

BARNES®

INSTALLATION MANUAL Portable Utility Pump

Series: BT12
115 Volts, 1 Phase, 60 Hz



Specifications	
Model No.	BT12
Part No.	134677
Output	1/12 HP
	62 W
Rated Head	10'
Rated Flow	5 GPM

IMPORTANT!

*Read all instructions in this manual before operating pump.
As a result of Crane Pumps & Systems, Inc., constant product improvement program,
product changes may occur. As such Crane Pumps & Systems reserves the right to
change product without prior written notification.*

CRANE[®]

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- Examine the inlet and outlet hoses to insure there are no blockages, kinks or bends. The inlet hose should be no longer than 15 feet and the vertical pumping distance should not be any higher than 10 feet.
- Connect pump to power source, with pump in a dry location. Plug into a 3-prong ground-type AC receptacle.
- Do NOT operate the pump continuously above a discharge pressure of 28' as the motor will exceed safe operating temperature.



MAINTENANCE:

Always disconnect power source before attempting to install, service, or maintain the pump.

IMPELLER REPLACEMENT

These parts are designed to handle most clear, nonflammable liquids with slight amounts of abrasives. When impeller vanes become worn from use, or damaged due to pumping abrasives liquids or trash, pump performance will be reduced or prevented altogether.

- Remove the four cover plate screws holding motor housing and pump housing together. Cover plate is now free and can be removed.
- Inspect gasket and impeller for wear and damage. If there is any evidence of wear or damages, replace the part(s).
- Lubricate new impeller with white grease or lightweight oil and reinstall by aligning flat on impeller hub with flat on motor shaft.
- Reassemble gasket, cover plate, and cover plate screws.

SHAFT SEAL REPLACEMENT

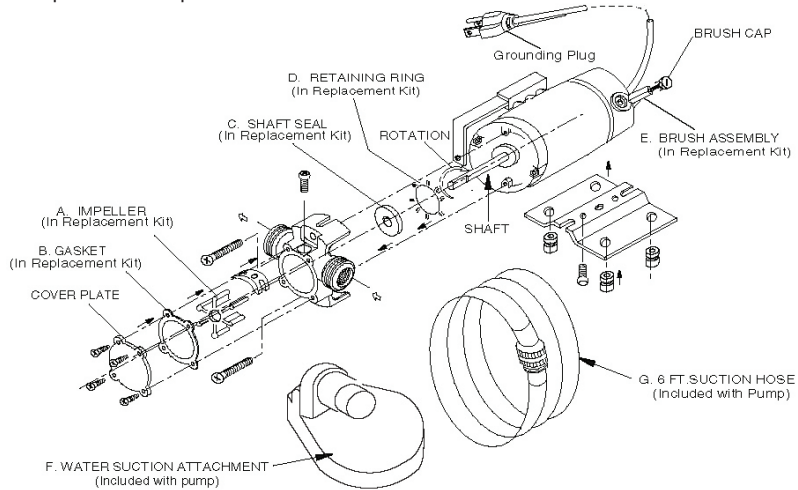
Motor shafts are sealed with factory pre-lubricated lip-type seals which are good for the life of the pump. If the seal leaks, it is usually because the pump has handled abrasive liquids. If the motor shaft is scored (deep grooves), the complete pump must be replaced.

- Remove and inspect impeller parts as specified in the impeller replacement instructions. Replace worn parts.
- Remove two pump body mounting screws and slide pump body from motor. Pry out seal retaining ring and push worn shaft seal from inside of pump body.
- Lubricate new seal with lightweight oil, push it into pump body with lip facing away from motor, and push in seal retaining ring.
- Reassemble pump body onto motor with mounting screws. Follow steps 3 and 4 in **IMPELLER REPLACEMENT**.

MOTOR BRUSH REPLACEMENT

Brushes for this pump should be inspected after 75 hours of operation and replace if worn. They must be replaced every 150 hour of operation. Service one brush at a time.

- Disconnect pump from power supply.
- Remove brush caps with screwdriver.
- Remove old brush assembly.
- Insert new brush assembly.
- Replace brush caps



Item No.	Qty.	Description
A	1	Impeller
B	2	Gasket
C	1	Shaft Seal
D	1	Retaining Ring
E	2	Brushes
F	1	Water Suction Attachment
G	1	6ft. Suction Hose

TROUBLE SHOOTING

CAUTION! Always disconnect the pump from the electrical power source before handling. If the system fails to operate properly, carefully read instructions and perform maintenance recommendations.

If operating problems persist, the following chart may be of assistance in identifying and correcting them:

MATCH "CAUSE" NUMBER WITH CORRELATING "CORRECTION" NUMBER.

NOTE: Not all problems and corrections will apply to each pump model.

PROBLEM	CAUSE	CORRECTION
Pump will not run	1. Poor electrical connection, blown fuse, tripped breaker or other interruption of power, improper power supply. 2. Switch will not activate pump or is defective. 3. Insufficient liquid level.	1. Check all electrical connections for security. Check for blown fuses, tripped circuit breakers or tripped GFCI outlets.
Pump will not turn off	2. Switch will not activate pump or is defective. 4. Excessive inflow or pump not properly sized for application.	2. Reposition pump or clean pump/basin as required to provide adequate clearance for float.
Pump hums but does not run	1. Incorrect voltage 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.	3. Make sure liquid level is at least equal to suggested turn-on point.
Pump delivers insufficient capacity	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 5. Discharge restricted. 6. Check valve stuck closed or installed backwards. 7. Shut-off valve closed. 8. Impeller jammed or loose on shaft, worn or damaged, inlet plugged.	4. Recheck all sizing calculations to determine proper pump size. 5. Check discharge line for restrictions, including ice if line passes through or into cold areas. 6. Remove and examine check valve for proper installation and freedom of operation.
Pump cycles too frequently or runs periodically when fixtures are not in use	6. Check valve stuck closed or installed backwards. 9. Fixtures are leaking. 12. Ground water entering basin.	7. Open valve. 8. Check impeller for freedom of operation, security and condition.
Pump shuts off and turns on independent of switch, (trips thermal overload protector). CAUTION! Pump may start unexpectedly. Disconnect power supply.	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 8. Impeller jammed, loose on shaft, worn or damaged, inlet plugged. 10. Excessive water temperature.	Clean impeller and inlet of any obstruction. 9. Repair fixtures as required to eliminate leakage. 10. Check pump temperature limits & fluid temperature. 11. Replace portion of discharge pipe with flexible connector.
Pump operates noisily or vibrates excessively	5. Discharge restricted. 8. Impeller broken. 11. Piping attachments to building structure too rigid or too loose.	12. Check for leaks around basin inlet and outlets.

SAFETY FIRST!

Please Read This Before Installing Or Operating Pump. This information is provided for **SAFETY** and to **PREVENT EQUIPMENT PROBLEMS**. To help recognize this information, observe the following symbols:



IMPORTANT! Warns about hazards that can result in personal injury or Indicates factors concerned with assembly, installation, operation, or maintenance which could result in damage to the machine or equipment if ignored.

CAUTION! Warns about hazards that can or will cause minor personal injury or property damage if ignored. Used with symbols below.

WARNING! Warns about hazards that can or will cause serious personal injury, death, or major property damage if ignored. Used with symbols below.



Hazardous fluids can cause fire or explosions, burns or death could result.



Extremely hot - Severe burns can occur on contact.



Biohazard can cause serious personal injury.



Hazardous fluids can Hazardous pressure, eruptions or explosions could cause personal injury or property damage.



Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair pump. Any wiring of pumps should be performed by a qualified electrician.



WARNING ! To reduce risk of electrical shock, pumps and control panels must be properly grounded in accordance with the National Electric Code (NEC) or the Canadian Electrical Code (CEC) and all applicable state, province, local codes and ordinances. Improper grounding voids warranty.



WARNING! To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing. Lock out power and tag.



WARNING! Operation against a closed discharge valve will cause premature bearing and seal failure on any pump, and on end suction and self priming pump the heat build may cause the generation of steam with resulting dangerous pressures. It is recommended that a high case temperature switch or pressure relief valve be installed on the pump body.



CAUTION ! Never operate a pump with a plug-in type power cord without a ground fault circuit interrupter.



CAUTION ! Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.



WARNING ! Do not pump hazardous materials (flammable, caustic, etc.) unless the pump is specifically designed and designated to handle them.



CAUTION ! Do not block or restrict discharge hose, as discharge hose may whip under pressure.



WARNING ! Do not wear loose clothing that may become entangled in moving parts.



Always wear eye protection when working on pumps.



Make sure lifting handles are securely fastened each time before lifting. **DO NOT** operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair. Secure the pump in its operating position so it can not tip over, fall or slide.

DO NOT exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.

DO NOT remove cord and strain relief. **DO NOT** connect conduit to pump.



WARNING ! Cable should be protected at all times to avoid punctures, cut, bruises and abrasions. Inspect frequently. Never handle connected power cords with wet hands.



WARNING! Submersible Pumps are not approved for use in swimming pools, recreational water installations decorative fountains or any installation where human contact with the pumped fluid is common.

WARNING! Products returned must be cleaned, sanitized, or decontaminated as necessary prior to shipment, to insure that employees will not be exposed to health hazards in handling said material. All Applicable Laws And Regulations Shall Apply.



Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications. For non-leaded copper alloy materials of construction, please contact factory.



Crane Pumps & Systems, Inc. is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.

DESCRIPTION: These self-priming transfer pumps are designed to easily transfer water from one point to another. Model BT12, 115 Volt Transfer Pump is great for household usage. Typical applications include removing water from waterbeds, clogged sinks, basements, etc. **NOTE: Do NOT use BT12 in pool areas. The motor model is non-submersible with overload protection.**

INSTALLATION: Model BT12 includes a 6' suction hose, a water suction attachment, and a replacement parts kit which includes; impeller, gasket, shaft seal, and two motor brushes. Model BT12 can be used without the water suction attachment.



Always disconnect power source before attempting to install, service, or maintain the pump. Never handle a pump with wet hands or when standing on wet r damp surface or in water. Fatal electrical shock could occur.

1. A ground fault circuit interrupter (GFCI) is required. **Risk of electrical shock! This pump is supplied with a grounding conductor and grounding type attachment plug. A grounded receptacle in conformance with current NEC and local codes must be used (See Figure 1). Do NOT use in swimming pool areas.**



2. Model BT12 operates on 115V only.
3. Use an extension cord only if necessary. Follow the Extension Cord Length Table at the bottom of the page for proper gage of 3-wire, grounding type extension cord.



Risk of fatal electrical shock! Never cut off the round grounding prong. Cutting the cord or plug will void the warranty and make the pump inoperable.

4. Use a strainer when pumping from a creek, pond, or source where foreign objects may be sucked into the pump. The strainer should prevent solids from entering the inlet line.
5. A regular garden hose may be used as a discharge line.
6. Pump operation will be seriously hindered or prevented if the inlet hose is over 15 feet long or if the vertical pumping distance exceeds 10 feet.
7. At times, an overload due to over heating, low voltage, jammed impeller, etc. may shut the pump off. Unplug or turn off the pump and wait at least ten minutes. The pump will cool and automatically reset.
8. Motor should never be operated for more than 2 hours continuously. Critical heating can occur and might severely damage the pump and void warranty.

OPERATION:

1. Add 1 tablespoon of vegetable oil to both inlet and outlet to prime.
2. Attach included 6' suction hose to inlet of pump. Attach garden hose to outlet of pump. There must be a gasket in place to insure that these connections are airtight, otherwise the pump will not prime. Connect water suction attachment to the open end of inlet hose and place below water surface. (Water suction attachment is optional). The water suction attachment is designed to fit the male end of a garden hose. Place the water suction attachment as near as possible to the middle of the water that is to be pumped.

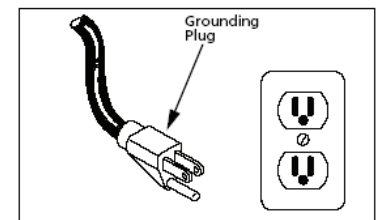


Figure 1

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**IMPORTANT!
WARRANTY REGISTRATION**

Your product is covered by a warranty:

www.cranepumps.com/downloadables/CATALOGS_OIPMs/Warranty/24MonthWarranty.pdf

If you have a claim under the provisions of the warranty, contact your local
Crane Pumps & Systems, Inc. Distributor.

RETURNED GOODS

**RETURN OF MERCHANDISE REQUIRES A "RETURNED GOODS AUTHORIZATION".
CONTACT YOUR LOCAL CRANE PUMPS & SYSTEMS, INC. DISTRIBUTOR.**



**Products Returned Must Be Cleaned, Sanitized,
Or Decontaminated As Necessary Prior To Shipment,
To Insure That Employees Will Not Be Exposed To Health
Hazards In Handling Said Material. All Applicable Laws
And Regulations Shall Apply.**

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