

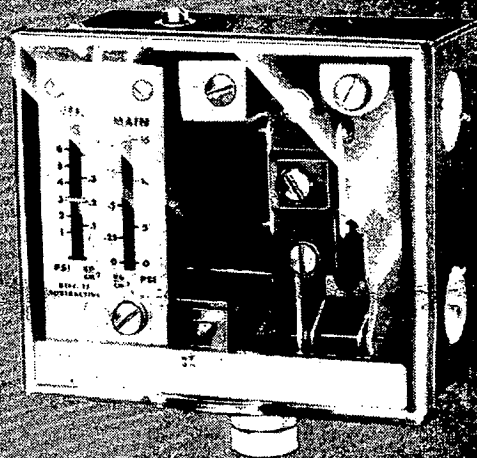
Honeywell

L404F PRESSURETROL CONTROLLERS PROVIDE OPERATING CONTROL WITH AUTOMATIC LIMIT PROTECTION FOR PRESSURE SYSTEMS OF UP TO 20 kg/cm², 2000 kPa, or 300 psi.

- These controls may be used with steam, air, or noncombustible gases, or fluids noncorrosive to the pressure sensing element.
- Models available in a series of control ranges, and pressure scales in kg/cm², kPa, and psi.
- All models automatically reset and have an adjustable differential.
- Includes a steam trap necessary for boiler installations.
- Models have snap switch to open or close a circuit on a temperature rise.
- Case has a clear plastic cover so set points can be observed.
- 1/4 inch-19 BSPT connection for pipe on diaphragm assembly.
- Ground screw terminal.

V.J.
REV. 10-77 (.05)

PRESSURETROL CONTROLLERS



L404F

Form Number

71-2429

SPECIFICATIONS

MODELS: L404F Pressuretrol Controller. See Table I below.

TABLE I—MODELS WITH kg/cm²—psi

MODELS WITH kg/cm ² —psi SCALES	OPERATING RANGES		SUBTRACTIVE DIFFERENTIAL ^a		MAX. DIAPHRAGM PRESSURE	
	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi
L404F1219	0.1 to 1.05	2 to 15	0.15 to 0.4	2 to 6	1.76	25
L404F1243	0.4 to 3.5	5 to 50	0.4 to 1.0	6 to 14	6.0	85
L404F1227	0.7 to 10.0	10 to 150	0.7 to 1.6	10 to 22	15.8	225
L404F1235	1.5 to 20.0	20 to 300	1.5 to 3.5	20 to 50	24.6 ^b	350 ^b

^aNominal at midscale operating range.

^bBrass bellows instead of stainless steel diaphragm.

TABLE II—MODELS WITH kPa—kg/cm²

MODELS WITH kPa—kg/cm ² SCALES	OPERATING RANGES		SUBTRACTIVE DIFFERENTIAL ^a		MAX. DIAPHRAGM PRESSURE	
	kPa	kg/cm ²	kPa	kg/cm ²	kPa	kg/cm ²
L404F1177	15 to 100	0.1 to 1.05	15 to 40	0.15 to 0.4	170	1.76
L404F1201	40 to 350	0.4 to 3.5	40 to 100	0.4 to 1.0	580	6.0
L404F1185	70 to 1000	0.7 to 10.0	70 to 160	0.7 to 1.6	1550	15.8
L404F1193	150 to 2000	1.5 to 20.0	150 to 300	1.5 to 3.5	2400 ^b	24.6 ^b

^aNominal at midscale operating range.

^bBrass bellows instead of stainless steel diaphragm.

(continued on page 3)

ORDERING INFORMATION

WHEN ORDERING REFER TO THE PRICE SHEETS FOR COMPLETE ORDERING SPECIFICATION NUMBER, OR ...

SPECIFY—

1. Order number (specify model without steam trap, if not desired).
2. Pressure scale range.
3. Accessories, if desired.

ORDER FROM—

AUSTRIA

Honeywell, Austria,
Gesellschaft m.b.H.
Edelsinnstrasse 7-11
A-1121 Wien

BELGIUM

Honeywell S.A.
Avenue Henri Matisse 16
1140 Bruxelles

DENMARK

Honeywell A/S
Højrevej 26
2400 København, NV.

FINLAND

OY Honeywell AB
Hiltsaajankatu 5
SF-00810 Helsinki 81

FRANCE

Honeywell S.A.
6-18 Rue Avaulee
92240 Malakoff (Paris)

GERMANY

Honeywell GmbH
Kaiserleistrasse 55
6050 Offenbach/Main

ITALY

Honeywell S.p.A.
Via Vittor Pisani 13
20124 Milano

NETHERLANDS

Honeywell B.V.
Rijswijkstaat 175
1017 Amsterdam

NORWAY

Honeywell A/S
Ringeriksveien 38
N-1301 Sandvika (Ostø)

PORTUGAL

"Globo"
Rua do Quelhas 22-4
Lisboa

SPAIN

Honeywell S.A.
Pradillo, 48, P.O. Box 2010
Madrid 2

SWEDEN

Honeywell AB
Storsåtragränd 5
S-127 86 Skarholmen

SWITZERLAND

Honeywell A.G.
Dolderstrasse 16
8030 Zurich

UNITED KINGDOM

Honeywell Limited
Honeywell House
Charles Square
Bracknell, Berkshire R012 1EB

TABLE III—CONVERSION TABLE

OPERATING RANGE CONVERSIONS			SUBTRACTIVE DIFF. CONVERSIONS		
kg/cm ²	kPa	psi	kg/cm ²	kPa	psi
0.1 to 1.05	15 to 100	2 to 15	0.15 to 0.4	15 to 40	2 to 6
0.4 to 3.5	40 to 350	5 to 50	0.4 to 1.0	40 to 100	6 to 14
0.7 to 10.0	70 to 1000	10 to 150	0.7 to 1.6	70 to 160	10 to 22
1.5 to 20.0	150 to 2000	20 to 300	1.5 to 3.5	150 to 300	20 to 50

SWITCH RATINGS (amperes):

	120V AC	240V AC
Full Load	8.0	5.1
Locked Rotor	48.0	30.6

PRESSURE SENSING ELEMENT: Stainless steel diaphragm. (L404F1193 and L404F1235 have brass bellows.)

MAXIMUM AMBIENT TEMPERATURE: 66 C [150 F].

Also refer to note under Mounting.

ADJUSTMENT MEANS: Screws on top of control case. Scales are marked in psi, kg/cm², or kPa.

MOUNTING MEANS: 1/4 inch—19 BSPT connection on

diaphragm assembly; or surface mounts using holes in back of case.

DIMENSIONS: Refer to Fig. 1.

SWITCHING ACTION: Snap switch breaks R-B (closes R-W) on pressure rise.

GROUNDING MEANS: Ground screw terminal marked \perp .

ACCESSORIES:

118023 Steam Trap (included with all models).

33312B Knurled Knob—fits on top of adjusting screws.

129564 Range Stop—range stop screw, Part No. 107194, and wrench, Part No. 23466, to limit set point range.

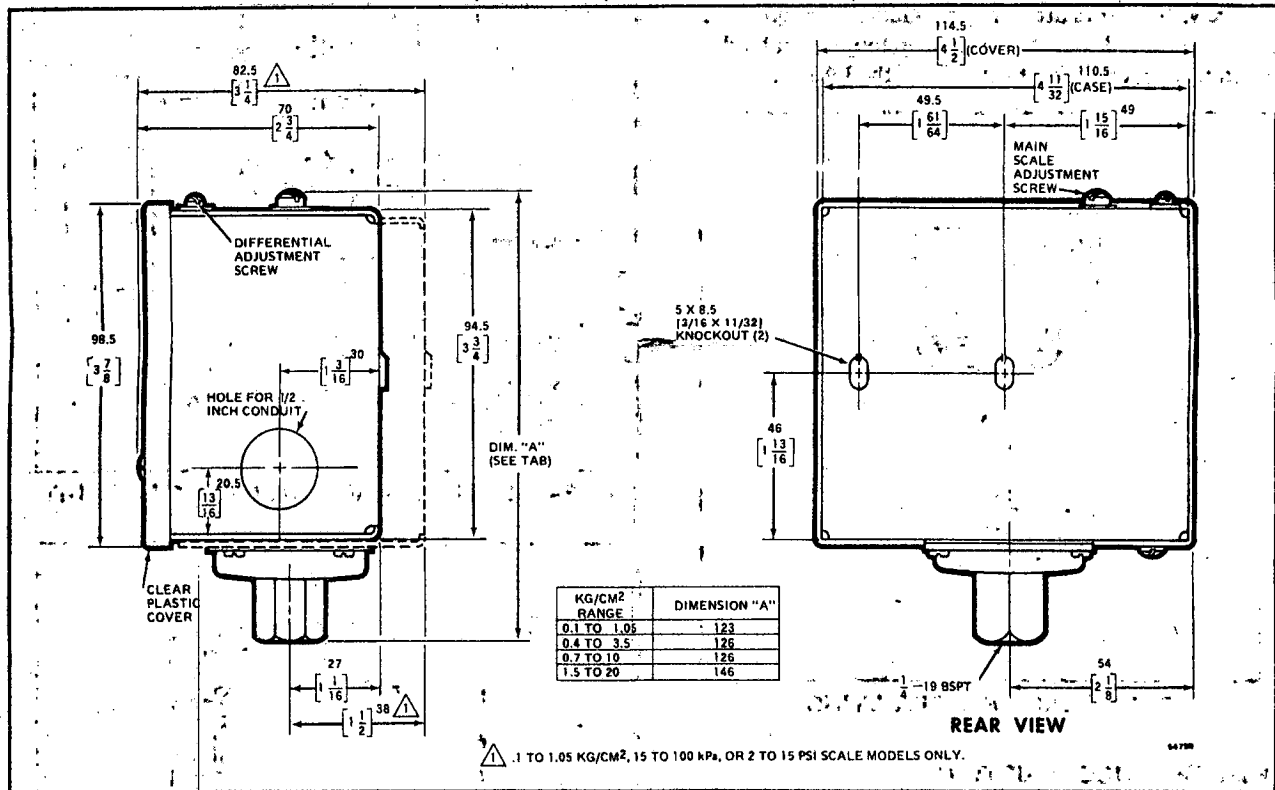


FIG. 1—APPROXIMATE DIMENSIONS IN MILLIMETRES [INCHES IN BRACKETS].

INSTALLATION

CAUTION

1. Installer must be a trained, experienced service technician.
2. Disconnect power supply before installing to prevent possible electrical shock or equipment damage.
3. Conduct a thorough checkout after the installation is complete.

IMPORTANT

When making pipe connections, use pipe dope sparingly to seal the joints; any excess dope may clog the small hole in the fitting and prevent the controller from operating properly.

LOCATION AND MOUNTING

Locate the device where the ambient temperature will not exceed 66 C [150 F]. The L404F can be mounted near the pressure gauge, at a remote location, in a fitting provided by the boiler manufacturer, or in a special mounting on low water cutoffs. The device should always be mounted above the water line in steam boiler applications.

NOTE: For accurate operation, supplemental heat should be added to installations where temperatures fall below minus 29 C [minus 20 F].

A steam trap must be connected between the device and the boiler (Fig. 2) to prevent boiler scale and corrosive vapors from attacking the elbows or diaphragm. It is recommended that the steam trap loops be extended forward to backward (as shown) from the L404F.

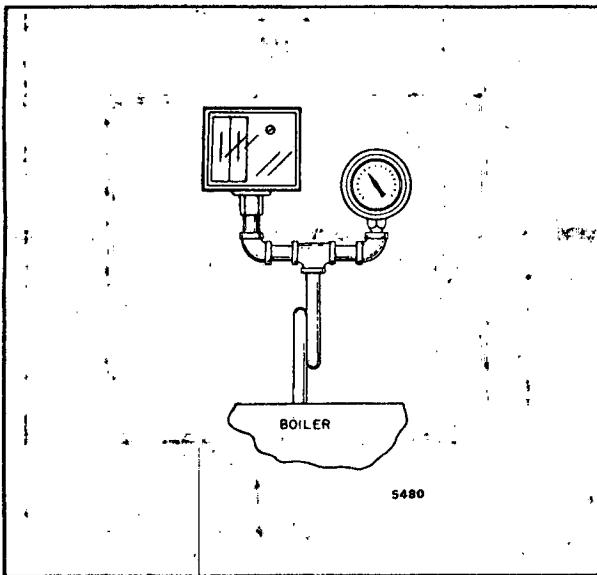


FIG. 2-STEAM TRAP MOUNTING.

PRESSURE GAUGE MOUNTING

To mount beside a pressure gauge, remove the gauge, and install in its place the steam trap with a tee on top. Mount the Pressuretrol unit and pressure gauge on the sides of the tee by means of nipples and elbows (Fig. 2).

REMOTE MOUNTING

Excessive vibration at the boiler may affect the operation of the device. In these cases, the device should be remotely located, subject to the following:

1. All piping must be suitable and properly pitched to drain all condensation back to the boiler.
2. The remote mounting must be solid.
3. A steam trap must be used at one end of the piping.

BOILER MOUNTING

If it is not convenient to mount the device adjacent to the pressure gauge, install a steam trap at the location on the boiler recommended by the boiler manufacturer, then screw the device directly to the steam trap.

WIRING

All wiring must comply with applicable codes and ordinances. All models have terminals (on the MICRO SWITCH snap-acting switch) inside the cover and knock-outs for conduit and cable. Refer to manufacturer's installation and wiring instructions, if available, and to typical hookups (Figs. 3 and 4).

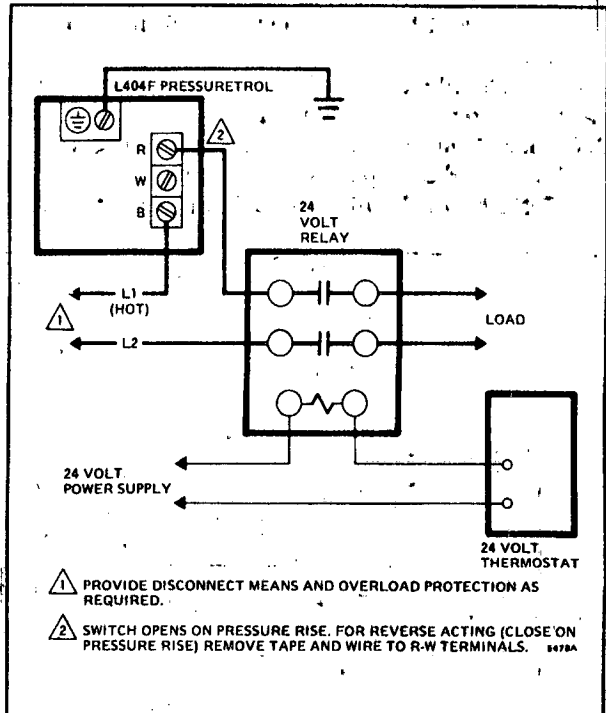


FIG. 3-L404F IN LOW VOLTAGE RELAY CIRCUIT.

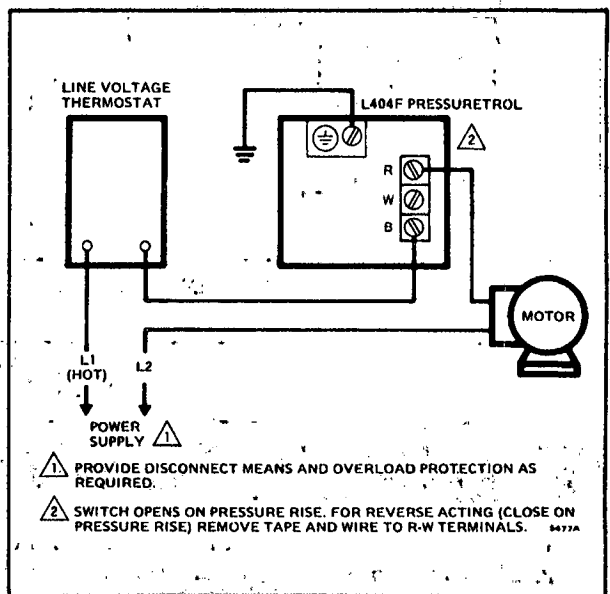


FIG. 4-L404F IN A TYPICAL 2-WIRE CONTROL CIRCUIT.

SETTINGS AND ADJUSTMENTS

When the pressure at the control rises above the L404F set point, a circuit opens between the R-B terminals. During a pressure fall, R-B will close at the set point pressure *minus* the switch differential.

For example, if a controller is set to differential "B" (Fig. 5) with a controller set point of "A," R-B will open when the pressure rises to "A." Then during a pressure fall, the R-B terminals will close when the pressure drops to "C" ("A" minus differential "B").

If reverse switch action is desired, the tape on the switch is removed from the W terminal. The R-W circuit will close on a pressure rise to the set point. R-W will open again when R-B closes on a pressure drop past the switch differential.

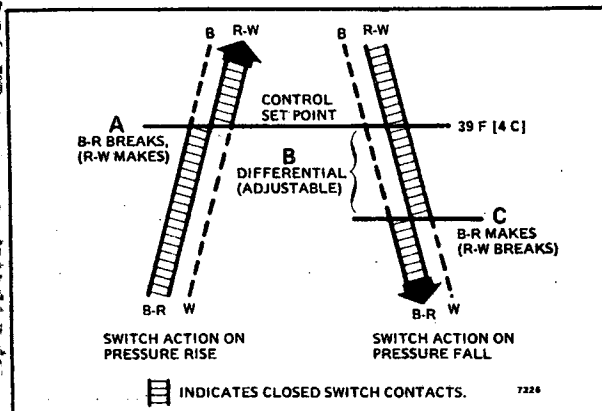


FIG. 5—OPERATION OF SWITCH ON PRESSURE RISE AND FALL.

SET POINT ADJUSTMENT

Turn the pressure adjusting screw on top of the control (Fig. 6) to adjust the set point. Turn the differential adjusting screw to the desired pressure difference between switch opening and closing.

NOTE: When the main scale setting is at the lower end of the operating range, the differential range will be less than the differential setting by approximately 20 percent.

SCALEPLATE ADJUSTMENT

The L404 has been carefully calibrated during manufacture and should not require recalibration.

However if recalibration is necessary, remove the cover, and loosen the setscrews which hold the scaleplate. Adjust the plate up or down, as required, to bring the device into calibration. Retighten the setscrews securely and replace the cover.

CHECKOUT

After the device has been installed and wired, test operation as follows:

1. Note the boiler pressure by checking the boiler pressure gauge. (Boiler pressure should be near the middle of the Pressuretrol pressure scale to perform this test properly.)

2. Rotate the pressure adjusting screw (Fig. 6) until the pressure setting indicator on the front of the case corresponds to the boiler pressure gauge reading.

3. The L404F should break the control circuit automatically when the boiler pressure gauge reading equals or slightly exceeds the Pressuretrol pressure setting.

4. Turn the pressure adjusting screw to raise the main scale setting. Note the setting at which control circuit remakes. The difference between the break and make points should equal the differential setting.

5. If the device is operating properly, set the pressure adjusting screw (and the differential adjusting screw) as required for the application.

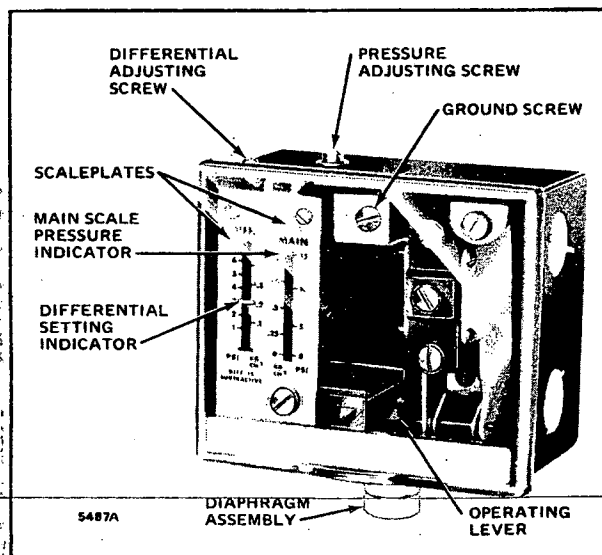


FIG. 6—INTERNAL VIEW OF PRESSURETROL CONTROLLER.