These instructions were written using a 2005 GSX-R600 as the example. These are identical between all 2004-2005 GSX-R600 and GSX-R750. There are some slight differences between the 06-07 models, but the same principal applies. Consult the factory service manual and wire colors for the proper pinout.

The STVA is a bipolar stepper motor driven 90 degree actuator. It consists of two distinct motor circuits. Each loop should have about 7 Ohms resistance. These testing procedures are to diagnose additional causes for the C28 code other than the STVA itself.

Phase 1, Full circuit testing:

1) Unplug the primary (larger) connector for the ECU.

2) There is normally a tic mark on the plug to identify pin #1. If there is not, note the position of the retainer clip for the connector. While looking into the connector with the retainer on top, pin #1 is the upper left.

3) Small sewing pins in the gator clips of a digital multi-meter make excellent probes. Be gentle when inserting them as not to deform the socket in any way. One circuit of the stepper motor is pin #1 to pin #18. #18 is the first pin in the second row. Below shows a good circuit reading 6.8 Ohms of resistance.

4) Repeat this on the second circuit, pins #2 and #19.

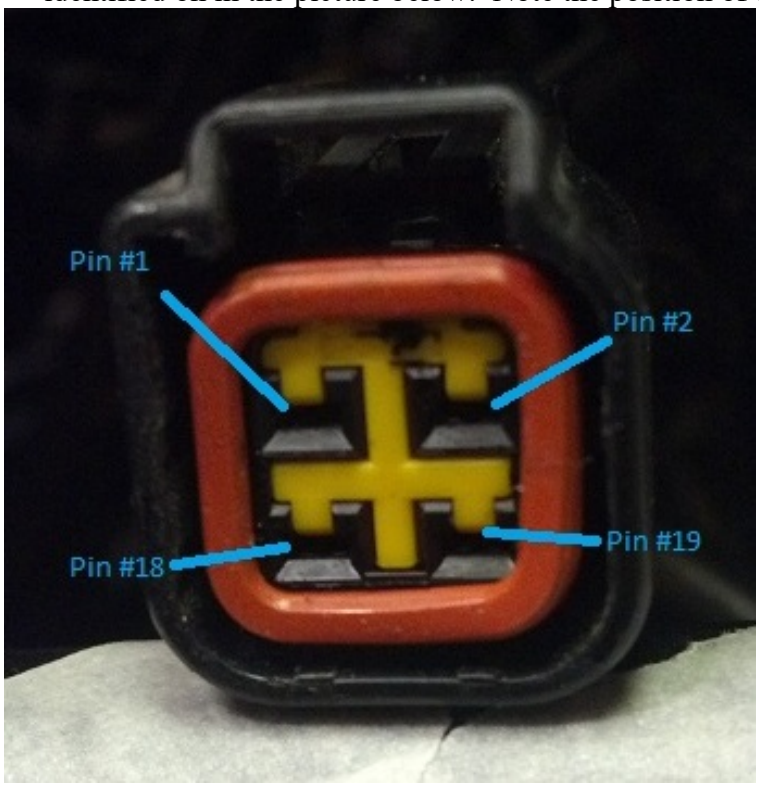
5) Check the circuits for shorts. This is easily done by connecting to one pin from either circuit. In this picture, this is shown with pins #1 and #19 and reading open circuit (infinite resistance). A good result. If you obtain a reading other than open circuit, your wiring harness has a short and should be repaired or replaced.

If all of these tests pass, your fault most likely is with the ECU. There is no way to test the ECU directly without highly specialized equipment. The easiest way to test is to install your ECU into a similar bike. However, before attempting to do so, visually inspect that the ECU pins are intact. If any pins are broken or missing, you will need to replace the ECU.

Phase 2, single conductor testing:

Perform this test only if steps 3 or 4 in the first phase failed. If your STVA is known good, but you find an open circuit in one of the loops, you need to identify the broken wire and correct the problem.

1) Below is the connector for the STVA. The corresponding pin numbers have been identified on in the picture below. Note the position of the retainer is up.



2) In similar manner to phase one, you will test for resistance between the STVA connector and the ECU connector. Be below pictures show a good test for pin #1 with a reading of 0.03 Ohms.

3) Repeat this for each of the 4 wires in the STVA connector.

4) If all these tests pass, one or more of the connectors in these sockets is loose or dirty. Seek an electrical expert for repair, or replace the wiring harness.