

General Electric Company

Schenectady, N.Y.

RAILWAY DEPARTMENT

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STRAIGHT AIR BRAKE EQUIPMENT WITH EMERGENCY FEATURE

A simple form of emergency valve has been developed by the General Electric Company which can be furnished with all new straight air brake equipments or can be added to existing equipments. The use of this device greatly increases the safety factor of the

brake cylinder without passing through the motorman's valve.

An emergency application of the brakes can be made by the conductor from his position on the rear platform, or from any part of the car or train, by opening the conductor's

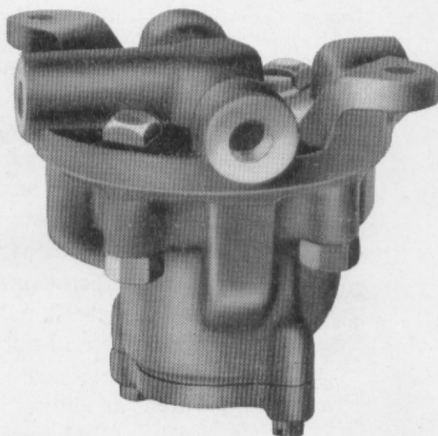


Fig. 1
EMERGENCY VALVE

straight air brake on city cars, and also provides a means for safe operation of two-car trains during rush hours and other periods of heavy travel. A straight air brake equipment to which this emergency valve has been added has the following advantages.

A quicker application of the brake can be made when the motorman's valve handle is placed in the emergency position, for the reason that the emergency valve operates and admits main reservoir air direct to the

valve which vents the emergency line pressure to the atmosphere when in the open position.

An automatic application of the brakes is made should a rupture occur in any part of the emergency line. This insures maximum braking power if the pipe connections at the ends of the car are accidentally broken.

An automatic application of the brakes is made in the event of the cars pulling apart when operating in trains.

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*Supersedes No. 4701.

Class 11

44555-2 Straight Air Brake Equipment with Emergency Feature

A piping diagram of a straight air brake equipment with emergency features is shown in Fig. 4. It will be noted that two pipe lines, the emergency line and the straight air train line, extend from one end of the car to the other and are connected between cars by means of hose and couplings. If equipments are intended only for single car operation, the hose and couplings are, of course, unnecessary.

A straight air brake equipment with emergency feature for **motor car**, double end operation includes the following parts:

Compressor and Auxiliaries

- Motor-driven air compressor
- Intake strainer
- Suspension cradle or suspension bolts

Pressure Regulating Equipment

- Air compressor governor
- Insulating connection for governor
- Safety valve

Cab Fixtures

- Motorman's valves
- Handle
- Single pressure gauges
- Snap switch
- Cutout with fuse

Brake Details

- Brake cylinder
- Emergency valve
- Strainer
- Conductor's valve

Main Reservoir and Accessories

- Main reservoir
- Reservoir hangers
- Drain cock.

If equipments are intended for train operation, the following parts should be included:

Emergency Pipe Attachments

- Cutout cocks
- Hose and couplings
- Dummy couplings

Brake Pipe Attachments

- Cutout cocks
- Hose and couplings
- Dummy couplings

A trail car equipment includes:

Brake Details

- Brake cylinder
- Auxiliary reservoir
- Hangers
- Drain cock
- Emergency valve
- Strainer
- Conductor's valve

Emergency Pipe Attachments

- Cutout cocks
- Hose and couplings
- Dummy couplings

Brake Pipe Attachments

- Cutout cocks
- Hose and couplings
- Dummy couplings

TYPE E FORM J EMERGENCY VALVE

The Type E Form J emergency valve is of the pipeless type. The working parts consist of a piston, a slide valve, and a compression spring. Four pipe connections are made to the bracket or head to which the valve body is bolted. These connections are main reservoir, emergency line, train line and brake cylinder.

The operation of this valve is shown by Figs. 2 and 3, which must be considered as diagrams and not as actual sections.

In the normal position of the emergency valve, as shown in Fig. 2, the train line and brake cylinder are connected together through the slide valve cavity. The main reservoir and emergency line are connected together through restricted port B drilled in the slide valve seat.

When a service application of the brake is made, air flows from the main reservoir to the valve chamber through restricted port B in the slide valve seat to the emergency line, thence through the motorman's valve, the train line, slide valve cavity and the brake cylinder port to brake cylinder.

When an emergency application of the brake is made by the bursting of a hose or opening of the conductor's valve or by placing the motorman's valve handle in the emergency position, the pressure in the emergency

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line is suddenly reduced, unbalancing the pressures on the emergency valve piston, causing it to move to the emergency position as shown in Fig. 3. In this position

the opening in the emergency line. Main reservoir air will then flow to the emergency line, through restricted port A drilled in the piston, charging the latter to the main reser-

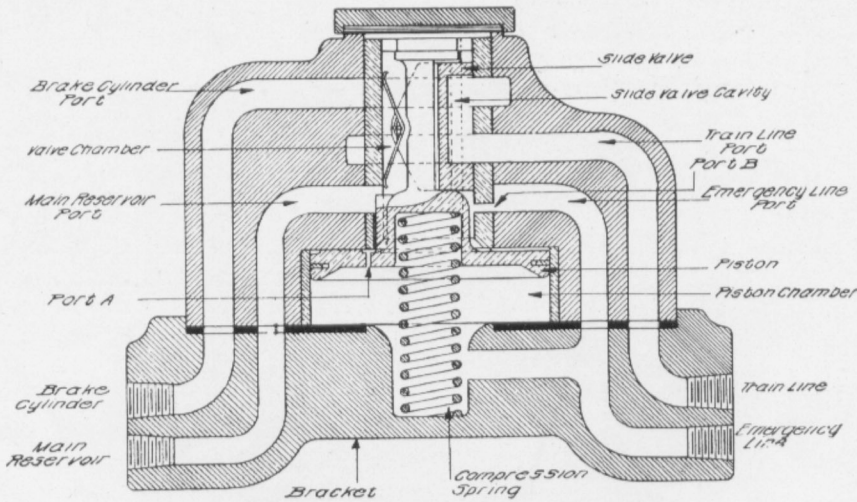


Fig. 2
TYPE E FORM J EMERGENCY VALVE, NORMAL POSITION

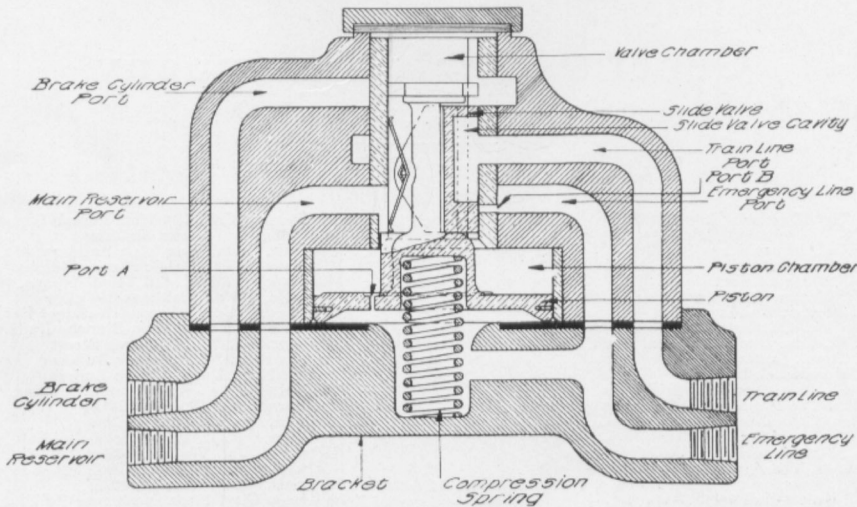


Fig. 3
TYPE E FORM J EMERGENCY VALVE, EMERGENCY POSITION

communication between the train line and the brake cylinder is cut off, and communication is established between the main reservoir and the brake cylinder.

After an emergency application has been made, the brakes may be released by closing

voir pressure, and allowing the compression spring to return the piston and slide valve to the normal position. Brake cylinder air can then be exhausted to the atmosphere by placing the motorman's valve handle in the release position.

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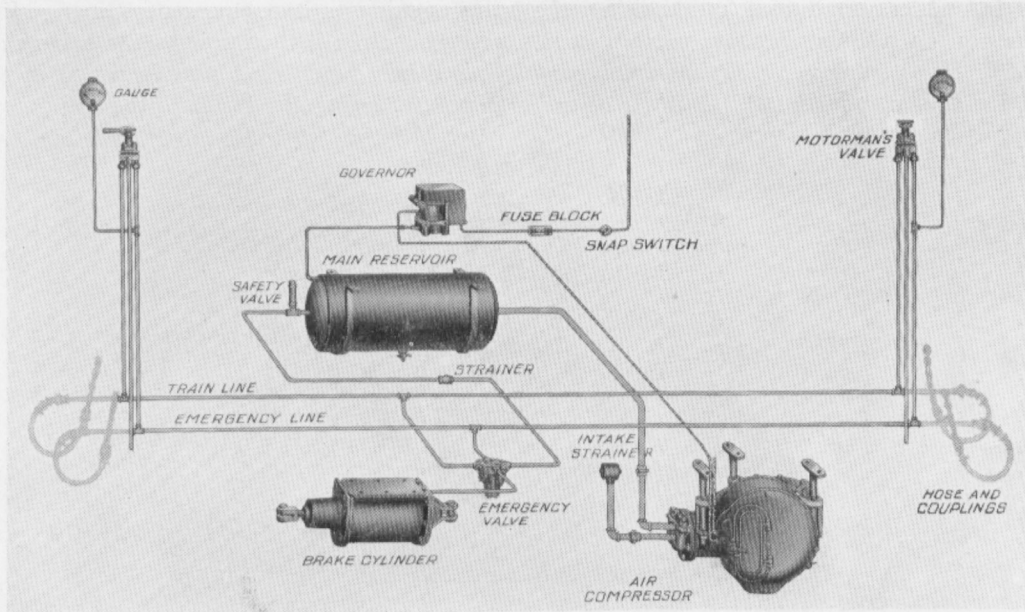


Fig. 4
PIPING DIAGRAM OF STRAIGHT AIR BRAKE EQUIPMENT
WITH EMERGENCY FEATURE

General Electric Company

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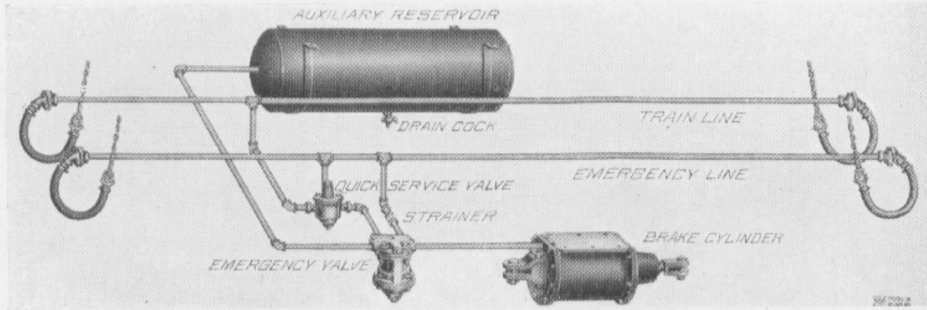


FIG. 2. EMERGENCY STRAIGHT AIR BRAKE EQUIPMENT FOR TRAIL CAR