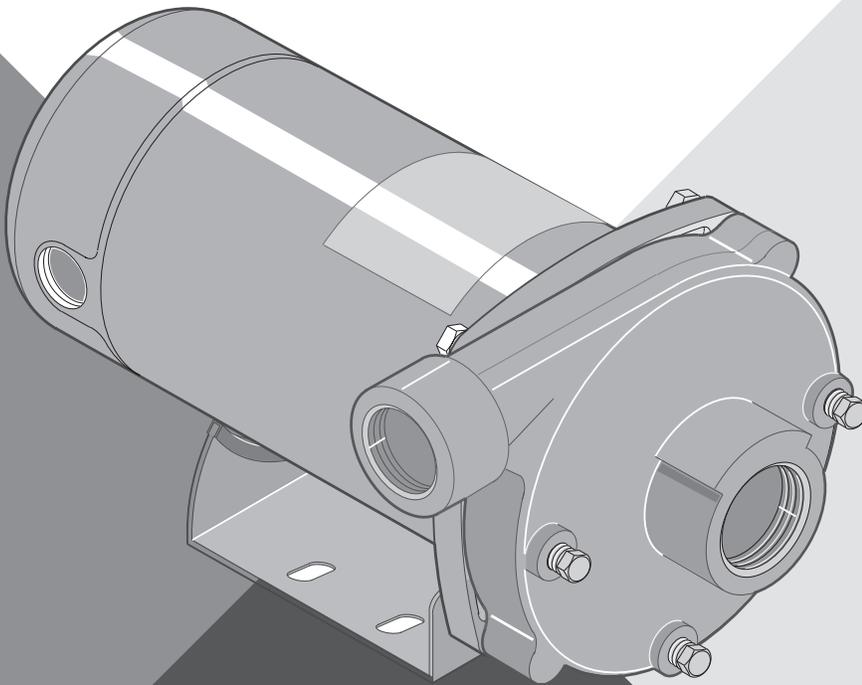




60 CYCLE CT SERIES

CENTRIFUGAL PUMP



INSTALLATION AND OPERATION MANUAL

pentair.com

TABLE OF CONTENTS

Safety Information3

Installation..... 4-6

Maintenance7

Repair Parts List..... 8-9

Troubleshooting 10

Warranty..... 11

SAFETY INFORMATION

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS: For optimal performance and operation, read these instructions carefully before installing your new pump. This manual provides valuable guidance and instructions that should be followed to perform installation, operation and maintenance procedures for this product. It should be kept near the installation for immediate reference. Record nameplate data from your new pump on the blank template located in "Maintenance" on Page 7 for future reference.

⚠ This is the safety alert symbol. When you see this symbol on your pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

⚠ DANGER warns about hazards that will cause serious personal injury, death or major property damage if ignored.

⚠ WARNING warns about hazards that can cause serious personal injury, death or major property damage if ignored.

⚠ CAUTION warns about hazards that will or can cause minor personal injury or property damage if ignored.

NOTICE indicates special instructions which are important but not related to hazards.

The hazards stated in this manual are not all-inclusive. To minimize the risk of hazard, it is strongly recommended that installation, operation and maintenance be performed by a qualified professional in accordance with local codes and standards for safe operation.

CALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

ELECTRICAL SAFETY

⚠ WARNING Risk of electric shock. Can shock, burn or kill. All wiring should be done by a qualified electrician.

- ♦ Wire motor for correct voltage. See "Installation" section (refer to page 5) of this manual and motor nameplate.
- ♦ Ground motor before connecting to power supply.
- ♦ Follow wiring instructions in this manual when connecting motor to power lines.
- ♦ A complete power disconnect switch must be incorporated in the fixed wiring.
- ♦ Install, ground, wire and maintain your pump in compliance with all applicable national and local codes and ordinances. Consult your local building inspector for code information.

GENERAL SAFETY

⚠ WARNING Risk of explosion. The pump body may explode if used to boost pressure above the pressures noted on Page 3. Do not use this pump with inlet pressure greater than 70 psi (483 kPa) or less than 3 psi (20.7 kPa). If not already in the piping system, install a pressure relief valve in the pump discharge line capable of passing the full pump flow at maximum rated pressure. If local code requires installation of a pressure relief valve capable of handling the full pump flow at a pressure less than 100 psi (689 kPa), follow the code requirements.

⚠ WARNING Risk of fire or explosion. To avoid risk of fire and explosion, pump water only with this pump. Do not pump salt water, flammable liquids or chemicals. Do not use the pump near gas pilot lights or where chemical or gas fumes are present. Use of an electric pump with liquids other than water or in an atmosphere containing chemical or gas fumes may ignite those liquids or gases and cause injury or death due to an explosion and/or fire. Pump approved liquids only with this pump.

⚠ CAUTION Risk of burns. If water is trapped in the pump during operation it may turn to steam. Trapped steam may cause an explosion resulting in injury or property damage. Never run the pump with the outlet closed or obstructed.

⚠ CAUTION Risk of freezing. Do not allow pump, piping, or any other system component containing water to freeze. Freezing may damage system, leading to injury or flooding. Allowing pump or system components to freeze will void the warranty.

NOTICE only service agent or qualified person should replace power cord to avoid injury.

Periodically inspect pump and system components.

Wear safety glasses at all times when working on pumps.

Keep work area clean, uncluttered and properly lighted; store properly all unused tools and equipment.

⚠ WARNING Risk of explosion and scalding. Never run pump against closed discharge. To do so can boil water inside pump, causing hazardous pressure buildup and possible explosion.

⚠ CAUTION Risk of flooding. Do not run the pump dry. This will damage mechanical seal and void warranty. It may cause burns to person handling pump.

⚠ CAUTION 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.

INSTALLATION

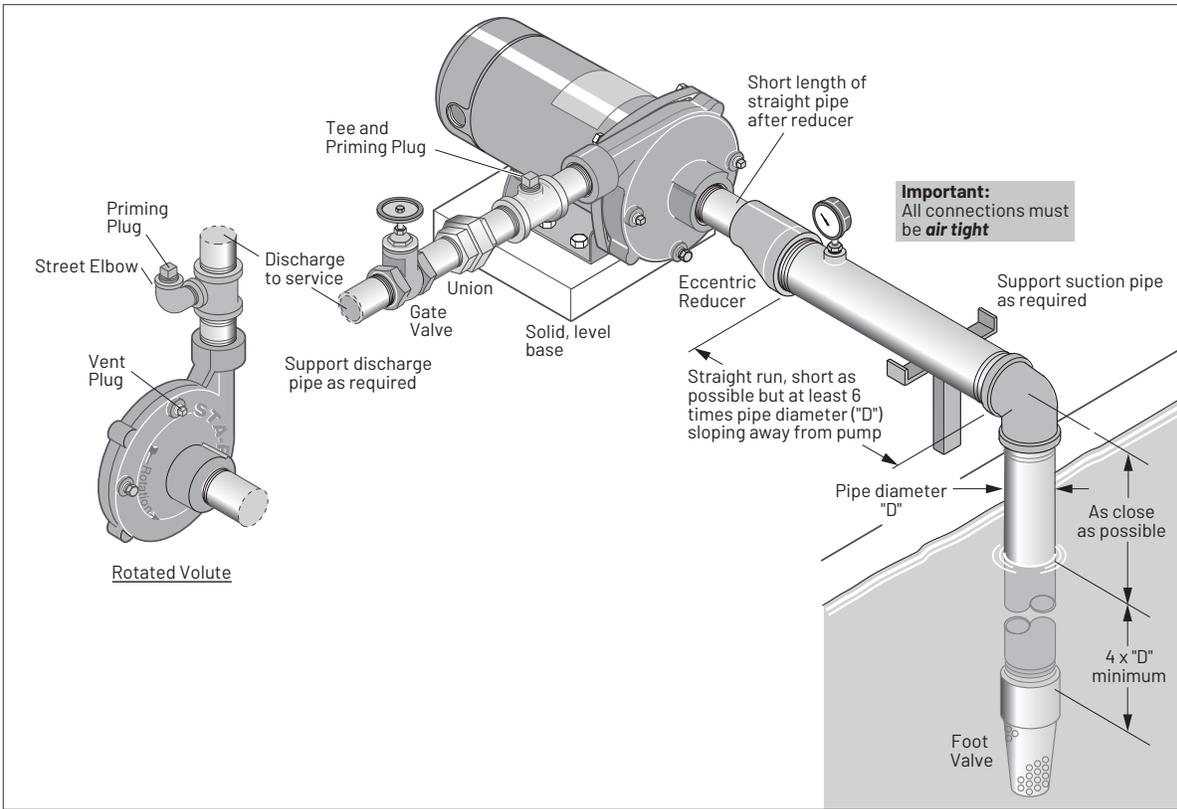


Figure 1 - Recommended Connections

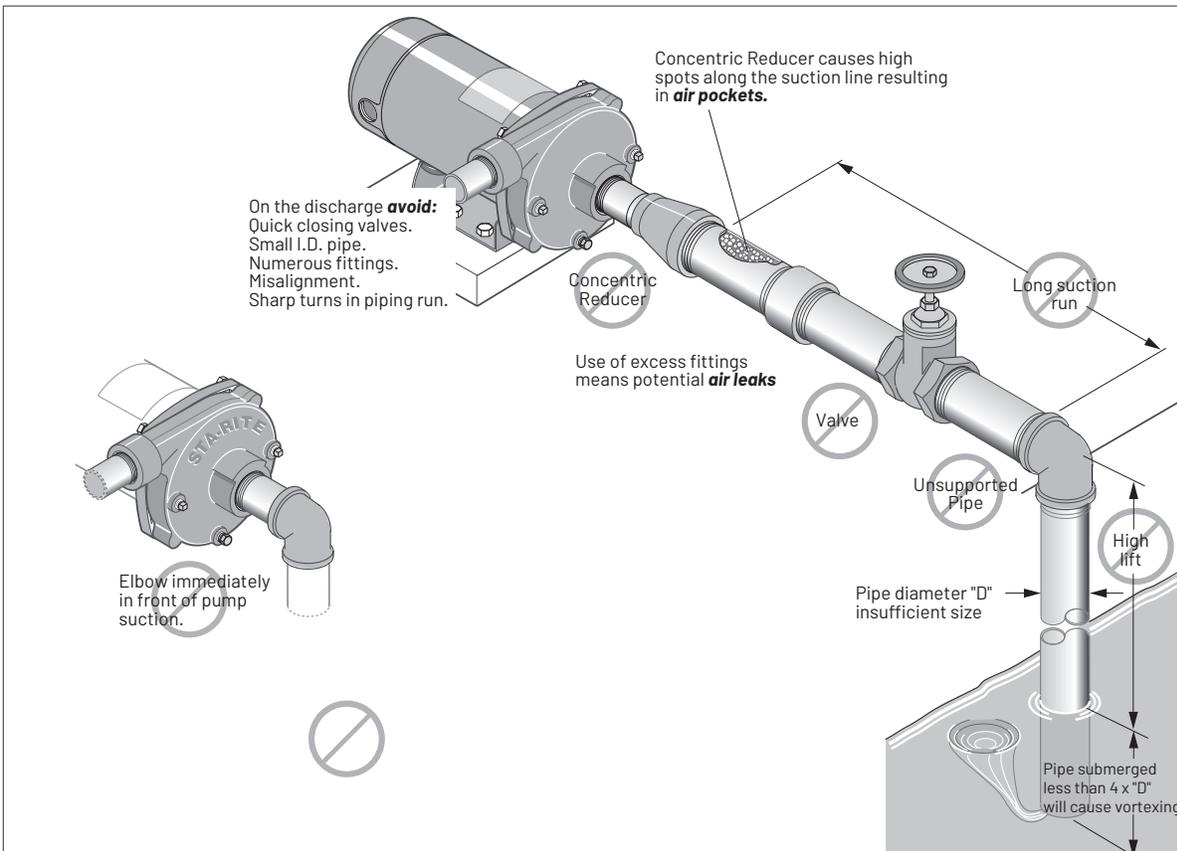


Figure 2 - Not Recommended Connections

INSTALLATION

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.

SUCTION PIPE

Increase pipe size from pump tapping as shown in Table I.

Figure 1 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!

PIPE TAPPING SIZE ON PUMP		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

Table I - Pipe Tapping and Recommended Pipe Size Data

Figure 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 tapping as show in Table I. Figure 1 depicts a recommended run of pipe and fittings for the discharge. Install tee with priming plug as close to pump as possible. Figure 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, loosen vent plug when priming to evacuate air trapped inside volute and tighten when volute is completely filled with water.

MOTOR HP	MAX. LOAD AMPERES	BRANCH FUSE † RATING AMPS	DIAMETER IN FEET FROM MOTOR TO METER					
			0' TO 50'	51' TO 100'	101' TO 200'	201' TO 300'	301' TO 400'	401' TO 500'
WIRE SIZE								
SINGLE PHASE - 115/230 VOLT								
1/3	9.4/4.7	15/15	14/14	14/14	10/14	10/14	6/14	6/12
1/2	9.4/4.7	15/15	14/14	14/14	10/14	10/14	6/14	6/12
3/4	12.2/6.1	20/15	12/14	12/14	10/14	8/14	6/12	6/12
1	14.8/7.4	20/15	12/14	12/14	8/14	6/14	6/12	4/10
1-1/2	19.9/9.95	25/15	10/14	10/14	8/14	6/12	4/10	4/10
2	24.0/12.0	30/15	12/14	10/14	6/14	6/12	4/10	4/10
2-1/2	21.0/10.5	15/15	14/14	14/14	14/14	12/12	12/12	10/10
THREE PHASE - 230/460 VOLT								
1/2	2.3/1.15	15/15	14/14	14/14	14/14	14/14	14/14	14/14
3/4	3.1/1.55	15/15	14/14	14/14	14/14	14/14	14/14	14/14
1	3.6/1.8	15/15	14/14	14/14	14/14	14/14	14/14	14/14
1-1/2	4.7/2.35	15/15	14/14	14/14	14/14	14/14	14/14	14/14
2	6.8/3.4	15/15	14/14	14/14	14/14	14/14	12/14	12/14
2-1/2	8.5/4.25	15/15	14/14	14/14	14/14	14/14	12/14	10/14

† Time delay fuse or circuit breakers are recommended in any motor circuit.

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

INSTALLATION

HP	MODELS			
1/2	CTJ05B	CTJ05B3	CTJ05	CTJ053
3/4	CTJ07B	CTJ07B3	CTJ07	CTJ073
1	CTJ10B	CTJ10B3	CTJ10	CTJ103
1-1/2	CTJ15B	CTJ15B3	CTJ15	CTJ153
2	CTJ20B	CTJ20B3	CTJ20	CTJ203
2-1/2	CTJ25B	CTJ25B3	CTJ25	CTJ253

Connection diagram for dual voltage, single-phase motors. Your dual-voltage motor's terminal board (under the motor end cover) will match one of the diagrams below. Follow that diagram if necessary to convert motor to 115 Volt power.

Connect power supply wires to L1 and L2. For 3-phase motors, or if motor does not match these pictures, follow the connection diagram on the motor nameplate.

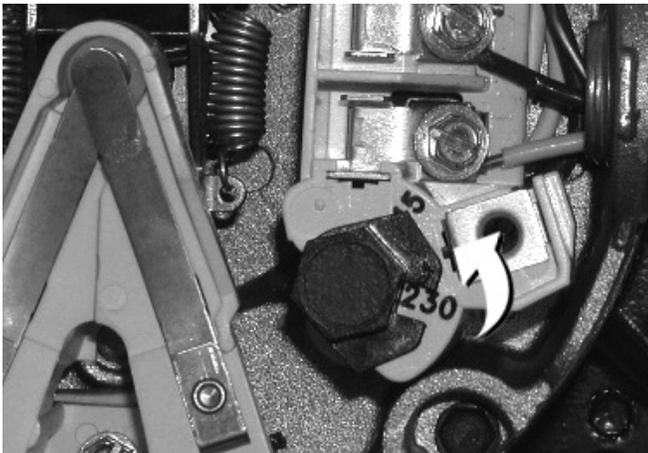


Figure 3: Changing the Voltage Setting



Figure 4: Motor Set for 115 Volt Operation

THE MOTOR IS SET FOR 230 VOLTS WHEN SHIPPED.

To change the motor to use 115 volts:

1. Turn off power
2. Remove the back motor cover.
3. Use a 1/2" wrench and turn the voltage selector dial counterclockwise until 115 shows in the dial opening.
4. Reinstall the motor cover.

⚠ WARNING Hazardous voltage. Can shock, burn, or cause death. Disconnect power to motor before working on pump or motor. Ground motor before connecting to power supply.

WIRING

- ⚠ 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 damage motor and voids warranty. If in doubt consult a licensed electrician.
- ⚠ Use wire size specified in Wiring Chart. If possible, connect pump to a separate branch circuit with no other appliances on it.
- ⚠ **Wire motor according to diagram on motor nameplate. If nameplate diagram differs from diagrams above, follow nameplate diagram.**

1. Install, ground, wire and maintain your pump in compliance with the National Electrical Code (NEC) in the U.S., or the Canadian Electrical Code (CEC), as applicable, and with all local codes and ordinances that apply. Consult your local building inspector for code information.
2. Provide a correctly fused disconnect switch for protection while working on motor. For switch requirements, consult your local building inspector for information about codes.
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. Make ground connection to green grounding terminal under motor canopy marked GRD. or ⏚ .
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.

MAINTENANCE

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: Pumps use mechanical seals with a rubber seat ring or a sealing O-Ring. THESE SEALS 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, carefully remove rotating part of seal by prying up on sealing washer, using two screwdrivers (see Figure 5A). Use care not to scratch motor shaft.
2. Remove seal plate from motor and place on flat surface, face down. Use a screwdriver to push ceramic seat out from seal cavity (see Figure 5B).

INSTALLATION OF FLOATING SEAT (Figure 5C)

1. Clean polished surface of floating seat with clean cloth.
2. Turn seal plate over so seal cavity is up, clean cavity thoroughly.
3. Lubricate outside rubber surface 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 5D)

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 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 seat facing. Reinstall impeller screw (if used).

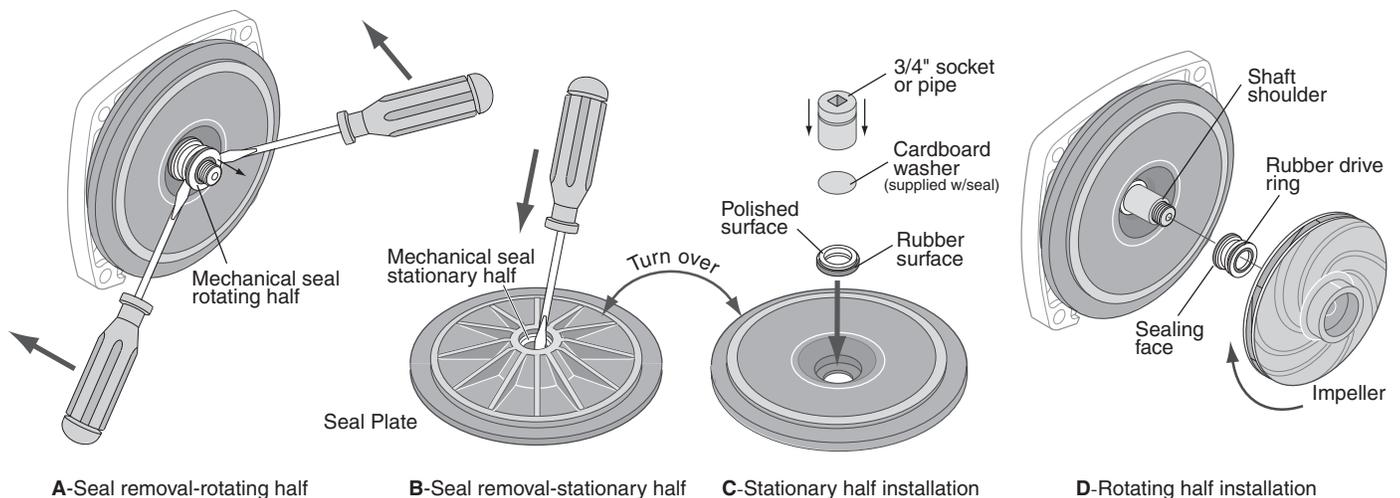
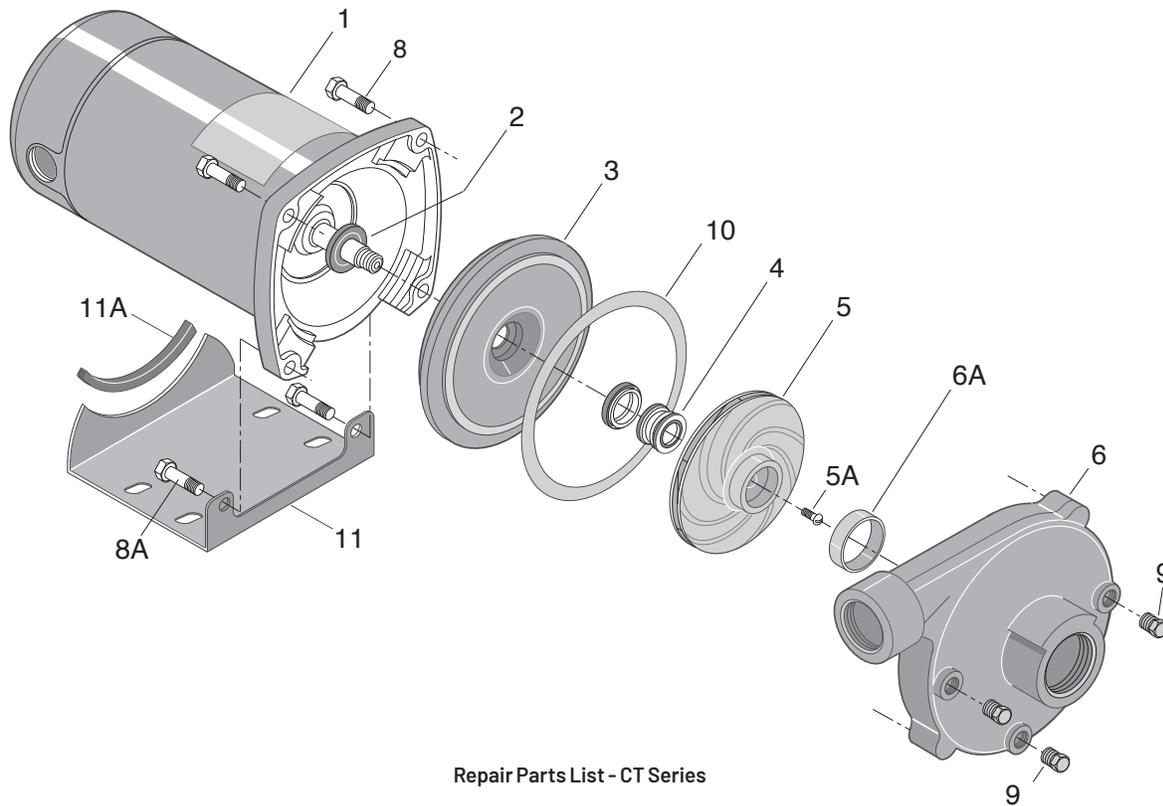


Figure 5: Seal Service

REPAIR PARTS LIST



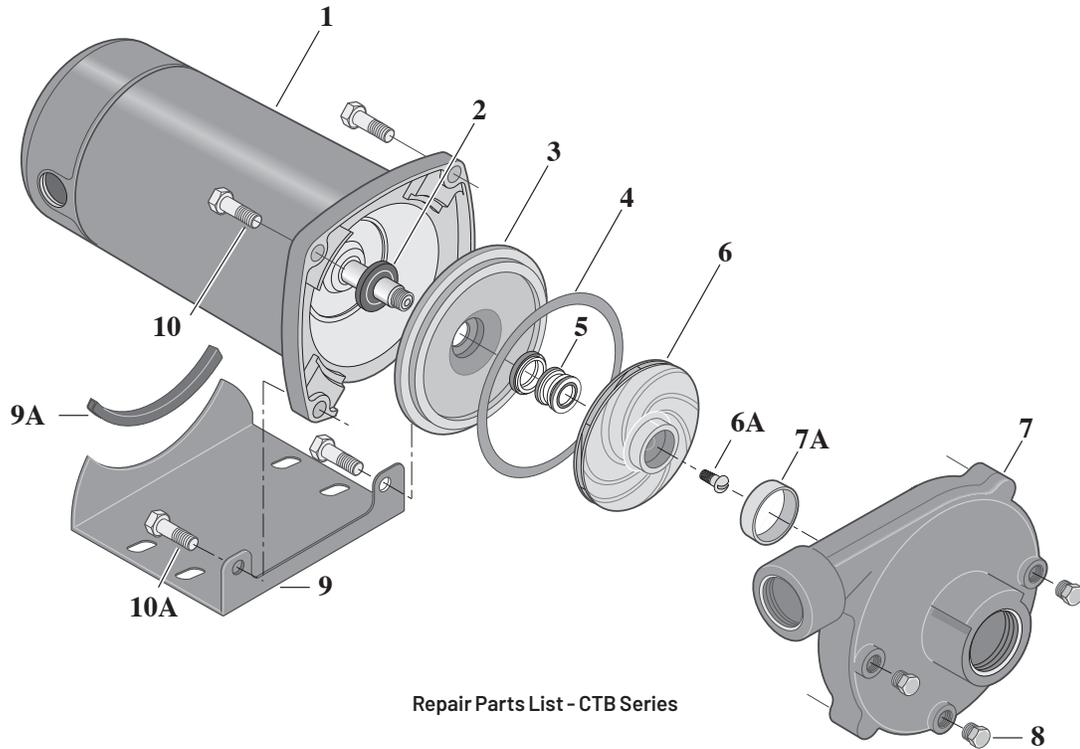
Repair Parts List - CT Series

KEY NO.	PART DESCRIPTION	NO. USED	MOTOR AND HORSEPOWER					
			CTJ05 CTJ053 1/2 HP	CTJ07 CTJ073 3/4 HP	CTJ10 CTJ103 1 HP	CTJ15 CTJ153 1-1/2 HP	CTJ20 CTJ203 2 HP	CTJ25 CTJ253 2-1/2 HP
1*	Motor, 115/230V, Single Phase	1	J218-582APKG	J218-590PKG	J218-596PKG	J218-601PKG	J218-883APKG	J218-628APKG
1*	Motor, 230/460V, Three Phase	1	AP100CL	AP100DL	AP100EL	AP100FL	AP100GL	AP100G5L
2†	Water Slinger	1	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009
3	Seal Plate	1	C3-178	C3-178	C3-178	C3-178	C3-181	C3-181
4†	Shaft Seal	1	U9-469	U9-469	U9-469	U9-469	U9-469	U9-469
5	Impeller - Single Phase	1	C105-92PNX	C105-92PMX	C105-92PLX	C105-92PBX	C105-2148CD	C105-214PA
5	Impeller - Three Phase	1	C105-95PNA	C105-95PMA	C105-95PLA	C105-95PBA	C105-2148CD	C105-214PA
5A	Impeller Screw - Three Phase	1	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS
6	Volute Assembly w/Wear Ring	1	C101-284E	C101-284E	C101-284E	C101-284E	C101-264E	C101-264EB
6A	Wear Ring	1	N23-27	N23-27	N23-27	N23-27	N23-19	N23-19
8	Hex Capscrews - 3/8 - 16 x 1" Lg.	2	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP
8A	Hex Capscrews - 3/8 - 16 x 1-1/4" Lg.	2	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP
9	Pipe Plug - 1/4" NPT	3	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV
10†	Gasket - Volute	1	C20-121N	C20-121N	C20-121N	C20-121N	C20-122N	C20-122N
11	Base	1	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F
11A	Motor Pad	1	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S
SERVICE KIT								
	Seal and Gasket Kit	1	PP1700	PP1700	PP1700	PP1700	PP1700	PP1700

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

† Included in Seal and Gasket Kit.

REPAIR PARTS LIST



Repair Parts List - CTB Series

KEY NO.	PART DESCRIPTION	NO. USED	MOTOR AND HORSEPOWER					
			CTJ05B CTJ05B3 1/2 HP	CTJ07B CTJ07B3 3/4 HP	CTJ10B CTJ10B3 1 HP	CTJ15B CTJ15B3 1-1/2 HP	CTJ20B CTJ20B3 2 HP	CTJ25B CTJ25B3 2-1/2 HP
1*	Motor, 115/230V, Single Phase	1	J218-582APKG	J218-590PKG	J218-596PKG	J218-601PKG	J218-883APKG	J218-628APKG
1*	Motor, 230/460V, Three Phase	1	AP100CL	AP100DL	AP100EL	AP100FL	AP100GL	AP100G5L
2†	Water Slinger	1	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009
3	Seal Plate	1	C3-178	C3-178	C3-178	C3-178	C3-181	C3-181
4†	Gasket, Seal Plate	1	C20-121N	C20-121N	C20-121N	C20-121N	C20-122N	C20-122N
5†	Shaft Seal	1	U9-469	U9-469	U9-469	U9-469	U9-469	U9-469
6	Impeller - Single Phase	1	C5-256BA	C5-256BAA	C5-254BA	C5-254BC	C5-297BB	C5-297B
6	Impeller - Three Phase	1	C5-256BA	C5-256BAA	C5-254BA	C5-254BC	C5-297BB	C5-297B
6A	Impeller Screw, Three Phase	1	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS
7	Volute Assembly w/Wear Ring	1	C101-284E	C101-284E	C101-284E	C101-284E	C101-264E	C101-264EB
7A	Wear Ring	2	C23-27	C23-27	C23-27	C23-27	C23-19	C23-19
8	Pipe Plug - 1/4" NPT Hex Hd.	2	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV
9	Base	3	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F
9A	Motor Pad	1	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S
10	Hex Capscrews - 3/8 - 16 x 1" Lg.	1	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP
10A	Hex Capscrews - 3/8 - 16 x 1-1/4" Lg.	1	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP
SERVICE KIT								
	Seal and Gasket Kit	1	PP1700	PP1700	PP1700	PP1700	PP1700	PP1700

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

† Included in Seal and Gasket Kit.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Failure to pump:	Pump not properly primed.	Make sure pump casing and suction line are full of water. See priming instructions.
Reduced capacity and/or head:	Air pockets or leaks in suction line.	Check suction piping.
	Clogged impeller.	Remove and clean.
Pump loses prime:	Air leaks in suction line. Check suction piping.	
	Excessive suction lift and operating too near shut-off point.	Move pump nearer to water level.
	Water level drops while pumping, uncovering suction piping.	Check water supply. Add length of pipe to suction to keep submerged end under water.
Mechanical troubles and noise:	Bent shaft and/or damaged bearings.	Take motor to authorized motor repair shop.
	Suction and/or discharge piping not properly supported and anchored.	See that all piping is supported to relieve strain on pump assembly.

WARRANTY

Limited Warranty

Myers warrants to the original consumer purchaser ("Purchaser" or "You") of the products listed below, that they will be free from defects in material and workmanship for the Warranty Period shown below.

Product	Warranty Period whichever occurs first:
Jet pumps, small centrifugal pumps, submersible pumps and related accessories	12 months from date of original installation, or 18 months from date of manufacture
Fibrewound Tanks	5 years from date of original installation
Steel Pressure Tanks	5 years from date of original installation
Sump/Sewage/Effluent Products	12 months from date of original installation, or 36 months from date of manufacture
Battery Backup Units MBSP-2, MBSP-2C MBSP-3, MBSP-3C	12 months from date of original installation, or 18 months from date of manufacture 24 months from date of original installation, or 30 months from date of manufacture
Wastewater Solids Handling Pumps	12 months from date of shipment from factory or 18 months from date of manufacture

Our warranty applies only where such products are used in compliance with the requirements of the applicable product catalog and/or manuals. For additional information, please refer to the applicable standard limited warranty featured in the product manual.

Our warranty will not apply to any product that, in our sole judgement, has been subject to negligence, misapplication, improper installation, or improper maintenance. Without limiting the foregoing, operating a three phase motor with single phase power through a phase converter will void the warranty. Note also that three phase motors must be protected by three-leg, ambient compensated, extra-quick trip overload relays of the recommended size or the warranty is void.

Your only remedy, and MYERS's only duty, is that MYERS repair or replace defective products (at MYERS's choice). You must pay all labor and shipping charges associated with this warranty and must request warranty service through the installing dealer as soon as a problem is discovered. No request for service will be accepted if received after the Warranty Period has expired. This warranty is not transferable.

MYERS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR CONTINGENT DAMAGES WHATSOEVER.

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

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on the duration of an implied warranty, so the above limitations or exclusions may not apply to You. This warranty gives You specific legal rights and You may also have other rights which vary from state to state.

This Limited Warranty is effective April 1, 2014 and replaces all undated warranties and warranties dated before April 1, 2014.

F.E. MYERS
293 Wright Street, Delavan, WI 53115



**US: 293 WRIGHT ST
DEHAVAN, WI 53115
PH: 888-957-8677**

ORDERS FAX: 800-426-9446

**CANADA: 490 PINEBUSH RD, UNIT 4
CAMBRIDGE, ONTARIO N1T 0A5
PH: 800-363-7867**

ORDERS FAX: 888-606-5484

PENTAIR.COM/MYERS

Pentair trademarks and logos are owned by Pentair or its affiliates. Third party registered and unregistered trademarks and logos are the property of their respective owners. Because we are continuously improving our products and services, Pentair reserves the right to change specifications without prior notice. Pentair is an equal opportunity employer.

MY1073 (08-01-20) ©2020 Pentair. All Rights Reserved.