

INSTALLATION INSTRUCTIONS FOR



AUTOMATIC ELECTRIC BRAKE CONTROLLER (AIR ACTUATED)

12 VOLT NEGATIVE GROUND VEHICLES ONLY

FEATURES:

- **Mounting Bracket**

Universal mounting bracket with screws for ease of installation.

- **Indicator Light**

The **Hayes** automatic electric brake controller indicator will illuminate when the braking system is functioning properly.

Illumination will occur in the following manner:

A. Trailer Disconnected

Light will illuminate immediately to full brilliance when tow vehicle brakes are activated or the brake controller is actuated manually.

B. Trailer Connected

Under a no-brake situation, the light will remain off. As brakes are applied (either automatically or manually) the indicator light will illuminate with a varying degree of intensity from dim to full brilliance. Light intensity will be directly proportional to brake application.



100400-B

NOTE: INSTRUCTIONS ARE AVAILABLE TO CONVERT THIS AIR ACTUATED CONTROLLER FROM A NEGATIVE GROUND TO A POSITIVE GROUND ELECTRICAL SYSTEM.

Figure 1.

CONTROLLER MOUNTING

The mounted position of the controller should be determined by the installer in conjunction with the vehicle owner's preference. The most common position of the controller has been under the instrument panel. The owner/or installer should hold the controller in various locations while sitting in a driving position to determine the most convenient and safest location. After determining controller location, clean both the top surface of the controller and the instrument panel mounting area of dirt and grease. Apply double-faced tape to the contact area of the top surface of the controller and press into place on instrument panel. Locate "U" bracket over controller, mark hole location. To assure accurate location, it is best to center punch the hole locations before drilling. Be careful not to drill through any wiring that may be under the instrument panel. After drilling, place "U" bracket into position and insert the two screws through bracket and instrument panel and securely tighten with Tinnerman nuts. Do not use the tape alone for mounting.

NOTE: If the controller is mounted to a plastic instrument panel, it may be necessary to ground controller case for the indicator light to operate correctly.

AIR CONNECTION OF CONTROLLER

The Hayes controller may be operated automatically or manually. Automatic operation is strongly recommended for normal driving because it is more convenient and, in an emergency stopping situation, it is difficult for even an experienced driver to reach for the control handle, operate the brake pedal, and coordinate the tow vehicle for maximum braking effect. For automatic operation, the cylinder on the controller must be connected into the air brake system of the tow vehicle. This connection is made by installing a 3/16" or 1/4" diameter S.A.E. approved tubing from the brake controller to the vehicle service line. For brake systems with primary and secondary service lines, connect a two-way check valve between the two service lines and install the tubing from the output side of the check valve to the brake controller. The two-way check valve should be located between the treadle valve and before any other valves in the system. This will retain isolation of the primary and secondary service system and allow trailer braking capabilities if either system should fail.

The controller air inlet port thread is 1/8" NPT.

AIR AND ELECTRICAL INSTALLATION DIAGRAM

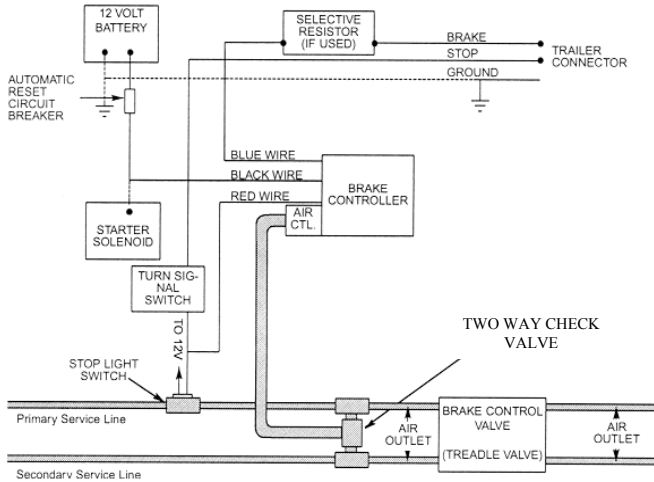


Figure 2

NOTE: The above diagram shows the two-way check valve installed in a dual air system to actuate the **Hayes** controller. On older vehicles with a single air brake system, the controller should be connected from the service line through a check valve to the controller.

ELECTRICAL CONNECTIONS OF CONTROLLER

BATTERY CONNECTION – BLACK WIRE

The black wire is the positive voltage power supply line. Using a 12 gauge wire, connect through a 20 amp automatic reset circuit breaker to positive side at the battery or starter solenoid (Figure 2). Route the wire through a grommeted hole in the firewall to the black wire of the controller.

WARNING

THE POWER SUPPLY WIRE MUST BE A COMPLETELY SEPARATE CIRCUIT FROM THE BATTERY OR STARTER SOLENOID TO THE CONTROLLER. DO NOT ATTACH THE POWER SUPPLY WIRE TO ANY TOW VEHICLE WIRING USED FOR OTHER ACCESSORIES OR TRAILER CIRCUITS. THIS COULD CAUSE INTERFERENCE WITH OTHER ACCESSORIES OR OVERLOAD CIRCUITS WHICH WOULD CAUSE BLOWN FUSES OR CIRCUIT BREAKERS.

BRAKE CONNECTION – BLUE WIRE

Using a 12 gauge wire, connect the blue wire directly to the trailer brake wire.

CONTROLLER STOP LIGHT CIRCUIT – RED WIRE

The **Hayes** controller is equipped with a separate stop light switch, which is independent of the controller rheo-stat. Full trailer stop light current is provided immediately upon manual application. To provide trailer stop light operation when the controller is manually applied, it is necessary to wire the controller into the stop light circuit. To do this, connect the red controller lead to the stop light switch wire that leads to the turn signal switch as shown in Figure 2. Locate the correct wire with a grounded test light. The correct wire is the wire that lights the test bulb only when the tow vehicle brakes are applied.

TRAILER BRAKE GROUND WIRE

One of the most important phases of the circuit is the proper grounding of the trailer brakes. Never depend on establishing a ground through the trailer hitch. The best possible ground is established by running a wire from the trailer brake ground wire connector to the battery ground wire.

BALANCING TOWING TRAILER VEHICLE AND BRAKE SYSTEMS

CONTROLLER ADJUSTMENT

The controller handle adjustment affects the rate of application of the trailer brakes. This adjustment has no bearing on the maximum braking capacity of the trailer brakes. This adjustment should be made to provide for a slight lead of the trailer brakes over the tow vehicle brakes. Turning the handle clockwise will decrease the rate of application of the trailer brakes, while counter clockwise will increase the rate of application. When the desired setting is reached, the controller will hold the adjustment.

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