

**STERLCO TEMPERATUARE CONTROL UNIT
SERVICE AND INSTRUCTION MANUAL
MODEL: S-8412, S-8422, S-8432**

**Engineered and Manufactured by STERLING INC.
5200 West Clinton Avenue
Milwaukee, Wisconsin 53223
www.sterlco.com**

Please note that our address and phone information has changed. Please reference this page for updated contact information.



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United States:

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Schaumburg, IL 60173
Phone: + 1 847 273 7700
Fax: + 1 847 273 7804

ACS New Berlin – Manufacturing Facility

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New Berlin, WI 53151
Phone : +1 262 641 8600
Fax: + 1 262 641 8653

Asia/Australia:

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109 Xingpu Road SIP
Suzhou, China 215126
Phone: + 86 8717 1919
Fax: +86 512 8717 1916

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Phone: + 48 22 390 9720
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India

ACS India

Gat No. 191/1, Sandbhor Complex
Mhalunge, Chakan, Tal Khed,
Dist. Pune 410501, India
Phone: +91 21 35329112
Fax: + 91 20 40147576

MODEL: S-8400 SERIES

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DESCRIPTION

The auxiliary vacuum unit is designed to be used in conjunction with a temperature control unit. It's purpose is to allow a means of circulating a process liquid through the process at atmospheric pressure or less. This is accomplished through the use of a special pressure regulator valve which drops the temperature control unit supply liquid to atmospheric pressure, and then this liquid, at atmospheric pressure, is pumped through the process by a rather special positive displacement pump. The return liquid from the mold is pumped into an open tank to allow entrapped air to be dissipated out. The process liquid is then pumped back to the temperature control unit for recirculation.

INSTALLATION

PIPING CONNECTIONS TO A TEMPERATURE CONTROL UNIT

All piping connections are at the rear of the auxiliary vacuum unit.

The PROCESS DELIVERY connection should be connected to the inlet to the mold. The PROCESS RETURN connection should be connected to the return line from the mold. The UNIT DELIVERY connection should be connected to the temperature control unit DELIVERY connection. The UNIT RETURN connection should be connected to the temperature control unit RETURN connection. The temperature control unit WATER SUPPLY connection should be plugged. An external water supply should be connected to the WATER SUPPLY connection on the auxiliary vacuum unit. For applications in which the auxiliary vacuum unit is connected to a dual zone temperature control unit, it is recommended that the temperature control unit common water supply be split. This will allow the second zone to be used without being effected by the auxiliary vacuum unit.

CAUTION: The fitting labeled "Vent" must remain open to atmosphere to allow entrapped air to be released from the tank.

ELECTRICAL POWER: Check unit name plate for proper voltage connection.

PIPING CONNECTIONS TO A CHILLER SYSTEM

The PROCESS DELIVERY connection should be connected to the inlet to the mold. The PROCESS RETURN connection should be connected to the return line from the mold. The UNIT DELIVERY connection should be connected to the chiller DELIVERY connection. The UNIT RETURN connection should be connected to the chiller RETURN connection. The WATER SUPPLY connection on the auxiliary vacuum unit need not be connected.

INSTALLATION

PIPING CONNECTIONS TO A TEMPERATURE CONTROL UNIT

All piping connections are at the rear of the auxiliary vacuum unit.

The PROCESS DELIVERY connection should be connected to the inlet to the mold. The PROCESS RETURN connection should be connected to the return line from the mold. The UNIT DELIVERY connection should be connected to the temperature control unit DELIVERY connection. The UNIT RETURN connection should be connected to the temperature control unit RETURN connection. The temperature control unit WATER SUPPLY connection should be plugged. An external water supply should be connected to the WATER SUPPLY connection on the side of the auxiliary vacuum unit. For applications in which the auxiliary vacuum unit is connected to a dual zone temperature control unit, it is recommended that the temperature control unit common water supply be split. This will allow the second zone to be used without being effected by the auxiliary vacuum unit. The unit water supply on top of the vacuum unit should be plugged.

CAUTION: The fitting labeled "vent" must remain open to atmosphere to allow entrapped air to be released from the tank.

ELECTRICAL POWER: Check unit name plate for proper voltage connection.

PIPING CONNECTIONS TO A CHILLER SYSTEM

The PROCESS DELIVERY connection should be connected to the inlet to the mold. The PROCESS RETURN connection should be connected to the return line from the mold. The UNIT DELIVERY connection should be connected to the chiller DELIVERY connection. The UNIT RETURN connection should be connected to the chiller RETURN connection. The UNIT WATER SUPPLY connection on the auxiliary vacuum unit need not be connected.

The WATER SUPPLY connection on the side of the vacuum unit should be connected to the UNIT DELIVERY with the chiller delivery.

OPERATION

After all water supply, process, electrical connections have been made, the following steps should be taken to place the auxiliary vacuum unit and corresponding temperature control unit into service.

- 1.) Turn on the external water supply to the auxiliary vacuum unit and allow the tank to be filled.
- 2.) Turn on the electrical power at the disconnect switch.
- 3.) Jog the process return liquid pump labeled 1M and check for proper rotation. This will also insure proper rotation on the positive displacement pump.

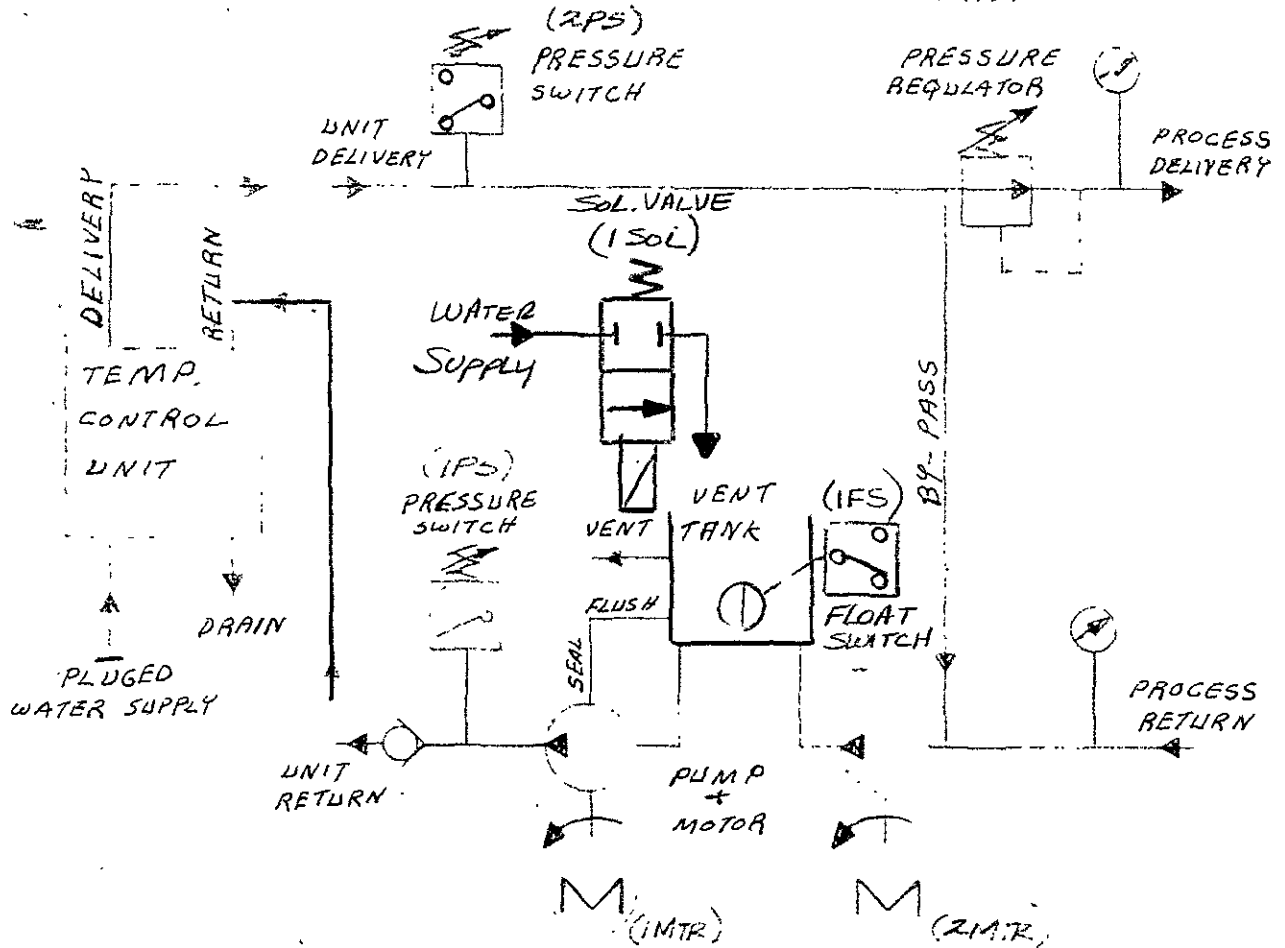
CAUTION: It is important that the positive displacement pump obtain the proper rotation since the incorrect rotation may do serious damage to the pump if run under load.

- 4.) Start the temperature control unit, also check for proper rotation if this has not been previously done.
- 5.) Start the process pump labeled 2M, and observe the pressure reading on the pressure gauge.
- 6.) Loosen the locking nut on the pressure regulator and start to slowly turn in until process liquid starts to come out of the leak in the process mold, then back off the adjustment screw slightly. Retighten the locking nut.

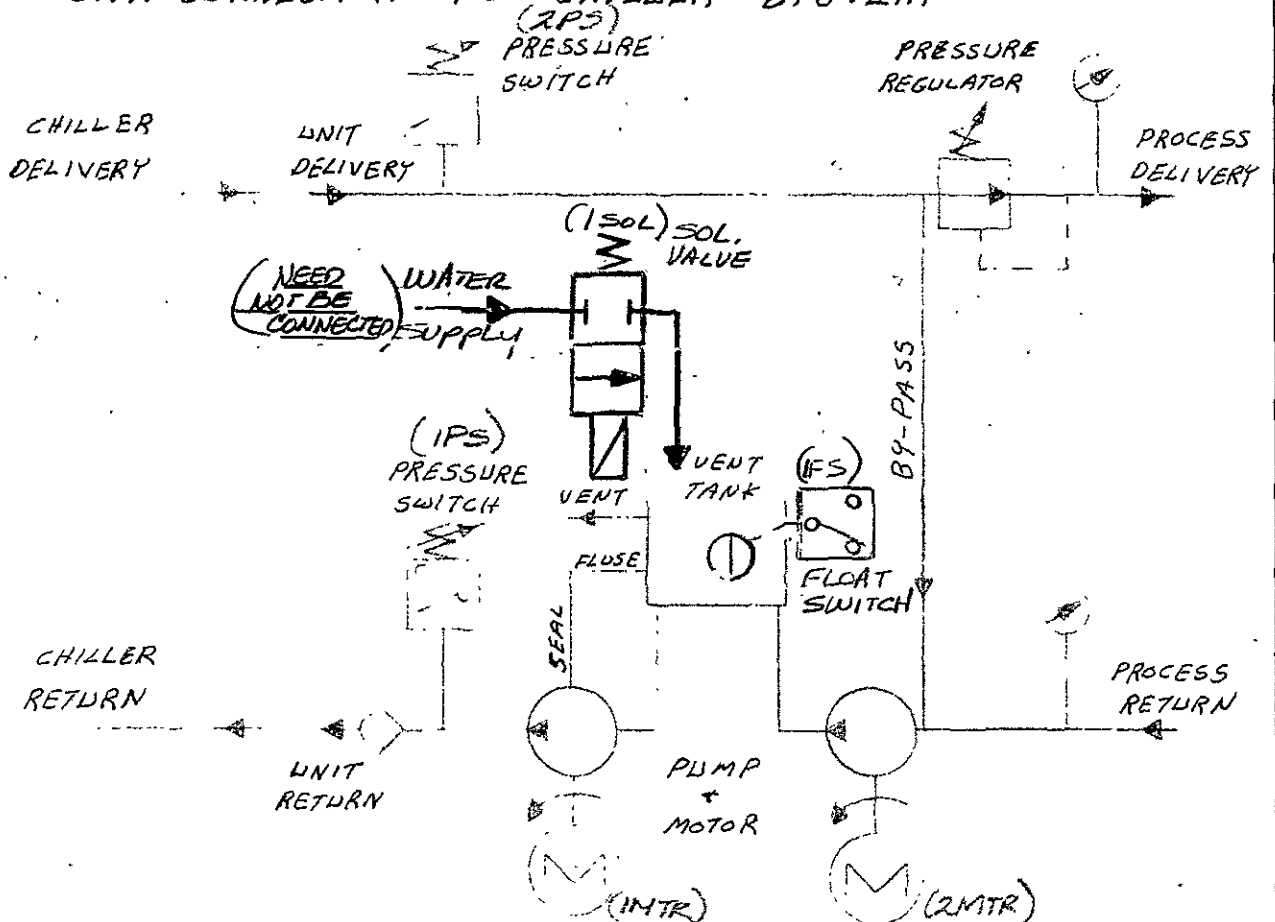
CAUTION should be taken when adjusting the pressure regulator such that the pressure gauge reading does not exceed 15 PSI. Under normal conditions, this is unlikely to occur but it should be observed because of the possibility of damage to the positive displacement pump if this pressure were to exceed the 15 PSI setting.

- 7.) Adjust the temperature control setting on the temperature control unit to the desired process temperature. This temperature should not be above 180° F. because of the negative pressure associated with this equipment.

UNIT CONNECTION TO TEMP. CONTROL UNIT



UNIT CONNECTION TO CHILLER SYSTEM



DWG. NO. A682-56676

DRG. NO. A682-06197

SCALE F

DATE 9/22/81

CHK. [Signature]

TITLE AV12 FLOW DIAG.

STERLING, INC.

MILWAUKEE, WIS.

UNLESS OTHERWISE SPECIFIED USE ±.005" TOL. FOR DECIMAL DIMENSIONS, ±1/64" TOL. FOR FRACTIONAL DIMENSIONS

STERLING, INC.
PARTS LIST (B-G)
STERLCO PUMP 1 to 3 HP

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
O	001-05915	Motor Screw, (4) req'd
P	542-10404	Water Slinger
Q	B-615-00001	Bracket
R	081-00024	Rotary Seal Assembly
S		Impeller - specify part no. and dia. (See pump nameplate)
T	525-00001	Lock Washer
U	535-00001	Impeller nut
V	545-00002	Housing Gasket
W-A	615-00003	Threaded Inlet Casting
W-B	615-00002	Tank Inlet Casting
X-A	001-05915	Pump Screw for pump w/threaded suction (8) req'd
X-B	001-05915	Pump Screw for pump w/tank suction (6) req'd
X-B	001-05923	Pump Screw for pump w/tank suction (7) req'd (Above parts illustrated on Form MP-1)
	M-160-00005	Motor Drip Cover (**)
	N-720-09003	Electric Motor 1 HP - 3/60/230-460 V open (#)
	N-720-09009	Electric Motor 1 HP - 3/60/230-460V TEFC (#ç)
	N-720-09004	Electric Motor 1-1/2 HP - 3/60/230-460V open (#)
	N-720-09010	Electric Motor 1-1/2 HP - 3/60/230-460V TEFC (#ç)
	N-720-09005	Electric Motor 2 HP - 3/60/230-460 V open (#)
	N-720-09011	Electric Motor 2 HP -3/60/230-460V TEFC (#ç)
	N-720-09285	Electric Motor 3 HP - 3/60/230-460V open (#)
	N-720-09012	Electric Motor 3 HP - 3/60/230-460V TEFC (#ç)

** Used only on drip proof motors

* State Motor Manufacturer

State Motor Manufacturer if preferred

ç State special specification (i.e. 7EQ-Spec., 7E-Spec., etc.)

Sterling part numbers apply to non-special motors. Consult Parts List in your unit manual for specific motor requirements.

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Phone: (414) 354-0970 Telex: 2-6805 P.O. Box 23435

STERLING, INC.

SPARE PARTS LIST

MODEL AV12- A, B, D, F

<u>PART NO.</u>	<u>DESCRIPTION</u>
725-00591	Fuse, Control #FNM 1 AMP @ 250 Volt
037-00041	Gauge, Pressure
720-09003	Motor, Electric
715-10015	Pilot Light
695-00007-02	Motor, Bracket, & Imp., Ass'y., 1/2 HP, 1/60/115 Volt
695-00007-01	Motor, Bracket, & Imp., Ass'y., 1/2 HP, 1/60/230 Volt
695-00007-03	Motor, Bracket, & Imp., Ass'y., 1/2 HP, 3/60/230-460 Volt
605-00131-05	Pump & Motor Assembly Complete, 1-1/2 HP, 3/60/230-460 Volt
605-00083-15	Pump & Motor Assembly Complete, 1 HP, 3/60/230-460 Volt
075-00167	Pump & Motor Assembly Complete, 1 HP, 3/60/230-460 Volt (AV12-D)
075-00169	Pump & Motor Assembly Complete, 1/2 HP, 3/60/230-460 Volt (AV12-B)
075-00170	Pump & Motor Assembly Complete, 2 HP, 3/60/230-460 Volt (AV12-F)
075-00171	Pump & Motor Assembly Complete, 1/2 HP, 1/60/115-230 Volt (AV12-A)
721-00104	Push Button, Start
721-00104	Push Button, Stop
726-00005	Starter, Motor Control
632-02858	Switch, Pressure (Rework 733-00010)
704-00015	Transformer, Control
044-00207	Valve, Safety Pressure Relief
044-00241	Valve, Regulator
694-10720-02	Valve, Make-up Water

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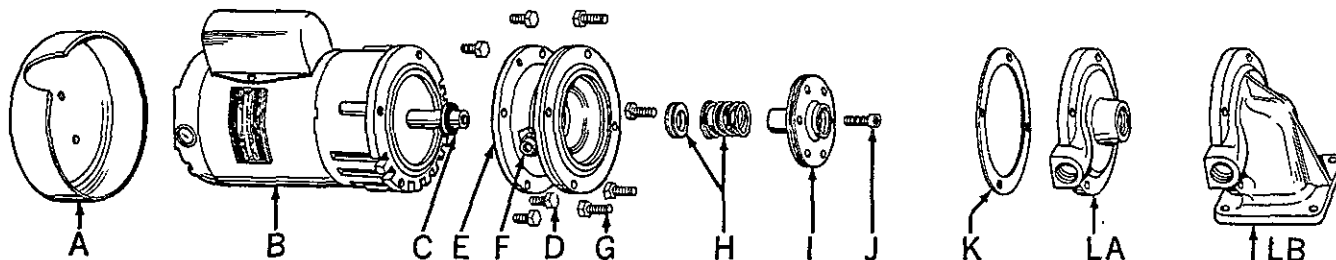
REPLACING ROTARY SEAL ASSEMBLY ON STERLCO PUMP AND MOTOR

PARTS

A. Drip Cover
B. Motor
C. Water Slinger
D. Motor Screws

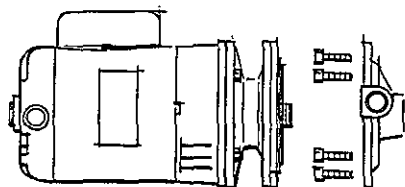
E. Bracket
F. Prime Cock
G. Pump Screws
H. Rotary Seal Assembly

I. Impeller
J. Impeller Screw
K. Housing Gasket
L. Volute - A or B

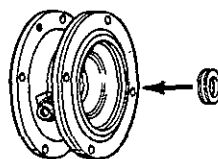


Step No. 1 — Dis-assembling (Removal of old seal assembly)

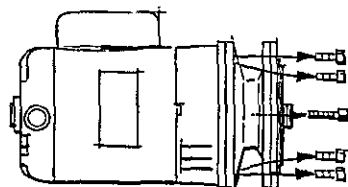
Step No. 2 — Re-assembly (Installation of new seal assembly)



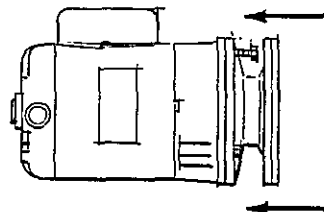
a) Remove volute from motor bracket and impeller assembly by removing pump screws.



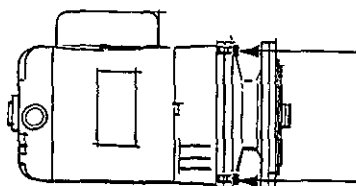
f) Coat outside edge of new seat with 3% detergent solution and slip it into the bracket. Press into bracket with thumbs or wooden dowel. Handle seat carefully so seating surfaces are not scratched or chipped . . . be sure it is squarely seated.



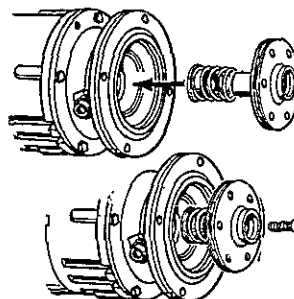
b) Remove impeller screw and motor screws. (Note: opposite end of motor shaft is fitted with screw driver slot to hold shaft securely while impeller screw is being removed. Drip cover must be removed to get at screw-driver slot).



g) Remount bracket on motor.

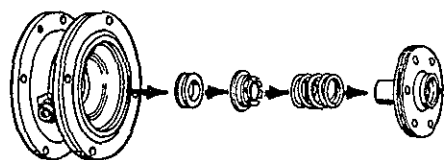


c) Insert two of the pump screws into the two threaded holes in the bracket. Tighten them slowly and evenly to force the impeller and bracket off the shaft. Do not pry the impeller or bracket!



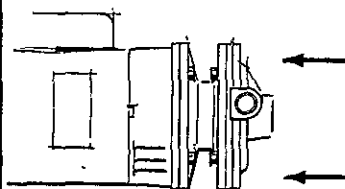
h) Lubricate impeller hub . . . 3% detergent solution . . . slip new bellows and spring onto impeller hub. Be sure bellows slides freely on impeller hub.

i) Replace impeller on motor shaft extension and secure with impeller screw. Hold shaft with screw driver slot while tightening screw.



d) Remove old seal parts from impeller hub and bracket. Be sure water slinger is in place.

e) Clean impeller hub thoroughly . . . remove all loose particles of dirt, grease, etc. Use fine emery cloth if necessary. Also clean the recess in the bracket so the new seat will fit perfectly. Remove all particles and dirt on gasket surfaces of the two castings.



j) Replace volute onto bracket, using new housing gasket. Use one gasket for condensate pump and for temperature control units. Secure with pump screws. Be certain gasket is seated properly.

NOTE: When ordering parts please indicate pump model number and serial number.

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