

Temperature Regulator I-1285-B through G Series (Bronze Valve Body)

GENERAL DESCRIPTION

The I-1285-B through G Series Temperature Regulators are compact, self-contained and self-powered, three-way control valves especially adaptable to control of water and lubricating oil temperatures on internal combustion engines. The Power-Pill[®] element, located inside the poppet assembly, responds to the temperature of the medium surrounding it and provides the force necessary to position the poppet as the temperature of the liquid passing through the valve changes. Temperature regulation is achieved by the proportional action of the three-way valve which varies the amount of medium through or bypassing the cooler to maintain the desired temperature. Operation of the Power-Pill[®] elements is unaffected by pressure changes in the system.

The Power-Pills are factory-set for the specified control temperature and are not manually adjustable. By exchange of Power-Pill[®] elements, the operating temperature may be changed in a very simple manner. Since all internal parts lift out with the valve bonnet, it is not necessary to remove the valve from the piping.



SPECIFICATIONS

CONSTRUCTION

Valve BodyBronze, ASTM B62,
 with 150 lb. ANSI flanges.

Trim Cast Brass with integral seating surfaces.

Poppet SealSplit Buna-N "O"-Ring
 (General Purpose).

OPERATING RANGES:

Available temperature ranges tabulated below.

MAXIMUM VALVE BODY RATING:

10.3 bars (150 psi) on 2", 2 1/2", 3", and 4"; 6.9 bar
 (100 psi) on 5" and 6" at 121°C (250°F).

PROOF PRESSURE:

10.34 bars (150 psi) at room temperature.

CAUTION: Do Not Exceed Maximum
 Temperature-Pressure Rating.

SHIPPING WEIGHTS:

See Page 3.

ORDERING INFORMATION

Specify:

1. Model No.
2. Poppet Seal

I-1285			
SIZE		RANGE CODE	
CODE	SIZE	CODE	NORMAL OPERATING TEMPERATURE AT MIDSTROKE, °C. (°F.)
B	2"	18	49° (120°)
C	2 1/2"	1	54° (130°)
D	3"	15	60° (140°)
E	4"	4	66° (150°)
F	5"	5	68° (155°)
G	6"	10	71° (160°)
		11	74° (165°)
		12	77° (170°)
		21	79° (175°)
		13	82° (180°)
		8	85° (185°)
		17	88° (190°)
		23	93° (200°)
		SPECIAL	
		24	16° (60°)
		16	24° (75°)
		22	27° (80°)
		20	32° (90°)
		19	38° (100°)
		25	43° (110°)
		2	57° (135°)

NOTE: For cast steel valve body, refer to I-1285-P, Q
 (Form No. P-2331).

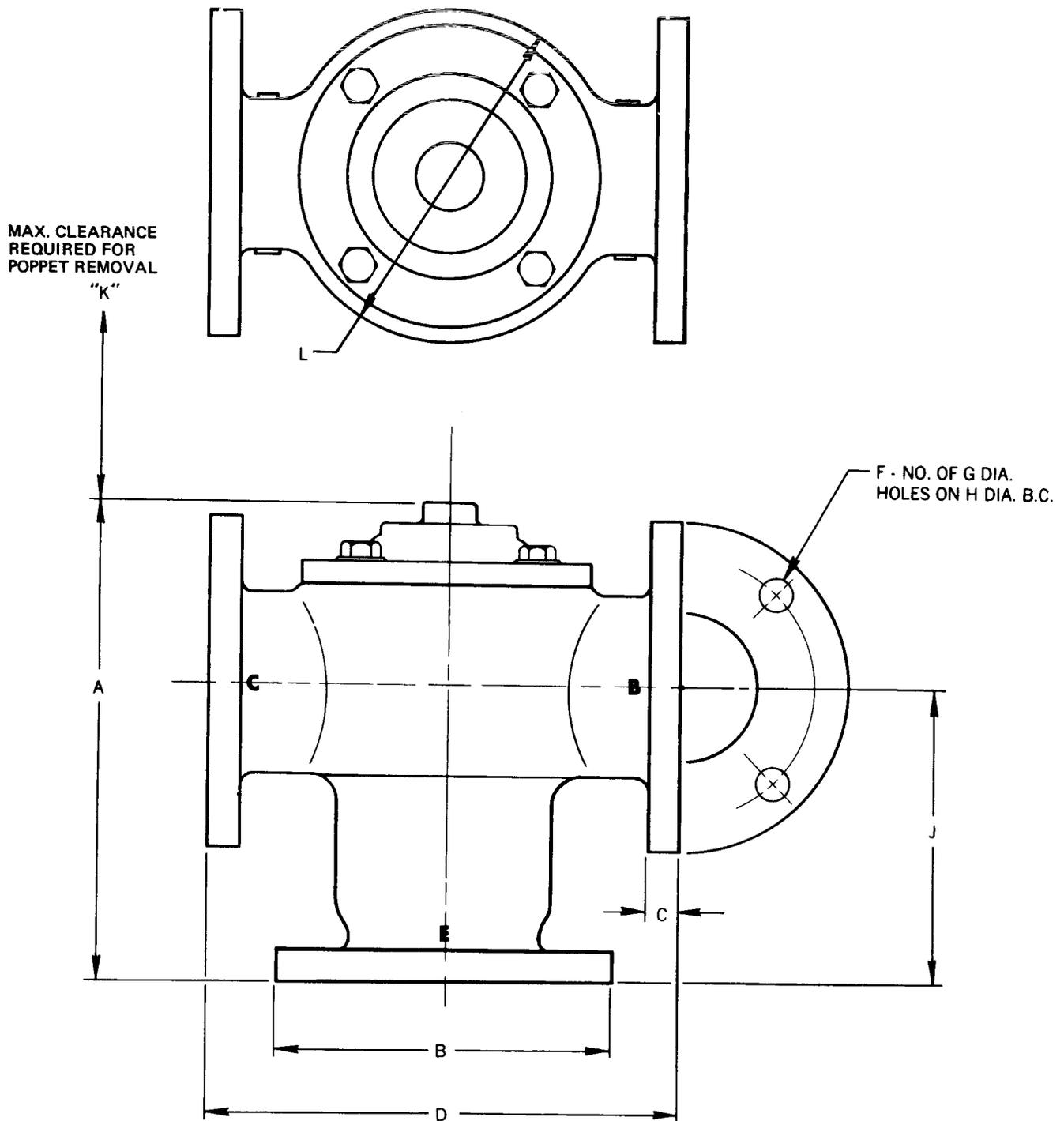


Figure 1

VALVE MODEL	SIZE	DIMENSIONS, mm										SHIPPING WGT., Kg
		A	B	C	D	F	G	H	J	K	L	
I-1285-B	2"	241	152	12.7	219	4	19.1	121	132	152	165	28
I-1285-C	2 1/2"	267	178	14.3	254	4	19.1	140	165	203	181	33
I-1285-D	3"	273	191	15.9	267	4	19.1	152	171	254	184	37
I-1285-E	4"	310	229	17.5	403	8	19.1	191	217	305	286	65
I-1285-F	5"	443	254	19.1	489	8	22.2	216	295	356	343	100
I-1285-G	6"	483	279	20.6	597	8	22.2	241	341	406	394	127

VALVE MODEL	SIZE	DIMENSIONS, In.										SHIPPING WGT., Lbs.
		A	B	C	D	F	G	H	J	K	L	
I-1285-B	2"	9-1/2	6	1/2	8-5/8	4	3/4	4-3/4	5-3/16	6	6-1/2	62
I-1285-C	2 1/2"	10-1/2	7	9/16	10	4	3/4	5-1/2	6-1/2	8	7-1/8	72
I-1285-D	3"	10-3/4	7-1/2	5/8	10-1/2	4	3/4	6	6-3/4	10	7-1/4	82
I-1285-E	4"	12-3/16	9	11/16	15-7/8	8	3/4	7-1/2	8-9/16	12	11-1/4	144
I-1285-F	5"	17-9/16	10	3/4	19-1/4	8	7/8	8-1/2	11-5/8	14	13-1/2	220
I-1285-G	6"	19	11	13/16	23-1/2	8	7/8	9-1/2	13-7/16	16	15-1/2	280

INSTALLATION

General

Prior to installation, the valve body and parts should be checked to determine if any damage occurred in shipment. Any damage should be reported to the shipper as soon as possible. Foreign matter which may have entered the valve during packing or shipment should be removed.

Location

The I-1285 may be installed indoors or out, provided the liquid to be controlled does not freeze. Temperature regulators should be installed as near as possible to the unit being controlled, and a pipeline strainer should be installed upstream.

Position

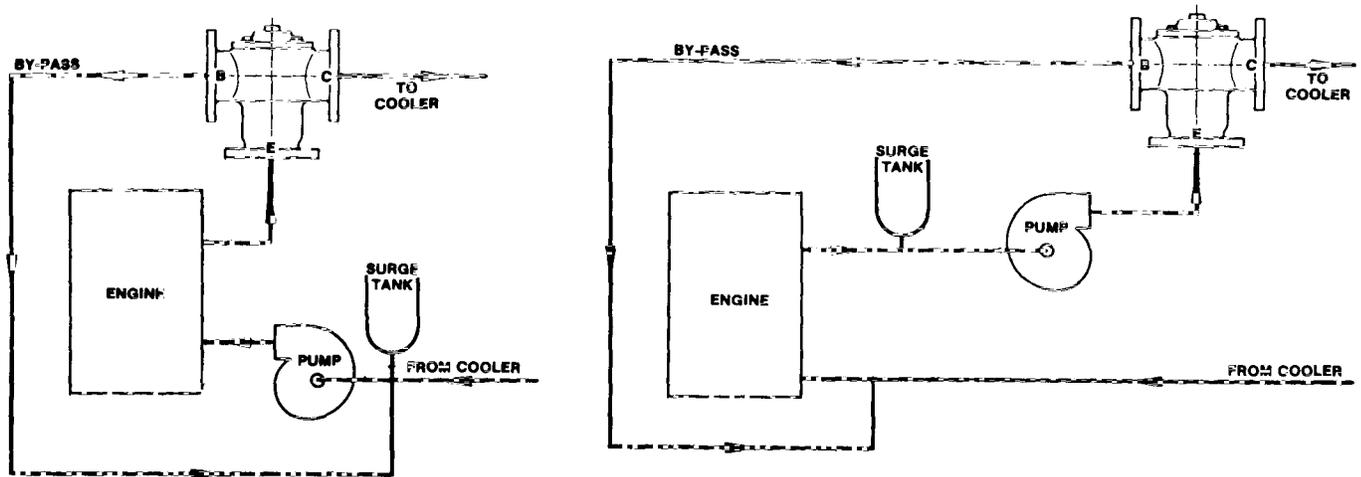
Although these valves will operate in any position, the best performance is achieved in the vertical upright position (E port down). When the four, five, or six inch

regulators are to be installed up-side-down, the factory should be notified so that special load spring may be supplied. (See Parts List)

Service

Whenever synthetic* lube oils or special coolants are used, the factory should be consulted to determine compatibility with split O-Ring material.

* Not recommended for use with ester base synthetic lubricant.



TYPICAL PIPING SCHEMATICS - USED AS DIVERTING VALVE TO CONTROL TEMPERATURE LEAVING ENGINE: PREFERRED AND MOST COMMON APPLICATIONS

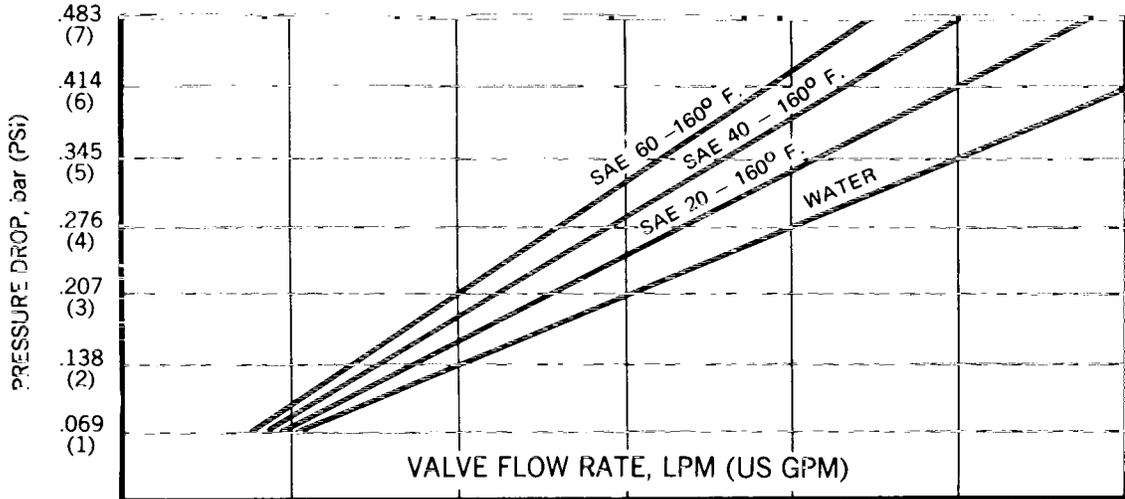
Figure 2

OPERATION - See Figure 4

With low temperature liquid surrounding the Power-Pill, the poppet is in the upward position which connects ports "E" and "B" and closes the connection between ports "E" and "C." As the temperature increases, the Power-Pill stem extends forcing the poppet downward. When the temperature reaches the control point

of the regulator, the valve will be at mid-stroke. If the temperature continues to increase, the poppet will continue to move downward until the by-pass port (B) is completely closed off and the cooler port (C) is completely open.

FLOW COEFFICIENTS: Table below indicates the flow in U.S. g.p.m. at different pressure drops. C_v Coefficients are listed in column one under .069 bar (1 psi) pressure drop (water).



SIZE PORT

2"	C - Cooler Port	242 (64)	345 (91)	416 (110)	488 (129)	545 (144)	598 (158)
	B - Bypass Port	242 (64)	341 (90)	420 (111)	485 (128)	541 (143)	594 (157)
	E - Mid Stroke	310 (82)	439 (116)	538 (142)	621 (164)	693 (183)	761 (201)
2 1/2"	C - Cooler Port	333 (88)	473 (125)	575 (152)	666 (176)	746 (197)	814 (215)
	B - Bypass Port	307 (81)	435 (115)	530 (140)	613 (162)	685 (181)	749 (198)
	E - Mid Stroke	386 (102)	435 (115)	670 (177)	776 (205)	867 (229)	946 (250)
3"	C - Cooler Port	405 (107)	572 (151)	704 (186)	810 (214)	920 (239)	992 (262)
	B - Bypass Port	439 (116)	621 (164)	761 (201)	878 (232)	984 (260)	1075 (284)
	E - Mid Stroke	428 (113)	712 (188)	878 (232)	1007 (266)	1124 (297)	1234 (326)
4"	C - Cooler Port	992 (262)	1401 (370)	1718 (454)	1983 (524)	2218 (586)	2426 (641)
	B - Bypass Port	920 (243)	1298 (343)	1594 (421)	1840 (486)	2056 (544)	2252 (595)
	E - Mid Stroke	1227 (324)	1730 (457)	2121 (561)	2453 (648)	2755 (725)	3005 (794)
5"	C - Cooler Port	1544 (408)	2180 (576)	2672 (706)	3089 (816)	3444 (911)	3785 (1000)
	B - Bypass Port	1378 (364)	1949 (515)	2388 (631)	2756 (728)	3085 (815)	3376 (892)
	E - Mid Stroke	1893 (500)	2676 (707)	3274 (865)	3785 (1000)	4239 (1120)	4637 (1225)
6"	C - Cooler Port	2324 (614)	3278 (866)	4012 (1060)	4648 (1228)	5204 (1375)	5696 (1505)
	B - Bypass Port	1968 (520)	2830 (735)	3407 (900)	3936 (1040)	4410 (1165)	4826 (1275)
	E - Mid Stroke	2650 (700)	3747 (990)	4580 (1210)	5299 (1400)	5942 (1570)	6510 (1720)

NOTE 1: C_v coefficients coincide with figures in first column.

NOTE 2: Data on "Mid Stroke" shows total flow through inlet with valve in mid position.

NOTE 3: Normally, for engine application, valve should be sized for total flow through cooler port, based on a pressure drop of .138 - .345 bar (2 - 5 psi) incl.

NOTE 4: Total leakage through seats and web, approximately 2% or less of total flow with O-Ring removed.

MAINTENANCE

Recommended Spare Parts

The following parts should be kept on hand for maintenance purposes:

1. Split "O"-ring seal.
2. Replacement Power-Pills.
3. Bonnet gasket.

Trouble Shooting

If valve fails to make required stroke as temperature exceeds control point, check for:

1. Foreign matter interfering with poppet travel.
2. Swollen or damaged split "O"-ring seal. (See "Service," Page 3.)
3. Power-Pill failure.

If valve fails to return stroke as temperature drops below control point, check for:

1. Foreign matter interfering with poppet travel.
2. Swollen or damaged split "O"-ring seal. (See "Service," Page 3.)
3. Damaged load spring.
4. Power-Pill failure.

Excessive internal leakage between ports:

1. Damaged or worn out split "O"-ring seal. (See "Service," Page 3.)
2. Damaged or uneven valve seats.
3. Poppet not making complete stroke.

Repair

Replacing Power-Pill elements:

1. Remove bonnet and poppet assembly from valve and place on wooden blocks. (See Figure 3.)

2. Loosen the bolts on top of the poppet and remove the stem and retainer by lifting upward.
3. Power-Pills and overrun assemblies may now be removed.
4. Reassemble as shown in Figures 4 through 9, depending on valve size.

Replacing split "O"-ring seal:

1. Remove bonnet and lift out the entire poppet assembly.
2. Remove old split "O"-ring and replace with a new one. (See "Service," Page 3.)
3. Replace poppet assembly, taking care not to cut or pinch ring.

Adjustments

1. Rest the bottom of the poppet on blocks. (See figure 3.)
2. Loosen stem locknut on inside of bonnet.
3. Place bonnet on the poppet assembly and adjust the stem until poppet just touches seating surface on the bonnet.
4. Turn the stem into the bonnet one-half to one turn so that poppet is securely seated.
5. Tighten locknut and bend the tab on lockwasher.
6. The poppet and bonnet assemblies are now ready to install in the body.

Repair Parts

For replacement part numbers, consult the parts list, pages 6 and 7. When ordering give complete model number, spare part name and number, with quantity required.

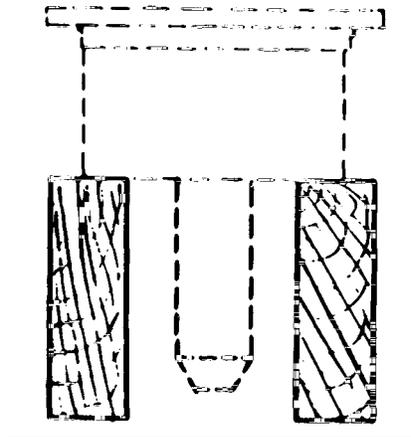


Figure 3

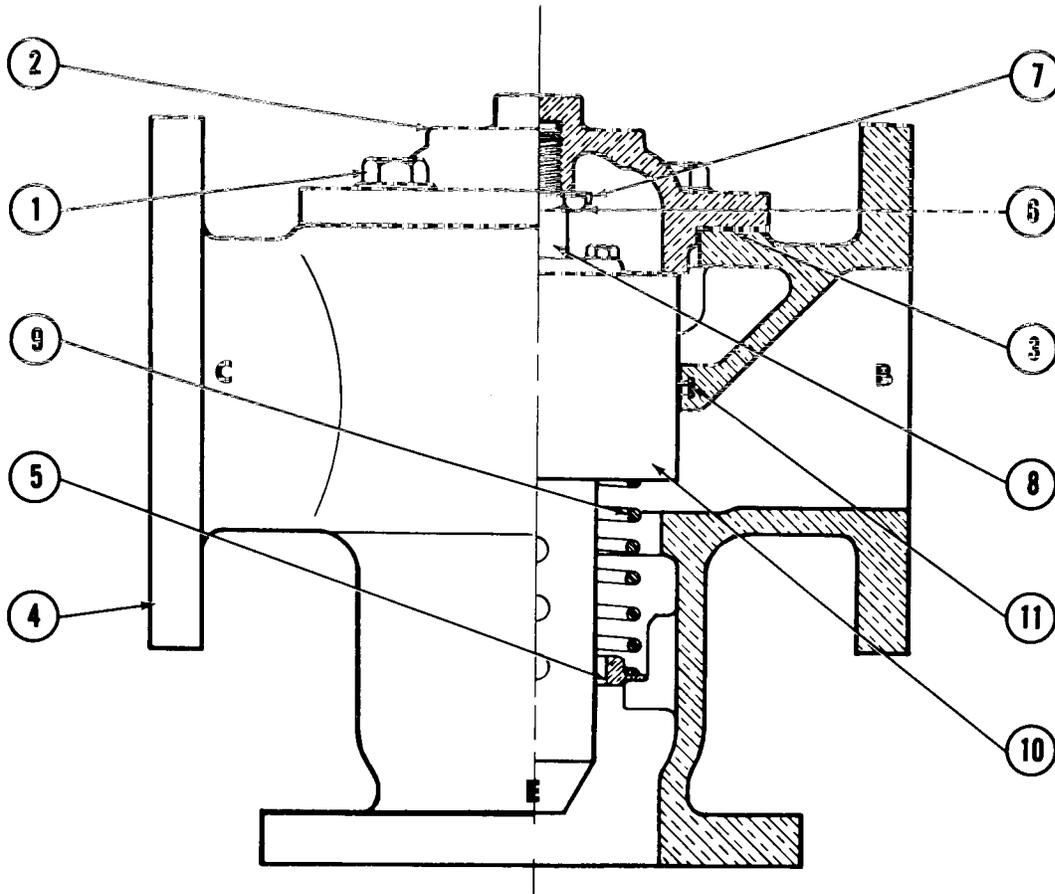


Figure 4

DETAIL NO.	DESCRIPTION	No. Req'd	I-1285-B 2"	No. Req'd	I-1285-C 2 1/2"	No. Req'd	I-1285-D 3"	No. Req'd	I-1285-E 4"	No. Req'd	I-1285-F 5"	No. Req'd	I-1285-G 6"
1	Cap Screw	4	36625-B2423	4	36625-B2423	4	36625-B2423	8	36625-B2423	8	36625-B2423	8	36625-B2423
2	Bonnet	1	20188	1	20188	1	20188	1	20189	1	20190	1	20190
3	Gasket	1	39385-D3	1	39385-D3	1	39385-D3	1	39385-E2	1	39385-E5	1	39385-E5
4	Valve Body	1	19990	1	20115	1	19966	1	30983-A1	1	20135	1	20068
5	Spring Retainer	1	31105-D1	1	31105-D1	1	31105-D1	1	31105-D1	1	31105-B1	1	31105-B1
6	Locknut	1	20195	1	20195	1	20195	1	20195	1	20195	1	20195
7	Lock Washer	1	20194	1	20194	1	20194	1	20194	1	20194	1	20194
8	Stem	1	20192	1	20192	1	20192	1	20192	1	20686	1	20686
*9	Load Spring	1	19983-A1	1	19863-A1	1	19863-A1	1	19863-A1	1	30989-B1	1	30989-B1
10	Poppet Assembly	1	See Fig. 5 & Table 1	1	See Fig. 6 & Table 1	1	See Fig. 6 & Table 1	1	See Fig. 7 & Table 1	1	See Fig. 8 & Table 1	1	See Fig. 9 & Table 1
11	Split O-Ring General Purpose	1	24362-A2	1	24362-A2	1	24362-A2	1	24363-A2	1	24361-A2	1	24361-A2
*Springs for inverted valve service								1	28211-B1	1	28208-B1	1	28208-B1

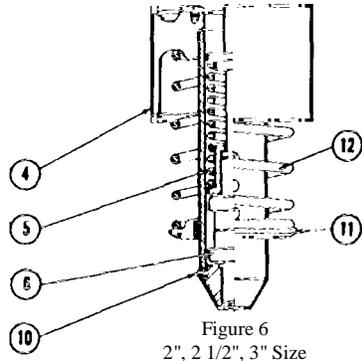


Figure 6
2", 2 1/2", 3" Size

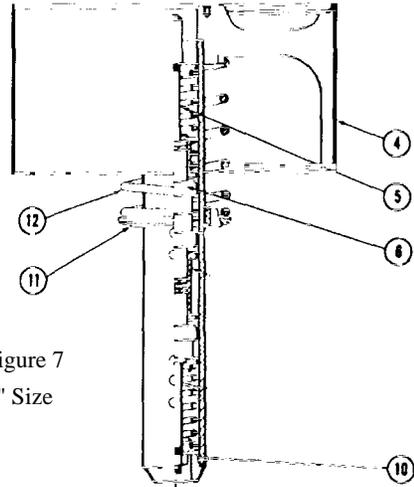


Figure 7
4" Size

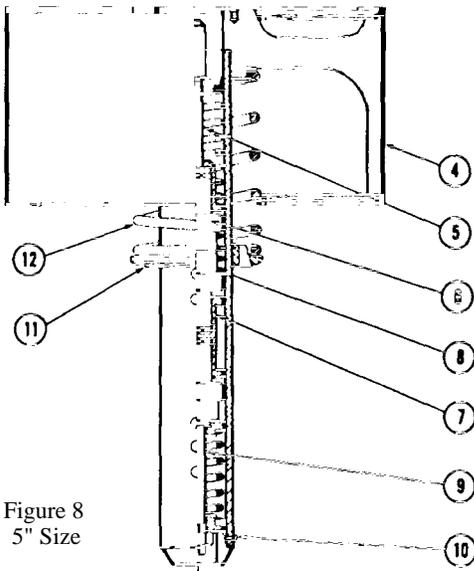


Figure 8
5" Size

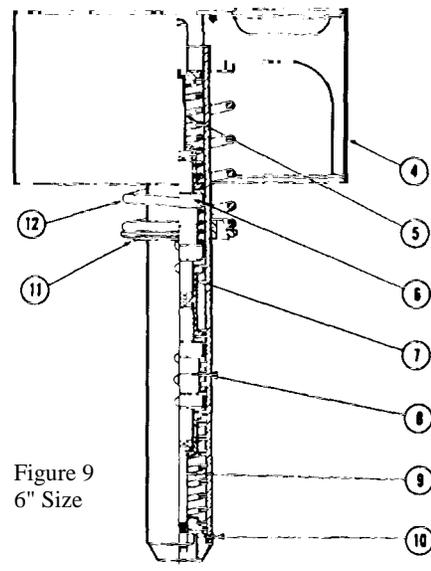


Figure 9
6" Size

DETAIL NO.	DESCRIPTION	No. Req'd	I-1285-B 2"	No. Req'd	I-1285-C 2 1/2"	No. Req'd	I-1285-D 3"	No. Req'd	I-1285-E 4"	No. Req'd	I-1285-F 5"	No. Req'd	I-1285-G 6"
†All	Complete Poppet Assembly	1	82157-D†	1	82157-S10†	1	82157-S10†	1	82157-S20†	1	82157-B†	1	82157-C†
4	Poppet and Pipe Assembly	1	82159-C1	1	82159-C4	1	82159-C4	1	82159-A3	1	82159-B1	1	82159-B2
5	Top Spring and Stem Assembly	1	82158-B1	1	82158-A1	1	82158-A1	1	82158-A1	1	82158-A1	1	82158-A1
†6	Thermo Assembly	1	96995-A†	2	96995-A†	2	96995-A†	2	96995-A†	3	96995-A†	4	96995-A†
7	Spacer									1	30722-A1	1	30722-A1
8	Spring									1	20070-A1	2	20070-A1
9	Bottom Spring and Stem Assembly									1	82158-C1	1	82158-D1
10	Drive Screw			1	25033-A1	1	25033-A1	1	25033-A1	1	25033-A1	1	25033-A1
11	Spring Retainer			1	31105-D1	1	31105-D1	1	31105-D1	1	31105-B1	1	31105-B1
*12	Load Spring			1	19863-A1	1	19863-A1	1	19863-A1	1	30989-B1	1	30989-B1
*Springs for inverted valve service										1	28208-B1	1	28208-B1

†Add suffix number to Thermo Assembly and/or Poppet Assembly per range code on Page 1.
EXAMPLE: Thereto Assembly 96995-A11 for 165° F. setpoint.

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