

# ECO-STAR VACUUM PUMP



## **INSTALLATION AND SERVICE MANUAL**



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# ECO-STAR PUMP

## INSTALLATION AND SERVICE MANUAL

This manual is for the installation and service of Tech West's ECO-STAR Pumps.

### CONTENTS

Installation	2
Figure 1: Plumbing Schematic	4
Figure 2: Water Connection	4
Figure 3: Typical Dual ECO-STAR Installation	5
Figure 4: Sink Cabinet Installation	5
Figure 5: Vacuum Connection - Single ECO-STAR	6
Figure 6: Vacuum Connection - Dual ECO-STAR	6
Weekley Servicing	7
Water Injection Assembly Breakdown	8
Manifold Assembly Breakdown	9
Single Eco-Star Major Component List	10
Dual Eco-Star Major Component List	11
Plumbing Schematic	12

# ECO-STAR PUMP INSTALLATION

## 1. ECO-STAR LOCATION REQUIREMENTS

The ECO-STAR location should be level, accessible and well ventilated.

If the ECO-STAR will be located in a confined space, provide cross ventilation and install an exhaust fan.

The following utilities are required:

- (a) Cold Water Supply Install a 1/2" cold water branch for the ECO-STAR water supply. This will cool and lubricate the shaft seal. Water pressure should be between 25 and 55 psi (water must remain on during operation) or shaft seal damage will occur.
- (b) Waste Disposal The ECO-STAR will exhaust both vapor and liquid waste. Provide exhaust vent sized of 2" in diameter and a waste drain which complies with local code.
- (c) Vacuum Line The main vacuum line from the operatories must connect to the ECO-STAR vacuum pump intake manifold.
- (d) Electrical
  - (1) Line voltage must be within the limits of Table 1 below. (Install a "buck-boost transformer" if line voltage is not between these values.) Provide a separate line for each pump motor. Circuit breaker switches must be 20 amp.

TABLE 1

<u>PUMP VOLTAGE RATING</u>	<u>MIN VOLTAGE RATING</u>	<u>MAX VOLTAGE RATING</u>
230 v	208 v constant	240 v constant

- (2) Local code may require you to provide one quick disconnect (safety switch) for each pump motor.
- (3) The ECO-STAR is controlled by a 24 volt circuit. For remote control, provide one 18/3 jacketed cable for each pump motor.

# ECO-STAR PUMP INSTALLATION

## 2. INSTALLATION STEPS

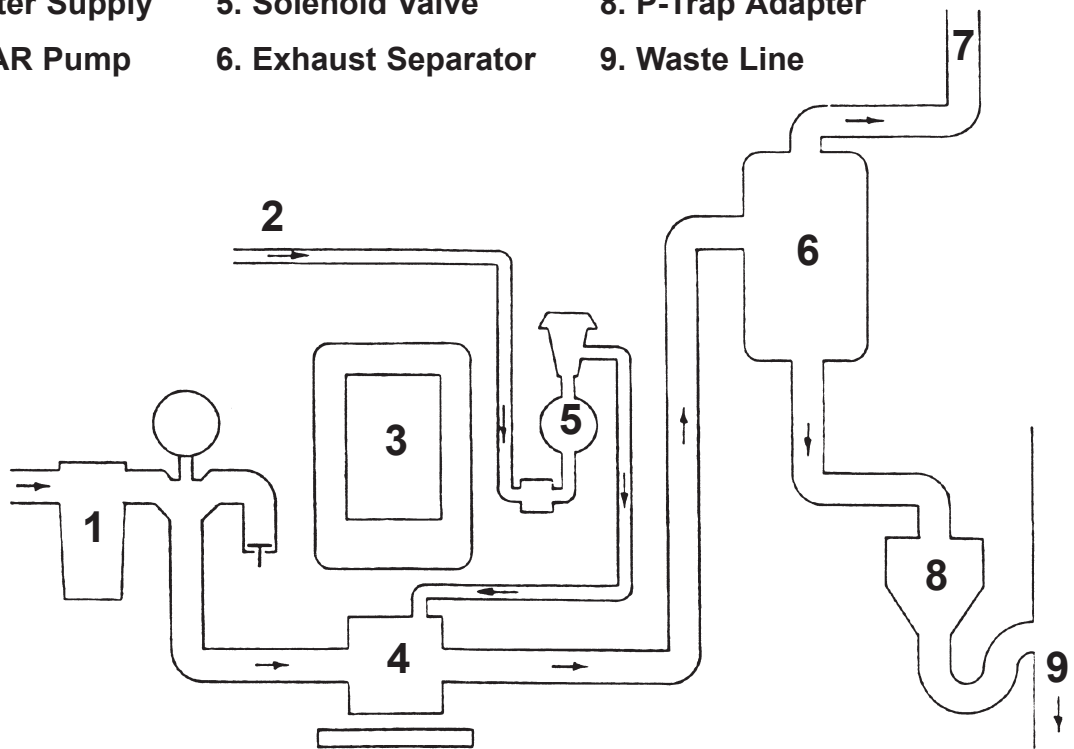
- (a) Check the shipping carton for damage. This could detect damage to the unit which might otherwise be overlooked.
- (b) Remove the ECO-STAR from its shipping carton. Inspect the unit for damage. (Single ECO-STAR's are shipped bolted to a pallet. This pallet is intended for shipping use only and should be discarded).
- (c) Inventory your Hook-Up Kit. Check its contents against the inventory sheet included. These items will be used in the remaining steps.
- (d) To dampen vibration, ensure rubber isolators are installed on each ECO-STAR Pump.

**Refer to the schematic diagram of Figure 1 for steps (e) (f) and (g).**

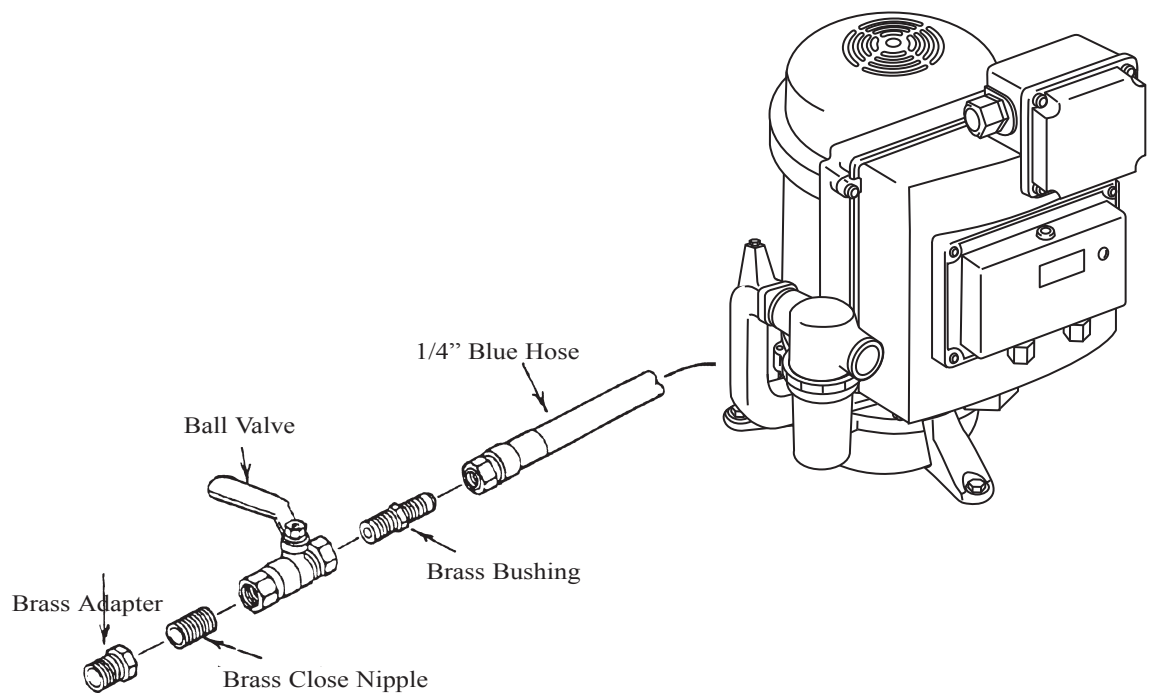
- (e) Connect the cold water supply. See Figure 2. Turn the water on and check for leaks in the water control assembly.
- (f) Make the necessary waste connections. Figures 3 and 4 show typical installations. To install a Tech West Exhaust Separator see the applicable installation sheet.
- (g) Connect the main vacuum line. For Single ECO-STAR's, connect flexible hose to the pump intake manifold (Figure 5). For Dual ECO-STARs, connect to the vacuum intake manifold (Figure 6).
- (h) Connect remote control 18/3 jacketed cable to each pump relay panel. Use wire connectors which provide secure mechanical connections.
- (i) Turn on the ECO-STAR. Check the pump(s) for leaks and the vacuum level following the instruction in "Weekly Servicing" page 8.

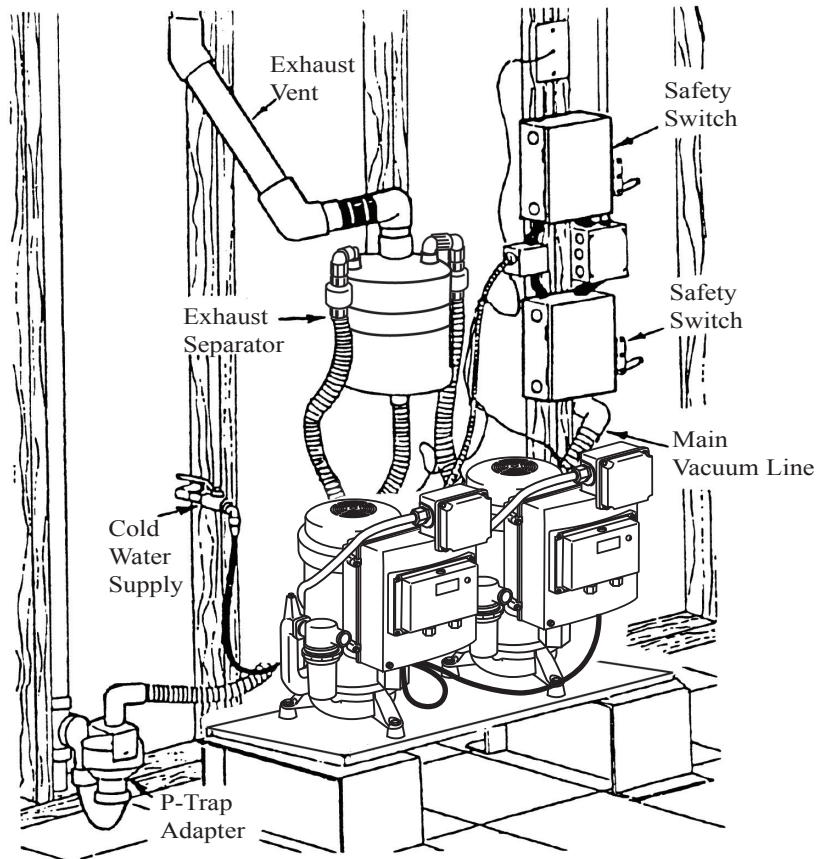
**Figure 1: Plumbing Schematic**

- |                      |                      |                   |
|----------------------|----------------------|-------------------|
| 1. Line Filter       | 4. Impeller          | 7. Exhaust Vent   |
| 2. Cold Water Supply | 5. Solenoid Valve    | 8. P-Trap Adapter |
| 3. ECO-STAR Pump     | 6. Exhaust Separator | 9. Waste Line     |

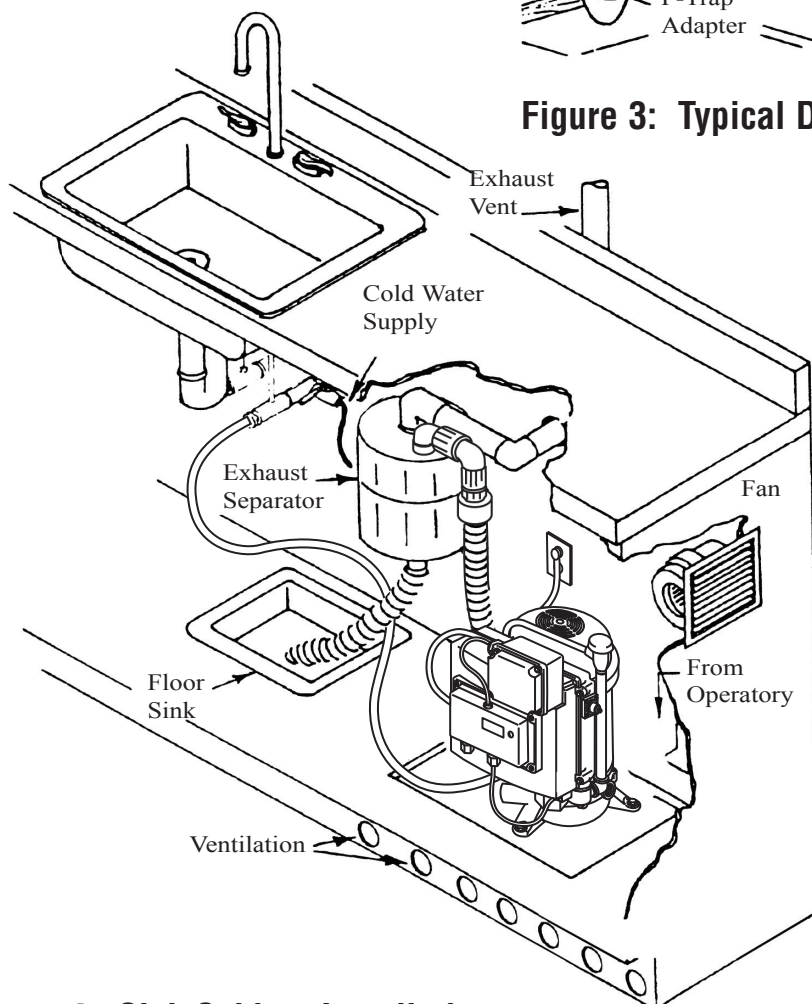


**Figure 2: Water Connection**



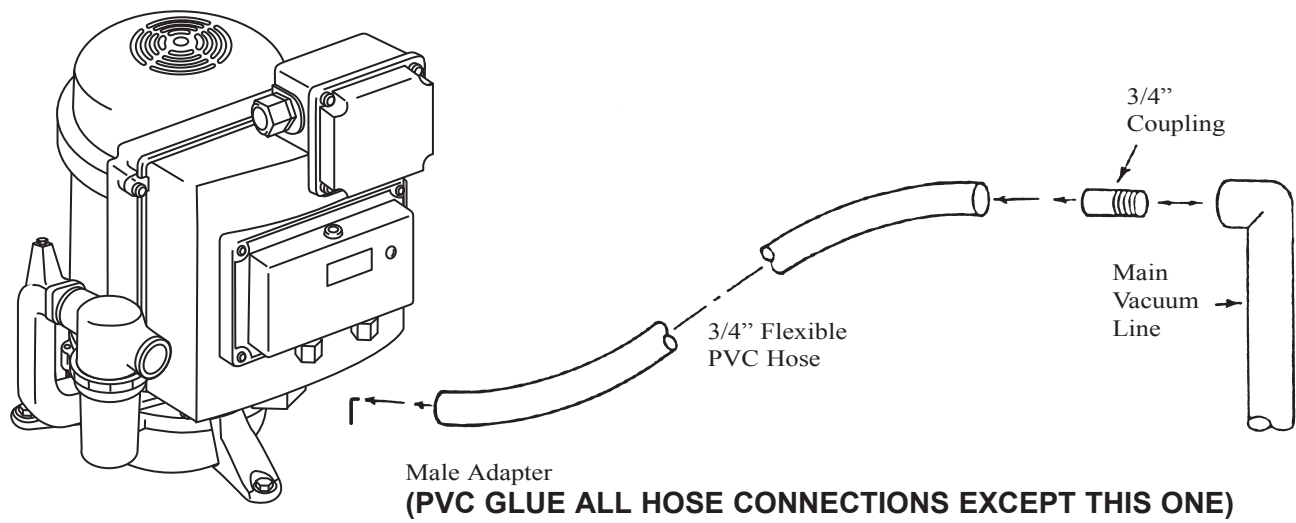


**Figure 3: Typical Dual ECO-STAR Vacuum Installation**

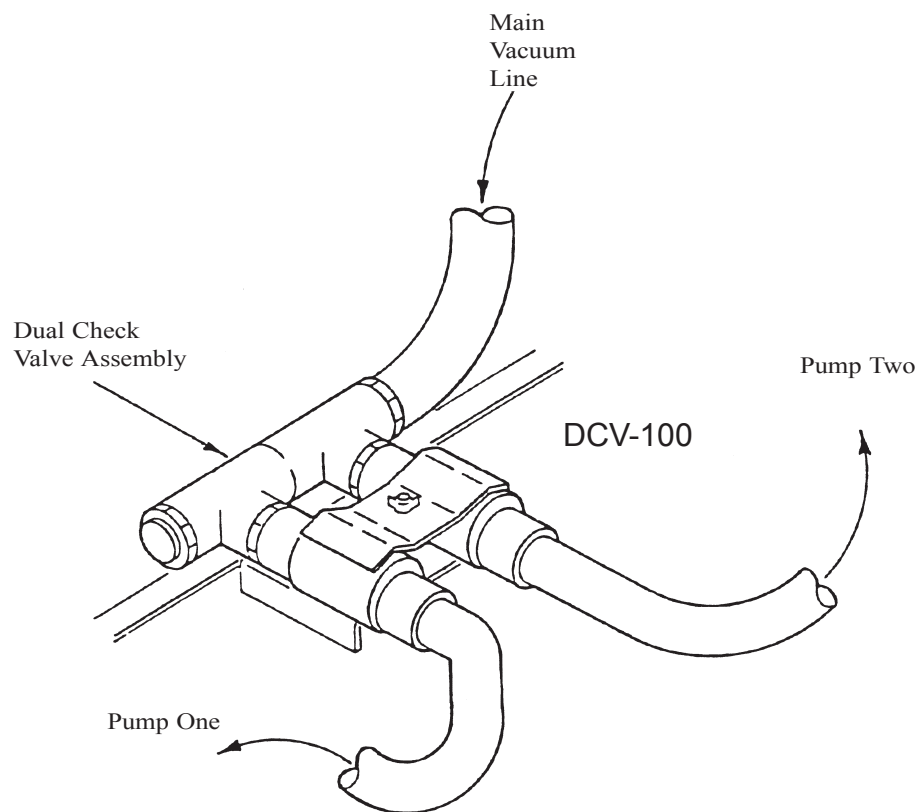


**Figure 4: Sink Cabinet Installation**





**Figure 5: Vacuum Connection For Single ECO-STAR Pump**



**GLUE ALL EXHAUST HOSE CONNECTIONS SECURELY WITH PVC GLUE**

**Figure 6: Vacuum Connection For Dual ECO-STAR Pump**



# ECO-STAR PUMP

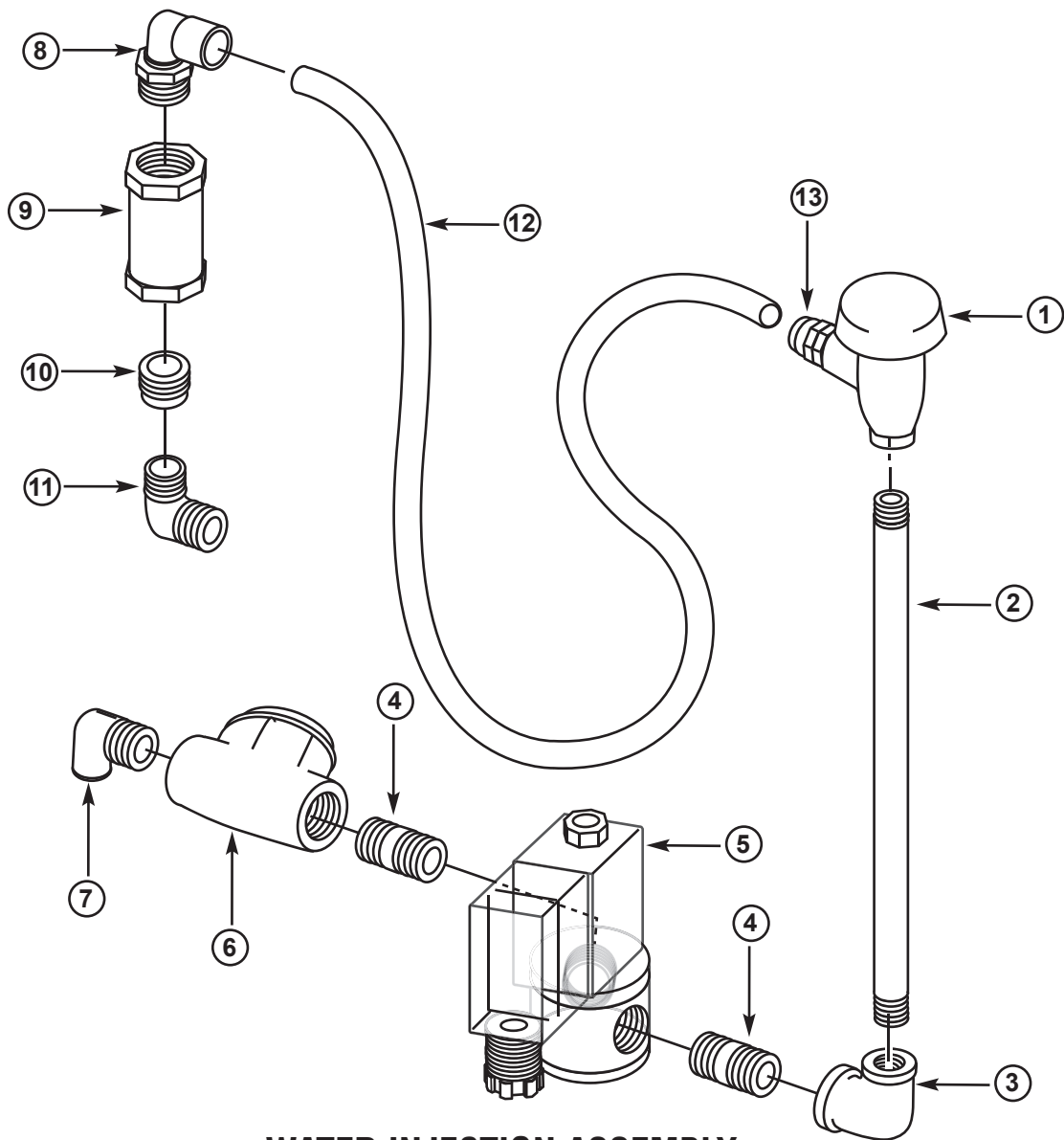
## WEEKLY SERVICING

### 3. WEEKLY SERVICING

Refer to Figure 10 for the following steps.

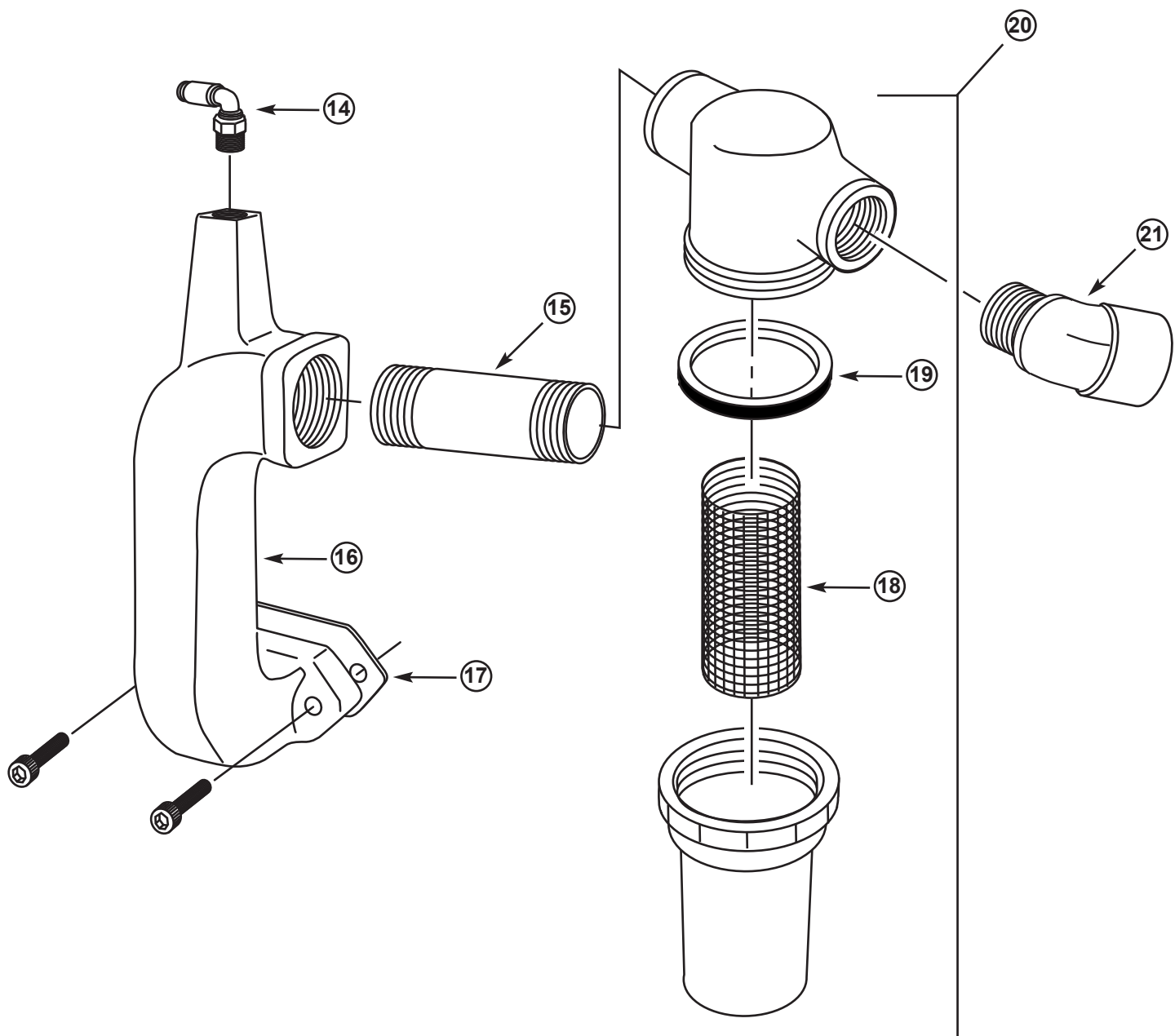
- (a) Clean vacuum filter bowl and screen. Turn the pump off and unscrew the vacuum filter bowl, rinse bowl and screen under cold water. Replace bowl or screen if damaged. Ensure gasket is in place in the filter bowl before reassembly.
- (b) Flush the Eco-Star pump(s) and main vacuum lines with Tech West ECO-STAR Cleaner. Follow the cleanser manufacturer's instructions.
- (c) Visually inspect ECO-STAR pump(s) for water leakage. Ensure that water connections are tight.

Flush the entire vacuum piping system (all operatories) weekly. Use Tech West ECO-STAR cleanser. If the ECO-STAR cannot induce adequate air flow because of a blockage in the vacuum piping system, liquids and solids will not evacuate. Contact Tech West's Customer Service for further details on maintaining your vacuum piping system.



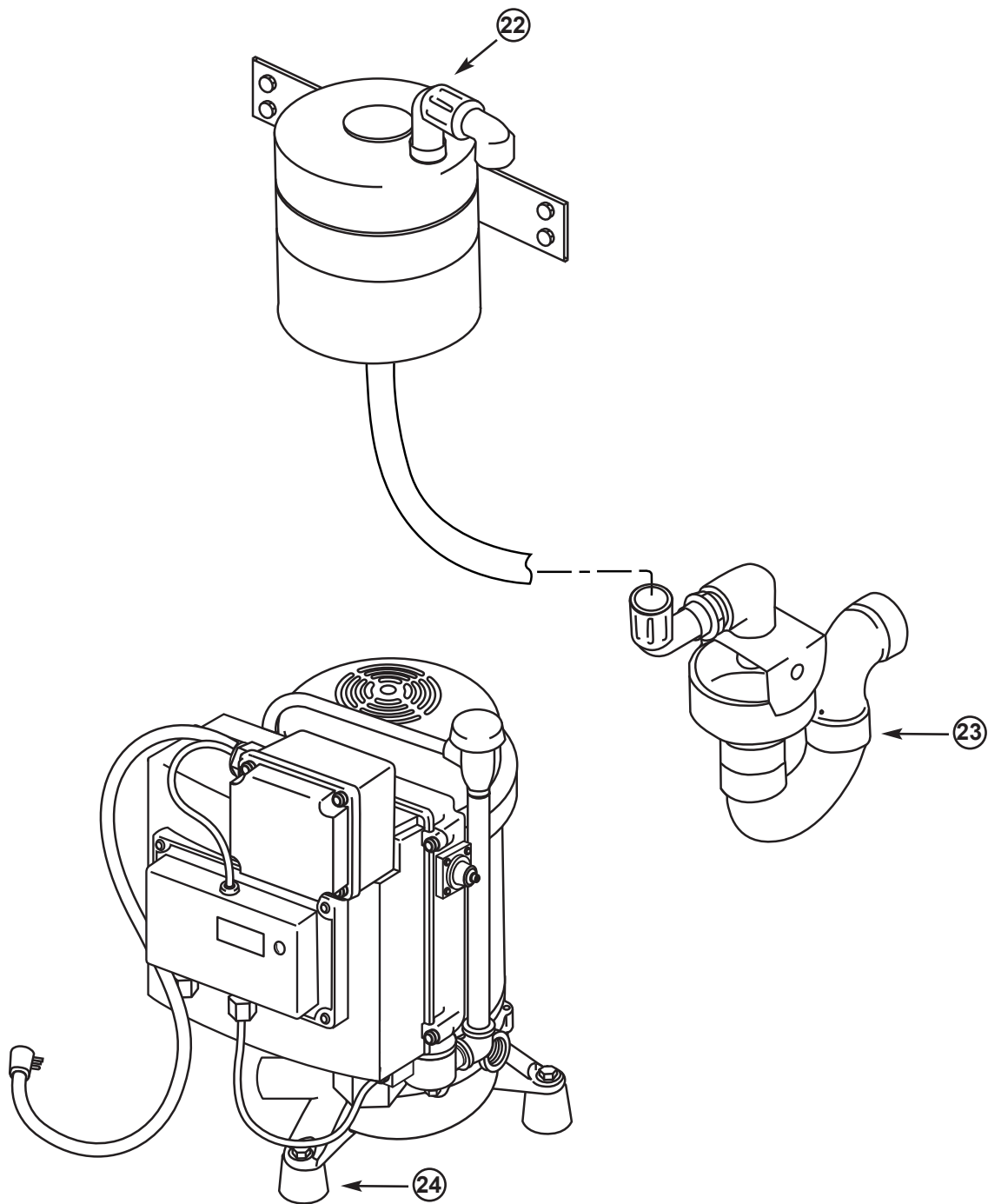
## WATER INJECTION ASSEMBLY

KEY	PART NO.	DESCRIPTION	UNIT
1	PVB	Pump Vacuum Breaker	1
2	BN-10.5-250	Brass Nipple 1/4" x 10 1/2"	1
3	BE-250	Brass Elbow 1/4" x 1/4"	1
4	BN-250-CL	Brass Nipple 1/4" Closed	2
5	PSV-230E	Pump Solenoid Valve 230V	1
6	VPS-250	Vacuum Pump Strainer 1/4"	1
7	BSE-250	Brass Flare Elbow 1/4" x 1/4"	1
8	PCF-250-375E	Push Connect Fitting 1/4" x 3/8" Elbow	1
9	WIN-19	Brass Water Injection Nozzle - .19 GPM	1
10	BRN-6-4	Brass Reducer Nipple 3/8" x 1/4"	1
11	FE-4-4	Brass Flair Elbow 1/4" x 1/4"	1
12	PFT-250	Poly Flow Tube 1/4"	18"
13	PCF-250-375	Push Connect Fitting 1/4" x 3/8"	1



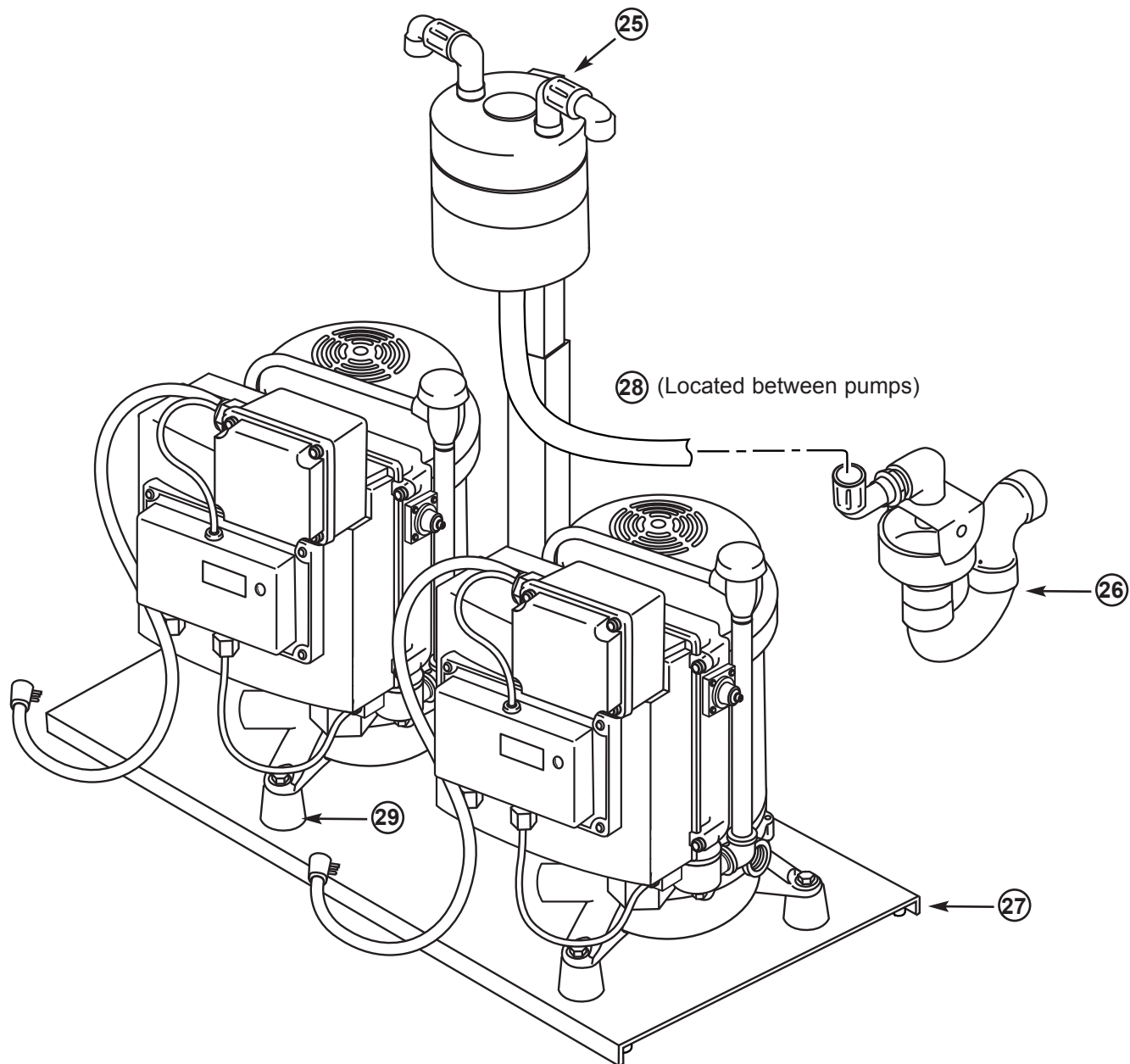
## MANIFOLD ASSEMBLY

KEY	PART NO.	DESCRIPTION	UNIT
14	PCTF-125E	PUSH CONNECT TUBE FITTING ELBOW 1/8"	1
15	BN-750-3	BRASS NIPPLE 3/4" x 3"	1
16	ESLM	ECO STAR LIQUID MANIFOLD	1
17	MG-100	MANIFOLD GASKET	1
18	VFS-40	VACUUM FILTER SCREENS (PKG OF 3)	1
19	VFG-100	VACUUM FILTER GASKET (PKG OF 3)	1
20	VFA-40	VACUUM FILTER ASSEMBLY 40 MESH	1
21	PSE-750-ST	PVC SPIGOT ELBOW 3/4" SLIP BY THREAD	1



## SINGLE ECO-STAR

KEY	PART NO.	DESCRIPTION	UNIO
22	ES1	EXHAUST SEPARATOR TRAP	3
23	PTA-100	P-TRAP ASSEMBLY	1
24	RFV-100	RUBBER FEET FOR VACUUM PUMP	1

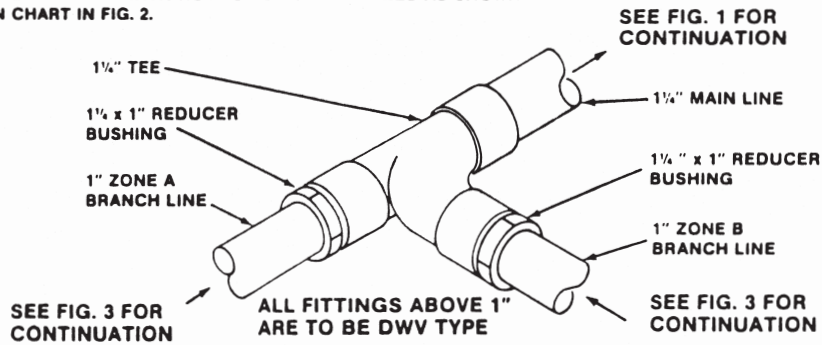


## DUAL ECO-STAR PLATFORM

KEY	PART NO.	DESCRIPTION	UNIT
25	ES-2	EXHAUST SEPARATOR TANK	1
26	PTA-100	P-TRAP ASSEMBLY	1
27	DPA-100	DUAL PLATFORM ASSEMBLY*	1
28	DCV-100	DUAL CHECK VALVE ASSEMBLY	1
29	RFV-100	RUBBER FEET FOR VACUUM PUMP	6

\*INCLUDES DCV-100 AND ES-2

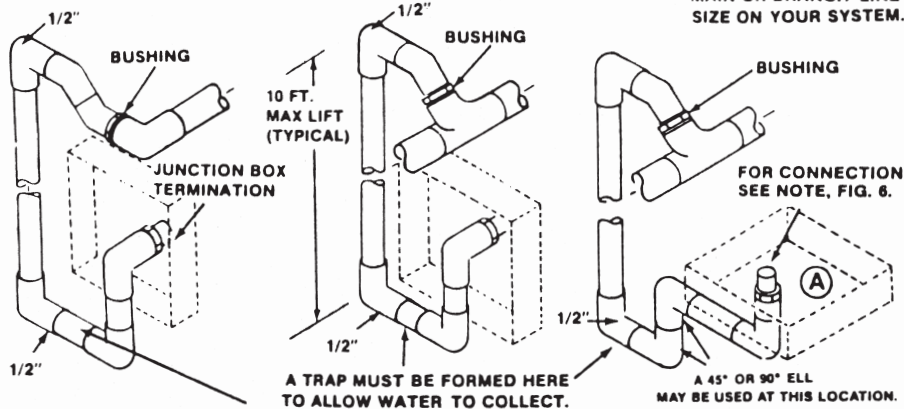
THE TEE WILL ALWAYS MATCH MAIN LINE SIZE. USE REDUCER BUSHINGS TO MATCH BRANCH (OPERATORY) LINE. LINE SIZES WILL DECREASE WITH NUMBER OF OPERATORIES AS SHOWN ON CHART IN FIG. 2.



**FIG A** **BRANCH LINE OR OPERATORY TEE**  
EXAMPLE SHOWN IS ZONE SPLIT TEE

**IMPORTANT:** ALL FITTINGS AND PIPING FROM THIS BUSHING TO JUNCTION BOX TERMINATION MUST BE 1/2 inch.

SEE FIGURE 2 FOR CORRECT MAIN OR BRANCH LINE SIZE ON YOUR SYSTEM.

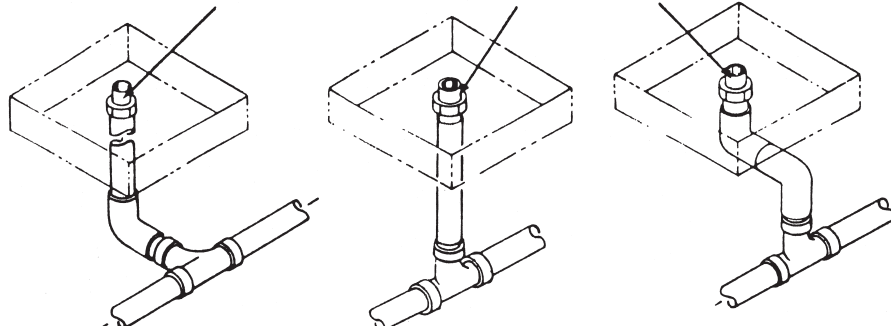


**IMPORTANT** ALWAYS CLOSE COUPLE FITTINGS AT TRAP LOCATION.

WHEN INSTALLING OVERHEAD PIPING SYSTEM USE THESE BRANCH LINE TAKE OFF EXAMPLES: YOU MUST NOT DEVIATE FROM THESE EXAMPLES ON OVERHEAD SYSTEMS. SEE FIG. 2 FOR CORRECT MAIN OR BRANCH LINE SIZE ON YOUR SYSTEM.

**FIG B** **OVERHEAD SYSTEM**

CONNECT OPERATORY SOLIDS COLLECTOR HERE VIA FLEXIBLE HOOK-UP HOSE



NOTE: FOR INFORMATION ON CORRECT TERMINATION SIZE AT JUNCTION BOX SEE FIG. 3 NOTE 2.

**FIG C** **TYPICAL BRANCH LINE TAKE OFF**

[illegible]





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