ITT GENERAL CONTROLS
801 ALLEN AVE., GLENDALE, CALIF. 91201

RV18
COMBINATION GAS VALVE

INSTALLATION AND SERVICE

DESCRIPTION

The RV18 compact valve with remote bulb thermostat is a combination gas valve providing all manual and automatic control functions required to operate mobile gas fired heating equipment. This small compact valve features a thermomagnetic safety shutoff valve, main line thermostatic valve, temperature dial and remote temperature sensing bulb, permanently lubricated gas cock, pilot valve with pilot adjustment and pressure regulator (optional). Regulated valves are equipped with vent leak limiting device. This valve is suitable for use with all gases.

SPECIFICATIONS

Use valve within following operating ranges:

Maximum operating pressure: ½ PSI (14" WC)
Maximum ambient temperature: +175°F.

OPERATION

Electric power (millivoltage) for operating the manual reset pilot safety section is produced by a single-couple type thermocouple properly heated by the pilot flame. Main line automatic valve section is operated by temperature changes surrounding remote temperature sensing bulb. Temperature control point can be varied by turning temperature selection dial. Settings may be made on or between any of the numbers 1 (coldest setting) through 5 (warmest setting). Valve cycles automatically between on and off.

INSTALLATION

1. Valve is multi-poised and may be mounted in any position.
2. Make sure all piping and tubing is free of foreign matter. Apply thread seal to male threads only.
3. Connect ¼" pilot tubing between valve and pilot burner assembly. Pilot burner assembly must be mounted rigidly in a position where pilot will ignite main burner when it has been reduced to smallest flame which will hold thermomagnet safety valve open.
4. Leak Limiting Device is standard on all regulator equipped models. Where code requires venting, remove vent cap and install vent tubing. Venting not required on non-regulated models.
5. Screw thermocouple bushing in fingertight, plus ⅛ turn, with small wrench. DO NOT OVERTIGHTEN.

LOCATING TEMPERATURE SENSING BULB

If appliance manufacturer suggests a location for temperature sensing bulb, mount as suggested. If no such location is provided, note following suggestions.

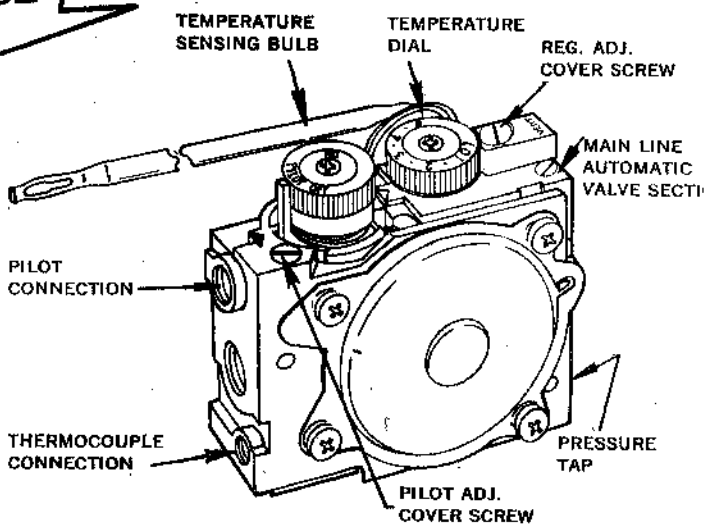


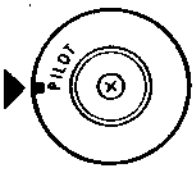
Fig. 1. Typical RV18

CAUTION

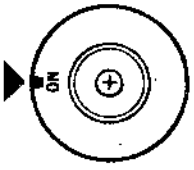
Follow manufacturer's specifications when locating and installing valve temperature sensing bulb. Do not bend, crimp or damage bulb or kink capillary tubing, causing valve to go out of calibration.

Temperature sensing bulb should be located so that it will induce burner to cycle at a rate which will produce a uniform heat condition. Sensing bulb is normally located at a point in the heater cold air return where it will not be affected by radiant heat of burner flame. However, due to the wide range of installation conditions, final location may have to be arrived at through trial and error. It may even be practical to utilize a small amount of burner flame radiant heat to induce rate of cycling necessary for proper temperature control.

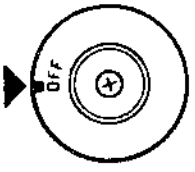
LIGHTING PROCEDURE



1. Turn to PILOT. Press dial in and light pilot. Hold for 60 seconds and release.



2. Turn dial counterclockwise to ON. Use this position for thermostat control. Set thermostat for desired room temperature.



3. Turn dial clockwise to PILOT, press dial in and turn to OFF. Use this position when complete shutdown is necessary. (Use PILOT position for temporary or seasonal shutdown.)

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CALIBRATION

Place a good mercury thermometer *in immediate area of sensing bulb.* Allow sufficient time for true temperature reading. Set temperature dial at point where valve just turns burner off. (Temperature dial settings are approximate **1** = 50°, **2** = 60°, **3** = 70°, **4** = 80°, **5** = 90°F). If dial setting agrees within 5° of thermometer reading, unit is within calibration. To recalibrate, remove dial, loosen set screw on hub and reposition to bring dial markings within proper setting. Tighten set screw while holding hub. Replace dial and recheck calibration.

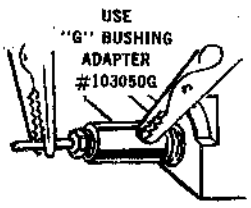
ADUSTMENTS — See Fig. 1 for Location

Pilot Gas Adjustment. Remove pilot adjustment cover screw and turn pilot adjustment screw to produce non-blowing blue flame covering top 1/4" of thermocouple tip. Replace cover screw.

Pressure Regulator Adjustment. To adjust regulator, remove pipe plug from 1/8" NPT pressure tap near valve outlet and install pressure measuring device. Remove cover screw (See Fig. 1) to uncover regulator adjustment screw. Adjust pressure to value stamped on valve. Replace cover screw.

MILLIVOLTMETER TEST

Use 0-50 millivolt scale. Place meter test probes as shown below. If meter needle moves to left of zero or no reading is indicated reverse probes. Take all readings with pilot burning and thermostat contacts closed.



If reading is less than 7 millivolts: 1) Adjust pilot gas. 2) Clean primary air holes. 3) Clean pilot burner orifice. 4) Replace thermocouple.

If reading is 7 millivolts or more and thermomagnet will not hold open, replace valve.

SERVICE SUGGESTIONS

TROUBLE	POSSIBLE CAUSE	REMEDY
Pilot will not stay open after carefully following lighting instructions	Pilot flame too small or yellow in color due to restricted pilot line, dirt in Primary air opening or burner head, wrong orifice in Pilot, Drafts deflecting Pilot Flame	Clean pilot line, primary air opening and burner head . . . Change pilot orifice. Eliminate source of draft
	Loose or dirty thermocouple connection	Disconnect thermocouple from valve, clean contacts with fine sandpaper. Tighten finger tight plus 1/8 turn
	Thermocouple producing insufficient millivoltage	Check with millivoltmeter, replace if necessary
Pilot burns, dial set to call for heat, main valve will not open	Poor temperature Sensing bulb location	See LOCATING TEMPERATURE SENSING BULB
	Temperature dial out of calibration	See CALIBRATION
	Main valve assembly damaged	Replace main line automatic valve section or complete valve.
Main valve leaks or will not close	Temperature dial out of calibration	See CALIBRATION
	Main valve assembly damaged	Replace main line automatic valve section or complete valve.
	Poor temperature Sensing bulb location	See LOCATING TEMPERATURE SENSING BULB