Introduction

The BOM501 module has the ability to eliminate all exterior lighting to aid in covert operations. When activated, it will eliminate the parking lamps, reverse lights, service Brake lights, and the daytime running lights. It will also deactivate the seat belt chime, key in ignition chime, and the headlamps on chime.

Installation Instructions

Disconnect vehicle battery before proceeding with installation.

IMPORTANT - READ BEFORE 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.

BOM501 Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the BOM501 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 (6-pin connector)

1. Locate the vehicle OBDII Data Link Connector. It will be mounted below the lower left dash panel.
2. Remove the mounting screws for the OBDII connector. Plug the Red connector from the BOM501 Data Link Harness into the vehicle’s OBDII connector. Ensure the connection is fully seated and secure with the supplied wire tie.
3. Mount the Black pass through connector from the BOM501 Data Link Harness in the former location of the vehicle’s OBDII connector.
4. Secure the BOM501 Data Link harness so that it does not hang below the lower dash panel.
5. Plug the free end of the Data Link harness into the mating 4-pin connector on the BOM501 module.

8-pin connector pin out definition

- Pin #1 - Black Out LED Output (12V)
- Pin #2 - N/C
- Pin #3 - N/C
- Pin #4 - Purple/White - Armed Input
- Pin #5 - N/C
- Pin #6 - Orange - Armed LED input
- Pin #7 - Yellow - Chime Mute
- Pin #8 - Green/White - Black Out Input
BCM Connections

1. Remove the steering column opening trim panel. Locate connector C2280D plugged into the BCM and disconnect it. Note the Pin Numbers on the connector. The supplied white 2-pin pigtails will be tapping into several of these wires.

- The supplied male pigtail has Blue and White wires. The female pigtail has Green and Gray wires.

Note: Performing one step at a time, attach the correct wire to the appropriate 2-pin pigtail wire. These connections must be made using solder and the supplied heat shrink tubing. Cut the tubing to 1” lengths for this purpose.

Reverse Lamp Circuit

1. Locate Pin #13 Blue/White wire
2. Verify with a DVM that there is 12V on the Blue/White wire when the vehicle is in Reverse and 0V when the vehicle is in any gear other than Reverse.
3. Cut the Blue/White wire, pin #13 about 3 inches from the connector.
4. Attach the BCM side of the Blue/White wire, pin 13 to the male 2-pin connector Pin #2, White wire.
5. Attach the harness side of the Blue/White wire, pin 13 to the female 2-pin connector pin #2, Gray wire.

Brake Lamp Circuit

1. Locate Pin #14 Violet/Brown wire.
2. Verify with a DVM that there is 12V on the Violet/Brown wire when the Service Brake is depressed and 0V when the Service Brake is not depressed.
3. Cut the Violet/Brown wire, pin #14 about 3 inches from the connector.
4. Attach the BCM side of the Violet/Brown wire, pin 14 to the male 2-pin connector Pin #1, Blue wire.
5. Attach the harness side of the Violet/Brown wire, pin 14 to the female 2-pin connector pin #1, Green wire.
6. Plug in the 2-pin pigtails into the respective BOM501 harness connectors.
7. Plug the BOM501 4-pin connector into the mating 4-pin connector on the BOM501 module.
Post Installation / Check List

The following checks must be made after installation of the system, to ensure correct and safe operation. If any of the checks do not pass, do not deliver the vehicle. Recheck all connections per the installation instructions.

1. Turn ignition key on (to “Run”).
2. Apply the Parking Brake and Turn Off all lights (High Beams, Low Beams, and Parking Lights).
3. Arm vehicle (if necessary).
4. Black Out LED will be ON 100%
5. Apply the Black Out Input (Green/White Pin 8), Black Out LED will dim to 50%.
6. Hold Service Brake and verify the Brake lights are disabled.
7. Turn on Low Beams, Black Out LED will be ON 100%.
8. Hold Service Brake and verify the Brake Lights are lit.
9. Turn Off all lights (High Beams, Low Beams, and Parking Lights).
10. Apply the Black Out Input, Black Out LED will dim to 50%.
11. Place transmission in Reverse and verify the reverse lights are not lit.
12. Turn on Low Beams and Black Out LED will be ON 100%.
13. Verify that the Reverse Lights are On.

DO NOT PUT VEHICLE IN SERVICE IF IT DOES NOT PASS ALL OF THE ABOVE TESTS

Contact InterMotive at 530-823-1048 for technical assistance
Diagnostics

Diagnostic mode is entered by momentarily grounding the mounting pad labeled “Test” on the module. This can be done with a simple jumper wire by holding one end to chassis ground, while touching the other end to the “Test” pad. The module provides diagnostic LEDs which illuminate according to the following table. To exit this mode simply cycle the key or momentarily ground the “Test” pad again.

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Input Sense</td>
<td>Active High</td>
<td>Active Low</td>
</tr>
<tr>
<td>2</td>
<td>DRL Control</td>
<td>Enabled</td>
<td>Enabled</td>
</tr>
<tr>
<td>3</td>
<td>Dark Car Control</td>
<td>Enabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>4</td>
<td>Black Out State</td>
<td>Active</td>
<td>Inactive</td>
</tr>
<tr>
<td>STATUS</td>
<td>See table</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Black Out Input Sense Active High or Active Low

The default input sense for the Green/White wire, pin 8 on the BOM501 module is active Low. If an active High input sense is desired, the following procedure must be performed:

1. Put the Key in the RUN position.
2. Short the two test pads together on the module to enter diagnostics mode. Verify the Status LED illuminates.
3. Apply the Park Brake.
4. Apply and hold the Service Brake.
5. Put the transmission in REVERSE.
6. Cycle the High Beams On/Off 3 times within 5 seconds.
7. All LED’s will flash once for confirmation.

Repeating this procedure will toggle between and active High or Low input sense.

BOM Status Codes

Status Codes provide the current status of the Fast Idle system. The on-board “Status” LED will flash a 2-digit code as shown in the table. The first digit will flash, wait one second, flash the second digit, then wait four seconds before the next code. The Status Codes continue to flash until the module is reset (cycle key), or the test input is momentarily grounded again.

<table>
<thead>
<tr>
<th>BOM Status Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status Code</strong></td>
</tr>
<tr>
<td>1-1</td>
</tr>
<tr>
<td>2-3</td>
</tr>
<tr>
<td>2-4</td>
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<tr>
<td>2-5</td>
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<td>2-6</td>
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<tr>
<td>2-7</td>
</tr>
<tr>
<td>2-8</td>
</tr>
</tbody>
</table>

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Blackout Operating Instructions

System Operation
The BOM501 module has the ability to eliminate all exterior lighting to aid in covert operations. When activated it will eliminate the parking lamps, reverse lights, service Brake lights, and the daytime running lights.

ARMED Input
The ARMED Input is used only if the vehicle has DRL’s (Daytime Running Lights) enabled and/or Dark Car disabled. These are not ideal conditions for the vehicle to be “Blacked Out” so the ARMED Input will disable them. If the input is not “Armed”, the module will not enter Black-Out Mode.

Note: The input isn't used if vehicle has DRL disabled and Dar car enabled.

Blackout LED
OFF - Vehicle not Armed
ON - Vehicle Armed
DIM - Vehicle in Blackout

Black Out Preconditions:
• Parking lights must be OFF.
• Headlights must be OFF.
• Vehicle speed must be less than exit speed (configurable).
• Vehicle Armed input enabled (if used).
• Momentarily apply Black Out input. (Pin 8 Green/White)

Once in Black Out mode, the stop lamps and reverse lamps are inactive. The module will also dim the instrument panel cluster to its lowest level.

To disable Black Out, apply one of the following:
• Momentarily apply Black Out input.
• Turn ON parking lights.
• Turn ON Headlights.
• Vehicle speed goes over exit speed.

To bypass the “exit speed”, hold the Black Out input while driving and the module will keep the tail lights inactive.

Speed Override
The configurable Exit Speed is used for safety purposes and the speed can be set between 5-20 MPH. To bypass the Exit Speed, enter Black Out Mode by momentarily applying the Black Out Input. Once entered, hold the Black Out input and the module will keep the lights disabled at any speed as long as the input is continuously pressed.
**Toggle U.S. or Canadian Vehicle (Default = U.S.)**

1. Put the Key in the **RUN** position.
2. Short the two test pads together on the module to enter diagnostics mode.
   Verify the Status LED illuminates.
3. Apply the Park Brake.
4. Put the transmission in **DRIVE**.
5. Cycle High Beams On/Off 3 times within 5 seconds.
6. All LED’s will flash once for confirmation.

Repeating this procedure will toggle between U.S. and Canadian vehicles.

**Toggle DRL Control (Default = Disabled)**

1. Put the Key in the **RUN** position.
2. Short the two test pads together on the module to enter diagnostics mode.
   Verify the Status LED illuminates.
3. Apply the Park Brake.
4. Put the transmission in **NEUTRAL**.
5. Cycle High Beams On/Off 3 times within 5 seconds.
6. All LED’s will flash once for confirmation.

Repeating this procedure will toggle DRL Control On/Off.

**Toggle Dark Car Control (Default = Disabled)**

1. Put the Key in the **RUN** position.
2. Short the two test pads together on the module to enter diagnostics mode.
   Verify the Status LED illuminates.
3. Apply the Park Brake.
4. Put the transmission in **PARK**.
5. Cycle High Beams On/Off 3 times within 5 seconds.
6. All LED’s will flash once for confirmation.

Repeating this procedure will toggle Dark Car Control On/Off.
Chime Mute

Single Yellow wire connection
The BOM501 kit provides a second harness which consists of a white 8 pin connector with a 3’ long Yellow wire, pin 7.
1. Plug this 8 pin connector into the BOM501 module.
2. Connect the Yellow wire, pin 7, to the vehicle as follows (there are two possible locations on the vehicle to make this connection):

a. Connecting BOM501 Yellow wire to Upfitter Harness under the Dash Center Stack

Typically, it is easiest to connect the BOM501 to the upfitter wire provided by Ford near the bottom of the dash board center stack area (See drawing). Ford provides a 14 pin connector C2238 and a mating upfitter blunt cut harness.

Locate the Green/Violet blunt cut wire coming out of pin 13 (be certain it is the Green/Violet wire in pin 13, as there are multiple Green/Violet wires in this harness). Attach the pin 13 wire to the BOM501 Yellow wire, pin 7, using solder and heat shrink.
b). An **alternate** location to connect the Yellow Wire, pin 7 on the 8 pin connector at the BOM501 module is in a wire bundle behind the driver’s side kick panel (See photo).

Locate the Green/Violet wire in the wire bundle (see photo below). Strip a small amount of wire insulation from the Green/Violet wire (**do not cut this wire**) and attach the Yellow Wire, pin 7, on the 8 pin connector at the BOM501 module using solder and tape.
Enabling/Disabling the Chime Mute option (Default = Enabled)

To toggle this function, perform the following procedure:

1. Put the Key in the ACC position.
2. Short the two test pads together on the module to enter diagnostics mode. Verify the Status LED illuminates.
3. Apply the Park Brake.
4. Put the transmission in PARK.
5. Cycle the High Beams On/Off 3 times within 5 seconds.
6. All LED’s will flash once for confirmation.

Repeating this procedure will toggle between disabling and enabling the Chime Mute option.

Chimes Mute Post Installation Test

With vehicle in Park, Park Brake applied, and Key OFF:

1. Turn Key to Run (do not start engine) and plug the 4 pin Data Link connector into the BOM501 module. This allows the BOM501 to read the vehicles VIN to verify which vehicle it is plugged into.
2. Verify that the LED’s on the module are not scrolling (meaning it has successfully acquired and recognizes the VIN).
3. Verify the following chimes no longer sound:
   - **Key-in-Ignition Warning Chime** - Key in ignition (Off or ACC), door opened
   - **Headlamps On Warning Chime** - Key removed, Headlights on, door opened
   - **Door Ajar Warning Chime** - Key in Run (engine on or off), Trans in Park, Door ajar (Note it will still chime if Transmission is out of Park).
   - **Safety Belt Warning Chime** - Key switched to Run, driver seatbelt unbuckled. Note: this last chime may sound occasionally due to the electrical architecture of the vehicle. This is normal behavior and cannot be avoided.

BOM501 Module Mounting

Ensure all harness are properly connected and routed, and are not hanging below the dash area. Mount the BOM501 module using screws or double sided tape. Reinstall the lower dash panel.
If necessary, call InterMotive Technical Support at (530) 823-1048.

Submit product registration at www.intermotive.net.

If the BOM501 fails any step in the Post Installation Test, review the installation instructions and check all connections.