



ANTI-LOCK BRAKE SYSTEMS

Course Length

1.7 to 2.4 hours

Course Description

In this course, learners acquire a fundamental understanding of Anti-Lock Brake Systems including the most common diagnostic tests, troubleshooting techniques, and routine service procedures.

Course Topics

Introduction to the Anti-Lock Brake System (ABS)

- ◆ Overview
- ◆ Basic Components of ABSs

Types and Operation of ABS

- ◆ Types of ABSs
- ◆ How ABSs work

ABS Diagnosis and Repair

- ◆ ABS Diagnostics
- ◆ ABS Servicing

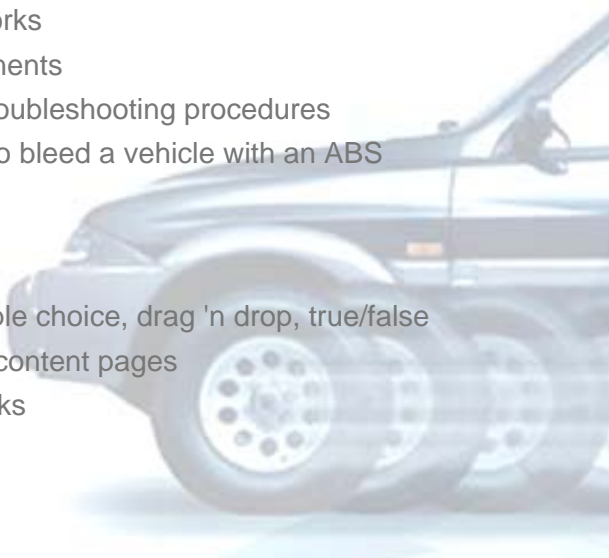
Course Objectives

In this course, users will learn to:

- ◆ Understand the importance and function of ABSs
- ◆ Identify and describe ABS components
- ◆ Differentiate between the different types or configurations of ABSs
- ◆ Identify the inputs and outputs of the ABS control mechanism
- ◆ Describe how the ABS works
- ◆ Inspect the ABS's components
- ◆ Describe common ABS troubleshooting procedures
- ◆ Identify the proper steps to bleed a vehicle with an ABS

Course Features

- ◆ Global navigation
- ◆ Practice pages with multiple choice, drag 'n drop, true/false
- ◆ Interactive and animated content pages
- ◆ Glossary and resource links
- ◆ Slide shows
- ◆ Final Assessment



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Introduction to ABS - An Overview | How Does ABS Work?

ABS controls tire slippage by monitoring the relative deceleration rates of the wheels during braking. If one wheel starts decelerating at a faster rate than the others, or at a rate exceeding what is programmed into the anti-lock control module, the sensor indicates that the wheel is starting to lock up and is in the danger of losing traction.

The ABS responds by reducing the hydraulic pressure to the brake calipers or wheel cylinders on the affected wheel or wheels. Pressure reduction is accomplished by blocking the pressure supply from the master cylinder and then bleeding pressure from the wheel's braking circuit in small increments until the wheel speed is again within the programmed parameters.

Play the animation to view how an ABS works.

Working of ABS

Deceleration Equalized!

10 mph

10 mph

10 mph

10 mph

ABS CONTROL MODULE

HYDRAULIC UNIT

MASTER CYLINDER

Click play to view how ABS works.

Click the forward arrow to continue.

GLOSSARY

- Electronic
- Fuel Pump
- Galvanized Steel
- Gap Insurance
- Gas Filled Shock Absorbers
- Gear Ratio
- Glove Plug
- Glove Plug Resistance-Balance Test
- Governor
- Grabbing Brakes
- Grade Markings
- Gray Market Vehicle
- Grease Gun
- Grease Job
- Grease Rack
- Grease Seal
- Grass MP
- Group Injection
- Grovelier
- HC
- HC Readings
- Hall Effect
- Halogen Headlamp

ABS and Traction

ABS is especially useful on low traction surfaces, where the stopping distance may be reduced up to over 25%. By reducing the stopping distance, it prevents vehicles from skidding on low traction surfaces. ABS, however, does not necessarily reduce the stopping distance on all road surfaces. On a dry surface, for instance, the stopping distance could actually increase slightly (3-5% approximately). This happens because ABS equalizes deceleration rates for all the wheels. View how vehicles with ABS brake on different road surfaces.

Vehicle with high traction surface

Stopping point of non-ABS vehicle

Apply brakes

Vehicle with ABS on low traction surface

Click and hold the button below.

road test

Click the forward arrow to continue.

A selection of pages from CTI's *Anti-lock Brake Systems* courseware, featuring global navigation, instructional graphics, and glossary of terms