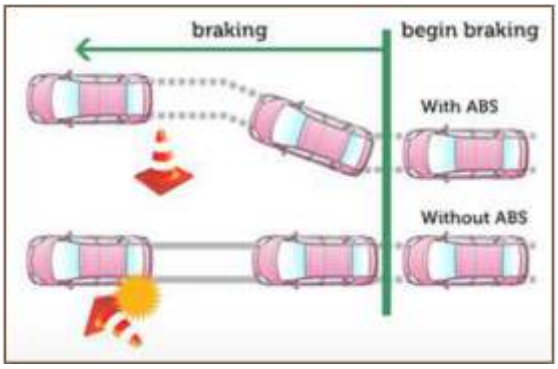
INTRODUCTION:

An anti-lock braking system (ABS) is an automobile safety system that allows the wheels on a motor vehicle to maintain attractive contact with the road surface according to driver inputs while braking, preventing the wheels from locking up (ceasing rotation) and avoiding uncontrolled skidding. It is an automated system that uses the principles of threshold braking and cadence braking which were practiced by skilful drivers with previous generation braking systems. It does this at a much faster rate and with better control than a driver could manage.

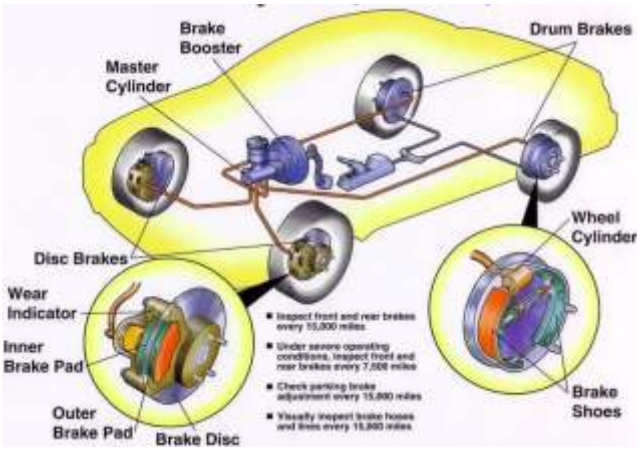
ABS generally offers improved vehicle control and decreases stopping distances on dry and slippery surfaces; however, on loose gravel or snow-covered surfaces, ABS can significantly increase braking distance, although still improving vehicle control.



PRINCIPLE OF ANTI-LOCK BRAKE SYSTEM:

The anti-lock brake controller is also known as the CAB (Controller Antilock Brake).

Typically ABS includes a central electronic control unit (ECU), four wheel speed sensors, and at least two hydraulic valves within the brake hydraulics. The ECU constantly monitors the rotational speed of each wheel; if it detects a wheel rotating significantly slower than the others, a condition indicative of impending wheel lock, it actuates the valves to reduce hydraulic pressure to the brake at the affected wheel, thus reducing the braking force on that wheel; the wheel then turns faster. Conversely, if the ECU detects a wheel turning significantly faster than the others, brake hydraulic pressure to the wheel is increased so the braking force is reapplied, slowing down the wheel. This process is repeated continuously and can be detected by the driver via brake pedal pulsation. Some anti-lock systems can apply or release braking pressure 15 times per second. Because of this, the wheels of cars equipped with ABS are practically impossible to lock even during panic braking in extreme conditions. Modern ABS applies individual brake pressure to all four wheels through a control system of hub-mounted sensors and a dedicated micro-controller. ABS is offered or comes standard on most road vehicles produced today and is the foundation for electronic stability control systems, which are rapidly increasing in popularity due to the vast reduction in price of vehicle electronics over the years.



Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.
IT-2013, Ramchandrapura Industrial Area, Sitapura Extension, Jaipur-302022, Rajasthan, India,
Mob./Whatsapp: +91-9829132777; Email: info@tesca.in, Website: www.tescaglobal.com

COMPONENTS OF THE TRAINER:

1) Mains On/Off
2) Digital Control Panel
3) USB Connector Interface
4) Brake Light
5) Electronic Control Unit (ECU)
6) Hydraulic Activator
7) Pressure Gauge
8) Brake Pedal with Master Cylinder

Briefly explain all the components of unit:

1. Main On/Off: To start the trainer
2. Digital Control Panel: To accelerate the wheels by increasing the RPM and pressure consumes by the wheels during press the brake pedal.
3. USB Connector Interface: To connect the data logging software with computer.
4. Brake Light: Light reflects the braking effort being brake pedal applied.
5. Electronic Control Unit (ECU): The ECU constantly monitors the function of components within the system. If any electrically detectable fault occurs, the control unit will illuminate the dashboard warning light to alert the operator.
6. Hydraulic Activator: The supplied main energy source may be electric current, hydraulic fluid pressure.
7. Pressure Gauge: To display actual pressure during applied braking in ABS system.
8. **Brake Pedal with Master Cylinder:** It is also known as the master brake cylinder, converts the pressure on the brake pedal to hydraulic pressure by feeding brake fluid into the brake circuit and controlling this according to the mechanical force.

PROCEDURE:

Step 01 Connect the main chord into the main plug and start the trainer by Mains on/off key.
Step 02 Control Panel display the four wheel RPM and require pressure after being applied brakes.
Step 03 Give some RPM to the all wheels using touch-screen as per operator.
Step 04 Operator can make the different rpm's to selected wheels.
Step 05 Let the wheels in motion for seconds then apply the brake by pressing the brake pedal. During applied brakes the brake light has been glow up till the release point.
Step 06 While applied the brake pedal, wheels are stopped and on display the rpm will zero & required pressure will show consumed pressure to stop them. When the brakes are applied, fluid is forced from the brake master cylinder outlet ports to the ECU inlet ports. This pressure is transmitted through four normally open solenoid valves contained inside the ECU, then through the outlet ports of the ECU to each wheel.
Step 07 Along with pressure gauge will show some reading.
Step 08 Now release the brake pedal, wheel can start moving again and pressure will become zero again.
Step 09 For data logging system, to connect the data cable wire to USB connector interface with computer and install the software as guide. (As Use Software Guide)
Step 10 To stop the trainer, first release the brake pedal completely
Step 11 Switch off the Mains.
Step 12 Unplug the main chord into the main power supply.

1) An ECU Controller: The controller is an ECU type unit in the car which receives information from each individual wheel speed sensor, in turn if a wheel loses traction the signal is sent to the controller, the controller will then limit the brake force (EBD) and activate the ABS modulator which actuates the braking valves on and off.

2) Pump: The pump in the ABS is used to restore the pressure to the hydraulic brakes after valves have released it. A signal from the controller will release the valve at the detection of wheel slip. After a valve release the pressure supplied from the user, the pump is used to restore a desired amount of pressure to the braking system. The controller will modulate the pumps status in order to provide the desired amount of pressure and reduce slipping.

ABS Electronic Control Unit (ECU):

The electronic control unit receives signals from different sources. A switch at the brake pedal provides a brake-operating signal. Another in the ignition system signals the engine is operating. This sets off the automatic check the ABS conducts every time the engine starts. Another input is from the wheel speed sensors. These signals are used to control the hydraulic control unit and anticipate wheel lock. If a wheel starts to lock, the electronic control unit operates the solenoid valves to reduce hydraulic pressure appropriately.

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.
IT-2013, Ramchandrapura Industrial Area, Sitapura Extension, Jaipur-302022, Rajasthan, India,
Mob./Whatsapp: +91-9829132777; Email: info@tesca.in, Website: www.tescaglobal.com

Advantages of Anti-Lock Brakes:

The main benefits of an anti-lock brake system (ABS) include.

- Stopping on ice: As mentioned above, an ABS prevents lock-ups and skidding, even in slippery conditions. Anti-lock brakes have been proven to save lives in some situations by helping drivers keep control of a vehicle.
- Lower insurance costs: Because it is a thoroughly tested safety device with a track record of effectiveness, insurers often give customers specific discounts for having an ABS system on their vehicle.
- Higher resale value: As a feature on a car or truck, an ABS raises the market value of the vehicle. Nowadays, where ABS technology has become standard on many vehicles, not having it could result in a lower price for resale.
- Traction control: An ABS shares some of the infrastructure of a traction control system, where new technology helps ensure that each wheel has traction on the road. That makes it easy for manufacturers to install both of these features at the factory.

Disadvantages of Anti-Lock Brakes:

Despite the fact that anti-lock brakes are proven to be a safety feature in most situations, and insurers consider them to significantly lower risk for a vehicle, not all drivers are sold on this option for a car or truck. Here are some of the down sides that drivers find in this kind of brake system.

- Inconsistent stop times: Anti-lock brakes are made to provide for surer braking in slippery conditions. However, some drivers report that they find stopping distances for regular conditions are lengthened by their ABS, either because there may be errors in the system, or because the clunking or noise of the ABS may contribute to the driver not braking at the same rate.
- Expense: An ABS can be expensive to maintain. Expensive sensors on each wheel can cost hundreds of dollars to fix if they get out of calibration or develop other problems. For some, this is a big reason to decline an ABS in a vehicle.
- Delicate systems: It's easy to cause a problem in an ABS by messing around with the brakes. Problems include disorientation of the ABS, where a compensating brake sensor causes the vehicle to shudder, make loud noise or Generally brake worse.

PRECAUTIONS:

1. Always switch off the mains key before run the trainer.
2. Fault simulation switch becomes at rest position before run the trainer
3. Do not power press on brake pedal, press it gentle manner.
4. Keep the unit away from dust and rust particles.
5. Run the unit in every 2-3 weeks to good to better.

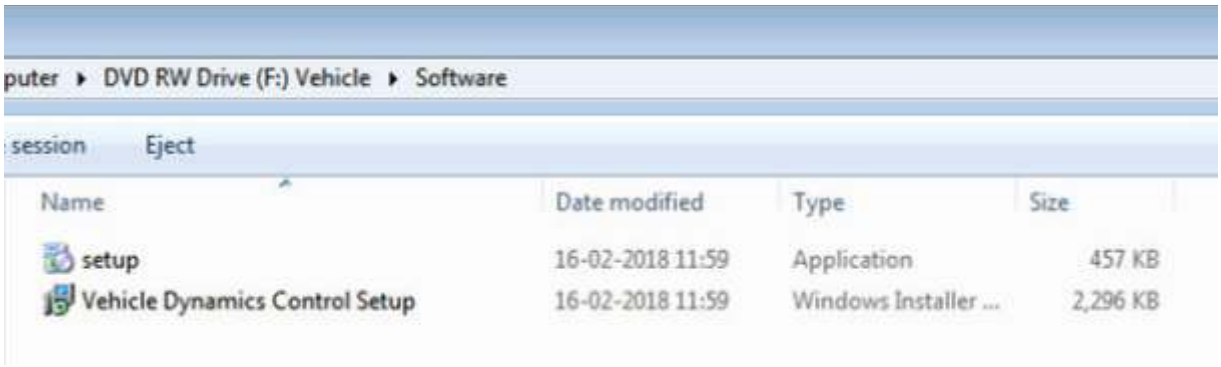
TROUBLESHOOTING:

1. If the brake light didn’t work that would be electric circuit trouble.
2. Please check the electric supply if the mains wouldn’t ON.

SOFTWARE GUIDE:

Play the DVD named VEHICLE.
There are 3 software options comes into the window.

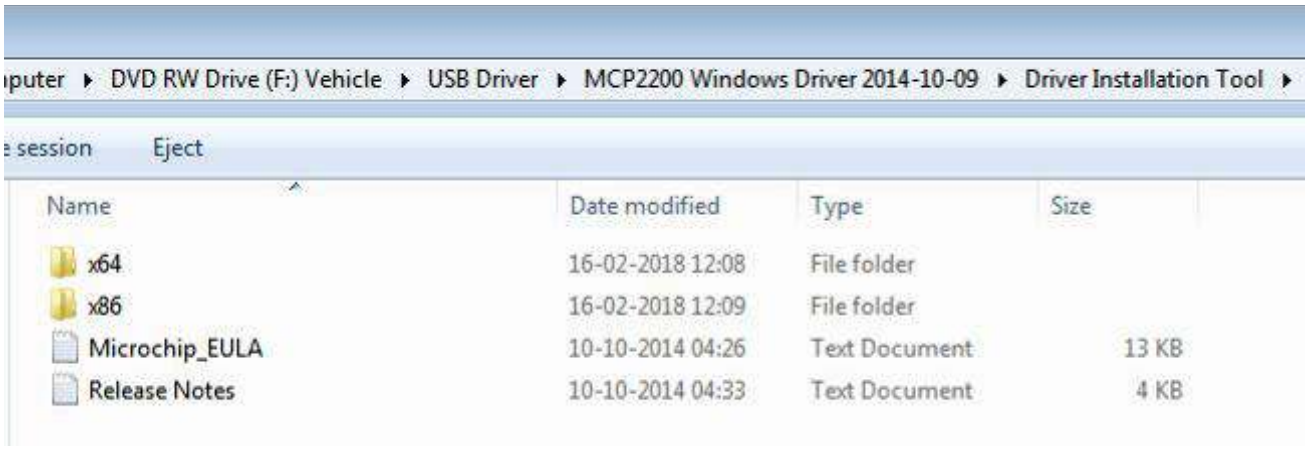
a. Click Dot Net then click “dotnetfx3”.
b. Install these (before run the .Net please aware the bit of the computer might be 32/64).
c. Click Software Folder Option
d. Select Vehicle Dynamics Control Setup to install the software.



Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.
IT-2013, Ramchandrapura Industrial Area, Sitapura Extension, Jaipur-302022, Rajasthan, India,
Mob./Whatsapp: +91-9829132777; Email: info@tesca.in, Website: www.tescaglobal.com

e. Now Click USB Driver then click "MCP2200 Windows Driver 2014-10-09" then clicks Drive Installation Tool Folder.
f. Now select the folder with bit of the system. (32/64 bit)



G. Install the file name have "McphCdcDriverInstallationTool"
h. Now run the software. (Vehicle Dynamics Control)
i. Here you can see the four wheels desire RPM and Pressure requires to each wheels. (Front Left, Front Right, Rear Left, Rear Right)

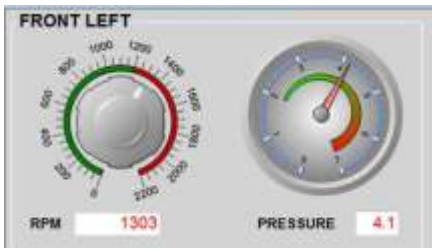
J. Connect the USB port interface cable to a computer.
k. Select from device manager option by click to a Port.

Note: Specifications are subject to change.

l. Click refresh.
m. Select "COM3"

n. Give the RPM to wheel by clicking on rotating dimmer and run all the wheels at different RPM's.

o. Rotate the wheels by clicking on START button meanwhile power transmits to the abs system trainer by examined pc.
p. Now apply the pressure by brake pedal and the displays show the absorbed pressure by each wheel during braking.



q. When we'll apply the brake force fully on each wheel then software screen will display the applied pressure with analogical and digital way.

r. To stop the wheels, click STOP button and press brake pedal again.
s. If stops all the motor and give new RPM to all wheels then click the stop all motor button and again repeat the steps n to r and finally EXIT the software.

Note: Specifications are subject to change.