DESCRIPTION • OPERATION • MAINTENANCE

INSTRUCTIONS

PNEUMATIC TIMING RELAY
Type AMB

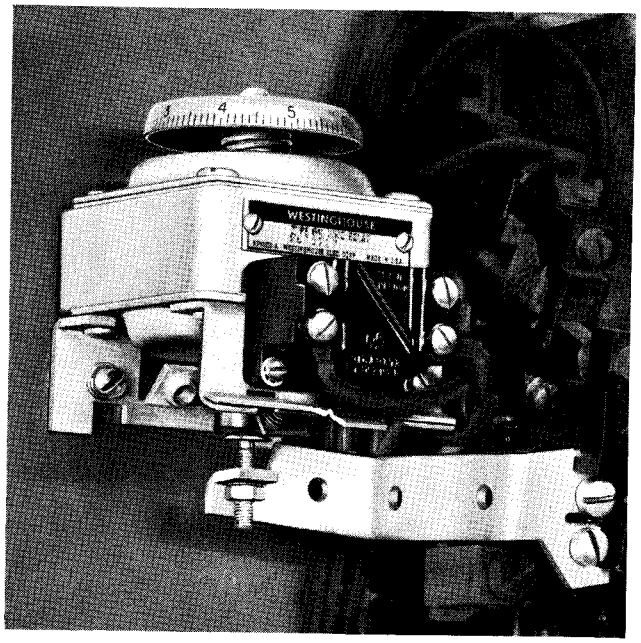

FIG. 1. Type AMB Relay

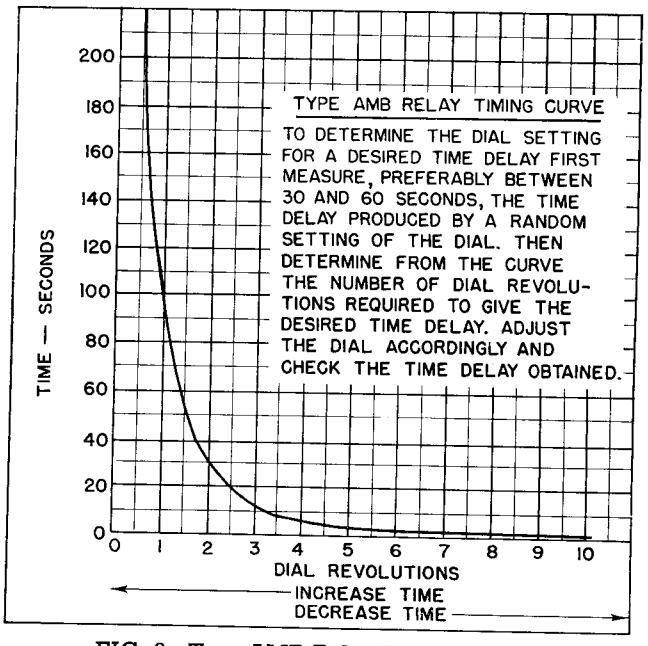

FIG. 2. Type AMB Relay Timing Curve
(Standard Aluminum Air Chamber)

TYPE AMB PNEUMATIC TIMING RELAY opens or closes its electrical circuits after a definite preset time delay. The relay is operated by the magnet of an associated contactor through the separate adjustable relay operating arm. The timing period is initiated by energizing the coil of this associated contactor.

OPERATION

When the contactor magnet is energized, the relay operating arm (3), Fig. 3, moves downward. Through the action of the relay operating spring and switch operating lever (6), the diaphragm pin (7) is then retracted downward. This downward movement of the pin is retarded by the adjustable orifice which regulates the rate at which air can enter the diaphragm chamber. Transfer of the switch contacts takes place before the final $\frac{1}{32}$ inch of diaphragm travel. When the coil of the associated contactor is de-energized, the contactor kickout spring acts through the relay operating lever to move the diaphragm pin upward and exhaust the air in the diaphragm chamber through a check valve. The contacts transfer to their original position during this motion.

Setting of the time delay is accomplished by turning the dial which controls the adjustable orifice of the regulating valve. The timing range is 0.2 to 200 seconds for relays with the standard aluminum air chamber. (Relays with black anodized aluminum air chambers have maximum delays of approximately 90 seconds.)

To determine the approximate dial setting for a desired time delay, see curve Fig. 2.

The timing calibration of the relay is unaffected by changes in humidity and ambient temperature. The internal parts are kept free from dust by a wool felt filter through which air enters the chamber.

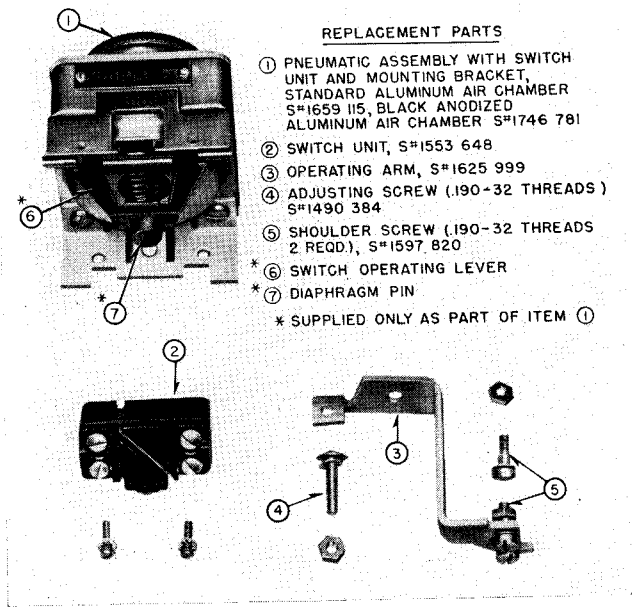

FIG. 3. Type AMB Relay Replacement Parts

The contacts of the switch unit are similar to transfer type and adjacent terminals must be wired to have the same polarity.

MAINTENANCE

The air chamber should not be dismantled for any reason. Introduction of dust particles into the check valve will cause a change in the time setting and may cause complete failure of the time delay mechanism.

The switch operating lever (6), Fig. 3, is accurately adjusted at the factory and should retain this setting indefinitely. However, if the relay is mechanically damaged, or if it must be dismantled to replace a switch or spring, it may be necessary to readjust this lever after reassembly in order to obtain the proper relation between the switch operating position and the diaphragm pin travel. If so, grasp the tail piece of the operating lever with a pair of pliers and force the opposite end of the operating lever against the shoulder of the operating pin with the fingers. Bend the tail piece slightly in the proper direction to correct the difficulty experienced, and check to see if the switch unit operates when the operating lever is $\frac{1}{32}$ inch from the shoulder of the operating pin. Caution must be used in making this adjustment as very little bending is required to produce a correct operating lever action.

The relay operating arm (3) is adjusted at the factory for approximately $\frac{1}{32}$-inch gap between the top of the operating arm button (4) and the bottom of the diaphragm pin (7) when the contactor is fully closed and the relay is at the end of its timing period with the diaphragm pin fully retracted downward. This adjustment should be checked occasionally and always returned to the original $\frac{1}{32}$-inch adjustment, if any variation is found. If it is ever necessary to dismantle the relay or contactor, this gap should be checked after the devices are reassembled, and adjusted if necessary. Always lock this adjustment tightly after any changes.

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PNEUMATIC TIMING RELAY

Type AMB

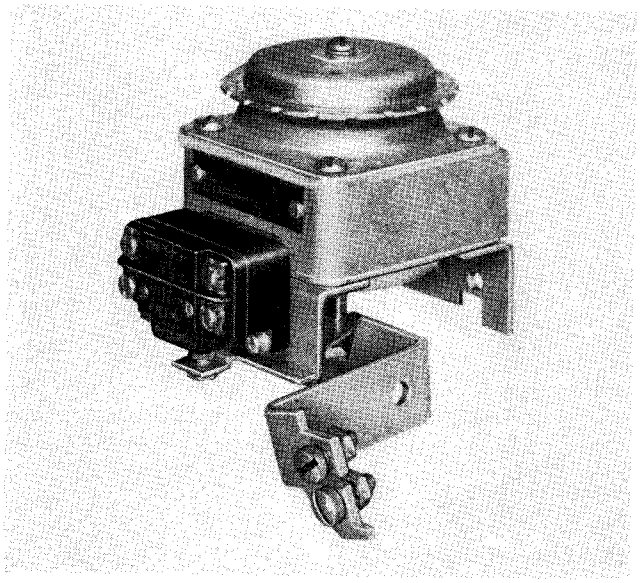


FIG. 1. Type AMB Relay

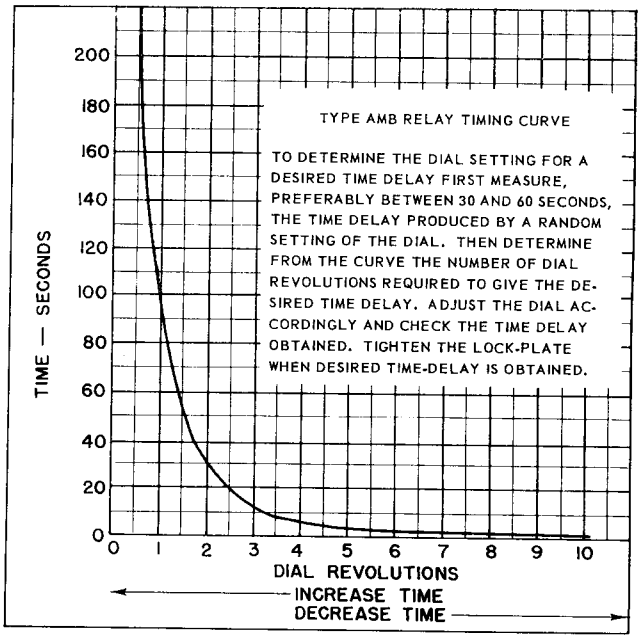


FIG. 2. Type AMB Relay Timing Curve

TYPE AMB PNEUMATIC TIMING RELAY opens or closes its electrical circuits after a definite preset time delay. The relay is operated by the magnet of an associated contactor through the separate adjustable relay operating arm. The timing period is initiated by energizing the coil of this associated contactor.

OPERATION

When the contactor magnet is energized, the relay operating arm (3), Fig. 3, moves downward. Through the action of the relay operating spring and switch operating lever, the diaphragm pin is then retracted downward. This downward movement of the pin is retarded by the adjustable orifice which regulates the rate at which air can enter the diaphragm chamber. Transfer of the switch contacts takes place before the final 1/32 inch of diaphragm travel. When the coil of the associated contactor is de-energized, the contactor kickout spring acts through the relay operating lever to move the diaphragm pin upward and exhaust the air in the diaphragm chamber through a check valve. The contacts transfer to their original position during this motion.

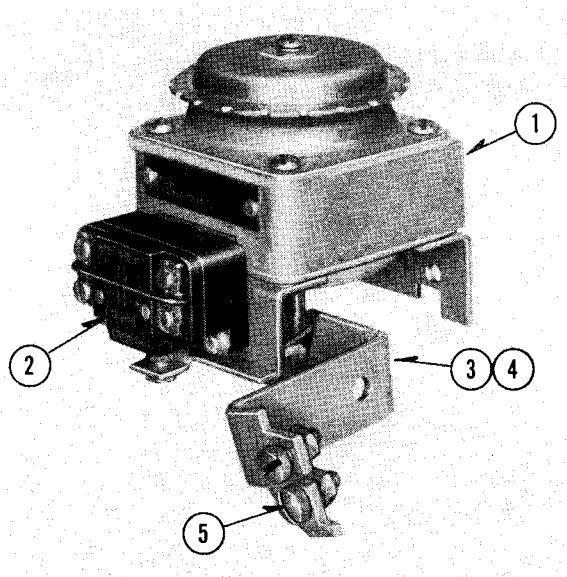
Setting of the time delay is accomplished by turning the dial which controls the adjustable orifice of the regulating valve. The timing range is 0.2 to 200 seconds.

To determine the approximate dial setting for a desired time delay, see curve Fig. 2.

The timing calibration of the relay is unaffected by changes in humidity and ambient temperature.

The internal parts are kept free from dust by a wool felt filter through which air enters the chamber.

The contacts of the switch unit are similar to transfer type and adjacent terminals must be wired to have the same polarity.



① Pneumatic relay with switch unit and mounting bracket—S# 1659115
② Switch—S# 1625900
③ Operating arm—S# 1625999
④ Adjusting screw—S# 1490384
⑤ Shoulder screw (2 Req'd) S# 1597820

FIG. 3. Type AMB Relay Replacement Parts

MAINTENANCE

The air chamber should not be dismantled for any reason. Introduction of dust particles into the check valve will cause a change in the time setting and may cause complete failure of the time delay mechanism.

The switch operating lever is accurately adjusted at the factory. Should further adjustment be necessary, however, proceed as follows:

Loosen locknut on the adjusting screw, turn the adjusting screw slightly, and check to see that switch unit operates when operating lever is 1/32 inch from the shoulder of the operating pin. Caution must be used when making this adjustment since very little turning of adjusting screw is required to correct the action of the operating lever. After correct adjustment is made, lock adjusting screw in this position using the locknut.

The relay operating arm (3) is adjusted at the factory for approximately 1/32-inch gap between the top of the operating arm adjusting screw (4) and the bottom of the diaphragm pin, when the contactor is fully closed and the relay is at the end of its timing period with the diaphragm pin fully retracted downward. This adjustment should be checked occasionally and always returned to the original 1/32-inch adjustment, if any variation is found. If it is ever necessary to dismantle the relay or contactor, this gap should be checked after the devices are reassembled, and adjusted if necessary. Always lock this adjustment tightly after any changes.

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