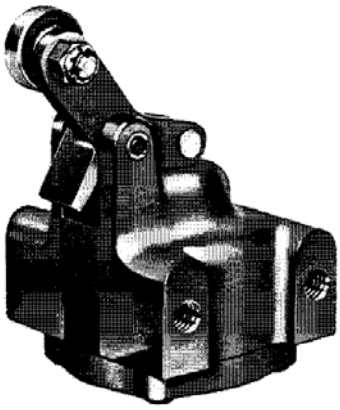
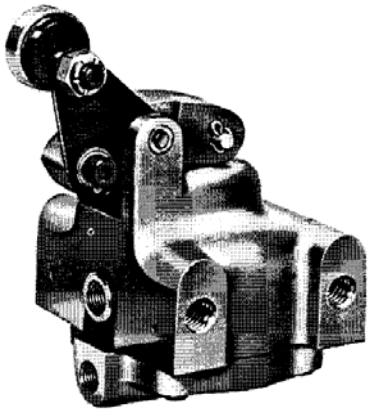
WOODWARD

Product Manual 36613
(Revision B)

Original Instructions





Pneumatic Transmitter

Operation Manual

General Precautions

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment.

Practice all plant and safety instructions and precautions.

Failure to follow instructions can cause personal injury and/or property damage.

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Revisions—Changes in this publication since the last revision are indicated by a black line alongside the text.

Manual 36613

Pneumatic Transmitter

Description

The pneumatic transmitter (Figures 1 and 2) permits remote speed setting adjustment of a pneumatic-hydraulic governor. The transmitter meters control air to a receiving mechanism which is incorporated in the governor speed setting mechanism. The transmitter is operated by mechanical linkage connected to its control lever. It allows stepless speed adjustment over the entire speed range (rather than the definite speed steps obtained with some types of speed setting mechanisms). The transmitter can also be used to send a signal to a remote indicator. The pressure signal thus transmitted is proportional to the position of the mechanical operating linkage.

Transmitter assemblies are available which operate at several different pressures. Various input air pressure ranges may be used: 35–150 psi (241–1034 kPa), 50–150 psi (345–1034 kPa), and 75–150 psi (517–1034 kPa). Output pressure ranges vary from 2:1 to 11:1; typical output ranges include 15–28 psi (103–193 kPa), 5–30 psi (34–207 kPa), 5–55 psi (34–379 kPa), and 15–55 psi (103–379 kPa).

Two different control levers are available. The one-piece lever, shown in Figure 4, has an eccentric-mounted roller bearing which may be positioned to contact the speed adjustment cam. The two-piece lever, shown in Figure 5, has this eccentric-mounted bearing feature plus an adjustment of 20° in the radial location of the bearing. This adjustment is obtained by the use of a slot in the roller lever. This design allows a greater latitude in the design of the connecting mechanical linkage.

Consult Woodward about the proper transmitter to be used with a specific application. Figures 4 and 5 show two typical arrangements available and dimensions.

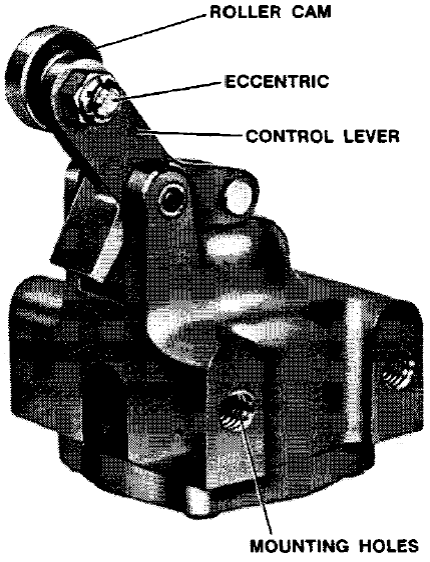

Figure 1. Pneumatic Transmitter

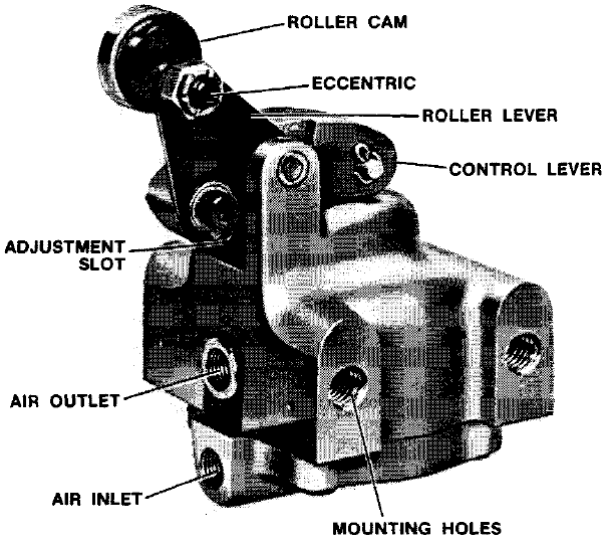

Figure 2. Pneumatic Transmitter

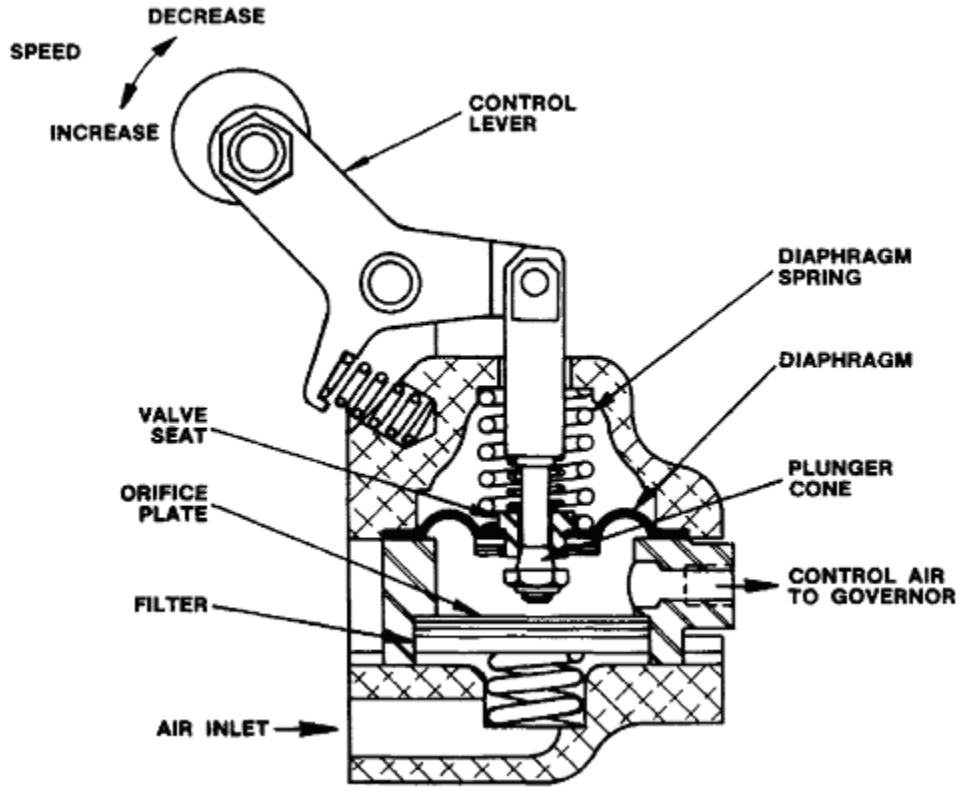

Figure 3. Cutaway View

Operation

Refer to the schematic view (Figure 3). Supply air is admitted into the inlet port of the transmitter and passes through a sintered bronze filter and an orifice plate before filling the area below the diaphragm. The air pressure beneath the diaphragm is transmitted through the connecting tubing to the receiver in the governor. The pressure increases under the diaphragm until it is just sufficient to overcome the downward force of the diaphragm spring above the diaphragm; the spring force is determined by the control lever position, when the diaphragm moves up, the valve seat Is lifted a minute distance off of the plunger cone and a leak to atmosphere is established. This rate of air leakage is equal to the amount of air entering through the orifice plate; the pressure in the transmitter is thus held constant.

When the control lever is advanced to increase the governor speed setting, the plunger cone is lifted, and the leak is closed. Air pressure increases in the transmitter and connecting tubing until it reaches a point where it again lifts the diaphragm and reestablishes the leak. The pressure will now be held constant at this point.

If the control lever is moved in the decrease speed direction, the plunger cone is moved downward thus releasing the control air pressure to atmosphere. As the air pressure below the diaphragm decreases, the diaphragm spring forces the valve seat down until the amount of air escaping through the plunger cone and valve seat opening is again equal to the volume of air passing through the orifice plate.

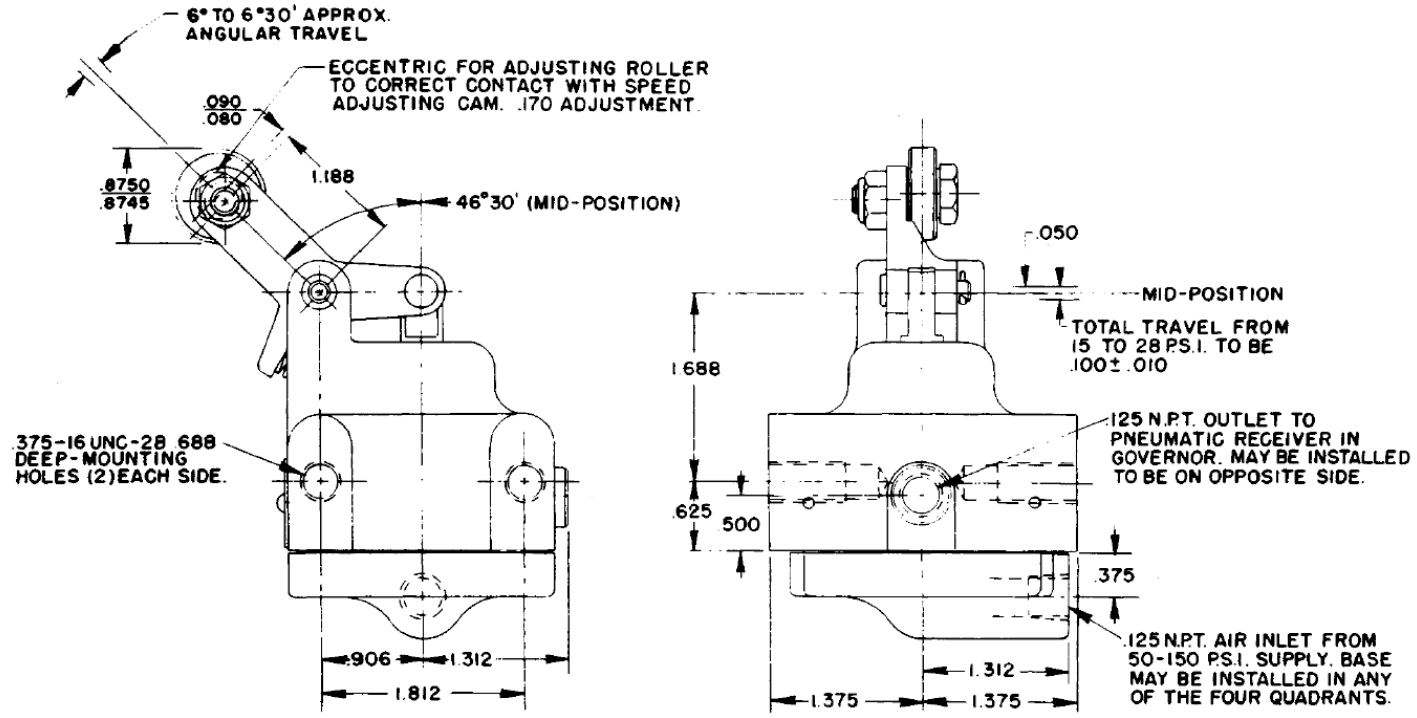

Figure 4. Outline Drawing

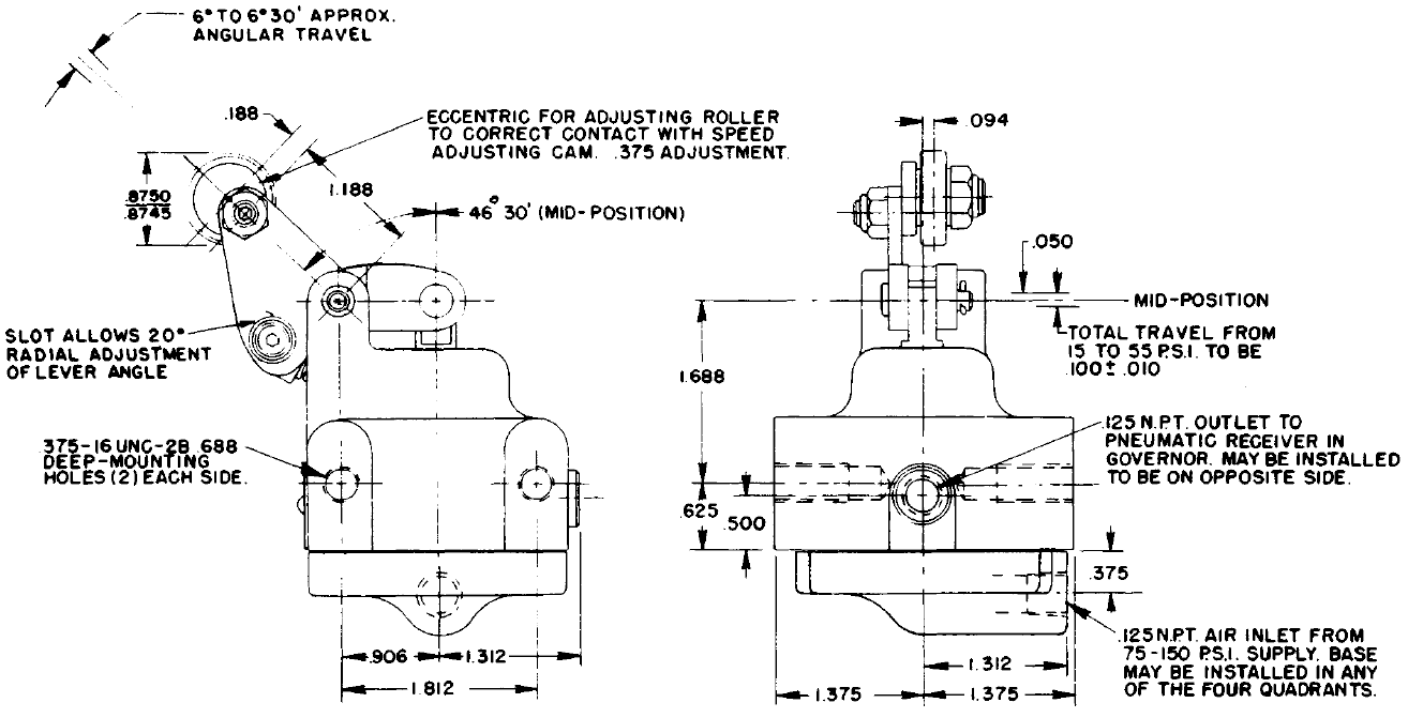

Figure 5. Outline Drawing

Information and Parts Replacement

When requesting additional information concerning governor operation or when ordering parts, the following information must accompany the request:

- Governor serial number (shown on name plate). The serial number is needed since the reference numbers shown in this manual do not identify the exact part number required for any one governor.
- Manual number (this is manual number 38613)
- Part reference number, name of part, or description of part

Ref. No.	Part Name	Quantity
36613-1	Roller, Eccentric	1
36613-2	Ball Bearing	1
36613-3	Nut, 1/4-28 Elastic Stop	1
36613-4	Cotter Pin, 1/16 x 3/8	1
36613-5	Control Lever	1
36613-6	Rod, Valve Plunger	1
36613-7	Pin, 3/16 dia. x 53/64 headed	1
36613-8	Pin, .186 dia. x 1-7/64	1
36613-9	Bushing, 3/16 x 5/16 x 1/4 Oilite	2
36613-10	Spring, Control Lever	1
36613-11	Case	1
36613-12	Nameplate	1
36613-13	Screw, Drive	2
36613-14	Spring, Control	1
36613-15	Spring, Oil Seal	1
36613-16	Seat, Valve	1
36613-17	Gasket, 0.38 x 0.50 x 0.015	1
36613-18	Washer, Diaphragm	2
36613-19	Diaphragm	1
36613-20	Washer, Keyed Retaining	1
36613-21	Nut, 3/8.24 Hex Jam	1
36613-22	Valve Plunger	1
36613-23	Nut, #6-32 Elastic Stop	1
36613-24	Retainer Assy., Diaphragm	1
36613-25	Gasket, Orifice Plate	2
36613-26	Plate, Orifice	1
36613-27	Disc, Filter	1
36613-28	Spring, Filter Load	1
36613-29	Gasket, Cover.	1
36613-30	Cover	1
36613-31	Washer, #10 Split Spring Lock	4
36613-32	Screw, #10-32 x 5/8 Soc. Hd. Cap	4
36613-51	Nut, 3/8-24 Elastic Stop	1
36613-52	Pin, Eccentric	1
36613-53	Control Lever	1
36613-54	Roller Lever	1
36613-55	Washer, #10	1
36613-56	Washer, #10 Shakeproof	1
36613-57	Screw, #10-32 x 5/8 Soc. Hd. Cap	1

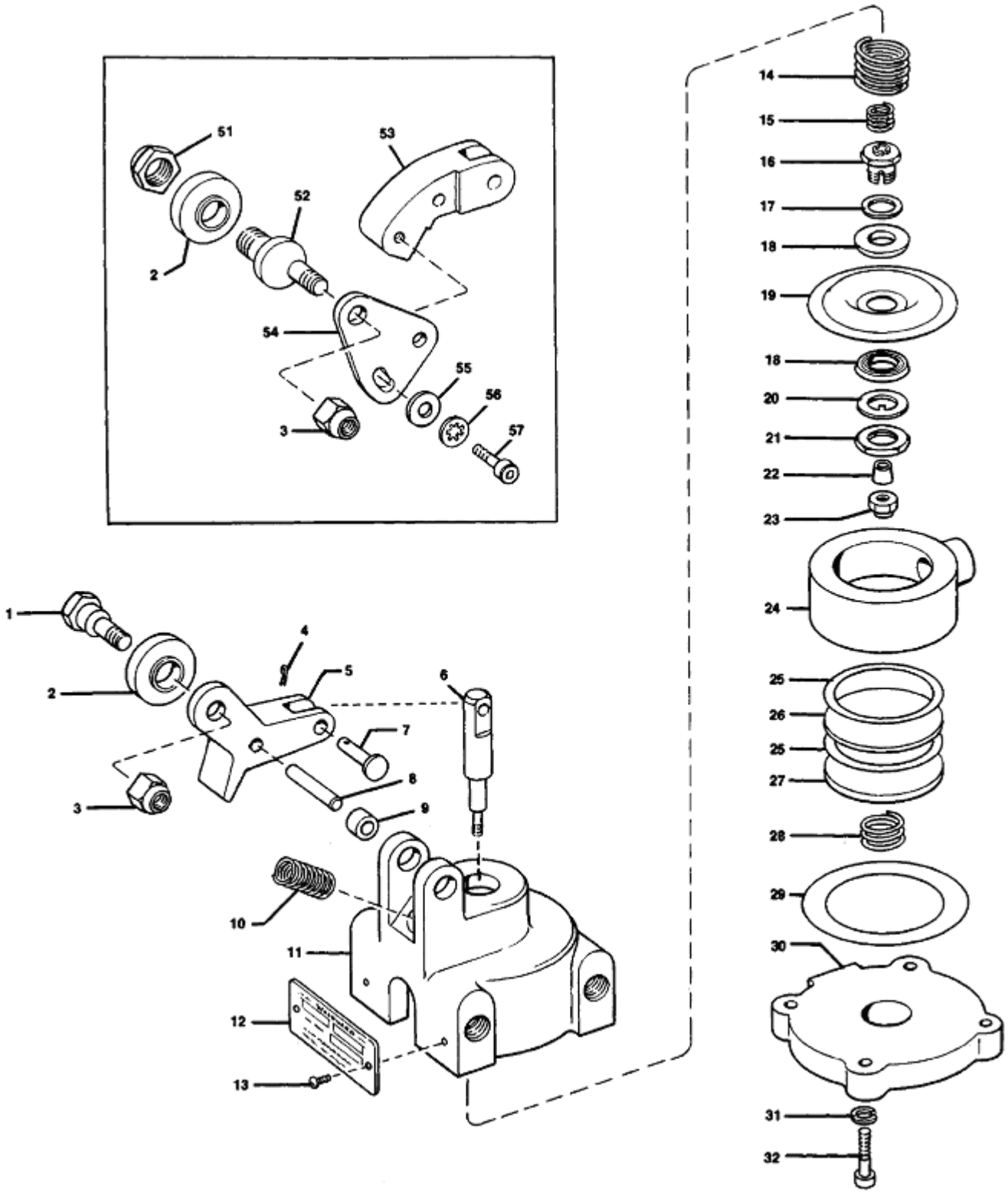

Figure 6. Exploded View

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Send comments to: icinfo@woodward.com

Please reference publication 36613B.

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