EMD MAINTENANCE INSTRUCTION

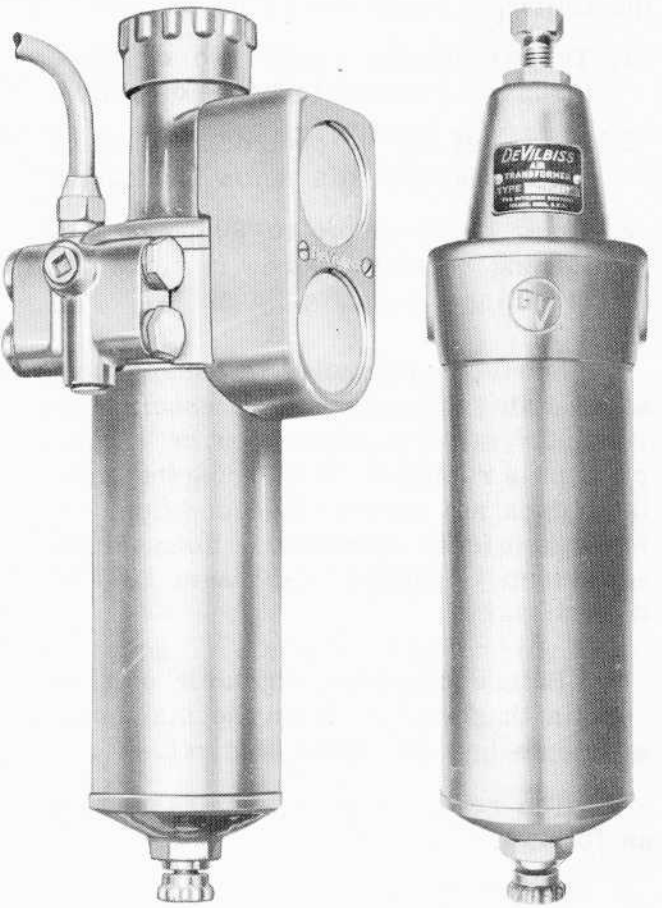
DE VILBISS AIR REGULATOR UNIT TYPE HLC

DESCRIPTION

The De Vilbiss air regulator, Fig. 1, is an air pressure reducer of the spring loaded diaphragm type and is used in EMD locomotives to reduce the air pressure from the main reservoir to 90 $\pm$ 3 pounds required for electric control air.

In conjunction with the air regulator, a pressure gauge which shows the air pressure in the control air line, is also installed in each locomotive. Table A gives the location of this gauge and the air regulator unit for the various model EMD locomotives.

A few of the older type air regulators were equipped with a gauge mounted in the gauge cover plate of the regulator. This gauge was used to show the pressure of the main reservoir air.



Old Model Current Model

Fig. 1 - Control Air Regulator

OPERATION

The purpose of the air regulator unit is to regulate the main reservoir air pressure for use in operating the power contactors, reverser and cam switches.

The control air pressure is adjusted by turning the screw on the top of the regulator unit clockwise to increase pressure and counterclockwise to decrease pressure. When adjusting the control air pressure, observe the control air gauge and correct air pressure to 90 pounds. Should the air pressure gauge read between 87 and 93 pounds, adjustment is not necessary.

The regulator unit is equipped with a disc type filter and a condenser for removing dirt, oil and water from the air prior to its entry into the electric control air system.

MAINTENANCE

Drain regulator unit weekly or as often as conditions warrant, by opening drain valve at the bottom of the regulator.

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The air filter should be inspected at periods indicated in the Scheduled Maintenance Program and cleaned or changed if conditions indicate necessary.

In the event the pressure in the control air system is high and cannot be reduced by adjusting the regulator screw, the following steps should be taken:

1. Turn regulator screw two or three turns in a counterclockwise direction.
2. Bleed off air in control air system until pressure falls below 90 pounds.
3. Bring pressure up to 90 pounds by turning regulator screw in clockwise direction.

Should the control air pressure gauge show main air reservoir pressure, the regulator valve is stuck open or the diaphragm is ruptured. If bleeding the regulator does not correct the condition, remove unit from locomotive, disassemble and clean. Replace diaphragm 8097569 if necessary.

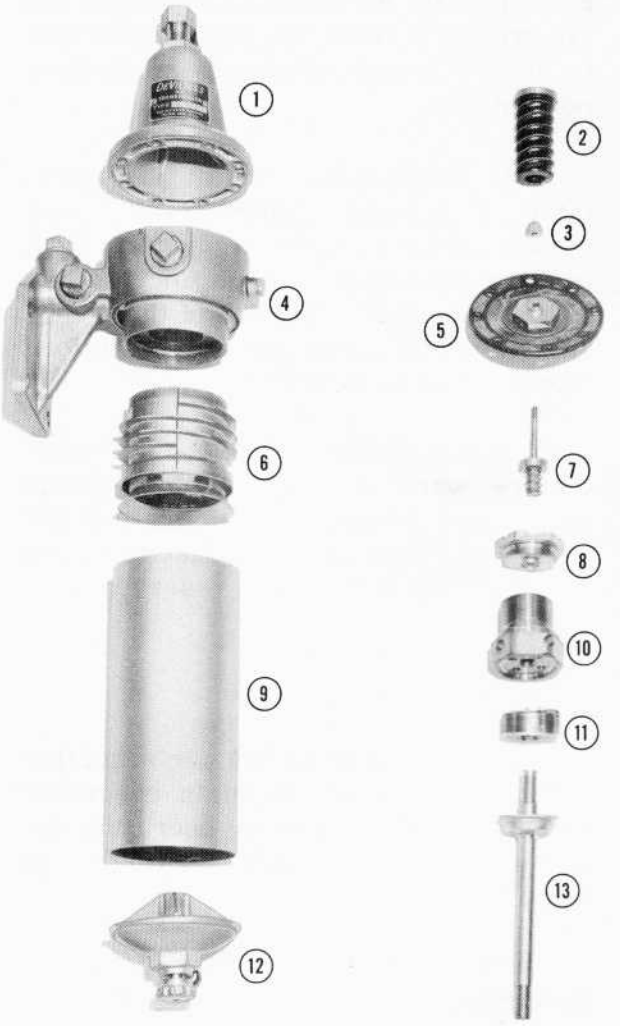
Before removing regulator unit, be certain that air line from the main reservoir to unit has been shut off.

The regulator may be disassembled as follows: (Fig. 2)

1. Remove gauge cover plate by unscrewing the two cover plate screws (older type unit only).
2. Remove regulator screw.
3. Remove transformer cap by removing the eight body screws. Lift off regulator spring button and spring.
4. Removing the acorn nut allows the diaphragm assembly to be lifted from the regulator body. Inspect diaphragm for cuts and material deterioration.
   a. Diaphragm 8097569 may be replaced after the retaining nut and washer have been removed.
5. Remove valve body. Valve seat, stem and spring may now be lifted out of the regulator body.

To disassemble lower portion of the regulator proceed as follows:

6. Remove condenser tube cap by holding condenser tube firmly and turning cap to the left.
7. Pull the condenser tube from the body.
8. Remove the tie rod and filter.
   a. Wash filter in a solvent before reassembly.



1. Transformer Body Cap
2. Regulator Spring
3. Acorn Nut
4. Body Assembly
5. Diaphragm Assembly
6. Separating Tube
7. Valve Assembly
8. Valve Regulator Seat
9. Condenser Tube
10. Body Insert
11. Filter Unit
12. Tube End Cap
13. Tie Rod

Fig. 2 - Current Air Regulator Exploded View

To reassemble regulator unit, reverse the procedure for disassembly. With the regulator reassembled, test for proper operation. After the regulator is mounted on the locomotive, adjust the control air pressure to 90 pounds, using the regulator screw on the top of the unit.

TABLE A

LOCATION OF AIR REGULATOR AND GAUGE

Locomotive	Air Regulator	Air Pressure Gauge
Switcher	Beneath cab floor on fireman's side. Earlier model locomotives had regulator located under right hand cab window.	Right side of electrical control cabinet.
GP	Beneath cab floor on fireman's side.	Rear wall of cab.
SD	In engineroom adjacent to the electrical cabinet.	On engine control panel. Earlier model locomotive had gauge mounted on rear wall of cab.
F	Behind steps leading into operating cab, engineman's side.	On electrical cabinet adjacent to the distribution panel.
E	Behind steps leading into operating cab, engineman's side.	On electrical control cabinet.
G (Export)	In short hood in front of the electrical cabinet.	On electrical cabinet, front wall of cab.
B (Export)	In electrical control cabinet.	On electrical control panel.