

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.

# 1½-Inch Sprinkler / Booster Pumps

Refer to form 1808-634-00 for General Operating and Safety Instructions.

## Description

These 2-stage lawn sprinkler pumps are equipped with high performance 316 stainless steel closed impellers, a Buna-N mechanical seal to prevent leakage, and a continuous duty motor.

Pumps are designed for higher pressure applications such as lawn sprinkling,

spraying irrigation; also, draining and general dewatering applications. Handles liquids from 40° to 180° F.

For use with nonflammable, non-abrasive liquids, compatible with pump component materials.

## Maintenance

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

## MECHANICAL SEAL REPLACEMENT

Refer to Figures 2 & 3:

**IMPORTANT:** Always replace

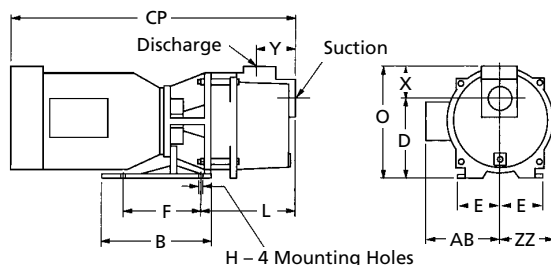


Figure 1 - Dimensions

## Dimensions

Model No.	SUC. *	DIS. *	AB †	B	CP †	D	E	F	H	L	O	X	Y	ZZ
4780-95	1½"	1½"	4.00	5.75	19.13	6.37	2.25	3.00	0.50	6.78	9.02	2.62	3.13	4.00
4785-95	1½"	1½"	4.00	5.75	19.13	6.37	2.25	3.00	0.50	6.78	9.02	2.62	3.13	4.00
4782-95	1½"	1½"	4.00	5.75	20.75	6.37	2.25	3.00	0.50	6.78	9.02	2.62	3.13	4.00
4786-95	1½"	1½"	4.00	5.75	20.75	6.37	2.25	3.00	0.50	6.78	9.02	2.62	3.13	4.00

(\*) Standard NPT (female) pipe thread.

(†) This dimension will vary due to motor manufacturer's specifications. All dimensions have a tolerance of ± 1/8".

## Specifications

Construction Model	Body	Impeller	††Seals	Wt.	Motor HP	RPM	Voltage	PH
4780-95	Cast Iron	SS	Buna-N	85 lbs.	2	3450	115/230 60 HZ	1
4785-95	Cast Iron	SS	Buna-N	72	2	3450	230/460 60/50Hz	3
4782-95	Cast Iron	SS	Buna-N	91	3	3450	230 60 Hz	1
4786-95	Cast Iron	SS	Buna-N	78	3	3450	230/460 60/50 Hz	3

**NOTE:** Driver data is subject to change without notice, see label on driver for actual specifications.

(††) Mechanical seal has ceramic seat, carbon head and stainless steel parts.

(SS) 316 stainless steel.

# 1½-Inch Sprinkler / Booster Pumps

## Performance

Model	Suction Lift in ft.	GPM of Water at Discharge Pressure in psi*													Max. Press psi*
		10psi	15psi	20psi	25psi	30psi	35psi	40psi	45psi	50psi	55psi	60psi	65psi	70psi	
4780-95 &	5ft	62	61	59	55	52	48	45	41	36	32	28	22	15	75psi
	10	61	60	56	52	49	46	41	37	33	27	23	16	–	73
4785-95	15	60	56	54	50	47	43	38	35	30	26	20	–	–	71
	20	59	55	53	49	46	42	37	34	29	23	–	–	–	69
	25	58	54	52	48	45	40	36	32	26	–	–	–	–	67
4782-95 &	5	79	78	75	71	69	67	63	60	58	52	42	37	25	77
	10	78	77	74	70	68	65	62	59	54	50	41	34	22	75
4786-95	15	77	75	73	69	67	64	60	58	52	46	40	28	15	73
	20	76	74	72	68	65	62	59	54	50	42	34	24	8	71
	25	74	73	70	67	63	60	58	52	46	40	29	15	–	69

(\*) To convert psi to head in feet of water, multiply by 2.31.

## Maintenance (Continued)

both seal seat (Ref. No. 5) and seal head (Ref. No. 6) to ensure proper mating of components!

1. Unthread cap screws (Ref. No. 20) and remove pump casing (Ref. No. 19) and o-ring (Ref. No. 17) from adapter (Ref. No. 2).
2. Unthread socket cap screws (Ref. No. 15) and remove suction inlet (Ref. No. 13) and o-ring (Ref. No. 12) from diffuser (Ref. No. 8).
3. Unthread hex nut (Ref. No. 11) from shaft.

**NOTE:** Some motors use an open end 7/16" wrench across flats on rear of motor shaft (remove bearing cap for access) to prevent shaft from turning. Other motor shafts have a screwdriver slot instead of flats.

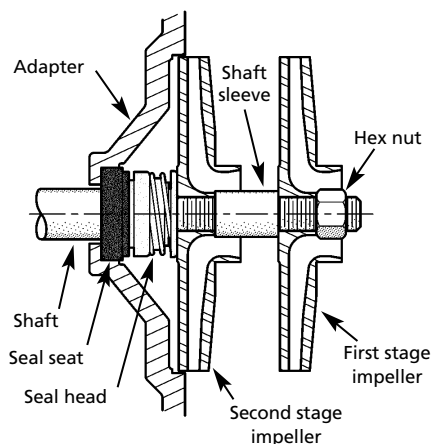
4. Unscrew first stage impeller (Ref. No. 7) from shaft (impeller unscrews CCW looking at shaft).

**NOTE:** A strap wrench is recommended to loosen both impellers. Attempts to loosen impellers with other tools may cause permanent damage to impellers. Due to close running fits between parts, damaged impellers should be replaced before reassembly of pump.

5. Unthread cap screws (Ref. No. 15) and remove diffuser and diffuser/crossover (Ref. No. 9) from adapter as a unit.

6. Remove shaft sleeve (Ref. No. 10) from shaft and unscrew second stage impeller (Ref. No. 7).

7. Remove seal head from shaft.
8. Unscrew four cap screws (2-Ref. No. 21 and 2-Ref.



**Figure 2 – Mechanical Seal Replacement**

# Models

- No. 4) and remove foot (Ref. No. 22) and adapter from motor mounting face.
9. Push seal seat from adapter recess with a screwdriver.
  10. Clean adapter recess before inserting a new seal seat.
  11. Carefully wipe polished surface of new seal seat with a clean cloth.
  12. Wet the rubber portion of new seal seat with a light coating of soapy water.
  13. Press new seal seat squarely into cavity in adapter. If seal seat does not press squarely into cavity, it can be adjusted in place by pushing on it with a piece of pipe. Always use a piece of cardboard between pipe and seal seat to avoid scratching seal seat (This is a lapped surface and must be handled very carefully).
  14. After seal seat is in place, ensure that it is clean and has not been marred.
  15. Using a clean cloth, wipe shaft and make certain that it is perfectly clean.
  16. Carefully guide seal seat over shaft and secure adapter and foot to motor mounting face.
  17. Apply a light coating of soapy water to inside rubber portion of seal head and slide onto shaft (with polished sealing face first) so that rubber portion is just over shoulder at end of threads on shaft.
- ⚠ WARNING**
- Do not touch or wipe seal face of seal head.***
18. Screw second stage impeller back in place and tighten using a strap wrench on impeller shroud opening until impeller is against shaft shoulder.
- NOTE:** A strap wrench is required to tighten both impellers. Use of any other kind of tool could permanently damage impeller and cause damage to pump due to close running fits between impellers and diffuser and suction inlet.
19. Slide shaft sleeve onto shaft.
  20. Apply small amount of grease or Vaseline on outside shroud of impeller opening and shaft sleeve. Remount diffuser and diffuser/crossover. Before tightening cap screws, rotate shaft and be sure impeller and shaft sleeve are not rubbing on diffuser or diffuser/crossover.
  21. Screw first stage impeller into place and tighten with a strap wrench.
  22. Install hex nut to end of shaft.
  23. Remount suction inlet and o-ring, then rotate shaft to be sure impeller is not rubbing on suction inlet before tightening cap screws.
  24. Apply small amount of vaseline to outside of diffuser at O-ring location and on flange of suction inlet. Install O-ring and gasket (Ref. No. 16).
- IMPORTANT:** Always inspect O-ring and gaskets. When cut, cracked or worn, replace them. Wet O-rings with Vaseline when reassembling pump for ease of assembly and to prevent pinching.
25. Remount pump casing.
  26. A short "run-in" period may be necessary to provide completely leak free seal operation.

## For Repair Parts, contact dealer where pump was purchased.

Please provide the following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

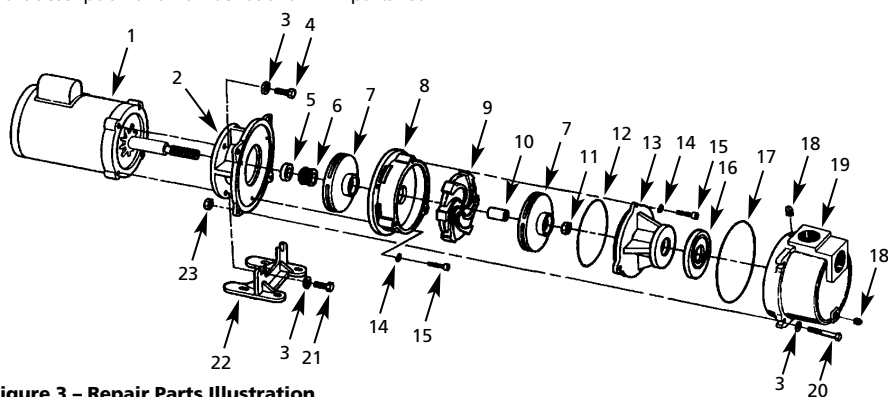


Figure 3 – Repair Parts Illustration

## Replacement Parts List

Ref. No.	Description	Part Number	Qty.
1	Motor (4780-95)	1639-091-00	1
	(4785-95)	1626-092-00	1
	(4782-95)	1626-093-00	1
	(4786-95)	1626-094-00	1
2	Adapter	4780-030-00	1
3	3/8" SAE washer, plated	*	8
4	3/8"-16 x 1" Hex head cap screw, plated	*	2
5 & 6 †	Seal assembly, Buna-N	1640-162-90	1
7	Impeller (4780-95 & 4785-95)	4780-011-09	2
	Impeller (4782-95 & 4786-95)	4785-011-09	2
8	Diffuser	4780-150-09	1
9	Diffuser/crossover	4780-155-09	1
10	Shaft sleeve	4780-141-00	1
11	Hex nut (special)	4780-144-00	1
12	O-ring, Buna-N	2103-050-00	1
13	Suction inlet	4780-220-09	1
14	#10 split lock washer, stainless	1787-000-00	6
15	#10-24 x 3/4" Socket head cap screw stainless	1705-001-00	6
16	Suction gasket, Buna-N	4780-300-00	1
17	O-ring, Buna-N	1610-000-00	1
18	1/2" Steel plug, plated	*	2
19	Casing	2111-001-01	1
20	3/8"-16 x 23/4" hex head cap screw, plated	*	4
21	3/8"-16 x 11/4" Hex head cap screw, plated	*	2
22	Mounting base (foot)	1506-000-00	1
23	3/8"-16 MF small flange hex nut	*	4
‡	#4 x 5/16" Drive pin	1697-000-00	1

(\*) Standard hardware item, available locally.

(†) Seal head (Ref. No. 6) and seat (Ref. No. 5) available as a set

(‡) Not shown.