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Part Identification – 620 Series Pumps

ltem	Part Number	Quantity	Description	Page Number
1	See table 4	1	Housing	11
2	See table 7	1	Seal, Shaft	12
3	101680-225	1	Ring, Retaining, Internal (Shaft Seal)	5
4	6021805-001	1	Bearing Assembly, Shaft (Front)	5
5	5989757-001	1	Spring, Bias	5
6	6021043-001	2	Bearing, Swashplate / Bearing Kit 9900761-000	5
7	114995-010	2	Screw, Cap, Socket / Bearing Kit 9900761-000	5
8	See table 6	1	Swashplate	12
9	See table 1	1	Shaft, Drive	8
	See table 1	1	Key, Driveshaft	8
11	See table 5	1	Rotating Group S/A	11
12	See table 3	1	Valve Plate	10
13	See table 17	1	Bearing Assembly, Shaft (Rear)	5
14	Not Saleable	1	Ring, Crush / Bearing Shim Kit 9900776-000	5
15	96201-062	2	Slotted Spring Pin 1/4	5
16	6026023-001	1	Gasket (Endcover/Housing)	5
17	See table 2	1	End Cover S/A	9
18	114978-050	4	Screw, Cap (Housing/Endcover)	5
19	6023317-001	1	Piston, Control	5
20	See table 12	1	Plug, Adjustable Volume Stop Δ	14
21	See table 11	1	Plug (Top Case Drain Port)	14
22	See table 11	1	Plug (Bottom Case Drain Port)	14
23	115046-004	1	Plug (Housing)	5
24	107275-017	1	O-Ring (Compensator/Housing)	5
25	107275-011	2	O-Ring (Secondary Compensator/Housing)	5
26	See table 8	1	Compensator Kit	13
27	See table 9	4	Screw, Cap (Compensator Mounting)	13
28	See table 14	1	Coupler	15
29	104166-155	1	O-Ring (Endcover To Aux Mount) 🛛 / Thru Drive adapter Kit	6
30	See table 13	1	Adapter, Thru Drive / Thru Drive Adapter Kit	15
31	See table 13	1	O-Ring Adapter //Thru Drive Adapter kit	15
32	See table 13	4	Bolts / Thru Drive Adapter kit	15
33	See table 10	1	Cold Start Manifold (Destroke)	14
34	107275-011	3	O-Ring (Destroke)	14
35	6022841-001	1	Link, Feedback	33
36	114995-010	1	Screw, Cap, Socket, Flat, Countersunk	33
37	5990203-001	1	Magnet Carrier	33
40	6024371-002	1	Feedback Sensor, Non-Contact	33
41	5996053-002	2	Screw, Button Head Cap (Sensor Mount)	33
45	4993571-325	1	Adjustable Stop Screw $oldsymbol{\Delta}$	6
46	692867	1	Lock Nut Δ	6
47	115044-014	1	O-Ring Δ	6
48	See table 15	1	Cover	16
49	See table 16	2	Hex Head Cap Screw	16
50	6026587-001	1	Cover Plate Sealing / Cover Plate Kit 9900782-000	32
51	6026902-001	1	Gasket ,Cover Plate / Cover Plate Kit 9900782-000	32
52	114977-020	4	Screw, Cap / Cover Plate Kit 9900782-000	32

Standard Seal Kit: 9900758-000

 Δ Adjustable Maximum Displacement Volume Stop Kit: 9900772-000

Exploded Assembly – 620 Series Pumps

Part Item Number



Part Item Number

Optional Assembly – 620 Series Pumps

Thru-Drive Part Option



Adjustable Maximum Stop Option

Typical Cross Section – 620 Series Pumps



Shaft, Drive and Key – Items 9 & 10

Table 1

Code Position		04.05	Kara (14 and 10)	Deut Normhein	Description
4,5,6	8,9	24,25	Key (Item 10)	Part Number	Description
074	05	00	4992730-004	6025210-001	Shaft, Drive, 1.25 Straight Key, 56 Ext
074	05	not 00	4992730-004	6025210-003	Shaft, Drive, 1.25 Straight Key, 56 Ext Thru Drive
074	06	00	-	6025208-001	Shaft, Drive, Input 14 Tooth, 56 Ext
074	06	not 00	-	6025208-003	Shaft, Drive, Input 14 Tooth, 56 Ext Thru Drive
074	07	00	4992730-005	6025211-001	Shaft, Drive, 1.50 Straight Key, 62 Ext
074	07	not 00	4992730-005	6025211-003	Shaft, Drive, 1.50 Straight Key, 62 Ext Thru Drive
074	08	00	-	6025209-001	Shaft, Drive, Input 17 Tooth, 62 Ext
074	08	not 00	-	6025209-003	Shaft, Drive, Input 17 Tooth, 62 Ext Thru Drive
098	05	00	4992730-004	4999808-001	Shaft, Drive, 1.25 Straight Key, 56 Ext
098	05	not 00	4992730-004	4999809-001	Shaft, Drive, 1.25 Straight Key, 56 Ext Thru Drive
098	06	00	-	6021804-001	Shaft, Drive, Input 14 Tooth, 56 Ext
098	06	not 00	-	4999303-001	Shaft, Drive, Input 14 Tooth, 56 Ext Thru Drive
098	07	00	4992730-005	4999810-001	Shaft, Drive, 1.50 Straight Key, 62 Ext
098	07	not 00	4992730-005	4999811-001	Shaft, Drive, 1.50 Straight Key, 62 Ext Thru Drive
098	08	00	-	4999806-001	Shaft, Drive, Input 17 Tooth, 62 Ext
098	08	not 00	-	4999807-001	Shaft, Drive, Input 17 Tooth, 62 Ext Thru Drive
098	10	not 00	14392-004	6023400-001	Shaft, Drive, 1.25 Tapered, Str Key, Thru Drive

Table 1 - Shaft, Drive and Key (Items 9 & 10)

620 Series Mobile Piston Pump Drive Shaft



End Cover S/A – Item 17

Table 2

Code Pos 4,5,6	ition 7	10,11	13	24,25	Part Number	Description
074	L,R	AF	1	00	6028767-001	End Cover S/A, Side Port 74 cc (Diag Ports)
074	L,R	AF	1	not 00	6030266-001	End Cover S/A, Thru Drive 74 cc (Diag Ports)
074	L,R	AH	1	00	6028767-002	End Cover S/A, Side Port 74 cc Metric (Diag Ports)
074	L,R	AH	1	not 00	6030266-002	End Cover S/A, Thru Drive 74 cc Metric (Diag Ports)
074	L,R	AF	0	00	6028767-003	End Cover S/A, Side Port 74 cc
074	L,R	AF	0	not 00	6030266-003	End Cover S/A, Thru Drive 74 cc
074	L,R	AH	0	00	6028767-004	End Cover S/A, Side Port 74 cc Metric
074	L,R	AH	0	not 00	6030266-004	End Cover S/A, Thru Drive 74 cc Metric
098	L,R	AB	1	00	6023848-001	End Cover S/A, Side Port 98 cc (Diag Ports)
098	L,R	AB	1	not 00	6023824-001	End Cover S/A, Thru Drive 98 cc (Diag ports)
098	L,R	AD	1	00	6023848-002	End Cover S/A, Side Port 98 cc Metric (Diag Ports)
098	L,R	AD	1	not 00	6023824-002	End Cover S/A, Thru Drive 98 cc Metric (Diag Ports)
098	L,R	AB	0	00	6023848-003	End Cover S/A, Side Port 98 cc
098	L,R	AB	0	not 00	6023824-003	End Cover S/A, Thru Drive 98 cc
098	L,R	AD	0	00	6023848-004	End Cover S/A, Side Port 98 cc Metric
098	L,R	AD	0	not 00	6023824-004	End Cover S/A, Thru Drive 98 cc Metric

Table 2 - End Cover S/A (Item 17)

620 Series Mobile Piston Pump End Cover Views





Side Ported

Thru Drive

Valve Plate – Item 12

Table 3

Table 3 - Valve Plate (Item 12)

Code Position 4,5,6	7	Part Number	Description
074	R	6029369-001	Plate, Valve (RH 74 cc)
074	L	6029369-002	Plate, Valve (LH 74 cc)
098	R	6024330-001	Plate, Valve (RH 98 cc)
098	L	6025319-001	Plate, Valve (LH 98 cc)

Valve Plate Identification



Housing – Item 1

Table 4

Table 4 - Housing Table (Item 1)

Code Position

8,9	12	26	27,28	Part Number	Description
05,06,07,08,10	1,2	1	00	6023256-001	Housing
05,06,07,08,10	3,4	1	00	6023256-002	Housing Metric Drain Port
05,06,07,08,10	1,2	1	AB	6022838-001	Housing (Feedback Sensor)
05,06,07,08,10	3,4	1	AB	6022838-002	Housing (Feedback Sensor) Metric Drain Port



Rotating Group – Item 11

Table 5

Table 5 - Rotating Group (Item 11)

Code Position 4,5,6	27,28	Part Number	Description
074	00, AA, AB	6029085-001	Rotating Group S/A (74 cc)
098	00, AA, AB	6021400-001	Rotating Group S/A (98 cc)



Table 6 - Swashplate (Item 8)

Code Position 27,28	Part Number	Description
not AB	6022840-002	Swashplate
AB	6022840-001	Swashplate (Feedback Sensor)



Shaft Seal – Item 2

Table 7

Table 7 - Shaft Seal (Item 2)

Code Position 26	Part Number	Description
1,3	589332	Seal, Shaft, Fluorocarbon



Compensator – Items 24, 25, 26 & 27

Table 8

Table 8 - Compensator (Items 24, 25, 26, and 27)

Code Pos 14	ition 15,16	Pressure Limit Setting	17,18	Flow Setting	21,22	Part Number
A	28	276-284 Bar [4003-4119 lbf/in²]	20	19-21 Bar [276-305 lbf/in²]	00	9900771-002
A	20	196-204 Bar [2843-2959 lbf/in ²]	20	19-21 Bar [276-305 lbf/in²]	00	9900771-003
A	28	276-284 Bar [4003-4119 lbf/in²]	14	13-15 Bar [189-218 lbf/in²]	00	9900771-004
A	20	196-204 Bar [2843-2959 lbf/in ²]	14	13-15 Bar [189-218 lbf/in²]	00	9900771-005
С	28	276-284 Bar [4003-4119 lbf/in²]	00	-	00	9900771-006
С	20	196-204 Bar [2843-2959 lbf/in ²]	00	-	00	9900771-007



Pressure Flow Compensator



Pressure Compensator Only



Compensator Mounting Screws – Item 27

Table 9

Table 9 - Compensator Mounting Screws (Item 27)

Code Position 21, 22	Part Number	Description
00,0A	114953-030	Screw, Cap (Compensator Mounting)
0B,0C	114953-065	Screw, Cap (Compensator Mounting)

Table 10

Table 10 - Cold Start Manifold (Destroke) (Item 33)

Code Position 21, 22	Part Number	Description
0D	631AA00035A-001	Destroke Manifold with Metri-Pack Connector
0E	631AA00035A-003	Destroke Manifold With Integrated Deutsch Connector



Plugs – Items 20, 21 & 22

Table 11 & 12

Table 11 - Case Drain Plugs (Item 21, 22)

Code Position 12	Part Number	Description
1	115046-016	Plug 1.3125-12
2	115046-016	Plug 1.3125-12
3	9237-006	Plug M33 X 2.0
4	9237-006	Plug M33 X 2.0

Table 12 - Plug, Adjustable Volume Stop (Item 20)

Code Position 23	Part Number	Description
1	5994111-001	Plug Assembly
2	6024779-001	Plug

Adapter Kit – Items 29,30, 31 & 32

Table 13

Code Posit 4,5,6	tion 24,25	Part Number	ltem 29	ltem 30	Item 31	Item 32	Description
074, 098	AA, AB	9900774-002	104166-155	4999463-001	8761-152	114977-030	SAE A-Pad Adapter 13T (74, 98cc)
074	AD	9900774-005	104166-155	4999351-001	8761-155	114977-050	SAE B-Pad Adapter 15T (74 cc)
074	AE, AF	9900774-004	104166-155	4999353-001	8761-159	114977-055	SAE C-PAD Adapter (74 cc)
098	AC, AD	9900774-003	104166-155	4999351-001	8761-155	114977-030	SAE B-Pad Adapter (98 cc)
098	AE, AF	9900774-001	104166-155	4999353-001	8761-159	114977-035	SAE C-Pad Adapter (98 cc)

Table 13 - Adapter Kit, Thru Drive (Item 29,30,31 and 32)

Coupler – Item 28

Table 14

Table 14 - Coupler (Item 28)

Code position 4,5,6	24,25	Part Number	Description	
074	AA	6028263-001	Coupler, 9 Tooth	
074	AB	6028263-002	Coupler, 11 Tooth	
074	AC	6028263-003	Coupler, 13 Tooth	
074	AD	6028263-004	Coupler, 15 Tooth	
074	AE	6028263-005	Coupler, 14 Tooth	
074	AF	6028263-006	Coupler, 17 Tooth	
098	AA	4999426-001	Coupler, 9 Tooth	
098	AB	4999427-001	Coupler, 11 Tooth	
098	AC	6024980-001	Coupler, 13 Tooth	
098	AD	6024112-001	Coupler, 15 Tooth	
098	AE	864458	Coupler, 14 Tooth	
098	AF	864461	Coupler, 17 Tooth	



Table 15 - Cover (Item 48)

Code position 24,25	27,28	Part Number	Description
AA,AB	AA	70142-600	Cover, A-Pad
AC,AD	AA	110011-000	Cover, B-Pad



Hex Head Cap Screw – Item 49

Table 16 and 17

Table 16 - Hex Head Cap Screw (Item 49)

Code position				
24,25	27,28	Part Number	Qty	Description
AA,AB	AA	16136-607	2	Hex Head Cap Screw
AC,AD	AA	16136-812	2	Hex Head Cap Screw

Bearing Assembly – Item 13

Table 17

Table 17 - Bearing Assembly (item 13)

Code position 24,25	Part Number	Description
074	6025207-001	Bearing Assembly 74 cc
098	6021946-001	Bearing Assembly 98 cc

620 Mobile Piston Pump Repair

Cut Section



General Information

Ordering Replacement Parts

Read this assembly manual thoroughly before starting work on the pump

This manual assumes appropriately trained technicians with specialized knowledge of mechanical and hydraulic component assembly and disassembly

Replacement Parts

When ordering replacement parts, give the product number, date code, part number and quantity of parts required. This product information is found on name tag which is located on the side of the housing. When Eaton Model 620 pressure, pressure-flow compensated piston pump is repaired, thoroughly clean pump before any repairs are attempted.

The part number and serial number are on the tag.

Serial Number/Date Code Interpretation





- Eaton product number or customer number

- Serial number/date code

Complete model code or model code up to rotation if requested (no bar code) Parts list revision level



Required Tools

Standard Tools for Disassembly

- Ball Pin Hammer
- Plastic Tip Hammer
- Flat Tip Screw Driver
- Snap Ring Pliers
- Torque wrench
- Magnet Stick
- 11/16" Wrench
- 1-3/8" Wrench
- 4mm Allen Wrench
- 3/32" Allen Wrench
- Impact Screwdriver
- Sliding Bearing Remover Hammer
- Dial Indicator and Accessories
- Marker or Paint Pen
- Petroleum Jelly
- Cleaning Solvent

Special Tools

- Assembly Tool Kit for 620 Pump
- Swashplate Locator Tool Kit







Swashplate Hold Down Plug





Before attempting to disassemble clean the pump exterior. Dispose of leakage oil and oily cloths in an environmentally responsible manner. All parts within the unit must be kept clean during the overhaul process. Handle each part with great care, marking as necessary to ensure proper reassembly. The close tolerance of the parts make this requirement very important. Clean all the parts that are removed from the unit with a commercial solvent that is compatible with the system fluid. Compressed air may be used in the cleaning process. However it may be filtered to remove water and other contaminants.

1. Remove Control Piston Plug Assembly and Install Swashplate Locator Tool



2. Install Swashplate Hold Down Plug and Adjust the Swashplate Locator Tool



Note: The swashplate locator tool and hold down plug will prevent the swashplate from moving. This step is designed to force the swashplate to a neutral position to enable easy removal of the rotating group while retaining the swashplate. With the locator tool in place, tighten the adjustment screw so that control piston is compressed.

3. Remove Compensator



4. Remove End Cover and Cap Screws



Note: The valve plate may stick to end cover. Use caution so that valve plate does not fall off. Mark the housing and end cover to ensure the correct orientation. Remove the four cap screws that hold the end cover in place.

5. Remove Valveplate from End Cover



6. Remove Bearing Race from End Cover



8. Remove Bearing from Shaft



7. Remove Crush Ring (if required)



Note: The Crush Ring located under the bearing cup in the end cover does not need to be removed. The only time the crush ring needs to be removed is when the front or rear shaft tapered roller bearings, bearing cups, drive shaft, end cover or housing assembly is replaced. A shim kit is required if the crush ring is replaced.

9. Remove Gasket



10. Remove Rotating Group



Note: Carefully remove the rotating group.

12. Remove Swash Locator



11. Remove Shaft



13. Remove Control Piston



Note: The open end of the control piston is positioned up. The control piston is allowed to rotate.





15. Remove Swashplate



16. Remove Bias Spring



17. Remove Bearing



18. Remove Cradle Bearings Screws and Discard



Caution: Socket head cap screws are easily damaged during repair with improper tool.



19. Remove Cradle Bearings

21. Remove Snap Ring, Shaft Seal and Discard.



20. Remove Front Bearing Race



Inspection, Repair and Part Replacement

Inspection

Rotating Group Parts

- Inspect cylinder block face for wear, scratches and/or erosion. If cylinder block condition is questionable, replace the entire rotating group.
- 2. Remove the pistons, shoe retainer, and pivot from piston block. The piston block assembly does not need to be disassembled unless the internal pins or springs are damaged.
- 3. Check each cylinder block bore for excessive wear. Use the piston and shoe S/A for this purpose. The pistons should be a very close fit and slide in and out of the cylinder block bores. No binding can be tolerated. If binding occurs, clean the cylinder block and pistons. Lubricate the cylinder block bores with clean oil and try again. Even minor contamination of the fluid may cause a piston to freeze up in a cylinder bore.
- 4. Inspect each of the nine piston and shoe subassemblies for maximum end play of 0.08 mm between the piston and shoe.
- 5. Inspect shoe retainer and pivot for wear and/or scratches. If condition is questionable, replace entire rotating group.



Note: Do not lap the face of cylinder block assembly

Piston S/A Tolerances

This dimension must be maintained on all nine shoes within 0.03 mm



Shoe face rides on swash plate. Shoe must swivel smoothly on ball.



Inspection, Repair and Part Replacement

End Cover & Associated Parts	 Inspect end cover for erosion, cracks and burrs. Clean up minor burrs with an India stone. If erosion or cracks are found, replace the end cover. 	 Inspect roller bearing and bearing race for nicks and pitting. Make sure the roller bear- ing turns freely within the bearing race. If the roller bearing needs replacement, both the roller bearing and the bearing race must be replaced.
	3. Inspect valve plate for erosion, excessive wear, heavy scratches and cracks. If any of the above conditions are found, replace the valve plate.	4. Inspect control piston and maximum dis- placement screw for burrs, scratches and cracks. If any of the above conditions are found, replace the control piston. The con- trol piston should move freely in the bore.
Swashplate Parts	 Inspect swashplate face for wear, roughness or scoring. Check the swashplate hubs and bearing surfaces for wear and cracks. Replace if defective. 	 Inspect saddle bearing surfaces for wear, pitting, and smooth operation. Replace if necessary.
Shaft/Housing Parts	 Inspect drive shaft for wear, stripped splines and burrs. Remove burrs with India stone. Inspect the contact of the area bearing and shaft seal. Replace the drive shaft if wear or scoring is greater than 	 Inspect drive shaft bearing for roughness, pitting of rollers and excessive end play. Replace if defective. If the bearing needs to be replaced, the bearing race also requires replacement.

3. Inspect housing mounting flange for nicks and burrs. Remove minor nicks and burrs with an India stone. Also check the housing for damaged or stripped threads. If any thread is damaged, replace the housing.

.0127mm T.I.R. (Total Indicator Reading)

4. Check remaining pump parts for excessive wear, damaged threads, burrs, cracks and erosion. Replace any part that is in questionable condition.

Shimming Process

Kit 9900776-000

Shimming Process Installation Information

This shim kit is to replace the crush ring within the pump end cover.

If the housing, drive shaft, shaft bearings or end cover is replaced during servicing, the original can no longer be used to assure proper bearing set.



Shimming Procedures

- 1. Measure the thickness of the existing crush ring.
- 2. To obtain a starting point, stack shims to a few thousandth of an inch less than the measurement of existing crush ring. Then insert shims in to the housing in the same location as the removed crush ring.
- 3. Assemble the housing shaft bearings, shaft and end cover. Install the end cover cap screws and torque to 384+/- 28 N.m.
- 4. Using a dial indicator, measure drive shaft end play. Target bearing set is .03 to .08mm clearance. Add shims to achieve proper bearing set. If no

movement of the shaft is observed, shims will needs to be removed and steps 3 & 4 be repeated.

5. Finish the assembly of the pump.



Assembly must be conducted in a clean environment. Dispose of leakage oil and oily cloths in an environmentally responsible manner. Before assembly carefully clean all the parts and blow out holes with compressed air. Tighten all the screw plugs to the specified torque. Exceptions are specified in the text. Lubricate O-rings and shaft sealing rings lightly with an acid free lubricant and to hold the O-ring in place in its groove or cavity.

1. Install Snap Ring and Shaft seal



Note: Press shaft seal inside till the face of the seal exactly matches with inner surface of retaining ring groove.

3. Install Cradle Bearings



Note: The cradle bearings are asymmetrical. Install with longer side towards the top of the pump (controller side).



2. Insert the Shaft Bearing Race

4. Install Cradle Bearing Screws



Note: The old cap screws can not be reused and must be replaced with new ones because the screws will be damaged during disassembly. The new cap screw threads will be coated with loctite.

5. Install Bearing



6. Install Bias Spring



7. Install Swashplate



Note: With the Bias Spring in place, tilt the swashplate toward the spring and install the swashplate. **Ensure that Bias Spring is engaged.**

8. Install Swashplate Hold Down Plug



9. Install Control Piston





10. Install Swashplate Locator Tool and Adjust

Note: Install Swashplate Locator Tool 9900773-001 and adjust the screw until the swashplate is near neutral (will look flat in housing).

12. Install the Rotating Group



Note: Carefully install Rotating Group. Ensure shaft is engaged with bearing race while installing Rotating Group.





Caution: Use care while inserting shaft end through shaft seal.

13. Install Bearing Race



Note: Install shims, if required, and the bearing race to ensure correct number of shims are used to get the correct end play. Shim installation instructions are on page 26.

14. Install Valve Plate



Note: Lightly coat the steel side of the valve plate with petroleum jelly for retention during assembly.

Install the valveplate over the bearing race aligning the small slot on the outside of the valveplate with the dowel pin in the End Cover.

15. Install Gasket and Bearing





Note: After Installation of Bearing, lubricate all components with clean hydraulic oil.



16. Install End Cover and Cap Sleeve

Note: Ensure correct orientation. Use caution so that valve plate does not fall off.

18. Remove Swash plate Locator Tool and Hold Down Plug. Install Control Piston Plug Assembly.



17. Install Compensator



19. Testing

Perform functional test on pump according to Eaton test procedure. Contact your area sales manager for more information.

Assembly Torque Values

Instructions





Assembly Torque Values

Instructions



Feedback Sensor Option



Assembly Torque Values

Instructions



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