

GENERAL DESCRIPTION

The Progressive Motorized Auto Drain launches a new era in equipment maintenance. Systems can now be drained automatically with total dependability. Man hours are eliminated from the schedule, freeing maintenance personnel for other assignments. The Progressive automatic drain is designed with solid state circuitry which controls the actuator that opens and closes the drain valve on command; and operation can be programmed to meet the requirements of any liquid or air system—large or small.

INSTALLATION INSTRUCTIONS

The drain units can be installed on a system that requires regular draining—regardless of the location. The cast aluminum enclosure protects the components in a self-contained unit. It may be installed vertically or horizontally with equally effective results. The 1" drain weighs only 11 pounds and occupies less than one-half cubic foot of space.

1. The valve operates from 115 volt 60 cycle 1 phase power source. Connect to an independent 110-120 VAC supply with safety ground.
2. The solid state electronic timer is factory pre-set to open every 15 minutes for ten seconds. Valves can be re-programmed by shutting off the power and removing the top cover. (Further instructions are on the inside of the valve cover.)
3. The power unit contains solid components which will be damaged at temperatures above 115°F (46°C).
4. The body and threads are brass. During installation use extreme caution to avoid distortion of the valve or threads and do not apply wrench to retainer (see valve diagram). Apply torque only to valve body.
5. For automatically dumping solids separated from systems:
 - a) Allow a minimum of four feet of pipe between the solids separator and the valve to collect solids between valve openings.
 - b) Use only tapered reducers in the collection leg (bushings will dam solids and reduce removal efficiency).
 - c) Carefully follow all instructions furnished in your quotation or with your solids separator as to location orientation, etc.
 - d) A gate valve should be installed ahead of the automatic drain, to allow for maintenance.
6. Valves used for dumping solids from a system may leak during the first few months. This is usually caused by the discharge of sharp abrasive scale or sediment being cleaned from the system. This is a positive indication that the system or systems have been going through the

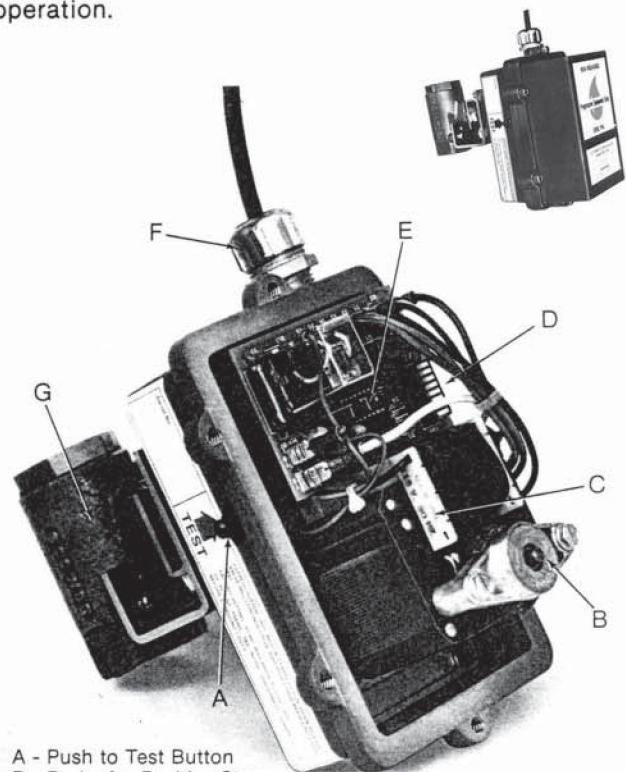
important cleanup stages. Seat replacement kits or lower valve assemblies can be ordered (see spare parts list).

7. Never remove cover with current on. (Accidentally touching the aluminum cover to timing terminals can cause a short circuit, damaging the solid state circuit boards.)
8. The power unit enclosure is Nema 4 which is suitable for outdoor installation. Make sure the solids collection leg is protected from freezing.
9. Install the drain after manual valve on vessel to be drained. All valves should be located as close as possible to end of line.

WARNING: The Progressive Motorized Automatic Drain is not to be utilized for boiler blowdown.

ELECTRIC VALVE ACTUATOR

The automatic drain actuator is designed with solid state PC board assembly, with adjusting time settings to deliver 150 lbs/in. of torque in seconds. The electrical requirements are 115 volts (15%), at 50/60 Hz, one phase. Transformers may be used for other voltages. In addition, an externally mounted manual operating switch is provided to check valve operation.



- A - Push to Test Button
- B - Brake for Positive Stop
- C - Undirectional Motor
- D - Programming Module
- E - Circuit Board
- F - 1/2" Connector with 5 ft. Cord
- G - Bottom Ball Valve Assembly

ADJUSTING TIME SETTINGS

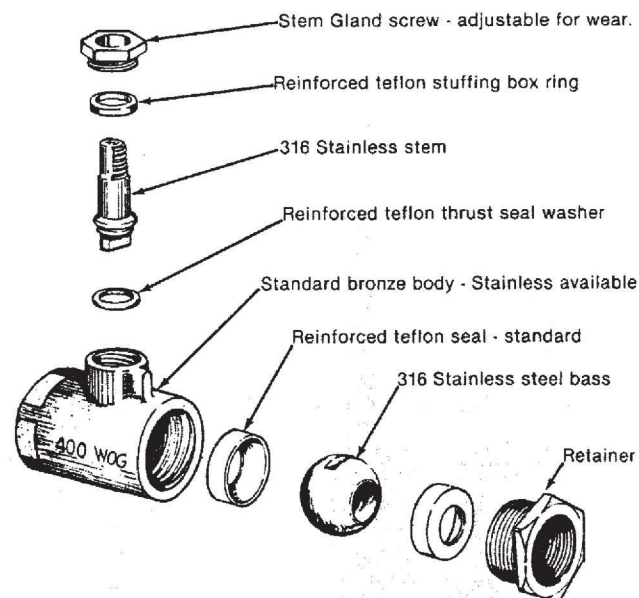
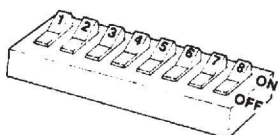
The drain includes a programmable solid state timing circuitry which controls the time interval between drain period. Fifteen different cycle durations can be selected from one-quarter hour to three and three-quarter hours. The length of the drain period can be adjusted from four to thirty-four seconds in two-second increments. The drain is factory pre-set to open every fifteen minutes for ten seconds. The open time setting is based upon effective open time with rotation time included (not dead open time). By resetting the keys on the module to the desired cycle time and drain period individual program requirements are easily met.

TIME BETWEEN DRAIN PERIODS				DRAIN PERIOD			
Hrs.	Mins.	KEY NO.		Secs.	KEY NO.		
OPEN				34			
	15	1	● ● ● ● ●	32	5	● ● ● ● ●	
	30	● 2	● ● ● ● ●	30	● 6	● ● ● ● ●	
	45	1 2	● ● ● ● ●	28	5 6	● ● ● ● ●	
1		● ● ● ● ●	3	26	● ● ● ● ●	7	●
1	15	1	● 3 ● ● ●	24	5 ● 7	● ● ● ● ●	
1	30	● 2 3	● ● ● ● ●	22	● 6 7	● ● ● ● ●	
1	45	1 2 3	● ● ● ● ●	20	5 6 7	● ● ● ● ●	
2		● ● ● ● ●	4	18	● ● ● ● ●	8	●
2	15	1	● ● ● ● ●	16	5 ● ● ● ●	8	●
2	30	● 2 ● ● ●	4	14	● 6 ● ● ●	8	●
2	45	1 2 ● ● ●	4	12	5 6 ● ● ●	8	●
3		● ● ● ● ●	3 4	10	● ● ● ● ●	7 8	●
3	15	1 ● ● ● ●	3 4	8	5 ● ● ● ●	7 8	●
3	30	● 2 3 4	● ● ● ● ●	6	● 6 7 8	● ● ● ● ●	
3	45	1 2 3 4	● ● ● ● ●				

- 1** - Number in square indicates switch in "ON" position.
- - Black dot in square indicates switch in "OFF" position.

Keys 1 thru 4 control hours/minutes between drain periods. Keys 5 thru 8 control seconds valve is open during a drain period. Any combination of cycle and drain period may be selected. Place keys indicated by number in square in "ON" position. Place all other keys in "OFF" position.

Example: For a one hour cycle and a 10-second drain period, place key numbers 3, 7, and 8 in "ON" position. Key numbers 1, 2, 4, 5, and 6 must be in the "OFF" position.



SPARE PARTS LIST

PART #	ITEM DESCRIPTION
AD-1-EVA 24	Power Unit Complete with Timer
AD-2-CB	Timer Circuit Board
AD-3-TS	Test Switch
AD-5-DC	Drive Coupling
SIZE	SEAT AND SEAL REPLACEMENT KIT
1"	1 AD-SK
1½"	1.5 AD-SK
2"	2 AD-SK
SIZE	COMPLETE LOWER VALVE ASSEMBLY
1"	1 AD-70-145-01
1½"	1.5 AD-70-147-01
2"	2 AD-70-148-01

TROUBLE SHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Valve fails to operate:	Lack of current at receptacle.	Confirm 110-120 VAC, single phase, 50-60 cycle power is continuously available.
	Micro timing switches set at off position.	Program switches for desired setting.
	Valve retainer accidentally over-tightened.	Loosen seal bushing slightly until ball is free to turn.
Valve operates intermittently:	Current source conveying induced frequency caused by motor starters, solenoids, etc.	Install 110-120 VAC feed line independent of other machines causing frequency interference
Valve leaks thru stem:	Valve seals scored while purging loose scale or foreign material.	Replace seals with Progressive Seal Kit.

SIZE	A	B	C	D	E
1	3-3/8	1-11/16	8.0	2.48	7.05
1-1/2	4-3/8	2-3/16	9.26	2.48	7.05
2	4-11/16	2-11/32	9.48	2.48	7.05

NOTE: The Automatic Drain Valve is available in various sizes, consult Progressive Environmental Company for further information.

