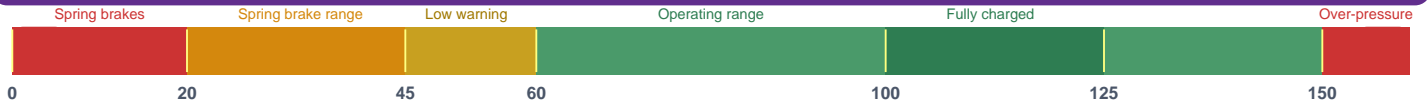


CDL Air Brake: Numbers to Know

FMCSA Model CDL Manual
FMVSS 121 (49 CFR §571.121)

Quick Reference | Knowledge Test & Skills Test



SYSTEM OPERATING RANGE

Governor cut-out (fully charged) Compressor stops pumping. Range: 120–140 psi per mfr.	~125 psi
Governor cut-in (resumes pumping) FMVSS 121: must be ≥100 psi for trucks, ≥85 psi for buses.	~100 psi
Safety valve opens Indicates malfunction. Do not drive — get it serviced.	150 psi
Min. pressure before driving Both primary and secondary systems on dual air vehicles.	100 psi

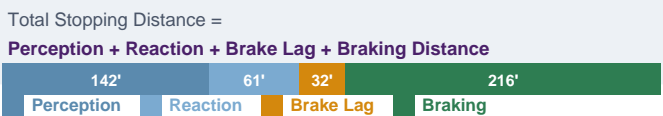
WARNING & EMERGENCY THRESHOLDS

Low-pressure warning activates FMVSS 121 standard. Some states test at 55 psi.	Below 60 psi
Spring brakes engage automatically Typically 20–30 psi. Parking brake knob pops out.	20–45 psi

Do not wait for spring brakes.
Stop as soon as the low-pressure warning activates.

STOPPING DISTANCE

Brake lag (vs. hydraulic brakes) Time for air to flow through lines after pedal is pressed.	~1/2 second
Brake lag distance at 55 mph	~32 feet
Total stopping distance at 55 mph Longer than a football field including both end zones.	450+ feet



KEY CONCEPTS FOR THE TEST

Three braking systems	Service, Parking, Emergency
Parking brake knob	Yellow, diamond-shaped, push-pull
Trailer protection valve	Red, octagon-shaped, push-pull
Spring brakes held by	Air pressure (springs apply if lost)
Most common foundation brake	S-cam drum brake
Drain air tanks	End of each working day (manual drains)

AIR PRESSURE BUILD-UP RATE

Dual air systems (post-1975) Engine at operating RPM. Most vehicles on CDL exam.	85→100 psi / 45 sec
Single air systems (pre-1975) Engine at idle speed (600–900 RPM).	50→90 psi / 3 min

AIR LEAK RATE LIMITS

Vehicle Type	Max Loss	/Minute
Single vehicle	2 psi	per min
Combination (2 vehicles)	3 psi	per min
Combination (3+ vehicles)	5 psi	per min

Applied Leak Test (engine off, brake applied at 90+ psi)

Vehicle Type	Max Loss	/Minute
Single vehicle	3 psi	per min
Combination (2 vehicles)	4 psi	per min
Combination (3+ vehicles)	6 psi	per min

Note: If towed vehicles don't have air brakes, use the single-vehicle rate.

IN-CAB AIR BRAKE CHECK SEQUENCE

- Build air pressure to governor cut-out **120–140 psi**
- Shut off engine; apply & hold foot brake 1 min **Applied leak test**
- Release brakes; observe static pressure drop **Static leak test**
- Fan brake pedal — low-pressure warning on **Before 60 psi**
- Continue fanning — parking brake knob pops out **20–45 psi**
- Start engine; check build-up rate (85→100) **Within 45 sec**
- Check governor cut-in and cut-out pressures **~100 / ~125 psi**
- Test parking brake — pull against it in low gear **Must hold**
- Test service brakes — move at ~5 mph, brake **No pull/delay**

Skills Test Tip: You must verbalize each step and state the correct PSI values aloud. Silent performance = automatic failure.