Please read and save this Repair Parts Manual. Read this manual and the General Operating Instructions carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. The Safety Instructions are contained in the General Operating Instructions. Failure to comply with the safety instructions accompanying this product could result in personal injury and/or property damage! Retain instructions for future reference.

Solids-Handling Pedestal Pumps

Refer to form 1808-633-00 for General Operating and Safety Instructions.

Description

These self-priming (to 20 ft. lift) centrifugal pumps include a clog resistant impeller capable of handling solids as large as 3/8" diameter (up to 25% by volume). A built-in check valve assists in priming and a mechanical shaft seal prevents leakage. Handle liquids from 40° to 180° F (4° to 82° C). For use with nonflammable, non-abrasive liquids compatible with pump component materials.

Specifications

Suction inlet
- 3161-99 . . . . . 1½" NPT
- 3160-99 . . . . . 2" NPT

Discharge outlet
- 3161-99 . . . . . 1½" NPT
- 3160-99 . . . . . 2" NPT

Dimensions . . . . 15⅛"L x 7⅞"W x 8⅞"H

Weight . . . . . 41 lbs.

Basic construction . . . . . cast iron

Maintenance

⚠WARNING ***Make certain that unit is disconnected from power source before attempting to service or remove any component!***

CLEANING

This unit has been designed with a removable volute enabling pump to be cleaned or unclogged with ease. Remove casing and volute as described in steps 1 and 2 under MECHANICAL SEAL REPLACEMENT. Remove any debris found inside unit, reassemble as described in steps 16 and 17 under MECHANICAL SEAL REPLACEMENT.

NOTE: Depending on application it may be necessary to remove suction and discharge hoses.

MECHANICAL SEAL REPLACEMENT

Refer to Figures 1 and 2.

IMPORTANT: Always replace seal seat (Ref. No. 14), seal head (Ref. No. 13), and shaft sleeve (Ref. No. 12) to insure proper mating of mechanical seal components!

1. Unthread fasteners (Ref. No. 3) and remove casing (Ref. No. 5) and casing seal (Ref. No. 15) from adapter (Ref. No. 16).
2. Unthread fasteners (Ref. No. 8) and remove volute (Ref. No. 7) from adapter.
3. Unscrew impeller (Ref. No. 10) from pump shaft. Remove impeller shim(s) (Ref. No. 11), shaft sleeve, and seal head from pump shaft.
4. Unthread fastener (Ref. No. 19) and remove adapter from pedestal mounting face.
5. Push seal seat from adapter recess with a screwdriver.
6. Clean adapter recess before inserting a new seal seat.
7. Carefully wipe polished surface of new seal seat with a clean cloth.
8. Wet the outside of rubber portion of seal seat with a light coating of soapy water.
9. Press new seal seat squarely into cavity in adapter. Use finger pressure only to avoid scratching seal seat. (This is a lapped surface and must be handled very carefully.)
10. After seal seat is in place, insure that it is clean and has not been marred.
11. Using a clean cloth, wipe shaft and make certain that it is perfectly clean.
12. Secure adapter on pedestal mounting face.

⚠ CAUTION ***Tighten hex flange screws EVENLY to avoid cocking rabbet on pedestal mounting face.***

13. Apply a light coating of soapy water to the inside rubber portion of seal head and slide onto shaft sleeve. Slip shaft sleeve with seal head onto pump shaft with polished face toward polished seal seat.

⚠ CAUTION ***Do not touch or wipe face of polished surface part of seal head.***

14. Replace any impeller shim(s) removed in disassembly.
15. Screw impeller back in place, tightening until it is against shaft sleeve.
16. Remount volute and position casing seal in place.

IMPORTANT: Always inspect casing seal. Replace when cracked or worn.

Performance Chart

Model	HP Req.	GPH of Water at Total Head in Feet 10'	20'	30'	40'	50'	60'	70'	80'	90'	Max** Head
3161-99	3	6720	6420	6000	5460	4740	3700	2500	1200	—	87 ft.
3160-99	3	9000	8400	7800	6960	6000	4800	3120	1250	—	87

(**) Shut-off; to convert to psi, divide by 2.31.

Solids-Handling Pedestal Pumps

Maintenance (Continued)

Wet casing seal with soapy water for ease of assembly.

17. Remount casing.

BEARING HOUSING SERVICE

1. Remove front pump assembly as described under "Mechanical Seal Replacement"
2. Remove shaft bearing (Ref. No. 24) and shaft (Ref. No. 25) as an assembly by first removing retaining ring (Ref. No. 21). Push shaft bearing assembly out of pedestal (Ref. No. 20) by rapping on threaded end of shaft with a rawhide mallet, or block of wood and a hammer.
3. Ball bearings can now be removed from shaft.
4. If shaft bearings have been removed from shaft, replace by sliding bearing on shaft to shoulder. Replace shaft bearing assembly by sliding assembly into housing threaded end first. Push shaft bearing assembly completely in by gently tapping on keyway end of shaft with a rawhide mallet. Replace retaining ring.
5. Reassemble pump as described in "Mechanical Seal Replacement".

SHIM ADJUSTMENT

1. When installing a replacement, adapter (Ref. No. 16), impeller (Ref. No. 10), shaft sleeve (Ref. No. 12), volute (Ref. No. 7), or casing (Ref. No. 5) it may be necessary to vary the number of impeller shims (Ref. No. 11) that will be required. This is easily done by adding one shim more than was removed and reassembling pump as described in MECHANICAL SEAL REPLACEMENT section.

NOTE: When adding or removing shims, it is best to proceed with a 0.010" increment each time. While tightening unit together, turn shaft and feel for shaft seizing. If shaft begins to seize before fasteners are completely tight, disassemble pump and remove one shim and repeat assembly.

2. Once having added one shim more than original, ensure that volute and adapter are firmly fitted (check fasteners Ref. No. 8). When pump shaft turns freely add shims until it does strike, then remove a 0.010" shim. This should allow proper clearance.
3. Proper running clearance for impeller should be as close as possible to volute without striking; maximum clearance is 1/32" (0.032").
4. Follow above procedure until proper clearance is obtained. This will ensure maximum performance.

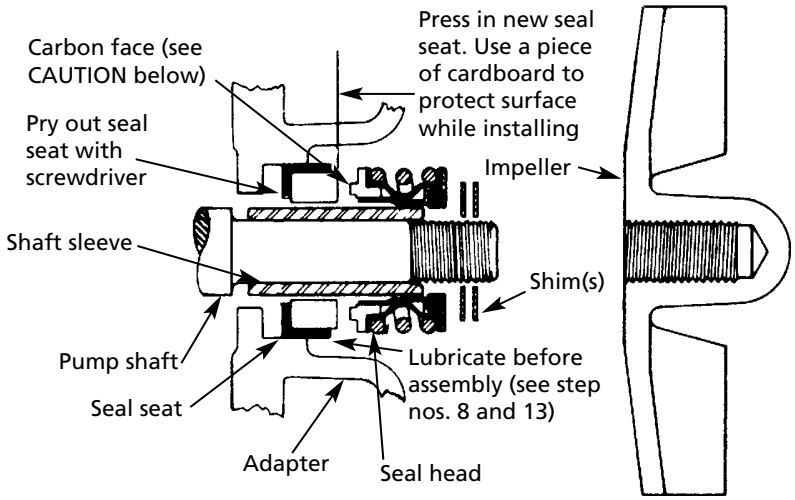

Figure 2 - Mechanical Seal Replacement

For Repair Parts, contact dealer where pump was purchased.

Please provide following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

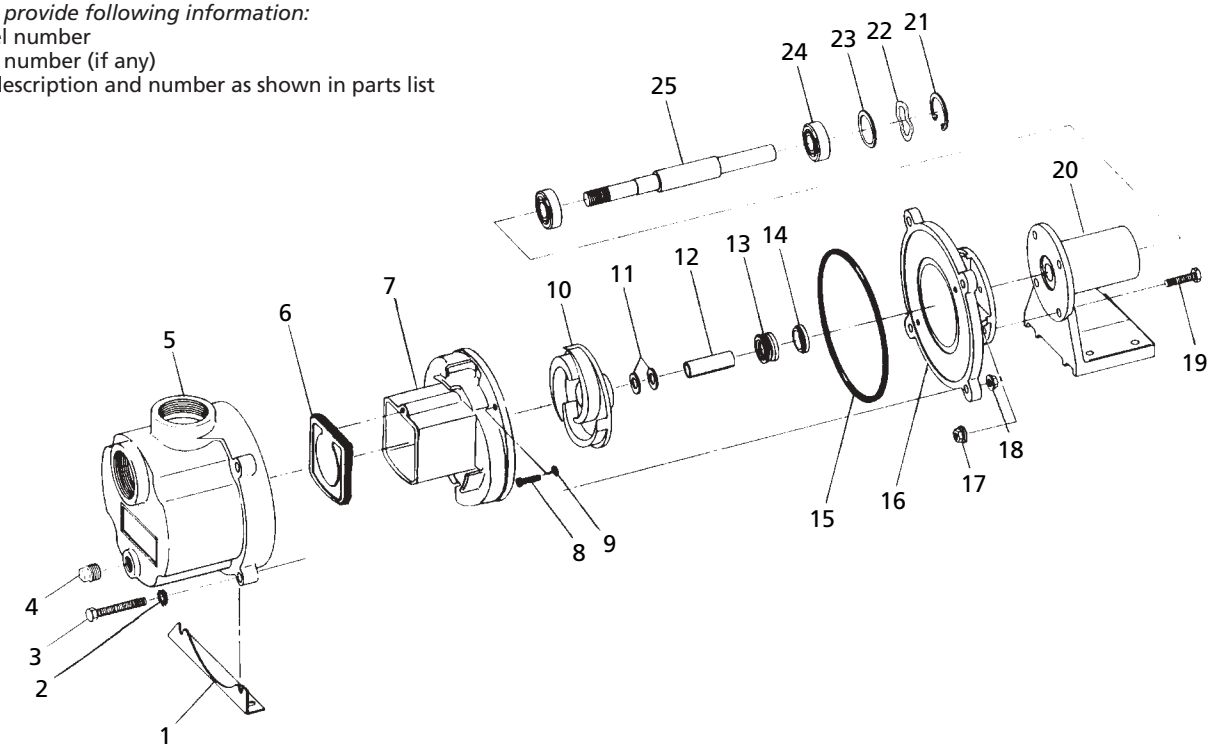

Figure 1 — Repair Parts Illustration

Repair Parts List

Ref. No.	Description	Part Number for Models: 3160-99	3161-99	Qty.
1	Foot	1611-000-00	1611-000-00	1
2	Washer	*	*	4
3	Fastener	*	*	4
4	1/2 NPT pipe plug	*	*	2
5	Casing	2111-001-02	2111-001-01	1
6	Flapper valve assembly	1609-002-00	1609-002-00	1
7	Volute	1612-000-01	1612-001-01	1
8	Fastener	*	*	2
9	Washer	*	*	2
10	Impeller	1493-000-01	1493-000-01	1
11	Impeller shim set (0.010", 0.020", 0.030"; one each)	1658-000-90	1658-000-90	1
12	Shaft sleeve	1483-000-00	1483-000-00	1
13 & 14	Shaft seal assembly -Buna N	1640-162-90	1640-162-90	1
15	Casing seal -Buna N	1610-000-00	1610-000-00	1
16	Adapter	1608-005-01	1608-005-01	1
17	Nut	*	*	8
18	Fastener	*	*	2
19	Fastener	*	*	2
20	Pedestal	1695-030-01	1695-030-01	1
21	Retaining ring	1695-034-00	1695-034-00	1
22	Wave washer	1806-023-00	1806-023-00	1
23	Bearing shim set (0.005", 0.010", 0.020"; one each)	1696-008-90	1696-008-90	1
24	Ball bearing	1695-001-00	1695-001-00	1
25	Pump shaft	1695-001-00	1695-001-00	1

(*) Standard hardware item, available locally.

Notes