Brake Retarder Controller

H-BRC506-A 2023-2026 F250-F550

Introduction

The BRC506 is a control interface module to be used with a KLAM PWM brake retarder controller. The module collects real-time vehicle information and provides the status of the vehicle information to the brake retarder through the use of I/O. The specific vehicle information provided includes: accelerator pedal, brake torque (service brake pedal position), vehicle speed, ABS event, and whether cruise control is actively set.

The BRC506 requires minimal connections to OEM wiring since the functionality is managed through the vehicle gateway network connection, located behind the OBD-II connector.

Installation Instructions

Disconnect the battery before proceeding with the installation.

It is the installer's responsibility to route and secure all wiring harnesses where they cannot be damaged by sharp objects, mechanical moving parts and high heat sources. Failure to do so could result in damage to the system or vehicle and create possible safety concerns for the operator and passengers.

It is important to avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Also avoid radio frequency energy from antenna's or inverters next to the module. Finally, avoid high voltage spikes in vehicle wiring by always using diode clamped relays when installing upfitter circuits.

BRC506-A Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the BRC506-A module. Locate the module in an area away from any external heat sources (engine heat, heater ducts, etc.). Do not actually mount the module until all wire harnesses are routed and secure. The last step will be to mount the module.

Data Link Harness Installation

The Ford Super Duty has an OEM Gateway module located on the other side of the SYNC 4 module, which is behind the center console. Follow the steps below to access it:

Installation Instructions (continued)

1. Remove the RH instrument panel trim using a trim removal tool. The trim starts at the ignition switch and ends at the silver clip. The glove compartment can be opened to better access the back side of the trim.

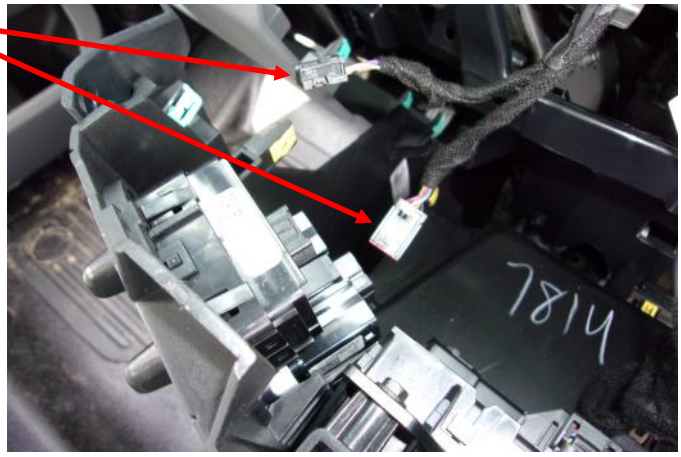
2. Using a trim removal tool, pop out the upper right corner of the lower steering column close out panel. Position it away from the center stack.

3. Remove the 4 bolts (Size: 7mm) located at the top of the center stack.

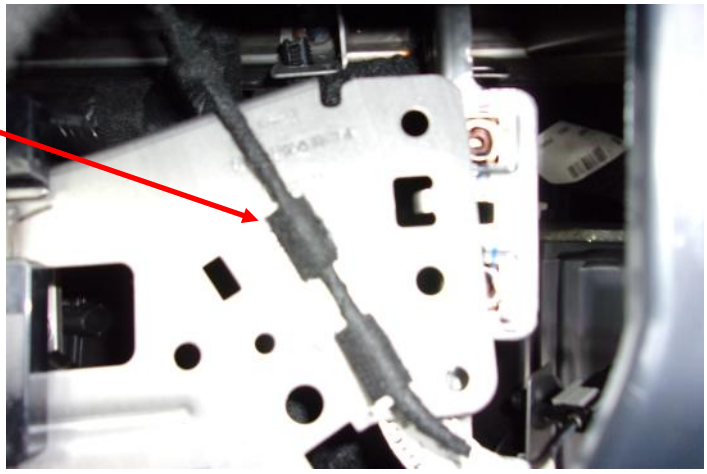
Installation Instructions (continued)

4. Release the clips on both sides of the center stack using a trim removal tool. Position the center stack away from the mounting points.

5. Disconnect the 2 connectors behind the center stack.



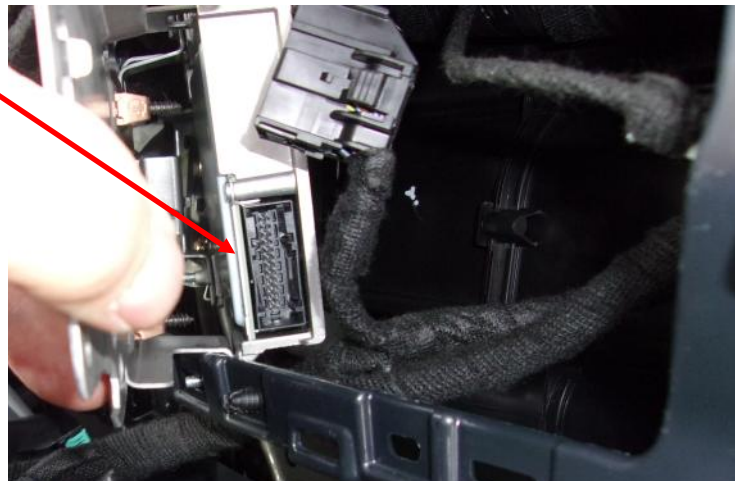
6. Detach the push-mount cable tie from the bracket and position the cable out of the way.



Installation Instructions (continued)

7. Remove the 4 bolts (Size: 7mm) and position the bracket away from the mounting points to access the Gateway Module. The Gateway Module is located behind the bracket.

8. Disconnect the Gateway Connector by pressing down on the tab and pulling the connector away from the module.

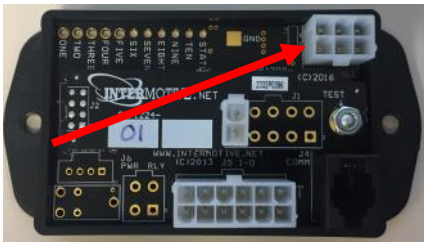


9. Install the Datalink Harness between the Gateway Module and the disconnected Gateway Connector.

10. Run the 6-pin connector of the datalink harness to the mounting location of the AIM506 module.

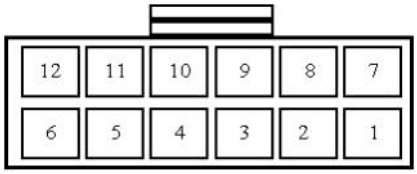
11. After the Datalink Harness is installed, reverse the installation procedure to reassemble.

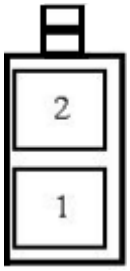
The free end of the Data Link harness mates with the 6-pin connector on the BRC506 module. Do not plug this in until the final step of installation on page 3.



12-pin connector (J5) pin out definition

- Pin #1 - N/C
- Pin #2 - +12V High-True Output—Cruise Control Active
- Pin #3 - N/C
- Pin #4 - N/C
- Pin #5 - N/C
- Pin #6 - N/C
- Pin #7 - N/C
- Pin #8 - GND Low True Output—ABS Event Active
- Pin #9 - VSS (2.2Hz/MPH, swing from +12V to GND)
- Pin #10 - N/C
- Pin #11 - APP = 0, +12V; APP > 0, GND
- Pin #12 - N/C





2-pin connector (daughterboard J1) pin out definition

- Pin #1 - N/C
- Pin #2 - 0-5V Analog Output—Brake Torque (Brake Pedal Position)

Reconnect the vehicle battery

Initial Installation Power-Up:

The following sequence must be performed prior to mounting the BRC506 module. The initial installation is completed as follows:

1. Ensure the Data Link harness 6 pin connector is NOT yet connected to the BRC506 module.
2. Turn the vehicle key on, engine off.
3. Plug in the 6-pin Data Link connector. This allows the BRC to capture the VIN to ensure proper operation.
4. If the VIN is captured and recognized, no LEDs on the module will light up.
5. If the VIN is not present or not received, the LEDs will scroll momentarily and then turn off.
6. If the VIN is received but not recognized, the LEDs will scroll while the vehicle data network is active.

BRC506 Module Mounting

Ensure all the harnesses are properly connected and routed, and are not hanging below the dash area. Locate the BRC506 module in an area away from any external heat sources (engine heat, heater ducts, etc.). Mount the module using two screws, Velcro, or double backed tape.

BRC506 Post Installation Testing

1. Turn the ignition ON to wake up and initialize the BRC506 module.
2. With the conditions met, ensure that each specific output has the desired output (e.g., output on Pin 2 is +12V when cruise control is active).

The BRC506 is properly installed only if it passes the above tests. If any irregular operational issues persist, recheck the data configuration.
Contact InterMotive at 530-823-1048 for technical assistance.

Diagnostic Mode

To Enter Diagnostic Mode:

Diagnostic Mode can be entered by pressing the red "Test" button on the module while the module is powered up. **NOTE:** to ensure the module does not enter the Maximum Brake Torque PnR, the service brake should **NOT** be pressed when pressing the test button.

The LEDs will behave as follows:

LED1: Cruise Control output active
LED2: ABS output active
LED3: 2.2Hz vehicle speed output
LED4: Acceleration Pedal not pressed
LED5: Brake Pedal pressed
LED9: Toggles while updating Analog Brake output
LED10: Toggles while receiving vehicle CAN data
Status LED: Flashes when in diagnostic mode

BRC506 Maximum Brake Torque PnR

The BRC506 module observes the service brake torque and correspondingly controls an analog output which is connected to a brake retarder controller. No service brake pressed corresponds to 0V and maximum service brake corresponds to +5V. The point at which the module will output a maximum +5V analog voltage to the controller can be adjusted through the use of a PnR.

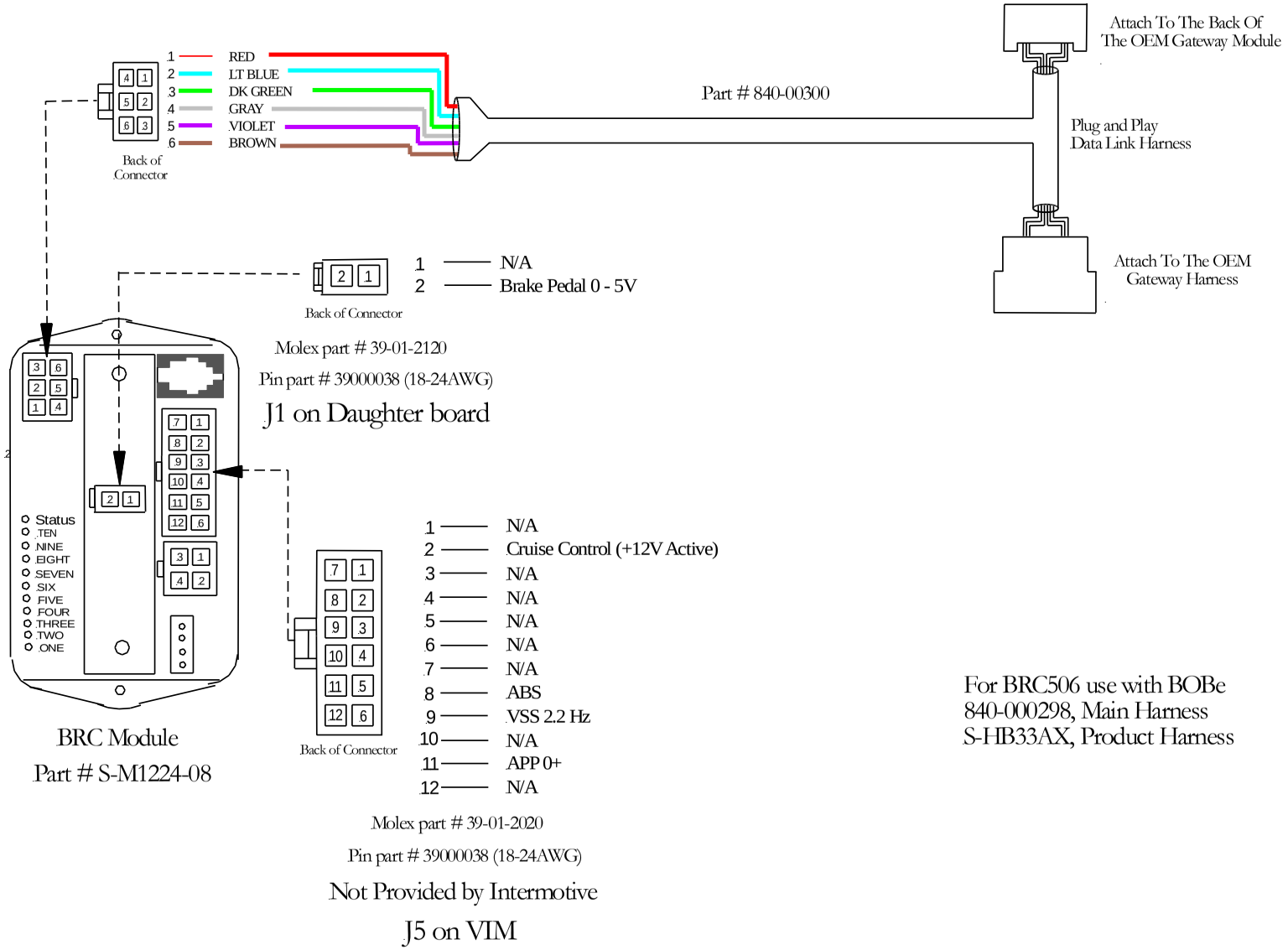
The mode to adjust the maximum brake torque setting can be entered by:

1. Turn the engine off, key ON.
2. Press the service brake
3. Ground the Test Pad on the module

Once the adjustment mode is entered the module will blink the Status LED twice with a slight pause in between throughout the duration of the adjustment mode. Additionally, one of the ten green LED's will be lit. The value of the LED corresponds to the maximum brake torque setting. LED 1 corresponds to the least-possible brake torque setting and LED 10 corresponds to the highest possible brake torque setting. Once the adjustment mode is entered, the user has 1 minute to release the service brake and proceed to the next step of the PnR.

After entering the adjustment mode, the user must:

1. Release the service brake within 1 minute of grounding the test pad.
2. Apply the accelerator pedal above 50% within 30 seconds of releasing the service brake.
3. Release the accelerator pedal within 5 seconds of applying the accelerator pedal. Upon release of the accelerator pedal, the brake torque setting will be adjusted. If the service brake is pressed when the accelerator pedal is released, the brake torque setting will increase. If the service brake is not pressed when the accelerator pedal is pressed, the brake torque setting will decrease. The green LED on the module will increment or decrement accordingly to confirm that the brake torque setting has changed.
4. When the user is finished adjusting the brake torque, release both the accelerator pedal and service brake. The module will stop blinking the amber LED and the green LED will turn off within five seconds, indicating that the adjustment mode has been exited. The last known brake torque setting that corresponds to the last green LED to illuminate on the module will be the final setting that is stored in the module's non-volatile memory.



For BRC506 use with BOBe
840-000298, Main Harness
S-HB33AX, Product Harness

Submit product registration at www.intermotive.net

If the BRC506 fails any step in the Post Installation Test, review the installation instructions and the loaded configuration by running the Graphical User Interface application. If necessary, call

InterMotive technical support @ (530) 823-1048.