

Installation Instructions



BENDIX® RDU™ REMOTE DIAGNOSTIC UNIT



Figure 1 - Bendix® Remote Diagnostic Unit (RDU)

The Bendix® RDU™ (Remote Diagnostic Unit) is a diagnostic tool providing the technician with a visual indication of Antilock Braking System (ABS) component Diagnostic Trouble Code (DTC) information. The RDU can be used on Bendix® ABS-equipped semi-tractors, straight trucks, coaches, and buses. Additionally, the RDU provides a method for clearing the ABS component diagnostic trouble codes from Bendix ABS controllers and allows the technician to self-configure the ABS ECU (Electronic Control Unit) on Bendix® EC-17™, EC-30™, EC-60™, and EC-80™ ABS controller Electronic Control Units (ECUs).

The RDU is specifically designed for use with Bendix ABS and Bendix makes no claims for its operation and/or usability with other brands of ABS systems.

DEVICE FEATURES

The RDU attaches to the 9-pin diagnostic connector in the cab of the vehicle. An adapter cable (Bendix part number 801872) is available to connect the RDU tool to vehicles with a 6-pin diagnostic connector.

The RDU tool allows the technician to:

- Troubleshoot ABS system component problems using Diagnostic Trouble Code (DTC) reporting via Light Emitting Diodes (LEDs).
- Reset DTCs on Bendix® ABS ECUs by holding a magnet over the reset in the center of the RDU tool for less than 6 seconds.
- Enter the Self-Configuration Mode used by Bendix ABS ECUs by holding a magnet over the reset area for greater than 6 seconds, but less than 30 seconds.

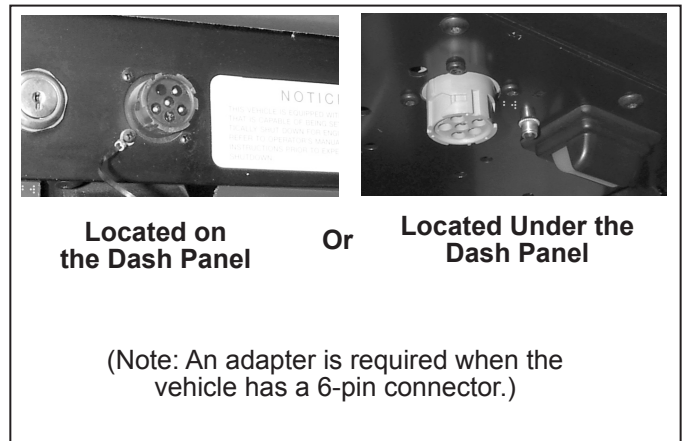


Figure 2 - Typical Vehicle Diagnostic Connector Locations (J1708/J1587, J1939)

GENERAL SAFETY GUIDELINES



WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS

TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following guidelines should be observed AT ALL TIMES:

- ▲ Park the vehicle on a level surface, apply the parking brakes and always block the wheels. Always wear personal protection equipment.
- ▲ Stop the engine and remove the ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, EXTREME CAUTION should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically-charged components.
- ▲ Do not attempt to install, remove, disassemble or assemble a component until you have read, and thoroughly understand, the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
- ▲ If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with a Bendix® AD-IS® air dryer system, a Bendix® DRM™ dryer reservoir module, or a Bendix® AD-9si® air dryer, be sure to drain the purge reservoir.
- ▲ Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
- ▲ Never exceed manufacturer's recommended pressures.
- ▲ Never connect or disconnect a hose or line containing pressure; it may whip and/or cause hazardous airborne dust and dirt particles. Wear eye protection. Slowly open connections with care, and verify that no pressure is present. Never remove a component or plug unless you are certain all system pressure has been depleted.
- ▲ Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, wiring, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
- ▲ Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
- ▲ Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
- ▲ For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.
- ▲ The power MUST be temporarily disconnected from the radar sensor whenever any tests USING A DYNAMOMETER are conducted on a vehicle equipped with a Bendix® Wingman® system.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.

OPERATION

See Figure 2 for typical vehicle connector locations.

When the Bendix® RDU™ is plugged into the diagnostic connector, all of the LEDs will illuminate, and the green LED will flash 4 times to indicate communications have been established.

If the ABS ECU (Electronic Control Unit) has no active DTCs, only the green LED will remain illuminated.

If the ABS ECU has at least one active DTC, the RDU tool displays the first diagnostic trouble code by illuminating the red LEDs, indicating the malfunctioning ABS component and its location on the vehicle. (See Figure 3.) If there are multiple diagnostic trouble codes on the ABS system, the RDU will display one diagnostic trouble code first, then once that Diagnostic Trouble Code has been repaired and cleared, the next code will be displayed.

- MOD red LED illuminated, shows the "Common" connection of one or more modulators is shorted to battery or ground
- VLT (Flashing indicates either over- or under-voltage condition)

To pinpoint the root cause and to ensure the system diagnostic trouble code is properly corrected the first time, additional troubleshooting may be necessary.

LED Diagnostic Trouble Codes			
LFT -	Left	ECU -	ABS Controller
RHT -	Right	SEN -	Wheel Speed Sensor
DRV -	Drive Axle	MOD -	Pressure Modulator Valve
ADD -	Additional	TRC -	Traction Control
STR -	Steer Axle		
VLT -	Power		

Example: If the Diagnostic Trouble Code is "Right Steer Axle Sensor", the RDU unit will display one green and three red LEDs



LEDs

Green

VLT

Red

SEN

STR

RHT

Figure 3 - Diagnostic Trouble Codes

Typical Combination Diagnostic Trouble Codes are:

- Right steer sensor
- Left steer sensor
- Right drive sensor
- Left drive sensor
- Right additional sensor
- Left additional sensor
- Right steer modulator
- Left steer modulator
- Right drive modulator
- Left drive modulator
- Right additional modulator
- Left additional modulator
- Traction modulator
- ECU
- Engine serial communication

RESET FUNCTION

The magnetic reset switch is located in the center top of the Bendix® RDU™ unit. Activation requires a magnet with 30 gauss minimum.

The reset operations are:

1. If the magnet is held over the switch for less than 6 seconds the "clear diagnostic trouble codes" command is sent.
2. If the magnet is held over the switch for more than 6 seconds, but less than 30 seconds, the Bendix® ABS "self-configuration command" is sent.

Additionally, it is recommended at the end of any inspection that the user switches off and restores the power to the ABS ECU, then check the ABS warning lamp operation and RDU tool to see if they indicate any remaining Diagnostic Trouble Codes (DTCs).

ECU COMMUNICATION PROBLEMS

If the ABS ECU does not respond to the RDU's request for DTCs, the RDU will illuminate each red LED in a clockwise pattern. This pattern indicates the loss of communication and will continue until the ABS ECU responds and communication has been established.

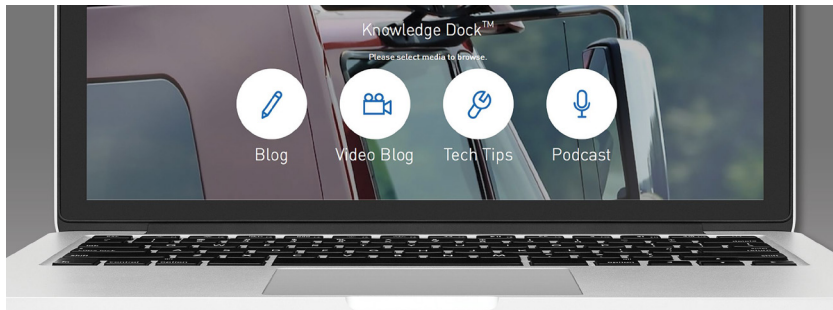
Possible sources of communication problems are:

1. A problem with the J1587 or J1939 link at the in-cab off-board diagnostic connector (9 or 6 Pin).
2. The ECU does not support PID194.
3. No power is being supplied to the ECU and/or the diagnostic connector.
4. The J1587 or J1939 bus is overloaded with information and the RDU can not arbitrate access.
5. A malfunctioning RDU.


For more information on troubleshooting and repairing ABS Diagnostic Trouble Codes and Self-Configuration, see the current Bendix Service Data sheet. Service Data sheets can be downloaded from bendix.com or ordered from your local authorized Bendix parts outlet.

Bendix ABS Controller Models Service Data Sheet

Bendix® EC-16™ Controller	SD-13-4787
Bendix® EC-17™ Controller	SD-13-4788
Bendix® EC-30™ Controller	SD-13-4815
Bendix® Gen. 4™ & Gen. 5™ ABS	SD-13-4746
Bendix® EC-60™ Controller	SD-13-4863
Bendix® EC-80™ Controller	SD-13-4983



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