

## **DCCD controller Test and Troubleshooting Procedure**

### **Verifying Basic Connections:**

1. Check power source. (Thick red wire) It should be connected to a +12v minimum 10 amp fused and switched circuit. When the car is turned off the power source should be turned off. Ideally this would be connected to a spare circuit at the fuse box.
2. Check the ground/0v. (Thick green wire) Make sure you have a solid clean ground or a direct connection to the vehicle 0v from the battery.
3. Check TPS. (Blue wire) (Not present in manual controllers) TPS should read ~0.5v at rest and ~4.0-4.5v at full throttle. Check this with the engine off but the key in the forward run position. If Throttle reads 4.5-5.0v at rest and 0.4-0.0v at full throttle, you have a “reversed” TPS from an older version Subaru. Contact us for details on how to proceed.
4. Check your G-sensor. (Not present in manual controllers) It should be firmly affixed to a level surface (two part epoxy is ideal), arrow label facing up and pointing forward. We recommend you run a calibration after installation of G-sensor.
5. Check to make sure that the black and white wires for the dccd go directly there with no loose connections, no shorts, and no grounding. The controller takes care of power and ground internally so there is no need to connect either of these wires to ground or power. Make sure that these two connections are very solid and sealed from water infiltration, they are under the vehicle and although they are high on the passenger side of the tranny they still need to be sealed properly with RTV or something similar.

## **Verifying Correct Operation:**

### **Manual controller and Universal Controller (Spiider) in Manual Mode:**

Go to a clean dry parking lot, and check the feel of the car when turning at low speed. Try the knob at the lowest setting and the highest setting. At the lowest setting there is no output so the car will feel like it did before the controller was installed. It will feel normal to turn and have no binding. Now turn the knob up fully, drive slowly and try to turn gradually tighter until the car starts to protest and fight back. You will feel it in the steering wheel. Careful not to over-do it, you can stall the car easily.

While the controller is at full lock and driving slowly in a circle. Pull the handbrake slightly, you will feel the center diff relax and it will be easy to turn once again.

### **Universal Controller - Automatic (Spiider) Mode:**

Go to a clean dry parking lot, and check the feel of the car when turning at low speed. Try the knob at the lowest setting and the highest setting. At the lowest setting there is no output so the car will feel like it did before the controller was installed. It will feel normal to turn and have no binding. Even at maximum setting on the knob during turning and braking operation there will also be no binding in auto mode. The G-sensors will reduce output during braking and turning. During periods of heavy throttle you may feel a "tightening" of the car, during periods of light throttle or deceleration you may feel the car loosening up again.

Now, find an area with poor traction. Turn the knob to the lowest setting. Straighten the car out and hit the throttle giving a minimum of 2/3 throttle. You will feel how loose the car is because there is no DCCD output. Get out and observe the burnout pattern from the rear wheels only. Now turn the knob up to maximum and repeat the test. The car should feel much tighter and accelerate faster due to the added traction. Get out and observe the AWD burnout pattern. This is easiest to observe in snow or dirt.

## **Common checks:**

### **DCCD coil resistance check:**

This check is for measuring the resistance of the DCCD coil, through the wiring and the coil itself.

Open the top of your DCCD controller box. Inside you will be able to see where the various connections enter the unit and where they go inside. It is laid out to very simply, you should be able to follow each wire to its designated terminal block.

The DCCD coil is measured in Ohms at the thick black and white wires inside the box. Place the red multimeter lead to the thick black wire, and the black multimeter lead to the thick white wire. Record the value.

It should read approximately 1.7-3 Ohm's for a newer 6 speed, the older 5 speed will read slightly higher at ~3-4 Ohms.

If you are reading a value considerably below 1.5-2 Ohms there is possibly a short in the wiring, if you are reading a value much larger than 3 or 4 Ohms you may have a burned out or damaged DCCD coil.

#### **DCCD wiring continuity check:**

This check is to determine the integrity of the black and white wires that go from the controller directly to the DCCD coil.

These measurements are performed in Ohms, or continuity mode where the multimeter will beep to indicate continuity. Place the red multimeter lead to the thick black wire, and the black multimeter lead to the thick green wire. Record the value. It should read infinite/mega-Ohm's or open circuit.

Repeat this test moving the red multimeter lead onto the thick white wire, the result should read the same.

If you detect continuity or low Ohm's to ground on either of these wires you have a wiring issue. Do not connect power to the unit until this is fixed.

If all these checks pass and the controller still blows 10 amp fuses occasionally you may have an intermittent problem with the DCCD coil wiring internally. If the tail section has been removed it is possible to damage the wiring insulation when reassembling the transmission. The damaged insulation will cause a direct short to ground but only during driving/vibration/various forces .

We have seen this on several, perhaps 3 out of a hundred transmissions, but it is worthwhile to mention.

#### **G-sensor/LFB Calibration Procedure**

**Perform this procedure once after initial installation. If at anytime you move and reinstall the G-sensors it is recommended that you repeat this procedure for accuracy of the system.**

**If you don't want to change the LFB setting skip procedure #4**

- 1. Park The car on level ground, shut off engine**
- 2. Wait 30 seconds for power to dissipate in the system.**
- 3. Press and hold the auto/man switch.**
- 4. Press on the gas pedal to a level of throttle you want as new threshold.**
- 5. Start the car/turn the ignition key to power the DCCD Controller.**
- 6. Continue to hold for 3-5 Seconds. Do not move or agitate the car, as G-sensor does some measurements and mathematically calculates it's new level setting. Release after the light in the switch blinks twice (off-on-off-on-release).**