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**DISASSEMBLY  
AND  
REASSEMBLY  
INSTRUCTIONS  
FOR  
MACLEOD/MARLOW 4C7  
CENTRIFUGAL PUMP**

**NSN 4320-01-233-3428**

**NSN 4320-01-325-6373**

**REBUILD KIT No. C-8058**

**NSN 4320-01-485-1706**



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**MACLEOD INC.  
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MIAMITOWN, OH 45041-0230  
513-771-9560  
513-353-4040 FAX**

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## **CAUTION**

The End of Pump Shaft **MUST** be supported by a Bushing or a Bearing.

## **CAUTION**

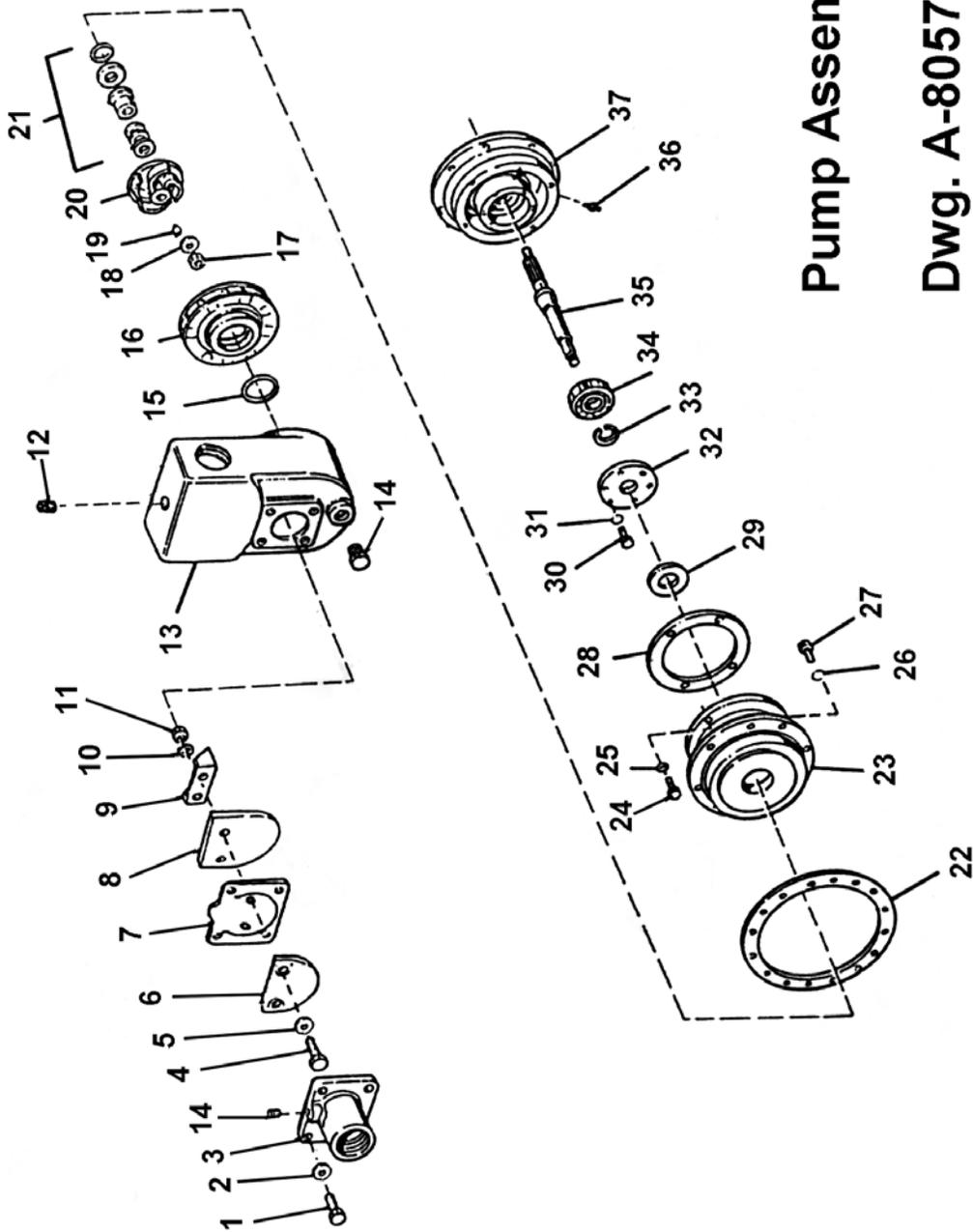
The Pump Tank **MUST** be filled with water prior to operation.

The pump is self-priming only when the tank is filled.

## **CAUTION**

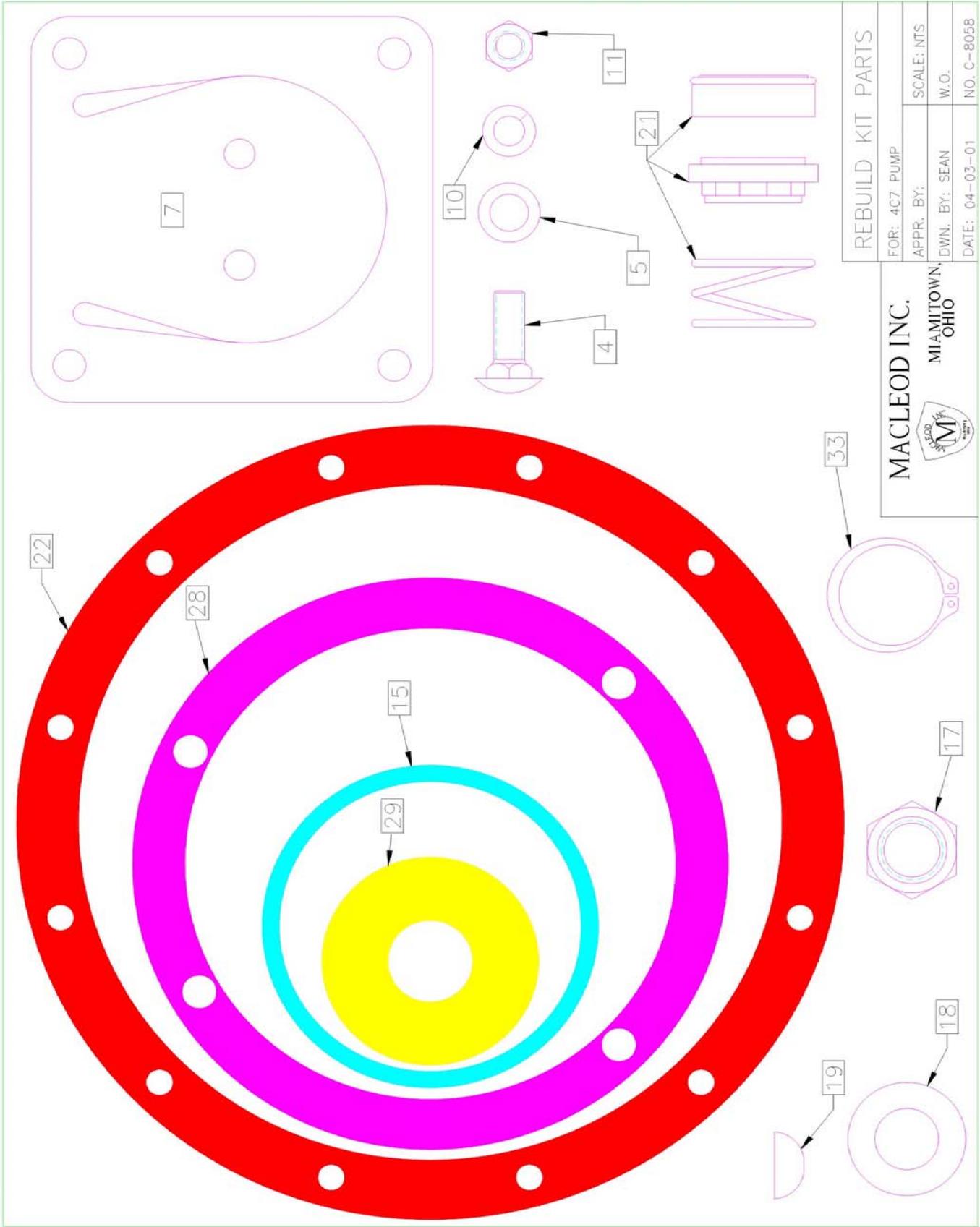
The Strainer **MUST** be in place before operation.

The Strainer is located in the inlet line to prevent stones and foreign debris from damaging the Impeller or Diffuser.



# Pump Assembly

Dwg. A-8057



**MACLEOD INC.**  
 MIAMITOWN,  
 OHIO



**REBUILD KIT PARTS**

FOR: 4C7 PUMP	SCALE: NTS
APPR. BY:	W.O.
DWN. BY: SEAN	NO. C-8058
DATE: 04-03-01	

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# **Macleod/Marlow 4C7 Pump Rebuild Kit (P/N C-8058)**

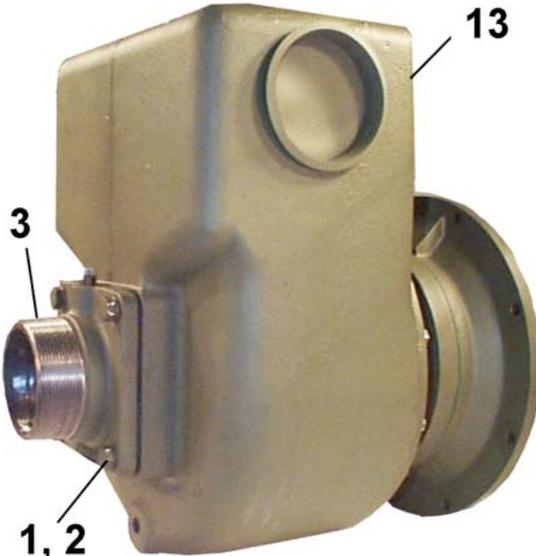
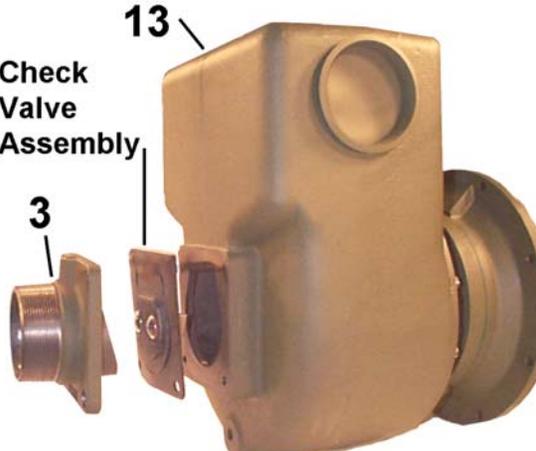
## **Parts List**

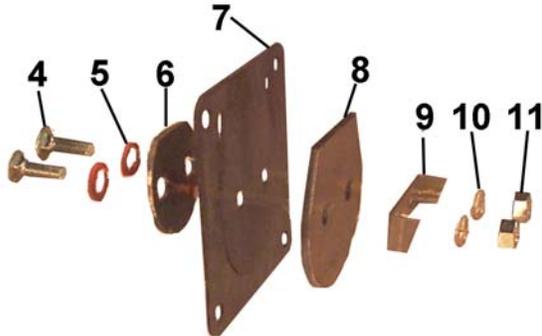
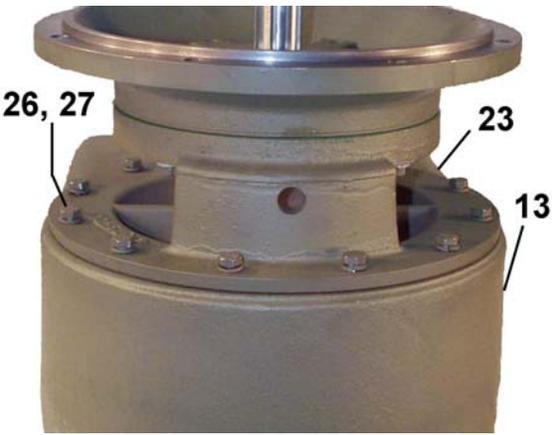
Reference: Drawings A-8057 & C-8058

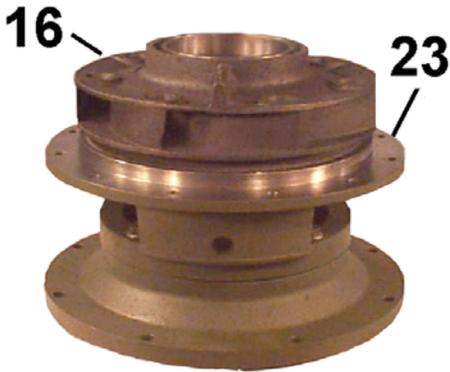
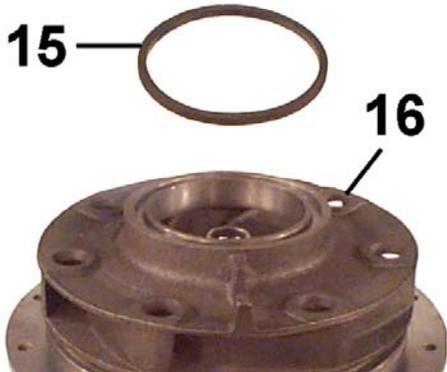
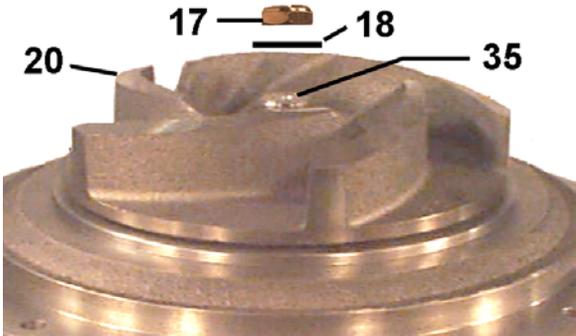
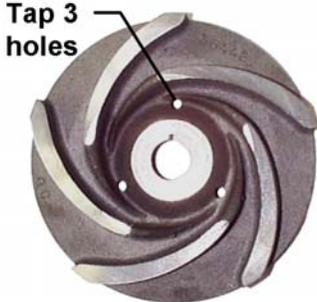
Item	Qty.	Part No.	Description
4	2	K300086	Square Neck Bolt
5	2	K300088	Gasket
7	1	15636-00	Check Valve
10	2	K300099	Lock Washer
11	2	K300098	Hex Nut
15	1	21316-00	Gasket
17	1	41NTE164	Hex Head Half Nut, Self-Locking
18	1	30586-00	Impeller Washer
19	1	22967-00	Impeller Shaft Key
21	1	25356-00	Seal Assembly
22	1	21437-00	Gasket
28	3	4C7-01	Shim
29	1	20831-00	Slinger
33	1	25817-00	Retaining Ring

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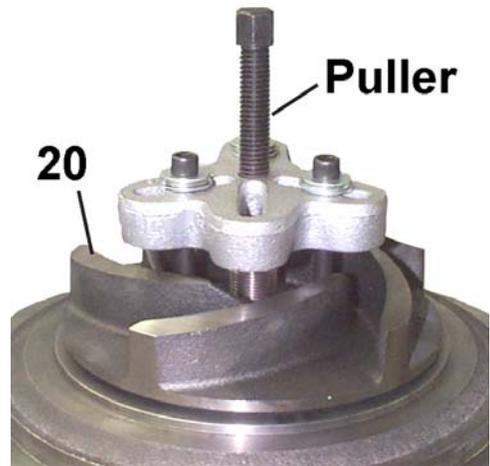
SECTION I  
PUMP DISASSEMBLY

<ol style="list-style-type: none"> <li>1. Mark the orientation of the Inlet (Item #3) to the Tank (Item #13).</li> <li>2. Remove the four Bolts (Item #1) and Lock Washers (Item #2) from the Inlet (Item #3) and the Tank (Item #13).</li> </ol>	
<ol style="list-style-type: none"> <li>3. Remove the Inlet (Item #3) and the Check Valve Assembly (Items #4 to #11) from the Tank (Item #13). Refer to the Step 4 figure for the Check Valve individual part numbers.</li> </ol>	

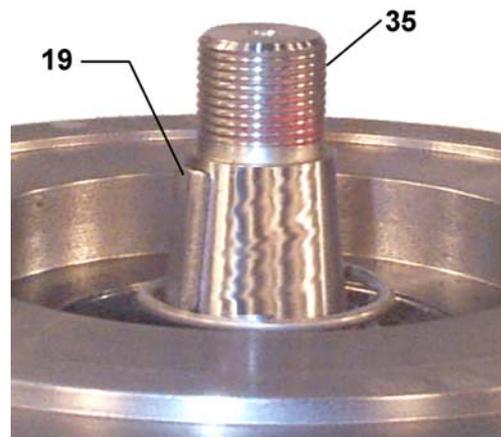
<p>4. Mark the orientation of Items 6 through 9 before disassembly.</p> <p>5. Remove two Hex Nuts (Item #11) and Lock Washers (Item #10) from the Bolts (Item #4) and disassemble Items 6 through 9.</p>	
<p>6. Mark the orientation of the Lantern (Item #23) to the Tank (Item #13).</p> <p>7. Remove the twelve Bolts (Item #27) and Lock Washers (Item #26).</p>	
<p>8. Lift the Lantern (Item #23) from the Tank (Item #13).</p>	

<p>9. Mark the orientation of the Diffuser (Item #16) to the Lantern (Item #23).</p> <p>10. Remove the Diffuser (Item #16).</p>	
<p>11. Remove the Gasket (Item #15) from the Diffuser (Item #16).</p>	
<p>12. Remove the Impeller Nut (Item #17) and the Washer (Item #18) from the Shaft (Item #35).</p> <p>13. Remove the Impeller (Item #20). If the Impeller does not lift off, refer to Step 14.</p>	
<p>14. If the Impeller (Item #20) does not easily lift off the Shaft (Item #35), it may be necessary to use a Puller.</p> <p>15. Tap the three existing holes in the Impeller with a 3/8-16 tap.</p>	

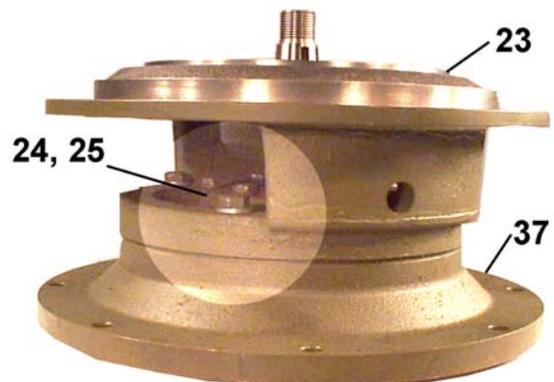
16. Use a Puller to lift the Impeller (Item #20) off the Shaft (Item #35).



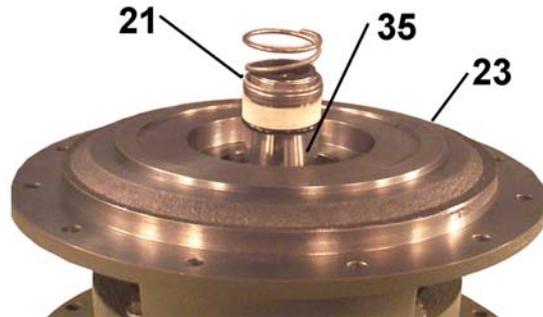
17. Remove the Impeller Key (Item #19) from the Shaft (Item #35).



18. Remove the four Bolts (Item #24) and Lock Washers (Item #25) and separate the Lantern (Item #23) from the Adapter (Item #37).

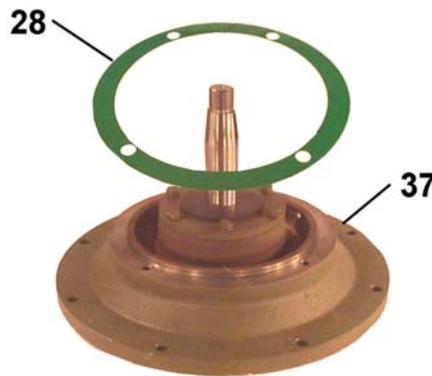


19. Remove the Seal (Item #21) from the Lantern (Item #23) and Shaft (Item #35).

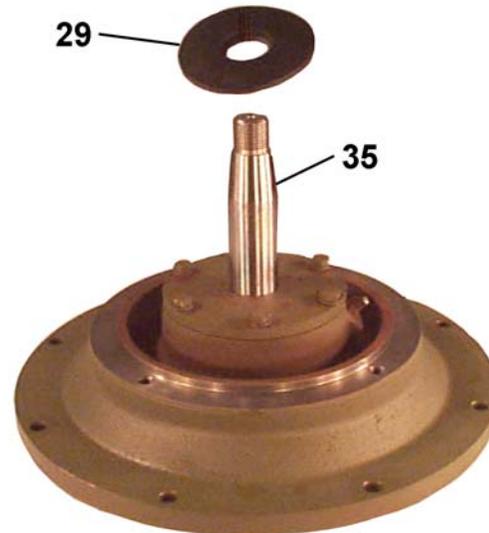


20. Remove the Shim(s) (Item #28) from the Adapter (Item #37).

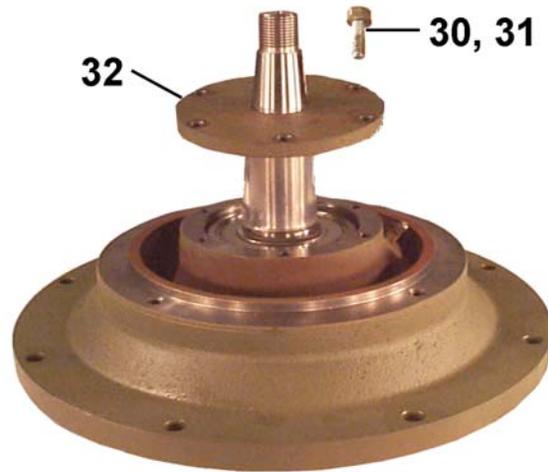
**NOTE**  
Record the number of Shims (Item #28) removed. This number will be used during reassembly.



21. Remove the Slinger (Item #29) from the Shaft (Item #35).

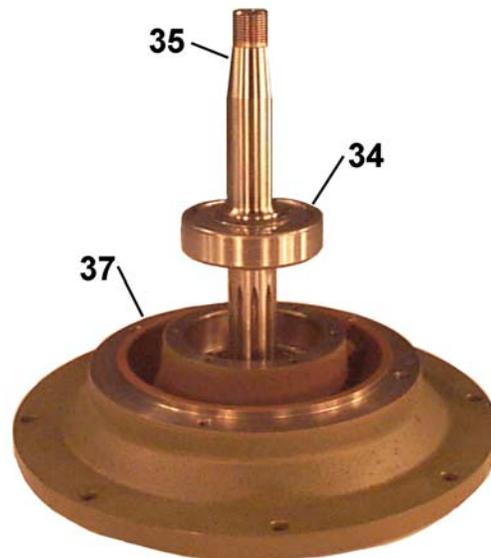


- 22. Remove the six Bolts (Item #30) and Lock Washers (Item #31) from the Bearing Cap (Item #32).
- 23. Remove the Bearing Cap.



**CAUTION**  
Be careful not to damage the threads or the end of the Shaft during removal.

- 24. Remove the Shaft (Item #35) and the Ball Bearing (Item #34) from the Adapter (Item #37) by tapping lightly on the end of the Shaft with a soft-faced hammer.



↑  
Tap from this side.

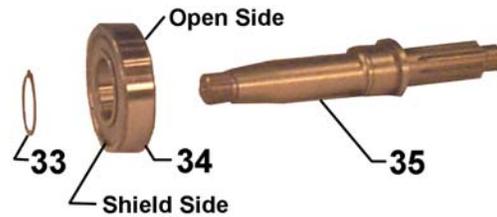
<p style="text-align: center;"><b>CAUTION</b> Be careful not to damage the threads or the end of the Shaft during disassembly.</p>	<p>The diagram shows three mechanical components. On the left is a small, thin retaining ring labeled '33'. In the middle is a larger, cylindrical bearing labeled '34'. On the right is a long, tapered shaft labeled '35'.</p>
<p>25. Remove the Retaining Ring (Item #33) from the Shaft (Item #35).</p> <p>26. Remove the Bearing (Item #34) from the Shaft (Item #35).</p>	
<p>27. Inspect all surfaces to be sure they are not damaged, nicked or worn.</p>	

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SECTION II  
PUMP REASSEMBLY

**NOTE**

When installing the Bearing (Item #34), be sure that the Shielded Side of the Bearing is mounted towards the Retaining Ring (Item #33).

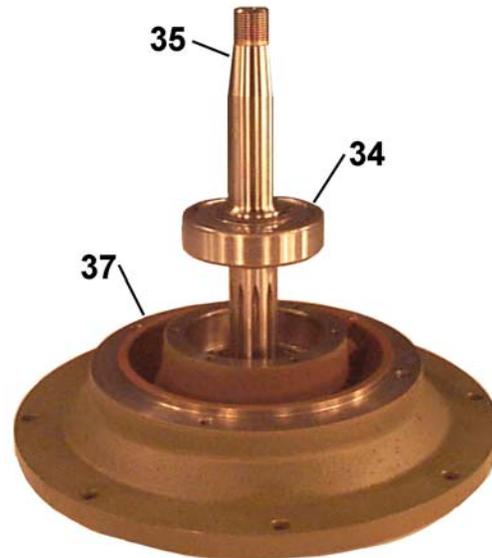


1. Install the Bearing (Item #34) onto the Shaft (Item #35).
2. Install Retaining Ring (Item #33) onto the Shaft (Item #35).

**CAUTION**

Be careful not to damage the threads on the end of the Shaft.

3. Pump grease through the Grease Fitting to purge the Lubrication Fitting. If dirty, remove the grease from the Bearing Seat cavity.
4. Partial fill the Bearing Seat Cavity with bearing grease prior to installing the Ball Bearing (Item #34).
5. Apply a small amount of light weight oil on the outside diameter of the Ball Bearing (Item #34) to aid in assembly.
6. Install Shaft (Item #35) and Bearing (Item #34) into Adapter (Item #37) by tapping lightly on the end of the Shaft (Item #35) with a soft faced hammer.

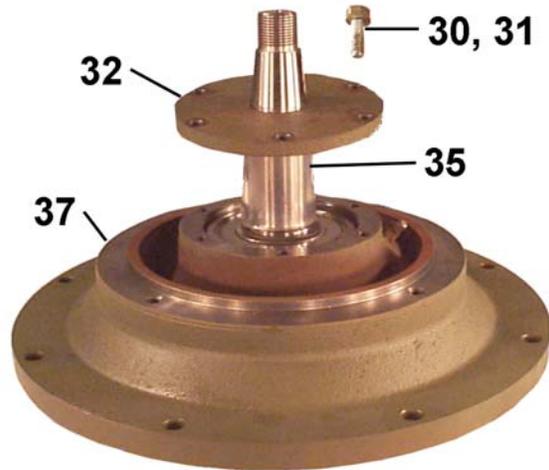


7. Install Bearing Cap (Item #32) over Shaft (Item #35) and onto the Adapter (Item #37).
8. Install six Bolts (Item #30) and Lock Washers (Item #31) into Bearing Cap (Item #32). Torque the Bolts to 17 lb.-ft. (23 N-m).

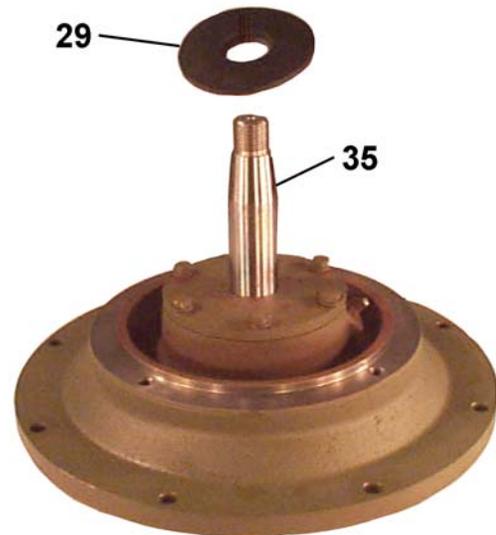
**NOTE**

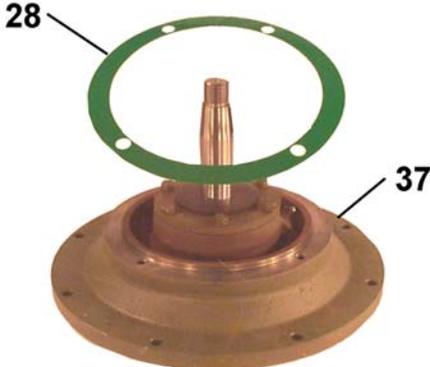
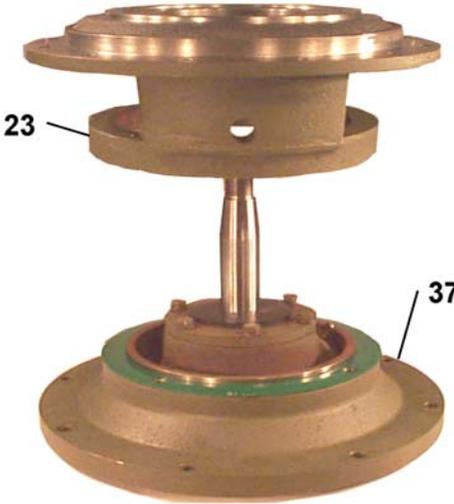
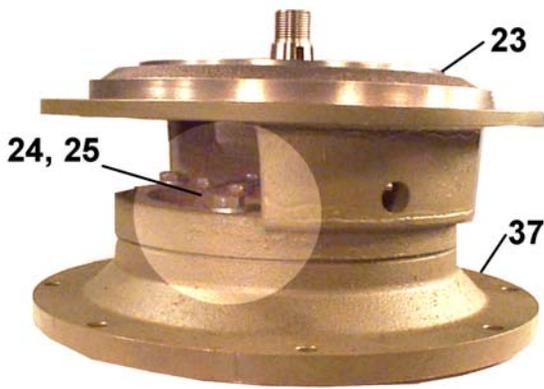
Check for a slight amount of clearance between the Dust Cap (Item #32) and the Adapter (Item #37).

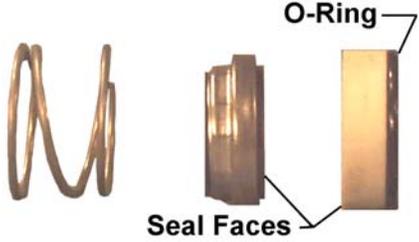
Check the Shaft (Item #35) to ensure that it rotates freely.



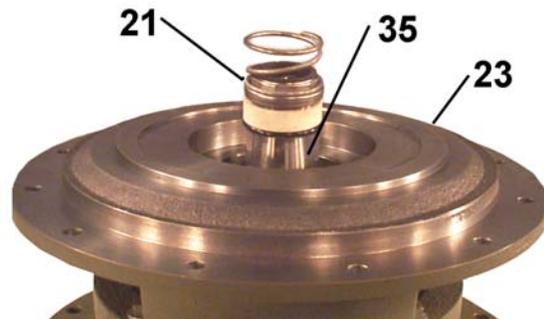
9. Install Slinger (Item #29) onto the Shaft (Item #35).



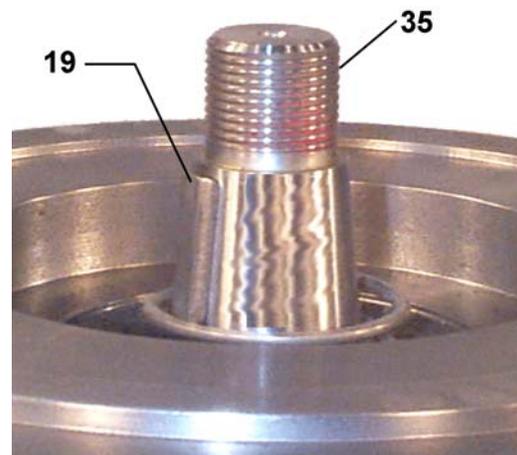
<p style="text-align: center;"><b>NOTE</b></p> <p style="text-align: center;">Install the same number of Shims (Item #28) as removed and recorded during disassembly.</p> <p>10. Install Shim(s) (Item #28) on the Adapter (Item #37). Be sure to match the four holes in the Shim to the holes in the Adapter. The four holes are not equally spaced.</p>	
<p>11. Install the Lantern (Item #23) onto the Adapter (Item #37).</p>	
<p>12. Install four Bolts (Item #24) and Lock Washers (Item #25) into the Lantern (Item #23) and Adapter (Item #37). Torque the Bolts to 49 lb.-ft. (66 N-m).</p>	

<p style="text-align: center;"><b>NOTE</b></p> <p>It is recommended that the first time the Pump is reassembled, the Seal (Item #21) NOT be installed. Skip Steps 13 and 14.</p> <p>Once the proper clearance is obtained, disassemble the Pump back to this point. Then reassemble the Pump starting with Step 13.</p>	
<p style="text-align: center;"><b>CAUTION</b></p> <p>Do not get any lubricant on the Seal Faces as indicated on the right.</p>	 <p>The diagram shows three components: a coiled metal spring on the left, a cylindrical seal assembly in the middle with two flat surfaces labeled 'Seal Faces', and a yellow O-ring on the right labeled 'O-Ring'.</p>
<p>13. Lubricate the Seal O-Ring.</p>	 <p>The photograph shows a close-up of the pump's internal assembly. A central shaft with a yellow cap is visible. The surrounding housing has a circular groove labeled 'O-Ring Seat'.</p>
<p style="text-align: center;"><b>CAUTION</b></p> <p>O-Ring Seat must be free from dirt and rust to ensure a good seal.</p>	

14. Install the Seal (Item #21) into Lantern (Item #23) and onto the Shaft (Item #35). Note the direction of the Seal components.



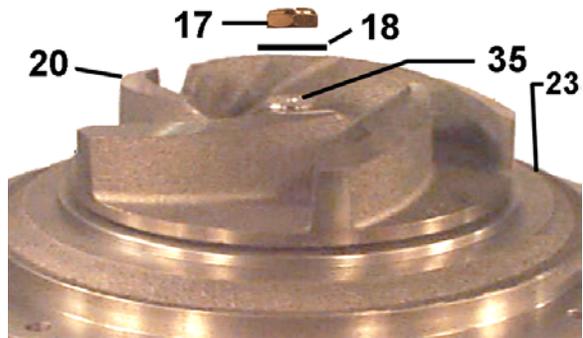
15. Install the Impeller Key (Item #19) in the Shaft (Item #35).



**NOTE**

When initially assembling the Pump to check for clearance, use the old Impeller Nut (Item #17). Once the proper clearance is obtained and the Pump is being reassembled, use the new Impeller Nut.

16. Install the Impeller (Item #20) on the Shaft (Item #35).
17. Install the Washer (Item #18) and the Impeller Nut (Item #17) on the Shaft (Item #35). Torque the Impeller Nut to 199 ft.-lbs. (306 N-m).

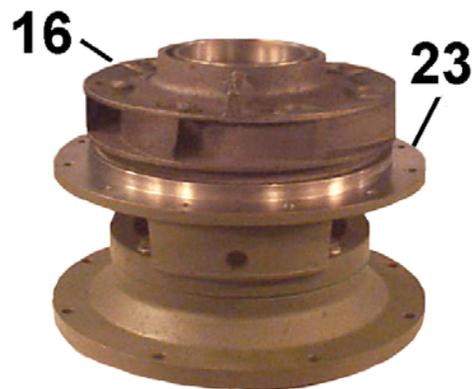


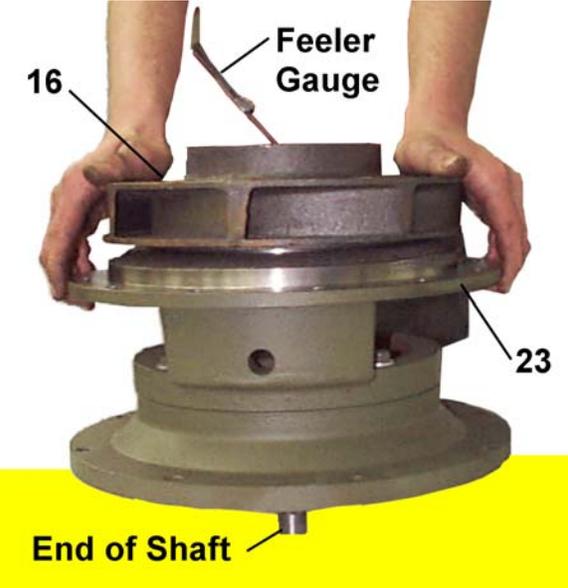
**NOTE**

Check the Shaft (Item #35) to ensure that it rotates freely.

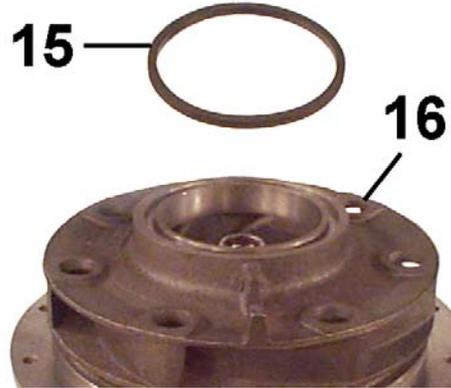
There should be clearance between the Impeller (Item #20) and the Lantern (Item #23).

18. Install the Diffuser (Item #16) over the Impeller (Item #21 not shown) and onto the Lantern (Item #23). Make certain the face of the Diffuser (Item #16) is in contact with the face of the Lantern (Item #23) and the orientation marks are lined up.



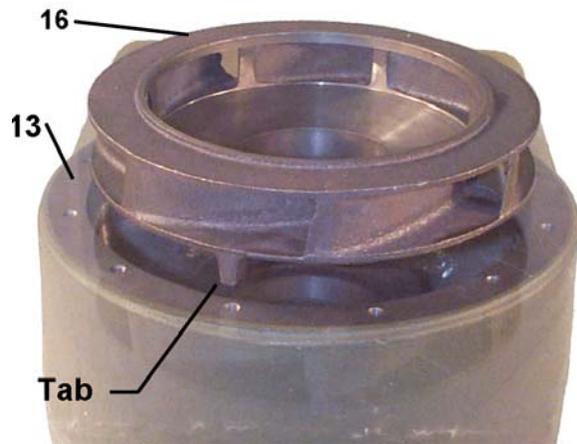
<p style="text-align: center;"><b>CAUTION</b></p> <p>Be careful not to damage the end of the Shaft. The Pump Assembly will have to be held and balanced while checking the clearance.</p>	
<p>19. Position the assembly so that it is sitting on the end of the Shaft (Item #35).</p> <p>20. Apply and hold pressure to the Diffuser (Item #16) to clamp it to the Lantern (Item #23) while checking clearance.</p>	
<p>21. Check the clearance between the Impeller (Item #20) and the Diffuser (Item #16). Clearance should be between .015" and .035" in the preloaded condition.</p> <p>22. Add/remove Shim(s) (Item #28 not shown) accordingly. Refer to Step 10. If clearance is too tight, add one Shim. If clearance is too loose, remove one Shim.</p>	
<p>23. Once the proper clearance is obtained, disassemble the Pump to install the Seal Kit (Item #21) and the new Impeller Nut (Item #17).</p> <p>24. Repeat Steps 13 through 22. After completing reassembly, check the clearance again.</p>	

25. Install Gasket (Item #15) into Diffuser (Item #16).



26. Remove the Diffuser (Item #16) from the Lantern (Item #36).

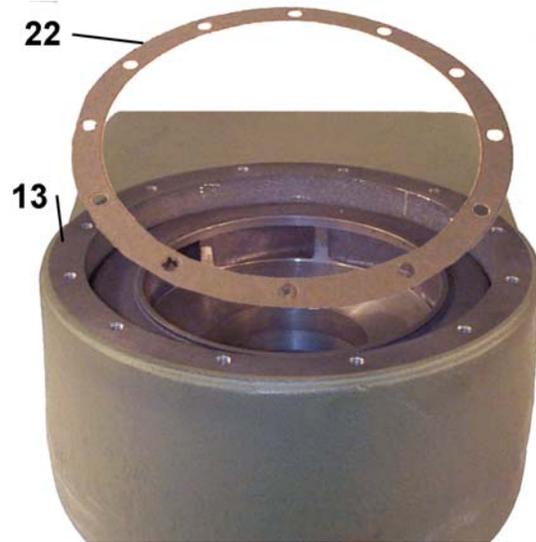
27. Turn the Diffuser (Item #16) over and lower into the Tank (Item #13). Locate the tab on the Diffuser by rotating the Diffuser counterclockwise until the tab hits the lug inside the Tank.



**NOTE**

Be sure the Gasket (Item #15) is still seated in the Diffuser (Item #16).

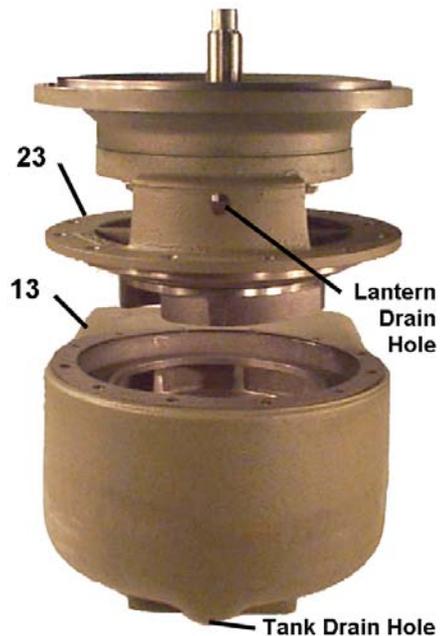
28. Lay Gasket (Item #22) onto the Tank (Item #13).

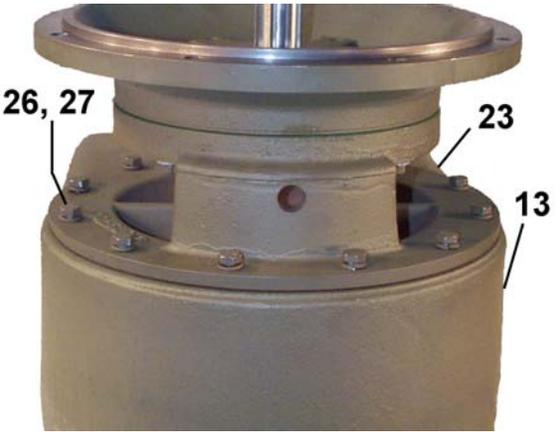
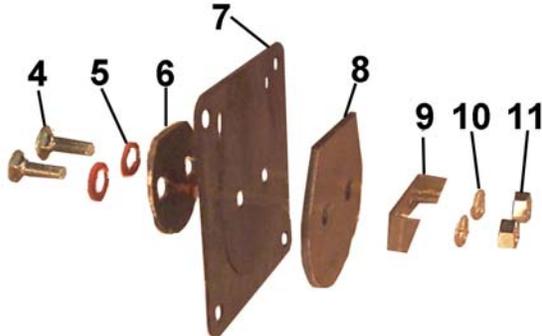
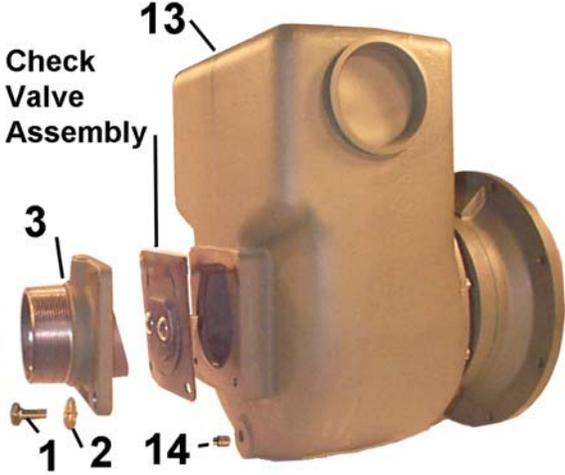


**CAUTION**  
The Lantern (Item #23) must be properly seated into the pilot of the Diffuser (Item #16).

29. Install the Lantern (Item #23) onto Tank (Item #13). Make certain the orientation marks are lined up.

30. Drain hole on the bottom of the Lantern must be located towards the bottom of the pump.



<p>31. Install the twelve Bolts (Item #27) and Lock Washers (Item #26) into the Lantern (Item #23) and the Tank (Item #13). Torque the Bolts to 31 lb.-ft. (42 N-m).</p> <p>32. The Shaft (Item #35) should rotation freely.</p>	 <p>A photograph showing a close-up of a mechanical assembly. Callout 26 points to a lock washer on a bolt. Callout 27 points to the bolt. Callout 23 points to a lantern component. Callout 13 points to the main tank body.</p>
<p>33. Assembly Check Valve (Items #4 to 11) making certain the orientation marks are lined up.</p>	 <p>An exploded view diagram of a check valve assembly. Callouts 4 through 11 identify various components including bolts, washers, plates, and a valve body.</p>
<p>34. Install the four Bolts (Item #1) and Lock Washers (Item #2) into the Inlet (Item #3) and the Tank (Item #13). Make certain the orientation marks are lined up. Torque the Bolts to 75 lb.-ft. (102 N-m).</p> <p>35. Be sure Drain Plug (Item #14) is installed in the bottom of the Tank.</p>	 <p>A photograph of a check valve assembly. Callout 13 points to the main valve body. Callout 3 points to the inlet. Callout 1 points to a bolt. Callout 2 points to a lock washer. Callout 14 points to a drain plug.</p>