

# CP-10 SUMP PUMP

ROCK DRILL 616

THIRD EDITION

MAY, 1984

Supersedes Second Edition January, 1979

## *Instruction and Parts Book for* **PNEUMATIC SUMP PUMP**

**CP-10 Model "C - W"**

PROTECT YOUR INVESTMENT  
IN THE WORLD'S FINEST AIR TOOLS  
USE GENUINE CP REPLACEMENT PARTS

The purchase of replacement parts for your CP tools deserves the same good judgment that resulted in the purchase of the tools themselves. Each genuine CP part is made from carefully selected and inspected material, subjected to sophisticated machinery and finishing processes

and heat-treated to produce just the right combination of hardness, ductility and impact resistance for its intended use. Each part is identical to, and made concurrently with, parts used in production tools. The use of parts other than genuine CP replacement parts can lead to sub-standard performance, early failure, possible damage of other parts and, in some instances, unsafe conditions.

DANGER  
DO NOT USE TO PUMP  
FLAMMABLE LIQUIDS



**Chicago  
Pneumatic**

Chicago Pneumatic Tool company ★ Rock Hill, SC29730

R-278156

## GENERAL INSTRUCTIONS

### Air Supply

For satisfactory performance, 90 psig (6.2 bar) of clean, dry air is required AT THE PUMP with motor operating. The use of a CHICAGO PNEUMATIC Air Line Filter as shown on page 6 is recommended.

### Preparing for Operation

Daily, before operating the pump and when putting a new or old pump into service, disconnect the air hose and pour approximately one fluid ounce (32.8 cu.cms.) of recommended oil into live air inlet.

Always blow out air line to clear it of all accumulated dirt or moisture before attaching it to pump. Make sure exhaust pipe or hose is long enough to be above water level at all times. Do not allow dirt or moisture to enter exhaust while moving pump. Keep pump level. If possible, set it on a board or flat stone above muck or settlings. If liquid being pumped is extremely dirty, place pump in a wire basket or screened box.

### Lubrication

Before using and after each eight hours service, remove oil plug and fill reservoir with recommended oil.

Periodically remove pipe plug (49) in pump housing (58) and fill cavity with recommended grease. Do not use pressure fitting. Whenever pump is disassembled, clean out ball bearings and clean old grease from all other parts.

Using recommended grease, repack bearings, coat governor parts, and coat all parts between lower and plate and impeller.

NOTE: Automotive water pump grease is designed for use with hot water and is too hard for use in pump operating in cold water.

Coat rotor shaft splines with a good grade molybdenum disulphide lubricant.

When pump is taken out of service, if only for overnight, drain out all water, disconnect all hoses, pour a small amount of oil into live air inlet, connect air hose and idle pump until a coating of oil has reached all internal parts (about one minute).

### Recommended Lubricants

Manufacturer	Lubricant Equivalents for Air Motors	Grease Equivalents for Bearings and Gearing
Esso	Nuto H40	Beacon 2
Mobiloil	Velocite 10	Mobilplex 47
Shell	Tellus 23	Alvania EP2
Texaco - Caltex	Spindura 22	Multifak EP2
BP Power Petroleum	Energol CS40	Energrease LS3
Burmah - Castrol	Hyspin AWS22	Spheerol AP2

### OIL

Chicago Pneumatic Airoilene Oil which contains a rust inhibitor and will not separate while tool is idle, is recommended for use in the motor and may be purchased under the following symbols:

1 pt. - - - - -P-137646  
1 gal. - - - - -P-089507  
5 gal. - - - - -P-089508

If recommended oil is not available, use a turbine or spindle grade oil having a viscosity of 100-150 SUS at 100°F, which contains a rust inhibitor.

### GREASE

Lubriplate #110 (Fisk Bros. Refining Co., Newark, New Jersey - Toledo, Ohio) or equivalent is recommended for use on the governor parts and in impeller housing.

Chicago Pneumatic bearing grease is recommended for use in the ball bearings and may be purchased under the following symbol:

1 lb. can - - - - -S-087658

If recommended grease is not available, use a good grade grease such as Humble Oil Co's. Andok "C". Bel-Ray Co's. Anti-Sieze or equivalent is recommended for use on rotor shaft splines.

### Oiler Adjustment

The oiler valve is factory set to deliver approximately six ounces of oil in each eight hours service. If readjustment is necessary, proceed as follows:

1. Remove oil plug and drain all oil out of reservoir.
2. Unscrew and remove four nuts with lockwashers holding governor housing to motor housing and remove governor housing.
3. Use 1/8" Allen Wrench to turn orifice plug (set screw with drilled hole).

Clockwise to reduce flow.  
Counter clockwise to increase flow.

NOTE: Do not restrict flow entirely as lack of lubrication will result in rapid pump failure.

4. Reassemble, refill and check by holding a piece of clean paper in front of air exhaust while operating pump. A fine oil film will appear on paper when valve is properly adjusted.

## Disassembly/Assembly Caution

To disassemble Pump, first unscrew and remove the following external items: Air valve (63), exhaust pipe (64), outlet nipple (65), and carrying handle (32). Separate pump housing (58) from motor housing (34) by removing screws (35) and lockwashers (31) and separate the motor housing (34) from inlet housing (41) by removing screws (54) and lockwashers (55). To remove impeller (27), first remove impeller retaining bolt (22) and impeller retaining spacer (23), the motor assembly can now be removed from motor housing (34).

Remove the governor body (LEFT HAND THREAD) from the rotor shaft (33), remove motor shim (36) and end plate (14) and inspect rotor for dirt and for easy rotation. Inspect end play for evidence of scoring and inspect rotor blades (57) for excessive wear and for a face fit in rotor slots. Inspect lower end plate (18) for scoring and inspect ball bearing (19) for free rotation.

If replacement of lower end plate bearing (18) is necessary, remove the rotor body (16) and liner (17). Press rotor shaft (33) and lower end plate bearing (18). Press bearing (19) from shaft (33) and replace.

Remove the impeller sleeve (33) and inspect shaft seals (20) for wear. To remove these seals, first remove upper wear plate screws (21) and wear plate (29). Press seals from motor housing. When replacing new shaft seals, the inner seal must seat against shoulder of motor housing; the outer seal must press flush with motor housing.

If removal of lower wear plate (26) is necessary, insert a 1/4" dia. rod into the three holes in the underside of pump housing (58) and evenly tap the plate out of the housing. When reassembling the pump, there should be a clearance of .007" to .012" between angular faces of the lower wear plate (26) and impeller (27). If the clearance exceeds .012", add the appropriate thickness of shims (61) under the lower wear plate. Insure that the shims slots are aligned with the three knockout holes in the pump housing.

When assembling motor into motor housing, the upper end plate (14) must protrude above the motor housing between 0.001" and 0.003". If not, add shims (36) as required.

Install push pin button in push pin (56) with retaining ring (8).

## Maintenance

CHICAGO PNEUMATIC Sump Pumps are designed to meet conditions which subject them to severe wear and to the presence of corrosive liquids. Reasonable care and a regular inspection and repair program will prolong the life and maintain the efficiency of the units.

The immediate correction of minor faults will prevent later extensive overhaul and reconditioning.

1. Follow "Lubrication" instructions carefully.
2. Follow above routine in "Preparing for Operation."
3. Keep nuts on housing tight.
4. Be sure air inlet and exhaust connections are water tight.
5. After each 400 hours of service, completely disassemble Pump, clean all parts and check for damage or wear. Replace worn or damaged parts, lubricate as recommended and reassemble.

### Storage

When storing Pump for any length of time precautions should be taken to prevent corrosion and to maintain Pump in a serviceable condition.

1. Remove discharge and exhaust hose or pipe and run Pump out of water to blow out all moisture.
2. Remove air line and pour approximately 1/4 pint (0.14 litres) of rust resisting oil in live air inlet. Reconnect hose and idle motor a few minutes to carry oil to all internal parts.
3. Remove air hose and plug live air inlet and air exhaust port with corks.
4. Wipe outside of Pump with rust resisting oil, wrap Pump in oiled paper and pack in covered box.
5. Store Pump in dry place.

### Loss of Power/Ergatic Action

Loss of power and motor failure may be caused by conditions outside the Pump. Check for:

1. Low air pressure at the Pump. 90 psi (6.2 bar) air pressure is required at the Pump, with motor running under load.
2. Lowered compressor output.
3. Excessive drain on supply line.
4. Use of hose or connections of insufficient size.

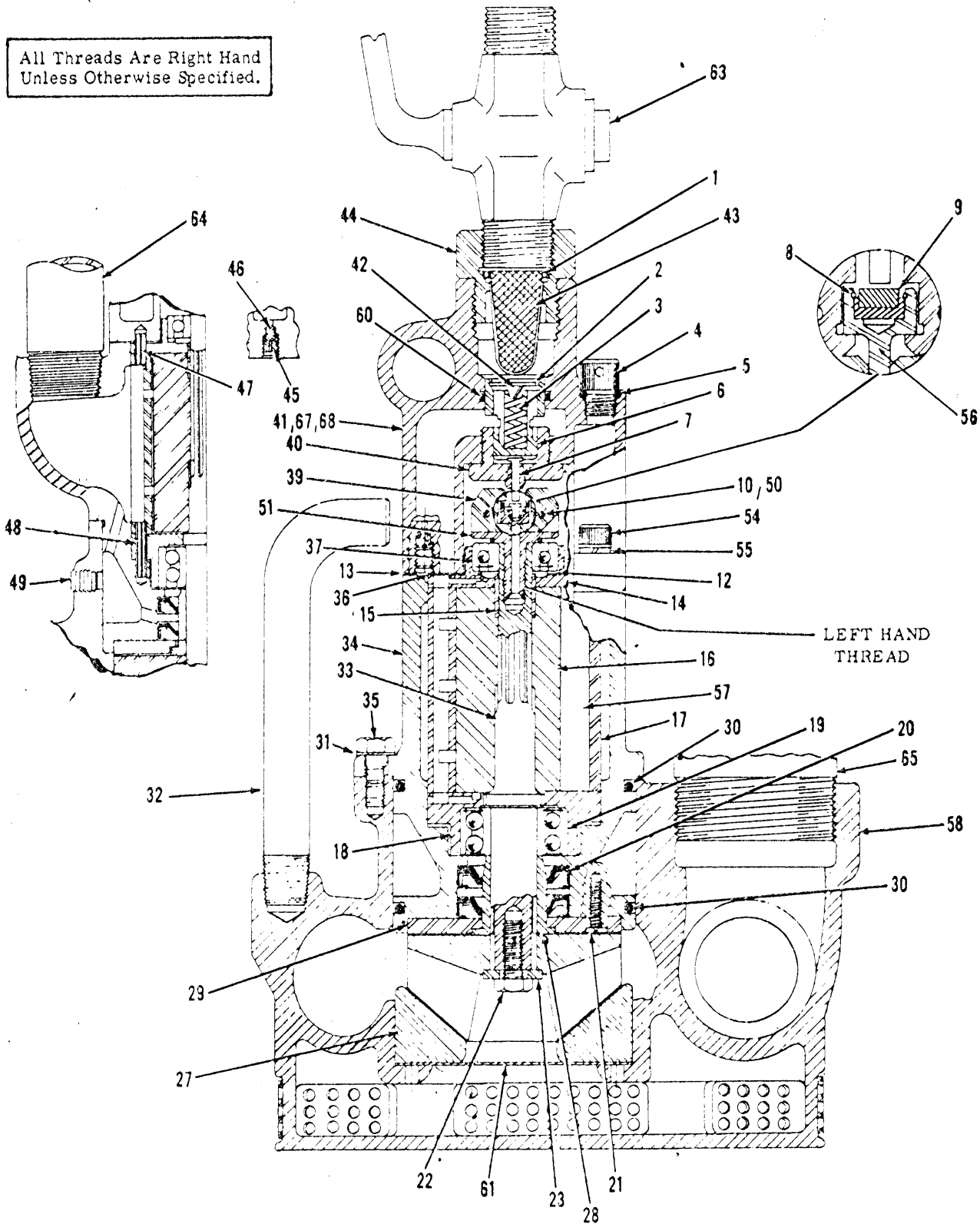
If the above conditions are found to be in order check in sequence the following:

1. Air strainer: remove, clean and replace.
2. Motor lubrication: Fill oil reservoir, disconnect hose and pour a small amount of recommended oil in live air inlet. Check oil in exhaust air as outlined under "Oiler Adjustment."
3. Impeller: Grit may be lodged under impeller or between impeller and wear ring, stalling Pump. To correct:

- A. Raise Pump just out of water permitting water in discharge hose to flush back through Pump which may dislodge particles.
- B. Disassemble and inspect Pump. See "Disassembly and Assembly Cautions."
4. Icing: Icing in the exhaust chamber and pipe is caused by entry of moisture in the motor or exhaust chamber. Check air inlet and exhaust connections for water tightness. Be sure end of exhaust pipe or hose is well above water. Carefully check grease seals and gaskets and replace if leakage is indicated.

CP-10 SUMP PUMP Model 'C-W'

All Threads Are Right Hand Unless Otherwise Specified.



**CP-10 SUMP PUMP Model "C-W"**

BSP---BRITISH STANDARD PIPE  
 NPT---NATIONAL PIPE TAPER  
 NPTF---NATION PIPE TAPER FUEL

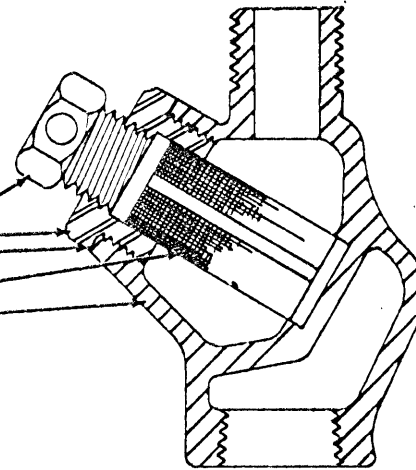
Index No.	CP Part No.	Description	No. Req'd.	Index No.	CP Part No.	Description	No. Req'd.
1	C-090746	Ring-Retainer	1	33	C-113797	Shaft-Rotor	1
2	S-087190	Ring-Retainer	1	34	C-113801	Housing-Motor	1
3	C-113779	Spring-Compression	1	35	P-070423	Screw-Cap (Hex. Hd.) (5/16"-18 x 3/4")	4
4	C-085233	Plug-Oil	1	36	C-113786	Shim-Motor	1
5	A-082777	"O" Ring (-012)	1	37	S-014490	Bearing-Ball	1
6	C-090935	Valve-Governor	1				
7	C-084364	Pin-Governor (Valve)	1				
8	C-046482	Ring-Retaining	1	39	C-089772	Weight-Governor	2
9	C-143240	Button (Push Pin)	1	40	C-113798	Cage-Governor	1
10	C-083361	Pin-Governor Weight	2	41	C-113799	Housing-Inlet (Air)	1
				42	C-113780	Retainer (Spring)	1
12	C-089794	Washer-Tension	1	43	C-078057	Filter-Screen	1
13	C-113791	Gasket-Housing	1	44	C-113782	Fitting-(Adapter)	1
14	C-089790	Plate-Upper End	1	45	C-113789	Plug-Orifice	1
				46	C-113787	Wick-Plug	1
15	C-089779	Sleeve-Rotor	1	47	P-056138	Pin-Roll (.156" x 9/16" Lg.)	1
16	C-092049	Body-Rotor	1	48	CA-088617	Pin-Roll (.156" x 1" Lg.)	1
17	C-092047	Liner-Motor	1	49	C-035390	Plug-Pipe (1/8")	1
18	C-113795	Plate-Lower End	1	50	C-089793	Retainer-Pin	1
19	S-039951	Bearing-Ball	1	51	C-077150	Body-Governor	1
20	C-113792	Seal-Shaft	2	54	C-064806	Screw-Cap (Allen) (1/4"-20 x 3/4")	4
21	C-113793	Screw-Flat Head (Nyllok) (#10-24 x 5/8")	4		P-070320	Wrench-Allen (3/16" Hex.)	1
	P-009300	Wrench-Allen (1/8" Hex)	1	55	S-000271	Lockwasher (1/4")	4
22	C-113788	Bolt-Hex. (Long Lok) (5/16"-18 x 5/8")	1	56	C-103412	Pin-Push (Governor)	1
				57	C-092050	Blade-Rotor	4
23	C-113785	Spacer-(Retaining)	1	58	C-113802	Housing-Pump (Incl: No. 25)	1
25	C-113794	Screen-Sump	1	60	C-046471	"O" Ring (-118)	1
26	F-814672	Plate-Wear (Lower)	1	61	C-115755	Shim (Wear Plate)(.005")	As
27	F-814673	Impeller-Pump	1		F-814688	Shim (Wear Plate)(.003")	Req'd.
28	C-113790	Sleeve-Impeller	1				
29	C-113783	Plate-Wear (Upper)	1	63	R-137313	Valve-(3/4" Male)	1
30	CA-087468	"O" Ring (-236)	2	64	S-038723	Pipe-Exhaust (NPTF)	1
31	C-011005	Lockwasher (5/16")	4		R-137578	Pipe-Exhaust(1" NPT 1" BSP)	
32	C-085347	Handle-Pump	1	65	R-137579	Nipple (BSP)	1
				67	R-136621	Plate-Name	1
				68	S-015150	Screw-Name Plate (#4-40 x 1/8")	4

**DANGER**  
 DO NOT USE TO PUMP  
 FLAMMABLE LIQUIDS

CP-10 SUMP PUMP Model "C-W"

EXTRA EQUIPMENT

- C-061460 Line Air Strainer
- Complete Consists of:
- P-002293 Plug-Air Strainer
- C-061341 Gland-Air Strainer
- C-062965 Gasket
- C-061340 Screen-Air Strainer
- C-061339 Housing-Air Strainer



All Threads Are Right Hand Unless Otherwise Specified.

Title	Part No.	Description
Water Discharge Hose (NPT)	C-084450	25 ft. - 2 1/2" single jacket cotton rubber lined fire hose with 2 1/2" pipe thread couplings, one female, and one male. Includes C-080166 spanner wrench.
	C-079283	50 ft. - 2 1/2" single jacket rubber lined fire hose with 2 1/2" pipe thread couplings, one female, and one male. Includes C-080166 spanner wrench.
WATER DISCHARGE HOSE (BSP)	R-137980 (Ref:33FPS2488)	FOR BSP 10m. (32.8 ft) -2 1/2" rayon reinforced flexible rubber hose capable of being wound flat for easy storage.
	R-137981 (Ref:66FPS2488)	20m. (65.6ft) -2 1/2" rayon reinforced flexible rubber hose capable of being wound flat for easy storage.

Also available in 30m. and 40m. lengths

NPT-NATIONAL PIPE TAPER  
BSP-BRITISH STANDARD PIPE THREAD

SPARE PARTS SERVICE CHART

THIS SERVICE CHART IS PUBLISHED AS A GUIDE TO EXPECTANT LIFE OF COMPONENT PARTS. THE REPLACEMENT LEVELS ARE BASED ON AVERAGE TOOL USAGE OVER A ONE YEAR PERIOD

EXAMPLE: For 10 tools in use: 10 high wear items will be required per year, 7 medium wear items, etc.

NOTE: Quantities must be increased where tool is subjected to more severe and/or continuous usage.

LEGEND

- X—Type of wear, if no other comments apply.
- L—Easily lost. Carefully reserve during disassembly.
- D—Easily damaged during disassembly and assembly.
- R1—Replace each time tool is disassembled.

Index No.	CP Part No.	Description	No. Req'd.	High Wear	100% Medium Wear	70% Low Wear	30% Non Wear	10% Subject to External Damage
1	C-090746	Ring-Retainer	1				D	
2	S-087190	Ring-Retainer	1				D	
3	C-113779	Spring-Compression	1			R1		
4	C-085233	Plug-Oil	1					X
5	A-082777	"O" Ring	1		R1			
6	C-090935	Valve-Governor	1			X		
7	C-084364	Pin-Governor (Valve)	1			R1		
8	C-046482	Ring-Retaining	1		L			
9	C-143240	Button-(Push Pin)	1			L		
10	C-083361	Pin-Governor	2			L		
12	C-089794	Washer-Tension	1		R1			
13	C-113791	Gasket-Housing	1		R1			
14	C-089790	End Plate - Upper	1			X		
15	C-089779	Sleeve-Rotor	1			X		
16	C-092049	Body-Rotor	1			X		
17	C-092047	Liner-Motor	1			X		
18	C-113795	Plate-Lower End	1			X		
19	S-039951	Bearing Ball	1			X		
20	C-113792	Seal-Shaft	2		X			
21	C-113793	Screw-Flat Head	4			X		
22	C-113788	Bolt	1				X	
23	C-113785	Spacer-(Retaining)	1				X	
25	C-113794	Screen-Sump	1				X	
26	F-814672	Plate-Wear (Lower)	1			X		
27	F-814673	Impeller-Pump	1			X		
28	C-113790	Sleeve-Impeller	1			X		
29	C-113783	Plate-Wear (Upper)	1			X		
30	CA-087468	"O" Ring	2		X			
31	C-011005	Lockwasher	4				X	
32	C-085347	Handle-Pump	1				X	
33	C-113797	Shaft-Rotor	1			X		
34	C-113801	Housing-Motor	1				X	
35	P-070423	Screw-Cap	4				X	
36	C-113786	Shim-Motor	1		X			
37	S-014490	Bearing-Ball	1			X		
39	C-089772	Weight-Governor	2			X		
41	C-113799	Housing-Inlet (Air)	1					X
42	C-113780	Retainer (Spring)	1				X	
43	C-078057	Filter-Screen	1			X		
44	C-113782	Fitting-(Adapter)	1				X	
45	C-113789	Plug-Orifice	1				L	
47	P-056138	Pin-Roll	1				X	
48	C-088617	Pin-Roll	1				X	
49	C-035390	Plug-Pipe	1				X	
50	C-089793	Retainer-Pin	1				X	
51	C-077150	Body-Governor	1				X	
54	C-064806	Screw-Cap	4				X	
55	S-000271	Lockwasher	4				X	
56	C-103412	Pin-Push (Governor)	1				L	
57	C-092050	Blade-Rotor	4		R1			
58	C-113802	Housing-Pump	1					X
60	C-046471	"O" Ring	1		R1			
61	C-115755	Shim (Wear Plate)(.005")	As Req'd.		X			
	F-814672	Shim (Wear Plate)(.003")	Req'd.		X			
63	R-137313	Valve	1					X
64	S-038723	Pipe-Exhaust	1					X