

INTERNATIONAL CARBONIC INC.



ADELANTO, CALIFORNIA

VALVE BRIXING
AND
MAINTENANCE
MANUAL

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INTERNATIONAL CARBONIC INC.

VALVE ASSEMBLIES REPAIR AND REFURBISHING MANUAL

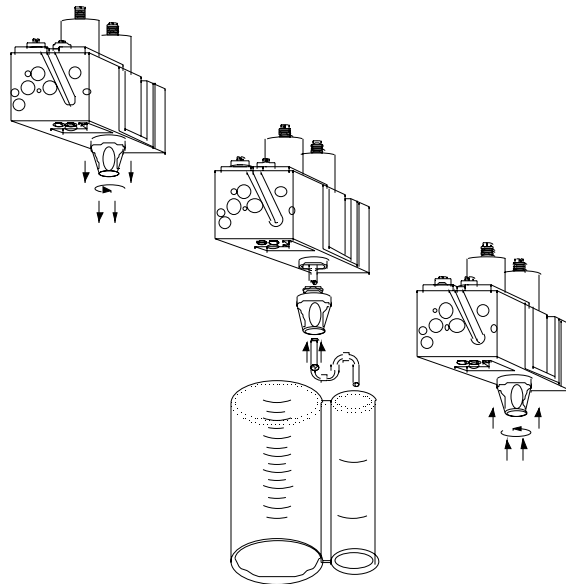
The purpose of this manual will be to assist the service technician to identify, diagnose, disassemble, replace or repair defective parts, reassemble and test all valves manufactured by I.C.I.

For Further technical information please call 800 854-1177

CONGRATULATIONS: You now own one of the finest and most versatile valves on the market. With minimal care, get ready for years of a consistent and perfect flow.

BRIX INSTRUCTIONS

1. Make sure carbonator/water flow is in an operating condition, i.e., high-pressure regulators set, water and power on and refrigeration in a ready to go mode. In the case of juice systems make sure water flow is un-restricted. It is also recommended that a water pressure regulator be utilized on all systems. Water bath systems must have an ice bank formed.
2. Adjust water flow to 6 ounces in 5 seconds.
3. Remove nozzle (twist and pull down), then insert syrup separator through nozzle, be it "S" type or plastic tube, and on ¼" plastic syrup outlet located inside hidden nozzle area. Then press nozzle back in position.
4. Actuate valve until syrup separator is full of syrup. Hold brix cup close enough to valve outlet to form "S" on the flexible plastic tube so as to prevent any water following the flexible tube into syrup section. This formed "S" will also hold syrup in tube for a more reliable brix reading.
5. Actuate valve allowing the soda water to flow into large section of cup and syrup into smaller section. Adjust the syrup metering pin/flow-control as necessary to secure a proper brix. When proper brix syrup adjustments have been made, the two sections of the cup should fill to the desired ration.



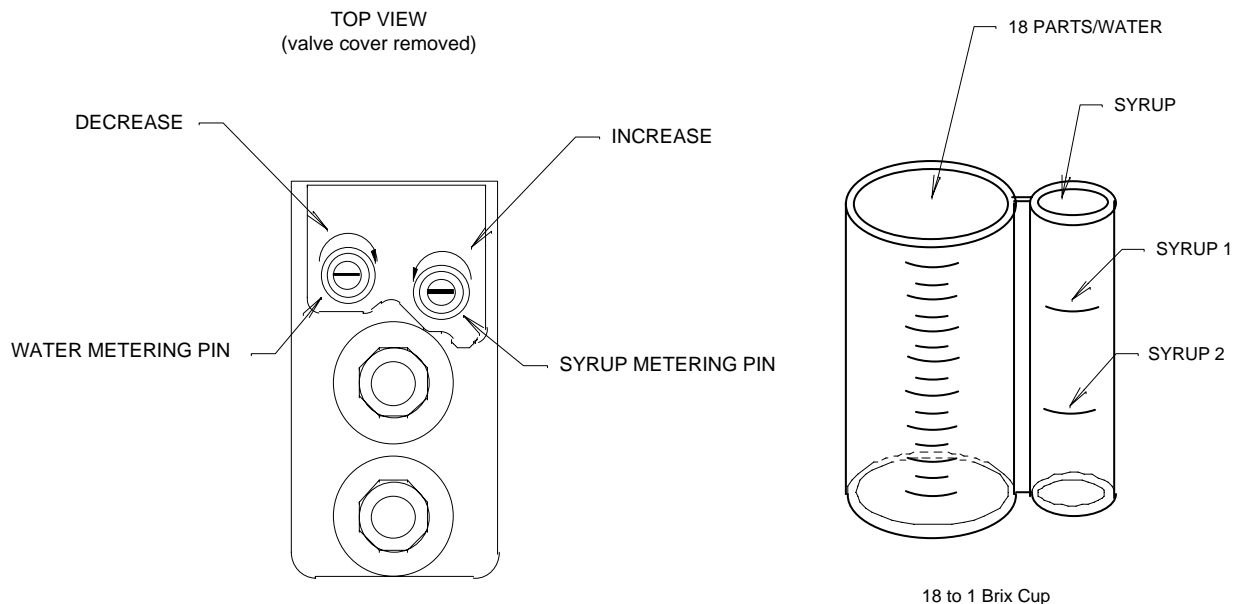
Brix Instructions Continued

BRIXING PFC-II VALVE

The water and syrup flows are individually adjusted by their respective metering pin or flow-controls. Located under the valve cover on the top rear of the valve, see illustration.

One recommended method utilizes the ratio brix cup. The brix cup is divided into two sections, one to hold up to 9 parts water and the smaller section to hold one or two parts of syrup. When adjusting a flavor with a ratio of more than 9 to 1 syrup 2 line must be used. When using syrup 2 line the waterside is doubled to 18 to 1 vs. 9 to 1.

When facing the valve, the syrup is always to the right and the water/soda is to the left. To decrease syrup or water flow, turn metering pin clockwise. To decrease syrup or water flow, when using flow control valves turn counter-clockwise. To increase, reverse rotation respectively. The ultimate goal is to achieve a proper ratio of water vs. syrup. This ratio can and will vary with differing products.



Maintenance:

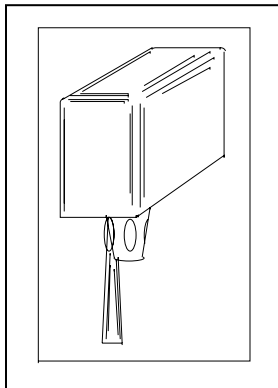
Cleaning your valve is recommended to insure a constant quality drink. If a valve is not sanitized on a regular basis (nightly recommended), the possibility of foamy and off-tasting drinks is greatly increased.

1. Turn off key switch normally located on valve plate or side of cabinet. Or disconnect tower from electrical supply.
2. Clean all exposed areas of valve with mild soap or sanitizing solution and warm water.
3. Remove nozzle and place in warm water. Do not soak nozzle in bleach water, this will turn the nozzle yellow and cause deterioration. It is recommended to use a soft bristle brush, part No. S-1064, to clean any hard to get areas of valve or nozzle. Do not soak nozzle in extremely hot water, nozzle will warp.

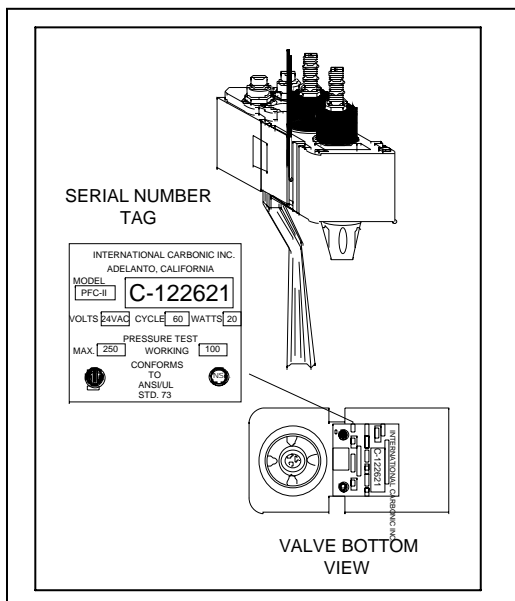
REFURBISHING:

The purpose of this section will be to assist the service technician to identify, diagnose, disassemble, replace or repair defective parts, reassemble and test the valve.

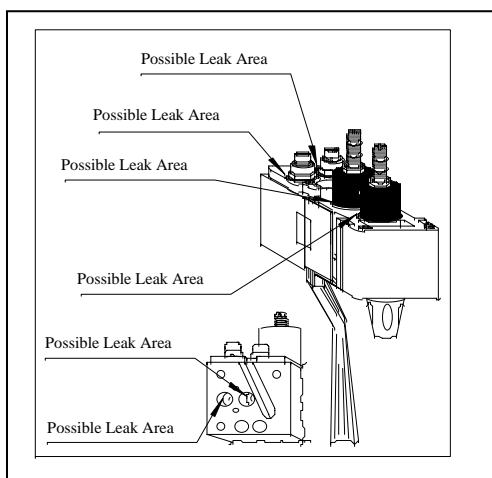
DISASSEMBLY AND INSPECTION:



All valves from the FT-II through the PFC-II utilize the same valve covers. You should, at this time inspect the valve cover for blemishes, scratches, etc., then remove, exposing electrical and mechanical parts. It is suggested that any valve cover other than new looking be replaced.

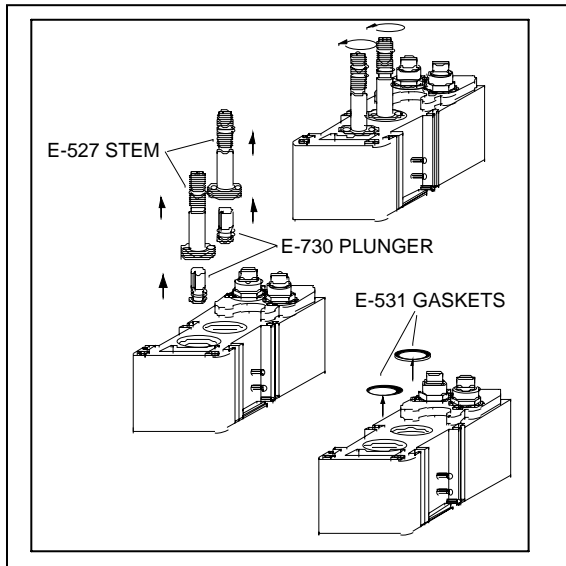


IDENTIFY: Valves will normally have a serialized name plate on the underside of the valve body which identifies the valve. If this valve identification is missing, we can visually identify the valve by use of individual explode views.



Once we have identified the valve, visually inspect for obvious defects. Look for telltale rust paths or areas, these areas normally suggest the probability of a past leak, also look for broken or misused items. The most probable areas to look for leaks are shown in above illustrations.

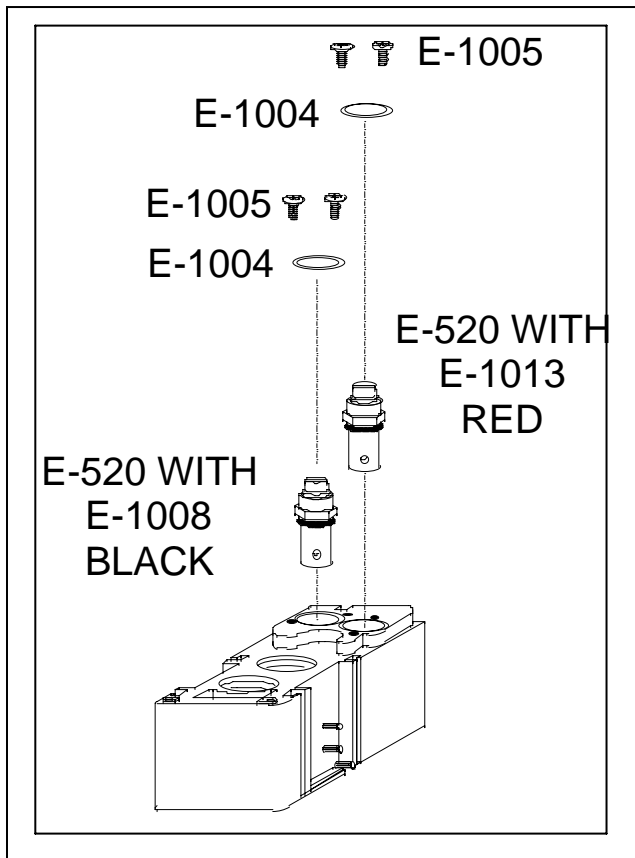
Remove all electrical, i.e., coils, wires and sub-miniature switch (s). Remove actuating arm, leaf springs, and nozzle.



Using external pressure or an I.C.I. manufactured test stand, test valve (less electrical) for leaks. This can be accomplished using air or CO2 and submerging valve body in water. Any leak will become apparent by the appearance of bubbles. Another method is by using pressurized water as a medium and visually looking for this water being leaked out of the valve. This method would be used when using an I.C.I. test stand.

If no leak is apparent, then the valve should be further disassembled, i.e., stem should be turned counter

clockwise which will remove stem from valve body. This should be accomplished by using an E-685 solenoid wrench. Note: Pliers are not recommended to remove solenoid stems.



Upon removal of stem, access is gained to plunger and spring assembly. Particular attention should be directed to the plunger to make sure there is no swelling or deterioration of rubber seat. If distortion or deterioration is noted, plunger should be replaced at this time.

Separate bins should be set up to accommodate all parts.

Now that electrical and solenoids have been removed, the only remaining parts will be metering pins, flow controls or flow washers. To remove these items, four (4) E-1005 screws must be removed. This allows you to remove the E-1004 retaining ring. Now, by pulling upward, remove individual metering device. Place in separate bin.

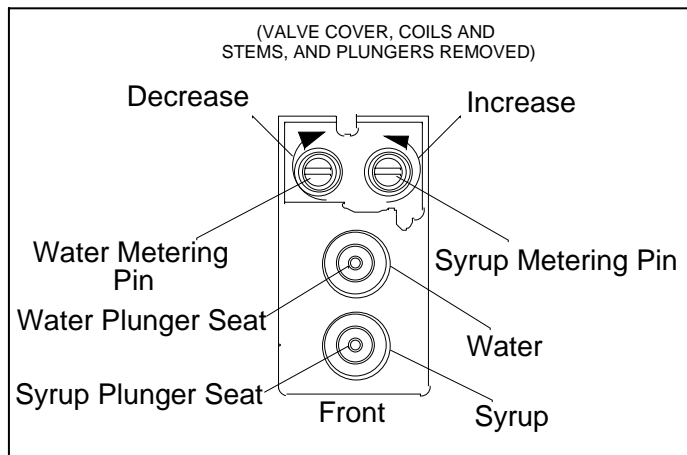
It is recommended that all “O” rings be changed on any R & R.

Individual parts must be thoroughly cleaned, and if necessary, further disassembly may be required to remove “O” rings. Example - see exploded view PFC-II on metering pin.

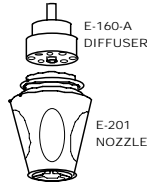
If during pressure test bubbles are detected or water is apparent, then it must be determined whether the valve body is the cause or whether the leak is caused by an “O” ring. If it is determined that the leak is attributed to a cracked valve body, then follow the above disassembly procedure, isolating defective valve body.

Note: If valve body is with in warranty return for replacement. Once all parts are thoroughly cleaned and “O” rings replaced, reassembly can be accomplished.

It must be noted that all I.C.I. valves will accommodate metering pins, flow controls or flow washers. Also, all I.C.I. valves will accommodate non-carbonated or carbonated products. All I.C.I. valves are easily retrofitable to dual applications, i.e., addition of small actuating arm that will actuate soda or water coil only. Refer to electrical schematic to accommodate the dual feature. All I.C.I. Valves can be equipped with a Quick Disconnect feature.

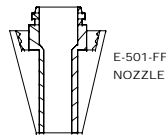


VALVE HISTORY

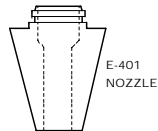


FT VALVE: Our first molded valve with large coils, Plungers, and housings. Utilized the E-201 nozzle and E-160A diffuser. Discontinued as a standard about 1978.

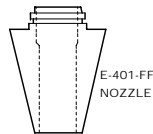
FT-II Valve: 1978, The first molded valve that utilized small coils, plunger and housings. This valve differed from the FT also in the fact that metering was accomplished by working from the top of the valve. Also, this valve could use metering pins or flow controls. It still utilized the E-201 nozzle and E-160A diffuser.



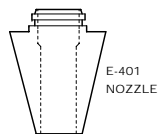
FT-II-FF Valve: 1983, The first valve that completely omitted the E-160A diffuser. All Parts excluding the valve E-559-FF body and E-501-FF nozzle were the same as the previous FT-II valve. The new E-501-FF nozzle was of a two piece construction. An inner core was machined from Delrin with an ABS outer jacket. This fast flow valve utilized a stainless steel syrup outlet tube, E-571-FF, to diffuse the syrup. Flow rate maximum 3 ounces per second.



PF Valve: 1984, Basically the same as the FT-II-FF except in a standard flow configuration. The major change was the introduction of a molded one-piece nozzle, E-401. The E-401 nozzle has an outlet hole that is approximately 7/16" in diameter. This valve, with the exception of the valve body E-459, nozzle E-401 and syrup outlet tube E-471, use the same parts as the FT-II and FT-II-FF.

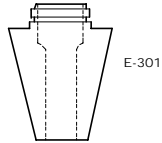


PF-FFV Valve: 1984, This valve was made in the likeness of the PF with larger orifices to handle the greater volume. All parts with the exception of the nozzle E-401-FF, syrup outlet E-471-S, and the valve body E-459-FF are the same as the PF. The nozzle is made in a molded one-piece construction with a 5/8" diameter outlet. Flow rate maximum 3 ounces per second.

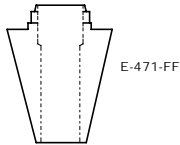


PF-2-PB Valve: April 1989, This two-flavor valve was developed to accommodate locations where it is impossible to install a larger unit but another flavor is in demand. This valve will fit on any valve plate that previously used a PF series valve. This valve utilized all parts that were used on previous valves. Metering is accomplished from the bottom and can only be performed by the use of metering pins. The valve body, E-591, uses the E-401 nozzle. Special syrup outlets, two E-595 are used. Also an E-1061 push button assembly is used as a standard. This valve was designed as a standard flow valve only.

VALVE HISTORY PAGE 2



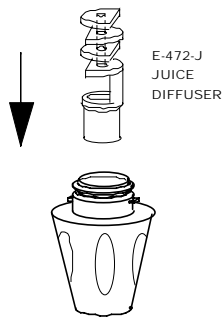
PFC Valve: January 1990, This valve used all the same parts as the FT-II, FT-II-FF, PF and PF-FF, with the exception of the E-359 valve body, E-301 nozzle and E-471 syrup outlet. The E-359 valve body cavity is approximately 5/8" deep. The PFC nozzle will work on the PF valve and visa versa. The only difference is that there is no "O" ring groove. Problem when these nozzles are soaked in bleach or some cleaning agents a small portion of the plastic erodes and the nozzle will not stay in place during operation. This valve was our first valve that was convertible, i.e., as a standard the flow rate will be 1.5 ounce per second. With the change of a nozzle the flow rate can be up to 3.0 ounce per second.



PFC-FF Valve: January 1990, The PFC-FF valve nozzle, E-301-FF will not work on the PF-FF valve due to the difference in the height of the interior cavity of the body. The E-359-FF body has a cavity depth of approximately 1/2". The PFC-FF syrup outlet tube, E-471-FF can be used as a replacement for all syrup outlet tubes. Flow rate 3.0 ounce per second.

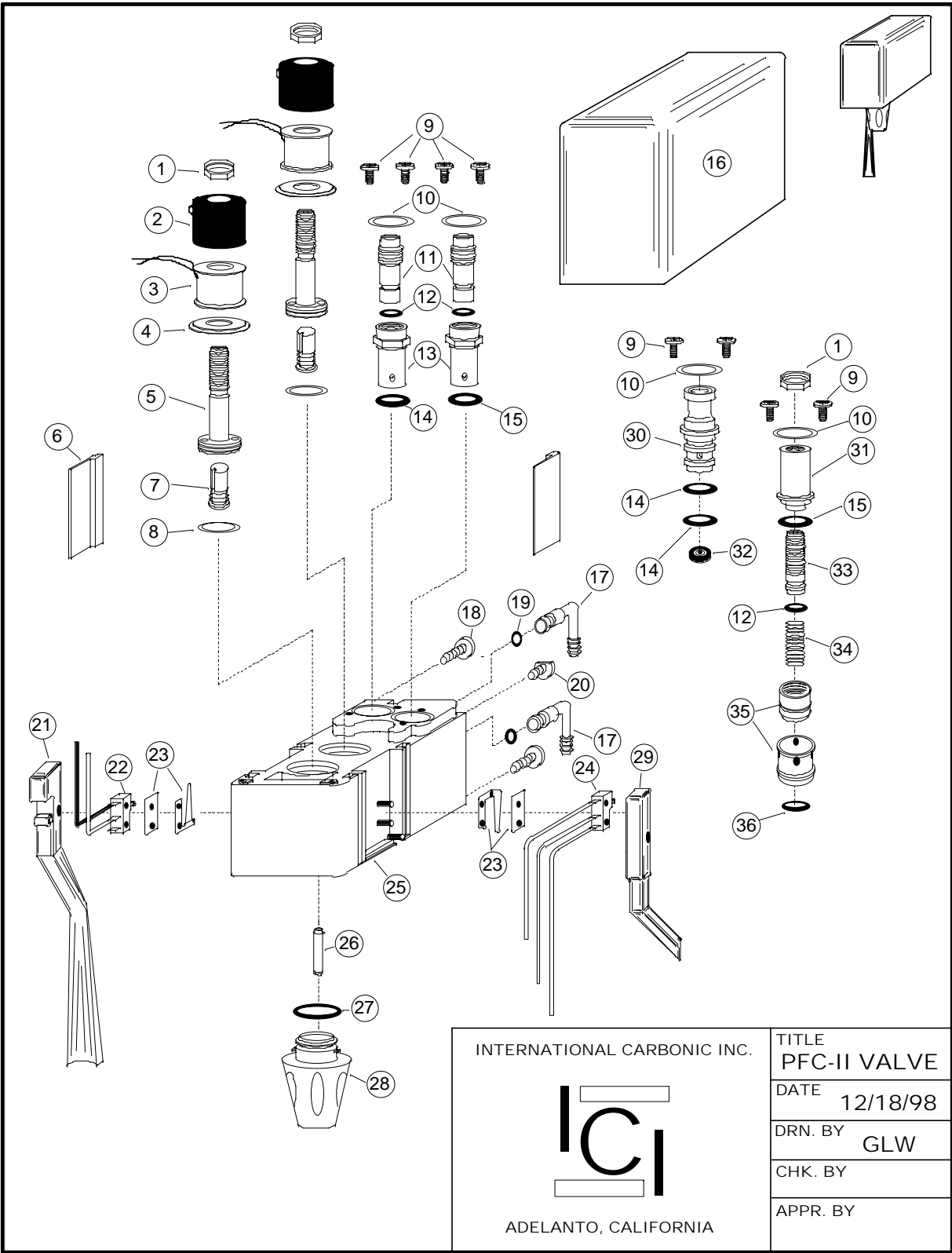


PFC-II Valve: March 1993, The PFC-II valve is like all I.C.I. Prfct Flow series valves, i.e., it will flow as a standard or fast flow by changing the nozzle and metering. It uses all the same parts as its predecessors. It can be converted to dual valve simply by adding a dual kit. It can be metered by metering pins. Flow controls or flow washers. The E-581 or E-581-FF nozzles are different from their predecessors in that they are of a twist lock configuration. The nozzle for both fast flow and standard utilize the E-102 "O" ring. The valve body, E-580 or E-580-FF (fast Flow), arc configured to accommodate the twist lock nozzle. The flow rate will be 1.5 ounce per second to 3.0 ounce.



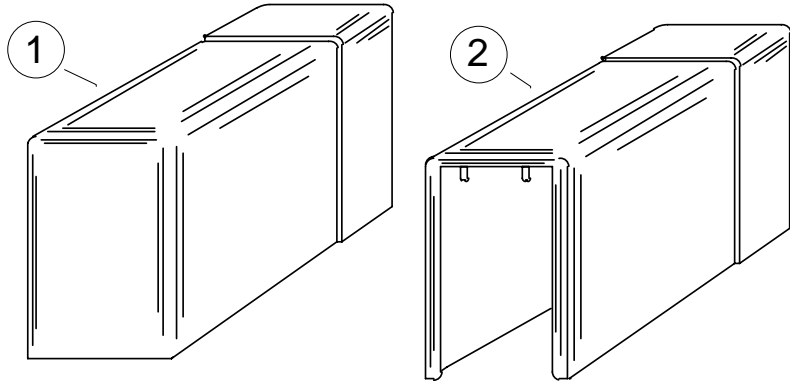
PFC-II-B Valve: March 1997, The PFC-II valve nozzle and nozzle cavity is made out of a black or smoked plastic. Nozzle designation E-581-B standard and E-581-FF-B fast flow. The valve body designation E-580-B.

E-472-J DIFFUSER: September 2002, The diffuser was designed to promote almost perfect diffusion on all juice valves. This diffuser is used on a standard juice valve. The standard juice valve must have the E-471-FF removed to implement the E-472-J diffuser.



PFC-II

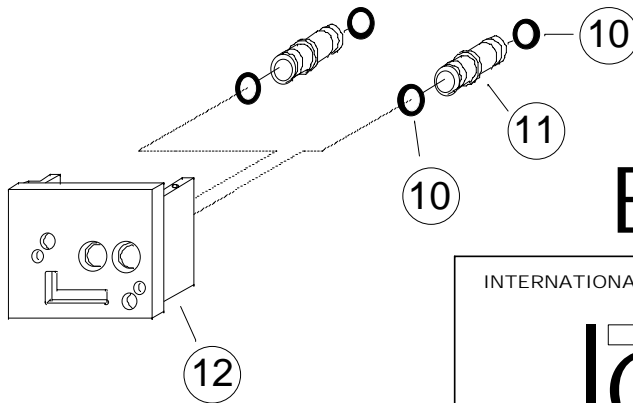
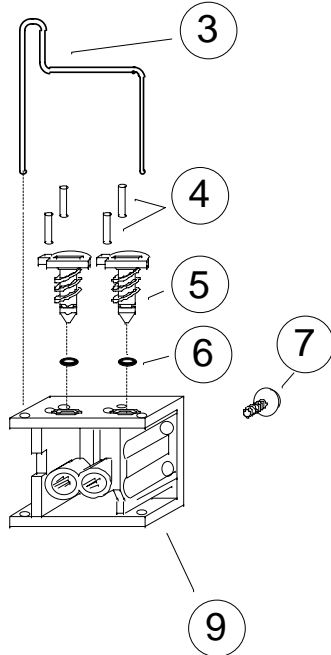
SYM	QTY	PART NO.	DESCRIPTION
1	2	E-623	NUT, SOLENOID
2	2	E-525	COIL, W/SHIELD, SOLENOID, 24 VAC
3	2		
4	2	E-739	FLUX PLATE
5	2	E-527	STEM, SOLENOID VALVE
6	1	E-456	ESCUTCHEON PLATE (1/2 PLATE)
7	2	E-730	PLUNGER & SPRING ASSEMBLY
8	2	E-531	GASKET, SOLENOID STEM
9	4	E-1005	SCREW, RETAINER
10	2	E-1004	RETAINER, S.S.
11	2	E-135	METERING PIN
12	2	E-134	"O" RING, METERING PIN
13	2	E-520	METERING PIN ADAPTOR ASSY, INCLUDES SYM 11, 12, & 13
14	1	E-1008	"O" RING, SODA ADAPTOR
15	1	E-1013	"O" RING, SYRUP ADAPTOR
16	1	E-554-A	CAP, COVERALL, SHORT
17	2	E-385	TUBING, INLET ASSY., 1/4" HOSE, S.S. 90 DEGREE
18	2	E-162	SCREW, TAP TIGHT
19	2	E-137	"O" RING, TUBE INLET
20	1	E-240	1/2 SCREW
21	1	E-358	ARM, ACTUATING
22	1	E-157	SWITCH, SUB MINIATURE
23	1	E-188	SPRING, W/INSULATOR PAD
24	***	E-157-A	SWITCH, SUB MINIATURE, DUAL (OPTIONAL)
25	1	E-580-P	VALVE BODY, WITH DRIVE PINS
26	1	E-471-FF	SYRUP OUTLET TUBE
27	1	E-102	"O" RING, NOZZLE
28	1	E-581	NOZZLE, TWIST LOCK
	***	E-581-FF	NOZZLE, TWIST LOCK, FAST FLOW
29	***	E-258	ARM, ACTUATING, DUAL, LONG (OPTIONAL)
30	***	E-1024	FLOW WASHER ADAPTER
31	***	E-1003	HOUSING, W/SODA DECAL
	***	E-1010	HOUSING, W/SYRUP DECAL
32	***	E-1022	FLOW WASHER, STANDARD FLOW
	***	E-1023	FLOW WASHER, FAST FLOW
33	***	E-1002	ADJUSTING SCREW, W/"O" RING
34	***	E-1006	SPRING, SODA
	***	E-1011	SPRING, SYRUP
35	***	E-1007	PISTON & CYLINDER, SODA, (MATCHED SET)
	***	E-1012	PISTON & CYLINDER, SYRUP, (MATCHED SET)
36	***	E-1016	"O" RING, BOTTOM SEALING
***			OPTIONAL, SPECIFY



E-1047

SYM	QTY	PART NO.	DESCRIPTION
1	1	E-1045	COVERALL CAP
2	1	E-1046	COVERALL CAP, FOR PCT/PUSH BUTTON
3	1	E-1040	WIRE, LOCK
4	4	E-186	STOP PIN, (SWITCH PIN)
5	2	E-1038	SCREW, SHUT OFF
6	2	E-1039	"O" RING, SHUT OFF SCREW, 2-007
7	2	E-240	SCREW, INLET LOCKING
8	4	A-48	10-32 X 3/8 RD HD SCREW
9	1	E-1037	BLOCK, MOUNTING
10	4	E-137	"O" RING, TUBE INLET, 2-010
11	2	E-1043	COLLET
12	1	E-1042	BLOCK, VALVE MOUNT
	1	E-1041	MOUNTING BLOCK ASSEMBLY ITEMS 3,4,5,6,7, & 9
	1	E-1044	VALVE BLOCK ASSEMBLY ITEMS 10, 11 & 12

NOTE: ITEM 8 PRIOR TO 1998 8-32 X 3/8 CAD RD HD SCREW



E-1047

INTERNATIONAL CARBONIC INC.



ADELANTO, CALIFORNIA

TITLE E-1047
QUICK RELEASE VALVE MOUNT

DATE 7/1/99

DRN. BY GLW

CHK. BY

APPR. BY

PFC-II-PP

SYM	QTY	PART NO.	DESCRIPTION
1	1	E-623	NUT, SOLENOID
2	1	E-525	COIL, W/SHIELD, SOLENOID, 24 VAC
3	4	E-1005	SCREW, RETAINER
4	1	E-739	FLUX PLATE
5	1	E-527	STEM, SOLENOID VALVE
6	2	E-1004	RETAINER, S.S.
7	1	E-135	METERING PIN
8	1	E-1024-M	ADAPTER, FLO WASHER, MODIFIED
9	1	E-134	"O" RING, METERING PIN
10	1	E-1013	"O" RING, SYRUP ADAPTOR
11	1	E-730	PLUNGER & SPRING ASSEMBLY
12	1	E-520	METERING PIN ADAPTOR ASSY, INCLUDES SYM 7,9, & 12
13	2	E-531	GASKET, SOLENOID STEM
14	1	S-1162-A	FLANGE PLUG
15	1	E-1008	"O" RING, SODA ADAPTOR
16	1	E-580	BODY, PFC-II, TWIST LOCK
17	1	E-157	SUBMINIATURE SWITCH
18	1	E-188	SPRING AND INSULATOR PAD
19	1	E-471-FF	SYRUP OUTLET TUBE
20	1	E-102	"O" RING, NOZZLE
21	1	E-581	NOZZLE, TWIST LOCK
22	1	E-690	WIRE ASSEMBLY CONSISTS OF E-691 & E-692
23	1	E-691	MALE WIRE ASSEMBLY ONLY
24	1	E-692	FEMALE WIRE ASSEMBLY ONLY

PFC-II-Peristaltic Pump

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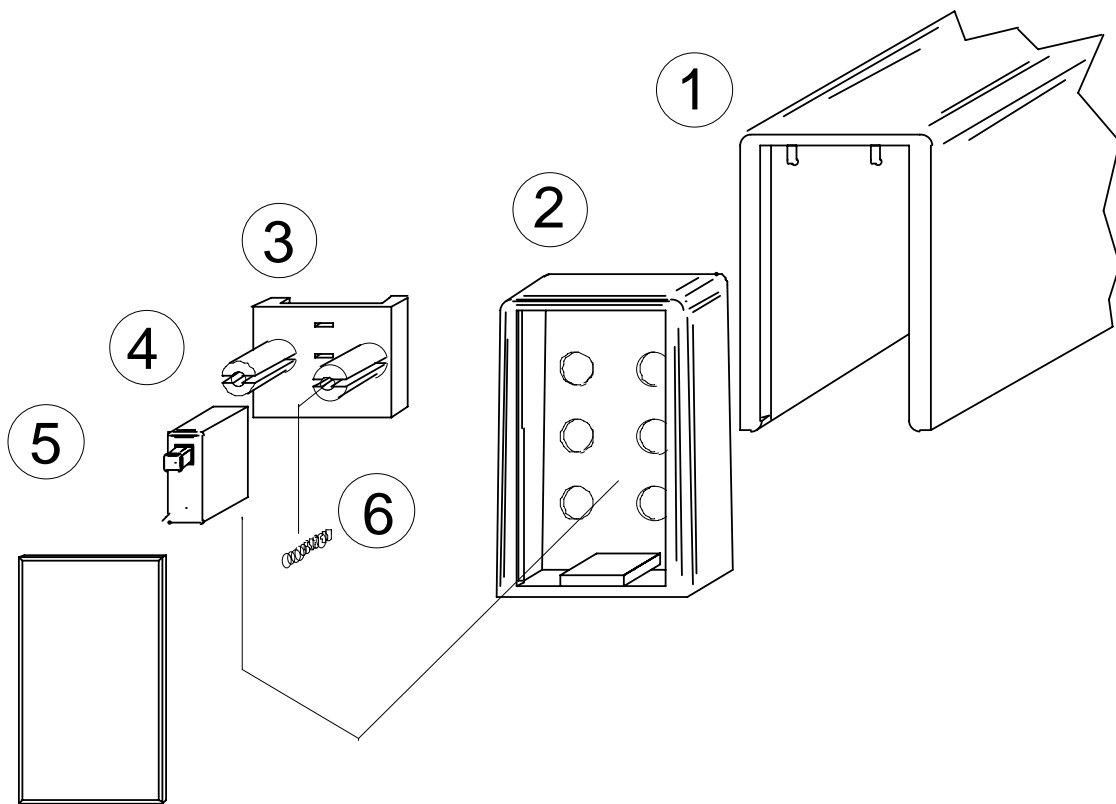
TITLE
PFC-II-PP

DATE
2/27/01 REVISED 9/27/01

DRN. BY **GLW**

CHK. BY

APPR. BY



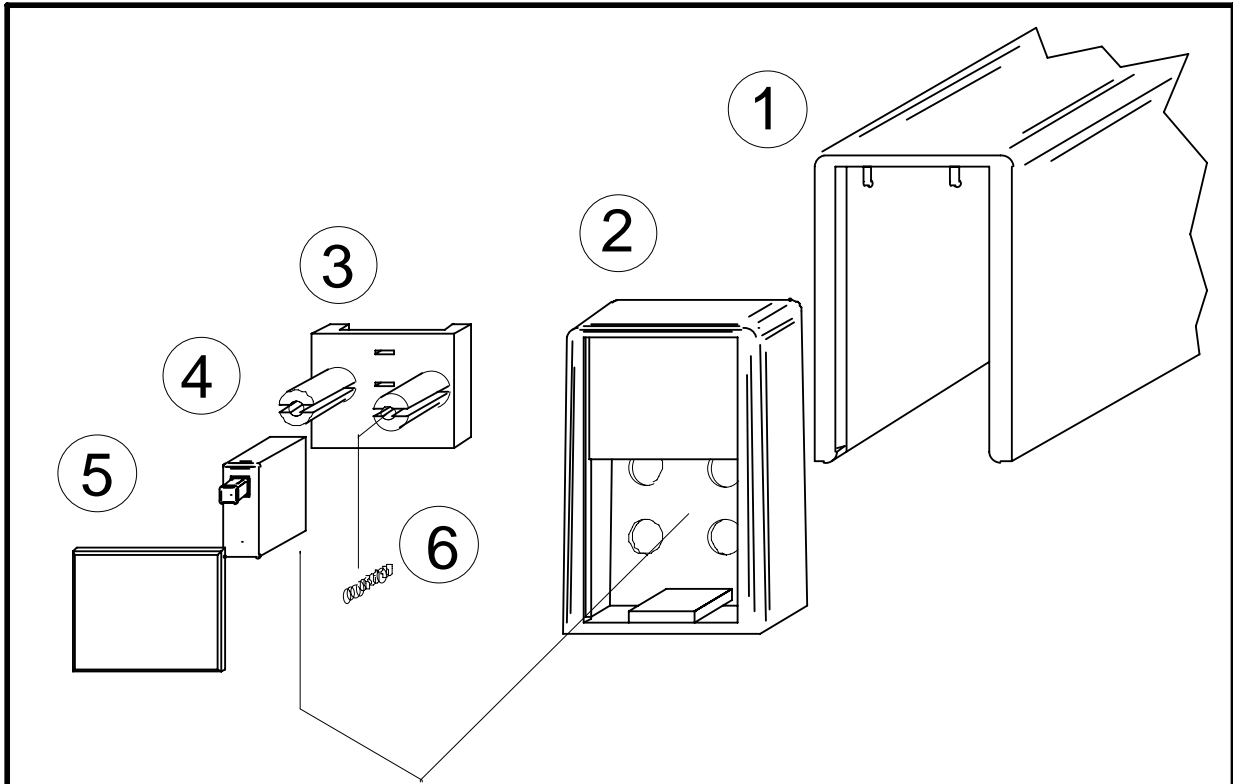
E-1067 ONE FLAVOR PUSH BUTTON ASSY.

SYM	QTY	PART NO.	DESCRIPTION
1	1	E-1066	CAP, COVER ALL
2	1	E-1072	CONTROL BOX
3	1	E-1063	SWITCH MOUNTING PLATE
4	1	E-157	SUB MINIATURE SWITCH
5	1	E-1068	ACTUATING PLATE
6	1	E-1070	SPRING

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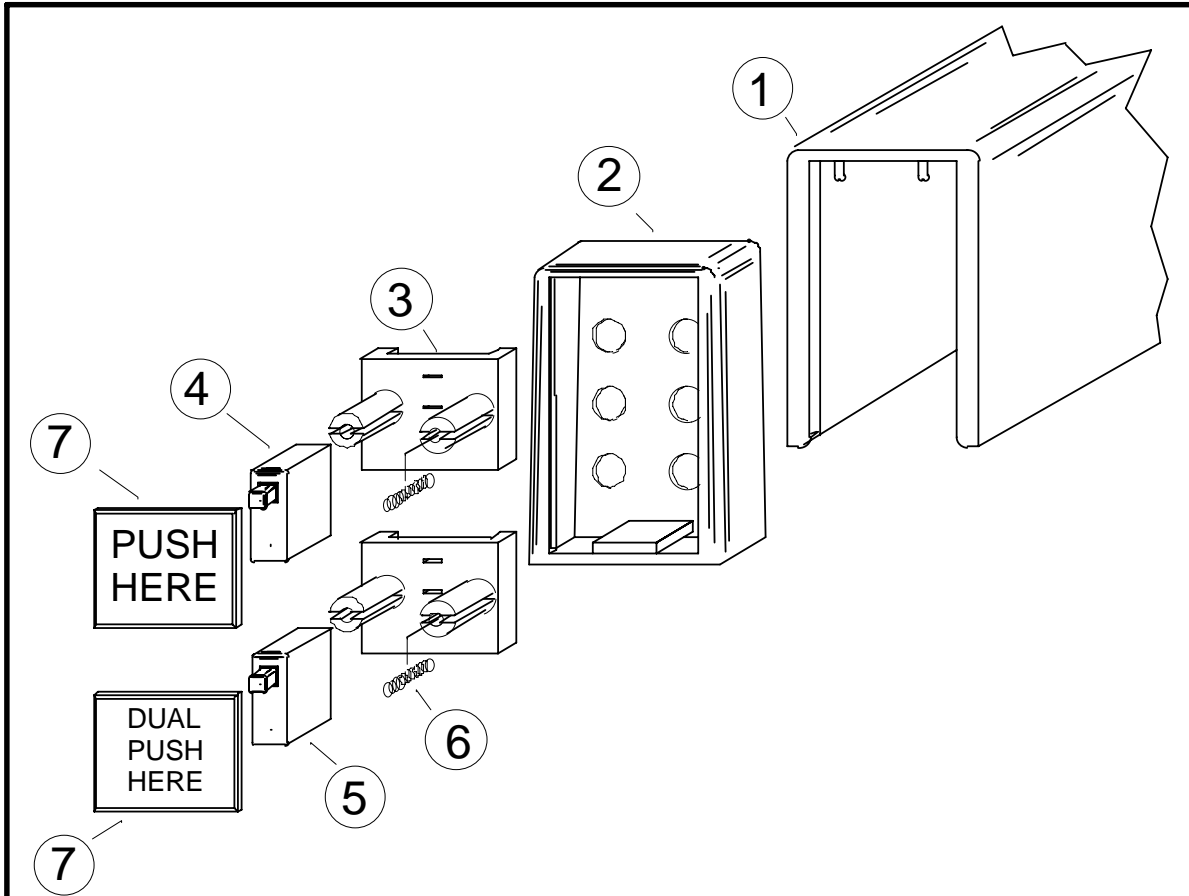
E-1071 ONE FLAVOR PUSH BUTTON ASSY.

SYM	QTY	PART NO.	DESCRIPTION
1	1	E-1066	CAP, COVER ALL
2	1	E-1072	CONTROL BOX
3	1	E-1063	SWITCH MOUNTING PLATE
4	1	E-157	SUB MINIATURE SWITCH
5	1	E-1064	ACTUATING PLATE
6	1	E-1070	SPRING
	1	E-1073	SWITCH AND ACTUATING ASSY., ITEMS 3,4,5, & 6

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E-1074 SINGLE FLAVOR DUAL PUSH BUTTON ASSY.

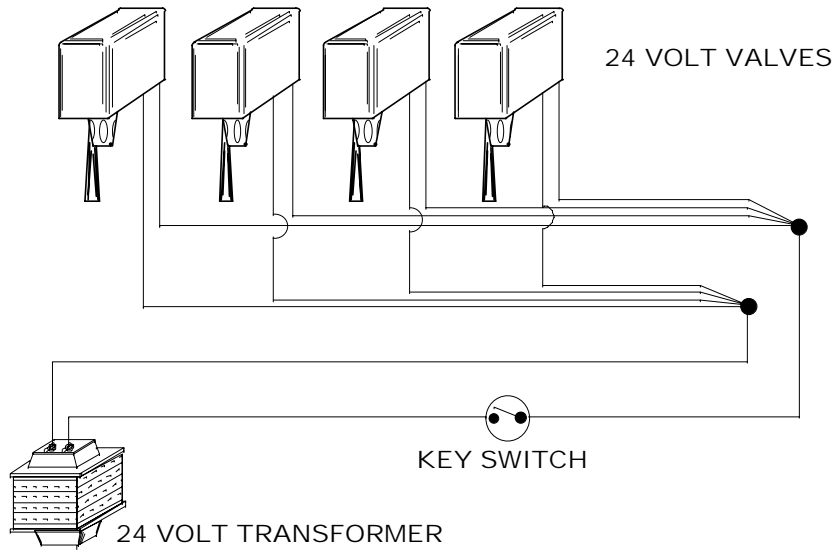
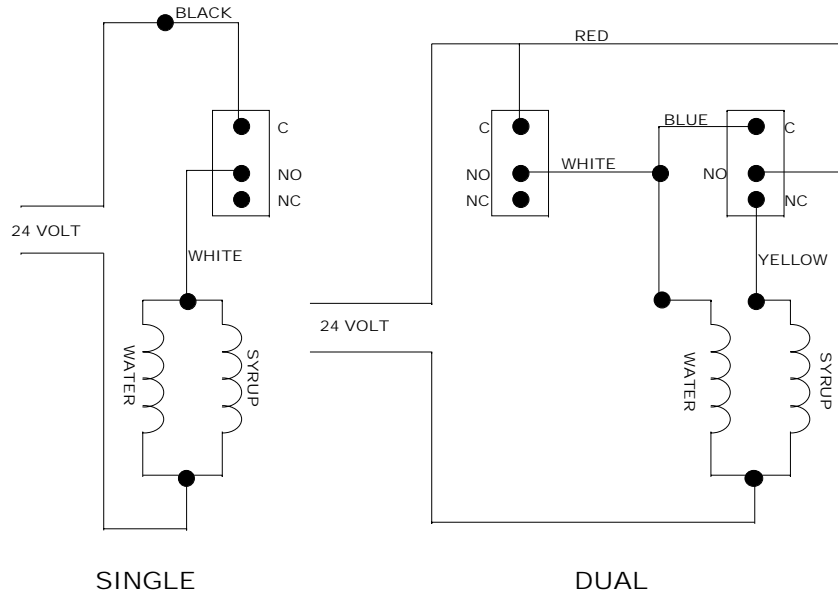
SYM	QTY	PART NO.	DESCRIPTION
1	1	E-1066	CAP, COVER ALL
2	1	E-1072	CONTROL BOX
3	2	E-1063	SWITCH MOUNTING PLATE
4	1	E-157	SUB MINIATURE SWITCH
5	1	E-157A	ACTUATING PLATE
6	2	E-1070	SPRING
7	2	E-1068	ACTUATING PLATE

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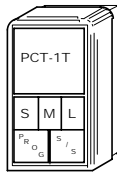
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VALVE SCHEMATIC



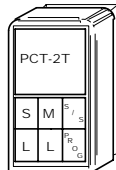
ELECTRICAL SCHEMATIC 24 VOLT

VALVE ACCESSORIES



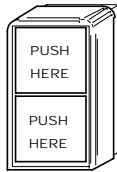
PCT-1T

3 PORTION CONTROL TIMER. AVAILABLE CAPACITOR MEMORY, SPECIFY WHEN ORDERING.



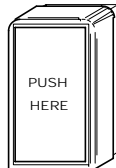
PCT-2T

4 PORTION CONTROL TIMER. AVAILABLE WITH CAPACITOR MEMORY, WITH INTERROGATIVE LED, SPECIFY WHEN ORDERING.



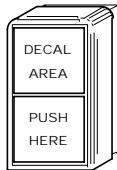
E-1061

2 FLAVOR PUSH BUTTON ACTUATOR ASSEMBLY. CAN BE USED ON TWO FLAVOR VALVE ONLY.



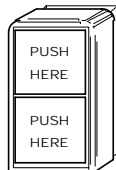
E-1067

SINGLE FLAVOR PUSH BUTTON ACTUATOR ASSEMBLY, LARGE BUTTON. CAN BE USED WITH Q.R. OR NON Q.R. VALVE, SPECIFY.



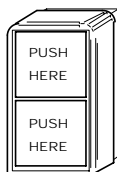
E-1071

SINGLE FLAVOR PUSH BUTTON ACTUATOR ASSEMBLY, SMALL BUTTON. CAN BE USED WITH Q.R. OR NON Q.R. VALVE, SPECIFY.



E-1074

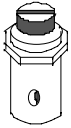
SINGLE FLAVOR WITH DUAL FEATURE PUSH BUTTON ACTUATOR ASSEMBLY, SMALL BUTTONS. CAN BE USED WITH Q.R. OR NON Q.R. VALVE, SPECIFY.



E-1075

SODA ONLY/WATER ONLY PUSH BUTTON ACTUATOR ASSEMBLY, SMALL BUTTONS. CAN BE USED WITH Q.R. OR NON Q.R. VALVE SPECIFY.

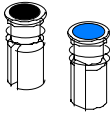
VALVE ACCESSORIES CONTINUED



E-520 METERING PIN ADAPTOR

E-520-J METERING PIN ADAPTOR USED FOR JUICE APPLICATIONS, HEAVY BAUME.

E-520-I METERING PIN ADAPTOR USED FOR JUICE APPLICATIONS, ISOTONIC.



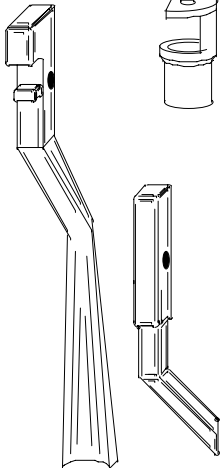
E-730 PLUNGER

E-730D PLUNGER, DIET

E-730J PLUNGER, JUICE



E-472-J JUICE DIFFUSER

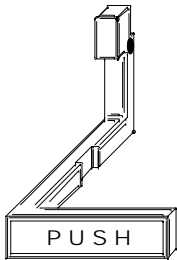


E-358 ACTUATING ARM

E-358L ACTUATING ARM, LONG

E-258 ACTUATING ARM, DUAL

E-258L ACTUATING ARM, DUAL, LONG

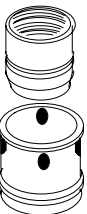


E-357P ACTUATING ARM, PUSH



E-1022 FLOW WASHER, STANDARD

E-1023 FLOW WASHER, FAST FLOW



E-1009 FLOW CONTROL ASSEMBLY, SODA

E-1014 FLOW CONTROL ASSEMBLY, SYRUP

E-1009FF FLOW CONTROL ASSEMBLY, FAST FLOW, SODA

