Allison WTECII & WTECIII ECU's [TCM's] Power Failure Troubleshooting Guide

The following procedures are technical, and should not be attempted if you are unfamiliar with electronics or uncomfortable working with electrical components. ***You do so at your own risk***.

Have You recently replaced or charge the battery outside the vehicle? If Yes, recheck connections in Your battery compartment and look for two 10 gauge wires, near the battery terminals, which supplies positive and negative power directly to Your ECU through VIM [Vehicle Interface Module]. The VIM contains two fuses [for ECU only] and up to six relays powered by the ECU [including the start relay].

Recommended tools : Assemble 12V/15-25W light bulb [spare brake lamp bulb or similar, #1156,#1073 etc.] with 20 gauge solid copper wire [ordinary Hookup or "Bell wire"]. Sstrip 1/2" on test side. When You check ECU connectors, lamp must glow bright white light: A Dim light will indicate a bad connection somewhere, likely due to oxidization. Voltmeter will not indicate bad connections. An ordinary volt meter or VOM isnt reliable for **this** test, however you will need one to check the lower voltage systems.

After assembly, check lamp directly on Your battery terminals. Caution, lamp will become HOT !!!

Always disconnect the battery or turn off the battery switch [Power Train Battery] prior to disconnecting or connecting back ECU connectors!

Instructions for WTECII system [two digits on Your shift selector]

For 1992;1993;1994 and early 1995 models and experience erratic or no display, especially when is cold weather or seen some codes, please log to http://www.rvshifters.com for more information. Have You seen code 69-32 already? Stop troubleshooting = 100% defective ECU!!!

Locate the ECU [in most RV's ECU is mounted directly to the shiftpad]. If remote selector is used, ECU maybe nearby, close to VIM Module or, mostly on Trucks, close to transmission [just follow bundle of wires from transmission].

Disconnect the battery first, then unplug two oval shape ECU connectors and reconnect the battery. Check the connector with black plastic [another is white], rear side, for numbers.

Only 8 numbers from 34 are imprinted [both sides of the row]. Insert test lamp leads into corresponding connector sockets:9 and 2 then 18 and 11.

Next turn "ON" Ignition switch and insert test leads to 9 and 12. #9;#18 = BATTERY GROUND; #2;#11 = BATERY POWER; #12 = IGNITION

If lamp is bright, ECU is probably defective unless is defective display itself [1% chance]. There is no practical method to check display on the vehicle except to swap selector from another vehicle. But, if you do have a remote shift selector, you can check display using ordinary 9V battery and hookup wire. Just remove two fuses from Vehicle Interface Module and connect the 9V battery using Bell wire slightly bent on ends, so they can hold inside connector sockets. Minus terminal to #9 and positive terminal to #2 and #12. After few seconds remote shift selector should start beeping and show on display " cat eyes ". Just be sure You do have a good connection with wires and sockets.

If display comes "ON", ECU is defective.

Instructions for WTECIII system [single red digit on Your shift selector]

Have You recently replaced battery and accidentally swapped battery terminals? If "YES", ECU maybe fried beyond repair. If "NOT", locate the ECU (in most RV's is near shift selector, close to VIM Module or, mostly on Trucks, close to transmission - just follow bundle of wires from transmission). **Disconnect the battery first**, then unplug all three connectors from ECU and reconnect battery. Closely check the GRAY connector for numbers. Insert test lamp leads into corresponding connector sockets: 1 and 32 then 16 and 17.

Next turn "ON" Ignition switch and insert test leads to 17 and 26. If cavity #26 is blank, use BLACK connector socket #4. Lamp must glow brightly.

#17; #32 = BATTERY GROUND; #1; #16 = BATERY POWER; #26 gray or #4 black = IGNITION

Next turn ignition and battery "OFF", reconnect GRAY ECU connector only, then reconnect battery and turn "ON" ignition. Then very carefully touch gold plated pins #16 and #32 [on ECU for BLACK connector] with lamp test leads. Lamp must glow bright. Then use a Voltmeter to check 5V on pin #3 [on ECU for BLACK connector] against chassis ground. DO NOT use test lamp!!! If no 5V is found on pin #3, ECU is defective.

Also check socket #3 on BLACK connector with Ohmmeter against chassis ground. **Must be Must be over 4k ohms**.

Shift selector can be check using ordinary 9V battery and hookup wire. Connect the 9V battery using hookup wire, which you may have to slightly bent on the ends so they can hold inside BLACK connector sockets. Connect Minus terminal to #32 and positive terminal to #3 and #16. After power "UP" all segments and RED LED [Mode] will be illuminated for 8 second and then display will show " cat eyes ". If one pushbutton "D","N" or "R" is hold down during power "UP", display will show "d", "N" or "R" for 2 second only. This way, You can check pushbutton switches.

If display will not be illuminated, maybe defective shift selector or harness. To check out harness, You must disconnect connector located

1/2' from selector. Then remove strain relief [black plastics] from on vehicle harness connector and check closely rear side for letters.

"P" = GROUND "R" = POWER "N" = SENSOR POWER

Insert 3 short lengths of hookup wire into sockets "P", "R" and "N" and use a voltmeter to check voltage between "P" and "R" and between "P" and "N" if You using 9V battery. If ECU and battery still connected, insert lamp leads to "P" and "R", then turn ignition "ON" and with voltmeter check for 5V in socket "N". If You do have voltage and there is no display, shift selector is most likely defective. If You do have voltage on ECU pins and not on the shifter connector, a defective harness is indicated.

Check continuity with Your Ohmmeter between "P" and chassis ground. Should be less than 1 OHM. If the meter reads "open", (Infinate resistance) find a good ground in the cabin, cut "P" wire 3" from connector and reconnect with new ground. If missing 12V - "R", found "ignition" power, cut "R" and reconnect with "ignition" power. If missing "N" [5v], cut "N" and reconnect with "ignition" power.

12V will not damage the shift selector. If one of three last steps will power up the shift selector but no response to commands, You may have additional harness damage or defective ECU or shifter. In this case, You can send ECU + shifter for free testing [You pay for shipping only].

Home