# Cruise Control

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IMPORTANT

Before proceeding to any cruise control repair, make sure that the vehicle speedometer is functioning correctly. If not, repair the speedometer (Refer to the Isuzu Service Manual) prior to any further diagnostic and/or testing procedures.

Read Notes Prior to Proceeding

NOTE #1 - Under normal conditions the speed should be controlled within plus or minus 1.5 mph. However certain situations make the cruise control not capable of functioning accurately, such as an extra heavy load, a very steep hill, or a severe headwind.

NOTE #2 - If your vehicle’s rear warning lights are upgraded or repaired/replaced with rear LED warning (brake, hazard, turn signal, etc.) lights, the cruise control will no longer work and a converter harness is needed to rectify the problem. This converter harness is installed on the cruise control harness between the brake relay and the brake relay harness. The converter harness will assure that the cruise control is functioning properly with the rear LED warning lights. The part number for this converter harness is ICC-LEDH. If your cruise control was functioning properly before with rear LED lights, this means that the converter harness was originally installed.

The Cruise Control is functioning, however going up a small hill the cruise control disconnects automatically

Verify the control cable adjustment play onto the fuel pedal, the disengagement of the cruise control is caused by not enough play into the control cable inner core connection attached to the fuel pedal. The inner cable core must have at least 1/8’ of play. Locate the control cable in the front of the cab floor. To adjust the play of the inner core, hold the cable in place, using an adjustable wrench turn the plastic nut counter clockwise approximately 3/4 of a turn. Make sure the cable housing does not turn at the same time. Then go back inside the cab, pull the control cable toward the fuel pedal and push back the speed nut toward the floor to remove all the play in the control cable. This will secure the control cable in place. Only after the control cable is secured properly, verify the play into the inner core at the bottom of the fuel pedal. You must be able to move the inner cable back and forth approximately 1/8”. If you road test the vehicle and
if the cruise control disconnects again, then the play in the inner core must be increased. If you increase the inner core play to much, the cruise control will not disconnect, however when you set the cruise, it will take more time to set and will cause the vehicle speed to decrease slightly before the reengagement of the cruise. This will cause a slight acceleration to the present speed. See Figures 1 & 2.

Module Location

The Cruise Control module is installed onto the first cross member in the front of the radiator. Remove the two flange bolts and nuts holding the cruise control bracket to the cross member. Locate the rubber grommet on the top of the module. You are ready for the diagnostic procedure.

Self Diagnostic Testing Procedure

The Cruise Control system is equipped with a self Diagnostic Light Emitting Diode (LED) (Figure 3 & 4) located underneath the rubber grommet on the top of the Cruise Control Module. Utilize the following Self Diagnostic Procedure to troubleshoot your cruise control if it does not function properly.
The **above** Programming Switches are the settings that should be used if your vehicle has an **automatic transmission only**. The twelve (12) programming switches and diagnostic LED’s are located under the black rubber grommet on the top of the cruise control module located on the first cross member in front of the radiator.

**IMPORTANT**

Carefully follow the procedures below to enter your cruise control into self diagnostic test mode.

**Step 1** - Turn the cruise control switch to the off position.

**Step 2** - Turn the ignition key to the OFF position.

**Step 3** - Press and hold the Resume/Accel button of the control lever while you turn the ignition key to the on position without starting the engine. Now release the Resume/Accel slide button of the control lever.
Step 4 - The diagnostic LED should be off at this time. You are now in the self diagnostic test mode.

Continue the follow the procedures below to test your cruise control lever, brake switch connections, the vehicle speed signal and the neutral safety switch.

Step 5 - Press and release the Set/Coast button. The diagnostic LED should illuminate each time the button is pressed and go out when it is release. If OK, continue to Step 6. If not, go to step 5 A.

Step 5A - Repeat steps 1-5. If OK continue to step 6. If not, go to Step 5B

Step 5B - Check programming switch #12, (See Figure 3 or 4). It should be in the OFF position, if the switch is set incorrectly, reset and you must repeat steps 1-5.

Step 5C - If none of the diagnostic commands are functioning, check the voltage supplying the cruise control system. The power is supply through an interconnection harness connected at the bottom of the steering column between the original connector B-67 (See Figure 5). Follow the interconnection upward until you find the main cruise harness. Locate two fuses (2) between the relays installed on the cruise harness. Check both fuses, one is 4 Amp, the other 10 Amp. If blown replace with the same and repeat steps 1-5.

Step 5D - Check cruise control lever (See Step 10).

Step 6 - Press and release the Resume/Accel button. The diagnostic LED should illuminate each time the button is pressed and go out when it is released. If OK, continue to Step 7. If not, go to Step 6A.

Step 6A - Repeat steps 1-4 and 6. If OK, continue to Step 7. If not, go to Step 6B.
Step 6B - Check the voltage supplying the cruise control system. The power is supplied through an interconnection harness connected at the bottom of the steering column between the original connector B-67 (See Figure 5). Follow the interconnection upward until you find the main cruise harness. Locate the fuses (2) between the relays installed on the cruise harness. Check both fuses, one is 4 Amp, the other 10 Amp. If blown replace with the same and repeat Steps 1-5.

Step 6C - Check cruise control lever (See Step 10).

Step 7 - You will need a second person to help you perform this test. Press and release the Brake Pedal. The diagnostic LED should illuminate each time the brake pedal is pressed and go out when it is released. If OK, continue to Step 8. If not, go to Step 7A.

Step 7A - Repeat step 1-4 and 7. If OK, continue to Step 8. If not, go to Step 7B.

Step 7B - Locate vehicle brake light switch mounted at the brake pedal pivot point under the dash panel, right side of the steering column. (See Figure 6). Locate connector on the brake switch and check the RED wire for +12 volts. If no voltage from original brake connector, refer to the Vehicle Service Manual under power distribution. If OK, depress the brake pedal again and check for voltage on the opposite wire of the brake connector. If there is no voltage coming out when brake pedal is depressed, change defective brake switch.

Step 7C - Make sure that the cruise interconnection harness is mated properly to the brake pedal switch and the vehicle brake harness connectors. (See Figure 6). If OK, check fuse. If fuse blown, replace with same (4 Amp). Verify the voltage at fuse. If no voltage, check wire and connections between the fuse and the brake interconnections harness, repair as needed. If OK, continue to Step 8.
Step 8 - First make sure that the vehicle speedometer is working properly. If not, refer to the Isuzu Service Manual. Repair appropriately and repeat step 1-4. The vehicle has a VSS (Vehicle Speed Signal) source. With the cruise control module still in the diagnostic mode, roll the vehicle by hand at least six (6) feet or two (2) meters forward or backward, the diagnostic LED should flash and continue to flash at the same rate. If OK, continue to Step 9. If not, go to Step 8A. Some vehicles need to be pushed more than 6 feet or 2 meters. In that case, raise one of the drive wheels of the vehicle and (both drive wheels on a limited slip differential). Use a support stand for safety. Block the none drive wheels (front wheels). Spin the wheels by hand as fast as possible. The diagnostic LED should flash and continue to flash at the same rate. If OK, continue to Step 9. If not, go to Step 8A.

**Automatic Transmission Only:** The TCM (Transmission Control Module) is supplying the speed signal via the TCM connector (B-229, Cavity 4) (26 Pin) to the cruise control via a WHITE wire from the interconnections installed directly at the TCM connectors. The TCM is located to the right of the steering column, under the dash panel. (See Figure 7-9)
**Manual Transmission Only:** The speed signal is supplied from the instrument cluster via a GRAY wire to the cruise harness. The connection is achieved by using the original screw on the print circuit identified by a (+) speed signal indicated on the rear of the instrument cluster. (See Figures 10-12)

**Step 8A -** Repeat step 1-4 and 8. If OK, continue to Step 9. If not, go to Step 8B.

**Step 8B -** Check programming switch #10 (See Figures 3 & 4). It should be in the ON position for either automatic or manual transmission vehicle. If the switch is set incorrectly, reset the switch and you must repeat Step 1-4 and 8. If the diagnostic LED flash and continue to flash at the same rate when the wheels are being turned, then continue to Step 9.
Step 8C - Verify the Vehicle Speed Signal (VSS) Source:

**Automatic Transmission Only:** The TCM (Transmission Control Module) is supplying the speed signal via the TCM connector (B-229, Cavity 2)(26 Pin connector) to the cruise control via an interconnection harness (WHITE wire) installed directly at the TCM connectors. The TCM is located to the right of the steering column, under the dash panel. (See Figures 7-9). One of the connectors has two wires into it (BLUE wire, WHITE wire), make sure that the wires are inline with the same on the opposite mating connector. If not, remove carefully the terminals and insert in proper cavities. Make sure all connectors are fully mated between the TCM connectors and the interconnection harness of the cruise control.

**Manual Transmission Only:** The speed signal is received from the instrument cluster. The connections are achieved by using the original screw on the print circuit identified by a (+) speed signal (See Figure 10-12). Make sure that the terminal of the GRAY wire is connected securely on the back of the cluster. Repeat Steps 1-4 and 8. If OK, continue to Step 9. If not, go to step 8D.

Step 8D - If after all verifications of the wires, connections, switch settings, vehicle speedometer work properly, the cruise control is into the diagnostic mode and the LED doesn't flash when the wheels are turned by hand. Then change the cruise control module.

How to change the Cruise Control Module:

Locate the module on the first cross member in the front of the radiator. Remove the two flange bolts and flange nuts holding the cruise control bracket to the cross member. Then remove the two self-taping bolts holding the bracket to the module housing. Then remove carefully the yellow harness lock retainer. You must use caution not to break the tab holding this retainer. If you use a tiny screwdriver you should be able to remove this retainer very easily. Do not use force to remove the harness retainer. Then disconnect the harness from the module. Note: When you re-connect the harness make sure that all the connector pins are lined-up properly before pushing the connector into the module. Then remove the two screws on the side of the module that hold the control cable. After the screws are removed, carefully pull the cable housing away from the module. The inner core will pull out a little bit of the end of the control cable. Side the inner core head of the module drive slotted hole. Verify the programming switches located under the black grommet on the top of the curse control module. Make sure that you us the proper sitting for your vehicle (automatic or manual transmission). Reverse the above instructions for re-installing the cruise module.
Step 9 - The vehicle has a NSS (Neutral Switch Signal) source. The TCM (Transmission Control Module) is receiving the neutral signal via the TCM connector (B-231, Cavity 4) (12 Pin Connector) and it is supplying a signal via the interconnection harness to the cruise control via a BLUE wire from an interconnection installed directly at the TCM connectors. The TCM is located to the right of the steering column, under the dash panel. (See Figures 13-15)

Step 9a - Apply the vehicle parking brake for safety. Disconnect the cruise control interconnection harness at the TCM. Using a voltmeter, connect the blue wire from the TCM harness side to the positive lead wire of the voltmeter and the negative lead wire of the voltmeter to the chassis ground of the vehicle. Turn the ignition key to the ON position with the transmission lever into the Park position. Then move the transmission lever from Park in to neutral position. You should have +12 volts when the transmission lever is into the neutral position. If you have no voltage, refer to the Isuzu Service Manual on how to troubleshoot and repair this problem. If you have +12 volts when the transmission lever is into the neutral position, go to Step 9B.
Step 9B - Verify the two interconnection connectors located approximately six (6) inches from the TCM.

Step 9B -(1) - One of the connectors has two wires into it (BLUE wire, WHITE wire), verify that the wires are inline with the same on the opposite mating connector. If no, remove carefully the terminals and insert in the proper cavity. (See Figures 13-15).

Step 9C - (2) - The other connector has a BLUE wire only, verify that the opposite mating connector has the wire in the same matching opposite cavity. If not, carefully remove the terminal and insert in the proper matching cavity. If not, carefully remove the terminal and insert in proper matching cavity. (See Figures 13-15)

If you have repaired or if you have +12 volts when the transmission lever is in the neutral position, repeat steps 1-4.

Control Lever Testing Procedure

Step 10 - Using a Voltmeter, utilize the following charts to test the control lever switch.

Step 10A - Before starting the test procedure, disconnect the Cruise Control Module harness 10 pin connector at the module, located inside the first cross-member in from of the radiator.

Step 10B - You control lever is an open circuit control switch.

Step 10C - Connect the negative lead of the voltmeter to the ground, then connect the positive lead to the appropriate wire and test for voltage per chart.

<table>
<thead>
<tr>
<th>Ignition Switch Position</th>
<th>Control Switch Position</th>
<th>Red Wire</th>
<th>Dark Green Wire</th>
<th>Yellow Wire</th>
<th>Brown Wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>12 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>12 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
</tr>
<tr>
<td>OFF</td>
<td>ON - Press and hold Set/Coast</td>
<td>12 Volt</td>
<td>12 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
</tr>
<tr>
<td>Off</td>
<td>ON - Press and hold Resume/Accel</td>
<td>12 Volt</td>
<td>0 Volt</td>
<td>12 Volt</td>
<td>0 Volt</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>12 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
<td>12 Volt</td>
</tr>
<tr>
<td>Crank or Start</td>
<td>ON</td>
<td>12 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
<td>0 Volt</td>
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</tbody>
</table>