete the stroke. You will feel or hear the locking pawl engage at the end of the lever stroke. If lever continues to offer resistance and you cannot complete the stroke continue to hold the lever until it returns to the stop position on the housing.**

**3-2.5 TO USE HOIST UPSIDE DOWN.** Pull safety pin out to its limit and turn lifting lever to opposite side of hoist. This allows load to be raised by pushing down on lifting lever.

**3-2.6 TO TAKE UP SLACK OR OBTAIN FREE CHAIN.** Take up slack by pulling on free end of chain. To obtain free chain, turn side control lever to "Down" position, press thumb latch on side of lifting lever and pull chain as desired.

**3-2.7 TO CONVERT MULTIPLE CHAIN HOISTS TO THE NEXT SMALLER CAPACITY FOR LONGER LIFT AND FASTER OPERATION.** On ATG, ATGI, FTG, FTGI, ZG-4½ and ZG-6 models, disconnect chain lug hook on end of load chain from connecting link. See figure 4-7.

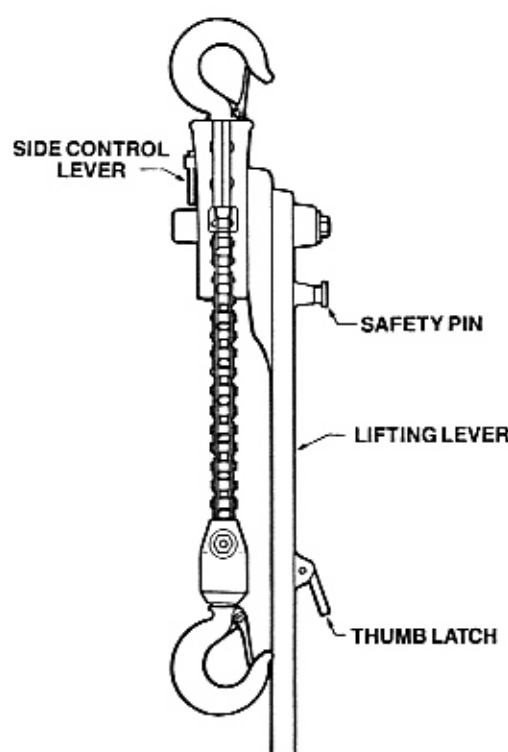


FIGURE 3-1. OPERATION

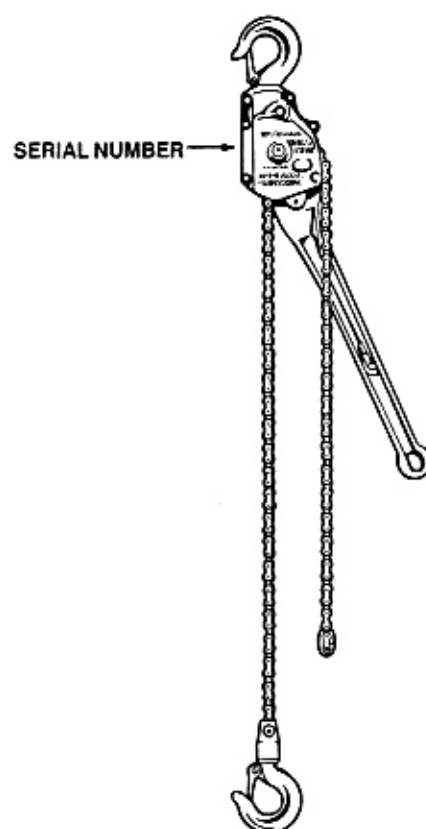


FIGURE 3-2. SERIAL NUMBER LOCATION



## SECTION IV MAINTENANCE

### 4-1. Inspections

A planned inspection routine should be established for this hoist based upon frequency of use, severity of use and environmental conditions. Some inspections should be made frequently (daily to monthly) and others periodically (monthly to yearly). It is strongly recommended that an Inspection and Maintenance Check List and an Inspector's Report similar to those shown in figures 4-9 and 4-10 be used and filed for reference. All inspections should be made by, or under the direction of, a designated inspector. Special inspections should be made following any significant repairs or any operating occurrence leading one to suspect that the hoist's capabilities may have been impaired. Refer to paragraphs 4-7 and 4-9 for assistance in any disassembly and assembly necessary for inspections and subsequent replacement or repair. Prior to inspection, clean parts as required. See paragraph 4-8.

### 4-2. Frequent Inspections

Perform the following inspections daily prior to initial use of the hoist. Also, observe during operation for any damage which might appear between regular inspections.

#### CAUTION

**Any unsafe condition disclosed by the inspection should be corrected before operation of the hoist is resumed. Adjustments and repairs should be done only by designated personnel.**

- a. Inspect the hooks for deformations, chemical damage or cracks. Hooks damaged from chemicals, deformation or cracks, having throat openings greater than the "Reject Opening" shown in Table II must be replaced. If the hook is twisted more than 10 degrees from the plane of the unbent hook it must be replaced.

#### NOTE

Any hook that is twisted or has throat openings in excess of those listed in Table II indicates abuse or overloading of the hoist. Other load bearing components should be inspected accordingly.



**TABLE II. HOOK THROAT OPENINGS**

Hoist Model	Hook Part No.	Normal Opening	Reject Opening
AG, ATG, AGI, ATGI	3K8S	1 1/16"	1 7/32"
FG, FTG, FGI, FTGI	3K9S	1 7/32"	1 13/32"
ZG	SHL-1	1 7/8"	2 5/32"
WG	W3-S	1 7/8"	2 5/32"

- b. Check that both hooks swivel freely.
- c. Check hook latches for damage.
- d. Check all operating mechanisms (control lever, lifting lever, thumb latch and safety pin) for proper function.
- e. Check load chain and connecting links for wear, twist, spread side plates, presence of foreign material and adequate lubrication.

### 4-3. Periodic Inspections

It is recommended that the following inspections be performed at 1 to 12 month intervals. The exact period of inspection will depend on frequency and type of usage. Determination of this period will be based on the user's experience. It is recommended that the user begin with a monthly inspection and extend the periods to quarterly, semi-annually, or annually based on his monthly experience.

#### CAUTION

**Any unsafe condition disclosed by the inspection should be corrected before operation of the hoist is resumed. Repairs should be done only by designated personnel.**

- a. Perform all the frequent inspections listed in paragraph 4-2.
- b. Check nuts, bolts, rivets and other hardware for looseness and stripped or damaged threads.
- c. After cleaning (see paragraph 4-8) and before disassembly of lever assembly, refer to figures 5-1 through 5-6 and inspect the lever assembly as follows:
  - 1) Check lever for cracks. Check that lever is not bent. A cracked or bent lever should be replaced.
  - 2) Check trip rod for straightness.
  - 3) Inspect the contact point of lever pawl for excessive wear and breaks. Check for binding between lever pawl and lever pawl pin.
  - 4) Check lever pawl trip pin for straightness and excessive wear or breakage.

#### NOTE

If any component of the lever pawl-trip pin assembly (which consists of lever pawl, trip pin, lever pawl release pin and rivet) is defective, replace the complete lever pawl-trip pin assembly.

5) Check lever pawl release spring and lever pawl spring for deformation and breaks.

6) Depress thumb latch and observe lever pawl. The lever pawl should move freely when thumb latch is depressed and it should spring back when thumb latch is released. With the thumb latch depressed to its limit, measure clearance from the point of the lever pawl to the inside wall of the lever bushing. This clearance should be 3/16 inch minimum on all models.

- 7) Push thumb latch and pull on the safety pin knob. The lever pawl should move out until it is stopped by the lever casting or lever pawl cover. The safety release spring is probably defective if the lever pawl does not move out to the lever casting or lever pawl cover.
- 8) Inspect lever bushing for excessive wear and scoring. If worn excessively replace the lever bushing.

#### NOTE

Do not disassemble the lever assembly if no defects were disclosed by the above inspections.

- d. Inspect sprocket shaft for cracks, distortion, excessively worn or broken teeth and damaged threads. Check that lubrication hole is not clogged.
- e. Inspect reverse ring-shoulder pin assembly for excessive wear and loose or missing pins.
- f. Check left and right frames for cracks and distortion which may be caused by overloading or dropping. Check frame bearing surfaces which mate with sprocket shaft for scoring and excessive wear.
- g. Inspect locking pawl(s) for excessive wear and breaks.
- h. Inspect hooks for cracks using dye penetrant, magnetic particle or other suitable detection method.
- i. Inspect the load chain, after a thorough cleaning and lubrication, for gouges, nicks, weld splatter and distortion of any kind. Check the chain for wear per paragraph 4-5.

#### 4-4. Inspection of Hoists Not in Regular Use

If the hoist has been idle for one month or more, perform the inspections listed in paragraph 4-2. If the hoist has been idle more than six months, perform the inspections listed in paragraph 4-3.

#### 4-5. Checking Chain for Wear or Damage

Chain inspection and evaluation is a very important phase of hoist maintenance. In general, to inspect the chain, proceed as follows:

- a. Test the hoist under load in both hoisting and lowering directions and observe the operation of the chain and sprockets. The chain should feed smoothly into and away from the sprockets. If the chain binds, jumps or is noisy, inspect the chain and sprocket shaft for wear, distortion or other damage.
- b. With chain in hoist, apply a load of 50 pounds to the lower hook and check chain for elongation by measuring a 12 pitch section of chain that normally travels over the sprocket. The normal length of 12 pitches of chain is 7.50 inches for A-19 chain or 12.00 inches for F-19 chain. Use a Vernier caliper to check dimension from the edge of one chain pin to the edge of the twelfth chain pin. The chain should be replaced if this measurement over 12 pitches exceeds 7.66 inches for A-19 or 12.25 inches for F-19 chain.
- c. With chain in hoist, apply a load of 50 pounds to the lower hook and check chain for twist. The chain shall be replaced if the twist in any five foot section exceeds 15 degrees.
- d. With chain in hoist, apply a load of fifty pounds to the lower hook and check chain for camber. The chain should be replaced if a side bow exists exceeding  $\frac{1}{8}$  inch in any  $2\frac{1}{2}$  foot section of chain.
- e. With chain removed from hoist and after a thorough cleaning, check the chain for any of the following deficiencies:
  - 1) Pins turned from their original position.
  - 2) Rollers that do not turn freely with light finger pressure. (Note: A-19 chain is supplied without rollers.)
  - 3) Joints that cannot be flexed by easy hand pressure.
  - 4) Side plates that are spread open. A visual check of the pin head extension at the damaged area as compared to the pin extension of the free end of the chain can determine the amount of spread and condition of the chain.
  - 5) Gouges, nicks or weld splatter.
- f. **REPLACEMENT.** Replace chain with conditions described in paragraphs b, c and d above. The existence of deficiencies listed in paragraph e is sufficient reason for questioning chain safety and consideration for replacement.

#### CAUTION

When replacing chain, use only chain and chain connecting links supplied by Duff-Norton. The chain used on the G Series Hoist is specially manufactured to very close tolerances of dimension, composition and heat treatment. All connecting links have press fit side plates. **DO NOT ENLARGE PIN HOLES TO ASSEMBLE OR SUBSTITUTE SLIP FIT CONNECTING LINKS.**

#### 4-6. Lubrication

Proper lubrication is necessary for a long life and relatively trouble-free hoist operation. Refer to the following and to figure 4-11, Recommended Lubrication Schedule, for lubrication points, type of lubricant and frequency of lubrication.

- a. **LOAD CHAIN.** Clean the load chain per paragraph 4-8 and coat with Coffing Chain Lubricant No. H-7595, or equivalent. Allow oil to work into each link of the chain and be carried around the sprocket. Wipe excess oil off chain to prevent dripping. Never apply grease to the chain.
- b. **SPROCKET SHAFT.** Remove lever cap screw (1, figures 5-1 through 5-6) and apply Duff-Norton H-7613 lubricant, or equivalent, into threaded hole in sprocket shaft with a grease gun. Grease will be carried to the bearing surface of sprocket through lubrication passage.
- c. **TOP HOOK.** Allow a few drops of SAE 20-30 oil to run down the hook shank into the housing.
- d. **BOTTOM HOOK.** Invert the bottom hook and allow a few drops of SAE 20-30 oil to run down the hook shank into the swivel halves.
- e. **SUPER SPROCKET PIN AND BUSHING.** Disassemble load block assembly to the degree required to

remove super sprocket pin. Lubricate pin and bushing with SAE 20-30 oil.

#### 4-7. Disassembly

To disassemble model AG, ATG, FG and FTG hoists, refer to figures 5-1 and 5-2 and proceed as follows:

- a. Place reverse lever (41) in the "Up" position and turn lever cap screw (1) counterclockwise until the lower hook assembly contacts frame assembly. Continue turning lever cap screw until it is removed. Remove lever washer (2).
- b. Remove lever assembly (-6) from remainder of hoist. Disassemble lever assembly as follows:
  - 1) Place lever assembly in a vise and cut off rivet (7) heads with a chisel. Drive rivets out of lever (10) and lever pawl cover (11) with a punch. Remove lever pawl cover from lever.
  - 2) Remove lever pawl pin (21) from lever pawl cover (11). Remove lever pawl spring (16) and lever pawl assembly (17) from lever pawl pin. Do not disassemble lever pawl assembly.
  - 3) Remove trip rod (14) from thumb latch (15). Drive roll pin (13) from lever (10) with a punch and remove thumb latch.
  - 4) With a punch, drive safety pin assembly (19) through safety pin knob (18). This will leave safety pin spring (20) free. Do not disassemble safety pin assembly.
  - 5) Press lever bushing (12) from lever (10).
- c. Chain and attachment removal.
  - 1) To remove chain attachments from the AG and AGI hoist remove nut (75) and swivel screw (74) separate swivel frames (55) from bottom hook assembly (51). Do not remove latch (58) from bottom hook (57) unless replacement is required. Remove end lug (4) from chain (5).
  - 2) To remove chain attachments from FG and FGI hoist, remove two connecting links (3) by removing cotter pins and driving link pins through side plate with a punch. This will detach chain end lug (4) and bottom hook assembly (51).
  - 3) To remove chain attachments from ATG, ATGI, FTG and FTGI hoist, remove the connecting link (3) by removing spring clip (on hoist with A-19 chain) or cotter pins (on hoist with F-19 chain) and driving link pins through side plates with a punch. This will detach the chain lug hook (70) and load block assembly (-59). Remove chain end lug (4) from other end of chain (5).
  - 4) To remove chain from the hoist turn reverse lever (41) to "Down" position while observing reverse ring stop pin (36) and reverse ring-shoulder pin assembly (26). When reverse lever is turned to "Down" position, the reverse ring stop pin should withdraw below the bottom surface of reverse ring-shoulder pin assembly. Spring tension should cause reverse ring-shoulder pin assembly to turn counterclockwise which pulls the locking pawl away from sprocket shaft. Pull

chain (5) from hoist.

#### NOTE

In cases where parts are broken or deformed it may be necessary to push reverse ring stop pin down below surface of reverse ring-shoulder pin assembly with a punch and manually turn ring-shoulder pin assembly counterclockwise to free chain.

- d. Remove reverse ring retainer (22). Turn locking pawl (45) to a position to facilitate removal of locking pawl release pin (27). While holding pawl in this position, drive release pin through pawl from the inside with a punch.
- e. **NOTE:** Tag locking pawl and reverse ring springs to facilitate reassembly. Remove locking pawl spring (24) and reverse ring springs (25). Lift reverse ring-shoulder pin assembly (26) from right frame. Do not disassemble reverse ring-shoulder pin assembly.
- f. Clamp hoist frames in a vise and cut off six hoist frame rivet (28) heads with a chisel and remove rivets from frames with a punch. On models FG and FTG hoists, remove chain bushing (71) and dowel pin (72). Separate left frame (43) from right frame (48). It may be necessary to pry frames apart with a screwdriver. When frames are separated, top hook assembly (-29) will be free. Remove latch kit (31) from top hook (30) only if replacement is required.
- g. Disassemble left frame assembly (-33) as follows:
  - 1) Straighten rivet (37) and remove rivet from rocker arm center post (40). Remove assembly containing reverse ring stop pin (36), rocker arm (39) and rocker arm shaft-pin assembly (35). If inspection indicates replacement of any of these parts is required, remove rocker arm rivets (34). Do not disassemble rocker arm shaft-pin assembly.
  - 2) Remove rocker arm spring (38) from rocker arm center post (40). Remove threaded rocker arm center post from left frame (43) by turning post counterclockwise.
  - 3) If inspection indicates replacement is required, remove reverse lever (41) from reverse cam (42) by driving lever from cam with a punch. Remove cam from left frame.
  - 4) For FG and FTG model hoist remove reverse lever (41) and spring (76) from left frame (43). If replacement is required, remove load sheave bushing (42A).
- h. Remove locking pawl spring (44) and locking pawl (45) from right frame (48). On AG and ATG model hoists, remove rivet (49) and chain shedder (50). Remove sprocket shaft (32) from right frame. If replacement is required, remove stationary pins (47) from right frame.
- i. Disassemble bottom hook and swivel assembly (-51) on FG and FGI model hoists as follows:
  - 1) Remove chain bushing (52) from swivel frames (55).
  - 2) Place bottom hook and swivel assembly (-51) in a vise and cut off rivet (54) heads with a chisel. Drive rivets out of swivel frames (55) with a punch.

3) Separate swivel frames (55). When frames are separated, bottom hook assembly (-56) will be free. Remove latch kit (58) from bottom hook (57) only if replacement is required.

- j. Disassemble load block assembly (-59) on ATG, ATGI, FTG, and FTGI model hoists as follows:

1) Remove cotter pins (60) from super sprocket pin (61).

2) Remove super sprocket pin (61) and sprocket-bushing assembly (-62) from super frames (66). If super sprocket bushing (63) requires replacement, press bushing from super sprocket (64).

3) Place remainder of load block assembly in a vise and cut off rivet (65) heads with a chisel. Drive rivets out of swivel frames (66) with a punch.

4) Separate swivel frames (66). When frames are separated, bottom hook assembly (-67) will be free. Remove latch kit (69) from bottom hook (68) only if replacement is required.

4-7.1 To disassemble model AGI and ATGI hoists refer to figure 5-3 and proceed as follows:

- a. Perform procedures per paragraphs 4-7 a, b and c.

b. Remove reverse ring retainer (22). Turn one locking pawl (45) to a position to facilitate removal of locking pawl release pin (27). While holding pawl in this position, drive release pin through pawl from the inside with a punch. Repeat this procedure for the remaining locking pawl release pin.

c. **NOTE:** Tag reverse ring springs to facilitate correct reassembly. Remove reverse ring springs (24 & 25). Lift reverse ring-shoulder pin assembly (26) from right frame (48). Do not disassemble reverse ring-shoulder pin assembly.

d. Clamp hoist frames in a vise and cut off six rivet (28 & 28A) heads with a chisel and remove rivets from frames with a punch. Separate left frame (43) from right frame (48). It may be necessary to pry frames apart with a screwdriver. When frames are separated, top hook assembly (-29) will be free. Remove latch kit (31) from top hook (30) only if replacement is required.

- e. Perform procedures per paragraph 4-7 g.

f. Remove locking pawl springs (44) and locking pawl (45) from right frame (48). Remove rivet (49) and chain shedder (50). Remove sprocket shaft (32) from right frame. If replacement is required, remove stationary pins (47) from right frame.

- g. Perform procedures per paragraphs 4-7 i and j.

4-7.2 To disassemble model FGI and FTGI hoists refer to figure 5-4 and proceed as follows:

- a. Perform procedures per paragraphs 4-7 a, b and c and paragraph 4-7.1 b.

b. **NOTE:** Tag locking pawl and reverse ring springs to facilitate reassembly. Remove locking pawl springs (24, 25A & 25B) and reverse ring spring (25). Lift

reverse ring-shoulder pin assembly (26) from right frame (48). Do not disassemble reverse ring-shoulder pin assembly.

c. Clamp hoist frames in a vise and cut off six hoist frame rivet (28, 28A, & 28B) heads with a chisel and remove rivets from frames with a punch. Remove chain bushing (71) and dowel pin (72). Separate left frame (43) from right frame (48). It may be necessary to pry frames apart with a screwdriver. When frames are separated, top hook assembly (-29) will be free. Remove latch kit (31) from top hook (30) only if replacement is required.

- d. Perform procedures per paragraph 4-7 g.

e. Remove locking pawl springs (44) and locking pawls (45) from right frame (48). Remove sprocket shaft (32) from right frame. If replacement is required, remove stationary pins (47 & 47A) from right frame.

- f. Perform procedures per paragraphs 4-7 i and j.

4-7.3 To disassemble model ZG-4½ and ZG-6 hoists refer to figure 5-5 and proceed as follows:

- a. Perform procedures per paragraphs 4-7 a and b.

b. Remove two connecting links (3) by removing cotter pins and driving link pins through side plate with a punch. This will detach lug hook (4) and super assembly (-53 or -63). Turn reverse lever (41) to "Down" position while observing reverse ring stop pin (36) and reverse ring-shoulder pin assembly (26). When reverse lever is turned to "Down" position, the reverse ring stop pin should withdraw below the bottom surface of reverse ring-shoulder pin assembly. Spring tension should cause reverse ring-shoulder pin assembly to turn counterclockwise which pulls the locking pawl away from sprocket shaft. Pull chain (5) from hoist.

#### NOTE

In cases where parts are broken or deformed it may be necessary to push reverse stop pin down below surface of reverse ring-shoulder pin assembly with a punch and manually turn reverse ring-shoulder pin counterclockwise to free chain.

- c. Perform procedures per paragraphs 4-7 d and e.

d. Clamp hoist frames in a vise and cut off six hoist frame rivet (28, 28A & 28B) heads with a chisel and remove rivets from frames with a punch. Remove chain bushing (76). Separate left frame (43) from right frame (48). When frames are separated, top hook assembly (-29), idler pin (49) and sprocket and bushing assembly (-50) will be free. Remove latch kit (31) from top hook (30) only if replacement is required. If sprocket bushing (51) requires replacement, press bushing from sprocket (52).

- e. Perform procedures per paragraph 4-7 g.

f. Remove locking pawl spring (44) and locking pawl (45) from right frame (48). Remove sprocket shaft (32) from right frame. If replacement is required, remove stationary pins (47) and dowel pin (77) from right frame.



- g. Disassemble super assembly (-53) on ZG-4½ model hoists as follows:

- 1) Place super assembly (-53) in a vise and cut off rivet (54) heads with a chisel. Drive rivets out of super frames (55) with a punch.
- 2) Separate super frames (55). When frames are separated, bottom hook latch assembly (-60) will be free. Remove latch kit (62) from bottom hook (61) only if replacement is required.
- 3) Remove super frame pin (56). If sprocket bushing (58) requires replacement, press bushing from sprocket (59).

- h. Disassemble super assembly (-63) on ZG-6 model hoists as follows:

- 1) Place super assembly (-63) in a vise and cut off rivet (64) heads with a chisel. Drive rivets out of super frames (65) with a punch.
- 2) Separate super frames (65). When frames are separated, bottom hook assembly (-73) will be free. Remove latch kit (75) from bottom hook (74) only if replacement is required.
- 3) Remove super frame pins (66). If sprocket bushings (68 & 71) require replacement, press bushings from sprockets (69 & 72).

4-7.4 To disassemble model WG-9, WG-11, WG-13 and WG-15 hoists, refer to figure 5-6 and proceed as follows:

- a. Perform procedures per paragraphs 4-7 a and b.
- b. Remove two connecting links (3) by removing cotter pins and driving link pins through side plate with a punch. This will detach both ends of chain from hoist. Turn reverse lever (41) to "Down" position while observing reverse ring-shoulder pin (36) and reverse ring-shoulder pin assembly (26). When reverse lever is turned to "Down" position, the reverse ring stop pin should withdraw below the bottom surface of reverse ring-shoulder pin assembly. Spring tension should cause reverse ring-shoulder pin assembly to turn counterclockwise which pulls the locking pawl away from sprocket shaft. Pull chain (64) from hoist.

#### NOTE

In cases where parts are broken or deformed it may be necessary to push reverse ring stop pin down below surface of reverse ring-shoulder pin assembly with a punch and manually turn reverse ring-shoulder pin assembly counterclockwise to free chain.

- c. Perform procedures per paragraphs 4-7 d and e.
- d. Remove two chain bushings (45). Remove nut (31), lock washer (32), cap screw (44) and four nuts (28), lock washers (29) and cap screws (30) which attach left frame (43) to right frame (59). Separate left frame from right frame. When frames are separated, top hook assembly (-46) will be free. Remove latch kit (47) from hook (48) only if replacement is required. Remove one super frame pin (53), two super frame

shoulder pins (51), two super sprockets (52), one chain sprocket (49), and three super sprocket bushings (50). If super sprocket bushings require replacement, press bushings from sprockets.

- e. Perform procedures per paragraph 4-7 g.
- f. Remove locking pawl spring (56) and locking pawl (57) from right frame (59). If replacement is required, remove stationary pins (58) from right frame.
- g. Remove two nuts (31), lock washers (32), cap screws (60), and four nuts (28), lock washers (29) and cap screws (30) which attach left super frame (62) to right super frame (63). Separate left super frame from right super frame. When super frames are separated, bottom hook assembly (-46) will be free. Remove latch kit (47) from hook (48) only if replacement is required. Remove four super frame pins (53), super sprocket(s) (52) (one used on WG-9 and WG-13 hoists, two used on WG-11 and WG-15 model hoists), two chain sprockets (49) and super sprocket bushings (50) (three used on WG-9 and WG-13 model hoists and four on WG-11 and WG-15 model hoists). If super sprocket bushings require replacement, press bushings from sprockets. If replacement is required, remove dead end (54), master link (5) and roller link (4) on WG-9 and WG-11 model hoists.

## 4-8. Cleaning

### WARNING

Use cleaning solvent in a well-ventilated area. Avoid breathing fumes. Keep away from open flames.

Thoroughly clean all parts with an acid-free cleaning solvent. The chain should be soaked and agitated in the solvent to ensure that all joints are free from grit and foreign matter. Stubborn deposits of dirt and grease may be removed from housings and other parts by using a stiff-bristled brush dipped in the cleaning solvent.

## 4-9. Assembly

To assemble model AG, ATG, FG and FTG hoist refer to figures 5-1 and 5-2 and proceed as follows:

- a. Assemble bottom hook and swivel assembly (-51) on FG and FGI model hoist as follows:
  - 1) If latch kit (58) was removed, attach kit to bottom hook (57).
  - 2) Lubricate bottom hook shank with SAE 20-30 oil. Place bottom hook assembly (-56) in place between swivel frames (55) and attach frames together with rivets (54).
  - 3) Press chain bushing (52) into swivel frames (55).
  - 4) Refer to figure 4-12 to assemble bottom hook and swivel assembly on the AG and AGI model hoist.
- b. Assemble load block assembly (-59) on ATG, ATGI, FTG, and FTGI model hoists as follows:
  - 1) If latch kit (69) was removed, attach kit to bottom hook (68).



2) Lubricate bottom hook shank with SAE 20-30 oil. Place bottom hook assembly (-67) in place between super frames (66) and attach frames together with rivets (65).

3) If super sprocket bushing (63) was removed, press bushing into super sprocket (64).

4) Apply a coating of SAE 20-30 oil to inside diameter of super sprocket bushing (63) and to outside diameter of super sprocket pin (61). Install sprocket-bushing assembly (-62), super sprocket pin and two cotter pins (60).

c. If stationary pins (47) were removed from right frame (48), press pins in frame. Apply a coating of SAE 10 oil to locking pawl (45) shaft and insert shaft in right frame. Attach locking pawl spring (44) of locking pawl and stationary pin.

d. Assemble left frame assembly (-33) as follows:

1) On FG and FTG model hoists, assemble spring (76) to reverse lever (41) and assemble reverse lever (41) to left frame. If load sheave bearing (42A) was removed press into left frame (43).

On AG and ATG hoists, if reverse lever (41) and reverse cam (42) were removed, place reverse cam in left frame, insert reverse lever in reverse cam and rivet over end of reverse lever until lever is held firmly in place.

2) Screw rocker arm center post (40) into left frame (43) until end of post is approximately flush with outside surface of frame. The slot in post must be located at an angle to prevent binding with rocker arm (35).

3) If assembly containing reverse ring stop pin (36), rocker arm (39) and rocker arm shaft-pin assembly

(35) was disassembled, attach reverse ring stop pin and rocker arm shaft-pin assembly to rocker arm with rocker arm rivets (34). Place this assembly in position with end of shaft-pin assembly in reverse cam (42) and rocker arm in slot of rocker arm center post (40). Install rocker arm spring (38) so that the large end loop is around rocker arm center post with small end loop around rocker arm. Insert rivet (37) through the small coil of spring and through rocker center post and rocker arm. Bend end of rivet down to an angle of approximately 45 degrees. Lubricate these parts with a coating of SAE 10 oil. Actuate reverse lever (41) to ascertain that no binding of parts takes place.

e. Attach latch kit (31) to top hook (30) if kit was removed. Lubricate hook shank with SAE 20-30 oil. Lubricate bearing surfaces of sprocket shaft (32) with Duff-Norton H-7613 grease, or equivalent, and insert sprocket shaft in right frame (48). On AG and ATG model hoists, attach chain shedder (50) to right frame with rivet (49). Place top hook assembly (-29) in position between right and left frames and fit frames together while guiding reverse ring stop pin (36) into hole in right frame. On FG and FTG models install chain bushing (71) and dowel pin (72). Attach frames together with six hoist rivets (28).

f. Turn reverse lever (41) to "Down" position so that reverse ring stop pin (36) is pulled in. Apply a coating of Duff-Norton H-7613 grease, or equivalent, to mating surfaces of right frame (48) and reverse ring-shoulder

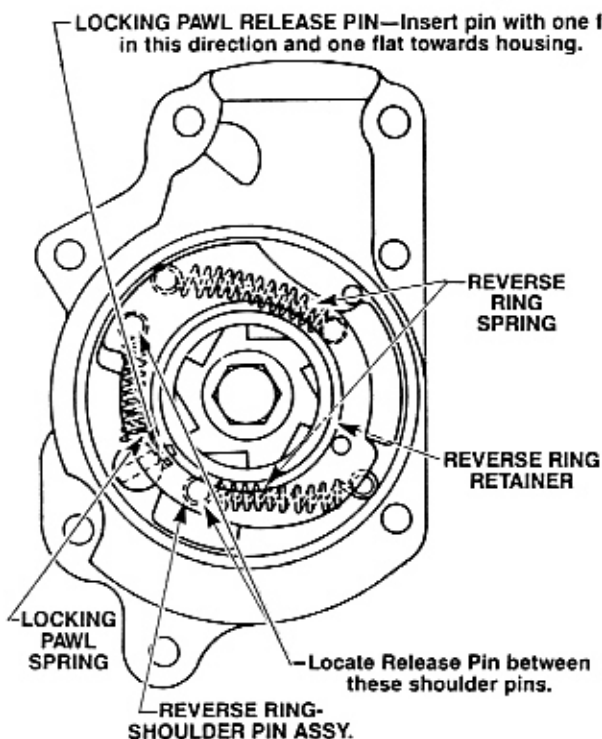


FIGURE 4-1. REVERSE RING ASSEMBLY FOR AG AND ATG HOISTS

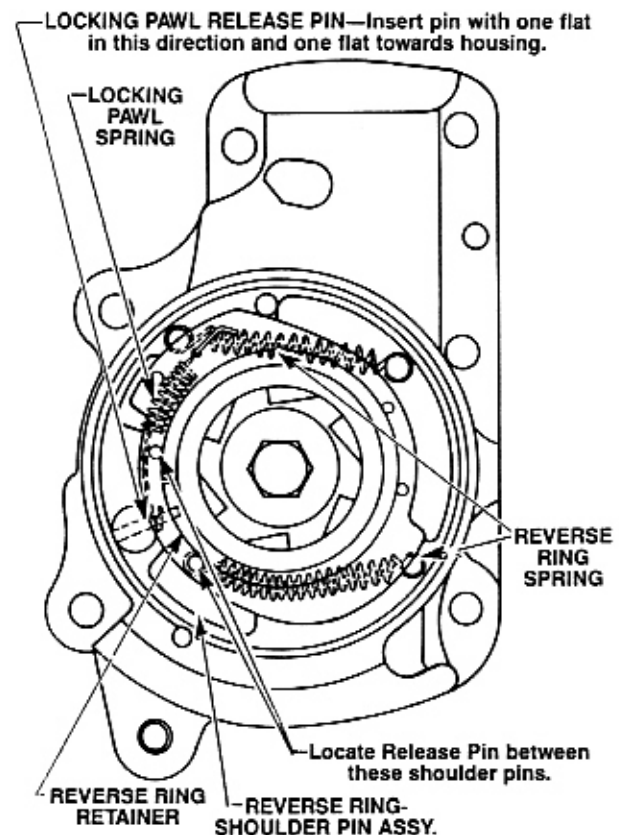


FIGURE 4-2. REVERSE RING ASSEMBLY FOR FG, FTG, WG-9, WG-11, WG-13 AND WG-15 HOISTS

pin assembly (26). Place reverse ring-shoulder pin assembly on right frame. See figure 4-1 for AG and ATG model hoists or figure 4-2 for FG and FTG model hoists. Make sure that reverse ring-shoulder pin assembly is located so that when installed, the locking pawl release pin (27) will be between the designated shoulder pins. Install reverse ring retainer (22). Line up two flats on locking pawl release pin and drive pin into locking pawl until pin is flush with the inside of locking pawl. Place end loop of locking pawl spring (24) in position and continue driving locking pawl release pin until the outside end of pin is flush with locking pawl. Connect remaining end of locking pawl spring and install two reverse ring springs (25). Apply a light coating of Duff-Norton H-7613 grease, or equivalent, to reverse ring-spring assembly (-23) and fill cavity in sprocket shaft using grease gun.

g. Refer to figure 4-3 and assemble lever assembly (-6) as follows:

- 1) Press lever bushing (12) into lever (10).
- 2) Apply a light coating of grease, Duff-Norton H-7613, or equivalent, to safety pin spring (20) and safety pin assembly (19). Place spring on safety pin assembly, insert safety pin assembly through lever (10)

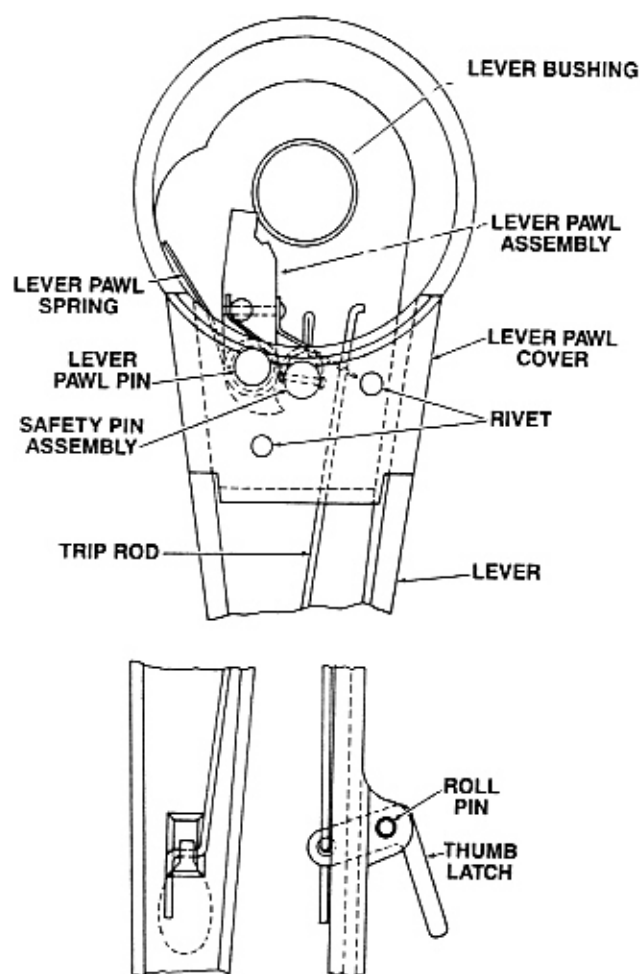


FIGURE 4-3. LEVER ASSEMBLY

and safety pin knob (18) and rivet over end of safety pin assembly.

- 3) Attach thumb latch (15) to lever (10) with roll pin (13). Insert lower end of trip rod (14) in thumb latch.
  - 4) Apply a light coating of grease, Duff-Norton H-7613 or equivalent, to lever pawl pin (21) and to hole in lever pawl assembly (17). Place lever pawl assembly so that the end of trip rod (14) goes through the outside hole in lever pawl assembly spring and the end of spring on safety pin assembly (19) goes through inside hole in lever pawl assembly spring. Insert lever pawl pin through lever pawl assembly and lever (10). Install lever pawl spring (16) on lever pawl pin with short end of spring resting on lever pawl trip pin and the long end resting on inside of lever housing.
  - 5) Attach lever pawl cover (11) to lever (10) with two rivets (7).
  - h. Press down on thumb latch (15) and install lever assembly (-6) on remainder of hoist. Install lever washer (2) and cap screw (1).
  - i. Lubricate chain (5) per paragraph 4-6. Refer to chaining diagrams, figure 4-8, and install chaining components as follows:
    - 1) Turn reverse lever (41) to "Up" position and insert chain (5) in lower end of housing as far as it will go. Operate lever (10) until approximately 12 inches of chain protrudes from the side of housing. Attach chain end lug (4) with connecting link (3) on the FG, FGI, FTG and FTGI hoist. Refer to figure 4-13 to attach chain end lug (4) to the chain (5) on the AG, AGI, ATG, and ATGI hoist.
    - 2) On FG and FGI model hoist attach bottom hook and swivel assembly (-51) with connecting link (3). On ATG, ATGI, FTG and FTGI model hoist, run chain through load block assembly (-59) and attach chain lug hook (70) with connecting link (3). Perform procedure per paragraph 4-9 a (4) for the AG and AGI hoist bottom blocks. Install connecting link (3) through left and right frames (43 & 48) and place chain lug hook in connecting link.
  - j. Assembly is now complete. Test per paragraph 2-3.
- 4-9.1 To assemble model AGI and ATGI hoists refer to figure 5-3 and proceed as follows:
- a. Perform procedures per paragraphs 4-9 a and b.
  - b. If stationary pins (47) were removed from right frame (48), press pins in frame. Apply a coating of SAE 10 oil to two locking pawl (45) shafts and insert shafts in right frame. Attach locking pawl springs (44) to locking pawls and stationary pins.
  - c. Perform procedures per paragraph 4-9 d.
  - d. Attach latch kit (31) to top hook (30) if kit was removed. Lubricate hook shank with SAE 20-30 oil. Lubricate bearing surfaces of sprocket shaft (32) with Duff-Norton H-7613 grease, or equivalent, and insert sprocket shaft in right frame (48). Attach chain shed-

der (50) to right frame with rivet (49). Place top hook assembly (-29) in position between right and left frames and fit frames together while guiding reverse ring stop pin (36) into hole in right frame. Attach frames together with six hoist rivets (28 & 28A).

- e. Turn reverse lever (41) to "Down" position so that reverse ring stop pin (36) is pulled in. Apply a coating of Duff-Norton H-7613 grease, or equivalent, to mating surfaces of right frame (48) and reverse ring-shoulder pin assembly (26). Place reverse ring shoulder pin assembly on right frame. See figure 4-4. Make sure that reverse ring-shoulder pin assembly is located so that when installed, locking pawl release pins (27) will be located as shown in figure 4-4. Install reverse ring retainer (22). Line up two flats on locking pawl release pin and drive pin into locking pawl until the outside end of pin is flush with locking pawl. Install remaining locking pawl release pin in the other locking pawl. Install reverse ring springs (24 & 25). Apply a light coating of Duff-Norton H-7613 grease, or equivalent, to reverse ring-spring assembly (-23) and fill cavity in sprocket shaft (32) with a grease gun.
- f. Perform procedures per paragraphs 4-9 g, h, and i.
- g. Assembly is now complete. Test per paragraph 2-3.

4-9.2 To assemble model FGI and FTGI hoists refer to figure 5-4 and proceed as follows:

- a. Perform procedures per paragraphs 4-9 a and b; 4-9.1 b and 4-9 d.
- b. Attach latch kit (31) to top hook (30) if kit was removed. Lubricate hook shank with SAE 20-30 oil. Lubricate bearing surfaces of sprocket shaft (32) with

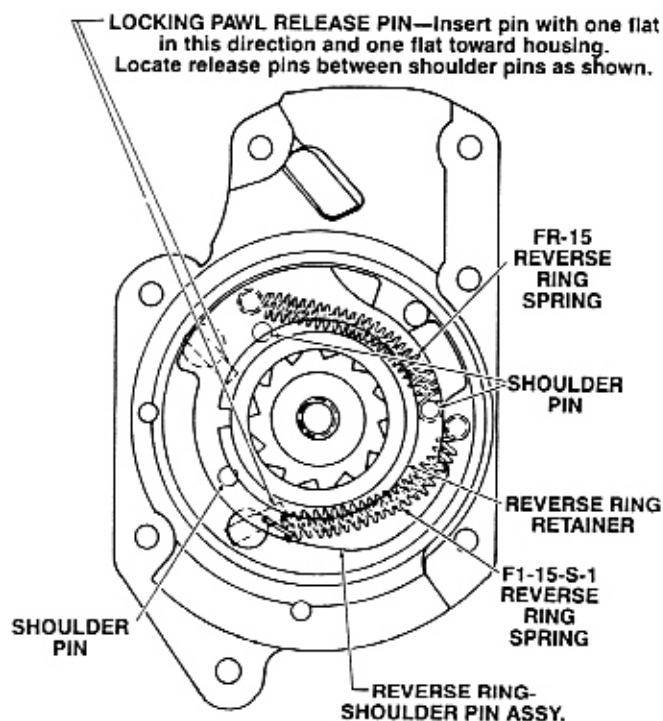


FIGURE 4-4. REVERSE RING ASSEMBLY FOR AGI AND ATGI HOISTS

Duff-Norton H-7613 grease, or equivalent, and insert sprocket shaft in right frame (48). Place top hook assembly (-29) in position between right and left frames and fit frames together while guiding reverse ring stop pin (36) into hole in right frame. Install chain bushing (71) and dowel pin (72). Attach frames together with rivets (28, 28A, & 28B).

- c. Turn reverse lever (41) to "Down" position so that reverse ring stop pin (36) is pulled in. Apply a coating of Duff-Norton H-7613 grease, or equivalent, to mating surfaces of right frame (48) and reverse ring-shoulder pin assembly (26). Place reverse ring-shoulder pin assembly on right frame. See figure 4-5. Make sure that reverse ring-shoulder pin assembly is located so that when installed, locking pawl release pins (27) will be located as shown in figure 4-5. Install reverse ring retainer (22). Line up two flats on locking pawl release pin and drive pin into locking pawl until pin is flush with the inside of locking pawl. Place end loop of locking pawl spring (24) and continue driving locking pawl release pin until the outside end of pin is flush with locking pawl. Install remaining locking pawl release pin in the other locking pawl. Install reverse ring spring (25) and locking pawl springs (24, 25A & 25B). Apply a light coating of Duff-Norton H-7613 grease, or equivalent, to reverse ring-spring assembly (-23) and fill cavity in sprocket shaft (32) with a grease gun.
- d. Perform procedures per paragraphs 4-9 g, h, and i.
- e. Assembly is now complete. Test per paragraph 2-3.

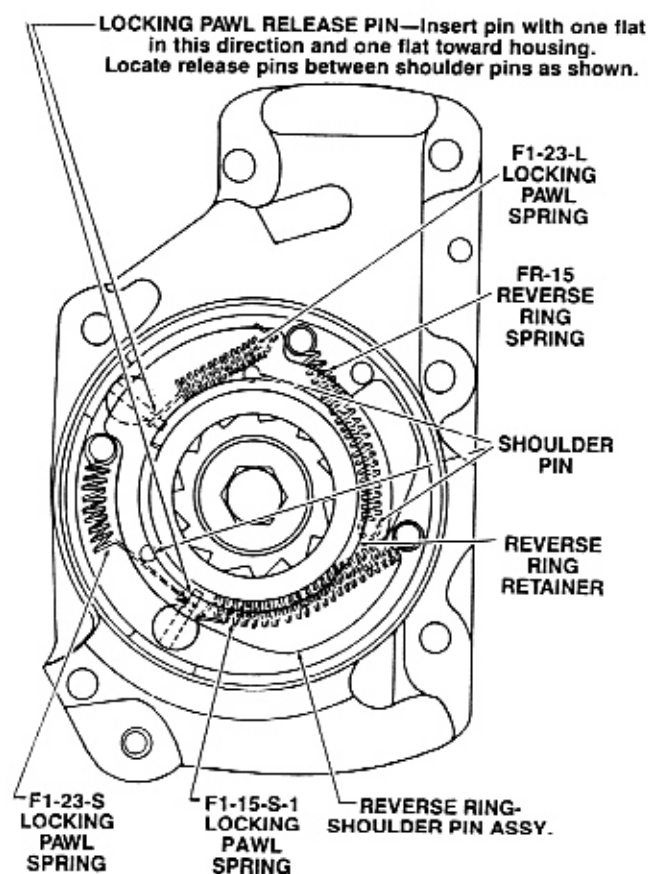


FIGURE 4-5. REVERSE RING ASSEMBLY FOR FGI AND FTGI HOISTS

4-9.3 To assemble model ZG-4½ and ZG-6 hoists refer to figure 5-4 and proceed as follows:

- a. Assemble super assembly (-53) on ZG-4½ model hoists as follows:
  - 1) If latch kit (62) was removed, attach kit to bottom hook (61). Lubricate bottom hook shank with SAE 20-30 oil.
  - 2) If sprocket bushing (58) was removed, press bushing into sprocket (59). Apply coating of Duff-Norton H-7613 grease, or equivalent, to sprocket bushing and super frame pin (56).
  - 3) Insert super frame pin (56) in sprocket-bushing assembly (-57). Place this assembly and bottom hook assembly (-60) in position between two super frames (55). Attach super frames together with two rivets (54).
- b. Assemble super assembly (-63) on ZG-6 model hoists as follows:
  - 1) If latch kit (75) was removed, attach kit to bottom hook (74). Lubricate bottom hook shank with SAE 20-30 oil.
  - 2) If sprocket bushings (68 & 71) were removed, press bushings into sprockets (69 & 72). Apply coating of Duff-Norton H-7613 grease, or equivalent, to sprocket bushings and super frame pins (66).
  - 3) Insert super frame pins (66) in sprocket-bushing assemblies (-67 & -70). Place these assemblies and bottom hook assembly (-73) in position between two super frames (65). Attach super frames together with four rivets (64).
- c. If stationary pins (47) and dowel pin (77) were removed from a right frame (48), press pins in frame. Apply a coating of SAE 10 oil to locking pawl (45) shaft and insert shaft in right frame. Attach locking pawl spring (44) to locking pawl and stationary pin.
- d. Perform procedures per paragraph 4-9 d.
- e. Attach latch kit (31) to top hook (30) if kit was removed. Lubricate hook shank with SAE 20-30 oil. Lubricate bearing surface of sprocket shaft (32) with Duff-Norton H-7613 grease, or equivalent, and insert sprocket in right frame (48). Apply a coating of Duff-Norton H-7613 grease, or equivalent, to bushing and idler pin (49). Insert idler pin through sprocket-bushing assembly (-50) and into right frame. Place top hook assembly (-29) in position between right and left frames and fit frames together while guiding reverse ring stop pin (36) into hole in right frame. Attach frames together with six hoist rivets (28, 28A & 28B).
- f. Turn reverse lever (41) to "Down" position so that reverse ring stop pin (36) is pulled in. Apply a coating of Duff-Norton H-7613 grease, or equivalent, to mating surfaces of right frame (48) and reverse ring-shoulder pin assembly (26). Place reverse ring-shoulder pin assembly on right frame. See figure 4-6. Make sure that reverse ring-shoulder pin assembly is located so that when installed, the locking pawl release pin will be between the designated shoulder pins. Install

reverse ring retainer (22). Line up two flats on locking pawl release pin and drive pin into locking pawl until pin is flush with the inside of locking pawl. Place end loop of locking pawl spring (24) in position and continue driving locking pawl release pin until the outside end of pin is flush with locking pawl. Connect remaining end of locking pawl spring and install two reverse ring springs (25). Apply a light coating of Duff-Norton H-7613 grease, or equivalent, to reverse ring-spring assembly (-23) and fill cavity in sprocket shaft (32) with a grease gun.

- g. Perform procedures per paragraphs 4-9 g and h.
- h. Lubricate chain per paragraph 4-6. Refer to chaining diagrams, figure 4-8, and install chaining components as follows:
  - 1) Turn reverse lever (41) to "Up" position and insert chain (5) in lower end of housing as far as chain will go. Operate lever (10) until approximately 18 inches of chain protrudes from the side of housing. Attach this end of chain to housing with connecting link (3).
  - 2) On model ZG-4½ hoists, reeve remaining end of chain around sprocket in super assembly (-53) and up and around sprocket (52). Attach chain lug hook (4) to end of chain with connecting link (3). Attach connecting link to super assembly and hook the chain lug hook to this connecting link.

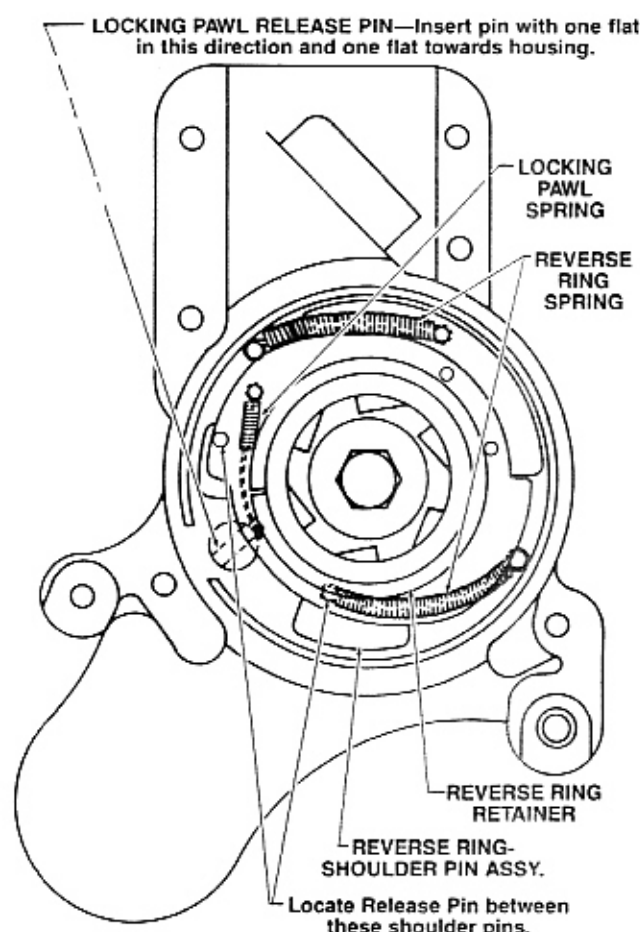


FIGURE 4-6. REVERSE RING ASSEMBLY FOR ZG-4½ AND ZG-6 HOISTS



3) On model ZG-6 hoists, reeve remaining end of chain around lower sprocket in super assembly (-63), up and around sprocket (52), down and around upper sprocket in super assembly. Attach chain lug hook (4) to end of chain with connecting link (3). Attach connecting link to frames and hook the chain lug hook to this connecting link.

i. Assembly is now complete. Test per paragraph 2-3.

4-9.4 To assemble model WG-9, WG-11, WG-13 and WG-15 hoists refer to figure 5-6 and proceed as follows:

a. If latch kits (47) were removed from hooks (48), attach latch kits to hooks.

b. Perform procedures per paragraphs 4-9 d and g.

c. If stationary pins (58) were removed from right frame (59), press pins in frame. Apply a coating of SAE 10 oil to locking pawl (57) shaft and insert shaft in right frame. Attach locking pawl spring (56) to locking pawl and stationary pin.

d. Attach dead end (54) to chain (64) with master link (5), roller link (4) and connecting link (3) on WG-9 and WG-11 model hoists.

e. If super sprocket bushings (50) were removed, press bushings in chain sprockets (49) and super sprockets (52).

f. Place left frame assembly (-33) and left super frame (62) approximately two feet apart on a work table. Apply a coating of Duff-Norton H-7613 grease, or

equivalent, to super sprocket bushings (50), super frame shoulder pins (51) and super frame pins (53). Install chain sprockets (49) and super sprockets (52) on pins. Apply a coating of Duff-Norton H-7613 grease, or equivalent, to bearing surfaces of sprocket shaft (55). Insert sprocket shaft in left frame. Install two cap screws (60) in left frame and place super frame spacers (61) on screws.

g. Reeve chain (64) around sprockets as shown in figure 4-8, Chaining Diagrams.

h. Place hook assemblies (-46) in place on left frame (43) and left super frame (62). Fit right frame (59) on left frame while guiding reverse ring stop pin (36) into hole in right frame. Fit right super frame (63) on left super frame. Press two chain bushings (45) into left and right frames. Attach left and right frames together with cap screws (30), lock washers (29), nuts (28), cap screw (44), lock washer (32) and nut (31). Attach left and right super frames together with cap screws (30), lock washers (29), nuts (28), cap screws (60), lock washers (32) and nuts (31).

i. Attach upper end of chain (64) to frames with connecting link (3) on model WG-9 and WG-13 hoists. Attach both ends of chain to frames with connecting links (3) on WG-11 and WG-15 model hoists.

j. Perform procedures per paragraphs 4-9 f and h.

k. Assembly is now complete. Test per paragraph 2-3.

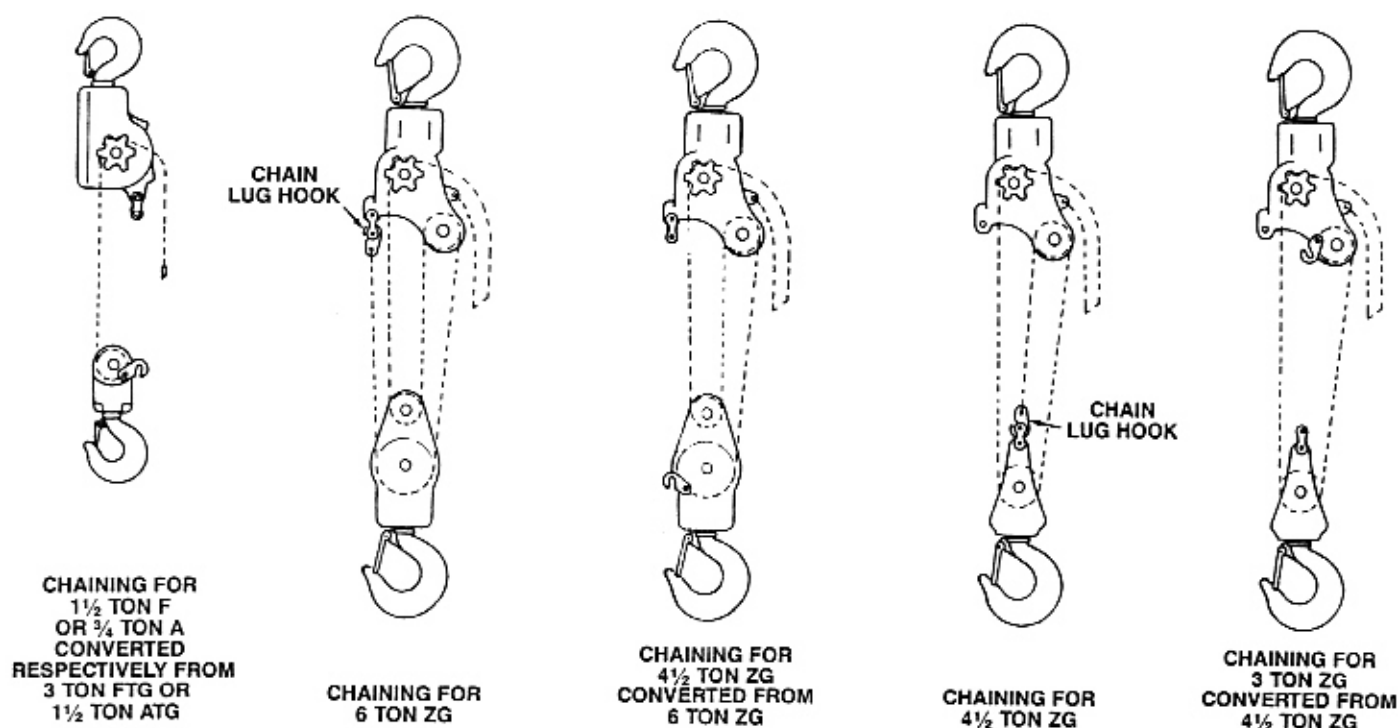
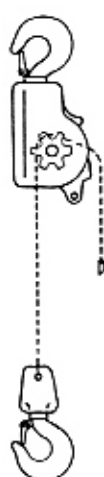
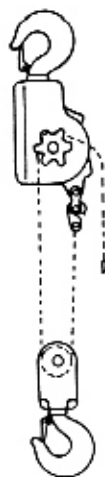


FIGURE 4-7. ILLUSTRATION OF CONVERTIBLE FEATURE

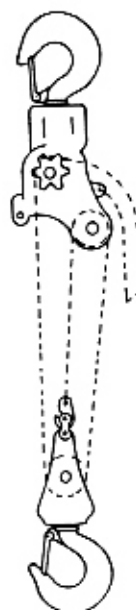




AG, AGI,  
FG & FGI



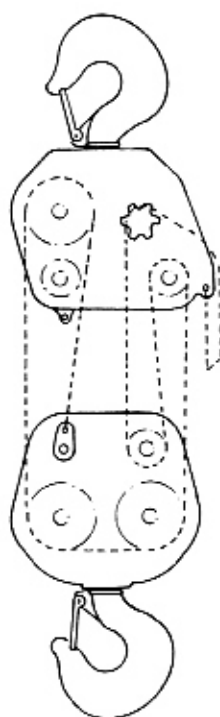
ATG, ATGI,  
FTG & FTGI



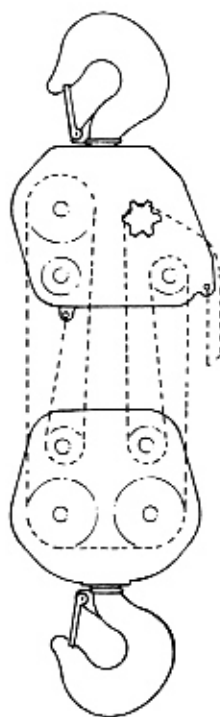
ZG-4 1/2



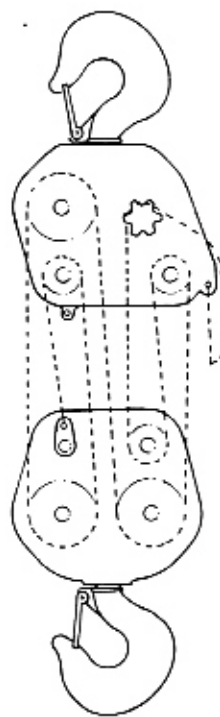
ZG-6



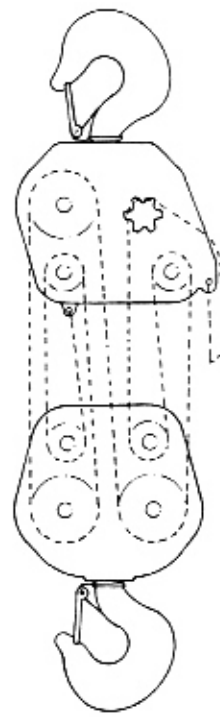
WG-9



WG-11



WG-13



WG-15

FIGURE 4-8. CHAINING DIAGRAMS

<b>INSPECTION AND MAINTENANCE CHECK LIST</b> <b>LEVER OPERATED CHAIN HOIST</b>						
TYPE OF HOIST _____			CAPACITY _____			
LOCATION _____			ORIGINAL USE DATE _____			
MANUFACTURER _____			MANUFACTURER'S SERIAL NO. _____			
ITEM	FREQUENCY OF INSPECTION			POSSIBLE DEFICIENCIES	OK	ACTION REQUIRED
	FREQUENT		PERIODIC			
	DAILY	MONTHLY	1-12 MO			
Operating Mechanisms (Lever, Control Lever, Thumb Latch)	•	•	•	Any deficiency causing improper operation		
Load Chain	•	•	•	Inadequate lubrication, excessive wear or stretch, cracked, spread or twisted links, corrosion or foreign substance		
Hooks	•	•	•	Excessive throat opening, bent or twisted more than 10 degrees, damaged hook latch, wear, chemical damage, worn hook bearing. Cracks (use dye penetrant, magnetic particle or other suitable detection method)		
Lever Parts: Lever Trip Rod Pawl Trip Pin Release Spring and Pawl Spring Bushing	• •	• •	• • • • • •	Bends, cracks Straightness, ability to move pawl Wear, binding Bends, excessive wear Deformation, breaks, corrosion  Excessive wear, scoring		
Sprocket, Sprocket Shaft, Chain Attachments			• •	Distortion, cracks, worn or broken teeth, damaged threads		
Reverse Ring- Shoulder Pin Assy.			•	Excessive wear, loose or missing pins		
Frames, Swivels			•	Cracks, distortion, excessive wear		
Locking Pawl			•	Excessive wear, binding		
Reverse Springs, Locking Pawl Springs			•	Deformation, breaks, corrosion		
Pins, Bolts, Rivets			•	Looseness, stripped and damaged threads, corrosion		
Warning Label			•	Missing, damaged or illegible		
NOTE: Refer to Maintenance and Inspection Sections of the Hoist Maintenance Manual for further details.						
<b>FREQUENCY OF INSPECTION:</b>  Frequent—Indicates items requiring inspection daily to monthly. Daily inspections may be performed by the operator if properly designated.  Periodic—Indicates items requiring inspection monthly to yearly. Inspections to be performed by or under the direction of a properly designated person. The exact period of inspection will depend on frequency and type of usage. Determination of this period will be based on the user's experience. It is recommended that the user begin with a monthly inspection and extend the periods to quarterly, semi-annually or annually based on his monthly experience.						

**FIGURE 4-9. INSPECTION AND MAINTENANCE CHECKLIST**



## ASSEMBLY INSTRUCTIONS

1. Place chain in bottom block so that:
  - a. Swivel half lug fits into second link of chain.
  - b. Swivel screw passes through first link of chain.
2. Place bottom hook in swivel half.
3. Secure bottom blocks, hook and chain by tightening swivel screw and nut.

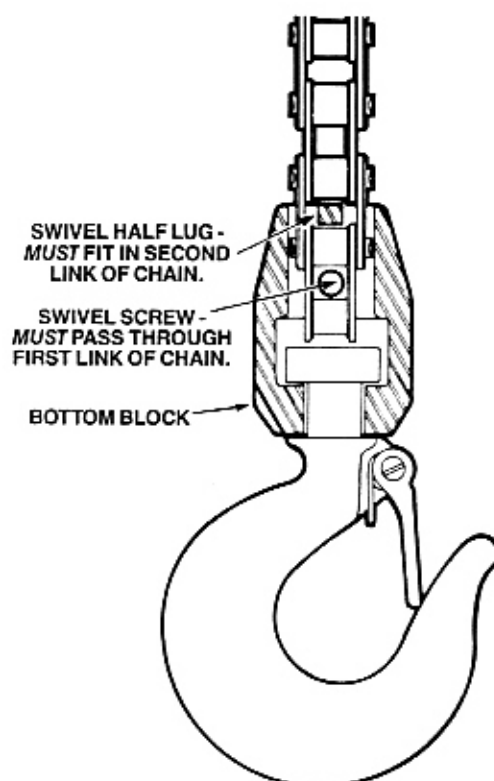


FIGURE 4-12. ASSEMBLY ILLUSTRATION - G SERIES  
BOTTOM BLOCKS TO ROLLER CHAIN

## ASSEMBLY INSTRUCTIONS

1. Insert the open chain end lug through the second link of the roller chain so that it will encircle the last two rollers (A).
2. Close chain end lug around the last two chain rollers so that both rollers are inside the closed lug (B).

### NOTE

Assemble the chain end lug to the roller (load) chain so that the split in the lug is facing **away** from the sprocket.

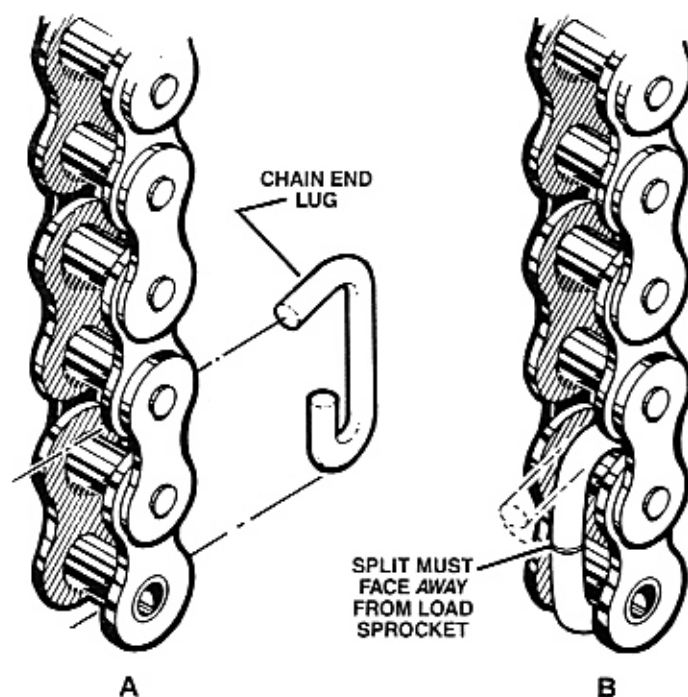


FIGURE 4-13. ASSEMBLY ILLUSTRATION -  
CHAIN END LUG TO ROLLER CHAIN

## SECTION V

### ILLUSTRATED PARTS LISTS

#### **5-1. General**

Exploded illustrations of the Model G Hoists follow. The number adjacent to each part is the index number.

Keyed to this index number on the following page is the part name and quantity required.



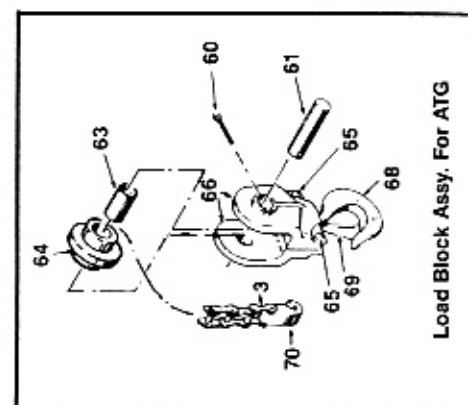
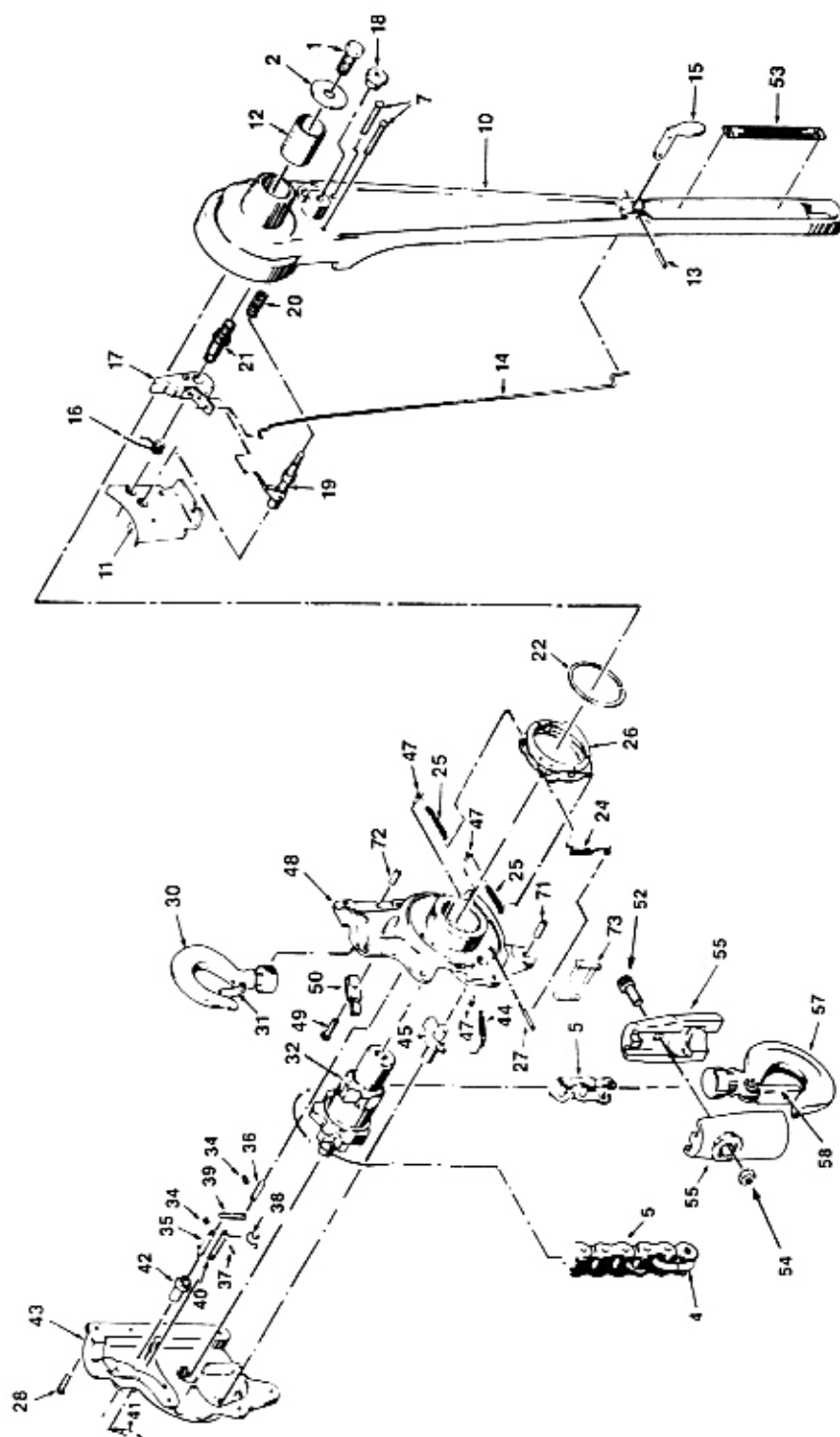


FIGURE 5-1. EXPLODED ILLUSTRATION OF AG AND ATG MODEL HOISTS

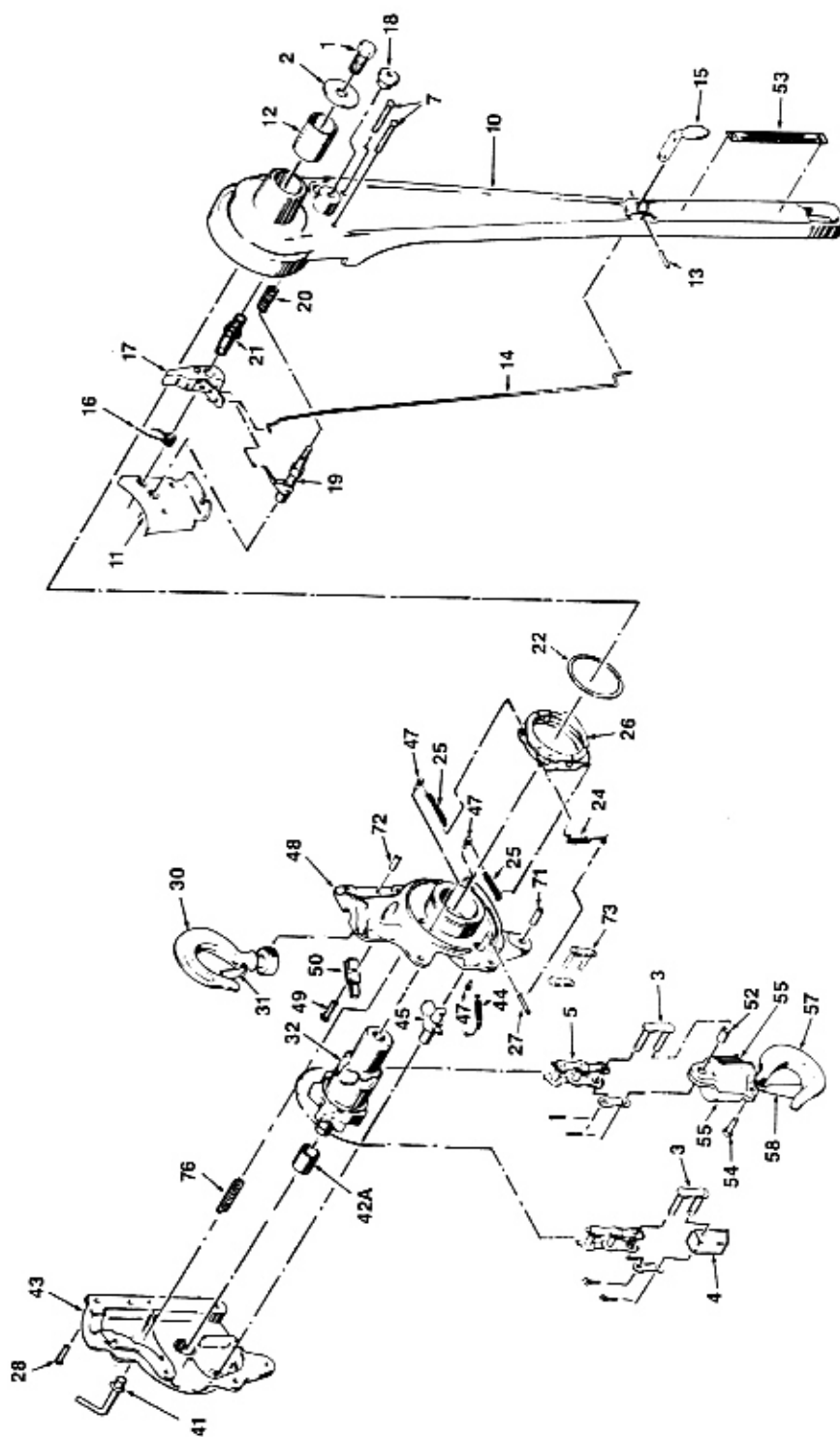
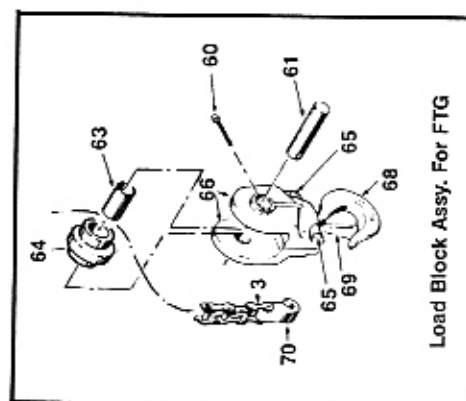


FIGURE 5-2. EXPLODED ILLUSTRATION OF FG AND FTG MODEL HOISTS



# Parts List for AG, ATG, FG and FTG Model Hoists

INDEX NO.	PART NAME	QTY. REQ.	AG PART NO.	ATG PART NO.	FG PART NO.	FTG PART NO.
1	Lever Cap Screw	1	H-2413	H-2413	H-2414	H-2414
2	Lever Washer	1	A-17	F-17	F-17	F-17
3	Connecting Link	2	A-19-A	F-19-A	F-19-A	F-19-A
4	Chain End Lag	1	H-7596	F-19-B	F-19-B	F-19-B
5	Chain	1	A-19(5')	F-19(5')	F-19(5')	F-19(10')
6	Lever Assembly, Complete (Consists of Index Nos. 7 thru 21)	1	AAAA-1	AAAA-1	ZZZZ-1	ZZZZ-1
7	Rivet	2	H-4558	H-4558	H-4552	H-4552
8	Lever-Bushing Assembly (Consists of Index Nos. 9 thru 12)	1	AAA-1	AAA-1	ZZZ-1	ZZZ-1
9	Lever-Pawl Cover Assembly (Consists of Index Nos. 10 & 11)	1	AA-1	AA-1	ZZ-1	ZZ-1
10	Lever	1	A-1	Z-1	Z-1	Z-1
11	Lever Pawl Cover	1	A-7-RP	F-7-RP	F-7-RP	F-7-RP
12	Lever Bushing	1	A-1-A	F-1-A	F-1-A	F-1-A
13	Roll Pin	1	H-5233	H-5233	H-5233	H-5233
14	Trip Rod	1	A-2	F-2	F-2	F-2
15	Thumb Latch	1	A-2-A	A-2-A	A-2-A	A-2-A
16	Lever Pawl Spring	1	ARR-5	FR-5	FR-5	FR-5
17	Lever Pawl Assembly	1	AAA-4	FFF-4	FFF-4	FFF-4
18	Safety Pin Knob	1	A-7-C	A-7-C	A-7-C	A-7-C
19	Safety Pin Assembly	1	AA-7-A	FF-7-A	FF-7-A	FF-7-A
20	Safety Pin Spring	1	A-7-B	A-7-B	A-7-B	A-7-B
21	Lever Pawl Pin	1	A-6	F-6	F-6	F-6
22	Reverse Ring Retainer	1	A-14	F-14	F-14	F-14
23	Reverse Ring-Spring Assembly (Consists of Index Nos. 24 thru 26)	1	AAAG-10	FFFG-10	FFFG-10	FFFG-10
24	Locking Pawl Spring	1	AR-23	FR-23	FR-23	FR-23
25	Reverse Ring Spring	2	ARR-15	FR-15	FR-15	FR-15
26	Reverse Ring-Shoulder Pin Assembly	1	AAG-10	FFG-10	FFG-10	FFG-10
27	Locking Pawl Release Pin	1	A-24	F-24	F-24	F-24
28	Hoist Frame Rivet	6	H-4559	H-4559	H-4561	H-4561
29	Top Hook Assembly (Consists of Index Nos. 30 & 31)	1	3K8S	3K8S	3K9S	3K9S
30	Top Hook	1	3K8	3K8	3K9	3K9
31	Latch Kit	1	H-7540	H-7540	H-7540	H-7540
32	Sprocket Shaft	1	A-16	F-16	F-16	F-16
33	Left Frame Assembly (Consists of Index Nos. 34 thru 43)	1	AAG-11	AAG-11	AAG-11	AAG-11
34	Rocker Arm Rivet	2	H-4893	H-4893	H-4893	H-4893
35	Rocker Arm Shaft-Pin Assembly	1	AAA-36-1	AAA-36-1	AAA-36-1	AAA-36-1
36	Reverse Ring Stop Pin	1	A-38	A-38	A-38	A-38
37	Rivet	1	H-4504	H-4504	H-4504	H-4504
38	Rocker Arm Spring	1	AR-32-1	AR-32-1	AR-32-1	AR-32-1
39	Rocker Arm	1	A-35	A-35	A-35	A-35
40	Rocker Arm Center Post	1	A-37	A-37	A-37	A-37

\*Assembly not included on illustration.

INDEX NO.	PART NAME	QTY. REQ.	AG PART NO.	ATG PART NO.	FG PART NO.	FTG PART NO.
41	Reverse Lever	1	A-12-G	A-12-G	F-12-D	F-12-D
42	Reverse Cam	1	A-12-C	A-12-C	F-530	F-530
42A	Load Sheave Bushing	1	AG-11	AG-11	FG-11-2	FG-11-2
43	Left Frame	1	AR-22-1R	AR-22-1R	AR-22-1R	AR-22-1R
44	Locking Pawl Spring	1	A-25	A-25	F-25	F-25
45	Locking Pawl	1	AAG-18	AAG-18	FFG-18-1	FFG-18-1
46	Right Frame Assembly (Consists of Index Nos. 47 & 48)	3	A-18-A	A-18-A	A-18-A	A-18-A
47	Stationary Pin	1	AG-18	AG-18	FG-18-1	FG-18-1
48	Right Frame	1	H-4505	H-4505	H-4505	H-4505
49	Rivet	1	A-33	A-33	A-33	A-33
50	Chain Shoulder	1	AG-20-1K	AG-20-1K	FG-13-1	FG-13-1
51	Bottom Hook & Swivel Assembly (Consists of Index Nos. 52 & 54 thru 58)	1	687K6	687K6	687K6	687K6
52	Chain Bushing	1	AG-20	AG-20	H-4561	H-4561
53	Warning Decal	1	3K8S	3K8S	3K9	3K9
54	Rivet	2	H-7540	H-7540	H-7540	H-7540
55	Swivel Frame	2	AG-914-1	AG-914-1	FG-914-1	FG-914-1
56	Bottom Hook Assembly (Consists of Index Nos. 57 & 58)	1	H-5029	H-5029	S-2-19	S-2-19
57	Bottom Hook	1	HJ-28-A	HJ-28-A	F-28-A-1	F-28-A-1
58	Latch Kit	1	HHJ-28	HHJ-28	FF-28	FF-28
59	Load Block Assembly (Consists of Index Nos. 60 thru 69)	1	HJ-16-B	HJ-16-B	A-28-B	A-28-B
60	Cotter Pin	2	HJ-28	HJ-28	F-28-1	F-28-1
61	Super Sprocket Pin	1	H-4562	H-4562	H-4551	H-4551
62	Sprocket-Bushing Assembly (Consists of Index Nos. 63 & 64)	1	HJ-30	HJ-30	HJ-130	HJ-130
63	Super Sprocket Bushing	1	3K8S	3K8S	3K9S	3K9S
64	Super Sprocket	1	3K8	3K8	3K9	3K9
65	Rivet	2	A-40	A-40	H-7540	H-7540
66	Super Frame	2	F-19-C	F-19-C	H-5258	H-5258
67	Bottom Hook Assembly (Consists of Index Nos. 68 & 69)	1	A-19-G	A-19-G	F-19-A	F-19-A
68	Bottom Hook	1	JF-700	JF-700	34013	34013
69	Latch Kit	1	H-3472-P	H-3472-P		
70	Chain Lug Hook	1				
71	Chain Bushing	1				
72	Dowel Pin	1				
73	Connecting Link	1				
74	Swivel Screw	1				
75	Nut	1				
76	Spring	1				

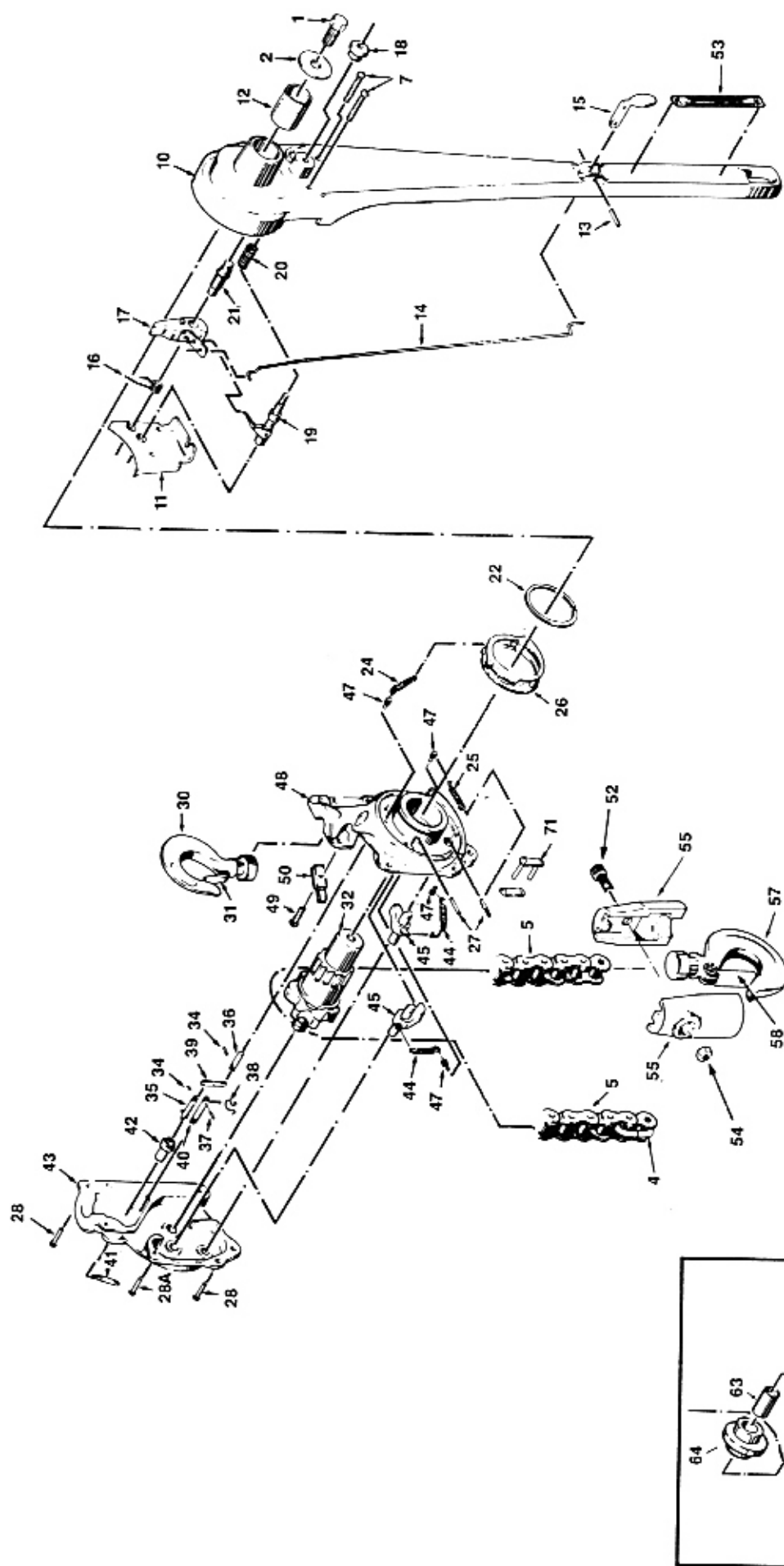


FIGURE 5-3. EXPLODED ILLUSTRATION OF AGI AND ATGI MODEL HOISTS

# Parts List for AGI and ATGI Model Hoists

INDEX NO.	PART NAME	QTY. REQ.	AGI PART NO.	ATGI PART NO.
1	Lever Cap Screw	1	H-2413	H-2413
2	Lever Washer	1	A-17	A-17
3	Connecting Link	1	H-7596	A-19-A
4	Chain End Lug	1	A-19 (5')	H-7596
5	Chain	1	A-19 (10')	A-19 (10')
6	Lever Assembly, Complete (Consists of Index Nos. 7 thru 21)	1	AAAA-1-1	AAAA-1-1
7	Rivet	2	H-4558	H-4558
8	Lever-Bushing Assembly (Consists of Index Nos. 9 thru 11)	1	AAA-1	AAA-1
9	Lever-Pawl Cover Assembly (Consists of Index Nos. 10 & 11)	1	AA-1	AA-1
10	Lever	1	A-1	A-1
11	Lever Pawl Cover	1	A-7-RP	A-7-RP
12	Lever Bushing	1	A-1-A	A-1-A
13	Roll Pin	1	H-5233	H-5233
14	Trip Rod	1	A-2	A-2
15	Thumb Latch	1	A-2-A	A-2-A
16	Lever Pawl Spring	1	ARR-5	ARR-5
17	Lever Pawl Assembly	1	AAA-4-1	AAA-4-1
18	Safety Pin Knob	1	A-7-C	A-7-C
19	Safety Pin Assembly	1	AA-7-A	AA-7-A
20	Safety Pin Spring	1	A-7-B	A-7-B
21	Lever Pawl Pin	1	A-6	A-6
22	Reverse Ring Retainer	1	A-14	A-14
23	Reverse Ring-Spring Assembly (Consists of Index Nos. 24 thru 26)	1	AAAP1-10	AAAP1-10
24	Reverse Ring Spring	1	FR-15	FR-15
25	Reverse Ring Spring	1	FI-15-S-1	FI-15-S-1
26	Reverse Ring-Shoulder Pin Assembly	1	AAPI-10	AAPI-10
27	Locking Pawl Release Pin	2	A-24	A-24
28	Hoist Frame Rivet	4	H-4560	H-4560
28A	Hoist Frame Rivet	2	H-4551	H-4551
29	Top Hook Assembly (Consists of Index Nos. 30 & 31)	1	3K8S	3K8S
30	Top Hook	1	3K8	3K8
31	Latch Kit	1	H-7540	H-7540
32	Sprocket Shaft	1	A-16-A	A-16-A
33	Left Frame Assembly (Consists of Index Nos. 34 thru 43)	1	AAPI-11	AAPI-11
34	Rocker Arm Rivet	2	H-4893	H-4893
35	Rocker Arm Shaft-Pin Assembly	1	AAA-36-1	AAA-36-1
36	Reverse Ring Stop Pin	1	A-38	A-38
37	Rivet	1	H-4504	H-4504
38	Rocker Arm Spring	1	AR-32-1	AR-32-1
39	Rocker Arm	1	A-35	A-35
40	Rocker Arm Center Post	1	A-37	A-37

\*Assembly not indexed on illustrations.

INDEX NO.	PART NAME	QTY. REQ.	AGI PART NO.	ATGI PART NO.
41	Reverse Lever	1	A-12-G	A-12-G
42	Reverse Cam	1	A-12-C	A-12-C
43	Left Frame	1	ANI-11	ANI-11
44	Locking Pawl Spring	2	AI-22	AI-22
45	Locking Pawl	2	A-25	A-25
46	Right Frame Assembly (Consists of Index Nos. 47 thru 48)	1	AAPI-18	AAPI-18
47	Stationary Pin	4	A-18-A	A-18-A
48	Right Frame	1	API-18	API-18
49	Rivet	1	H-4505	H-4505
50	Chain Shedder	1	A-33	A-33
51	Bottom Hook & Swivel Assembly	1	AG-20-1-K	
52	Swivel Screw	1	JF-700	687K6
53	Warning Decal	1	687K6	
54	Nut	1	H-3472-P	
55	Swivel Frame	2	AG-20	
56	Bottom Hook Assembly (Consists of Index Nos. 57 & 58)	1	3K8S	
57	Bottom Hook	1	3K8	
58	Latch Kit	1	H-7540	
59	Load Block Assembly (Consists of Index Nos. 60 thru 69)	1		
60	Cotter Pin	2		
61	Super Sprocket Pin	1		
62	Sprocket-Bushing Assembly (Consists of Index Nos. 63 & 64)	1		
63	Super Sprocket Bushing	1		
64	Super Sprocket	1		
65	Rivet	2		
66	Super Frame	2		
67	Bottom Hook Assembly	1		
68	Bottom Hook	1		
69	Latch Kit	1		
70	Chain Lug Hook	1		
71	Connecting Link	1		



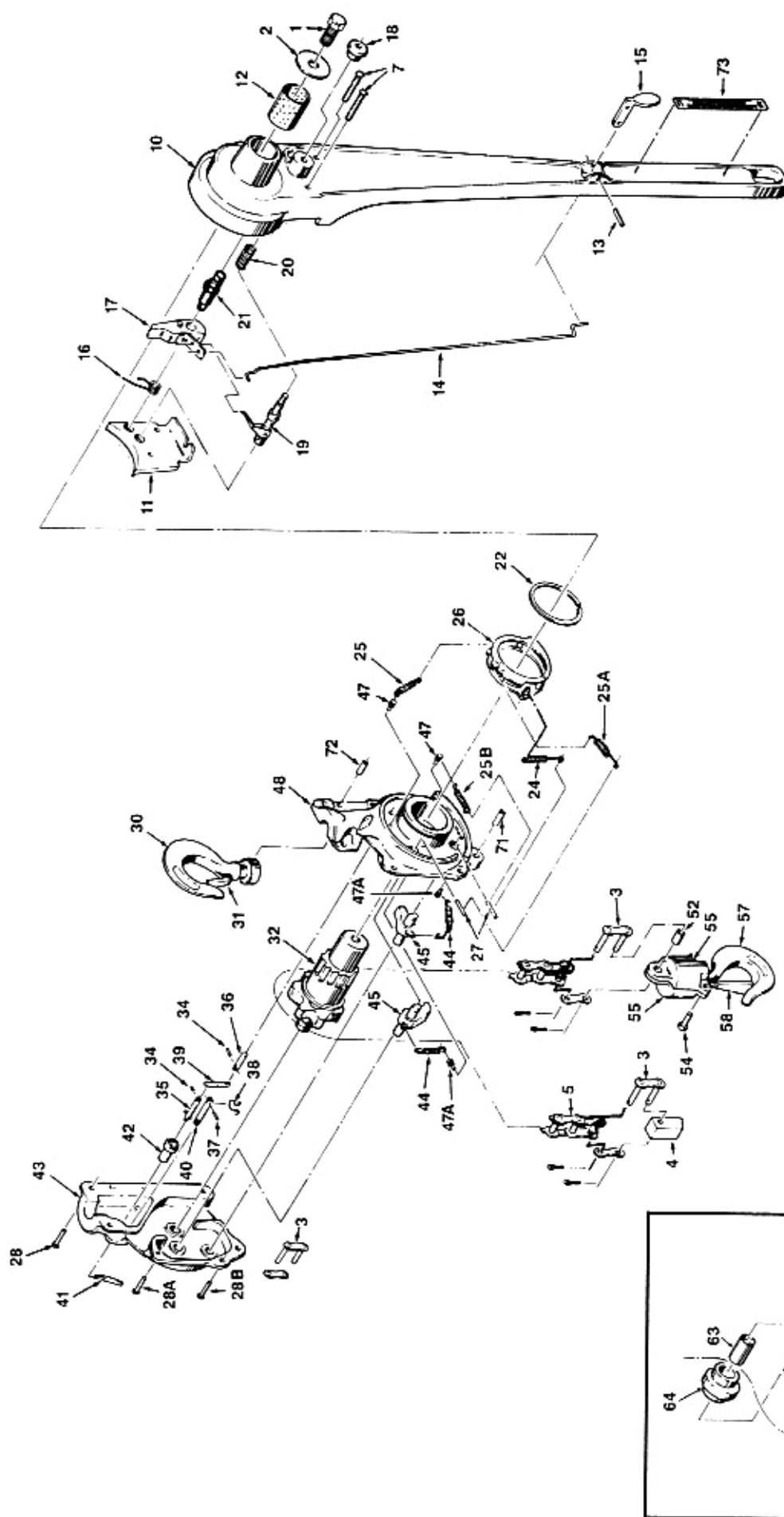


FIGURE 5-4. EXPLODED ILLUSTRATION OF FGI AND FTGI MODEL HOISTS

# Parts List for FGI and FTGI Model Hoists

INDEX NO.	PART NAME	QTY. REQ.	FGI PART NO.	FTGI PART NO.
1	Lever Cap Screw	1	H-2414	H-2414
2	Lever Washer	1	F-17	F-17
3	Connecting Link	2	F-19-A	F-19-A
4	Chain End Lug	1	F-19-B	F-19-B
5	Chain	1	F-19 (5')	F-19 (10')
-6	Lever Assembly, Complete (Consists of Index Nos. 7 thru 21)	1	ZZZZ-1-1	ZZZZ-1-1
7	Rivet	2	H-4552	H-4552
-8	Lever-Bushing Assembly (Consists of Index Nos. 9 thru 11)	1	ZZZ-1	ZZZ-1
-9	Lever-Pawl Cover Assembly (Consists of Index Nos. 10 & 11)	1	ZZ-1	ZZ-1
10	Lever	1	Z-1	Z-1
11	Lever Pawl Cover	1	F-7-RP	F-7-RP
12	Lever Bushing	1	F-1-A	F-1-A
13	Roll Pin	1	H-5233	H-5233
14	Trip Rod	1	F-2	F-2
15	Thumb Latch	1	A-2-A	A-2-A
16	Lever Pawl Spring	1	FR-5	FR-5
17	Lever Pawl Assembly	1	FFF-4-1	FFF-4-1
18	Safety Pin Knob	1	A-7-C	A-7-C
19	Safety Pin Assembly	1	FF-7-A	FF-7-A
20	Safety Pin Spring	1	A-7-B	A-7-B
21	Lever Pawl Pin	1	F-6	F-6
22	Reverse Ring Retainer	1	F-14	F-14
23	Reverse Ring-Spring Assembly (Consists of Index Nos. 24 thru 26)	1	FFFGI-10	FFFGI-10
24	Locking Pawl Spring	1	FI-23-S	FI-23-S
25	Reverse Ring Spring	1	FR-15	FR-15
25A	Locking Pawl Spring	1	FI-23-L	FI-23-L
25B	Locking Pawl Spring	1	FI-15-S-1	FI-15-S-1
26	Reverse Ring-Shoulder Pin Assembly	1	FFGI-10	FFGI-10
27	Locking Pawl Release Pin	2	F-24	F-24
28	Hoist Frame Rivet	4	H-4560	H-4560
28A	Hoist Frame Rivet	1	H-4562	H-4562
28B	Hoist Frame Rivet	1	H-4580	H-4580
-29	Top Hook Assembly (Consists of Index Nos. 30 & 31)	1	3K9S	3K9S
30	Top Hook	1	3K9	3K9
31	Latch Kit	1	H-7540	H-7540
32	Sprocket Shaft	1	F-16-A	F-16-A
-33	Left Frame Assembly (Consists of Index Nos. 34 thru 43)	1	FFGI-11	FFGI-11
34	Rocker Arm Rivet	2	H-4893	H-4893
35	Rocker Arm Shaft-Pin Assembly	1	FFF-36-1	FFF-36-1

-Assembly not indexed on illustration

INDEX NO.	PART NAME	QTY. REQ.	FGI PART NO.	FTGI PART NO.
36	Reverse Ring Stop Pin	1	F-38	F-38
37	Rivet	1	H-4504	H-4504
38	Rocker Arm Spring	1	AR-32-1	AR-32-1
39	Rocker Arm	1	A-35	A-35
40	Rocker Arm Center Post	1	F-37	F-37
41	Reverse Lever	1	A-12-G	A-12-G
42	Reverse Cam	1	A-12-C	A-12-C
43	Left Frame	1	FGI-11	FGI-11
44	Locking Pawl Spring	2	AR-22-2-R	AR-22-2-R
45	Locking Pawl	2	F-25	F-25
-46	Right Frame Assembly (Consists of Index Nos. 47 & 48)	1	FFGI-18	FFGI-18
47	Stationary Pin	2	A-18-A	A-18-A
47A	Stationary Pin	2	A-18-B	A-18-B
48	Right Frame	1	FGI-18	FGI-18
-51	Bottom Hook & Swivel Assembly (Consists of Index Nos. 52 thru 58)	1	FG-913-1	FG-913-1
52	Chain Bushing	1	F-19-C	F-19-C
-53	Swivel Assembly (Consists of Index Nos. 54 thru 58)	1	FG-913-1	FG-913-1
54	Rivet	2	H-4561	H-4561
55	Swivel Frame	2	11U-120	11U-120
-56	Bottom Hook Assembly (Consists of Index Nos. 57 & 58)	1	3K9S	3K9S
57	Bottom Hook	1	3K9	3K9
58	Latch Kit	1	H-7540	H-7540
-59	Load Block Assembly (Consists of Index Nos. 60 thru 69)	1	FG-914-1	FG-914-1
60	Cutter Pin	2	S-2-19	S-2-19
61	Super Sprocket Pin	1	F-28-A-1	F-28-A-1
-62	Sprocket-Bushing Assembly (Consists of Index Nos. 63 & 64)	1	FF-28	FF-28
63	Super Sprocket Bushing	1	A-28-B	A-28-B
64	Super Sprocket	1	F-28-1	F-28-1
65	Rivet	2	H-4551	H-4551
66	Super Frame	2	HJ-130	HJ-130
-67	Bottom Hook Assembly	1	3K9S	3K9S
68	Bottom Hook	1	3K9	3K9
69	Latch Kit	1	H-7540	H-7540
70	Chain Lug Hook	1	F-40	F-40
71	Chain Lug Bushing	1	F-19-C	F-19-C
72	Dowel Pin	1	H-5258	H-5258
73	Warning Decal	1	687K6	687K6

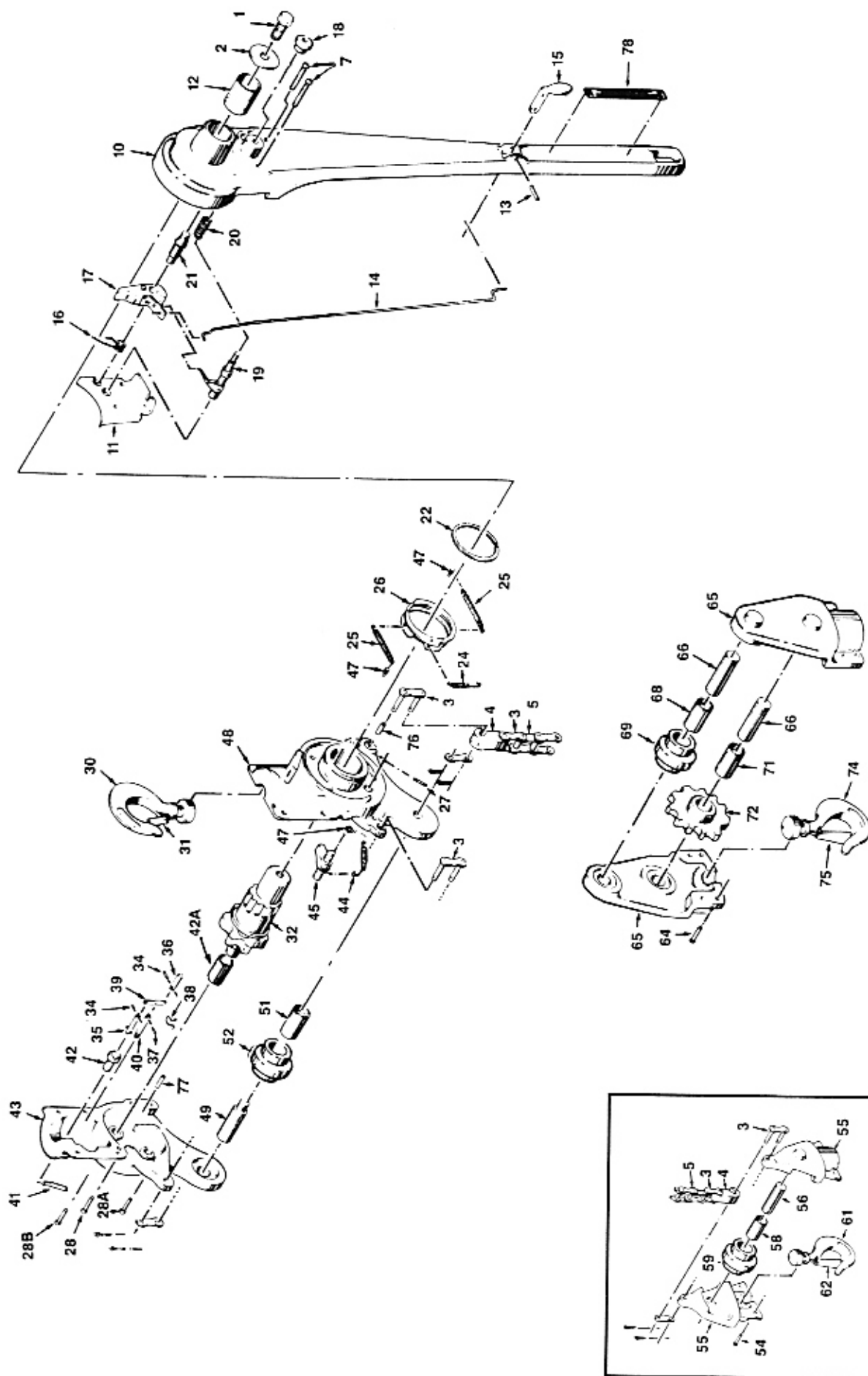


FIGURE 5-5. EXPLODED ILLUSTRATION OF ZG-4½ AND ZG-6 MODEL HOISTS

# Parts List for ZG-4½ and ZG-6 Model Hoists

INDEX NO.	PART NAME	QTY. REQ.	ZG-4½ PART NO.	ZG-6 PART NO.
1	Lever Cap Screw	1	H-2414	H-2414
2	Lever Washer	1	F-17	F-17
3	Connecting Link	3	F-19-A	F-19-A
4	Chain Lug Hook	1	F-40	F-40
5	Chain	1	F-19 (15')	F-19 (20')
-6	Lever Assembly, Complete (Consists of Index Nos. 7 thru 21)	1	PPP-1-1	PPP-1-1
7	Rivet	2	H-4552	H-4552
-8	Lever-Bushing Assembly (Consists of Index Nos. 9 thru 12)	1	PPP-1-1	PPP-1-1
-9	Lever-Pawl Cover Assembly (Consists of Index Nos. 10 & 11)	1	PPP-1-1	PPP-1-1
10	Lever	1	P-1-1	P-1-1
11	Lever Pawl Cover	1	F-7-RP	F-7-RP
12	Lever Bushing	1	F-1-A	F-1-A
13	Roll Pin	1	H-5233	H-5233
14	Trip Rod	1	F-2	F-2
15	Thumb Latch	1	A-2-A	A-2-A
16	Lever Pawl Spring	1	FR-5	FR-5
17	Lever Pawl Assembly	1	FFF-4	FFF-4
18	Safety Pin Knob	1	A-7-C	A-7-C
19	Safety Pin Assembly	1	FF-7-A	FF-7-A
20	Safety Pin Spring	1	A-7-B	A-7-B
21	Lever Pawl Pin	1	F-6	F-6
22	Reverse Ring Retainer	1	F-14	F-14
-23	Reverse Ring-Spring Assembly (Consists of Index Nos. 24 thru 26)	1	FFEG-10	FFEG-10
24	Locking Pawl Spring	1	FR-23	FR-23
25	Reverse Ring Spring	2	FR-15	FR-15
26	Reverse Ring-Shoulder Pin Assembly	1	FFG-10	FFG-10
27	Locking Pawl Release Pin	1	F-24	F-24
28	Holst Frame Rivet	4	H-4561	H-4561
28A	Holst Frame Rivet	1	H-4562	H-4562
28B	Holst Frame Rivet	1	H-4553	H-4553
-29	Top Hook Assembly (Consists of Index Nos. 30 & 31)	1	SHL-1	SHL-1
30	Top Hook	1	H-7545	H-7545
31	Latch Kit	1	F-16	F-16
32	Sprocket Shaft	1	ZZG-11	ZZG-11
-33	Left Frame Assembly (Consists of Index Nos. 34 thru 43)	1	H-4893	H-4893
34	Rocker Arm Rivet	2	FFF-36-1	FFF-36-1
35	Rocker Arm Shaft-Pin Assembly	1	F-38	F-38
36	Reverse Ring Stop Pin	1	H-4504	H-4504
37	Rivet	1	AR-32-1	AR-32-1
38	Rocker Arm Spring	1	F-35	F-35
39	Rocker Arm	1	F-37	F-37
40	Rocker Arm Center Post	1		

\*Assembly not indexed on illustrations.

INDEX NO.	PART NAME	QTY. REQ.	ZG-4½ PART NO.	ZG-6 PART NO.
41	Reverse Lever	1	A-12-G	A-12-G
42	Reverse Cam	1	A-12-C	A-12-C
42A	Load Sheave Bushing	1	F-530	F-530
43	Left Frame	1	ZG-11	ZG-11
44	Locking Pawl Spring	1	AR-22-2-R	AR-22-2-R
45	Locking Pawl	1	F-25	F-25
-46	Right Frame Assembly (Consists of Index Nos. 47 & 48)	1	ZZG-18	ZZG-18
47	Stationary Pin	3	A-18-A	A-18-A
48	Right Frame	1	ZG-18	ZG-18
49	Idle Pin	1	Z-29-A	Z-29-A
-50	Sprocket-Bushing Assembly (Consists of Index Nos. 51 & 52)	1	FF-28	FF-28
51	Sprocket Bushing	1	A-28-B	A-28-B
52	Sprocket	1	F-28-1	F-28-1
-53	Super Assembly (Consists of Index Nos. 54 thru 62)	1	PP-26-SH	PP-26-SH
54	Rivet	2	H-4572	H-4572
55	Super Frame	2	P-26-H	P-26-H
56	Super Frame Pin	1	P-28-A	P-28-A
-57	Sprocket-Bushing Assembly (Consists of Index Nos. 58 & 59)	1	FF-28	FF-28
58	Sprocket Bushing	1	A-28-B	A-28-B
59	Sprocket	1	F-28-1	F-28-1
-60	Bottom Hook Assembly (Consists of Index Nos. 61 & 62)	1	SHL-1	SHL-1
61	Bottom Hook	1	* PLS-3-2	* PLS-3-2
62	Latch Kit	1	H-7545	H-7545
-63	Super Assembly (Consists of Index Nos. 64 thru 75)	1	ZZ-26-SH	ZZ-26-SH
64	Rivet	4	H-4573	H-4573
65	Super Frame	2	Z-26	Z-26
66	Super Frame Pin	2	P-28-A	P-28-A
-67	Sprocket-Bushing Assembly (Consists of Index Nos. 68 & 69)	1	FF-28	FF-28
68	Sprocket Bushing	1	A-28-B	A-28-B
69	Sprocket	1	F-28-1	F-28-1
-70	Sprocket-Bushing Assembly (Consists of Index Nos. 71 & 72)	1	ZZ-27	ZZ-27
71	Sprocket Bushing	1	A-28-B	A-28-B
72	Sprocket	1	Z-27	Z-27
-73	Bottom Hook Assembly (Consists of Index Nos. 74 & 75)	1	SHL-1	SHL-1
74	Bottom Hook	1	PLS-3-2	PLS-3-2
75	Latch Kit	1	H-7545	H-7545
76	Chain Bushing	1	F-19-C	F-19-C
77	Dowel Pin	1	H-5381	H-5381
78	Warning Decal	1	687K6	687K6

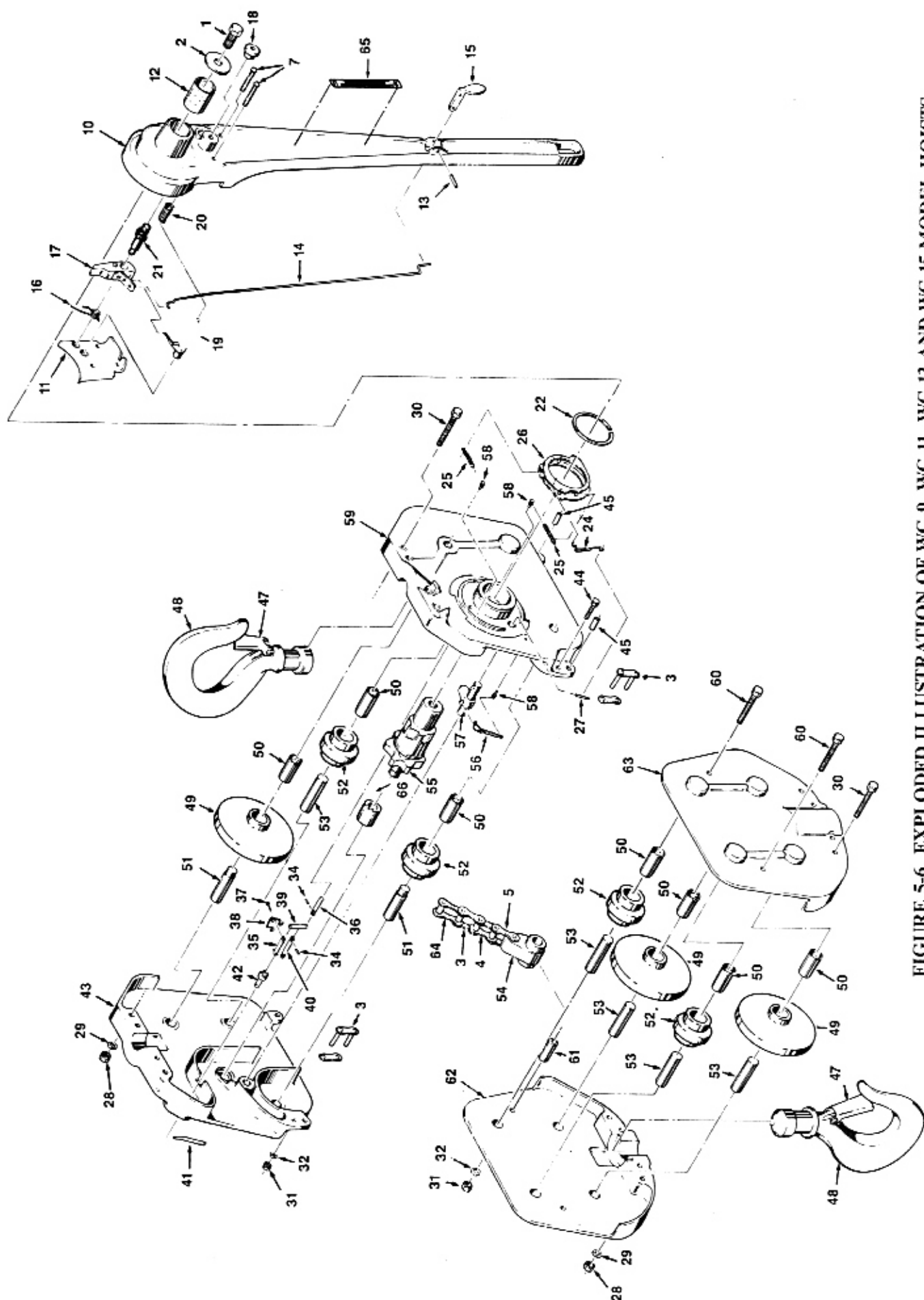


FIGURE 5-6. EXPLODED ILLUSTRATION OF WG-9, WG-11, WG-13 AND WG-15 MODEL HOISTS

# Parts List for WG-9, WG-11, WG-13 and WG-15 Model Hoists

INDEX NO.	PART NAME	QTY. REQ.	WG-9 & WG-13 PART NO.	WG-11 & WG-15 PART NO.
1	Lever Cap Screw	1	H-2414	H-2414
2	Washer	1	F-17	F-17
3	Connecting Link	2	F-19-A	F-19-A
4	Roller Link	1	F-19-F	F-19
5	Master Link	1	F-19-E	
6	Lever Assembly, Complete (Consists of Index Nos. 7 thru 21)	1	PPPP-1	PPPP-1
7	Rivet	2	H-4552	H-4552
8	Lever-Bushing Assembly (Consists of Index Nos. 9 thru 12)	1	PPP-1	PPP-1
9	Lever-Pawl Cover Assembly (Consists of Index Nos. 10 & 11)	1	PP-1	PP-1
10	Lever	1	P-1	P-1
11	Lever Pawl Cover	1	F-7-RP	F-7-RP
12	Lever Bushing	1	F-1-A	F-1-A
13	Roll Pin	1	H-5233	H-5233
14	Trip Rod	1	F-2	F-2
15	Thumb Latch	1	A-2-A	A-2-A
16	Lever Pawl Spring	1	FR-5	FR-5
17	Lever Pawl Assembly	1	FF-4	FF-4
18	Safety Pin Knob	1	A-7-C	A-7-C
19	Safety Pin Assembly	1	WW-7-A	WW-7-A
20	Safety Pin Spring	1	A-7-B	A-7-B
21	Lever Pawl Pin	1	F-6	F-6
22	Reverse Ring Retainer	1	F-14	F-14
23	Reverse Ring-Spring Assembly (Consists of Index Nos. 24 thru 26)	1	FFFG-10	FFFG-10
24	Locking Pawl Spring	1	FR-23	FR-23
25	Reverse Ring Spring	2	FR-15	FR-15
26	Reverse Ring-Shoulder Pin Assembly	1	FFG-10	FFG-10
27	Locking Pawl Release Pin	1	F-24	F-24
28	Nut	8	H-3473	H-3473
29	Lock Washer	8	H-4063-P	H-4063-P
30	Cap Screw	8	H-2406	H-2406
31	Nut	3	H-3472-P	H-3472-P
32	Lock Washer	3	H-4066	H-4066
33	Rocker Arm Rivet	2	H-4893	H-4893
34	Rocker Arm Shaft-Pin Assembly	1	FFF-36-1	FFF-36-1
35	Reverse Ring Stop Pin	1	W-38	W-38
36	Rivet	1	H-4504	H-4504
37	Rocker Arm Spring	1	AR-32-1	AR-32-1
38	Rocker Arm	1	A-35	A-35
39	Rocker Arm Center Post	1	F-37	F-37

\*Assembly not indexed on illustration.

\*6 used on WG-9 & WG-11; 7 used on WG-13 & WG-15.

\*\*32 ft. of chain used on WG-9; 37 ft. 6 in. of chain used on WG-11; 43 ft. 6 in. of chain used on WG-13; 48 ft. 6 in. of chain used on WG-15.

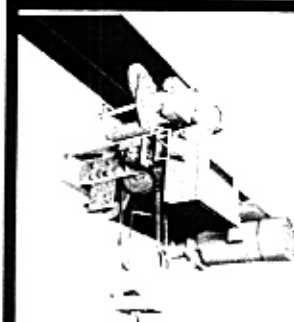
INDEX NO.	PART NAME	QTY. REQ.	WG-9 & WG-13 PART NO.	WG-11 & WG-15 PART NO.
41	Reverse Lever	1	A-12-G	A-12-G
42	Reverse Cam	1	F-12-C	F-12-C
43	Left Frame	1	WG-11-1	WG-11-1
44	Cap Screw	1	H-2416	H-2416
45	Chain Bushing	2	F-19-C	F-19-C
46	Hook Assembly (Consists of Index Nos. 47 & 48)	2	W-3-S	W-3-S
47	Latch Kit	1	H-7545	H-7545
48	Hook	1	W-3	W-3
49	Chain Sprocket	3	W-27-1	W-27-1
50	Super Sprocket Bushing	6*	A-28-B	A-28-B
51	Super Frame Shoulder Pin	2	W-28-A	W-28-A
52	Super Sprocket	3	F-28-1	F-28-1
53	Super Frame Pin	4	P-28-A	P-28-A
54	Dead End	5	Z-30	Z-30
55	Sprocket Shaft	1	F-16	F-16
56	Locking Pawl Spring	1	AR-22-1-R	AR-22-1-R
57	Locking Pawl	1	W-901	W-901
58	Stationary Pin	3	A-18-A	A-18-A
59	Right Frame	1	WG-18	WG-18
60	Cap Screw	2	H-2405	H-2405
61	Super Frame Spacer	2	W-26-S	W-26-S
62	Left Super Frame	1	W-26-L-1	W-26-L-1
63	Right Super Frame	1	W-26-R-1	W-26-R-1
64	Chain	1	F-19**	F-19**
65	Warning Decal	1	687K6	687K6
66	Load Sheave Bushing	1	F-530	F-530



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**WARNING:** The hoisting equipment described in this manual is intended for industrial use only and should not be used to lift, support, or otherwise transport people.

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