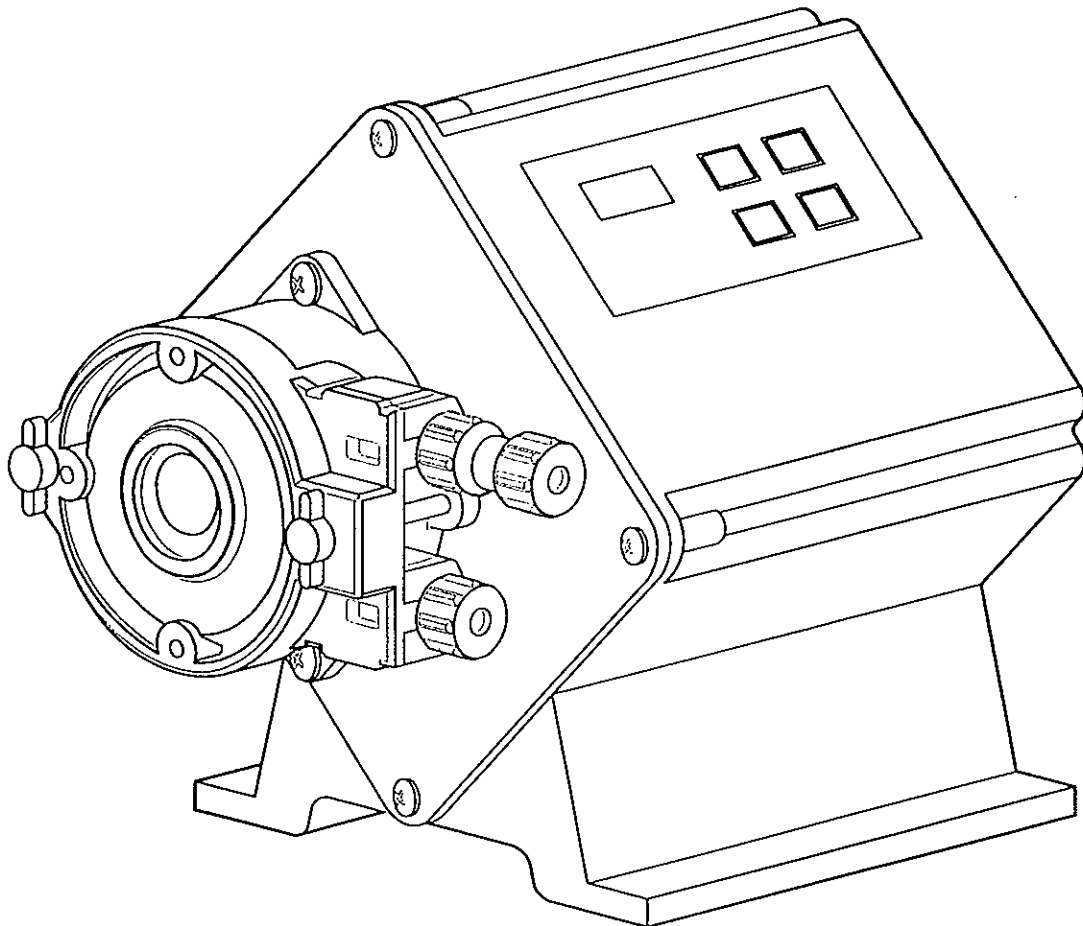

**Series CTP-D Installation, Operation and
Maintenance Manual,
CTP-D MODEL(Digital Control Model)**



READ ALL WARNINGS CAREFULLY BEFORE
INSTALLING PUMP

Series CTP-D(Digital Control Model)

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SAFETY INSTRUCTIONS

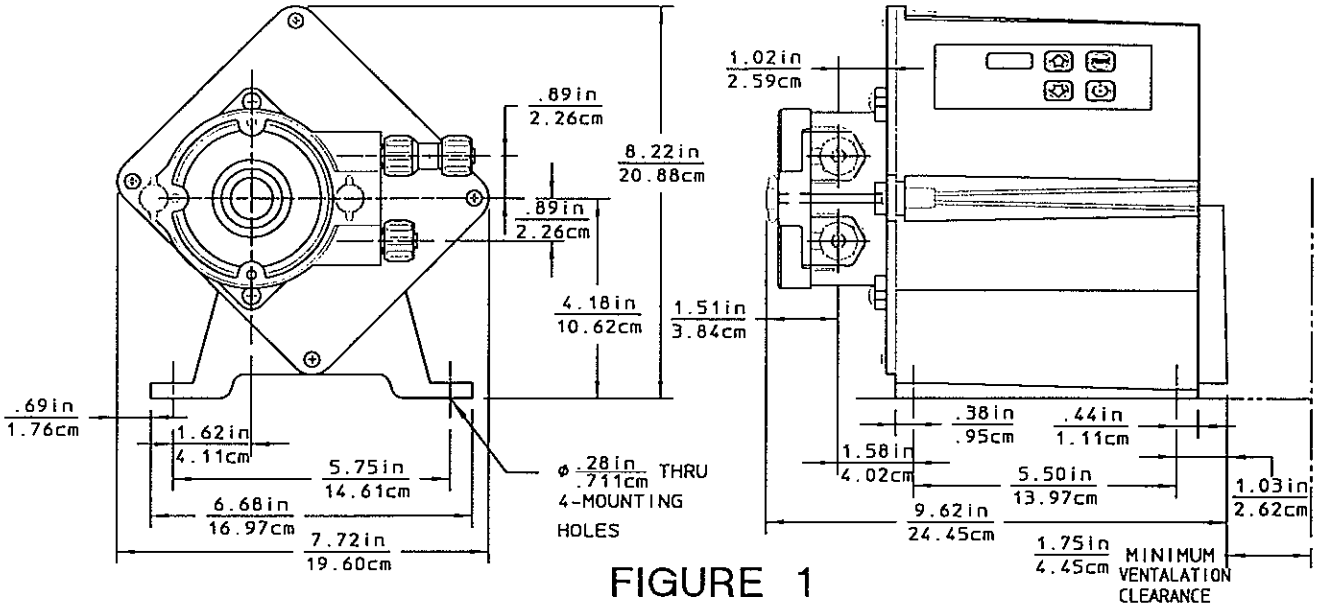
READ ALL INSTRUCTIONS PRIOR TO USE

- *** **DANGER**: Secure chemicals & metering pumps, making them inaccessible to children & pets.
- *** **DO NOT PUMP FLAMMABLE LIQUIDS.**
- *** To reduce the risk of electrical shock-before maintenance, repair, or moving pump-disconnect power.
- *** Do not cut the plug or ground lug off the electrical cord. Consult a licensed electrician for proper installation.
- ** **WARNING**: Always wear protective clothing, including gloves and safety glasses, when working on or near chemical metering pumps, consult chemical manufacture for protective equipment recommendations.
- ** Inspect tubing regularly for cracking or deterioration and replace as necessary. (**Always wear protective clothing and safety glasses when inspecting tubing.**)
- ** **CAUTION: KEEP FINGERS AWAY FROM ROTATING PARTS.**
- ** If the pump is exposed to direct sunlight, use a U.V. resistant tubing.
- ** Follow directions and warnings provided with the checmical from the chemical manufacturer. The user is responsible for determining the chemical compatibility with the chemical feed pump.
- ** Make sure the voltage on the pump name tag matches the installation voltage. If pump fails to start, check line voltage.
- ** Consult with local health officials and/or qualified water conditioning specialists when treating potable water.
- ** Always depressurize system and drain chemical prior to installation or maintenance.
- ** If the injection point is lower than the chemical tank and pump, install an antisiphon valve.
- ** **DO NOT MODIFY PUMP**, as this poses a potentially dangerous situation and voids the warranty.
- * **CAUTION**: All pumps are factory tested with water. Remove tubing and thoroughly dry if the chemical being pumped will react with water(for example sulfuric acid).
- * Hand tighten plastic connections(**Do not use a wrench**).
- * Consult licensed plumber and electrician before installation to conform to local codes.
- * **NOTE**: For accurate volume output, the pump must be calibrated under all operating conditions.

Technical specifications

Materials of Construction

Electrical rating.....Refer to name plate. Pump Head.....Chemical Resistant Resin.
 Feed Rate.....Refer to name plate. Pump Head Tubing:..Special Approved Synthetic Rubber.
 Dimensions.....Refer to Page #4. Injection Fitting.....PVC.
 Maximum Ambient Temperature:....104°F(40°C). Strainer.....Polypropylene.
 Maximum Pressure.....Refer to Name Plate. Suction / Discharge Tubing.....Polyethylene.
 Pump Housing.....Chemical Resistant Resin.



**FIGURE 1
INSTALLATION**

NOTE: For pumps operating in swimming pool installations, the pump is to be supplied by an isolation transformer or thru a residual current device(RCD).

- 1) Set the pump on a flat level surface that will support 50-lbs(22kg) and secure with four .25in(6mm) screws in the holes provided. The pump should be mounted with no less than 1.75in(44mm) of clearance around the fan vent on the rear of the pump. Locate the pump so there is direct access to the power cord plug.
- 2) Verify the electrical requirements for the pump as listed on the name plate and connect to an appropriate electrical source in compliance with local codes for the specific application.
- 3) Relieve system pressure and drain the piping run where the injection fitting is to be installed. See figure #2. **The injection fitting must not be installed in a dead end pipe or a deeply recessed tee. It should be installed so as to place the tip at the center of the fluid stream.** The injection fitting has .25in-NPT threads. If necessary drill a .44in(11mm)-diameter hole and using care not to tap to deeply, tap for .25in-NPT.

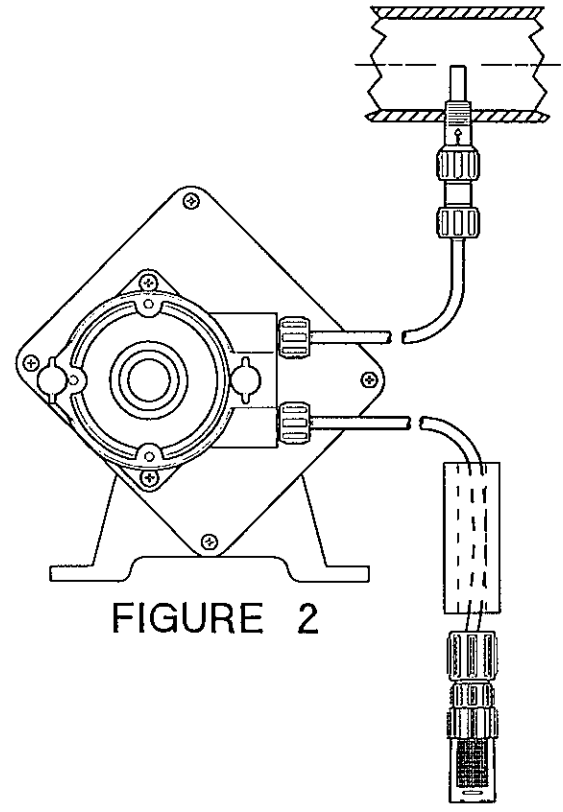


FIGURE 2

- 4) Apply Teflon tape to the injection fitting threads and install into piping system. **CAUTION**: **Inspect piping system and eliminate piping cross-connections to prevent feeding chemical to areas not needing treatment.** Note: The fittings used on this pump are of a dual purpose design. Removal of the coupling nuts allows for the use of standard .25in-NPT fittings for hard piping or special tubing adaptors.

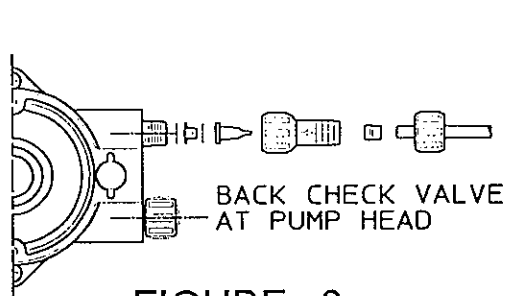


FIGURE 3a

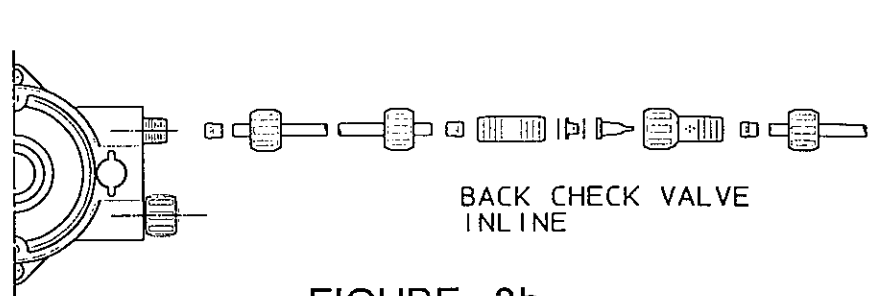


FIGURE 3b

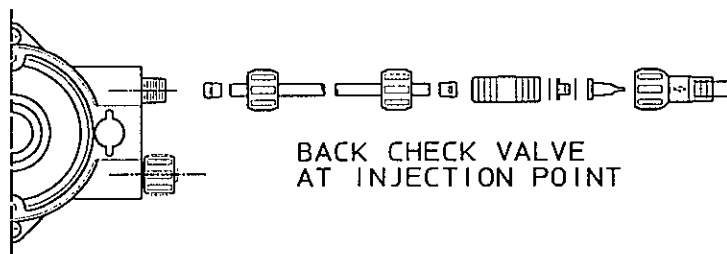
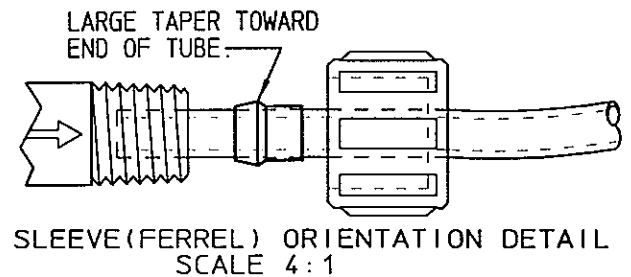


FIGURE 3c



- 5) Referring to Figure #3a thru #3c, select the appropriate position for the back check valve location and assemble discharge tubing as shown between the discharge connection and injection fitting. To install tubing remove the coupling nut and slide onto tubing. Then slide the ferrel onto tubing and locate approximately .38in(9.5mm) from tubing end. Then push the tubing support into the end of the tubing. Place tubing into fitting and hand tighten the coupling nut. **CAUTION**: **Hand tighten only, do not use wrenches. For in line check valve location, do not insert the tube more than .38in into the valve body.**
- 6) Referring to Figure #4 slide ceramic strainer weight on suction tubing first then remove the coupling nut from the strainer and slide onto tubing next. Push the end of the tubing onto the strainer and hand tighten the coupling nut. **Hand tighten only, do not use wrenches.** Note: Immerse tubing in hot water to soften prior to pushing on nipple.
- 7) Install the strainer so it is off the bottom of the chemical container(1-2in(25-50mm)) and measure suction tubing length required. Cut tubing ends square and install on suction fitting of the pump. **Hand tighten only, do not use wrenches.**

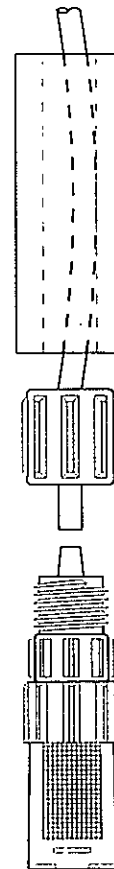


FIGURE 4

OPERATION

The control panel located on the top of the housing is used to set and display the current feed rate. The pump is fully controlled by the four button touchpad. It is used to prime the pump, place the pump in a standby mode, and adjust the flow rate. See figure #5 for specific switch functions. Pump motor speed is continuously monitored by the electronic control circuit. Should actual flow lag behind set flow, most likely due to pump overload, the signal "LO"(for "LOW") is displayed in place of the set rate. Pump operation is unaffected and the rate display returns when the actual rate returns to normal. Should the pump stall(stop completely) the circuit shuts the drive down automatically to prevent damage and displays "OL" (for "Overload"). When an overload has occurred, the pump will not restart until the cause has been eliminated. Then press any button to replace the overload display with the set rate and resume normal operation.

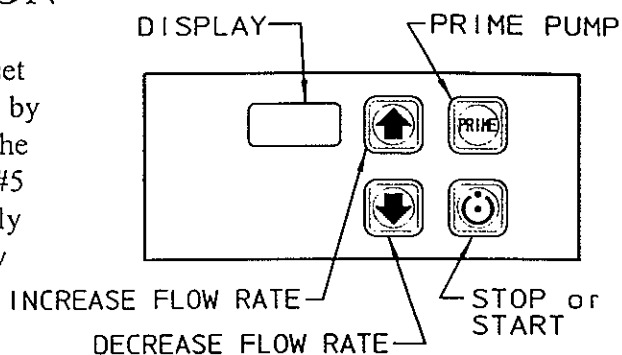


FIGURE 5

CONTROL PANEL OPERATION

Priming the Pump: Depressing the 'PRIME' button while the pump is running causes the pump to run at full(100%) speed for as long as the button is depressed. This is a momentary contact switch which operates only when the button is depressed. Once the button is released the pump returns to the set feed rate. To facilitate tube loading, the 'PRIME' button can be momentarily pressed during the standby(not running) condition as required to 'jog' the pump. In this mode the prime function operates at half(50%) speed since full speed is too fast for convenient tube loading.

Standby Mode: Depressing the 'STOP/START' button places the pump in the standby mode. Use the standby mode along with the PRIME button to jog the pump during tubing replacement as discussed later. To return to the run mode depress the 'STOP/START' button.

⚠ WARNING : This is not a power switch. The voltage to the pump is not interrupted and circuits inside the housing are still live.

Adjusting Feed Rate: To adjust the feed rate, depress the UP or DOWN arrows until the desired flow rate is displayed from 10 to 100%.

⚠ DANGER : DO NOT ATTEMPT TO FEED CHEMICALS WITHOUT FIRST CONSULTING YOUR CHEMICAL FEEDER DEALER OR CHEMICAL SUPPLIER. To avoid running out of chemical, follow a regular schedule of monitoring chemical supply.

⚠ CAUTION : Inspect peristaltic tubing frequently and replace when deterioration becomes apparent. Peristaltic tubing will eventually wear and break if neglected. This occurrence will cause chemical to spill and a potential for personal injury or damage to equipment. Always refer to chemical manufacturers' recommendations with regards to safety and handling of hazardous or corrosive chemicals. Always wear protective clothing and safety glasses when working near chemical feed systems.

⚠ WARNING : Do not expose the pump or tubing to pressure exceeding the pressure rating on the pump nameplate.

CONTROL PANEL OPERATION(Continued)

- 1) Make sure the power is on and the pump is in standby mode.
- 2) Fill the chemical tank with the chemical to be fed.
- 3) Depress and hold the Prime button until the chemical is present in the discharge line.
- 4) Depress the Stop/Start button and adjust the feed rate to the desired setting. NOTE : To get actual feed rates for specific settings, actual output must be verified by measuring volume output. Use the flow chart, Figure #6, as a guide. To get the actual

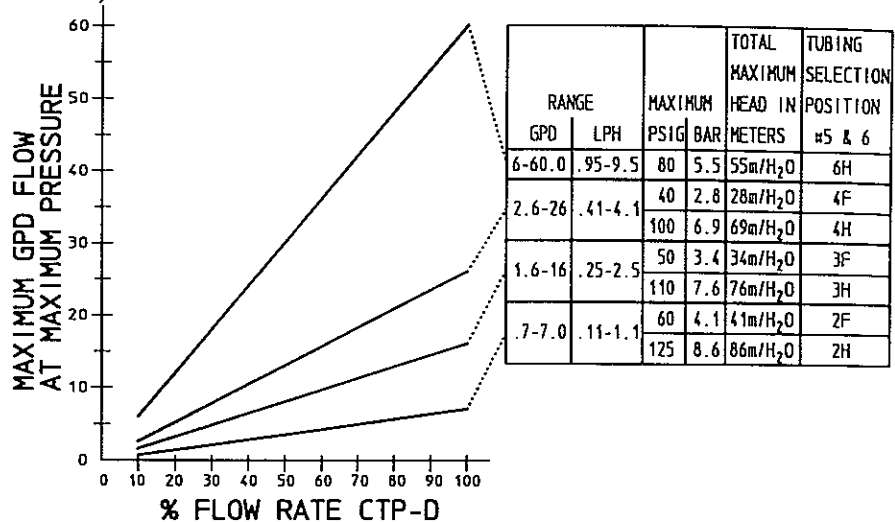


FIGURE 6

feed rate for specific settings, the pump must be calibrated for its flow. As with any peristaltic pump output varies with pressure and tubing condition. It is recommended that feed rates be verified at every tubing change and after every 250-hours. **More critical applications require more frequent verification.**

MAINTENANCE

NOTE: NO USER SERVICEABLE COMPONENTS INSIDE ENCLOSURE. SHOULD THE POWER SUPPLY CORD BECOME DAMAGED, IT MUST BE REPLACED BY PULSAFEEDER or IT'S REPRESENTATIVES or A SIMILARLY QUALIFIED PERSON IN ORDER TO AVOID A HAZARD.

Tubing Assembly Removal.

WARNING : Always wear protective clothing and safety glasses when working on the chemical pump and refer to chemical manufacturers' safety precautions.

- 1) Remove the power to the pump and place in standby mode.
- 2) Relieve system pressure and drain discharge and suction tubing.
- 3) Loosen coupling nuts and remove the tubing from suction and discharge ports. See figure #7a.
- 4) Remove the back check valve from the discharge port if it is located there.
- 5) Remove the two thumb screws holding on the pump head cover and remove.
- 6) Remove pump head tube assembly by removing both connector fittings and pulling tubing straight out of the pump head. See figure #7b. **CAUTION** : Tubing may retain a small amount of chemical. If the rotor assembly is removed, go to step #8.

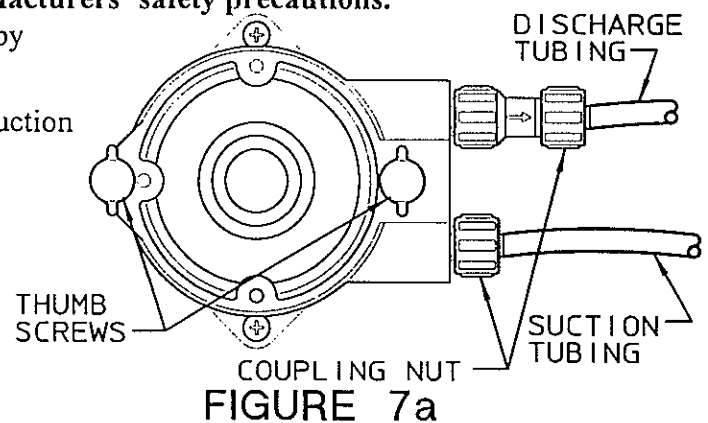


FIGURE 7a

- 7) Remove rotor assembly by pulling straight out of pump head.
- 8) Clean any tubing debris from the rotor assembly and pump head.

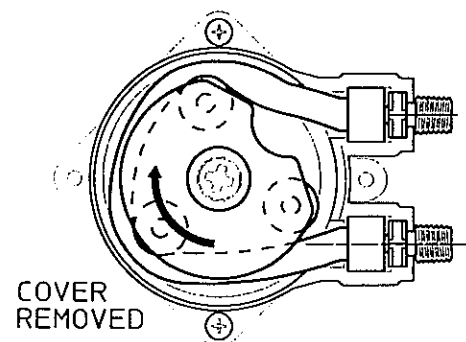
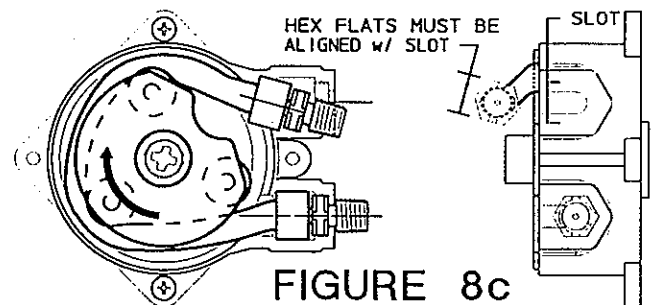
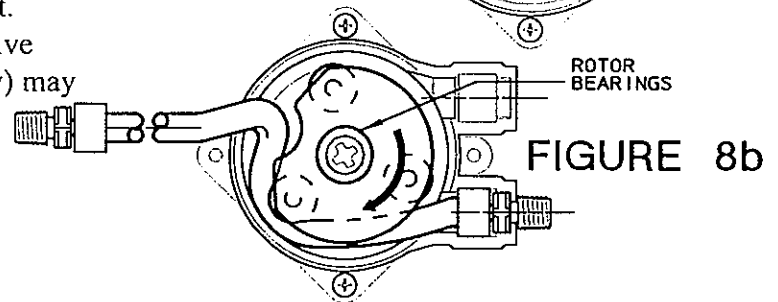
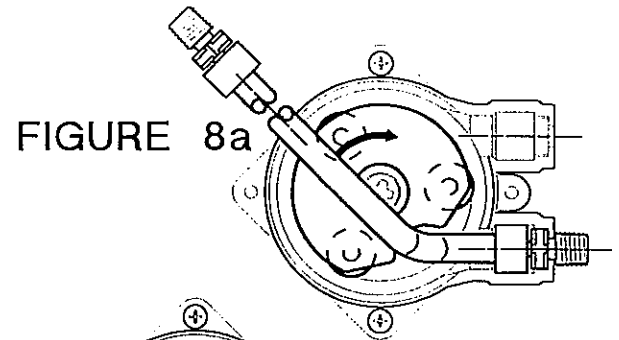


FIGURE 7b

Tubing Assembly Installation

⚠ WARNING : When using the pump to load tubing the unit must be in the standby mode to prevent accidental motor starting. Caution must be used to keep fingers away from rotating parts.

- 1) Reinstall the rotor assembly by aligning the cross in the rotor to the drive shaft cross and fully insert into pump head. **Note** : If the process allows the use of a lubricant apply a small amount to each of the rotor bearings. This will extend the life of the rotor assembly.
- 2) Use the Prime button and align the rotor assembly as shown in Figure #8a.
- 3) Insert one connector end of the tubing assembly into the bottom retaining slot in the pump head. Insert the tube thru the guide slot in the rotor. Using **caution** depress the Prime button momentarily (more than once as required) to gradually feed the tube around the pump head. As the guide slot rotates to being positioned as in Figure #8c release the Prime button. Insert the other connector into its retaining slot. **Note**: A helpful hint, use of the back check valve assembly (as a handle on head tubing assembly) may assist in final installation of head tubing.
- 4) Align the pump head cover bearing bore with the rotor shaft and press into place.
- 5) Loosely reinstall the two thumb screws.
- 6) Using the 'Prime' button, run the pump for several revolutions and then fully tighten the thumb screws (hand tight only).
- 7) Return the pump to service by following the procedures in the installation section.



Pumps carrying the 'ETL Sanitation' (tested to NSF Standard-50) marks are listed for swimming pools, spas and hot tubs, and when proper materials are selected, are capable of handling but not limited to the following chemical solutions:

12% ALUMINUM SULPHATE,	5% SODIUM CARBONATE,
2% CALCIUM HYPOCHLORITE,	10% SODIUM HYDROXIDE,
10% HYDROCHLORIC ACID,	12.5% SODIUM HYPOCHLORITE.

To meet the requirements of the 'ETL Sanitation' mark qualification, perform the following at intervals of 500-hours operation time (actual running time):

1. Replace the peristaltic tubing assembly as described above. Grease the rotor bearing and oil the three rotor rollers.
2. Remove the pump from the housing panel. Disconnect the panel from the housing and withdraw. Disconnect the power and encoder electrical leads from the DC motor assembly and circuit board respectively. Remove the gearmotor from the panel, then remove the gearmotor cover. Using a screwdriver or similar implement, redistribute grease within the gearbox as necessary to the vicinity of the gear and pinion teeth. Remove the DC motor from the gearmotor cover and replace with a new unit. Reassemble by reversing the above disassembly process.

WIRING DIAGRAM DC PROPORTIONING PERISTALTIC PUMP

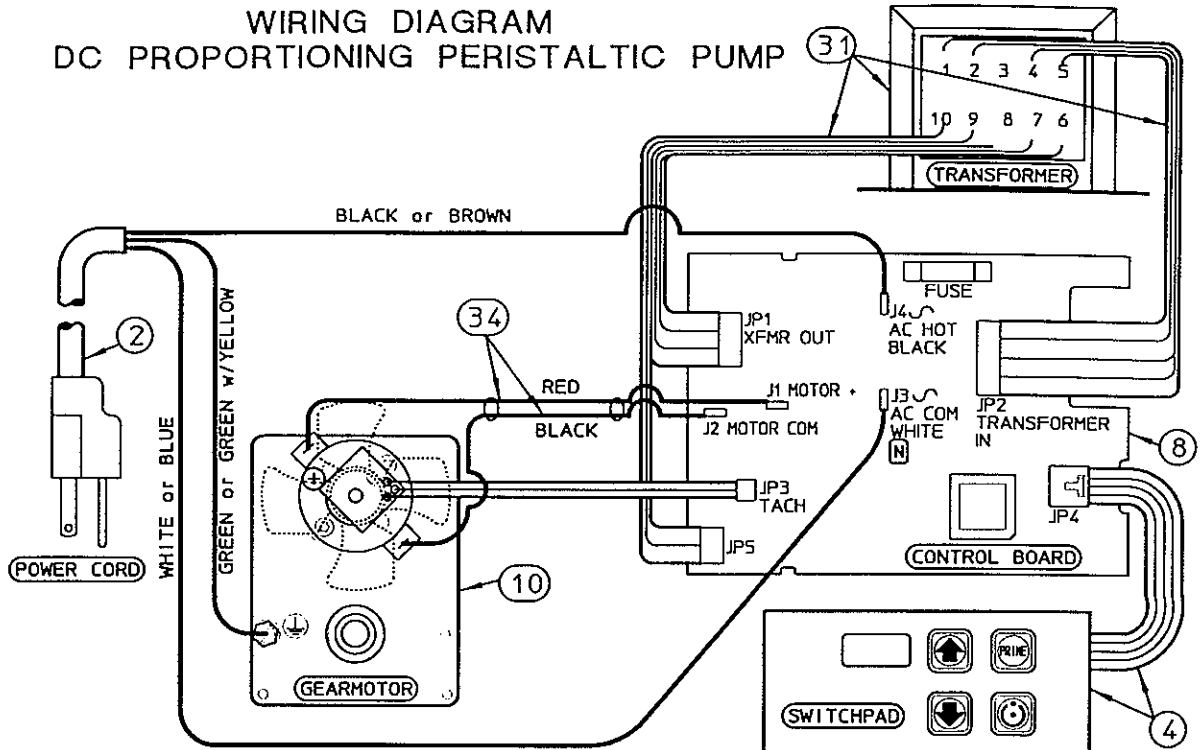


FIGURE 9a

US COLOR CODE	EURO COLOR CODE
BLACK - LINE	BROWN - LINE
WHITE - NEUTRAL	BLUE - NEUTRAL
GREEN - EARTH (GROUND)	GREEN w/ - EARTH YELLOW (GROUND)

WIRING DIAGRAM DC PROPORTIONING PERISTALTIC PUMP With TIMER

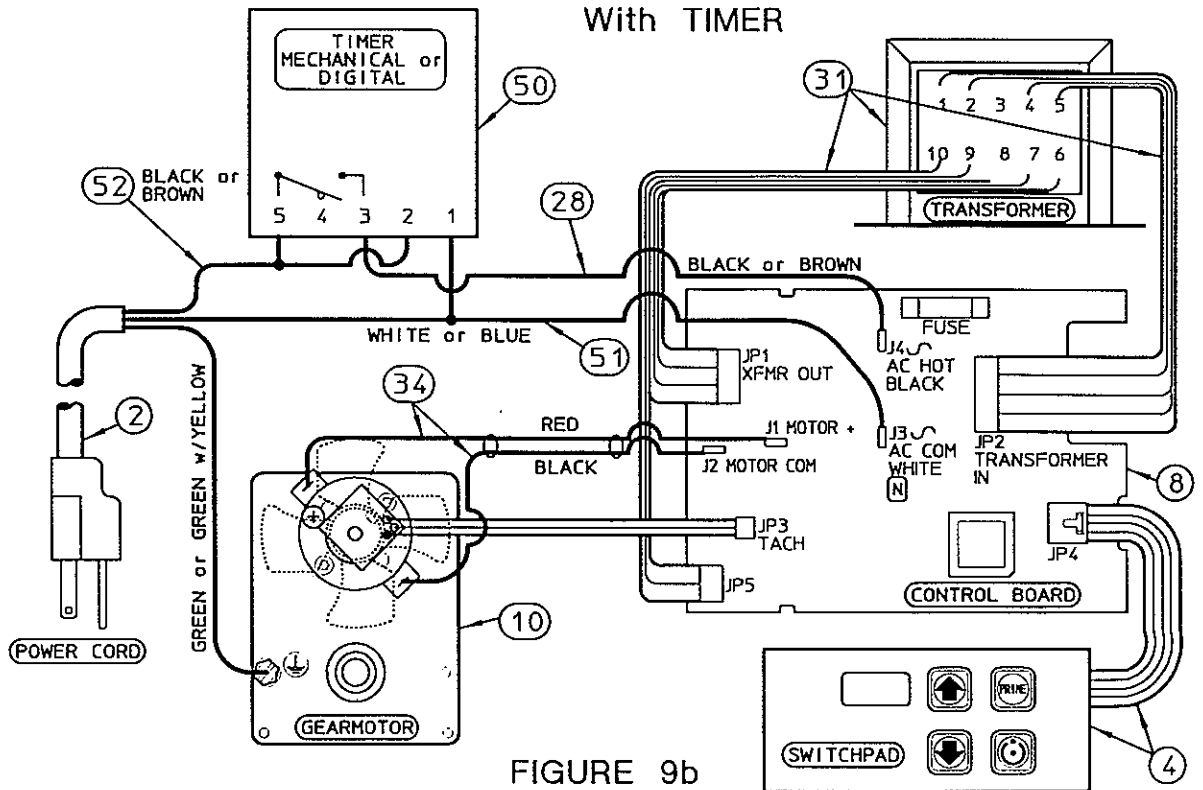


FIGURE 9b

Policies and Procedures

Manufacturers Product Warranty(Standard Electronic Controls / Metering Pumps)

PULSAFEEDER warrants equipment of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 12-months from the date of start-up or 18-months from date of shipment, whichever comes first. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturers examination. This warranty does not include removal or installation costs and in no event shall the manufacturers liabilities exceed the selling price of such equipment or part.

The manufacturer disclaims all liability for damage to its products through improper use, installation, maintenance or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. Replaceable elastomeric parts, including peristaltic tubing, are expendable and are not covered by any warranty either expressed or implied. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

The above warranty is in lieu of any other warranty, either expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

For warranty and service matters within the European Union, contact the seller or:

PULSAFEEDER, INC.
STEIGAR 24
NL 1351 AB ALMERE
NETHERLANDS

RETURNS

The Customer Service Department will issue a Return Authorization(RA) number for all returns.

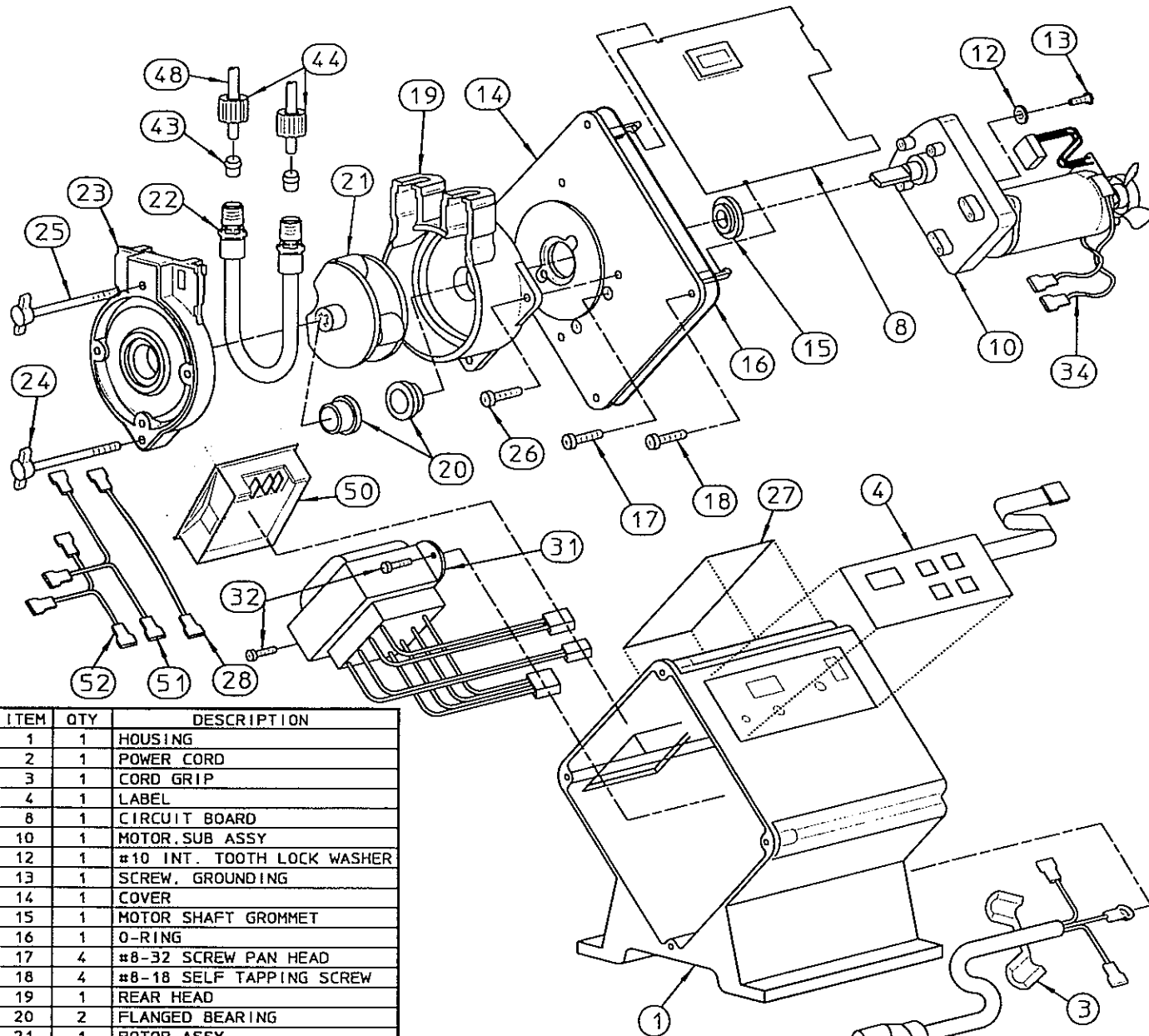
The following information will be required:

1. Billing and a ship-to address.
2. Model and serial number.
3. Contact name and phone number.
4. Reason for return.
5. Purchase order(where applicable).
6. RA number on outside of the carton.

All material must be returned freight prepaid. All merchandise must be properly packaged and free of any corrosive, toxic or otherwise hazardous chemical. All items returned must reference Return Authorization number.

CREDITS

No equipment will be accepted beyond six months after date of shipment from the factory. Only unused and undamaged equipment will be accepted for return to stock. All credits are based on acceptance of materials as new and unused by our inspection personnel. A restocking fee will apply. All equipment returned for credit must have a RA number and be returned freight prepaid.



ITEM	QTY	DESCRIPTION
1	1	HOUSING
2	1	POWER CORD
3	1	CORD GRIP
4	1	LABEL
8	1	CIRCUIT BOARD
10	1	MOTOR, SUB ASSY
12	1	#10 INT. TOOTH LOCK WASHER
13	1	SCREW, GROUNDING
14	1	COVER
15	1	MOTOR SHAFT GROMMET
16	1	O-RING
17	4	#8-32 SCREW PAN HEAD
18	4	#8-18 SELF TAPPING SCREW
19	1	REAR HEAD
20	2	FLANGED BEARING
21	1	ROTOR ASSY
22	1	TUBE ASSY
23	1	FRONT HEAD
24	2	THUMB KNOB
25	2	#10-32 SCREW SOCKET HEAD
26	2	#10-32 SCREW PAN HEAD
27	1	LABEL, DATA
31	1	TRANSFORMER
32	2	#8-32 x .38" SCREW
34	1	WIRE ASSY 7.5' BLK/RED
ACCESSORIES LIST		
40	1	VALVE(DUCK BILL)
41	1	VALVE BODY
43	2	COMPRESSION FERREL
44	2	COUPLING NUT
45	1	CLOSE NIPPLE SPECIAL
46	1	INJECTION BODY
47	1	STRAINER ASS'Y w/ WEIGHT
48	15 FT	TUBING
60	1	INSERT, DUCK-BILL
61	2	GASKET, DUCK-BILL
TIMER OPTION		
50	1	TIMER
51	1	LEAD ASY WHT or BLU, 3-TERM
52	1	LEAD ASY BLK or BRN, 3-TERM
28	1	LEAD ASY BLK or BRN, 2-TERM

