HUSKIE HYDRAULIC HAMMERS



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1. SAFETY INFORMATION

- Always read the information in this manual before operating the hammer. Failure to do so can result in personal injury or damage to the equipment.
- Check that all safety decals attached to the hammer and carrier are legible. Replace worn or illegible decals.
- Do not use drugs or alcoholic beverages that impair alertness or coordination while operating the carrier or hammer. An operator taking prescription drugs must obtain professional medical advice to determine if he/she can safely operate the carrier and hammer.
- Work at a slow pace when learning to operate the hammer.
- Operator training must consist of a demonstration and verbal instruction.
- New operators must start in an area free of bystanders. He/she must become familiar with all carrier controls before operating the hammer.
- Be aware of any prohibited uses in work areas. (Excessive slopes, poor or dangerous terrain conditions and utility hazards.)
- Operate the carrier or hammer from the operator's seat **ONLY**. Make sure the seat is fastened securely before activating controls.
- Keep hands and feet on the controls at all times while the hammer is operating.
- Always operate the carrier with the outriggers firmly positioned on the surface.
- Make sure all controls (levers and pedals) are in **NEUTRAL** before starting the carrier.
- NEVER leave the carrier with the engine running. ALWAYS ENGAGE THE PARKING BRAKE.
- Make certain there are no persons within the arc determined by the movement of stabilizers, front bucket or backhoe boom with the hammer at full extension.
- Never operate with any person near the hammer or between the hammer and the operator.
- Replace all faulty or leaking hydraulic hoses or fittings before operation.
- Travel with the hammer in the full tuck (transport) position only.
- Never operate the hammer with the tool retaining pin removed.
- Wear safety goggles, hearing protection and hardhat while operating the hammer.
- Before leaving the operator's seat, always lower the carrier boom or bucket arms.
- Stop the engine before attempting to make any repairs or adjustments to either the carrier or the hammer.
- ALWAYS OBSERVE ALL SAFETY INSTRUCTIONS APPLICABLE TO YOUR CARRIER.

SAFETY DECALS

The decals shown below are attached to the hammer when shipped from the factory. Read and understand them before operating the hammer. Replace any decal that has become worn, damaged or illegible. Decals can be ordered through the parts department.





the hammer or in the text of this manual. It is used to alert the operator of an action that can place him/her or others in a life threatening situation.

the text of this manual to identify an action that can cause bodily injury to the operator or other personnel. a naction or condition that can result in damage to the hammer or other equipment. The notice below is included in the shipping carton. It contains information relating to operator safety. Read and understand this notice before unpacking or operating the hammer. We suggest you retain this notice and include it in your local safety program.



2. OPERATING INSTRUCTIONS

HOW THE HAMMER OPERATES

On larger hammers the main valve is contained in the valve box, which is bolted to the cylinder (Figure 1). During the upward stroke, the pressure in the upper chamber is released via the main valve and through the outlet. High pressure in the lower chamber then forces the piston upward.

As soon as the piston reaches the upper end of the stroke, the main valve directs flow to the upper chamber causing it to become high pressure.

Since surface A is greater than surface B, the piston is driven downward with the help of the accumulated energy from the gas chamber, creating the impact stroke of the hammer.

At the point of impact, the main valve shifts, releasing the high pressure from the upper chamber, enabling the upward stroke to occur again.



Figure 1. Principle of Operation



(Refer to Table 10.)

MOUNTING THE HAMMER TO THE CARRIER

1. Skid Steer Loader

All hammers are mounted to hammer brackets, which are then mounted to an adapter plate using two pins. The adapter plate is mounted to the quick mount of the carrier. To remove the hammer, first disconnect the hydraulic couplers from the inlet and outlet ports and detach the quick mount. Seal off all plugs and hoses to prevent dust, dirt and foreign particles from entering the system.

2. Rubber-Tired Backhoes and Excavators

All hammers are mounted to hammer brackets. The hammer brackets are mounted to the stick of the carrier using two pins and four bushings. To remove the hammer, first disconnect the hydraulic couplers from the inlet and outlet ports. Seal the couplers and hoses to prevent dust, dirt, and foreign particles from entering the system. Remove the "mounting pins" to detach hammer and bracket from the carrier stick.

CONNECTING HOSES

Connect the two hydraulic hoses to the inlet and outlet ports of the carrier using shut off valves. When connecting, make sure that the ends are clean and engaged securely.

DAILY INSPECTION BEFORE OPERATION

- 1. Check the carrier hydraulic oil level before operation. The hydraulic oil level must be correct for proper operation.
- 2. Check the hydraulic oil for any signs of contamination or discoloration. If any signs of contamination appear, change the oil. (Refer to Table 2.)

NOTE: Do not mix different types of hydraulic oil.

- 3. Inspect all hoses and fittings for leaks or damage. Check all fasteners and tighten as required. Replace any broken fasteners.
- 4. The hammer must be greased daily before use. Ten shots of grease with a grease gun is adequate. The hammer should be greased every 2-3 hours during operation. (See Figure 2)
- Check the temperature of the hydraulic oil. Optimum operating temperature is 120°/ 200° F (49°/93°C). The unit may not function properly and seal damage may result if the hydraulic oil temperature goes beyond the recommended range.



Figure 2. Hammer Lubrication Point

INITIAL STARTUP, HAMMER BREAK-IN

New or rebuilt hammers require 20-40 minutes of operation at half the rated speed as a break-in period. This allows for proper lubrication of all moving parts and for all sliding surfaces to mate properly.

GENERAL OPERATING INSTRUCTIONS

- 1. Never apply the tool with a side load. The tool must always be pressed firmly against, and be perpendicular to the material to be broken. Failure to do so can cause tool or seal failure.
- 2. Impact action must be stopped immediately when the object has been broken.
- 3. Do not pry with the tool. This may cause the tool to break or cause abnormal wear to the tool bushings.
- 4. Avoid continuous impact on the same area for more than one minute. Continuous impact may cause a rapid increase in oil temperature and improper hammer operation.
- 5. Break large objects from the outside edges and work inward.
- 6. Do not submerge the hammer in water. The hammer is not watertight, and damage can occur if used in this manner. Consult your dealer for underwater applications (Ref. Figure 3.)
- 7. Do not use the hammer to move very large or heavy broken objects. This can cause damage to the hammer and carrier.
- 8. Do not use the hammer as a lifting device.
- 9. Do not operate the hammer when boom cylinders are at their extreme ends. This may cause damage to the cylinders.
- 10. Stop operation immediately if hoses vibrate abnormally or impact energy is dramatically reduced. Consult Section 7. "Troubleshooting Diagnosis" for additional information.

COLD WEATHER STARTUP AND OPERATION

Note: Internal parts of the hammer will be damaged if proper warm-up procedures are not applied in cold weather.

- 1. Warm the hydraulic system of the carrier before starting the hammer. Circulate the oil in carrier system until it is warm to the touch or approximately $60^{\circ}F(15^{\circ}C)$
- 2. With engine at half throttle, activate the hammer for 5 seconds and stop for 15 seconds. Repeat cycle for 2 to 3 minutes.

UNDERWATER OPERATION

Operation of hydraulic hammers under water requires proper preparation to prevent internal damage to hammer parts and carrier hydraulic system.

DO NOT OPERATE MOUNTED HYDRAULIC HAMMER UNDERWATER WITHOUT AIR SUPPLY TO THE HAMMER. SERIOUS DAMAGE WILL RESULT TO THE PISTON, SEALS AND OTHER INTERNAL PARTS AS WATER AND ABRASIVE SOLIDS ARE DRAWN INTO THE FRONT CAP CAVITY AND FORCED INTO THE HYDRAULIC CIRCUIT DURING OPERATION.

DO NOT SUBMERGE HOT HAMMER BODY IN WATER. HAMMER BODY WILL CONTRACT AND CAUSE PISTON SCORING AND SEIZURE.



Figure 3. Air Compressor Supply

STORAGE

INCORRECT STORAGE OF HAMMER CAN CAUSE CORROSION AND FAILURE OF INTERNAL PARTS.

1. Short Term

If the hammer will not be used for periods of one week or more, the tool should be removed from the hammer and grease must be applied to the piston bottom. The hammer should be stored indoors standing vertically in the working position.

2. Long Term

For storage of more than 2 - 3 weeks or where condensation or corrosion is prevalent (salt-water areas) note the following instructions. Remove and clean the tool. Flush the front cap with clean solvent or hydraulic oil. Coat the exposed portion of the piston with grease, apply grease to the tool and re-install. Store the hammer vertically and away from standing moisture. To start the hammer after long-term storage, remove the tool and inspect the exposed portion of the piston for corrosion. If corrosion is found do not use the hammer until the defective piston has been repaired or replaced.

WARNING

TOOL REPLACEMENT

DANGER

TOOL MAY BE HOT FROM OPERATION. USE GLOVES TO PROTECT AGAINST BURNS AND POSSIBLE SHARP EDGES.

TOOLS ARE HEAVY. REFER TO TABLE 1 BEFORE PROCEEDING.

TOOL WEIGHTS	Kg	lbs.
HH1500	45	99
HH2000	74	162
HH3600	118	260
HH4500	152	334
HH5800	174	381
HH8000	214	470

Table 1. Standard Tool Weights





3. MAINTENANCE

HYDRAULIC OIL

Note: It is not recommended to mix types of hydraulic oils. Check carriers hydraulic oil recommendations before adding hydraulic oil.

- 1. Check the oil level, oil filter condition and oil cooler in the carrier periodically.
- 2. Replace the hydraulic oil every 600 hours and the filter every 100 hours, or according to carrier recommendations.
- 3. Always be aware of any abnormalities in the operation of the hammer such as changes to hammer blow speed, impact force or oil temperature. The oil temperature should not exceed 180°F (80°C).
- 4. Check the condition of the hydraulic oil as specified in Table 2.

CHECKING CONDITION OF HYDRAULIC OIL

Note: Refer to carrier service manual for proper class and type of hydraulic oil.

Hydraulic oil must be changed more frequently than the carrier instruction manual recommends. This is because hammer operation requires more oil circulation than normal operation. Oil condition can be visually checked as specified in Table 2.

COLOR	CONDITION
Transparent and no color change	Good
Transparent but too bright	Oil Mixed
Milky white	Air and / or water mixed
Dark and dirty with odor	Deteriorated
Transparent but with black spots	Foreign particles mixed
Bubbly	Grease mixed

Table 2. Hydraulic Oil Conditions

FASTENERS

Inspect all bolts and nuts for tightness. Tighten as required. (Refer to Table 4.) Replace all missing or damaged fasteners before operating the hammer.

USE ONLY ORINIGAL PARTS WHEN REPLACING BOLTS, NUTS AND WASHERS. SUBSTITUTE PARTS MAY APPEAR SIMILAR BUT MAY FAIL IN USE AND CAUSE SERIOUS INJURY OR DEATH.

Fastener bolt and nut sizes are listed in Table 3. These are wrench sizes (distance across flats.)

					VALV	E BOX	GAS VA	ALVE
HAMMER	NIPPLES (mm.)	BRACKET BOLTS (mm.)	SIDE RODS (mm.)	LIFTING EYES (inches)	*CAP BOLTS	SET BOLTS (mm.)	CAP (inches)	BODY (mm.)
1500	36	50	54	³ ⁄4"-10pt	*14	30	1" Crow Foot	36
2000	36	50	54	7/8"- 9unc	*17	30	1" Crow Foot	36
3600	46	60	63	7/8"- 9unc	*17	32	1" Crow Foot	36
4500	46	75	71	1"-8unc	*17	32	1" Crow Foot	36
5800	46	75	85	1 ¼"- 8unc	*19	41	1" Crow Foot	36
8000	50	75	90	1 ½"- 6unc	*19	41	1" Crow Foot	36

Table 3. Bolt Sizes

* Allen wrench size for the front and back cap bolts.

	HH1500	HH2000	HH3600	HH4500	HH5800	HH8000
Side Rod	880 ±35	880 ±35	1100 ±35	1850 ±75	2560 ±75	3300 ±75
Valve Box Set Bolt	280 ±20	280 ±20	330 ±20	330 ±20	590 ±35	590 ±35
Valve Cap Bolt	175 ±20	280 ±20	330 ±20	330 ±20	480 ±35	480 ±35
Mode Valve Set Bolt	N/A	70 ±3	70 ±3	70 ±3	70 ±3	70 ±3
Bracket Bolt	400 ±35	840 ±35	1320 ±35	2600 ±35	2600 ±35	2600 ±35

Table 4. Tightening Torque Requirements (Ft. lbs.)



Figure 5. Tightening Sequence

GREASING REQUIREMENTS

The hammer should be greased each startup and after every 2-3 hours of operation. The grease nipple is located at the front cap as shown in Figure 6. Approximately 10 shots in the front cap are recommended when the tool is at the upper limit of travel.



Figure 6.

NITROGEN (N2) GAS PRESSURE ADJUSTMENT

The hammer will not operate properly and may not start due to an incorrect gas charge. Follow the procedure described below to adjust nitrogen (N₂) gas pressure.

WARNING! DO NOT STAND NEAR THE HAMMER WHEN ADDING NITRIGEN. THE TOOL MAY EJECT SUDDENLY AND CAUSE SEVERE INJURY.

1. Gas Pressure Testing.

- a. With the gas charger disconnected from the hammer, plug the inlet (the nitrogen hose connection port) of the gas charger with the cap provided, then turn the "T" handle fully to the left (counter clockwise.)
- b. Remove the gas valve cap located on the hammer back cap and attach gas charger, see Figure 7.



Figure 7. Connecting Gas Charger to Hammer

Figure 8. Connecting Gas Charger to Nitrogen (N2) Supply

c. Turn the "T" handle on the gas charger valve clockwise, and then measure the N_2 gas pressure.

2. Releasing Gas Pressure (if over charged or prior to disassembly)

- a. Test the gas pressure as described in paragraph 1.
- b. For disassembly loosen the bleeder screw on the gas charger very slowly and release the N₂ gas. Watch the pressure gauge until the nitrogen pressure is fully released. (see Figure 7 and 8.)
- c. **If overcharged** close the Bleeder Screw when the gas pressure reaches the correct gas pressure shown on Table 10, Page 26, then turn the "T" handle to the left (counter clockwise).
- d. Finally, remove the gas charger. Install and tighten the gas valve cap.

3. Refilling Nitrogen (N₂) Gas

- a. Perform paragraph 2 procedure.
- b. Remove the cap on the gas charger, nitrogen hose connection port. See Fig 9.
- c. Attach the N₂ gas pressure regulator to the gas container. Connect the nitrogen (N₂) Supply tank to the gas charger with the charging kit hose.



Figure 9. Gas Charger Valve

- d. Open the main gas valve on the N₂ gas container and regulate the N₂ gas pressure (see Figure 8.)
- e. Turn the gas charger "T" handle clockwise and adjust N₂ gas pressure in the gas chamber to the correct gas pressure shown on Table 10, Page 26.
- f. Turn the gas charger "T" handle fully counter clockwise and remove the hose. Attach the cap to the gas inlet of the charger.
- g. Remove the gas charger and attach the gas valve cap and O ring firmly to the gas valve nut on the hammer back cap.

OIL LEAKAGE INSPECTION

Check for oil leakage at the points shown in Table 5. It is not unusual to have a small amount of oil leakage along the tool or cylinder, (refer to Figure 10.)

LEAK LOCATION	POSSIBLE CAUSE	REMEDY
Between front cap and tool (E)	Damaged or worn U-packing	Replace seal kit
Between cylinder and nipple (F)	Loose nipple or damaged O-ring or nipple	Tighten or replace nipple, and / or O-ring
Between cylinder and back cap (G)	Damaged U-packing or main Valve outer sleeve O-ring, or Back cap O-ring	Replace seal kit
Plug ports (H)	Plugs loosen	Remove plugs and reinstall with sealant

Table 5. Diagnosis of Oil Leakag	Table 5.	Diagnosis	of Oil	Leakage
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Figure 10.

GAS LEAKAGE INSPECTION

Gas leakage can be easily detected using soapy water (refer to Table 6 and Figure 11.)

ALWAYS MAINTAIN SPECIFIED NITROGEN GAS PRESSURE. IF GAS PRESSURE IS TOO LOW, HAMMER IMPACT FORCE MAY BE LOW. IF GAS PRESSURE IS TOO HIGH, AN INCREASE IN HYDRAULIC OIL TEMPERATURE MAY RESULT, CAUSING MALFUNCTION AND SHORT SEAL LIFE.

Table 6. Diagnosis of Gas Leakage

LEAK LOCATION	POSSIBLE CAUSE	REMEDY
Gas valve assembly (A) or Between gas valve assembly and back cap (B)	Defective O-ring, damaged Spring or gas valve	Replace gas valve assembly
Between back cap and cylinder (C)	Defective back cap O-ring	Replace back cap O-ring



Figure 11

4. DISASSEMBLY AND ASSEMBLY

NITROGEN N2 GAS MUST BE RELEASED BEFORE DISASSEMBLY OF HAMMER.

SEE "NITROGEN (N2) GAS PRESSURE ADJUSTMENT PROCEDURE".

ASSEMBLY AND DISASSEMBLY MUST BE PERFORMED UNDER CLEAN CONDITIONS, FREE FROM DIRT AND FOREIGN PARTICLES.

DISASSEMBLY

1. Tool

Refer to tool replacement procedures on Figure 4, page 11.

2. Back cap

Support the cylinder (Figure 12). Loosen and remove four side rods and washers, then remove the back cap.

3. Front cap (See Table 3 page 13 for eyebolt sizes) Install an eyebolt and suspend the front cap as shown in Figure 12. Pull out the front cap, being careful not to damage the piston.



Figure 12. Connecting Hoist to Front Cap.

4. Main Valve Box Assembly

Service of the Valve Box includes the Mode Valve Assembly and the Main Valve with Box Sleeve.

- a. Remove six or eight (depending on hammer model) Valve Box (4) Set Bolts and place Valve Box on a clean flat service.
 - **Note:** Inspect o-rings located at ports on cylinder and replace o-rings as necessary. When re-installing Valve Box check that all o-rings are in correct position.
- b. Remove four Mode Valve (1) Set Bolts and replace o-ring seals as necessary.
- c. Remove ten socket head cap screws and the Upper Valve Cap (3) and Lower Valve Cap (7).
- d. Remove the Box Sleeve (6) and the Main Valve (5) from the Lower Valve bore and inspect for scoring or wear.
 - **Note:** Minor scratches can be polished by hand using the same procedure as the piston and cylinders. Ref. Para. 6 page 27. Main Valve (5) and Box Sleeve (6) must be capable of free movement by hand without sticking or dragging. If not satisfactory replace with new parts.
- e. Reassemble by reversing above procedure.
 - **Note:** Keep work area clean and lubricate all parts with clean hydraulic oil during assembly.
- f. Torque bolts to proper specifications and sequence shown on Table 4 and figure 5 on page 14.



Figure 13. Main Valve Box Assembly

5. Piston (See Table 7 for Piston weights)

Note: For large hammers, you may wish to stand the hammer upright with proper support, and pull the piston upward using a lifting device.

- a. Attach an eye bolt to the top of the piston and pull out together with cylinder sleeve toward the top.
- b. It may be useful to use a pry bar as a lever as shown in Figure 14. Be careful to not damage the piston.



Figure 14. Removing the piston.

5. Cylinder sleeve

Note: Support piston on wood blocks.

Remove the cylinder sleeve from the piston. A plastic hammer or nylon bar can be used for removal as shown in Figure 15. Do not force the cylinder sleeve. Tap uniformly on all sides of the sleeve.



Figure 15. Removing Cylinder Sleeve

Table. 7. Piston weights	Fable .	7. Piston	Weights
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HAMMED MODEI	WE	IGHTS			
HAMIMER MODEL	kg	lbs.			
HH1500	41	90			
HH2000	64	142			
HH3600	101	222			
HH4500	122	270			
HH5800	153	338			
HH8000	198	436			

INSPECTION OF PARTS

1. Seals

Seals that are deformed, scratched, worn or aged should be replaced (see Figure 16). It is recommended that all seals be replaced when disassembling the hammer.



Figure 16. Seal Conditions

2. Moving parts

Check for any scratches or damage on the surface of the piston, cylinder sleeves, main valve and bottom part of the piston where it strikes the tool. Significantly damaged or scratched parts must be replaced.

3. Front cap

- a. Deformed or worn shank bushings or front cap bushings must be replaced, see Table 8 page 23.
- b. A severely worn or damaged tool set pin must be replaced.

4. Replacing the front cap bushing

- a. Measure shank and front cap bushings and refer to Table 8 page 23 and Table 9 page 24.
- b. Remove bushing set pin and bushing spring pin using a hammer and drive pin.
- c. The front cap bushing must be torch cut at three locations (at three 120° grooves) if it is the only bushing to be replaced. Avoid cutting into the front cap itself.
- d. Any scratches in the front cap must be smoothed after bushing removal.
- e. Install the new front cap bushing in the correct direction with part numbers on the bushing facing the installer (away from the hammer.) Because the bushings are a press, or interference fit, heating of the front cap and cooling of the bushing will help installation.
- f. Insert the bushing set pin and the bushing spring pin.

WARNING

BE CAREFUL OF HOT SURFACE. USE GLOVES TO PROTECT AGAINST BURNS AND POSSIBLE SHARP EDGES.

5. Replacing the shank bushing

- **Note:** Replacement of the front cap bushing is required when replacing the shank bushing, as the front cap bushing must be removed to replace the shank bushing.
 - a. Measure the shank and front cap bushing; refer to Table 8 page 23 and Table 9 page 24.
 - b. Remove bushing spring pin and bushing set pin for shank bushing on the front cap using a punch and hammer.
 - c. Press out shank bushing from the cylinder side together with front cap bushing using a round bar. If the shank bushing is too tight, cutting it with a torch may be required.
 - d. Any scratches on the front cap during the cutting operation must be smoothed out using a hand grinder.
 - e. Install a new shank bushing after greasing. As bushings are a press, or interference fit, heating of the front cap or cooling of the bushing will ease installation of the bushing.
 - f. Install the bushing set pin and the bushing spring pin.

6. Refinishing surface scratches (see Section 6. Page 27)

a. Cylinder and Cylinder Sleeve

Scratches on the inside surface of the cylinder should be smoothed using a flap wheel with 240 grit and finish with 360 grit.

b. Piston

Grind off any scratches on the outside surface using a flap wheel with 240 grit and finish with 360 grit. When polishing the piston or the cylinder bore, it is not necessary to completely remove scratches (only the sharp edges) as this may remove excess material. (See Figures 19, 20 and 21 on page 27.)

c. Main Valve and Sleeves

Main valve and sleeves cannot be polished. Replace if these parts do not slide freely by finger pressure.

COMPONENT WEAR LIMITS

Parts are to be replaced if not within the wear parameters. See Table 8 and Figure 17 below, for new dimensions see Table 9 page 24.

COMPONENT	WEAR LIMITS
Front cap bushing	When the clearance between the tool and the front cap bushing exceeds .300 in. (8mm), a new front cap bushing is required. (Approximately 500 hours of use).
Shank bushing	When the clearance between the tool and the shank bushing exceeds .160 in. (4mm), a new shank bushing is required. (Approximately 700 hours of use).
Tool	If .120 in. (3mm) of wear in the diameter is observed, a new tool is required. (Approximately 500 hours of use). Keep tool sharp.
Tool set pin	If .080 in. (2mm) of wear in the diameter is observed, a new tool set pin is required.
Front cap	If the corner of the front cap is worn to the edge of the front cap bushing, a new front cap is required.
Piston	When indentation or serious damage on the piston surface is observed, a new piston is required. (Approximately 2,000 hours of use).

Table 8. Component Wear Limits



Figure 17. Wear Limit Points

PART		HH1500	HH2000	HH3600	HH4500	HH5800	HH8000
Front Cap Bushing I.D.		101. mm.	116. mm.	136. mm.	146. mm	156. mm	166. mm
		3.967 in.	4.567 in.	5.354 in.	5.748 in.	6.142 in.	6.535 in.
Shank Buching	ID	101. mm.	116. mm.	136. mm.	146. mm.	156. mm	166. mm
Shank Dushing	I.D.	3.967 in.	4.567 in.	5.354 in.	5.748 in.	6.142 in.	6.535 in.
Tool	ΟD	100. mm.	115. mm.	135. mm.	145. mm.	155. mm	165. mm
1001	0.D.	3.937 in.	4.528 in.	5.315 in.	5.709 in.	6.102 in.	6.496 in.

Table 9. New Component Dimensions

ASSEMBLY

Note: Clean every part before assembly. Keep parts clean and do not scratch during assembly. Assembly can basically be done in the reverse order of disassembly. Make sure parts are installed in the correct direction.

- 1. Lubricate the U-packing, O-ring, piston, cylinder and main valve with hydraulic oil before assembly.
- 2. Place cylinder sleeve on the piston.
- 3. Insert the piston fully into the cylinder to its bottom position.
 - a. Make sure that all seals are positioned correctly and facing the right direction.
 - b. Handle seals very carefully in order not to cause scratches.
 - c. To avoid scratching the piston, the cylinder sleeve can be installed with a plastic hammer or nylon bar.
- 4. Install the front cap on the cylinder.
- 5. Insert the main valve and the outer sleeve.
- 6. Apply hydraulic oil into the back cap for gas seal lubrication. See Figure 18.
- 7. Attach the back cap to the cylinder.



HH1500	1.0 oz. or 30 cc.
HH2000	3.5 oz. or 100 cc.
HH3600	5.0 oz. or 150. cc.
HH4500	5.0 oz. or 150. cc.
HH5800	5.0 oz. or 150. cc.
HH8000	6.0 oz. or 180. cc.

Figure 18. Adding oil to the Back Cap.

- 8. Insert and tighten the four side rods together with the washer to the specified torque (see Table 4 and Figure 5 on page 14.)
- 9. Refill the hammer with Nitrogen (N₂) gas. Refer to pages 15 and 16.



Make sure that the piston is positioned at the lower end of its stroke before charging. The piston and the cylinder may be damaged during gas charging by sudden movement (due to a pressure increase) if the piston is not at the bottom of its stroke in the cylinder.

5. **SPECIFICATIONS**

ITEM	UNIT	HH1500	HH2000	HH3600	HH4500	HH5800	HH8000
Impact energy	ft-lbs. kg-m	1500	2000	3600	4500	5800	8000
Blows per minute	bpm	480-550	400-650 300-500	480-630 380-500	480-625 350-450	450-560 345-430	340-450 280-370
Required oil flow	gpm	21.3-28.7	21.3-36.7	36-55	40-56	50-63	62-73
	l/min	80-108	80-138	136-207	151-211	189-238	234-276
Operating pressure	psi	2000-2290	2000-2290	2290-2570	2430-2710	2430-2710	2430-2710
	bar	140-160	140-160	160-180	170-190	170-190	170-190
Nitrogen	psi	140-160	140-175	160-185	160-185	160-185	160-185
gas pressure	bar	10-11	10-12	11-13	11-13	11-13	11-13
Total weight	lbs.	1400	2100	3200	4200	5400	6800
with tool	kg	636	955	1455	1909	2455	3091
Total length	inch	70	78	90	98	105	116
	mm	176	199	228	250	266	294
Tool diameter	inch	4.0	4.5	5.3	5.7	6.1	6.5
	mm	100	115	135	140	155	165
Applicable carrier	lbs. kg	18000- 30000 8200-13700	20000- 40000 9070-18140	36000- 58000 16330- 26310	41000- 70000 18600- 31750	55000- 90000 24950- 40820	70000- 130000 31750- 58970
Carrier Relief	Psi	2600-2900	2600-2900	2900-3300	2980-3550	2980-3550	2980-3550
Valve Setting	Bar	180-200	180-200	200-230	210-250	210-250	210-250

Table 10. Specifications

Remarks:

- The hammer is to be used within the specified oil pressure, oil flow and gas pressure parameters.
- The carrier hydraulic system relief pressure is to be set at 600 to 800 psi above the hammer "Operating Pressure."
- Hydraulic pressure is to be measured at the hose end of the carrier (output or pressure hose) when disconnected from the hammer.

6. **REFINISHING OF PISTONS & CYLINDERS**

If the pistons and cylinders should be scored or scratched due to dirty oil, or improper hydraulic oil specifications, the piston and cylinder can in many cases be polished and salvaged, instead of being replaced.

This is possible because the components in this hammer are made of high quality alloy steel and do not use chromium surface finishes which cannot be polished.

Follow the procedures in Figures 19, 20 & 21 and finish by thorough flushing and cleaning. These parts can usually be salvaged.







Caution: Wear safety glasses for eye protection

Use hand held air grinder with flap type wheels. Two grit wheels were used: #240 for Heavy Polish. #360 for Finishing.

Rotate piston and polish with brushing motion of grinder.

Polish total area before changing to fine grit for finishing.





After completion of fine polishing, clean labyrinth grooves carefully with fine needle file to remove all burrs and rough edges.

Figure 21.

After polishing all rough surfaces and edges, clean all parts by flushing thoroughly. Lubricate with hydraulic oil before reassembling.

Note: It is not necessary to completely remove all scoring or scratching to full depth of the scratches. Instead polish the surfaces until any raised edges are flush and smooth with the original surface. If this procedure is followed excess material will not be removed and normal tolerances can be maintained inside the hammer.

7. TROUBLESHOOTING DIAGNOSIS

SYMPTOM	POSSIBLE CAUSE	REMEDY
Hammer	Couplers are not engaged	Connect couplers securely
does not run	Relief valve set incorrectly	Adjust main and secondary relief valve
	Malfunction of the hydraulic pump	Repair pump
	Nitrogen gas pressure is too high	Adjust gas pressure
	Main valve is damaged	Replace main valve
	Piston is damaged	Repair or replace piston
Hesitation or	Couplers are not fully engaged	Connect couplers securely
erratic operation	Relief valve set incorrectly	Adjust main and secondary relief valve
	Malfunction of the hydraulic pump	Repair pump
	Oil temperature is too high (exceeds 180°F or 80°C)	Check oil cooler
	Main valve is damaged	Replace damaged main valve
	Decreased oil flow	Avoid simultaneous axis movement
	Auto shut-off in operation, tool is suspended	Apply proper down force
	Excessive bushing wear	Replace worn bushings
	Piston is damaged	Repair or replace piston
Slow impact	Nitrogen pressure is too high	Adjust gas pressure
speed	Hydraulic oil leakage into the gas chamber	Replace seal kit
	Malfunction of the hydraulic pump	Repair pump
	Deteriorated or contaminated oil	Change oil
Low impact	Nitrogen gas pressure is low	Adjust gas pressure
power	Relief valve set incorrectly	Adjust main and secondary relief valve
	Malfunction of the hydraulic pump	Repair pump

Table 11. Troubleshooting

8. WARRANTY GUIDE LINES

Time based on total man-hours.

Seal kit installation (Includes testing, complete disassembly, cleaning and re-assembly)

HH100 - HH1000 = 4 hours

HH1500 - HH2000 = 6hours

HH3600 - HH4500 = 7hours

HH5800 - HH8000 = 8hours

Front cap bushing (Includes removal and re-installation, hammer disassembly not required)

HH150 - HH1000 1/2 hour

HH1500 - HH8000 1 hour

Shank bushing (Includes complete disassembly, removal of both bushing and reassembly)

HH150 - HH1000 = 3 hours

HH1500 - HH2000 = 4 hours

HH3600 - HH8000 = 5 hours

Side rod replacement only (Includes complete disassembly, removal of broken side rod and re-assembly)

HH150 - HH1000 = 2 hours

HH1500 - HH2000 = 3 hours

HH3600 - HH8000 = 4 hours

Bracket bolt replacement

 $HH100 - HH1000 = \frac{1}{4} hour$

 $HH1500 - HH8000 = \frac{1}{2}$ hour

IPC Industries, Inc. 194 N. Brandon Dr. Glendale Heights, IL 60139

LIMITED WARRANTY FOR HYDRAULIC HAMMERS

LIMITED WARRANTY

The manufacturer warrants its Products against defects in material and workmanship. Such *LIMITED* warranty shall apply to the initial Purchaser only. The *BACK-CAP, MAIN BODY and FRONT CAP* carry a *LIFETIME, UNLIMITED HOURS* warranty. All other components (except seals and exclusions listed below) are warranted as follows: *THREE (3) YEARS, UNLIMITED HOURS*. Seals are warranted for a period of *TWO (2) YEARS, UNLIMITED HOURS*. All Warrantees begin from the date of sale to the original retail end-user or the initial rental service of the hammer.

ITEMS EXCLUDED FROM THIS WARRANTY

Normal wear items such as tools (moil, chisel, blunt, tamper, frost wedge and asphalt cutter), shank bushings, tool bushings, set pins, hoses, hose adapters and accessories are specifically excluded from any and all warrantees.

WARRANTY LIMITATIONS

This warranty will be in effect only if:

- 1. The Purchaser or his agent has the Product installed and operating in accordance with the published Manufacturers specifications and guidelines.
- 2. The Purchaser or his agent does not exceed the Products published design operating range for hydraulic flow, pressure or recommended carrier size.
- 3. The Purchaser or his agent complies with the maintenance schedule in the Operating and Service Manual supplied with each Product.
- 4. The Purchaser or his agent uses replacement parts/products received from or approved by IPC Industries, Inc.

This Warranty **will not** cover defects/failures caused by abuse, neglect, misuse, lack of maintenance, accident or use of the Product beyond its published design capacity, specifications or recommended applications.

The Manufacturer will authorize the return of defective components to the Manufacturers warehouse or location specified by the Manufacturer. The Manufacturer will determine if said components show clear and evident proof of defective material and/or workmanship. A warranty claim will only be accepted if accompanied by proof of purchase and received within thirty-(30)-days of the warranted defect or failure.

The Manufacturer will, at its option, determine what, if any, defective/faulty components will be accepted for warranty coverage. The Manufacturer will, at its option, determine whether to repair or replace components deemed faulty because of defective materials or workmanship. The manufacturer will not be accountable for mileage, travel time, travel costs, and/or any freight costs incurred to facilitate the needed replacement or repairs beyond those stated within the document (attached) titled "Warranty Policy Statement". The Manufacturer shall not be liable for lost rental income, machine availability or failure of components not supplied or installed by Manufacturer.

WARRANTY DISCLAIMER

This Warranty is exclusive and in lieu of all other representations and warranties, expressed or implied. The Manufacturer expressly disclaims and excludes any implied warranty of merchantability or fitness for a particular purpose. In no event shall the Purchaser or his agent be entitled to any consequential damages of any kind, whether arising out of breach of contract, warranty (including negligence and strict liability) or other theories of law, with respect to products sold or services rendered by the Manufacturer, or any undertakings, acts or omissions relating thereto. The Manufacturer reserves the right to change these policies as conditions dictate. *July 1, 2005*

Warranty Policy Statement

This document explains IPC Industries, Inc. specific policies concerning submission and reconciliation of warranty claims. This document is in addition to and a part of the IPC Industries, Inc. *Limited* Lifetime *Warranty For Hydraulic Hammers* that accompanies all new hydraulic hammer products.

1. Warranty Registration Card

Each hydraulic hammer is shipped with a *Warranty Registration Card*. In order to properly process your claim this card *must* be on file at IPC. This card not only registers the product for warranty purposes it keeps IPC informed so we can contact you concerning product updates, parts specials and service bulletins.

2. Ordering Warranty Replacement Parts

<u>All</u> parts ordered from IPC will, *without exception*, be invoiced and shipped freight collect or prepaid with freight on the invoice. Warranted costs for freight will be resolved on the *Warranty Claim* form you will be returning with the defective part.

3. Filing a Claim

Every IPC product shipped includes two service manuals and a package containing a *Warranty Claim* form and a Delivery Report form for pre-delivery. The *Warranty Claim* form is located in the envelope labeled "Distributor Information".

4. Labor Reimbursement and Using the Warranty Claim Form

Fill out all items as completely as possible. Take note of (5.) below. In the section titled "DESCRIPTION OF FAILURE" describe the failure as clearly as possible along with operating conditions of the hammer *and* carrier as best you can.

In order for IPC to consider "DEALER LABOR" and "DEALER MILEAGE" in your claim, your *published* labor and mileage rates must be on file with IPC or must accompany the claim form. Please see (8.) below for an explanation of "FREIGHT (PAID)".

In no event shall IPC Industries, Inc. warrant more than one (1) hour travel time (each way) or eight (8) hours of labor for a hammer repair.

Please refer to the service manual for easy to follow disassembly and assembly procedures. IPC Industries, Inc. would be pleased to provide you with no-charge "on-site" service training covering all aspects of hammer service.

5. Warranty Submission Time Limit

No more than thirty- (30)-days can elapse between the "DATE OF FAILURE" and "DATE OF CLAIM". Claims submitted beyond thirty- (30)-days from the "DATE OF FAILURE" will be denied.

IPC's purpose is to provide the best possible product reliability and customer service. Our best sources for product reliability information and failure analysis are used/failed parts from the field. A part that has been exposed to weeks of weather tells us little or nothing. If we can't tell why or where a part failed because of rust or damage we can't warranty the part.

6. Requesting a <u>Returned Goods Authorization (RGA)</u>

Before returning a suspected warranty part, call IPC at (800) 487-5431 and our customer service representatives will provide you with a RGA number. Please have the description of the part(s) at hand and the method by which you will be returning the part prepaid to IPC. At that time it may be determined that you need not return the part and IPC may, at its sole discretion, warrant the part without examination. Do not scrap any parts under warranty consideration unless authorized by IPC or credit is received.

7. Returning a Warranted Part

All returned parts must be shipped prepaid (not collect) and include the RGA number prominently displayed on the shipping label. If a part is particularly heavy, please contact us for further information.

8. Warranty Part Freight Costs

IPC Industries, Inc. will cover inbound (when requested by IPC) and outbound freight for warranted parts under the following circumstances *only*:

- IPC will cover *surface freight* costs for parts judged to be defective in materials or workmanship.
- The cost of shipping warranted parts via an expedited surface or air shipment will be paid as follows: IPC will pay the difference between standard surface freight and air or expedited surface freight, whichever is less.

9. IPC Claims Processing

IPC will respond to the dealer submitting the claim within 30 days as follows:

• A credit for an approved claim which contains the required information or,

• A request for further information, for return of the parts for analysis (refer to 6. and 7. above)

or,

• Notification of a denied claim with an explanation of why the claim was denied.

9. PARTS LIST AND ILLUSTRATIONS

HH1500 HH2000 HH3600 HH4500 HH5800



HH1500 HAMMER

ITEM	NAME	NUMBER	OTY.
1	Cylinder	3J01-212001	1
2	Cylinder O-Ring*	Seal Kit	2
3	Cylinder O-Ring*	Seal Kit	2
4	Cylinder O-Ring*	Seal Kit	1
5	Cylinder Sleeve	3.101-2.12002	1
6	Cylinder Sleeve O-Ring*	Seal Kit	2
7	Ouad Ring*	Seal Kit	1
8	Back Un Ring*	Seal Kit	1
9	Sten Seal*	Seal Kit	1
10	Step Seal O-Ring*	Seal Kit	1
11	U-Packing*	Seal Kit	2
12	Dust Seal*	Seal Kit	1
13	Drain Plug	3701-DP0014	1
13	Choke Plug #1	3101-2120095	1
15	Choke O-Ring*	3701-2120093	1
16	Plug	3101-2120081	1
17	Plug O-Ring*	3701-2120001	1
18	Choke Plug #2	3101-2120082	1
10	Plug O-Ring*	3701-2120002 3701-21209040B	1
20	Piston	3101-21200011	1
20	Valve Box	3101-2120021	1
21	Main Valve	3F01-2100622	1
22	Main Valve Inner Sleeve	3F01-2060622	1
23	Main Valve Outer Sleeve	3F01-2060625	1
25	Main Valve O-Ring*	3F01-09092B	1
25	Valve Can	3101-2120023	1
20	Valve Cap Bolt	3101-C4009B	4
28	Valve Box Set Bolt	3H01-B48138	6
20	Back Can	3101-2120031	1
30	Back Cap O-Ring*	Seal Kit	1
31	Front Can	3101-2120041	1
32	Front Can Plug	3701-FP0038	1
33	Shank Bushing	3101-2120042	1
34	Front Can Bushing	3101-2120043	1
35	Bushing Set Pin	3101-2120044	3
36	Bushing Spring Pin	3H01-S40108	6
37	Nipple PF—3/4in —1 1/16in UN	3F03-N00002	2
38	O-Ring 1BG-30	Ass'y of item 37	2
39	Side Rod Assembly	3101-2120051	4
40	Side Rod Front Nut	Ass'y of item 39	4
41	Side Rod Back Nut	Ass'y of item 39	4
42	Side Rod Washer	Ass'y of item 39	4
43	Grease Nipple	3Z01-GN0018	1
44	Tool Set Pin	3101-2120061	1
45	Tool Spring Pin	3H01-S40248	2
46	Tool Moil (Chisel, Blunt)	3J01-212P(Fx, F)	1
NI	Seal Kit	3J01-2128K	1
NI	Gas Charger	3Z01-202GC	1
47	Gas Valve Assembly (Includes item # 48)	3Z01-G00001	1
48	Gas Valve Cap with O-Ring	3Z01-G00004	1

*Included in seal kit. NI denotes not illustrated.

Effective 07/05

HH1500 HAMMER



HH1500 HAMMER



BRACKET ASSEMBLY PARTS LIST

ITEM	PART NO.	ОТУ	DESCRIPTION
11LIVI	MODEL HH1500		DESCRIPTION
1.	3J01-212501	1	Hammer Bracket (R)*
2.		1	Hammer Bracket (L)*
3.	3H01-215502	4	Bracket Bolt
4.	Assembly of Item 3	4	Washer
5.	Assembly of Item 3	8	Nut
6.	3J01-212504	2	Support Pipe
7.	3H01-TC2000B	10	Top Cap Bolt
8.	Assembly of item 7	10	Top Cap Washer
9.	Assembly of item 7	10	Top Cap Nut
10.	Per Carrier Model	1	Top Cap
*Sold	as matched set w/ hardware		Effective 07/05

Prices subject to change without notice.

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HH2000 HAMMER UP TO S/N 2K031 SOLD BEFORE 9/96

1 Cylinder O-Ring* 3H01-309098 2 2 Cylinder O-Ring* 3H01-4090788 2 3 Cylinder Sleeve O-Ring* 3H01-4090788 3 4 Cylinder Sleeve O-Ring* 3H01-150000 1 5 Cylinder Sleeve O-Ring* 3H01-150001 2 7 U-Packing* 3H01-150001 2 9 Dask Scal* 3H01-150001 2 9 Dask Scal* 3H01-150001 1 10 Drain Fug 3H01-150001 1 11 Piston 3H01-150001 1 12 Valve Rox 3H01-150011 1 13 Man Valve 3H01-150021 1 14 Upper Valve Cap 3H01-150022 1 15 Valve Cap O-Ring* 3H01-4510025 1 16 Back Up King* 3H01-451180 1 1 17 Valve Cap O-Ring* 3H01-451180 1 1 210 Acting* 3H01-451180 1	ITEM	NAME	NUMBER	QTY.
2 Cylinder O-Ring* 3H01-49092B 2 3 Cylinder J-Ring* 3H01-2150002 1 5 Cylinder Sleve O-Ring* 3H01-2150002 1 7 Li Packing* 3H01-1150001 2 8 Li Packing* 3H01-1150001 2 9 Dusi Scat* 3H01-1550001 1 10 Drain Plug 3201-D70014 1 11 Pracing with Back Up Ring* 3H01-1550001 1 11 Pracing with Sata* 3H01-2150021 1 12 Value Cap 3H01-2150021 1 13 Mains Valve 3H01-2150021 1 14 Uiper Cap Chag* 3H01-2150021 1 15 Valve Cap Chag* 3H01-2150025 1 16 kack Up Ring* 3H01-2150025 1 17 Valve Cap Chag* 3H01-2150025 1 18 Lawer Valve Cap 3H01-2150026 1 19 More Cap Chag* 3H01-2150026 1	1	Cylinder	3H01-2150001	1
3 Cylindor O-Ning* 3H01-09072B 3 4 Cylindor Sleve O-Ring* 3H01-0728W 3 5 Cylindor Sleve O-Ring* 3H01-0728W 3 6 Gas U-Packing* 3H01-15000f 2 7 It-Packing with Back Up Ring* 3H01-15000f 2 9 Dux Scal* 3H01-15000f 1 10 Drain Ping 3H01-15000f 1 11 Piston 3H01-150001 1 12 Valve Sox 3H01-150001 1 13 Main Valve Cap 3H01-1500021 1 14 Upper Valve Cap 3H01-2150022 1 15 Valve Cap O-King* 3H01-2150023 1 16 Back Up Ring* 3H01-2150025 1 17 Valve Cap O-King* 3H01-2150025 1 18 Lower Valve Cap O-King* 3H01-2150025 1 21 O-King* 3H01-2150026 1 22 Back Up Ring* 3H01-215001 1	2	Cylinder O-Ring*	3H01-09098B	2
4 Cylinds Filesco O-Ring* 3H01-2150002 1 5 Cylinds Filesco O-Ring* 3H01-1050001 2 7 I-Packing* 3H01-150001 2 8 U-Packing with Back Up Ring* 3H01-150001 2 9 Durs Sal* 3H01-150001 1 10 Drain Plug 201-107014 1 11 Piston 3H01-2150021 1 12 Valve Rox 3H01-2150022 1 13 Main Valve 3H01-2150022 1 14 Upper Valve Cap 3H01-2150022 1 15 Valve Cap O-Ring* 3H01-051180 1 16 Back Up Ring* 3H01-051180 1 17 Valve Cap O-Ring* 3H01-2150025 1 10 Locater Pin 3201-PN0510 1 11 Locater Pin 3201-PN0510 1 22 Back Up Ring* 3H01-071358A 1 23 Valve Cap Edu 3H01-170081 1 <t< td=""><td>3</td><td>Cylinder O-Ring*</td><td>3H01-09072B</td><td>3</td></t<>	3	Cylinder O-Ring*	3H01-09072B	3
5 Cylinder Sleve O-Ring* 3H01-49288W 3 6 G. Su U-Packing* 3H01-1150001 2 7 U-Packing with Back Up Ring* 3H01-150001 2 9 Dux Scal* 3H01-150001 1 10 Drain Flug 3H01-150001 1 11 Piston 3H01-2150011 1 12 Valve Box 3H01-2150021 1 13 Main Valve 3H01-2150022 1 14 Upper Valve Cap 3H01-2150023 1 15 Valve Cap O-Ring* 3H01-2150025 1 16 Back Up Ring* 3H01-2150026 1 17 Valve Cap O-Ring* 3H01-2150026 1 20 Box Sizeve 3H01-2150026 1 21 O-Aking* 3H01-98180 1 22 Back Cap Dath 3H01-98180 1 23 Valve Cap Dath 3H01-98180 1 23 Valve Cap Caring* 3H01-98180 1 24<	4	Cylinder Sleeve	3H01-2150002	1
6 Gas U-Packing* 3H01-U150001 2 7 U-Packing* 3H01-U50001 2 8 U-Packing with Back Up Ring* 3H01-U50001 2 9 Dust Seat* 3H01-U50001 1 10 Drain Ping 2201-DP0014 1 11 Piston 3H01-2150021 1 12 Valve Sox 3H01-2150022 1 13 Main Valve 3H01-2150022 1 14 Upper Valve Cap 3H01-02150022 1 15 Valve Cap O-Ring* 3H01-02150022 1 16 Back Up Ring* 3H01-0215002 1 17 Valve Cap O-Ring* 3H01-0215002 1 18 Lower Valve Cap 3H01-251500 1 19 Locater Pin 3Z01-PN0510 1 20 Box Sizeeve 3H01-0215180 1 21 O-Ring* 3H01-071585 1 22 Back Up Ring* 3H01-07358A 1 23	5	Cylinder Sleeve O-Ring*	3H01-09288W	3
7 U-Packing* 3H01-115000H 2 8 U-Packing* 3H01-15000H 2 9 Dust Scal* 3H01-15000H 1 10 Drain Plug 3Z01-DP0014 1 11 Piston 3H01-2150021 1 12 Valve Box 3H01-2150022 1 13 Main Valve Qp 3H01-2150022 1 14 Upper Valve Cap 3H01-2150022 1 15 Valve Cap O-Ring* 3H01-0108B 1 16 Back Up Ring* 3H01-2150025 1 17 Valve Cap O-Ring* 3H01-2150025 1 20 Box Sleeve 3H01-2150025 1 21 O-King* 3H01-9118B 1 22 Back Cap Cap Rolt 3H01-9118B 1 22 Back Cap Cap Rolt 3H01-9118B 1 23 Valve Cap Rolt 3H01-9118B 1 24 Valve Cap Rolt 3H01-9118B 1 25 Fout Cap </td <td>6</td> <td>Gas U-Packing*</td> <td>3H01-U15000G</td> <td>1</td>	6	Gas U-Packing*	3H01-U15000G	1
8 U-Packing with Back Up Ring* 3H01-150000H 2 9 Dust Seal* 3H01-150000H 1 10 Drain Ping 3Z01-DP0014 1 11 Piston 3H01-2150021 1 12 Valve Box 3H01-2150022 1 13 Main Valve 3H01-2150023 1 14 Upper Valve Cap 3H01-01108B 1 15 Valve Cap O-Ring* 3H01-01108G 1 16 Back Up Ring* 3H01-01108G 1 17 Valve Cap O-Ring* 3H01-01108G 1 20 Box Sleeve 3H01-2150025 1 21 Deak Up Ring* 3H01-0118G 1 22 Back Up Ring* 3H01-0118G 1 23 Valve Box Set Bolt 3H01-84108G 1 24 Valve Box O-Ring* 3H01-0118G 1 23 Valve Box O-Ring* 3H01-150035 1 24 Valve Box O-Ring* 3H01-150036 1 <	7	U-Packing*	3H01-U15000I	2
9 Dust Scal ¹ 3H01-150001 1 10 Drain Plag 2201-DP0014 1 11 Pison 3H01-2150011 1 12 Valve Box 3H01-2150022 1 13 Main Valve Cap 3H01-2150023 1 14 Upper Valve Cap 3H01-2150023 1 15 Valve Cap O-Ring* 3H01-2150023 1 16 Back Up Ring* 3H01-051180 1 17 Valve Cap O-Ring* 3H01-2150025 1 20 Box Sileve 3H01-2150025 1 21 O-Ring* 3H01-2150025 1 22 Back Up Ring* 3H01-051180 1 23 Valve Cap Bolt 3H01-971180 1 24 Valve Cap Bolt 3H01-971180 1 25 Valve Cap Bolt 3H01-97180 1 26 Back Cap 3H01-97180 1 27 Back Cap C-Ring* 3H01-150041 1 28 From	8	U-Packing with Back Up Ring*	3H01-15000H	2
10 Drain Plug 3201-DP0014 1 11 Piston 3401-2150021 1 12 Valve Box 3401-2150022 1 13 Main Valve 3401-2150022 1 14 Upper Valve Cap 3401-2150023 1 15 Valve Cap O-Ring* 3401-051086 1 16 Back Up Ring* 3401-051086 1 17 Valve Cap O-Ring* 3401-0511086 1 18 Lower Valve Cap 3401-2150025 1 20 Box Sleeve 3401-051186 1 21 O-Ring* 3401-071188 1 22 Back Up Ring* 3401-071186 1 23 Valve Box SG Bolt 3401-348138 6 24 Valve Box O-Ring* 3401-07188 1 25 Valve Box O-Ring* 3401-12500301 2 26 Back Cap 3401-1250041 1 27 Back Cap O-Ring* 3401-150043 1 28	9	Dust Seal*	3H01-15000D	1
11 Piston 3101-2150011 1 12 Valve Box 3101-2150021 1 13 Main Valve 3101-2150022 1 14 Upper Valve Cap 3101-2150023 1 15 Valve Cap O-Ring* 3101-07108B 1 16 Back Up Ring* 3101-07108B 1 17 Valve Cap O-Ring* 3101-07108B 1 18 Lower Valve Cap 3101-2150025 1 20 Box Sleve 3101-2150026 1 21 O-Ring* 3101-07118B 1 22 Back Up Ring* 3101-07118B 1 23 Valve Box Set Bolt 3101-1018186 6 24 Valve Cap Polt 3101-101818051 1 25 Valve Box O-Ring* 3101-101818031 1 26 Back Cap O-Ring* 3101-102038A 1 27 Back Cap O-Ring* 3101-100404B 3 30 Shark Bushing 3101-150031 1 <t< td=""><td>10</td><td>Drain Plug</td><td>3Z01-DP0014</td><td>1</td></t<>	10	Drain Plug	3Z01-DP0014	1
12 Valve Rox 3400-12150021 1 13 Main Valve 3400-12150023 1 14 Upper Valve Cap 3400-42150023 1 15 Valve Cap O-Ring* 3400-401806 1 16 Back Up Ring* 3400-401806 1 17 Valve Cap O-Ring* 3400-1250025 1 18 Lower Valve Cap 3400-1250025 1 20 Box Sleeve 3400-1250026 1 21 O-Ring* 3400-1081186 1 22 Back Up Ring* 3400-1081186 1 23 Valve Rox Set Bolt 3400-1844138 6 24 Valve Rox O-Ring* 3400-197188 1 25 Valve Rox O-Ring* 3400-17358A 1 26 Back Cap 3400-17358A 1 27 Back Cap O-Ring* 3400-17358A 1 28 Front Cap Front Cap Fug 3201-FP0038 1 29 Front Cap Bushing 3401-150042 1 310 Shank Bushing 3400-150033 4 3	11	Piston	3H01-2150011	1
13 Main Valve 3101-2150022 1 14 Upper Valve Cap 3101-2150023 1 15 Valve Cap O-Ring* 3101-001088 1 16 Back Up Ring* 3101-0010806 1 17 Valve Cap O-Ring* 3101-001180 1 18 Lower Valve Cap 3101-2150025 1 20 Box Sleve 3101-01188 1 21 O-Ring* 3101-01188 1 22 Back Up Ring* 3101-01818G 1 23 Valve Box Set Bolt 3101-01818G 1 24 Valve Box Set Bolt 3101-01818G 1 25 Valve Box G-Ring* 3101-0194180 1 26 Back Cap O-Ring* 3101-1250031 1 27 Back Cap O-Ring* 3101-1250031 1 28 Front Cap 3101-17358A 1 29 Front Cap Plug 3201-PR038 1 30 Shank Bushing 3101-150041 1 31 Front Cap Bushing 3101-150043 1 32	12	Valve Box	3H01-2150021	1
14 Upper Valve Cap O-Ring* 3H01-07108B 1 15 Valve Cap O-Ring* 3H01-07108B 1 16 Back Up Ring* 3H01-051180 1 17 Valve Cap O-Ring* 3H01-051180 1 18 Lower Valve Cap O-Ring* 3H01-2150025 1 19 Locater Pin 3Z01-PN0510 1 20 Box Sleeve 3H01-2150026 1 21 O-Ring* 3H01-07118B 1 22 Back Up Ring* 3H01-07118B 1 23 Valve Cap Bolt 3H01-07118B 1 24 Valve Cap Bolt 3H01-07138A 1 25 Valve Box O-Ring* 3H01-07358A 1 26 Back Cap 3H01-2150041 1 27 Back Cap O-Ring* 3H01-15058A 1 28 Front Cap Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150044 3 32 Bushing Set Pin 3H01-150044 3	13	Main Valve	3H01-2150022	1
15 Valve Cap O-Ring* 3H01-07108B 1 16 Back Up Ring* 3H01-051180 1 17 Valve Cap O-Ring* 3H01-2150025 1 18 Lower Valve Cap 3H01-2150025 1 20 Box Sleeve 3H01-2150026 1 21 O-Ring* 3H01-2150026 1 22 Back Up Ring* 3H01-2150026 1 23 Valve Cap O-Ring* 3H01-2150026 1 23 Valve Cap O-Ring* 3H01-2150026 1 24 Valve Cap Bolt 3H01-84138 6 24 Valve Cap O-Ring* 3H01-2150031 1 25 Valve Cap O-Ring* 3H01-2150031 1 26 Back Cap O-Ring* 3H01-2150041 1 27 Back Cap C-Ring* 3H01-150043 1 30 Shark Bushing 3H01-150044 3 31 Front Cap Plug 3201-FP0038 1 32 Bushing Spring Pin 3H01-150043 1	14	Upper Valve Cap	3H01-2150023	1
16 Back Up Ring* 3H01-08108C 1 17 Valve Cap O-Ring* 3H01-2150025 1 18 Lower Valve Cap 3H01-2150025 1 20 Box Sleeve 3H01-2150026 1 21 O-Ring* 3H01-2150026 1 22 Back Up Ring* 3H01-07118B 1 23 Valve Box Set Bolt 3H01-84133 6 24 Valve Cap Bolt 3H01-9040B 2 25 Valve Box O-Ring* 3H01-9040B 2 26 Back Cap O-Ring* 3H01-21580031 1 27 Back Cap O-Ring* 3H01-7358A 1 28 Front Cap 3H01-7358A 1 29 Front Cap Flug 3201-FP0038 1 30 Shark Bushing 3H01-150042 1 31 Front Cap Flug 3201-FP0038 1 32 Bushing Ser Pin 3H01-150044 3 33 Bushing Ser Pin 3H01-150044 3 3	15	Valve Cap O-Ring*	3H01-07108B	1
17 Valve Cap O-King* 3H01-051180 1 18 Lower Valve Cap 3H01-2150025 1 19 Locater Pin 3Z01-PN0510 1 20 Box Sleeve 3H01-2150026 1 21 O-Ring* 3H01-A9118B 1 22 Back Up Ring* 3H01-848138 6 23 Valve Ox Set Bolt 3H01-848138 6 24 Valve Cap Bolt 3H01-9040B 2 25 Valve Cap O-Ring* 3H01-21580031 1 26 Back Cap O-Ring* 3H01-21580031 1 27 Back Cap O-Ring* 3H01-21580031 1 28 Front Cap Bashing 3H01-150042 1 29 Front Cap Bashing 3H01-150042 1 310 Shank Bushing 3H01-150042 1 32 Bushing Sring Pin 3H01-150042 1 33 Bushing Sring Pin 3H01-150042 1 34 Nipple PM-34in1/16in. UN 3203-N00002 2	16	Back Up Ring*	3H01-08108G	1
18 Lower Valve Cap 3H01-2150025 1 19 Locater Pin 3Z01-PN0510 1 20 Box Sleeve 3H01-2150026 1 21 O-Ring* 3H01-07118B 1 22 Back Up Ring* 3H01-0904018 1 23 Valve Box Set Bolt 3H01-B48138 6 24 Valve Cap Bolt 3H01-B44098 10 25 Valve Box O-Ring* 3H01-09040B 2 26 Back Cap 3H01-17538A 1 27 Back Cap O-Ring* 3H01-2150031 1 28 Front Cap Plug 3Z01-PP038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150042 1 32 Bushing Spring Pin 3H01-50043 3 33 Bushing Spring Pin 3H01-50044 3 34 Nipple PS-34in	17	Valve Cap O-Ring*	3H01-051180	1
19 Locater Pin 3201-PN0510 1 20 Box Sleeve 3H01-21150026 1 21 O-Ring* 3H01-07118B 1 22 Back Up Ring* 3H01-07118B 1 23 Valve Box Set Bolt 3H01-84138 6 24 Valve Cap Bolt 3H01-904098 2 25 Valve Box Cap 3H01-21550031 1 26 Back Cap O-Ring* 3H01-21550031 1 27 Back Cap O-Ring* 3H01-21550031 1 28 Front Cap Plug 32D1-FP0038 1 29 Front Cap Plug 3H01-150042 1 30 Shank Bushing 3H01-150043 1 31 Front Cap Bushing 3H01-150044 3 32 Bushing Set Pin 3H01-150043 1 33 Bushing Set Pin 3H01-150043 1 34 Nipple PF-3/4in1.1/16in. UN 3203-N00002 2 35 O-Ring HBG-30 3203-N00002 2	18	Lower Valve Cap	3H01-2150025	1
20 Box Sleeve 3H01-2150026 1 21 O-Ring* 3H01-07118B 1 22 Back Up Ring* 3H01-08118G 1 23 Valve Box Set Bolt 3H01-B48138 6 24 Valve Cap Bolt 3H01-B48138 6 25 Valve Cap Bolt 3H01-B44098 10 26 Back Cap O-Ring* 3H01-07358A 1 27 Back Cap O-Ring* 3H01-2150031 1 28 Front Cap Plug 3Z01-FP0038 1 29 Front Cap Bushing 3H01-150042 1 30 Shank Bushing 3H01-150044 3 31 Front Cap Bushing Set Pin 3H01-50044 3 33 Bushing Set Pin 3H01-50051 4 34 Nipple PF-3dim1/1/6in. UN 3Z03-07068B 2 35 O-Ring 1BG-30 3Z03-370608B 2 2 36 Side Rod Assembly 3H01-150051 4 4 37 Side Rod Assembly <td< td=""><td>19</td><td>Locater Pin</td><td>3Z01-PN0510</td><td>1</td></td<>	19	Locater Pin	3Z01-PN0510	1
21 O-Ring* 3H01-07118B 1 22 Back Up Ring* 3H01-08118G 1 23 Valve Box Set Bolt 3H01-B448138 6 24 Valve Cap Bolt 3H01-B44098 10 25 Valve Box O-Ring* 3H01-09040B 2 26 Back Cap O-Ring* 3H01-21580031 1 27 Back Cap O-Ring* 3H01-2150041 1 28 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150043 1 32 Bushing Set Pin 3H01-150044 3 3 33 Bushing Set Pin 3H01-150044 3 3 3 34 Nipple PF—3/4in.—1.1/16in. UN 3Z03-07068B 2 2 3<	20	Box Sleeve	3H01-2150026	1
22 Back Up Ring* 3H01-08118G 1 23 Valve Box Set Bolt 3H01-B48138 6 24 Valve Box O-Ring* 3H01-091400B 2 25 Valve Box O-Ring* 3H01-091400B 2 26 Back Cap O-Ring* 3H01-07358A 1 27 Back Cap O-Ring* 3H01-150041 1 28 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing Pin 3H01-150043 1 32 Bushing Set Pin 3H01-150044 3 33 Bushing Set Pin 3H01-500108 6 34 Nipple PF-3/4in.—1.1/16in. UN 3Z03-07068B 2 35 O-Ring 1BG-30 3Z03-07068B 2 4 36 Side Rod Assembly 3H01-150051 4 4 37 Side Rod Back Nut 3H01-150052 4 4 38 Side Rod Front Nut 3H01-150051 4 4 4 <td>21</td> <td>O-Ring*</td> <td>3H01-07118B</td> <td>1</td>	21	O-Ring*	3H01-07118B	1
23 Valve Box Set Bolt 3H01-B4438 6 24 Valve Cap Bolt 3H01-B44098 10 25 Valve Box O-Ring* 3H01-09040B 2 26 Back Cap O-Ring* 3H01-2150031 1 27 Back Cap O-Ring* 3H01-2150041 1 28 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150043 1 32 Bushing Ster Pin 3H01-150044 3 33 Bushing Ster Pin 3H01-150044 3 34 Nipple PF3/4in.—1.1/16in. UN 3Z03-07068B 2 35 O-Ring 1BG-30 3Z03-07068B 2 4 36 Side Rod Assembly 3H01-150051 4 4 37 Side Rod Assembly 3H01-150053 4 4 38 Side Rod Back Nut 3H01-150053 4 4 40 Grease Nipple 3Z01-GN0018 1 1	22	Back Up Ring*	3H01-08118G	1
24 Valve Cap Bolt 3H01-B4098 10 25 Valve Box O-Ring* 3H01-09040B 2 26 Back Cap 3H01-21580031 1 27 Back Cap O-Ring* 3H01-21580031 1 28 Front Cap Plug 3Z01-FP0038 1 29 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150044 3 32 Bushing Set Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-150044 3 34 Nipple PF-3/4in.—1.1/16in. UN 3Z03-M00002 2 35 O-Ring IBG-30 3Z03-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150053 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Spring Pin 3H01-50051 4 42 Tool Moli Chisel, Blunt) 3H01-50054 <td< td=""><td>23</td><td>Valve Box Set Bolt</td><td>3H01-B48138</td><td>6</td></td<>	23	Valve Box Set Bolt	3H01-B48138	6
25 Valve Box O-Ring* 3H01-90400B 2 26 Back Cap 3H01-21580031 1 27 Back Cap O-Ring* 3H01-21580031 1 28 Front Cap 3H01-2150041 1 29 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150043 1 32 Bushing Spring Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-150044 3 34 Nipple PF—3/4in1.1/16in. UN 3Z03-07068B 2 35 O-Ring IBG-30 3Z03-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Assembly 3H01-150053 4 38 Side Rod Washer 3H01-150053 4 39 Side Rod Washer 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150051 4 43 Tool Moil (Chisel, Blunt) 3H01-210027 1 <	24	Valve Cap Bolt	3H01-B44098	10
26 Back Cap 3H01-21580031 1 27 Back Cap O-Ring* 3H01-07358A 1 28 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150043 1 32 Bushing Set Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-150044 3 34 Nipple Pr-3J4in1.1/16in. UN 3Z03-N00002 2 35 O-Ring 1BG-30 3Z03-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rof Front Nut 3H01-150051 4 38 Side Rod Washer 3H01-150053 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Spring Pin 3H01-210027 1 42 Tool Spring Pin 3H01-2210027 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve Co-Ring* 3H01-9036W 1 </td <td>25</td> <td>Valve Box O-Ring*</td> <td>3H01-09040B</td> <td>2</td>	25	Valve Box O-Ring*	3H01-09040B	2
27 Back Cap O-Ring* 3H01-07388A 1 28 Front Cap 3H01-150041 1 29 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing Set Pin 3H01-150044 3 33 Bushing Set Pin 3H01-450044 3 34 Nipple PF-3/4in1.1/16in. UN 3Z03-N00002 2 35 O-Ring IBG-30 3Z03-N0002 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Fort Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 40 Grease Nipple 3Z01-R0018 1 41 Tool Set Pin 3H01-150054 4 42 Tool Spring Pin 3H01-50054 4 43 Tool Moil (Chisel, Blunt) 3H01-520027 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-09036W	26	Back Cap	3H01-21580031	1
28 Front Cap 3H01-2150041 1 29 Front Cap Plug 3Z01-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150043 1 32 Bushing Set Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-50040 6 34 Nipple PF3/4in1.1/16in. UN 3Z03-N00002 2 35 O-Ring 1BG-30 3Z03-7068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150054 4 42 Tool Spring Pin 3H01-210027 1 44 Mode Valve Body 3H01-210027 1 44 Mode Valve O-Ring* 3H01-09036W 1 45 Mode Valve O-Ring* 3H01-09036W 1 <td>27</td> <td>Back Cap O-Ring*</td> <td>3H01-07358A</td> <td>1</td>	27	Back Cap O-Ring*	3H01-07358A	1
29 Front Cap Plug 3201-FP0038 1 30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing 3H01-150043 1 32 Bushing Set Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-150044 3 34 Nipple PF-3/4in1.1/16in. UN 3203-07068B 2 35 O-Ring 1BG-30 3203-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150054 4 43 Tool Moil (Chisel, Blunt) 3H01-210077 1 44 Mode Valve Body 3H01-215077 1 44 Mode Valve O-Ring* 3H01-09044W 1 45 Mode Valve O-Ring* 3H01-09036W 1 46 Mode Valve O-Ring* 3H01-09036W <td>28</td> <td>Front Cap</td> <td>3H01-2150041</td> <td>1</td>	28	Front Cap	3H01-2150041	1
30 Shank Bushing 3H01-150042 1 31 Front Cap Bushing Set Pin 3H01-150043 1 32 Bushing Set Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-150044 3 34 Nipple PF3/4in1.1/16in. UN 3Z03-N00002 2 35 O-Ring IBG-30 3Z03-V0068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Assembly 3H01-150052 4 38 Side Rod Washer 3H01-150053 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150051 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Spring Pin 3H01-80048 2 43 Tool Moil (Chisel, Blunt) 3H01-2210027 1 44 Mode Valve O-Ring* 3H01-09044W 1 47 Mode Valve O-Ring* 3H01-09036W 1 48 Mode Valve Co-Ring* 3H01-0903	29	Front Cap Plug	3Z01-FP0038	1
31 Front Cap Bushing 3H01-150043 1 32 Bushing Set Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-150044 3 34 Nipple PF—3/4in.—1.1/16in. UN 3Z03-N00002 2 35 O-Ring IBG-30 3Z03-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Front Nut 3H01-150053 4 39 Side Rod Pront Nut 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150061 1 42 Tool Moil (Chisel, Blunt) 3H01-210027 1 43 Tool Moil (Chisel, Blunt) 3H01-2210027 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-90036W 1 47 Mode Valve O-Ring* 3H01-90036W 1 47 Mode Valve Lock Bolt 3H01-82068 4 49 Mode Valve Lock Bolt 3H	30	Shank Bushing	3H01-150042	1
32 Bushing Set Pin 3H01-150044 3 33 Bushing Spring Pin 3H01-S40108 6 34 Nipple PF-3/4in.—1.1/16in. UN 3203-N00002 2 35 O-Ring 1BG-30 3Z03-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Spring Pin 3H01-150051 1 42 Tool Spring Pin 3H01-150054 4 43 Tool Moil (Chisel, Blunt) 3H01-150061 1 44 Mode Valve Body 3H01-2150(FK, E) 1 44 Mode Valve Body 3H01-2210027 1 44 Mode Valve O-Ring* 3H01-09044W 1 45 Mode Valve O-Ring* 3H01-9036W 1 46 Mode Valve Co-Ring* 3H01-9036W 1 47 Mode Valve Lock Bolt 3	31	Front Cap Bushing	3H01-150043	1
33 Bushing Spring Pin 3H01-S40108 6 34 Nipple PF-3/4in1.1/16in. UN 3Z03-N00002 2 35 O-Ring IBG-30 3Z03-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Assembly 3H01-150052 4 38 Side Rod Washer 3H01-150053 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150054 4 42 Tool Spring Pin 3H01-2150061 1 42 Tool Spring Pin 3H01-2150(Fx, E) 1 44 Mode Valve Body 3H01-2150(Fx, E) 1 44 Mode Valve O-Ring* 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-09036W 1 46 Mode Valve O-Ring* 3H01-90036W 1 47 Mode Valve O-Ring* 3H01-B32068 4 49 Mode Valve Case Bolt 3H01-80036W 1 50 Spring Washer 3H01-SU03	32	Bushing Set Pin	3H01-150044	3
34 Nipple PF—3/4in.—1.1/16in. UN 3203-N00002 2 35 O-Ring 1BG-30 3Z03-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 39 Side Rod Washer 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Spring Pin 3H01-150051 1 42 Tool Spring Pin 3H01-150061 1 44 Mode Valve Body 3H01-210027 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-09044W 1 46 Mode Valve O-Ring* 3H01-09036W 1 47 Mode Valve O-Ring* 3H01-09036W 1 48 Mode Valve Set Bolt 3H01-820068 4 49 Mode Valve Co-Ring* 3H01-910308 3 51 Locater Pin 3H01-SL0018	33	Bushing Spring Pin	3H01-S40108	6
35 O-Ring IBG-30 3203-07068B 2 36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 39 Side Rod Washer 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150061 1 42 Tool Spring Pin 3H01-150061 1 43 Tool Moil (Chisel, Blunt) 3H01-215P(Fx, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-09044W 1 46 Mode Valve O-Ring* 3H01-09036W 1 47 Mode Valve O-Ring* 3H01-90036W 1 48 Mode Valve Co-Ring* 3H01-S00008 1 50 Spring Washer 3H01-SW0008 1 51 Locater Pin 3H01-SU0008 3 52 Stop Ring 3H01-SU0008 3 <td>34</td> <td>Nipple PF—3/4in.—1.1/16in. UN</td> <td>3Z03-N00002</td> <td>2</td>	34	Nipple PF—3/4in.—1.1/16in. UN	3Z03-N00002	2
36 Side Rod Assembly 3H01-150051 4 37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 39 Side Rod Washer 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150061 1 42 Tool Moil (Chisel, Blunt) 3H01-2150061 1 44 Mode Valve Body 3H01-210027 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve 3H01-2210028 1 46 Mode Valve O-Ring* 3H01-09044W 1 47 Mode Valve Co-Ring* 3H01-9036W 1 48 Mode Valve Lock Bolt 3H01-82068 4 49 Mode Valve Lock Bolt 3H01-SU008 1 51 Locater Pin 3H01-SU008 1 51 Locater Pin 3H01-SU1018 1 NI Seal Kit 3H01-SU2160CC 1	35	O-Ring 1BG-30	3Z03-07068B	2
37 Side Rod Front Nut 3H01-150052 4 38 Side Rod Back Nut 3H01-150053 4 39 Side Rod Washer 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150061 1 42 Tool Spring Pin 3H01-215P(Fx, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-09036W 1 46 Mode Valve O-Ring* 3H01-09036W 1 47 Mode Valve O-Ring* 3H01-90036W 1 48 Mode Valve Set Bolt 3H01-82008 4 49 Mode Valve Lock Bolt 3H01-82008 1 50 Spring Washer 3H01-80008 1 51 Locater Pin 3H01-80008 3 52 Stop Ring 3H01-810018 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-215VBA 1 NI Valve Box Assembly 3H01-215VBA 1	36	Side Rod Assembly	3H01-150051	4
38 Side Rod Back Nut 3H01-150053 4 39 Side Rod Washer 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150061 1 42 Tool Spring Pin 3H01-S40248 2 43 Tool Moli (Chisel, Blunt) 3H01-215P(Fx, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve 3H01-2210028 1 46 Mode Valve O-Ring* 3H01-09036W 1 47 Mode Valve O-Ring* 3H01-09036W 1 48 Mode Valve Set Bolt 3H01-832068 4 49 Mode Valve Lock Bolt 3H01-80008 1 50 Spring Washer 3H01-SU0008 1 51 Locater Pin 3H01-SU008 3 52 Stop Ring 3H01-SU018 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-215VBA 1 </td <td>37</td> <td>Side Rod Front Nut</td> <td>3H01-150052</td> <td>4</td>	37	Side Rod Front Nut	3H01-150052	4
39 Side Rod Washer 3H01-150054 4 40 Grease Nipple 3Z01-GN0018 1 41 Tool Set Pin 3H01-150061 1 42 Tool Spring Pin 3H01-2159(Fx, E) 1 43 Tool Moil (Chisel, Blunt) 3H01-215P(Fx, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve 3H01-20028 1 46 Mode Valve O-Ring* 3H01-09036W 1 47 Mode Valve O-Ring* 3H01-09036W 1 48 Mode Valve Set Bolt 3H01-B32068 4 49 Mode Valve Lock Bolt 3H01-B32068 4 49 Mode Valve Lock Bolt 3H01-PN0308 1 50 Spring Washer 3H01-PN0308 3 51 Locater Pin 3H01-SL10018 1 NI Seal Kit 3H01-2155K 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-2155K 1 NI Valve Assembly 3H01-21570A 1	38	Side Rod Back Nut	3H01-150053	4
40 Grease Nipple 3201-GN0018 1 41 Tool Set Pin 3H01-150061 1 42 Tool Spring Pin 3H01-S40248 2 43 Tool Moil (Chisel, Blunt) 3H01-215P(Fx, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-09044W 1 46 Mode Valve O-Ring* 3H01-09036W 1 47 Mode Valve Set Bolt 3H01-B32068 4 49 Mode Valve Lock Bolt 3H01-B32068 4 49 Mode Valve Lock Bolt 3H01-SW0008 1 50 Spring Washer 3H01-SW0008 1 51 Locater Pin 3H01-PN0308 3 52 Stop Ring 3H01-SL10018 1 NI Seal Kit 3H01-215SK 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-215VBA 1 NI Valve Box Assembly 3H01-215VBA 1 S3 Gas Valve Assembly (Includes item # 54) 3Z01-G00001 <	39	Side Rod Washer	3H01-150054	4
41 Tool Set Pin 3H01-150061 1 42 Tool Spring Pin 3H01-S40248 2 43 Tool Moil (Chisel, Blunt) 3H01-215P(Fx, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve 3H01-2210028 1 46 Mode Valve O-Ring* 3H01-09044W 1 47 Mode Valve O-Ring* 3H01-09036W 1 48 Mode Valve Set Bolt 3H01-B32068 4 49 Mode Valve Lock Bolt 3H01-SW0008 1 50 Spring Washer 3H01-SW0008 1 51 Locater Pin 3H01-SW0008 1 52 Stop Ring 3H01-SL10018 1 NI Seal Kit 3H01-215SK 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-215VBA 1 53 Gas Valve Assembly (Includes item #54) 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1	40	Grease Nipple	3Z01-GN0018	1
42 Tool Spring Pin 3H01-S40248 2 43 Tool Moil (Chisel, Blunt) 3H01-215P(Fx, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve O-Ring* 3H01-09044W 1 46 Mode Valve O-Ring* 3H01-09036W 1 47 Mode Valve Set Bolt 3H01-B32068 4 49 Mode Valve Lock Bolt 3H01-B32068 4 50 Spring Washer 3H01-SW0008 1 51 Locater Pin 3H01-SN008 3 52 Stop Ring 3H01-SL10018 1 NI Seal Kit 3H01-215SK 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-215VBA 1 NI Valve Assembly 3H01-215VBA 1 53 Gas Valve Assembly (Includes item # 54) 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1	41	Tool Set Pin	3H01-150061	1
+.5 1001 MORI (CRISEI, BIURI) 5H01-215P(FX, E) 1 44 Mode Valve Body 3H01-2210027 1 45 Mode Valve 3H01-2210028 1 46 Mode Valve O-Ring* 3H01-09044W 1 47 Mode Valve O-Ring* 3H01-09036W 1 48 Mode Valve Set Bolt 3H01-B32068 4 49 Mode Valve Lock Bolt 3H01-B24040 1 50 Spring Washer 3H01-SW0008 1 51 Locater Pin 3H01-SW0008 3 52 Stop Ring 3H01-SL10018 1 NI Seal Kit 3H01-215SK 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-221MVA 1 S3 Gas Valve Cap with O-Ring 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1	42	1 001 Spring Pin Teel Meil (Chiese Plant)	3H01-S40248	2
++ Mode Valve Body 3H01-221002/ 1 45 Mode Valve 3H01-2210028 1 46 Mode Valve O-Ring* 3H01-09044W 1 47 Mode Valve O-Ring* 3H01-09036W 1 48 Mode Valve Set Bolt 3H01-09036W 1 49 Mode Valve Set Bolt 3H01-B32068 4 50 Spring Washer 3H01-B24040 1 51 Locater Pin 3H01-PN0308 3 52 Stop Ring 3H01-SU0018 1 NI Seal Kit 3H01-2155K 1 NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-221MVA 1 S3 Gas Valve Cap with O-Ring 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in a coal kit conly NI deporter pot illystrated Effective 07/05	45	1 001 WOII (Unisel, Blunt)	3HU1-215P(FX, E)	1
+.5Mode Valve3H01-2210028146Mode Valve O-Ring*3H01-09044W147Mode Valve O-Ring*3H01-09036W148Mode Valve Set Bolt3H01-B32068449Mode Valve Lock Bolt3H01-B24040150Spring Washer3H01-SW0008151Locater Pin3H01-PN0308352Stop Ring3H01-SL100181NISeal Kit3H01-2155K1NIGas Charger3Z01-202GC1NIValve Assembly3H01-221MVA1S3Gas Valve Assembly (Includes item # 54)3Z01-G00001154Gas Valve Cap with O-Ring3Z01-G00041	44	Mode Valve	3H01-221002/ 2H01-2210028	1
+0Mode Valve O-King*3H01-09044 W147Mode Valve O-Ring*3H01-09036W148Mode Valve Set Bolt3H01-B32068449Mode Valve Lock Bolt3H01-B24040150Spring Washer3H01-SW0008151Locater Pin3H01-PN0308352Stop Ring3H01-SL100181NISeal Kit3H01-2155K1NIGas Charger3Z01-202GC1NIMode Valve Assembly3H01-221MVA1S3Gas Valve Assembly3H01-215VBA153Gas Valve Cap with O-Ring3Z01-G000011*Included in soal kit onlyNIL depotes pot illustratedEffective 07/05	45	Mode Velve O Bing*	2H01-00044W	1
47Index Valve O-King3H01-09030 W148Mode Valve Set Bolt3H01-B32068449Mode Valve Lock Bolt3H01-B24040150Spring Washer3H01-SW0008151Locater Pin3H01-PN0308352Stop Ring3H01-SL100181NISeal Kit3H01-2155K1NIGas Charger3Z01-202GC1NIMode Valve Assembly3H01-221MVA1NIValve Box Assembly3H01-215VBA153Gas Valve Cap with O-Ring3Z01-G000011*Included in soal kit onlyNIL depotes pot illustratedEffective 07/05	40	Mode Valve O Ping*	3H01-09044W	1
40Mode Valve Set Bolt3H01-B22006449Mode Valve Lock Bolt3H01-B24040150Spring Washer3H01-SW0008151Locater Pin3H01-PN0308352Stop Ring3H01-SL100181NISeal Kit3H01-215SK1NIGas Charger3Z01-202GC1NIMode Valve Assembly3H01-221MVA1NIValve Box Assembly3H01-215VBA153Gas Valve Assembly (Includes item # 54)3Z01-G00001154Gas Valve Cap with O-Ring3Z01-G000041	4/	Mode Valve Set Bolt	3H01 P32069	1
+7Mode Valve Lock Bolt3H01-524040150Spring Washer3H01-SW0008151Locater Pin3H01-PN0308352Stop Ring3H01-SL100181NISeal Kit3H01-2155K1NIGas Charger3Z01-202GC1NIMode Valve Assembly3H01-221MVA1NIValve Box Assembly3H01-221MVA1S3Gas Valve Assembly (Includes item # 54)3Z01-G00001154Gas Valve Cap with O-Ring3Z01-G000041	40	Mode Valve Lock Bolt	3H01-D32008	4
50Spring waster3101-5 w0000151Locater Pin3H01-PN0308352Stop Ring3H01-SL100181NISeal Kit3H01-215SK1NIGas Charger3Z01-202GC1NIMode Valve Assembly3H01-221MVA1NIValve Box Assembly3H01-221MVA1S3Gas Valve Assembly (Includes item # 54)3Z01-G00001154Gas Valve Cap with O-Ring3Z01-G000041	4 9 50	Spring Washer	3H01-SW0008	1
51Execute Fin3101-110006352Stop Ring3H01-SL100181NISeal Kit3H01-215SK1NIGas Charger3Z01-202GC1NIMode Valve Assembly3H01-221MVA1NIValve Box Assembly3H01-215VBA1S3Gas Valve Assembly (Includes item # 54)3Z01-G00001154Gas Valve Cap with O-Ring3Z01-G000041*Included in soal kit onlyNI denotes not illustratedEffective 07/05	51	Locater Pin	3H01-9N0308	3
NISeal Kit3H01-5L100161NISeal Kit3H01-215SK1NIGas Charger3Z01-202GC1NIMode Valve Assembly3H01-221MVA1NIValve Box Assembly3H01-215VBA1S3Gas Valve Assembly (Includes item # 54)3Z01-G00001154Gas Valve Cap with O-Ring3Z01-G000041	52	Ston Ring	3H01-SI 10018	
NI Gas Charger 3Z01-202GC 1 NI Mode Valve Assembly 3H01-21MVA 1 NI Valve Box Assembly 3H01-21SVBA 1 S3 Gas Valve Assembly (Includes item # 54) 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1	NI	Seal Kit	3H01-215SK	1
NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-215VBA 1 S3 Gas Valve Assembly (Includes item # 54) 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in soal kit only	NI	Gas Charger	3701-202GC	1
NI Valve Box Assembly 3H01-22100 A NI Valve Box Assembly 3H01-215VBA 1 53 Gas Valve Assembly (Includes item # 54) 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in soal kit only	NI	Mode Valve Assembly	3H01-221MVA	1
53 Gas Valve Assembly (Includes item # 54) 3Z01-G00001 1 54 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in soal kit only	NI	Valve Box Assembly	3H01-215VR Δ	1
54 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only NI denotes not illustrated Effective 07/05	53	Gas Valve Assembly (Includes item # 54)	37.01-G00001	1
*Included in seal kit only NI denotes not illustrated Effective 07/05	54	Gas Valve Cap with O-Ring	3Z01-G00004	1
	*Include	d in cool lait only MI donotes as	t illustratad	Effective 07/05

HH2000 HAMMER UP TO S/N 2K031 SOLD BEFORE 9/96



HH2000 HAMMER S/N 3K001 & UP SOLD AFTER 10/96

ITEM	NAME	NUMBER	QTY.		
1	Cylinder	3H01-2150001	1		
2	Cylinder O-Ring*	3H01-09098B	2		
3	Cylinder O-Ring*	3H01-09072B	3		
4	Plug	3J01-2210081	5		
5	Cylinder O-Ring*	3J01-09056W	10		
6	Buffer Ring*	3H01-08056P	5		
-7	Cylinder Sleeve	3H01-2150002	1		
8	Cylinder Sleeve O-Ring*	3H01-09288W	2		
9	Quad Killg* Back Up Bing*	3H01-QD215000	1		
10	Sten Seal*	3H01-ST215000	2		
12	Step Seal O-Ring*	3H01-OR215000	2		
13	U-Packing*	3H01-U15000I	1		
14	U-Packing*	3H01-15000H	1		
15	Dust Seal*	3H01-15000D	1		
16	Piston	3H01-2150011	1		
17	Valve Box	3H01-2150021	1		
18	Main Valve	3H01-2150022	1		
19	Upper Valve Cap	3H01-2150023	1		
20	Valve Cap O-Ring*	3H01-07108B	1		
21	Back Up Ring*	3H01-08108G	<u>l</u>		
22	Lower Valve Cap	3H01-2150025	1		
23	Locater Pin	3701-PN0510	1		
25	Box Sleeve	3H01-2150026	1		
26	Box Sleeve O-Ring*	3H01-07118B	2		
27	Back Up Ring*	3H01-08118G	1		
28	Valve Cap Bolt	3H01-B44098	10		
29	Valve Box Set Bolt	3H01-B48138	6		
30	Mode Valve Body	3H01-2210027	1		
31	Mode Valve	3H01-2210028	1		
32	Mode Valve O-Ring*	3H01-09044W	1		
33	Mode Valve O-Ring*	3H01-09036W	1		
34	Mode Valve Leek Bolt	3H01-B32068	4		
35	Nioue valve Lock Doll	3H01-B24040 3H01 SW0008	1		
30	Locater Pin	3701-PN0510	3		
38	Stop Ring	3H01-SL0018	1		
39	Valve Box O-Ring*	3H01-09040B	2		
40	Back Cap	3H01-21580031	1		
41	Back Cap O-Ring*	3H01-07358A	1		
42	Gas Valve Assembly (Includes item # 43)	3Z01-G00001	1		
43	Gas Valve Cap with O-Ring	3Z01-G00004	1		
44	Front Cap	3H01-2150041	1		
45	Front Cap Plug	3Z01-FP0038	1		
40	Snank Bushing	3H01-150042 3H01-150042	1		
47	Rushing Set Pin	3H01-150045 3H01-150044	1		
40	Bushing Spring Pin	3H01-S40108	5		
50	Nipple PF—3/4in.—1.1/16in. UN	3Z03-N00002	2		
51	O-Ring 1BG-30	3Z03-07068B	2		
52	Side Rod Assembly	3H01-150051	4		
53	Side Rod Front Nut	3H01-150052	4		
54	Side Rod Back Nut	3H01-150053	4		
55	Side Rod Washer	3H01-150054	4		
56	Grease Nipple	3Z01-GN0018	1		
57	Tool Set Pin	3H01-150061	1		
58	Tool Spring Pin	3H01-S40248	1		
59 NT	1 001 MI011 (Unisel, Blunt)	3H01-215P(FX, E)	1		
NI	Gas Charger	3701-2135KA	1		
NI	Mode Valve Assembly	3H01-221MVA	1		
NI	Valve Box Assembly	3H01-215VBA	1		
*Inclu	led in seal kit only NI denotes not illu	strated	Effective 07/05		
inciu	Included in sear kit only. IN denotes not inustrated. Effective 07/05				

HH2000 HAMMER S/N 3K001 & UP SOLD AFTER 10/96



HH2000 HAMMER



BRACKET ASSEMBLY PARTS LIST

ITEM	FEM PART NO.	OTY	DESCRIPTION	
	MODEL HH2000		DESCRIPTION	
1.	3H01-215501	1	Hammer Bracket (R)*	
2.		1	Hammer Bracket (L)*	
3.	3H01-215502	6	Bracket Bolt	
4.	Assembly of Item 3	6	Washer	
5.	Assembly of Item 3	12	Nut	
NI	3H01-215504-198	2	Support Pipe (Top)	
6.	3H01-215505-262	2	Support Pipe (Middle)	
NI	3H01-215506-162	2	Support Pipe (Bottom)	
7.	3H01-TC2000B	10	Top Cap Bolt	
8.	Assembly of Item 8	10	Top Cap Washer	
9.	Assembly of Item 8	10	Top Cap Nut	
10.	3H01-215505	4	Cushion Rubber	
11.	Assembly of Item 10	4	Screw	
12.	Per Carrier Model	1	Тор Сар	
*Sold as matched set w/ hardware. NI denotes not illustrated. Effective 07/05				

Prices subject to change without notice.

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HH3600-2 HAMMER

S/N 5M1000 & UP

ITEM	NAME	NUMBER	OTY.
1	Cylinder	3J01-B2210001-2	1
2	Cylinder O-Ring*	3J01-09108B	3
3	Cylinder O-Ring*	3H01-09072B	4
4	Cylinder Sleeve	3J01-2210002-2	1
5	Cylinder Sleeve O-Ring*	3J01-07328W	2
6	Step Seal with O-Ring*	3J01-170561	2
7	Quad Ring*	3J01-QD221000	1
8	Back Up Ring*	3J01-1/0503	2
10	Dust Seal*	3J01-D21000D	2
11	Piston	3J01-2210011-2	1
12	Valve Box	3J01-2210021-2	1
13	Main Valve	3J01-2210022-2	1
14	Upper Valve Cap	3J01-2210023	1
15	Valve Cap O-Ring*	3H01-07118B	1
16	Back Up Ring*	3H01-08118G	1
1/	Valve Cap O-King*	3101 2210025 2	1
10	Lower Valve Cap	3701-2210023-2	1
20	Box Sleeve	3J01-2210026-2	1
21	Box Sleeve O-Ring*	3J01-07128B	2
22	Back Up Ring*	3J01-08128G	1
23	Valve Box Set Bolt	3J01-B52146	6
24	Valve Cap Bolt	3J01-B52128	10
25	Valve Box O-Ring*	3H01-09040B	2
26	Back Cap	3J01-2210031	1
27	Back Cap O-King*	3J01-0/398A 3J01-240081	1 2
20	Cylinder O-Ring*	3J01-09076W	4
30	Buffer Ring*	3J01-08076P	2
31	Valve Box Plug	3J01-2212095	1
32	Valve Box O-Ring*	3J01-09056W	1
33	Front Cap	3J01-2210041-2	1
34	Front Cap Plug	3Z01-FP0038	1
35	Shank Bushing	3J01-2210042	1
30	Front Cap Bushing Bushing Set Pin	3101-210045	1
38	Bushing Spring Pin	3J01-S46128	6
39	Nipple PF—3/4in.—1.1/16in. UN	3J01-N00003	2
40	O Ring	3J01-07078B	2
41	Side Rod Assembly	3J01-210051	4
42	Side Rod Front Nut	3J01-210052	4
43	Side Rod Back Nut	3J01-210053	4
44	Side Rod Washer	3J01-210054	4
45	Tool Stopper Pin	3101-221001	2
47	Tool String Pin	3J01-S46128	2
48	Tool Set Pin	3J01-210061	1
49	Tool Moil (Chisel, Blunt)	3J01-221P(Fx, E)	1
50	Mode Valve Body	3H01-2210027	1
51	Mode Valve	3H01-2210028	1
52	Mode Valve O-Ring*	3H01-09044W	1
53	Mode Valve O-Ring*	3H01-09036W	1
54	Mode Valve Lock Bolt	3H01-B32008 3H01-R24040	4
56	Spring Washer	3H01-SW0008	1
57	Locater Pin	3H01-PN0308	3
58	Stop Ring	3H01-SL0018	1
NI	Mode Valve Assembly	3H01-221MVA	1
NI	Valve Box Assembly	3J01-221VBA	1
NI	Seal Kit	3J01-221SK	1
NI 50	Gas University (Training to 11 (0)	3Z01-202GC	1
59 60	Gas Valve Cap with O_Ring	3Z01-G00001 3Z01-G00004	1
		3201-00004	

Included in seal kit only.

NI denotes not illustrated.

Effective 07/05

HH 3600-2 HAMMER S/N: 5M1000 & UP



HH3600-2 HAMMER

S/N 5M1000 & UP



BRACKET ASSEMBLY PARTS LIST

ITEM	PART NO.	OTV	DESCRIPTION
	MODEL HH3600-2	Q11	DESCRIPTION
1.	3J01-221501	1	Hammer Bracket (R)*
2.		1	Hammer Bracket (L)*
3.	3J01-221502	8	Bracket Bolt
4.	Assembly of Item 3	8	Washer
5.	Assembly of Item 3	16	Nut
NI	3J01-221504-226	2	Support Pipe (Top)
6.	3J01-221507-298	2	Support Pipe (Middle)
NI	3J01-221506-234	4	Support Pipe (Bottom)
7.	3J01-TC3600B	12	Top Cap Bolt
8.	Assembly of Item 7	12	Top Cap Washer
9.	Assembly of Item 7	12	Top Cap Nut
10.	3J01-221505	4	Cushion Rubber
11.	Assembly of Item 10	4	Screw
12.	Per Carrier Model	1	Top Cap

*Sold as matched set w/ hardware. NI denotes not illustrated. Effective 07/05 Prices subject to change without notice

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HH4500 HAMMER

ITEM	NAME	NUMBER	OTY.		
1	Cylinder	3K01-2270001	1		
2	Cylinder O-Ring*	3K01-09128B	2		
3	Cylinder O-Ring*	3H01-09072B	3		
4	Cylinder Sleeve	3K01-2270002	1		
5	Cylinder Sleeve O-Ring*	3K01-07348W	2		
6	Quad Ring*	3K01-170570	1		
7	Back Up Ring*	3K01-170573	2		
8	U-Packing*	3K01-U27000I	1		
9	U-Packing with Back Up Ring*	3K01-U27000H	<u> </u>		
10	Sten Seal with O Bing*	3K01-D2/000D 3K01 170571	1		
11	Piston	3K01-2270011	1		
13	Valve Box	3K01-2270011 3K01-2270021	1		
14	Main Valve	3K01-2270022	1		
15	Upper Valve Cap	3K01-2270023	1		
16	Valve Cap O-Ring*	3H01-07118B	1		
17	Back Up Ring*	3H01-08118G	1		
18	Valve Cap O-Ring*	3J01-051280	1		
19	Lower Valve Cap	3K01-2270025	1		
20	Locater Pin	3Z01-PN0510	1		
21	Box Sleeve	3K01-2270026	1		
22	Box Sleeve O-Ring*	3K01-0/138B	2		
23	Back Up King*	3K01-081380	l		
24	Valve Cap Bolt	3J01-B52140 3J01 B52128	8		
25	Valve Box O-Ring*	3H01_000/0B	2		
20	Back Can	3K01-2270031	1		
28	Back Cap O-Ring*	3K01-09418A	1		
29	Plug	3K01-22182	4		
30	Cylinder O-Ring*	3K01-9066W	8		
31	Buffer Ring*	3K01-8066P	4		
32	Front Cap	3K01-2210041	1		
33	Front Cap Plug	3Z01-FP0038	1		
34	Shank Bushing	3K01-2270042	1		
35	Front Cap Bushing	3K01-270043	1		
36	Bushing Set Pin	3K01-270044	3		
37	Bushing Spring Pin	3J01-S46128	6		
30	O Ping	3J03-N00005	2		
40	Side Rod Assembly	3K01-270051	<u> </u>		
40	Side Rod Front Nut	3K01-270052	4		
42	Side Rod Back Nut	3K01-270052 3K01-270053	4		
43	Side Rod Washer	3K01-270054	4		
44	Grease Nipple	3Z01-GN0018	1		
45	Tool Set Pin	3K01-270061	1		
46	Tool Spring Pin	3J01-S46128	2		
47	Tool Stopper Pin	3K01-227091	2		
48	Tool Moil (Chisel, Blunt)	3K01-227P(Fx, E)	1		
49	Mode Valve Body	3H01-2210027	1		
50	Mode Valve O Ping*	3H01-2210028	1		
52	Mode Valve O-Ring*	3H01-09044W	1		
52	Mode Valve Set Bolt	3H01-R32068	<u>ι</u> Δ		
54	Mode Valve Lock Bolt	3H01-B24040			
55	Spring Washer	3H01-SW0008	1		
56	Locater Pin	3H01-PN0308	3		
57	Stop Ring	3H01-SL0018	1		
NI	Mode Valve Assembly	3H01-221MVA	1		
NI	Valve Box Assembly	3K01-227VBA	1		
NI	Seal Kit	3K01-227SK	1		
NI	Gas Charger	3Z01-202GC	1		
58	Gas Valve Assembly (Includes item # 59)	3Z01-G00001	1		
59	Gas valve Cap with O-Ring	3Z01-G00004			
*Incluc	*Included in seal kit only. NI denotes not illustrated. Effective 07/05				

HH4500 HAMMER



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HH4500 HAMMER



BRACKET ASSEMBLY PARTS LIST

ITEM	PART NO.	OTV	DESCRIPTION	
1112/141	MODEL HH4500	ויאך	DESCRIPTION	
1.	3K01-227501	1	Hammer Bracket (R)*	
2.		1	Hammer Bracket (L)*	
3.	3K01-227502	8	Bracket Bolt	
4.	Assembly of Item 3	8	Washer	
5.	Assembly of Item 3	16	Nut	
NI	3K01-227504-262	2	Support Pipe (Top)	
6.	3K01-227507-334	2	Support Pipe (Middle)	
NI	3K01-227504-262	4	Support Pipe (Bottom)	
7.	3J01-TC3600B	12	Top Cap Bolt	
8.	Assembly of Item 7	12	Top Cap Washer	
9.	Assembly of Item 7	12	Top Cap Nut	
10.	3K01-227505	4	Cushion Rubber	
11.	Assembly of Item 10	4	Screw	
12.	Per Carrier Model	1	Тор Сар	
*Sold as matched set w/ hardware. NI denotes not illustrated Effective 07/05				

*Sold as matched set w/ hardware. NI denotes not illustrated. Effective 07/05 Prices subject to change without notice.

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HH5800 HAMMER

TEM	NAME	NUMBER	QTY.
1	Cylinder	3L01-2330001	1
2	Cylinder O-Ring*	3J01-09108B	1
3	Cylinder O-Ring*	3J01-09138B	2
4	Cylinder O-Ring*	3H01-09072B	2
5	Cylinder Sleeve	3L01-2330002	1
6	Cylinder Sleeve O-Ring*	3L01-07378W	2
7	Quad Ring*	3L01-170580	1
8	Back Up Ring*	3L01-170583	2
9	Step Seal with O-Ring*	3L01-170581	2
10	U-Packing*	3L01-U33000I	1
11	U-Packing with Back Up Ring*	3L01-U33000H	1
12	Dust Seal*	3L01-D33000D	1
13	Piston	3L01-2330011	1
14	Valve Box	3L01-2330021	1
15	Main Valve	3L01-2330022	1
16	Upper Valve Cap	3L01-2330023	1
17	Valve Cap O-Ring*	3K01-07138B	1
18	Back Up Ring*	3K01-08138G	1
19	Valve Cap O-Ring*	3L01-051480	1
20	Lower Valve Cap	3L01-2330025	1
21	Locater Pin	3Z01-PN0510	1
22	Box Sleeve	3L01-2330026	1
23	Box Sleeve O-Ring*	3L01-07148B	2
24	Back Un Ring*	3L01-08148G	1
25	Valve Box Set Bolt	3L01-B62154	8
26	Valve Cap Bolt	3L01-B56144	10
27	Valve Box O-Ring*	3H01-09040B	2
28	Back Can	31.01-2330031	1
29	Back Can O-Ring*	3L01-09468A	1
30	Pho	3K01-2210082	6
31	Cylinder O-Ring*	3K01-09066W	12
32	Buffer Bing*	3K01-08066P	6
33	Front Can	31.01-2330041	1
3/	Front Cap Plug	3701-FP0038	1
35	Shank Bushing	31.01-2330042	1
36	Front Can Bushing	31.01.330043	1
37	Rushing Set Din	31.01.330044	1
38	Bushing Set Fill	31.01.\$52168	4 8
20	Ninnla	2102 N00002	2
<u> </u>	O Ding	3J03-N00003	2
40		3J03-0/0/8B	2
41	Side Rod Assembly	3L01-230051	4
42	Side Rod Front Nut	3L01-2330052	4
43	Side Rod Back Nut	3L01-2330053	4
44	Side Kod Washer.	3LU1-2330054	4
43	Track Set Dir	3ZUI-GNUUI8	1
40	1 001 Set Pin Tool Spring Din	3L01-530061	1
4/	Tool Spring Pin	3L01-852368	2
48	1 ooi Moii (Chisei, Blunt)	3L01-233P(Fx, E)	1
49	Mode Valve Body	3H01-2210027	1
50	Mode Valve	3H01-2210028	1
51	Mode Valve O-Ring*	3H01-09044W	1
52	Mode Valve O-Ring*	3H01-09036W	1
53	Mode Valve Set Bolt	3H01-B32068	4
54	Mode Valve Lock Bolt	3H01-B24040	1
55	Spring Washer	3H01-SW0008	1
56	Locater Pin	3H01-PN0308	3
57	Stop Ring	3H01-SL0018	1
NI	Mode Valve Assembly	3H01-221MVA	1
NI	Valve Box Assembly	3L01-233VBA	1
NI	Seal Kit	3L01-233SK	1
NI	Gas Charger	3Z01-202GC	1
58	Gas Valve Assembly (Includes item # 59)	3Z01-G00001	1

HH5800 HAMMER



HH5800 HAMMER



BRACKET ASSEMBLY PARTS LIST

ITEM	PART NO.	ОТУ	DESCRIPTION	
I I L'IVI	MODEL HH5800		DESCRIPTION	
1.	3L01-233501	1	Hammer Bracket (R)*	
2.		1	Hammer Bracket (L)*	
3.	3L01-233502	8	Bracket Bolt	
4.	Assembly of Item 3	8	Washer	
5.	Assembly of Item 3	16	Nut	
NI	3L01-233504-284	2	Support Pipe (Top)	
6.	3L01-233507-364	2	Support Pipe (Middle)	
NI	3L01-233504-284	4	Support Pipe (Bottom)	
7.	3J01-TC3600B	12	Top Cap Bolt	
8.	Assembly of Item 7	12	Top Cap Washer	
9.	Assembly of Item 7	12	Top Cap Nut	
10.	3L01-233505	4	Cushion Rubber	
11.	Assembly of Item 10	4	Screw	
12.	Per Carrier Model	1	Тор Сар	
*Sol	*Sold as matched set w/ hardware. NI denotes not illustrated. Effective 07/05			

Prices subject to change without notice.

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HH8000 HAMMER

1 Cylinder O.Kng* 3001-240001 1 2 Cylinder O.Kng* 3001-09078B 2 3 Cylinder O.Kng* 3001-09072B 2 5 Cylinder Sloeve O.Kng* 3001-2400022 1 6 Cylinder Sloeve O.Kng* 3001-170990 2 7 Quad Kng* 3001-170990 1 8 Bask Lip Eng* 3001-170991 2 9 Step Scal with 0-Ring* 3001-170991 2 9 Step Scal with 0-Ring* 3001-1700001 1 11 L'Fracking* 3001-1700001 1 12 Dus Scal* 3001-1700001 1 13 Piston 3001-1700001 1 14 Valve Ros 3001-2400022 1 15 Main Valve 3001-1700001 1 15 Main Valve Rop 3001-2400023 1 16 Upper Valve Cap 3001-2400023 1 17 Valve Cap Cang* 3001-2400023 1	ITEM	NAME	NUMBER	OTY.
2 Cylinder O-King* 3101-090788 2 3 Cylinder O-King* 3101-090728 2 4 Cylinder Sleeve 3101-2400022 1 6 Cylinder Sleeve 3101-170590 2 7 Quad King* 3101-170590 1 8 Bask Up King* 3101-170590 2 10 U-Facking with Back Up Ring* 3101-1400001 1 11 U-Facking with Back Up Ring* 31001-1400001 1 12 Dus Scal* 31001-2400011 1 13 Pason 31001-2400022 1 14 Valve Box 31001-2400023 1 15 Main Valve 31001-2400023 1 16 Upper Valve Cap O-Ring* 31001-2400023 1 17 Valve Cap O-Ring* 31001-2400023 1 18 Back Up King* 31001-2400025 1 19 Valve Cap O-Ring* 31001-2400025 1 10 Lower Valve Cap O-Ring* 31001-2400025	1	Cylinder	3M01-2400001	1
3 Cylinder O-King* 3M01-000072B 2 4 Cylinder Slevev O-Ring* 3M01-2400002 1 6 Cylinder Slevev O-Ring* 3M01-170990 2 7 Quad Bing* 3M01-170990 2 8 Rack Up Ring* 3M01-170990 2 9 Step Stad with 0-King* 3M01-170991 2 9 Step Stad with 0-King* 3M01-170991 2 9 Step Stad with 0-King* 3M01-1400001 1 11 Li-Backing* 3M01-1400001 1 12 Dus Stad* 3M01-2400021 1 13 Piston 3M01-2400021 1 14 Valve Box 3M01-2400021 1 15 Moin Valve 3M01-2400023 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap Acting* 3M01-2400031 1 18 Back Up Ring* 3M01-2400025 1 19 Valve Cap Acting Ring* 3M01-07158B 2	2	Cylinder O-Ring*	3L01-09138B	2
4 Cylinder Sleeve 3M01-090728 2 5 Cylinder Sleeve O Ring* 3M01-07393W 2 7 Quad Ring* 3M01-170590 1 8 Back Up Ring* 3M01-170593 2 9 Step Stal with O Ring* 3M01-170593 2 9 Step Stal with O Ring* 3M01-170593 2 9 Step Stal with O Ring* 3M01-1400001 1 11 Lizkating with Back Up Ring* 3M01-1400001 1 12 Dus Scal* 3M01-2400021 1 13 Prioz Scal* 3M01-2400021 1 14 Value Scal* 3M01-2400022 1 15 Main Value 3M01-2400023 1 16 Upper Value Cap 3M01-2400021 1 17 Value Cap Oking* 3K01-240025 1 18 Maat Up Ring* 3K01-67138B 2 19 Value Cap Oking* 3K01-67138B 2 10 Value Cap Oking* 3K01-67138B 2 <td>3</td> <td>Cylinder O-Ring*</td> <td>3M01-09098B</td> <td>1</td>	3	Cylinder O-Ring*	3M01-09098B	1
5 Cylinder Sleeve O-Ring* 3M01-2400002 1 6 Cylinder Sleeve O-Ring* 3M01-170590 1 8 Back Up Ring* 3M01-170591 2 9 Step Scal with O-King* 3M01-170591 2 10 U-Facking* 3M01-14000001 1 11 U-Packing with Back Up Ring* 3M01-14000001 1 12 Dus Scal* 3M01-2400021 1 13 Pison 3M01-2400022 1 14 Valve Rox 3M01-2400022 1 15 Main Valve 3M01-2400023 1 16 Upper Valve Cap 3M01-2400022 1 17 Valve Rox Cap 3M01-051380 1 18 Back Up Ring* 3K01-051386 1 19 Valve Cap O-King* 3M01-051380 1 11 Locatter Pin 3201-PN0510 1 21 Locatter Pin 3201-490025 1 22 Box Sheeve O-King* 3M01-07158B 2	4	Cylinder O-Ring*	3H01-09072B	2
6 Cylinder Sleeve O-Ring* 3M01-07398W 2 7 Qual Ring* 3M01-176593 2 9 Stop Seal with O-Ring* 3M01-176591 2 10 U-Packing with Back Up Ring* 3M01-140000H 1 11 U-Packing with Back Up Ring* 3M01-140000H 1 13 Pison 3M01-2400011 1 14 Valve Box 3M01-2400021 1 15 Main Valve 3M01-2400021 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap O-Ring* 3M01-2400023 1 18 Back Up Ring* 3M01-2400023 1 19 Valve Cap O-Ring* 3M01-2400023 1 21 Locard Pin 3/201-PM05140 1 22 Hos Sleeve C.Ring* 3M01-2400023 1 23 Hos Sleeve C.Ring* 3M01-2400023 1 24 Hos Ching* 3M01-2400031 1 25 Valve Cap D-Ring* 3M01-2400031	5	Cylinder Sleeve	3M01-2400002	1
7 Quad Ring* 3M01-170590 1 8 Back Up Ring* 3M01-170591 2 9 Step Scal with O-Ring* 3M01-170591 2 10 U-Packing with Back Up Ring* 3M01-1400001 1 11 U-Packing with Back Up Ring* 3M01-1400001 1 12 Dus Scal* 3M01-1400001 1 13 Fiston 3M01-2400022 1 14 Valve Back 2M01-2400023 1 15 Main Valve 3M01-2400023 1 16 Upper Valve Cap O-King* 3M01-2400023 1 17 Valve Cap O-King* 3M01-2400025 1 18 Back Up Ring* 3M01-240026 1 20 Lower Valve Cap 3M01-240026 1 21 Locater Fin 3201-740510 1 22 Box Sleeve O-Ring* 3M01-240026 1 23 Box Sleeve O-Ring* 3M01-2400031 1 24 Back Cap O-Ring* 3M01-240041 2 </th <td>6</td> <td>Cylinder Sleeve O-Ring*</td> <td>3M01-07398W</td> <td>2</td>	6	Cylinder Sleeve O-Ring*	3M01-07398W	2
8 Back Up Ring* 3M01-170591 2 9 Step Sal with O-King* 3M01-170591 2 10 U-Packing with Back Up Ring* 3M01-140000H 1 11 U-Packing with Back Up Ring* 3M01-140000H 1 12 Dust Scaf* 3M01-2400021 1 13 Piston 3M01-2400022 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap O-King* 3M01-2400023 1 18 Back Up Ring* 3K01-47138B 1 18 Back Up Ring* 3K01-47138B 1 19 Valve Cap O-King* 3M01-2400025 1 21 Locater Pin 3Z01-PN0510 1 22 Box Sleeve Cap 3M01-2400025 1 23 Ros Sleeve Cap 3M01-2400025 1 24 Back Up Ring* 3M01-4100025 1 25 Valve Cap Both 3.0.185134 2 26 Valve Cap Both 3.0.185144 10	7	Quad Ring*	3M01-170590	1
9 Step Seal with O-Ring* 3M01-170591 2 10 U-Packing with Back Up Ring* 3M01-U400001 1 11 U-Packing with Back Up Ring* 3M01-U400001 1 13 Piston 3M01-2400021 1 14 Valve Box 3M01-2400022 1 15 Main Valve 3M01-2400022 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap O-Ring* 3M01-240025 1 18 Back Up Ring* 3M01-051380 1 20 Lower Valve Cap 3M01-240025 1 21 Loactr Fin 3M01-240025 1 22 Back Stepe O-Ring* 3M01-240026 1 23 Box Steve O-Ring* 3M01-240026 1 24 Back Up Ring* 3M01-051380 2 25 Valve Box Stepe O-Ring* 3M01-061384 2 26 Valve Cap Bott 3D1-400261 1 27 Valve Box O-Ring* 3M01-061380 <	8	Back Up Ring*	3M01-170593	2
10 U-Packing " 3M01-U400001 1 11 U-Packing with Back Up Ring " 3M01-D400000 1 12 Dust Seat" 3M01-D400001 1 13 Piston 3M01-2400011 1 14 Valve Box 3M01-2400021 1 15 Main Valve 3M01-2400023 1 16 Upper Valve Cap 3M01-2400023 1 17 Yalve Cap O-King " 3K0104338G 1 18 Back Up Ring " 3K0104358G 1 20 Lower Valve Cap 3M01-2400025 1 21 Locater Pin 3201-4N0510 1 22 Box Sleeve O-Ring " 3M01-2400026 1 23 Box Sleeve O-Ring " 3M01-2400031 1 24 Back Up Ring " 3M01-2400041 10 25 Valve Cap Back Cap 3M01-2400041 1 26 Valve Cap Back Cap 3M01-2400041 1 27 Valve Box O-Ring " 3M01-2400408 5 310 Cylinder O-Ring " 3M01-2400404 5	9	Step Seal with O-Ring*	3M01-170591	2
11 U-Packing with Back Up Ring* 3M01-U40000H 1 12 Dus Seal* 3M01-240001 1 13 Piston 3M01-240001 1 14 Valve Box 3M01-240002 1 15 Main Valve 3M01-240002 1 16 Upper Valve Cap 3M01-240023 1 17 Valve Cap O-Ring* 3K01-07138B 1 18 Back Up Ring* 3K01-201025 1 20 Lower Valve Cap 3M01-240025 1 21 Locater Pin 3201-PN0510 1 22 Box Sleeve O-Ring* 3M01-240025 1 23 Box Sleeve O-Ring* 3M01-240026 1 24 Back Up Ring* 3M01-40158G 2 25 Valve Box O-Ring* 3M01-40026 1 24 Back Cap -Ring* 3M01-400031 1 25 Valve Box O-Ring* 3M01-400031 1 29 Back Cap -Ring* 3M01-400031 1	10	U-Packing*	3M01-U40000I	1
12 Dust Scal* 3M01-D40000D 1 13 Piston 3M01-2400011 1 14 Valve Box 3M01-2400021 1 15 Main Valve 3M01-2400022 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap O-Ring* 3M01-2400025 1 19 Valve Cap O-Ring* 3M01-043386 1 20 Lower Valve Cap 3M01-2400025 1 21 Lower Valve Cap 3M01-043386 1 22 Box Sleeve 3M01-2400025 1 23 Box Sleeve O-Ring* 3M01-043586 2 44 Back Up Ring* 3M01-043586 1 24 Back Cap Bott 3L01-80154 2 25 Valve Box Sleeve 3M01-049488A 1 27 Valve Box O-Ring* 3M01-049488A 1 28 Back Cap O-King* 3M01-2400031 1 29 Back Cap O-King* 3M01-049488A 1 310 Cylinder O-Ring* 3M01-2400041 1 32	11	U-Packing with Back Up Ring*	3M01-U40000H	1
13 Piston 3M01-2400021 1 14 Valve Box 3M01-2400022 1 15 Main Valve 3M01-2400023 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap O-Ring* 3M01-2400025 1 18 Back Up Ring* 3M01-2400025 1 20 Lover Valve Cap 3M01-2400025 1 21 Locater Pin 3201-PN510 1 22 Box Sleeve O-Ring* 3M01-2400025 1 23 Box Sleeve O-Ring* 3M01-9158B 2 24 Back Up Ring* 3M01-9158B 2 25 Valve Rox Set Bolt 3L01-B56144 10 26 Valve Cap Bolt 3L01-B62154 2 27 Valve Rox O-Ring* 3M01-940004B 2 28 Back Cap O-Ring* 3M01-94004B 2 29 Back Cap O-Ring* 3M01-94004B 1 30 Piour Rox Ping* 3D1-90076W 10 31 Cylinder O-Ring* 3D1-90076W 10 32 <td>12</td> <td>Dust Seal*</td> <td>3M01-D40000D</td> <td>1</td>	12	Dust Seal*	3M01-D40000D	1
14 Valve Rox 3M01-2400022 1 15 Main Valve Cap 3M01-2400023 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap O-Ring* 3K01-07138B 1 19 Valve Cap O-Ring* 3M01-2400025 1 20 Lower Valve Cap 3M01-2400026 1 21 Locater Pin 3201-PN0510 1 22 Box Sleeve O-Ring* 3M01-2400026 1 23 Box Sleeve O-Ring* 3M01-2400026 1 24 Back Up Ring* 3M01-08158G 1 25 Valve Cap Boll 3L01-B50144 10 27 Valve Cap O-Ring* 3M01-09408A 1 28 Back Cap O-Ring* 3M01-09408A 1 29 Back Cap O-Ring* 3M01-09408A 1 31 Cylinder O-Ring* 3D1-09076W 10 32 Bouffer Ring* 3D1-09076W 10 33 Front Cap Dushing 3M01-2400041 1	13	Piston	3M01-2400011	1
15 Man Valve 3M01-2400023 1 16 Upper Valve Cap 3M01-2400023 1 17 Valve Cap O-Ring* 3K01-07138B 1 18 Back Up Ring* 3K01-07138B 1 20 Lover Valve Cap 3M01-3400025 1 21 Locater Pin 3201-PR0510 1 22 Box Sleeve O-Ring* 3M01-07158B 2 23 Box Sleeve O-Ring* 3M01-07158B 2 24 Back Up Ring* 3M01-07158B 2 25 Valve Box Steb Bolt 3L01-B55144 10 26 Valve Cap Bolt 3L01-B56144 10 27 Valve Box Schig* 3M01-04040B 2 28 Back Cap O-Ring* 3M01-2400031 1 29 Back Cap O-Ring* 3M01-2400081 5 31 Cylinder O-Ring* 3J01-9076W 10 32 Buffer Ring* 3J01-9076W 10 33 Pront Cap 3M01-2400043 1 34 Front Cap 3M01-2400043 1 35 </th <td>14</td> <td>Valve Box</td> <td>3M01-2400021</td> <td>1</td>	14	Valve Box	3M01-2400021	1
10 Upper Varve Cap 3M01-2400025 1 17 Valve Cap O-Ring* 3K01-07138B 1 18 Back Up Ring* 3K01-07138B 1 19 Valve Cap O-Ring* 3M01-32400025 1 20 Lower Valve Cap 3M01-3400025 1 21 Locater Pin 3201-PN0510 1 22 Box Sleeve O-Ring* 3M01-3400025 1 23 Box Sleeve O-Ring* 3M01-07158B 2 24 Back Up Ring* 3M01-07158B 2 25 Valve Box Set Bolt 3101-856144 10 27 Valve Box Set Bolt 3101-90040B 2 28 Back Cap O-Ring* 3M01-09488A 1 30 Ping 301-90076W 10 31 Cylinder O-Ring* 301-90076W 10 32 Buffer Ring* 301-90076W 10 33 Front Cap Pug 3001-2400041 1 34 Front Cap Bushing 3M01-2400042 1	15	Main Valve	3M01-2400022	1
117 Valve Cap D-King* 3K01-0471538 1 19 Valve Cap D-King* 3K01-04715480 1 10 Lower Valve Cap 3K01-047158B 1 11 Locater Pin 3201-PN0510 1 12 Locater Pin 3201-PN0510 1 12 Box Sleeve 3M01-2400026 1 12 Box Sleeve O-Ring* 3M01-2400026 1 12 Box Sleeve O-Ring* 3M01-04158G 1 12 Walve Box Set Bolt 31.01-856144 10 12 Valve Box Set Bolt 31.01-896144 10 13 Valve Box Set Bolt 31.01-240031 1 28 Back Cap O-Ring* 3M01-04485A 1 30 Plug 301-240081 5 31 Cylinder O-Ring* 3M01-240041 1 30 Plug 301-240081 5 31 Cylinder O-Ring* 3M01-2400041 1 33 Front Cap Bushing 3M01-2400041 1 34 Front Cap Bushing 3M01-2400044 4	16	Upper Valve Cap	3M01-2400023	1
13 Data Up King Data Up King 19 Valve Cap O-Ring* 3M01-051480 1 20 Lower Valve Cap 3M01-051480 1 21 Locater Pin 3Z01-PN0510 1 22 Box Sleeve O-Ring* 3M01-07158B 2 24 Back Up Ring* 3M01-07158B 2 24 Back Ster Bolt 31.01-862154 2 26 Valve Cap Bolt 31.01-862154 2 26 Valve Cap Bolt 31.01-862164 10 27 Valve Cap Bolt 31.01-807614 10 28 Back Cap 3M01-200031 1 29 Back Cap O-Ring* 3M01-200081 5 311 Cylinder O-Ring* 3M01-200081 5 312 Font Cap Pug 3M01-200081 1 34 Front Cap Bushing 3M01-2400041 1 35 Back May 1 1 36 Front Cap Bushing Spring Pin 3L01-852168 8 37	1/	Pack Up Ding*	3K01-0/138B	1
10 Lower Valve Cap 3001-9200025 1 21 Locater Pin 3201-PN0510 1 22 Box Sileeve 3M01-2400025 1 23 Box Sileeve O-Ring* 3M01-17158B 2 24 Back Up Ring* 3M01-017158B 2 24 Back Up Ring* 3M01-915601 1 25 Valve Box Set Bolt 3101-9621544 2 26 Valve Box O-Ring* 3H01-09488A 1 27 Valve Box O-Ring* 3H01-09488A 1 28 Back Cap O-Ring* 3H01-09040B 2 28 Back Cap O-Ring* 3H01-090488A 1 30 Plug 3H01-240081 5 31 Cylinder O-Ring* 3H01-240081 1 33 Front Cap 3H01-2400041 1 34 Front Cap Plug 3M01-2400042 1 35 Shank Bushing Sming Pin 3L01-852168 8 39 Nipple 3M03-3000041 2	10	Valve Can O-Ring*	3M01-051480	1
21 Locat Phin 3201-PN0510 1 22 Box Sleeve O-Ring* 3M01-7400026 1 23 Box Sleeve O-Ring* 3M01-7158B 2 24 Back Up Ring* 3M01-08158G 1 25 Valve Box Set Bolt 31.01-862154 2 26 Valve Box Set Bolt 31.01-862154 2 27 Valve Box Set Bolt 31.01-802154 2 28 Back Cap 3M01-2400031 1 29 Back Cap 0-Ring* 3M01-2400031 1 30 Plug 3301-2400031 5 31 Cylinder O-Ring* 3101-08076P 5 33 Front Cap Plug 3201-1470038 1 34 Front Cap Plug 3201-1470034 1 35 Bhank Bushing 3M01-2400041 1 36 Front Cap Plug 3201-88702 1 37 Bushing Ser Pin 3M01-2400043 1 38 Bushing Ser Pin 3M01-3400044 4 <tr< th=""><td>20</td><td>Lower Valve Can</td><td>3M01-2400025</td><td>1</td></tr<>	20	Lower Valve Can	3M01-2400025	1
22 Box Sieeve 3M01-2400026 1 23 Box Sieeve O-Ring* 3M01-07158B 2 24 Back Up Ring* 3M01-08158G 1 25 Valve Box Set Bolt 3L01-B62154 2 26 Valve Box O-Ring* 3H01-09040B 2 27 Valve Box O-Ring* 3H01-240031 1 28 Back Cap 3M01-240031 1 29 Back Cap O-Ring* 3M01-09076W 10 30 Plug 301-240081 5 31 Cylinder O-Ring* 3101-09076W 10 32 Buffer Ring* 3101-09076W 10 33 Front Cap Plug 3M01-240041 1 34 Front Cap Plug 3M01-2400043 1 35 Shank Bushing 3M01-2400043 1 36 Front Cap Bushing 3M01-2400043 1 37 Bushing Set Pin 3M01-2400044 4 38 Bushing Spring Pin 3L01-852168 8	20	Locater Pin	3Z01-PN0510	1
23 Box Sleeve O-Ring* 3M01-07158B 2 24 Back Up Ring* 3M01-08158G 1 25 Valve Box Sct Bolt 3L01-B56144 10 26 Valve Box Sct Bolt 3L01-B56144 10 27 Valve Box O-Ring* 3M01-200081 2 28 Back Cap 3M01-2400031 1 29 Back Cap O-Ring* 3M01-240081 5 30 Plug 3010-240081 5 31 Cylinder O-Ring* 3M01-240081 1 30 Plug 3M01-240041 1 34 Front Cap 3M01-2400041 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400044 4 37 Bushing Sct Fin 3M01-2400043 1 37 Bushing Sct Fin Pin 3M01-2400044 4 38 Bushing Sct Fin Pin 3M01-2400044 4	22	Box Sleeve	3M01-2400026	1
24 Back Up Ring* 3M01-08186G 1 25 Valve Cap Bolt 3L01-B56144 10 26 Valve Cap Bolt 3L01-B56144 10 27 Valve Cap Bolt 3L01-B56144 10 27 Valve Cap Bolt 3L01-B56144 10 28 Back Cap 3M01-2400031 1 29 Back Cap O-Ring* 3M01-90408A 1 30 Plug 301-90076W 10 31 Cylinder O-Ring* 3010-90076W 10 32 Burfer Ring* 3010-90076W 10 34 Front Cap Plug 3Z01-F0038 1 35 Shank Bushing 3M01-240042 1 36 Front Cap Bushing 3M01-240043 1 37 Bushing Spring Pin 3M01-240043 1 38 Bushing Spring Pin 3M01-2400043 1 37 Bushing Spring Pin 3M01-2400043 4 48 Bushing Spring Pin 3M01-2400051 4	23	Box Sleeve O-Ring*	3M01-07158B	2
25 Valve Box Set Bolt 3L01-B62154 2 26 Valve Cap Bolt 3L01-B56144 10 27 Valve Box O-Ring* 3H01-09040B 2 28 Back Cap 3M01-2400031 1 29 Back Cap O-Ring* 3M01-09488A 1 30 Plug 3J01-240081 5 31 Cylinder O-Ring* 3J01-09076W 10 32 Buffer Ring* 3J01-09076W 10 33 Front Cap Plug 3Z01-FP0038 1 34 Front Cap Plug 3M01-2400041 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400044 4 37 Bushing Spring Pin 3L01-S52168 8 38 Bushing Spring Pin 3M03-N00004 2 40 O-Ring 3M01-2400051 4 41 Side Rod Front Nut 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400053 4 43 Side Rod Front Nut 3M01-2400053 4 <td< th=""><td>24</td><td>Back Up Ring*</td><td>3M01-08158G</td><td>1</td></td<>	24	Back Up Ring*	3M01-08158G	1
26 Valve Cap Bolt 31.01-B56144 10 27 Valve Box O-Ring* 3101-2040031 1 28 Back Cap O-Ring* 3101-2400031 1 30 Plug 3101-2400031 1 30 Plug 3101-240081 5 31 Cylinder O-Ring* 3101-240081 5 32 Buffer Ring* 3101-240041 1 33 Front Cap 3101-2400041 1 34 Front Cap Plug 3201-FP0038 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400044 4 38 Bushing Set Pin 3L01-S2168 8 39 Nipple 3M03-7098B 2 40 O-Ring 3M01-2400051 4 42 Side Rod Assembly 3M01-2400053 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Masher. 3M01-2400053 4 45	25	Valve Box Set Bolt	3L01-B62154	2
27 Valve Box O-Ring* 3H01-90400B 2 28 Back Cap 3M01-2400031 1 29 Back Cap O-Ring* 3M01-2400031 1 30 Plug 3J01-240081 5 31 Cylinder O-Ring* 3J01-90076W 10 32 Buffer Ring* 3J01-90076W 10 33 Front Cap Plug 3Z01-FP0038 1 34 Front Cap Plug 3M01-2400041 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400042 1 37 Bushing Spring Pin 3L01-S52168 8 38 Bushing Spring Pin 3L01-S52168 8 39 Nipple 3M03-07098B 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400053 4 43 Side Rod Masher. 3M01-2400053 4 44 Side Rod Masher. 3M01-2400054 4 45 Grease Nipple 3Z01-6X0054 4 46 <td>26</td> <td>Valve Cap Bolt</td> <td>3L01-B56144</td> <td>10</td>	26	Valve Cap Bolt	3L01-B56144	10
28 Back Cap 3M01-2400031 1 29 Back Cap O-Ring* 3M01-94988A 1 30 Plug 3J01-240081 5 31 Cylinder O-Ring* 3J01-09076W 10 32 Buffer Ring* 3J01-20076W 10 33 Front Cap 3M01-2400041 1 34 Front Cap Plug 3Z01-FP0038 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400043 1 37 Bushing Spring Pin 3L01-S52168 8 38 Bushing Spring Pin 3L01-S02168 8 39 Nipple 3M03-40098B 2 40 O-Ring 3M01-2400051 4 41 Side Rod Assembly 3M01-2400052 4 42 Side Rod Assembly 3M01-2400053 4 43 Side Rod Assembly 3M01-2400053 4 44 Side Rod Assembly 3M01-2400053 4 45	27	Valve Box O-Ring*	3H01-09040B	2
29 Back Cap O-Ring* 3M01-09488A 1 30 Plug 3J01-240081 5 31 Cylinder O-Ring* 3J01-09076W 10 32 Buffer Ring* 3J01-09076P 5 33 Front Cap 3M01-2400041 1 34 Front Cap Plug 3Z01-PP0038 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400043 1 37 Bushing Set Pin 3M01-2400044 4 38 Bushing Set Pin 3M01-2400044 4 38 Bushing Set Pin 3M01-2400044 2 40 O-Ring 3M03-07098B 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400053 4 43 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-240007 1	28	Back Cap	3M01-2400031	1
30 Plug 301-20081 5 31 Cylinder O-Ring* 301-08076W 10 32 Buffer Ring* 301-08076P 5 33 Front Cap 3M01-2400041 1 34 Front Cap Plug 3201-FP0038 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400043 1 37 Bushing Spring Pin 3L01-S52168 8 38 Bushing Spring Pin 3L01-S52168 8 39 Nipple 3M03-07098B 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Assembly 3M01-2400053 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Back Nut 3M01-2400054 4 45 Grease Nipple 3201-GN0018 1 46 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-2400757 1 <t< th=""><td>29</td><td>Back Cap O-Ring*</td><td>3M01-09488A</td><td>1</td></t<>	29	Back Cap O-Ring*	3M01-09488A	1
31 Cylinder O-Ring* 301-09076W 10 32 Buffer Ring* 301-08076P 5 33 Front Cap Plug 3M01-2400041 1 34 Front Cap Bushing 3M01-2400042 1 35 Shank Bushing 3M01-2400043 1 36 Front Cap Bushing Set Pin 3M01-2400043 1 37 Bushing Spring Pin 3L01-S52168 8 38 Bushing Spring Pin 3L01-S52168 8 39 Nipple 3M03-N00004 2 40 O-Ring 3M01-2400051 4 41 Side Rod Assembly 3M01-2400052 4 43 Side Rod Front Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400053 4 45 Grease Nipple 3201-GN0018 1 46 Tool Set Pin 3M01-2400054 4 47 Tool Set Pin 3M01-2400054 1 48 Tool Mole Chisel, Blunt) 3M01-2210027 1	30	Plug	3J01-240081	5
32 Buffer Ring* 3010-80076P 5 33 Front Cap Plug 3201-FP0038 1 34 Front Cap Plug 3201-FP0038 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing Set Pin 3M01-2400044 4 38 Bushing Set Pin 3L01-S52168 8 39 Nipple 3M03-07098B 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400052 4 43 Side Rod Front Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3201-GN0018 1 46 Tool Set Pin 3M01-2400054 4 47 Tool Set Pin 3M01-2400054 4 48 Tool Moil (Chisel, Blunt) 3M01-2400054 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve Body 3H01-90044W 1	31	Cylinder O-Ring*	3J01-09076W	10
33 Front Cap Plug 3201-2400041 1 34 Front Cap Plug 3201-2400038 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400043 1 37 Bushing Set Pin 3M01-2400044 4 38 Bushing Spring Pin 3L01-S52168 8 39 Nipple 3M03-07098B 2 40 O-Ring 3M01-2400051 4 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Masher. 3M01-2400053 4 43 Side Rod Washer. 3M01-2400054 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3L01-S52368 2 48 Tool Moit (Chisel, Blunt) 3M01-2400054 4 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve Body 3H01-2210028 1 51 Mode Valve O-Ring* 3H01-90036W 1	32	Buffer Ring*	3J01-08076P	5
34 From Cap Fug 3201-740038 1 35 Shank Bushing 3M01-2400042 1 36 Front Cap Bushing 3M01-2400043 1 37 Bushing Set Pin 3M01-2400044 4 38 Bushing Spring Pin 3L01-852168 8 39 Nipple 3M03-07098B 2 40 O-Ring 3M01-2400051 4 41 Side Rod Front Nut 3M01-2400052 4 42 Side Rod Front Nut 3M01-2400053 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400053 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-2400051 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve Body 3H01-2210027 1 51 Mode Valve O-Ring* 3H01-09046W 1 52 Mode Valve Co-Ring* 3H01-09036W 1	33	Front Cap	3M01-2400041	1
333 Shalak Bushing 3M01-2400042 1 336 Front Cap Bushing 3M01-2400043 1 337 Bushing Set Pin 3M01-2400044 4 38 Bushing Spring Pin 3M01-2400044 4 38 Bushing Spring Pin 3M01-2400044 4 39 Nipple 3M03-N00004 2 40 O-Ring 3M01-2400051 4 41 Side Rod Assembly 3M01-2400052 4 42 Side Rod Front Nut 3M01-2400053 4 43 Side Rod Back Nut 3M01-2400054 4 44 Side Rod Back Nut 3M01-2400054 4 45 Grease Nipple 3Z01-CN0018 1 46 Tool Spring Pin 3L01-S52368 2 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-240007 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-9036W 1 51 Mode Valve C-Ring* 3H01-90036W 1	25	Front Cap Plug	3Z01-FP0038	I
30 Floit Cap Bashing Set Pin 3M01-2400044 4 38 Bushing Spring Pin 3L01-S52168 8 39 Nipple 3M03-N00004 2 40 O-Ring 3M03-07098B 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400052 4 43 Side Rod Washer. 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-2400054 4 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moli (Chisel, Blunt) 3H01-2210027 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09036W 1 51 Mode Valve O-Ring* 3H01-09036W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve O-Ring* 3H01-90036W 1 55 Spring Washer 3H01-SU0018 1	35	Front Can Bushing	3M01-2400042	1
37 Disking Sering 1001-200044 4 38 Bushing Spring Pin 31.01-S52168 8 39 Nipple 3M03-N00004 2 40 O-Ring 3M03-07098B 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400052 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-2400(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09044W 1 51 Mode Valve O-Ring* 3H01-820068 4 52 Mode Valve O-Ring* 3H01-820400 1 53 Mode Valve Cokel Bolt 3H01-820404 1 54 Mode Valve St Bolt 3H01-SU018	37	Bushing Set Pin	3M01-2400043	1
39 Nipple 3003-N00004 2 39 Nipple 3M03-N00004 2 40 O-Ring 3M03-N00004 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400052 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-2400061 1 47 Tool Set Pin 3M01-2400071 1 48 Tool Moil (Chisel, Blunt) 3M01-2210027 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09044W 1 52 Mode Valve O-Ring* 3H01-290058 4 53 Mode Valve Co-Ring* 3H01-82008 1 54 Mode Valve Lock Bolt 3H01-82008 1 55 Spring Washer 3H01-SU008 1	38	Bushing Spring Pin	31.01-\$52168	
40 O-Ring 3M03-07098B 2 41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400052 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-2400061 1 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-200027 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09044W 1 51 Mode Valve O-Ring* 3H01-820068 4 53 Mode Valve Co-Ring* 3H01-820068 4 54 Mode Valve Lock Bolt 3H01-82008 1 55 Spring Washer 3H01-82008 1 56 Locater Pin 3H01-SU008 1 56 Locater Pin 3H01-SU0018 1	39	Nipple	3M03-N00004	2
41 Side Rod Assembly 3M01-2400051 4 42 Side Rod Front Nut 3M01-2400052 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-2400051 1 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-240P(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-090044W 1 51 Mode Valve O-Ring* 3H01-90936W 1 52 Mode Valve O-Ring* 3H01-8210028 4 54 Mode Valve Lock Bolt 3H01-822040 1 55 Spring Washer 3H01-SL0018 1 56 Locater Pin 3H01-821MVA 1 NI Mode Valve Assembly 3H01-SL0018 1 NI Mode Valve Assembly 3H01-SL0018	40	O-Ring	3M03-07098B	2
42 Side Rod Front Nut 3M01-2400052 4 43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-2400051 1 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-240P(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09036W 1 51 Mode Valve O-Ring* 3H01-09036W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Lock Bolt 3H01-B24040 1 54 Mode Valve Lock Bolt 3H01-PN0308 3 55 Spring Washer 3H01-SU018 1 56 Locater Pin 3H01-SU018 1 57 Stop Ring 3H01-SU018 1 58 Grase Kit 3M01-240VBA 1 59 Gras Kareer 3Z01-2002GC 1	41	Side Rod Assembly	3M01-2400051	4
43 Side Rod Back Nut 3M01-2400053 4 44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-400061 1 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-240P(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09044W 1 51 Mode Valve O-Ring* 3H01-09036W 1 52 Mode Valve O-Ring* 3H01-9036W 1 53 Mode Valve Lock Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B24040 1 55 Spring Washer 3H01-SW008 1 56 Locater Pin 3H01-SW008 3 57 Stop Ring 3H01-SU018 1 NI Mode Valve Assembly 3H01-SU018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Mode Valve Assembly 3H01-SU018 1	42	Side Rod Front Nut	3M01-2400052	4
44 Side Rod Washer. 3M01-2400054 4 45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-400061 1 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-2400F(s, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09044W 1 51 Mode Valve O-Ring* 3H01-09036W 1 52 Mode Valve Set Bolt 3H01-90036W 1 53 Mode Valve Set Bolt 3H01-820400 1 54 Mode Valve Lock Bolt 3H01-820400 1 55 Spring Washer 3H01-SU0088 1 56 Locater Pin 3H01-PN0308 3 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Mode Valve Assembly 3M01-240VBA 1 NI Mode Valve Assembly 3M01-240VBA 1 NI Gas Charger 3Z01-2002GC 1	43	Side Rod Back Nut	3M01-2400053	4
45 Grease Nipple 3Z01-GN0018 1 46 Tool Set Pin 3M01-400061 1 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-240P(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve O-Ring* 3H01-09044W 1 51 Mode Valve O-Ring* 3H01-09036W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Set Bolt 3H01-9036W 1 54 Mode Valve Lock Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-PN0308 1 55 Spring Washer 3H01-PN0308 3 56 Locater Pin 3H01-PN0308 3 57 Stop Ring 3H01-SU018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 <	44	Side Rod Washer.	3M01-2400054	4
46 Tool Set Pin 3M01-400061 1 47 Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-240P(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve 3H01-2210028 1 51 Mode Valve O-Ring* 3H01-09044W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Set Bolt 3H01-82068 4 54 Mode Valve Lock Bolt 3H01-82068 4 55 Spring Washer 3H01-SW008 1 56 Locater Pin 3H01-SU018 1 56 Locater Pin 3H01-SU018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-2400K 1 NI Valve Box Assembly 3H01-SU018 1 NI Valve Assembly 3H01-221MVA 1 NI Seal Kit 3M01-2400SK 1 <	45	Grease Nipple	3Z01-GN0018	1
4/ Tool Spring Pin 3L01-S52368 2 48 Tool Moil (Chisel, Blunt) 3M01-240P(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve 3H01-2210028 1 51 Mode Valve O-Ring* 3H01-09044W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Set Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-SW0008 1 55 Spring Washer 3H01-SW0008 1 56 Locater Pin 3H01-SU018 1 57 Stop Ring 3H01-SU018 1 NI Mode Valve Assembly 3H01-240VBA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Gas Charger 3Z01-202GC 1	46	Tool Set Pin	3M01-400061	1
48 1001 M01 (Chisel, Blunt) 3M01-240P(Fx, E) 1 49 Mode Valve Body 3H01-2210027 1 50 Mode Valve 3H01-2210028 1 51 Mode Valve O-Ring* 3H01-09044W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Set Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B32068 1 55 Spring Washer 3H01-B32068 1 56 Locater Pin 3H01-PN0308 1 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-SL0018 1 NI Valve Box Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-220WBA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240SK 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001	47	Tool Spring Pin	3L01-S52368	2
49 Mode Valve Body 3H01-2210027 1 50 Mode Valve 3H01-2210028 1 51 Mode Valve O-Ring* 3H01-09044W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Set Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B32068 1 55 Spring Washer 3H01-B32068 1 56 Locater Pin 3H01-PN0308 1 56 Locater Pin 3H01-PN0308 3 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-220WBA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1	48	Tool Moil (Chisel, Blunt)	3M01-240P(Fx, E)	1
50 Mode valve 3H01-2210028 1 51 Mode Valve O-Ring* 3H01-09044W 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Set Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B24040 1 55 Spring Washer 3H01-PN0308 1 56 Locater Pin 3H01-PN0308 3 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-220036 1 NI Scal Kit 3M01-240VBA 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001	49	Mada Valva	3H01-2210027	1
S1 Mode Valve O-Ring* 3H01-09044 w 1 52 Mode Valve O-Ring* 3H01-09036W 1 53 Mode Valve Set Bolt 3H01-09036W 1 54 Mode Valve Lock Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B24040 1 55 Spring Washer 3H01-PN0308 1 56 Locater Pin 3H01-PN0308 3 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-240VBA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 NI denotes not illustrated. <	50	Mode Valve O Ping*	3H01 00044W	1
32 Mode Valve O-Knig 3H01-09050W 1 53 Mode Valve Set Bolt 3H01-B32068 4 54 Mode Valve Lock Bolt 3H01-B320400 1 55 Spring Washer 3H01-SW0008 1 56 Locater Pin 3H01-SL0018 1 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240SK 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-600001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	52	Mode Valve O Bing*	2H01.00026W	1
53 Mode Valve Ser Bolt 3101-B32000 4 54 Mode Valve Lock Bolt 3H01-B20400 1 55 Spring Washer 3H01-B20008 1 56 Locater Pin 3H01-SW0008 1 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240SK 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	53	Mode Valve Set Bolt	3H01-B32068	1
55 Spring Washer 3H01-SW0008 1 56 Locater Pin 3H01-SW0008 1 56 Locater Pin 3H01-PN0308 3 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240SK 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	54	Mode Valve Lock Bolt	3H01-B32000	1
56 Locater Pin 3H01-PN0308 3 57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3H01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	55	Spring Washer	3H01-SW0008	1
57 Stop Ring 3H01-SL0018 1 NI Mode Valve Assembly 3H01-SL0018 1 NI Valve Box Assembly 3H01-221MVA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240SK 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	56	Locater Pin	3H01-PN0308	3
NI Mode Valve Assembly 3H01-221MVA 1 NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Seal Kit 3M01-240VBA 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	57	Stop Ring	3H01-SL0018	1
NI Valve Box Assembly 3M01-240VBA 1 NI Seal Kit 3M01-240SK 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	NI	Mode Valve Assembly	3H01-221MVA	1
NI Seal Kit 3M01-240SK 1 NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	NI	Valve Box Assembly	3M01-240VBA	1
NI Gas Charger 3Z01-202GC 1 58 Gas Valve Assembly (Includes item # 59) 3Z01-G00001 1 59 Gas Valve Cap with O-Ring 3Z01-G00004 1 *Included in seal kit only. NI denotes not illustrated. Effective 07/05	NI	Seal Kit	3M01-240SK	1
58Gas Valve Assembly (Includes item # 59)3Z01-G00001159Gas Valve Cap with O-Ring3Z01-G000041*Included in seal kit only. NI denotes not illustrated.Effective 07/05	NI	Gas Charger	3Z01-202GC	1
59Gas Valve Cap with O-Ring3Z01-G000041*Included in seal kit only.NI denotes not illustrated.Effective 07/05	58	Gas Valve Assembly (Includes item # 59)	3Z01-G00001	1
*Included in seal kit only. NI denotes not illustrated. Effective 07/05	59	Gas Valve Cap with O-Ring	3Z01-G00004	1
	*Inclue	led in seal kit only. NI denotes n	not illustrated.	Effective 07/05

HH8000 HAMMER



HH8000 HAMMER



BRACKET ASSEMBLY PARTS LIST

ITEM	PART NO.	ΟΤΥ	DESCRIPTION	
	MODEL HH8000	Q11		
1.	3M01-240501	1	Hammer Bracket (R)*	
2.		1	Hammer Bracket (L)*	
3.	3M01-240502	8	Bracket Bolt	
4.	Assembly of Item 3	8	Washer	
5.	Assembly of Item 3	16	Nut	
NI	3M01-240504-304	2	Support Pipe (Top)	
6.	3M01-240507-384	2	Support Pipe (Middle)	
NI	3M01-240504-304	4	Support Pipe (Bottom)	
7.	3M01-TC8000B	12	Top Cap Bolt	
8.	Assembly of Item 7	12	Top Cap Washer	
9.	Assembly of Item 7	12	Top Cap Nut	
10.	3M01-240505	4	Cushion Rubber	
11.	Assembly of Item 10	4	Screw	
12.	Per Carrier Model	1	Тор Сар	

*Sold as matched set w/ hardware. NI denotes not illustrated. Effective 07/05 Prices subject to change without notice.

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NOTES



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