

Air brakes - supply, control and the spring brake

How the air system builds and protects pressure, why a spring brake fails ON, and the numbers every inspection is measured against.

PROCEDURE

- 1 Build and check the governor**
Note cut-out and cut-in pressures against spec.
- 2 Static leak test**
Engine off, full pressure, brakes released. Watch the drop over one minute.
- 3 Applied leak test**
Hold the pedal down and repeat. The limit is higher, but still tight.
- 4 Check warning and protection**
Warning device by about 60 psi, and spring brakes should apply automatically as pressure falls further.
- 5 Measure pushrod stroke**
Compare against the marked limit for that chamber size - a long stroke is a brake that cannot do its job.

NUMBERS

Governor cut-out	about 120-135 psi	check the chassis spec
Governor cut-in	about 100-110 psi	roughly 20-25 psi below cut-out
Low-pressure warning	by about 60 psi	light and buzzer
Spring brakes apply	about 20-45 psi	automatic as pressure decays
Static leakage, single vehicle	2 psi per minute or less	3 psi for a combination
Applied leakage, single vehicle	3 psi per minute or less	4 psi for a combination

COMMON MISTAKES

- Servicing a spring brake chamber without caging it - the stored spring energy is lethal.
- Passing a truck on pressure alone while pushrod stroke is beyond the adjustment limit.
- Ignoring water in the tanks, which means the dryer is finished and corrosion is under way.
- Assuming manual slack adjusters self-adjust, or that automatic ones never need checking.

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