



# Model 2180E

## DIAPHRAGM OPERATED GAS VALVE

### FEATURES

- COMPACT DESIGN
- NO ADJUSTMENTS EVER REQUIRED
- REPLACEABLE RUBBER VALVE SEATS
- OPEN-CLOSED POSITION INDICATORS
- LARGE-CAPACITY DOUBLE SEATED VALVE
- LARGE VENT PORT

### APPLICATIONS

- GAS ENGINE SHUTDOWN
- STARTING AIR VALVE
- HIGH JACKET WATER TEMPERATURE
- LOW LUBRICATING OIL PRESSURE
- EXCESSIVE VIBRATION
- HIGH GAS DISCHARGE TEMPERATURE



### OPERATION

AMOT Model 2180 valves will shut off the fuel gas and vent the manifold when used on internal combustion engine applications. When pressure is applied to the diaphragm, the vent port closes and the main ports open to admit fuel gas to the engine. When the diaphragm pressure is released, a spring closes the main ports and the large vent port vents the engine intake manifold causing quick shut-down. The normal application of this model is for shutting down a gas engine in the event of a dangerous condition such as high jacket water temperature, low lubricating oil pressure, excessive vibration, high gas discharge temperature, etc. in combination with a complete AMOT Control System using AMOT sensors for monitoring the condition of the engine. Because of its capability for high pressure, this valve can also be used as a starting air valve for engines.

Steel versions of the Model 2180E Valves are equipped with a valve position indicator located under the diaphragm housing which indicates, in an extended position, that the valve is open.

Ductile iron versions of the Model 2180E Valves may be fitted with a valve position indicator located on top of the diaphragm housing which, in an extended position, shows that the valve is closed.

## INSTALLATION

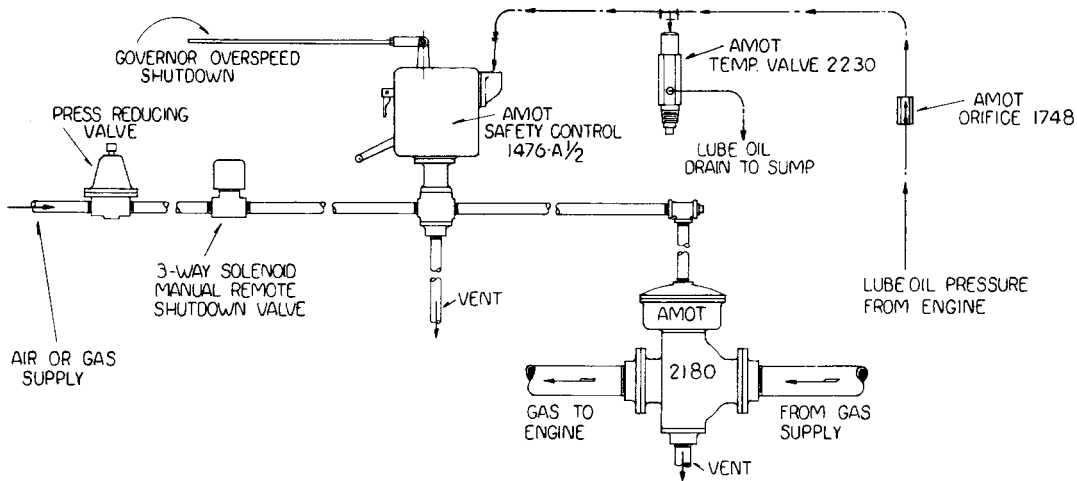
The valve may be mounted in any position. Check the flange alignment to assure sufficient flange face contact without distortion of the valve flanges or body.

The air or gas supply to the diaphragm actuator should be clean and dry. Connecting piping should be cleaned to remove excess thread sealant, chips, or other foreign matter which might be trapped in the diaphragm chamber and cause failure of the diaphragm.

The vent valve should be piped or situated in such a manner that the sudden exhaust upon valve closing will not affect personnel.

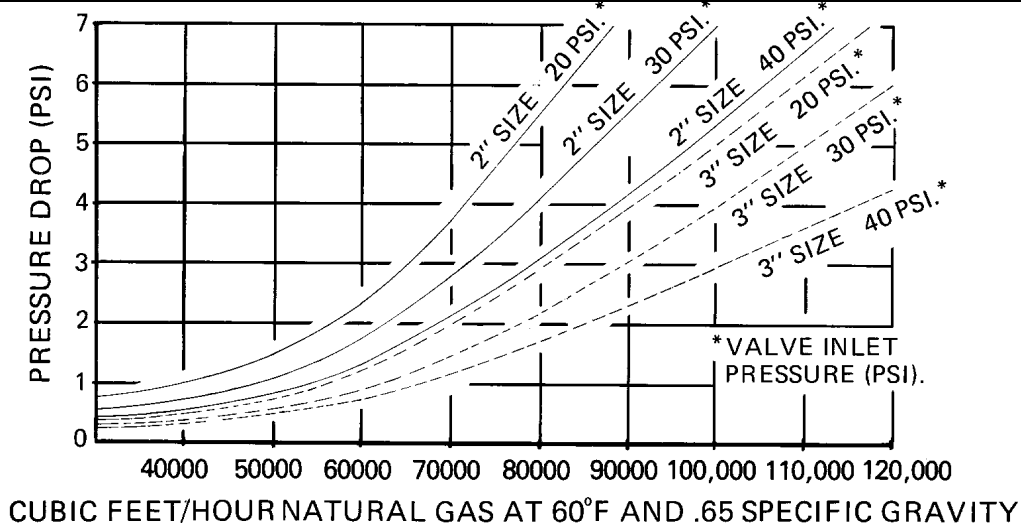
Specific to the ductile iron version, make sure to use full face gaskets and flat face mating flanges. Also, when the 5564X position indicator Assembly (45) is ordered it is shipped loose with the valve. Install with a quality thread sealant and tighten until bubble tight. With no pressure on the valve diaphragm the rod will be extended as far as it will go to show "valve closed". Mark the indicator rod with a hacksaw cut about 1/16" deep right next to the top of the indicator body. Next, pressurize the diaphragm to 40-50 psi and cut off the rod flush with the top of the indicator body to show full open.

## TYPICAL PIPING DIAGRAM



## SPECIFICATIONS

	Ductile Iron	Steel
Valve Body .....	Ductile Iron .....	Cast Steel
Diaphragm Housing .....	Cast Aluminum ..	Pressed Steel
Valve Seats .....	Buna N .....	Buna N
Std. Diaphragm, dynamic seals & vent seal .....	Buna N .....	Buna N
Valve Working Pressure Rating		
125# FF flange .....	125 psi (862 kPa)	
150# RF flange .....	150 psi (1033 kPa)	
300# RF flange- .....	300 psi (2067 kPa)	
Min. Diaphragm Pressure for full stroke		
for 125 psi valve .....	20 psi (138 kPa)	
for 150 psi valve .....	20 psi (138 kPa)	
for 300 psi valve .....	40 psi (276 kPa)	
Max. Continuous Diaphragm Pressure		
.....	80 psi (552 kPa)	
Flow Coefficient		
for 2" valve .....	Cv= 85	
for 3" valve .....	Cv= 110	
Net Weight		
for 2" valve, 125# flange .....	45 lbs. (20 kg)	
for 2" valve, 150# flange .....	52 lbs. (24 kg)	
for 2" valve, 300# flange .....	57 lbs. (26 kg)	
for 3" valve, 125# flange .....	60 lbs. (27 kg)	
for 3" valve, 150# flange .....	75 lbs. (34 kg)	
for 3" valve, 300# flange .....	81 lbs. (37 kg)	



## OLD MODEL NO. / NEW MODEL NO. CONVERSION

<u>OLD NO.</u>		<u>NEW NO.</u>	<u>OLD NO.</u>		<u>NEW NO.</u>
2180C001	→	2180ED11A	2180D31A	→	2180ES31A
2180C007		2180ED12A	2180D31B		2180ES31B
2180C010		2180ED12B	2180D32A		2180ES32A
2180C013		2180ED11B	2180C32B		2180ES32B
2180C021		2180ED41A	2180D51A		2180ES51A
2180C024		2180ED41B	2180D51B		2180ES51B
2180C027		2180ED42A	2180D52A		2180ES52A
2180C030		2180ED42B	2180D52B		2180ES52B
2180D21A		2180ES21A	2180D61A		2180ES61A
2180D21B		2180ES21B	2180D61B		2180ES61B
2180D22A		2180ES21A	2180D62A		2180ES62A
2180D22B		2180ES22B	2180D62B		2180ES62B

## HOW TO ORDER

When ordering please specify the following:

1. AMOT Model 2180E
2. Material of Construction: Ductile Iron or Cast Steel
3. Appropriate Valve Size and Pressure Rating
4. Any of the following special features if required:
  - a. Gulfproofed (corrosion protected for seacoast atmosphere)
  - b. Viton diaphragm and dynamic seals (instead of Buna N)

This unit may be ordered using the full description as shown above or by constructing a Model Number using the Model Code System. The complete model number for a 2", 300psi steel bodied valve with standard Buna N seals is 2180ES31A.

## MODEL CODE SYSTEM

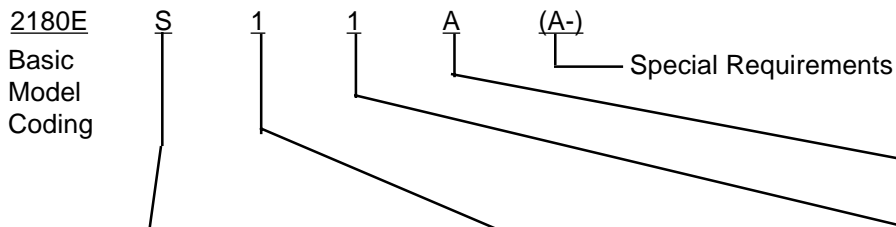
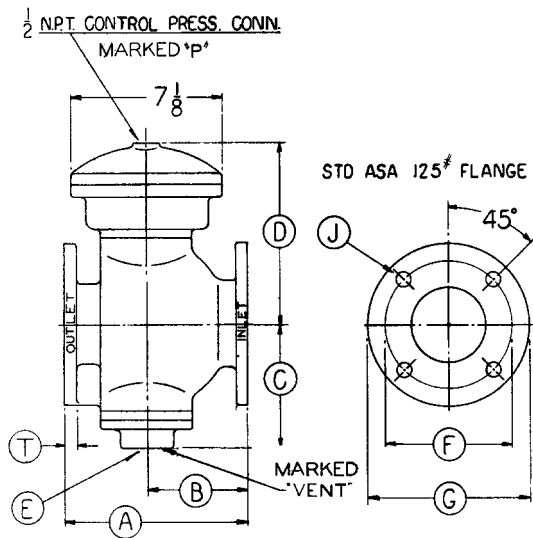


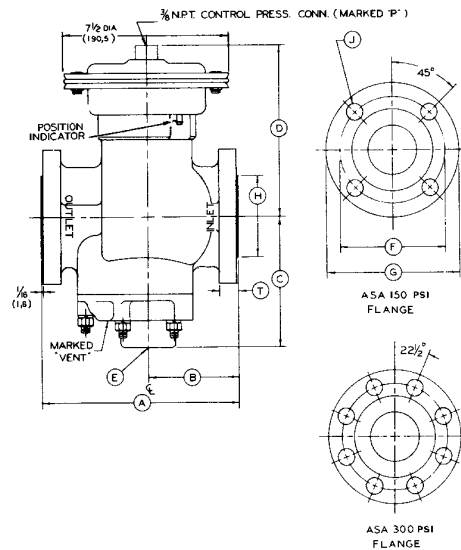
Table A Material Code		Table B Body Size and Rating Code No.			Table C Thread and Finish Code No.			Table D Seal material Code No.	
Code	Material	Code	Body Size	Rating	Code	Body Size	Rating	Code	Material
D	Ductile Iron	1	2"	125 psi	1	NPT	Standard	A	Buna N
S	Steel	2	2"	150 psi	2	NPT	Gulfproof	B	Viton
		3	2"	300 psi	3	BSP(Tr)	Standard		
		4	3"	125 psi	4	BSP(Tr)	Gulfproof		
		5	3"	150 psi					
		6	3"	300 psi					

## DIMENSIONS - DUCTILE IRON



Valve Size		2"	3"
Face to Face	A	7-5/8 (194)	8-5/8 (219)
CL to Inlet	B	3-7/8 (98)	4-5/8 (117)
Depth	C	6-1/4 (159)	7-5/8 (194)
Height	D	7-7/8 (200)	8-3/8 (213)
Vent Size	E	1 NPT	1-1/2 NPT
Bolt Circle	F	4-3/4 (212)	6 (152)
Flange Diameter	G	6 (152)	7-1/2 (191)
Dia. of Holes	J	3/4 (19)	3/4 (19)
No. of Holes		4	4
Min. Thickness	T	5/8 (16)	3/4 (19)

## DIMENSIONS - STEEL



Valve Size		2"	2"	3"	3"
Asa Flange		150 psi	300 psi	150 psi	300 psi
Face to Face	A	8-7/8 (225)	8-7/8 (225)	10-3/4(273)	10-3/4 (273)
CL to Inlet	B	4-1/8 (105)	4-1/8 (105)	5 (127)	5 (127)
Depth	C	6 (152)	6 (152)	7-3/8 (187)	7-3/8 (187)
Height	D	7-1/2 (191)	7-1/2 (191)	8 (203)	8 (203)
Vent Size	E	1 NPT	1NPT	1-1/2 NPT	1-1/2 NPT
Bolt Circle	F	4-3/4 (212)	5 (127)	6 (153)	6-5/8 (168)
Flange Diameter	G	6 (153)	6-1/2 (165)	7-1/2 (191)	8-1/4 (210)
Face Diameter	H	3-5/8 (92)	3-5/8 (92)	5 (127)	5 (127)
Dia. of Holes	J	3/4 (19)	3/4 (19)	3/4 (19)	7/8 (22)
No. of Holes		4	8	4	8
Min. Thickness	T	7/8 (22)	7/8 (22)	1-1/8 (28.5)	1-1/8 (28.5)

## SERVICE KITS FOR STEEL GAS VALVE

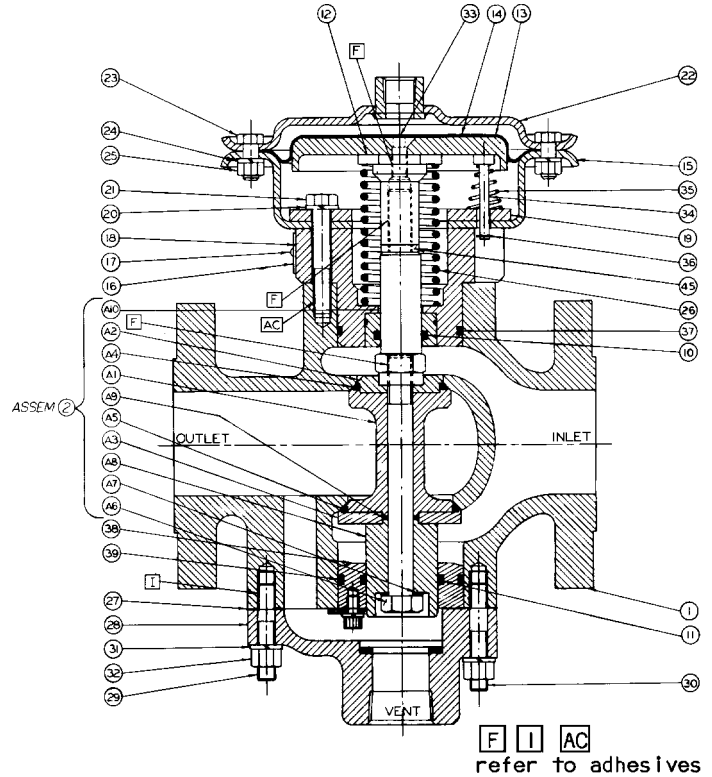
Ref. No.	Part No.	Qty.	Description
<b>For Models 2180ES(--), 2180ES3(--), A Kit 9172X001</b>			
A4	277L014	1	Seal, Upper
A5	277L018	1	Seal, Lower
10	1739	1	O-Ring, Buna N
11	651	1	O-Ring
14	943L001	1	Diaphragm, Buna N
27	2150	1	Vent Housing Gasket
37	11058L001	1	O-Ring
39	11058L001	1	OORing

<b>For Models 2180ES5(--), 2180ES6(--), A Kit 917X002</b>			
A4	277L017	1	Seal, Upper
A5	277L021	1	Seal, Lower
10	1739	1	O-Ring, Buna N
11	651	1	O-Ring, Buna N
14	9423L001	1	Diaphragm, Buna N
27	2273	1	Vent Housing Gasket
37	11058L001	1	Diaphragm, Buna N
39	837	1	O-Ring

<b>For Models 2180ES2(--), 2180ES(--), B Kit 9172X003</b>			
A4	277L014	1	Seal, Upper
A5	277L018	1	Seal, Upper
10	1739L001	1	O-Ring, Viton
11	651L001	1	O-Ring, Viton
14	9423L002	1	Diaphragm, Viton
27	2160	1	Vent Housing Gasket
37	11052L001	1	O-Ring
39	11058L001	1	O-Ring

<b>For Models 2180ES5(--), 2180ES(--), B Kit 917X004</b>			
A4	277L017	1	Seal, Upper
A5	277L021	1	Seal, Lower
10	1739L001	1	O-Ring, Viton
11	651L001	1	O-Ring, Viton
14	9423L002	1	Diaphragm, Viton
27	2273	1	Vent Housing Gasket
37	1105L001	1	O-Ring
39	837	1	O-Ring

These Parts Lists effective with Valve Serial No. A791



## MAINTENANCE

To obtain maximum long life from the valve seats, diaphragms, etc., periodic inspection and cleaning should be incorporated into a normal preventative maintenance program. All seats and seals should be checked yearly for leakage and hardness, and replaced if necessary. Liberally coat seals, o-rings, diaphragm, and the flanges contacting the diaphragm with a good grade of petroleum-based grease when assembling.

In the 2180 Series valves rectangular-section seals have been incorporated, held in by the Upper and Lower Seal Retainers. Remove Valve Spool Assembly and replace Seals (A4, A5) as necessary.

The Vent Valve Cage Seal is vulcanized in position in Vent Valve Assembly (34). Components of this assembly are not sold or serviced separately. An exchange may be arranged to return the Vent Valve Assembly to the factory for salvage credit after the new assembly has been installed.

If valve seals, vent cage assemblies, or other rubber parts are stocked as spares, special attention should be given to protect rubber parts from deterioration. Open air storage of parts containing rubber is **not** recommended for periods of longer than two years. Prompt shipment from factory stock eliminates the necessity for field replacement quantities larger than what is needed for emergency requirements.

## SERVICE KITS FOR DUCTILE IRON

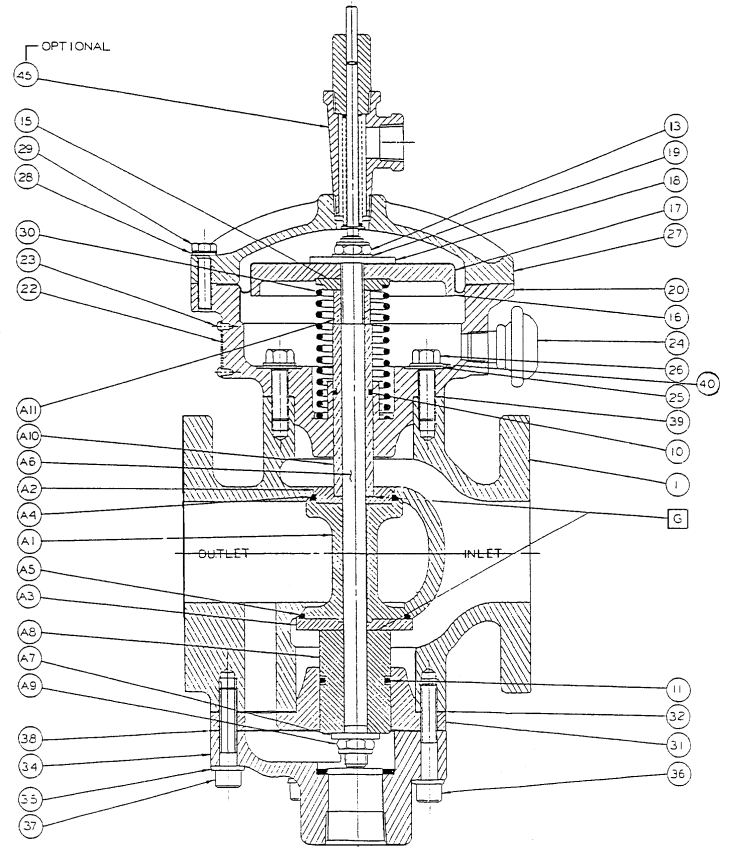
Ref. No.	Part No.	Qty.	Description
<b>For Models 2180ED11A, 2180ED12A Kit 9146X001</b>			
A4	277L014	1	Seal, Upper
A5	277L018	1	Seal, Lower
10	142	1	O-Ring, Buna N
11	1205	1	O-Ring, Buna N
17	1205	1	Diaphragm, Buna N
19	714L050	1	Seal
25	714L050	4	Seal
32	2158	1	Gasket
38	2160	1	Vent Housing Gasket
39	2153	1	Gasket

<b>For Models 2180ED41A, 2180ED42A Kit 9146X002</b>			
A4	277L017	1	Seal, Upper
A5	277L021	1	Seal, Lower
10	142	1	O-Ring, Buna N
11	1205	1	O-Ring, Buna N
17	2169	1	Diaphragm, Buna N
19	714L050	1	Seal
25	715L005	4	Seal
32	2271	1	Gasket
38	2273	1	Vent Housing Gasket
39	2155	1	Gasket

<b>For Models 2180ED12B, 2180ED11B Kit 9146X003</b>			
A4	277L014	1	Seal, Upper
A5	277L08	1	Seal, lower
10	277L018	1	O-Ring, Viton
11	706	1	O-Ring, Viton
17	2169L002	1	Diaphragm, Viton
19	714L050	1	Seal
25	714L005	1	Seal
32	2271	1	Gasket
38	2273	1	Vent Housing Gasket
39	2153	1	Gasket

<b>For Models 2180ED41B, 2180ED42B Kit 9146X004</b>			
A4	277L017	1	Seal, Upper
A5	277L021	1	Seal, Lower
10	142L001	1	O-Ring, Viton
11	706	1	O-Ring, Viton
17	2169L002	1	Diaphragm, Viton
19	714L050	1	Seal
25	714L005	4	Seal
32	2158	1	Gasket
38	2160	1	Vent Housing Gasket
39	2153	1	Gasket

These Parts Lists effective with Valve Serial No. A671



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