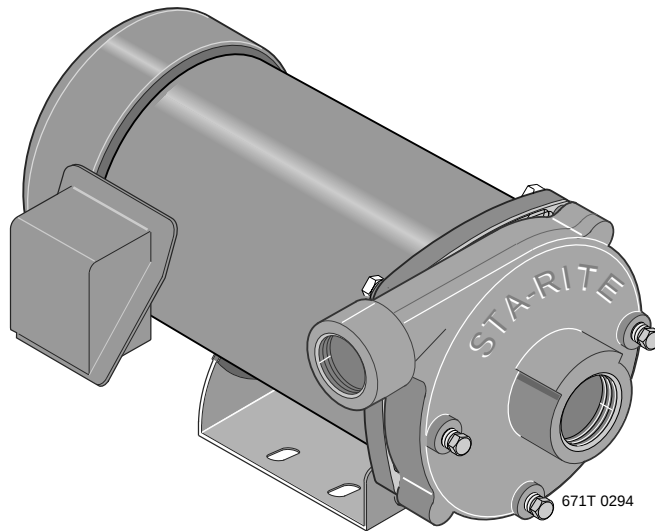


STA-RITE®

OWNER'S MANUAL

INSTALLATION AND OPERATING INSTRUCTIONS
REPAIR PARTS LIST

60 CYCLE "J" and "JB" SERIES CENTRIFUGAL PUMPS WITH TEFC MOTORS



MODELS

H.P.	MEDIUM HEAD MODELS			
1/3	JMBT-56	—	JMBT-56S	—
1/2	JMCT-56	JMC3T-56	JBMCT-56S	JBMC3T-56S
3/4	JMDT-57	JMD3T-57	—	JBMD3T-57S
1	JMET-58	JME3T-58	JBMET-58S	JBME3T-58S
1-1/2	JMFT-40	JMF3T-40	JBMFT-40S	JBMF3T-40S
2	JMGT-41	JMG3T-41	JBMGT-41S	JBMG3T-41S
2-1/2	—	—	JBMMGT-59S	JBMMG3T-59S

H.P.	HIGH HEAD MODELS				
1/3	JHBT-61H	—	JBHBT-61S	—	—
1/2	JHCT-61H	JHC3T-61H	JBHCT-61S	JBHC3T-61S	—
3/4	JHDT-62H	JHD3T-62H	JBHDT-62S	JBHD3T-62S	JBH2DT-62S
1	JHET-63H	JHE3T-63H	JBHET-63S	JBHE3T-63S	—
1-1/2	JHFT-51H	JHF3T-51H	JBHFT-51S	JBHF3T-51S	—
2	JHGT-52H	JHG3T-52H	JBHGT-52S	JBHG3T-52S	—
2-1/2	—	JHHG3T-53H	JBHHGT-53S	JBHHG3T-53S	—

STA-RITE INDUSTRIES, INC., DELAVAN, WISCONSIN 53115

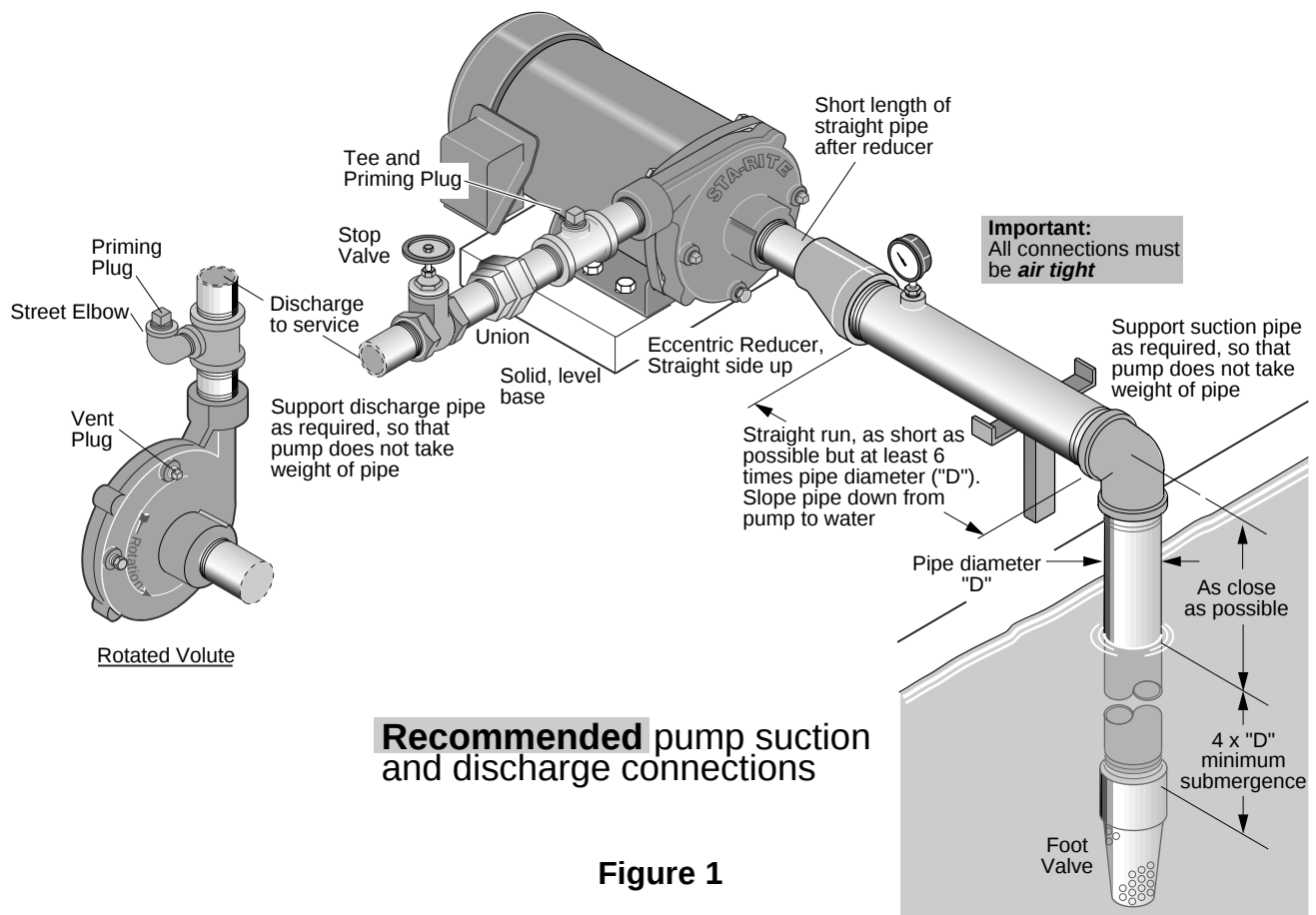


Figure 1

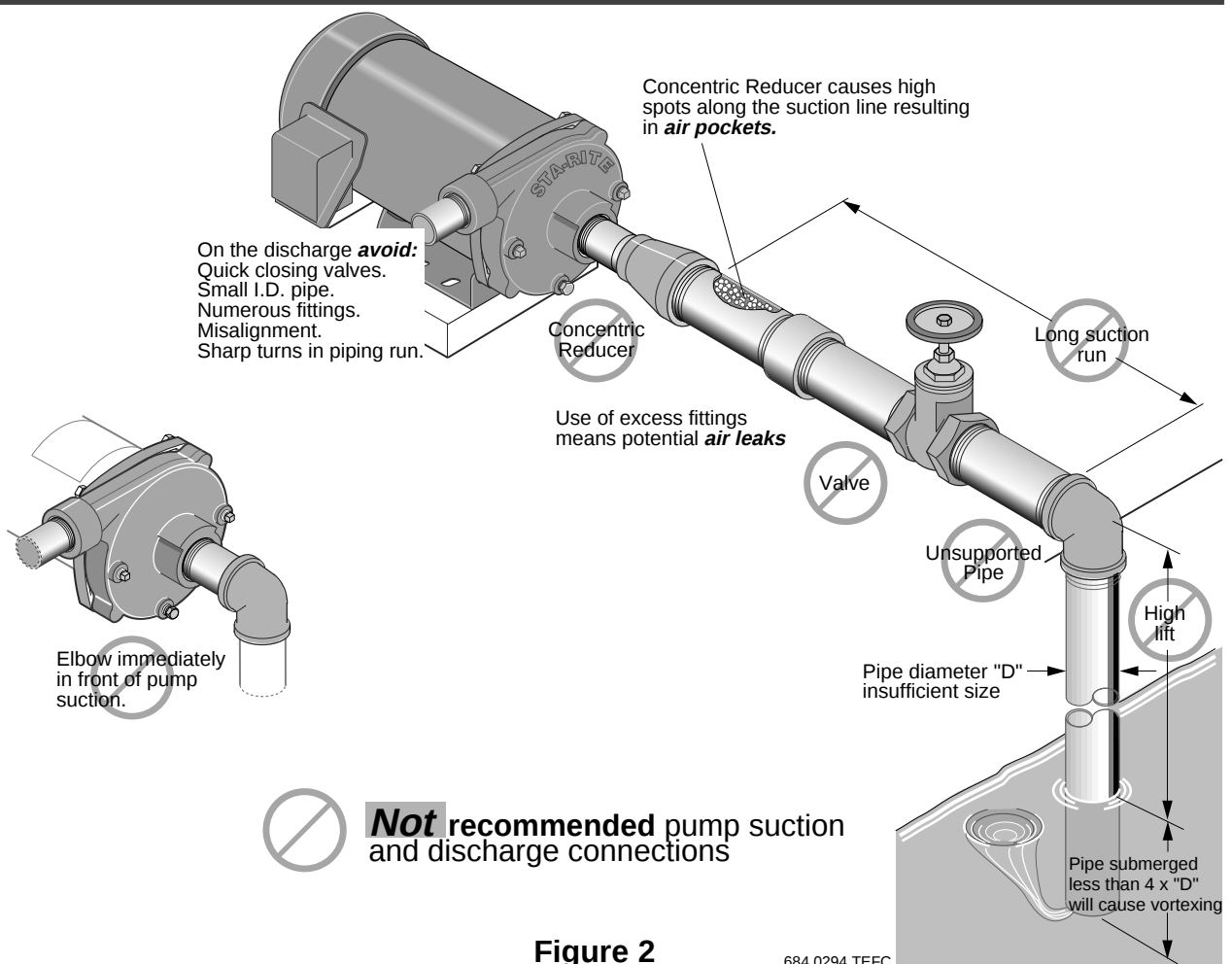


Figure 2

684 0294 TEFC

PIPING - GENERAL

Support both suction and discharge piping independently at a point near the pump to avoid putting a strain on the pump housing. Start all piping **AT THE PUMP**.

Increase pipe diameter at both the suction and discharge by one (1) standard pipe size (minimum) to obtain desired performance and flow rate. Refer to Table I when sizing pipe for your pumping system.

NOTICE: Do not use pipe with **smaller** diameter on the suction side of pump.

Do not allow pump or any system component to freeze. To do so will void warranty.

TABLE I

Pump Port Size (NPT)		Recommended Pipe Size	
Suction	Discharge	Suction	Discharge
1-1/4	1	1-1/2	1-1/4
1-1/2	1-1/4	2	1-1/2
2	1-1/2	3	2

SUCTION PIPE

Increase pipe size from pump suction port as shown in Table I.

Figure 1 (Page 2) depicts a recommended run of pipe and fittings for the suction side of a centrifugal pump. Please refer to this illustration when choosing pipe and fittings for your suction connection.

IMPORTANT: All connections must be air tight!

Figure 2 (Page 2) depicts conditions that are **NOT DESIRABLE** on the suction side of a centrifugal pump and may cause problems in flow rate and priming. Please look this illustration over carefully before choosing pipe and fittings for your suction connection.

DISCHARGE PIPING

Increase pipe size from pump discharge port as shown in Table I. Figure 1 (Page 2) depicts a recommended run of pipe and fittings for the discharge. Install tee with priming plug as close to pump as possible. Figure 2 (Page 2) notes conditions that should be avoided. Please read over carefully before making discharge connection.

PRIMING THE PUMP

A pump is primed when all air in the suction line and pump volute has been evacuated and replaced with water.

To Prime:

1. Close valve in discharge line.
2. Remove priming plug from tee and fill pump and suction line with water until water is flowing back out of tee.
3. Replace priming plug.
4. Start pump and slowly open valve until desired water flow is achieved.

NOTICE: If water is not being pumped, turn off pump, close valve, and repeat steps 1 thru 4.

If pump volute is rotated as shown in Figure 1 (Page 2), loosen vent plug when priming to evacuate air trapped inside volute. Tighten when volute is completely filled with water.

⚠ WARNING

Never run pump against closed discharge. To do so can boil water inside pump causing hazardous pressure in unit, risk of explosion and possibly scalding persons handling pump

NOTICE: Do not run the pump dry. This will damage mechanical seal and void warranty.

⚠ CAUTION

Burn Hazard. Motor normally operates at high temperature and will be too hot to touch. It is protected from heat damage during operation by an automatic internal cutoff switch. Before handling pump or motor, stop motor and allow it to cool for 20 minutes.

ELECTRICAL

⚠ WARNING



Hazardous voltage. Can shock, burn, or cause death.

Ground pump before connecting to power supply.

⚠ Ground motor before connecting to electrical power supply.

⚠ Failure to ground motor can cause severe or fatal electrical shock hazard.

⚠ Do not ground to a gas supply line.

⚠ To avoid dangerous or fatal electrical shock, turn OFF power to motor before working on electrical connections.

⚠ Supply voltage must be within $\pm 10\%$ of

nameplate voltage. Incorrect voltage can cause fire or seriously damage motor and voids warranty. If in doubt consult a licensed electrician.

⚠ Use wire size specified in Wiring Chart (below). If possible, connect pump to a separate branch circuit with no other appliances on it.

⚠ Wire motor according to diagram in motor junction box.

WIRING

1. Install, ground, wire and maintain this pump in accordance with electrical code requirements. Consult your local building inspector for information about codes.
2. Provide a correctly fused disconnect switch for protection while working on motor. Consult local or national electrical codes for switch requirements.
3. Disconnect power before servicing motor or pump. If the disconnect switch is out of sight of pump, lock it open and tag it to prevent unexpected power application.
4. Ground the pump permanently using a wire of the same size as that specified in wiring chart (below). Make ground connection to green grounding terminal in motor junction box marked GRD. or $\oplus$.
5. Connect ground wire to a grounded lead in the service panel or to a metal underground water pipe or well casing at least 10 feet long. Do not connect to plastic pipe or insulated fittings.
6. Protect current carrying and grounding conductors from cuts, grease, heat, oil, and chemicals.
7. Connect current carrying conductors to terminals in motor junction box. When replacing motor, check wiring diagram in motor junction box for correct wiring connections.

TABLE II - RECOMMENDED FUSING AND WIRING DATA - 60 CYCLE MOTORS

MOTOR HP	MAX. LOAD AMPERES	BRANCH FUSE* RATING AMPS	VOLT/ PHASE	DISTANCE IN FEET FROM MOTOR TO METER				
				0' TO 100'	101' TO 200'	201' TO 300'	301' TO 400'	401' TO 500'
				WIRE SIZE				
SINGLE PHASE - 115/230 VOLT								
1/3	8.2/4.1	15	115/230/1	14/14(2/2)	12/14(3/2)	10/14(5.5/2)	8/14(8.4/2)	8/12(8.4/3)
1	14.2/7.1	20	115/230/1	12/14(3/2)	8/14(8.4/2)	6/14(14/2)	6/12(14/3)	4/10(21/5.5)
1-1/2	18.0/9.0	25	115/230/1	10/14(5.5/2)	8/14(8.4/2)	6/12(14/3)	6/12(14/3)	4/10(21/5.5)
THREE PHASE - 230/460 VOLT								
1/2	2.2/1.1	15	230/460/3	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)
3/4	2.9/1.45	15	230/460/3	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)
1	3.6/1.8	15	230/460/3	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)
1-1/2	4.8/2.4	15	230/460/3	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)
2	6.0/3.0	15	230/460/3	14/14(2/2)	14/14(2/2)	14/14(2/2)	14/14(2/2)	12/14(3/2)
2-1/2	7.0/3.5	15	230/460/3	14/14(2/2)	14/14(2/2)	14/14(2/2)	12/14(3/2)	12/14(3/2)
SINGLE PHASE - 230 VOLT								
2	10.4	15	230/1	14(2)	14(2)	12(3)	10(5.5)	10(5.5)
SINGLE PHASE - 100-200 VOLT								
3/4	12.0/6.0	15	100/200/1	14/14(2/2)	10/14(5.5/2)	8/14(8.4/2)	6/14(14/2)	6/12(14/3)

*A Fusetron is recommended instead of a fuse in any motor circuit

ELECTRICAL

8. Motor has automatic internal thermal overload protection. If motor has stopped for unknown reasons, thermal overload may restart it unexpectedly, which could cause injury or property damage. Disconnect power before servicing motor.
9. If this procedure or the wiring diagrams are confusing, consult a licensed electrician.

Connect wires to motor according to wiring diagram below or in motor junction box. Be sure motor is connected for correct line voltage. If diagram in motor junction box is different from diagram in this manual, follow diagram on motor.

For All 3-phase Motors: Follow wiring diagram in motor junction box or on motor nameplate.

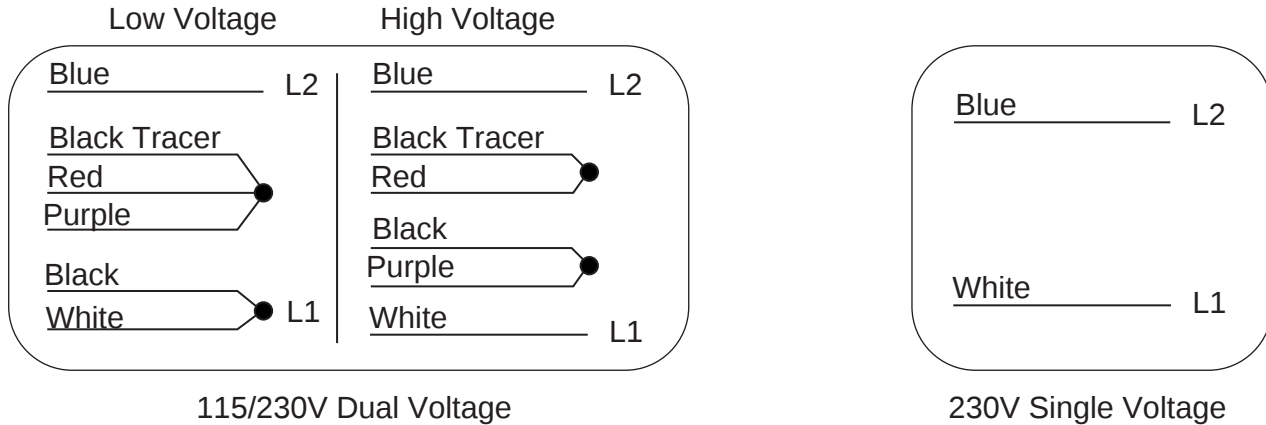


Figure 3 - Motor wiring connections for 100/200 V, 115/230V, and 230V only motors (single phase).

SERVICE

PUMP SERVICE

This centrifugal pump requires little or no service other than reasonable care and periodic cleaning. Occasionally, however, a shaft seal may become damaged and must be replaced. The procedure as outlined below will enable you to replace the seal.

NOTICE: These mechanical seals are supplied with either a rubber seat ring or a sealing O-Ring. They are completely interchangeable.

NOTICE: The highly polished and lapped faces of this seal are easily damaged. Read instructions and handle the seal with care.

Some models are equipped with an impeller screw, which has a left hand thread. Before unscrewing the impeller, remove the impeller screw.

REMOVAL OF OLD SEAL

1. After unscrewing impeller (Key No. 5, Page 6), carefully remove rotating part of seal by prying up on sealing washer, using two screwdrivers (see Figure 4A). Use care not to scratch motor shaft.
2. Remove seal plate (Key No. 3) from motor and place on flat surface, face down. Use a screwdriver to push ceramic seat out from seal cavity (see Figure 4B).

INSTALLATION OF FLOATING SEAT

(Figure 4C)

1. Clean polished surface of floating (ceramic) seat with clean cloth.

2. Turn seal plate over so seal cavity is up; clean cavity thoroughly.
3. Lubricate outside rubber surface or O-ring of ceramic seat with soapy water and press firmly into seal cavity with finger pressure. If seat will not locate properly in this manner, place cardboard washer over polished face of seat and press into seal cavity using a 3/4" socket or 3/4" piece of standard pipe.
4. **Dispose of cardboard washer.** Be sure polished surface of seat is free of dirt and has not been damaged by insertion. Remove excess soapy water.

INSTALLATION OF ROTATING PART OF SEAL UNIT (Figure 4D)

1. Reinstall seal plate using extreme caution not to hit ceramic portion of seal on motor shaft.
2. Inspect shaft to make sure that it is clean.
3. Clean face of sealing washer with clean cloth.
4. Lubricate inside diameter and outer face of rubber drive ring (see Figure 4D) with soapy water and slide assembly on motor shaft (sealing face first) until rubber drive ring hits shaft shoulder.
5. Screw impeller on shaft until impeller hub hits shaft shoulder. This will automatically locate seal in place and move the sealing washer face up against the facing seat. Reinstall impeller screw (if used).

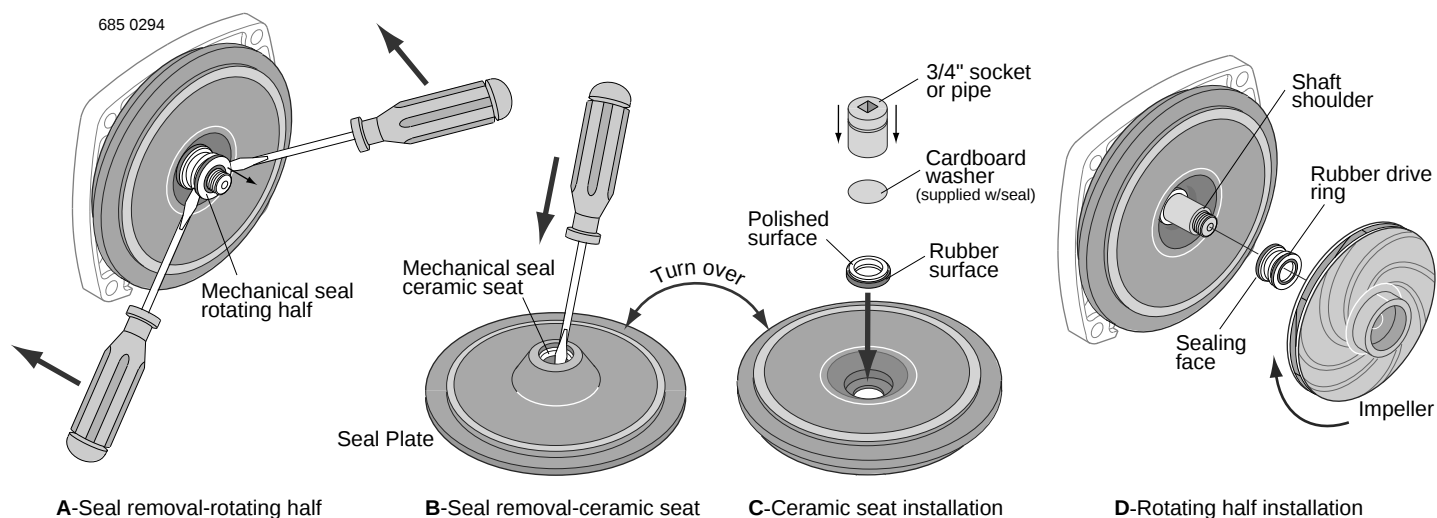
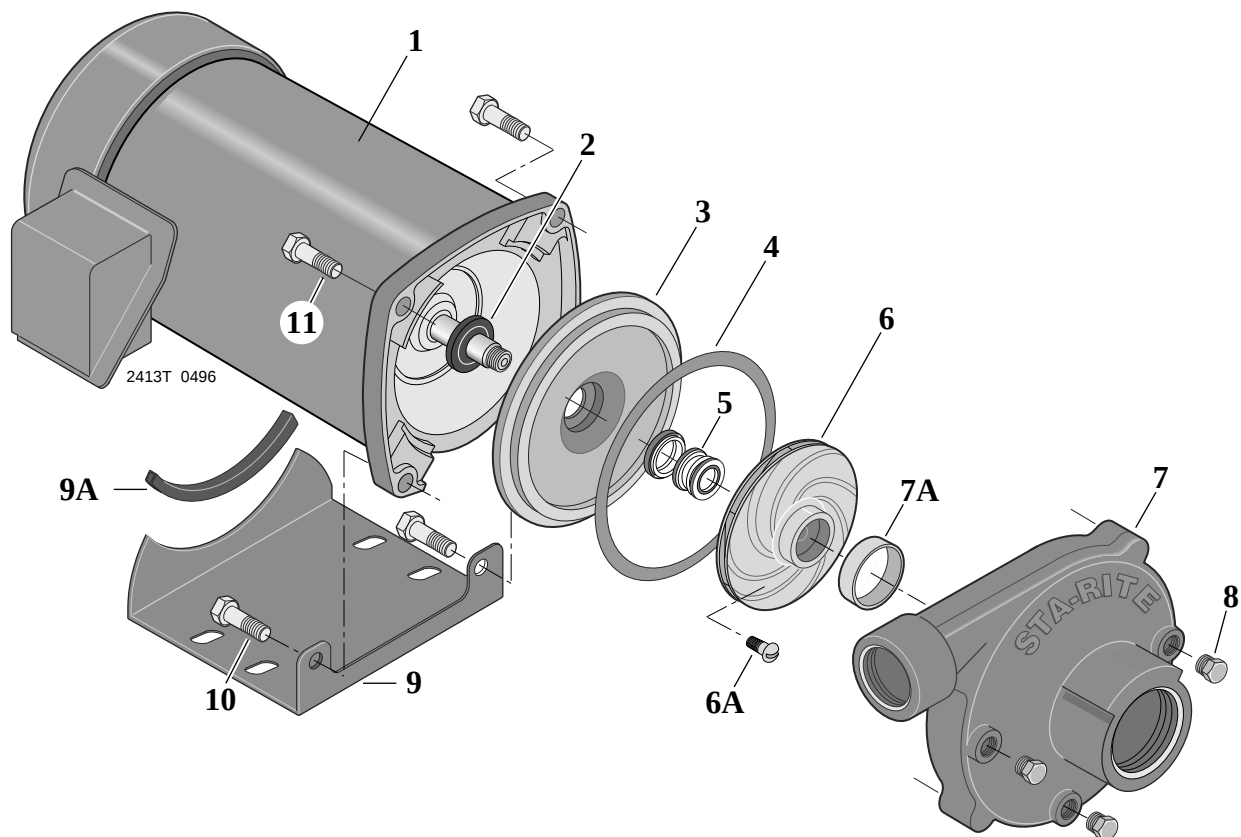


FIGURE 4

TROUBLE - CAUSES AND REMEDY	
TROUBLE AND CAUSE	REMEDY
FAILURE TO PUMP	
1. Pump not properly primed.	1. Make sure pump casing and suction line are full of water. See priming instructions.
REDUCED CAPACITY AND/OR HEAD	
1. Air pockets or leaks in suction line.	1. Check suction piping.
2. Clogged impeller.	2. Remove and clean.
PUMP LOSES PRIME	
1. Air leaks in suction line.	1. Check suction piping.
2. Excessive suction lift and operating too near shut-off point.	2. Move pump nearer to water level.
3. Water level drops while pumping, uncovering suction piping.	3. Check water supply. Add length of pipe to suction to keep submerged end under water.
MECHANICAL TROUBLES AND NOISE	
1. Bent shaft and/or damaged bearings.	1. Take motor to authorized motor repair shop.
2. Suction and/or discharge piping not properly supported and anchored.	2. See that all piping is supported to relieve strain on pump assembly.



REPAIR PARTS LIST

“J” AND “JB” SERIES WITH TEFC MOTORS - HIGH HEAD

Key No.	Part Description	No. Used	JHGT-52H JHG3T-52H JBHGT-52S JBHG3T-52S 2 HP	- JHHG3T-53H JBHHGT-53S JBHHG3T-53S 2-1/2 HP
1*	Motor - 230V, 60 Cycle, Single Phase	1	AE100GL-T	AE100G5L-T
1*	Motor - 230/460V, 60 Cycle, Three Phase	1	AP100GL-T	AP100G5L-T
2†	Water Slinger	1	C69-2	C69-2
3	Seal Plate	1	C3-181	C3-181
4†	Gasket	1	C20-122	C20-122
5†	Shaft Seal	1	U109-6A	U109-6A
6	Impeller (J Series)	1	C105-214PCA	C105-214PA
6	Impeller (JB Series)	1	C5-257BB	C5-257B
6A	Impeller Screw - Three Phase Only	1	C30-14SS	C30-14SS
7	Volute Assembly - With Wear Ring	1	C101-281B	C101-281B
7A	Wear Ring	(1)	C23-19	C23-19
8	Pipe Plug Hex Head - 1/4" NPT	3	U78-941ZPV	U78-941ZPV
9	Base - With Motor Pad	1	J104-9A	J104-9A
9A	Motor Pad	(1)	C35-5	C35-5
10	Capscrew - 3/8 - 16 x 1-1/4" Lg.	2	U30-75ZP	U30-75ZP
11	Capscrew - 3/8 - 16 x 1" Lg.	2	U30-74ZP	U30-74ZP

SERVICE KIT			
Seal and Gasket Kit (J Series)	1	PP1700	PP1700
NOTE: † Included in Seal and Gasket Kit			

*For repair or service to motors, always give the motor Model Number and any other data found on the Motor Model Plate.

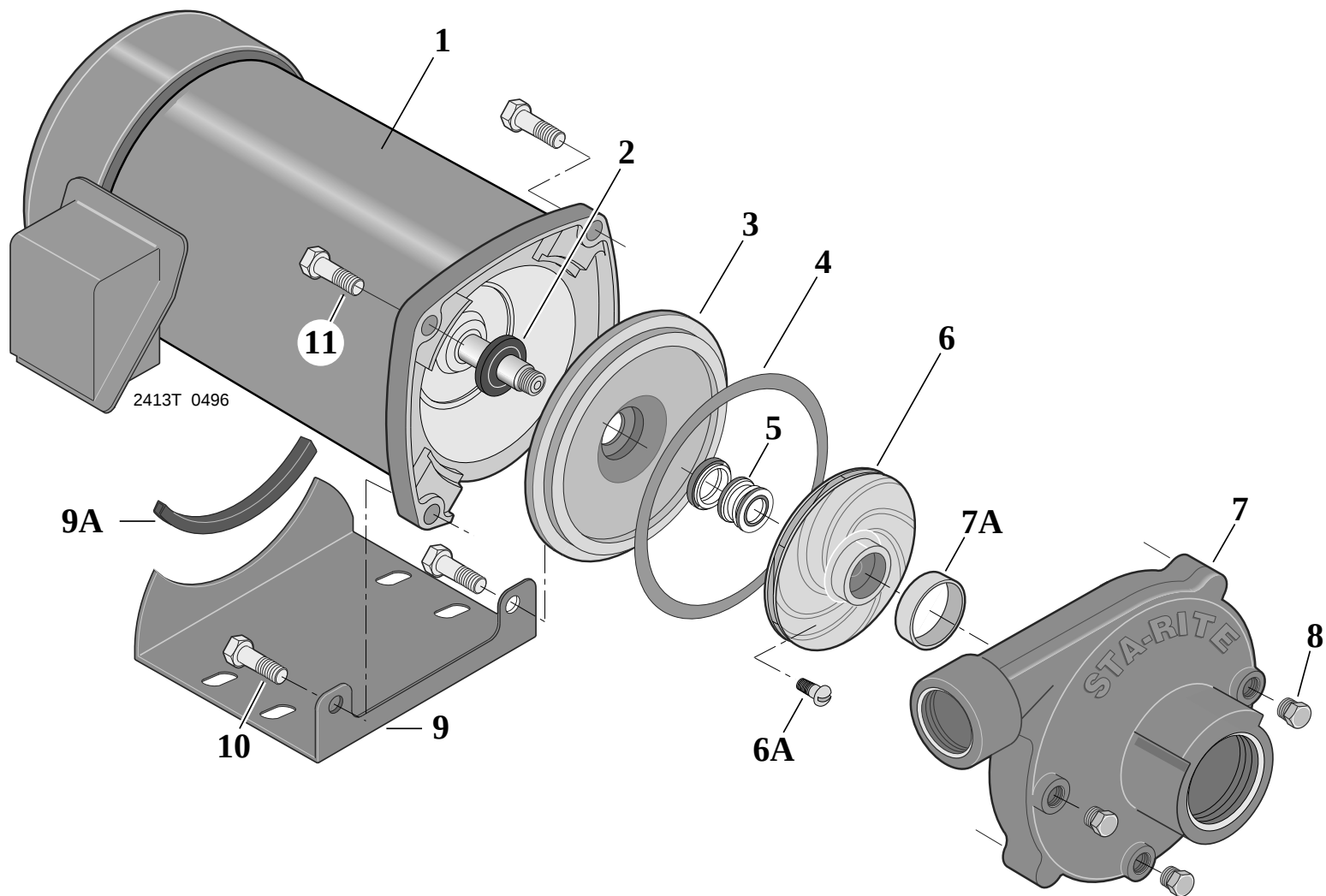
REPAIR PARTS LIST – “J” AND “JB” SERIES WITH TEFC MOTORS - HIGH HEAD

Key No.	Part Description	No. Used	– JHBT-61H – JBHBT-61S 1/3 HP	– JHCT-61H JHC3T-61H JBHCT-61S JBHC3T-61S 1/2 HP	JHDT-62H JHD3T-62H JBHDT-62S JBHD3T-62S JBH2DT-62S 3/4 HP	– JHET-63H JHE3T-63H JBHET-63S JBHE3T-63S 1 HP	– JHFT-51H JHF3T-51H JBHFT-51S JBHF3T-51S 1-1/2 HP
1*	Motor - 115/230V, 60 Cycle, Single Phase	1	A100BH-T	A100CL-T	A100DL-T	A100EL-T	A100FL-T
1*	Motor - 230/460V, 60 Cycle, Three Phase	1	–	AP100CL-T	AP100DL-T	AP100EL-T	AP100FL-T
1*	Motor - 100/200V, 60 Cycle, Single Phase	1	–	–	J218-896D	–	–
2†	Water Slinger	1	C69-2	C69-2	C69-2	C69-2	C69-2
3	Seal Plate	1	C3-178	C3-178	C3-178	C3-178	C3-178
4†	Gasket	1	C20-121	C20-121	C20-121	C20-121	C20-121
5†	Shaft Seal	1	U109-6A	U109-6A	U109-6A	U109-6A	U109-6A
6	Impeller - Single Phase (J Series)	1	C105-92PN	C105-92PN	C105-92PM	C105-92PL	C105-92PB
6	Impeller - Three Phase (J Series)	1	–	C105-92PNA	C105-92PMA	C105-92PLA	C105-92PBA
6	Impeller - Single Phase (JB Series)	1	–	–	C105-94B	–	–
6	Impeller - Three Phase (JB Series)	1	C5-256BA	C5-256BA	C105-94BA	C5-254BA	C5-254BC
6A	Impeller Screw - Three Phase	1	–	C30-14SS	C30-14SS	C30-14SS	C30-14SS
7	Volute Assembly - With Wear Ring	1	C101-281B	C101-281B	C101-281B	C101-281B	C101-281B
7A	Wear Ring	(1)	N23-7	N23-7	N23-7	N23-7	C23-19
8	Pipe Plug Hex Head - 1/4" NPT	3	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV
9	Base - With Motor Pad	1	J104-9A	J104-9A	J104-9A	J104-9A	J104-9A
9A	Motor Pad	1	C35-5	C35-5	C35-5	C35-5	C35-5
10	Capscrew - 3/8 - 16 x 1-1/4" Lg.	2	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP
11	Capscrew - 3/8 - 16 x 1-1/2" Lg.	2	U30-76ZP	U30-76ZP	U30-76ZP	U30-76ZP	U30-76ZP

SERVICE KIT						
Seal and Gasket Kit (J Series)	1	PP1700	PP1700	PP1700	PP1700	PP1700
NOTE: † Included in Seal and Gasket Kit						

*For repair or service to motors, always give the motor Model Number and any other data found on the Motor Model Plate.

• Not illustrated.



REPAIR PARTS LIST – “J” AND “JB” SERIES WITH TEFC MOTORS - MEDIUM HEAD

Key No.	Part Description	No. Used	– JMBT-56 JMBMT-56S – 1/3 HP	JMCT-56 JMC3T-56 JBMCT-56S JBMC3T-56S 1/2 HP	JMDT-57 JMD3T-57 – JBMD3T-57S 3/4 HP	JMET-58 JME3T-58 JBMET-58S JBME3T-58S 1 HP	JMFT-40 JMF3T-40 JBMFT-40S JBMF3T-40S 1-1/2 HP	JMGT-41 JMG3T-41 JBMGT-41S JBMG3T-41S 2 HP	– – JBMMGT-59S JBMMG3T-59S 2-1/2 HP
1*	Motor - 115/230V, 60 Cycle, Single Phase	1	A100BH-T	A100CL-T	A100DL-T	A100EL-T	A100FL-T	–	–
1*	Motor - 230V, 60 Cycle, Single Phase	1	–	–	–	–	–	AE100GL-T	AE100G5L-T
1*	Motor - 230/460V, 60 Cycle, Three Phase	1	–	AP100CL-T	AP100DL-T	AP100EL-T	AP100FL-T	AP100GL-T	AP100G5L-T
2†	Water Slinger	1	C69-2	C69-2	C69-2	C69-2	C69-2	C69-2	C69-2
3	Seal Plate	1	N3-8	N3-8	N3-8	N3-8	C3-52	C3-52	C3-52
4†	Gasket	1	N20-26	N20-26	N20-26	N20-26	C20-21	C20-21	C20-21
5†	Shaft Seal	1	U109-6A	U109-6A	U109-6A	U109-6A	U109-6A	U109-6A	U109-6A
6	Impeller - Single Phase (J Series)	1	J105-42PHA	J105-42PHA	J105-42PJA	J105-42P	C105-114PC	C105-114PA	–
6	Impeller - Three Phase (J Series)	1	–	J105-42PHA	J105-42PJA	J105-42PPA	C105-114PCA	C105-114PA	–
6	Impeller - Single Phase (JB Series)	1	J105-42MA	J105-42MA	–	J105-42NA	C105-79B	C105-73BA	C105-809DA
6	Impeller - Three Phase (JB Series)	1	–	J105-42MA	J105-42LA	J105-42NA	C105-79BA	C105-73BA	C105-809DA
6A	Impeller Screw - Three Phase	1	–	C30-20	C30-6SS	C30-6SS	C30-14SS	C30-14SS	C30-47SS
7	Volute Assembly - With Wear Ring	1	C101-122E	C101-122E	C101-122E	C101-122	C101-123	C101-123	C101-123B
7A	Wear Ring	(1)	N23-7	N23-7	N23-7	N23-7	C23-19	C23-19	C23-19
8	Pipe Plug Hex Head - 1/4" NPT	4	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV
9	Base - With Motor Pad	1	J104-9A	J104-9A	J104-9A	J104-9A	J104-9A	J104-9A	J104-9A
9A	Motor Pad	1	C35-5	C35-5	C35-5	C35-5	C35-5	C35-5	C35-5
10	Capscrew - 3/8 - 16 x 1-1/4" Lg.	2	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	–	–	–
11	Capscrew - 3/8 - 16 x 1-1/2" Lg.	2	U30-76ZP	U30-76ZP	U30-76ZP	U30-76ZP	–	–	–
•	Stud, 3/8-16x2"	4	–	–	–	–	U30-35SS	U30-35SS	U30-35SS
•	Nut, 3/8-16 Hex	4	–	–	–	–	U36-38ZP	U36-38ZP	U36-38ZP

SERVICE KIT

Seal and Gasket Kit	1	PP1700	PP1700	PP1700	PP1700	PP1700	PP1700	PP1700
NOTE: † Included in Seal and Gasket Kit								

*For repair or service to motors, always give the motor Model Number and any other data found on the Motor Model Plate.

• Not illustrated.

LIMITED WARRANTY

Sta-Rite Industries, Inc., warrants to the original consumer of the products listed below, that they will be free from defects in material and workmanship for the Warranty Period from the date of original installation or manufacture as noted.

Product	Warranty Period
Water Systems Products – jet pumps, small centrifugal pumps, submersible pumps and related accessories	<i>whichever occurs first:</i> 1 year from date of original installation, or 2 years from date of manufacture
Hydro-Flow Filters	1 year from date of purchase
Signature 2000 Fibrewound Tanks	5 years from date of original installation
Pro-Source Steel Pressure Tanks	5 years from date of original installation
Pro-Source Epoxy-Line Tanks	3 years from date of original installation
Sump/Sewage/Effluent Products	1 year from date of original installation, or 2 years from date of manufacture

Our warranty will not apply to any product that has been subject to negligence, misapplication, improper installation or maintenance. In the event a three phase submersible motor is operated with single phase power through a phase converter, or if three-leg ambient compensated, extra-quick trip overload relays of recommended size are not used, our warranty is void.

Buyer's only remedy and Sta-Rite Industries, Inc.'s only duty is to repair or replace defective products (at Sta-Rite Industries, Inc.'s choice). Buyer agrees to pay all labor and shipping charges associated with this warranty and to request warranty service through the installing dealer as soon as a problem is discovered. If warranty service is requested more than 30 days after the Warranty Period has ended, it will not be honored.

STA-RITE INDUSTRIES, INC. SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR CONTINGENT DAMAGES WHATSOEVER.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE WARRANTY PERIOD PROVIDED HEREIN.

Certain states do not permit the exclusion or limitation of incidental or consequential damages or the placing of limitations on the duration of an implied warranty, therefore, the limitations or exclusions herein may not apply. This warranty sets forth specific legal rights and obligations, however, additional rights may exist, which may vary from state to state.

Supersedes all previous publications.

Sta-Rite Industries, Inc. 293 Wright St., Delavan, WI 53115