

# MAINTENANCE AND REPAIR MANUAL

## For

### Jackhammer

### Model: JH40

# **INGERSOLL-RAND®**

Designed and Built by Ingersoll-Rand Company  
Roanoke, Va. 24019-5198 U.S.A.



**Certified ISO-9001 (ANSI/ASQC Q91)**  
**Certification No. QSR-80**

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1. INTRODUCTION.

This maintenance and repair manual contains information for maintenance, service and troubleshooting for the Jackhamer Model JH40, hereafter referred to as jackhamer.

2. REFERENCE MATERIAL.

The reference material required to operate and/or maintain the jackhamer is listed in Table 1.

Table 1. Reference Material

Manual No.	Title of Manual
PS-5350.84	Parts List for Jackhamer Model JH40.
IM6097	Instruction Manual for Jackhamer Model JH40.

**NOTICE**

**SAVE THESE INSTRUCTIONS. DO NOT DESTROY.**

***All information, illustrations, and specifications in this manual are based on the latest information available at the time of publication.***

***Product improvement is a continuing goal at Ingersoll-Rand®. Design and specifications are subject to change without notice or obligation.***

***The use of repair parts other than those included within the Ingersoll-Rand® approved parts list may create hazardous conditions over which Ingersoll-Rand® Company has no control. Therefore Ingersoll-Rand® Company cannot be held responsible for equipment in which non-approved repair parts are installed.***

***When the life of the tool has expired, it is recommended that the tool be disassembled, degreased and parts be separated by material so that they can be recycled.***



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1. INTRODUCTION.

This section contains important safety information for Jackhamer Model JH40, hereafter referred to as jackhamer.

**⚠ DANGER**

**DANGER IS USED TO INDICATE THE PRESENCE OF A HAZARD WHICH WILL CAUSE SEVERE PERSONAL INJURY OR DEATH IF THE WARNING IS IGNORED.**

2. SAFETY FIRST.

**SAFETY FIRST** is the primary concern for the protection of both, personnel and the jackhamer during any phase of operation. All personnel must thoroughly understand all safety precautions before operating or doing any maintenance work on the jackhamer.

**⚠ WARNING**

**WARNING IS USED TO INDICATE THE PRESENCE OF A HAZARD WHICH CAN CAUSE SEVERE INJURY OR DEATH IF THE WARNING IS IGNORED.**

3. SAFETY ALERT SYMBOL AND SIGNAL WORDS.

**⚠ CAUTION**

**CAUTION IS USED TO INDICATE THE PRESENCE OF A HAZARD WHICH WILL OR CAN CAUSE PERSONAL INJURY, OR PROPERTY DAMAGE IF THE WARNING IS IGNORED.**

**⚠** – This is the Safety Alert Symbol. When you see this symbol in this maintenance manual, be alert to the presence of a hazard.

**NOTICE**

Notice is used to notify people of installation, operation, or maintenance information which is important but not hazard related.

All personnel must understand the **DANGER, WARNING, CAUTION,** and **NOTICE** used throughout the text of this instruction manual. The **DANGER, WARNING, CAUTION,** and **NOTICE** are defined as follows:

By understanding what **DANGER, WARNING, CAUTION,** and **NOTICE** mean; and using good judgment and common sense; all personnel can avoid injuring themselves and/or damaging the jackhamer.





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**1. INTRODUCTION.**

This section provides information on maintenance and performance testing of the Jackhammer Model JH40, hereafter referred to as jackhammer.

**2. MAINTENANCE.**

To ensure maximum life and top performance of the equipment, it is necessary that the maintenance be made before serious damage occurs. It is important to be cautious when performing any service work. A general knowledge of the system and/or components is important before the removal or disassembly of any components. The following is a list of basic precautions that must always be observed:

- a. Never attempt major maintenance of the jackhammer on the job; always send the jackhammer to a repair shop.
- b. Clean the exterior of the jackhammer before disassembly.
- c. Provide a clean work area for disassembling the jackhammer.
- d. Handle parts carefully. Hardened parts might chip or break if dropped on a hard surface.

- e. Place small parts in a clean box to prevent loss.
- f. Keep your hands and the jackhammer clean and free of dirt, while assembling.
- g. Wipe a film of clean oil over the working parts as they are assembled.
- h. Do not allow dirt or chips from soft drifts and hammers to enter the jackhammer.
- i. With the exception of pressed-in parts, all the parts should fit together easily. If excessive force is required, the part is probably cocked and should be removed and realigned.
- j. If necessary, use a rubber mallet to loosen the fronthead and backhead.

**3. DISASSEMBLY. (Figure 1)**

- a. Secure the drill firmly in a vise.

**▲ CAUTION**

WHEN CLAMPING THE JACKHAMER, DO NOT EXERT EXTREME PRESSURE ON THE TOOL. PARTS CAN BE CRACKED OR DAMAGED IF THE VISE IS TIGHTENED TOO MUCH.

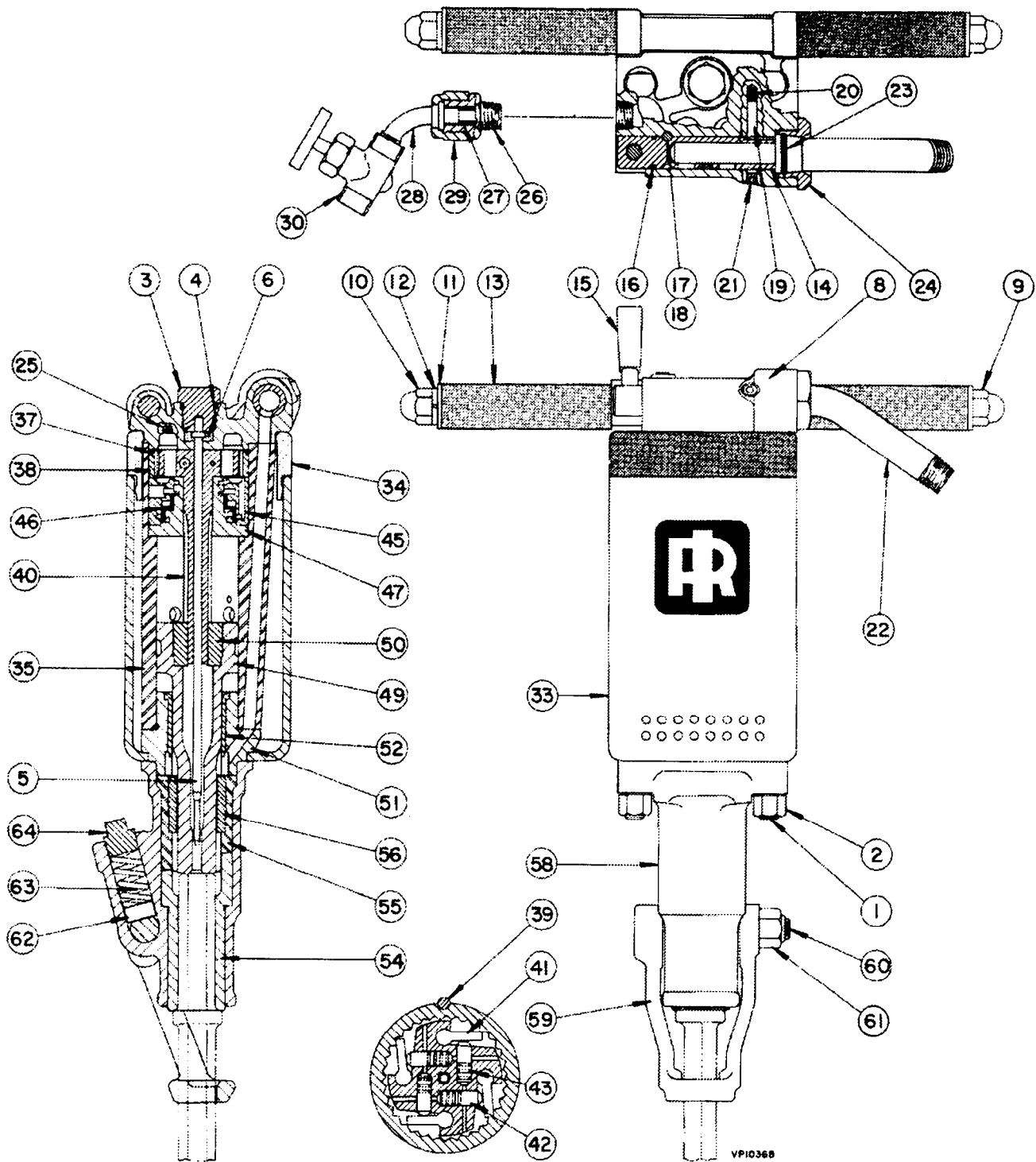


Figure 1. Jackhammer Model JH40 – Sectional Illustration  
(Yoke Type Steel Holder)

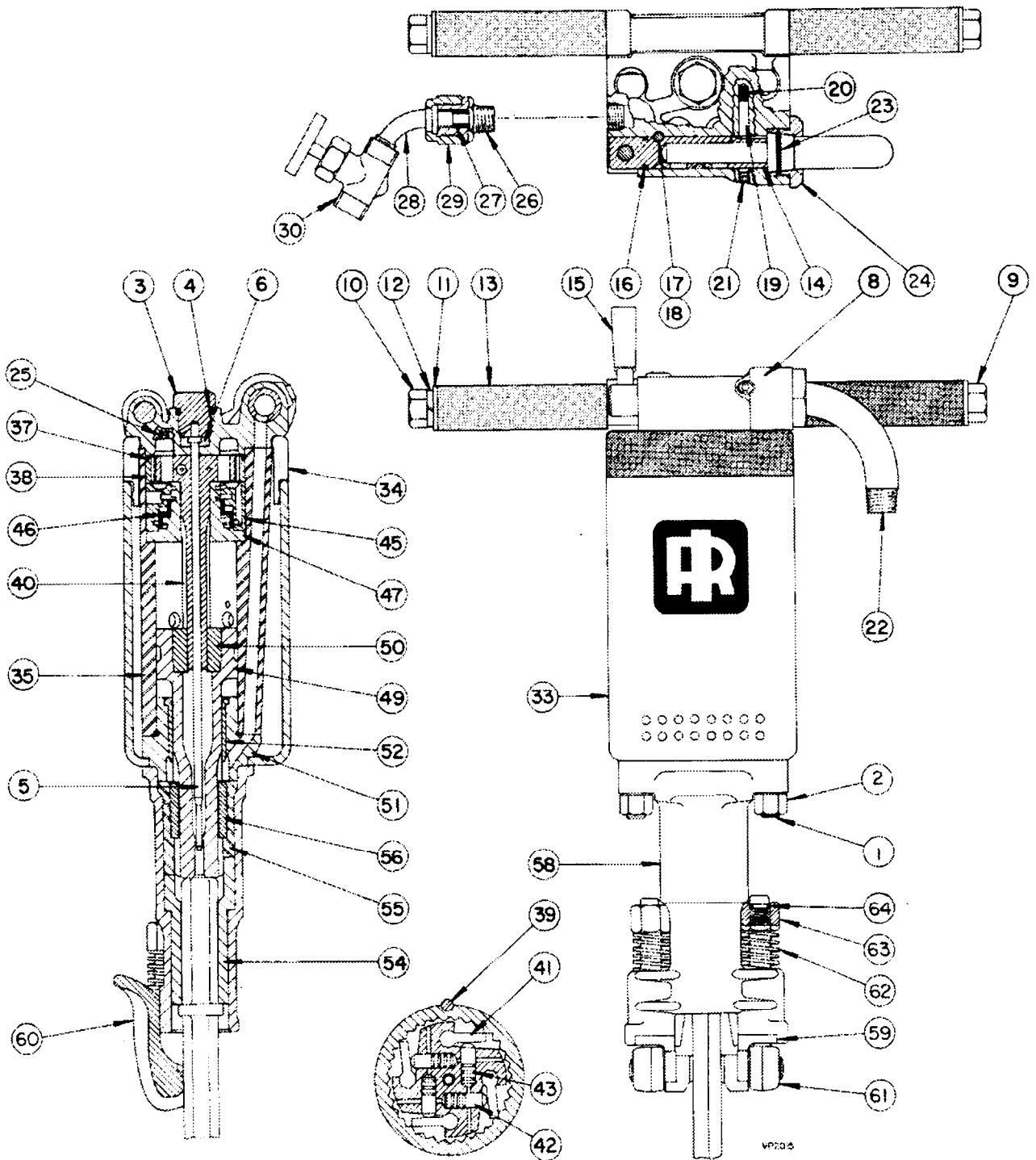


Figure 2. Jackhammer Model JH40 – Sectional Illustration  
(Yoke Type Steel Holder)

- b. Remove the blower tube (10) from the backhead (1).
- c. Remove the assembly rod nuts (2) and assembly rods (1) and carefully pull the handle assembly and blower tube assembly away from the drill.
- d. Place the handle assembly on a clean work bench.
- e. Unscrew the tube retainer (3), and pull the blower tube (5) out of the handle (8).
- f. If necessary, remove the o-ring (4) from the tube retainer (3).
- g. Examine the tube rubber (6), and if worn or damaged, discard the rubber.
- h. Remove the plug (18) and locating pin (17) from the handle. A small hole is provided in the underside of the handle to assist in removing the pin (17).
- i. Use the lever (15) to pull the throttle valve (14) from the handle (8).

### NOTICE

The throttle lever is press fitted in the throttle valve. Do not remove the lever from the valve unless replacement of the lever or valve is necessary.

- j. If necessary, remove the o-ring (16) from the throttle valve (14).
- k. Unscrew the air connection cap (24) and remove the air hose connection (22).
- l. If necessary, remove the o-ring (23) from the air connection (22).
- m. Unscrew the handle bolt nut (10). Remove the nut and lockwasher (12).

### NOTICE

The handle bolt is designed with an identical nut on each end, however, the nut (10) that seats the lockwasher (12) is removable, while the nut on the opposite end (no lockwasher) is permanently assembled to the handle bolt. Do not attempt to remove the permanently assembled nut (refer to Figures 3 and 4).

- n. Slide the handle grip washer (11) and handle grip (13) from the handle bolt (9).
- o. Remove the handle bolt [with remaining handle grip washer (11) and handle grip (13)] from the handle (8).
- p. Pull the fronthead (58) with chuck and steel holder parts off the piston stem bearing (51).
- q. Place the fronthead assembly on a clean work bench.
- r. Drive the chuck (54) and chuck driver (55) with chuck nut (56) out of the fronthead assembly.
- s. Clamp the chuck driver (55) in a vise.
- t. The chuck nut (56) can be removed from the chuck driver (55) by using a tool made from an old moil point. Cut off the oil piston stem and weld a hex. nut to the stem.
- u. Insert the fabricated tool in the chuck nut (56) and turn clockwise to remove

### NOTICE

The chuck nut has left-hand threads.

- v. Steel holder removal for JH40 with yoke type steel holder, refer to Figure 3.
  1. Move steel holder to the closed position.

2. Remove the plug (64), spring (63), and plunger (62).

3. Unscrew the nut (61) and remove the bolt (60) and steel holder (59).

w. Steel holder removal for JH40 with beavertail type steel holder, refer to Figure 4.

1. Tighten the steel holder bolt nuts (63) and remove the steel holder bolt nut retaining rings (64).

2. Unscrew and remove the steel holder bolt nuts (63), and slide the steel holder springs (62) off the steel holder bolts (61).

3. Slide the steel holder bolts (61) and steel holder (60) out of the fronthead (58).

4. If worn, drive the steel holder bolt bushings (59) out of the fronthead lugs.

x. Remove the muffler cap (34) and slide the muffler (33) from the cylinder (35).

y. Insert a brass bar in the front end of the cylinder until it makes contact with the end of the piston stem, and force the piston to drive the valve chest assembly and rotation parts (rifle bar, ratchet, pawls, etc.) out the rear end of the cylinder.

### **⚠ CAUTION**

THE ROTATION PAWLS, PLUNGERS, AND SPRINGS WILL FALL OUT OF THE RIFLE BAR HEAD WHEN THE HEAD IS CLEAR OF THE CYLINDER.

z. Remove the four pawls (41), plungers (42), and springs (43).

aa. Remove the rifle bar (40) from the ratchet (38).

ab. Remove the locating pin (39) and seal (37) from the ratchet (38).

ac. Remove the piston (49) from the front end of the cylinder (35).

ad. To remove the rifle nut (50) from the piston:

1. Hold the piston in a vise.

2. Insert an old rifle bar in the rifle nut and turn clockwise to unscrew. (The rifle nut has left-hand threads.)

### **NOTICE**

The old rifle bar may require several good blows with a copper hammer to loosen the rifle nut. Block-up under the head of the old rifle bar before striking it to prevent it from breaking.

ae. Press the piston stem bearing (51) out of the cylinder.

af. If worn and replacement is necessary, press the piston stem bearing sleeve (52) out of the piston stem bearing (51). The sleeve is press fitted in the bearing, and should not be removed unless replacement is necessary.

## **4. INSPECTION AND REPAIR.**

a. Clean disassembled parts in a suitable solvent.

### **⚠ DANGER**

**WHEN USING ANY SOLVENT TO CLEAN PARTS, MAKE SURE THAT IT IS NON-FLAMMABLE, THAT IT WILL NOT HARM THE SKIN, THAT IT MEETS CURRENT SAFETY AND HEALTH STANDARDS, AND THAT IT IS USED IN AN AREA THAT IS ADEQUATELY VENTILATED.**

- b. Replace the rifle bar or rifle nut if the flutes are worn approximately 1/16 in. (1.6mm). If a 1/8 in. (3.2mm) shim can slide between the sides of the flutes of the rifle bar and rifle nut, either one, or both, is excessively worn.
- c. The rotation pawls can be reversed when the edges on one side become rounded. When the edges on both sides have rounded to approximately 1/16 in. (1.6mm) radius, the pawls should be replaced.
- d. Replace weak pawl plunger springs.
- e. Replace the rotation ratchet when the teeth are rounded to 1/16 in. (1.6mm) radius.
- f. When a 0.003 in. (0.076mm) feeler gauge can be inserted between the valve and valve guide, or between the valve and valve chest, one or both parts are worn and should be discarded. To determine which part is excessively worn, various combinations of new valve parts should be assembled. The worn parts can be determined by means of a feeler gauge.
- g. To check for a sticky valve, clean the valve parts and assemble the valve chest complete without oil. Shaking the chest should cause a clicking sound as the valve moves back and forth. If the clicking cannot be heard the sticky valve must be replaced.  
Be sure to disassemble and oil the valve parts before reassembling for operation.
- h. Examine the piston and rifle bar for heat checks resulting from improper lubrication. If heat checked, replace these parts in order to prevent damage to other parts.
- i. Check the cylinder and piston for wear by inserting a 0.007 in. (0.178mm) feeler

gauge between them. To determine whether the piston or cylinder is worn, insert a new piston in the cylinder, and check the clearance with a feeler gauge.

- j. Check the piston periodically, to be sure that the striking face is in proper condition at all times. If cupped, it can be refaced by grinding. regrind the striking face flat and square without burning, Remove as little metal as possible and not more than 1/16 in. (1.6mm). This is the limit which will insure a hard striking face.

If the striking end of the piston is cupped, check the shanks of the steels that were used to be sure the striking ends are flat and square.

- k. Replace the piston stem bearing sleeve when a 0.007 in. (0.178mm) feeler gauge can be inserted between the piston stem and the sleeve.
- l. Replace the chuck nut when the flutes in the nut are worn approximately 1/16 in. (1.6mm).
- m. Replace the chuck when the ends of the chuck bore are worn to the extent that the drill steel shank cocks in the drill assembly. When the chuck is worn, the drill steel can no longer be held in line with the piston, and the loss of support for the shank allows the piston to strike the shank on an angle, damaging the piston, shank, and tube.

## 5. REASSEMBLY.

### NOTICE

Refer to Figure 3 for yoke type steel holder, and Figure 4 for beavertail type steel holder. The following reassembly instructions cover both constructions, except where noted.

- a. Press the piston stem bearing sleeve (52) into the piston stem bearing (51).
- b. Align the assembly rod half-holes in the piston stem bearing flanges with the half-holes in each side of the cylinder body and press the piston stem bearing (51) into the cylinder (35). This is a tight fit; make sure the bearing is started squarely and that the cylinder is supported.
- c. Screw the rifle nut (50) into the piston and slide the piston into the cylinder.

### NOTICE

The rifle nut has left-hand threads; turn counterclockwise when installing in piston. Use an old rifle bar as a wrench to tighten rifle nut.

#### d. To reassembly the valve chest assembly:

1. Install the valve (46) over the valve guide stem (47).
2. Install the valve chest (45) on the valve guide (47).

### NOTICE

Make sure the valve is free,; check by shaking the valve chest. The valve should click open and shut when free of oil. After the clicking noise is noted, oil the valve.

- e. Insert the rotation ratchet dowel pin (39) in the groove provided in the O.D. of the valve chest (45). Install the complete valve chest assembly in the cylinder (35) aligning the rotation ratchet dowel pin (39) with its groove in the cylinder.

#### f. To reassemble the rotation parts:

1. Place one rotation pawl plunger spring (43) and one rotation pawl plunger (42) in each of the four holes in the rifle bar (40).
2. Slip one rotation pawl (41) into each of the pawl housings in the rifle bar (40).
3. Compress the four rotation pawls (41) and slip the rotation (38) over the pawls.
- g. Align the dowel pin groove in the ratchet (38) with the dowel pin (39) already in place in the cylinder (35) and slide the rotation assembly into the cylinder.
- h. Install the muffler cap (34) on the handle end of the cylinder (35).
- i. Slide the muffler (33) over the cylinder so that it seats against the muffler cap at the back end and on the piston stem bearing at the front end.
- j. Screw the chuck nut (56) into the chuck driver (55).

### NOTICE

The chuck nut is fitted with left-hand threads. Turn counterclockwise to screw chuck nut into driver.

An old piston can be used to tighten the chuck nut.

- k. Slide the chuck (54) and chuck driver assembly into the fronthead (58).

- l. Align the assembly rod holes in the fronthead flange with the half-holes in the cylinder and piston stem bearing and slide the fronthead (58) into position.

#### m. Reassemble the handle assembly:

1. Install the new o-ring (16) in its groove in the throttle valve.
2. If removed, press the throttle valve lever (15) in the throttle valve (14).
3. Install the throttle valve assembly in the handle (8).

4. Insert the throttle valve locating pin (17) in its hole in the rear of the handle to secure the throttle valve in the handle.
  5. Install the plug (18).
  6. Install one set of handle grip parts on the handle bolt (9). Slide the washer (11) and grip (13) into the handle bolt (9) in order listed.
  7. Insert the handle bolt (9) through the handle (8).
  8. Install the remaining grip (13) and washer (11) over the projecting end of the handle bolt (9).
  9. Install the lockwasher (12) and secure the handle with the nut (10).
  10. Install a new o-ring (23) in its groove on the hose connection (22).
  11. Position the hose connection in the handle inlet port and secure by screwing the hose connection cap into the handle.
- n. Position the handle assembly over the cylinder (35), align the assembly rod holes in the handle with the half-holes on each side of the cylinder body, and slide the handle (8) into the cylinder (35).
  - o. Slide the assembly rods (1) through the holes in the handle (8), half-holes in cylinder (35) and piston stem bearing (51), and through the holes in the fronthead flange (58).
  - p. Secure the jackhammer assembly by attaching assembly rod nuts (2).

## ▲CAUTION

THE ASSEMBLY RODS MUST BE TIGHT AND UNDER EQUAL TENSION. LOOSE OR UNEQUAL ASSEMBLY ROD TENSION WILL CAUSE MISALIGNMENT OF INTERNAL PARTS WHICH WILL PROMOTE BREAKDOWN OF THE DRILL. APPLY 120 LB-FT (162.7 Nm) OF TORQUE (PLUS OR MINUS 10 LB-FT [13.6 Nm] TO EACH ASSEMBLY ROD NUT.

- q. Slide the blower tube (15) through the hole in the tube rubber (6) until rubber is seated under tube collar.
- r. Push the blower tube/rubber assembly through the tube hole in the handle (8) and through the center hole in the rifle bar and piston until the rubber seats in the counter-bore in the handle.
- s. Install a new o-ring (4) on the tube retainer (3) and screw the retainer (3) into the handle to secure the tube.
- t. **Steel holder reassembly for yoke type steel holder:**
  1. Attach the steel holder to the front-head by inserting the bolt (60) through the steel holder arm (and fronthead) so that the flat on the bolt head seats against the bolt stop on one arm. Be sure the holder (59) is positioned correctly – the open side of the yoke must face toward the backside of the tool.
  2. Screw the nut (61) onto the steel holder bolt (60).
  3. Position the holder in the closed position.
  4. Install the plunger (62) and spring (63) in that order.
  5. Compress the spring (63) and install the plug (64).



**u. Steel holder reassembly for beaver-tail type steel holder:**

1. Press the steel holder bolt bushings (59) into the lugs of the fronthead (58).
2. Place the steel holder bolts (61) on the steel holder trunnions.
3. Position the steel holder and bolt assembly so that the bolts protrude through the fronthead lugs.
4. Place the steel holder bolt springs (62) over the steel holder bolts (61) and secure by attaching the steel holder bolt nuts (63).
5. Compress the springs (62) by tightening the nuts (63) until the retaining rings (64) can be inserted in the grooves in the steel holder bolts (61).
6. Back-off the steel holder bolt nuts (63) until they rest against the retaining rings (64).

**6. PERFORMANCE TESTING.**

A reconditioned jackhammer should be tested before it is sent back to the job. Before connecting the air hose, check to see that the air line lubricator is filled with the proper lubri-

cant. Refer to the instruction manual for jackhamers for specifications.

Pour a small amount of rock drill oil directly into the air inlet for initial lubrication. The jackhammer should start with little air pressure, with the piston reciprocating smoothly.

Let the jackhammer run-in slowly at reduced pressure long enough to see that it is in good working order. If the jackhammer stalls, turn off the air immediately. This indicates binding due to tight fits or perhaps unevenly tightened assembly rods. Check rod tension first, then start the jackhammer again. After a short period of operation, a definite rhythm should develop and an even exhaust note will be heard. The jackhammer may become warm but should not overheat. If erratic operation or stalling persists, disassemble the jackhammer and check for binding parts.

After the initial period of low pressure operation, check the performance of a reconditioned jackhammer with that of a new jackhammer by comparing its speed under similar conditions and with normal air pressure. Once testing is completed, install plastic plugs or caps in all ports to keep out dirt until the machine is back in service.



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**1. INTRODUCTION.**

This section contains detailed information for troubleshooting the Jackhamer Model JH40, hereafter referred to as jackhamer.

**2. TROUBLESHOOTING.**

Troubleshooting will be accomplished by using the appropriate illustration provided in this instruction manual and the step by step trouble and remedies. Using both of these together will solve most common problems.

**Table 1. Troubleshooting**

TROUBLE	PROBABLE CAUSE	REMEDY
Jackhamer will not start.	1. Plugged exhaust port or air passages caused by dirt or hose particles.	1. Dismantle jackhamer, clean out all ports and air passages. Keep the air hose in good condition; never use a soft deteriorated hose.
	2. Stuck valve due to gummy oil or incorrect assembly.	2. Remove valve chest complete. Dismantle valve and clean parts. Never use dirty oil nor oil that does not conform to the recommended specifications.
	3. Frozen piston due to improper lubrication.	3. Dismantle jackhamer to remove piston. Repair piston by placing in a high speed lathe and dressing with fine emery cloth. Never run jackhamer without the proper lubricating oil in the lubricating oil reservoir.
	4. Assembly rods tightened unevenly, causing binding.	4. Check jackhamer for correct assembly and retighten assembly rods evenly. Torque assembly rod nuts to 120 lb-ft (162.7 Nm) plus or minus 10 lb-ft (13.6 Nm).

(Continued)

**Table 1. Troubleshooting (con't.)**

<b>TROUBLE</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
Freezing at exhaust ports.	1. Excessive moisture in the air supply line.	1. Install moisture traps in the air supply line or add anti-freeze lubricant directly through the air inlet. Use "KILFROST" anti-freeze lubricant or equivalent.
Jackhammer loses power rapidly.	1. Restriction in air supply line. 2. Air supply line too long. 3. Diameter of air supply line too small.	1. Never allow the air supply to kink or make sharp bends. 2. As a general rule keep the air supply line under 50 ft. (15m). 3. A 3/4 in. (19.1 mm) diameter air supply is recommended for the jackhammer.
Jackhammer lacks power.	1. Low air supply pressure. 2. Running on fronthead cushion. 3. Plugged air passages. 4. Lack of lubricating oil. 5. Short drill steel shank due to wear or regrinding. 6. Ice build-up in muffler, restricted exhaust.	1. The air supply pressure at the inlet should be 80 to 100 psi (5.5 to 6.9 bar). 2. Keep shank fed-up to the work. Always maintain a constant pressure when operating the jackhammer. 3. Dismantle the jackhammer and clean out all ports and passages. 4. Maintain the proper oil level in the air line lubricator. Steel shank must show a film of oil. 5. Replace drill steel if shank is excessively worn. 6. Eliminate condensation in air supply.

**(Continued)**

**Table 1. Troubleshooting (con't.)**

TROUBLE	PROBABLE CAUSE	REMEDY
Overheating of the piston stem bearing on a new machine.	1. Jackhammer not properly broken in.	1. Stop operating the jackhammer and perform initial servicing. Never run a new jackhammer at full throttle until a proper break-in period has been completed.
Fogging.	1. Excessive moisture in the air supply line.  2. Over lubrication.	1. Blow out air lines. If moisture traps are installed in the air supply line, drain the moisture.  2. Clean lubricating oil reservoir and adjust for proper rate of feed.
Overheating of jackhammer after break-in period.	1. Running on fronthead cushion.  2. Piston not hitting the shank because of short shank.  3. Pulling steel at full throttle.  4. Lack of lubrication or improper lubricating oil.	1. Keep shank fed-up to work. Always maintain constant pressure when operating the jackhammer .  2. Remove shank piece from jackhammer.  3. When pulling steels, always use minimum throttle.  4. Before operating the jackhammer make sure the in line lubricator is full of proper lubricant.
Erratic or sluggish operation.	1. Lubricating oil too heavy.  2. Gummed oil or dirt in operating parts.	1. Use only the recommended lubricating oil.  2. Dismantle jackhammer and clean out dirt and gummy residue. Service the jackhammer with clean oil. Protect the tool from dirt when idle.
Broken or battered water tube.	1. Water tube breaking in drill steel shank.  2. Worn chuck, which permits misalignment, chafing or bending of tube.	1. Check hole in drill steel shank to be certain that hole is large enough and deep enough to accept tube.  2. Replace worn chuck.

(Continued)

**Table 4. Troubleshooting Chart (con't.)**

TROUBLE	PROBABLE CAUSE	REMEDY
Stuck steel.	<ol style="list-style-type: none"> <li>1. Driving steel after bit is dull or has lost its gauge.</li> <li>2. Crowding bit in soft formations.</li> <li>3. Cuttings not being blown from hole.</li> <li>4. Misalignment of steel with hole causing binding.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen or replace with new bit.</li> <li>2. Use down pressure cautiously in soft formations; be certain steel is rotating freely.</li> <li>3. Use blow air frequently.</li> <li>4. Keep jackhammer, steel and hole in alignment at all times.</li> </ol>
Slow drilling speed.	<ol style="list-style-type: none"> <li>1. Dull bit.</li> <li>2. Cuttings not being removed from hole.</li> <li>3. Plugged drill steel or blower tube.</li> <li>4. Jackhammer and steel not aligned in hole; steel or bit binding in hole.</li> <li>5. Insufficient down pressure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace bit.</li> <li>2. Use blow air more frequently to keep bit working on fresh rock.</li> <li>3. Remove tube and drill steel; clean out air passages.</li> <li>4. Check alignment while drilling to prevent binding and to avoid stuck steel.</li> <li>5. Increase down pressure.</li> </ol>
No steel rotation or rotation is weak.	<ol style="list-style-type: none"> <li>1. Steel binding in hole.</li> <li>2. Worn rotation parts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply correct amount of down pressure and keep drill steel and hole in alignment. Replace worn bits.</li> <li>2. Disassemble jackhammer and replace worn parts.</li> </ol>
Chipping or breakage of piston.	<ol style="list-style-type: none"> <li>1. Bad drill steel shank which is too hard or rounded on end allowing minimum contact with piston striking face.</li> <li>2. Worn chuck which permits steel to cock in chuck so that piston strikes shank a glancing blow.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take bad shanks out of service. One bad shank can ruin many pistons.</li> <li>2. Replace worn chuck.</li> </ol>

(Continued)

**Table 4. Troubleshooting Chart (con't.)**

<b>TROUBLE</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
Chipping or breakage of piston. (Con't.)	3. Heat cracking due to faulty lubrication. 4. Failure in neck of piston due to loss of fronthead cushion. Piston striking piston stem bearing.	3. Keep machine well lubricated with proper type of oil. 4. Check cylinder, piston and piston stem bearing sleeve for maximum wear tolerances.
Side rod breakage.	1. Uneven tension on rods, or loose rods. 2. Loss of fronthead cushion which allows piston to strike piston stem bearing with hard impact.	1. Keep side rods tight and at even tension. Tighten rods alternately. 2. Replace worn cylinder, piston or piston stem bearing sleeve.











**NOTES**



10/10/2020

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