

## 2004 Itasca "Horizon" VDC (Vehicle Data Computer) Repair

The 2002 and 2003 Horizons were built on the XC chassis. The Evolution XC chassis was first produced for the 2004 year and the VDC was used in early model 2004 Itasca Horizons located by the rear engine, next to the Allison Transmission Controller, and tow car fuse box.

...However, late model 2004 Horizons that came with a MMDC which performs the same functions, but it is located under the dash and does NOT seem to have the same "cold soldier joint problems" that the VDC coaches had. This is due to vibration and heat in that general area over time. Otherwise, the VDC is a reliable component that provides an interface between the ECM and the Instrument cluster message center made by Medallion.

COMPLAINT: The air pressure issue the rear air tank gauge only ready 80PSI when it should read 110PSI +.

You know you found the VDC when you find a red and green ¼ air hose running to it.

PRE-TEST:

A) Air Leak Test: Make sure you not leaking air from either the red or green air tank hoses. To test I sprayed Windex on the air coupler. If you see air, then spray a little WD-40 on the coupler; and use a 7/16 or 3/8" open end wrench to slide the air coupler backward... to release the nylon hose. This may take a little effort, but it will release with the right technique. Trim the nylon holes very squarely... about 1/8" back from the end. Then reassemble and check air gauge after you start the engine.

B) Instrument Test: Swap the red air hose with the green air tank hose and verify your tank pressure problem is now on the other air gauge.

Note: There is no convention when it comes to the color of the air hoses. I.e., "red" could mean rear tank or it could mean front tank. (And I think the primary tank is considered the read tank, but I'm not sure about that. On my 2004 Horizon the Green hose was on top and it was the Rear Tank (primary tank). The only way to tell is to look under your coach to see what color hose goes with which tank, but you don't need to do this to complete this repair.

C) VDC Air Pressure Sensor Fix Due To "Cold Solder" Joints:

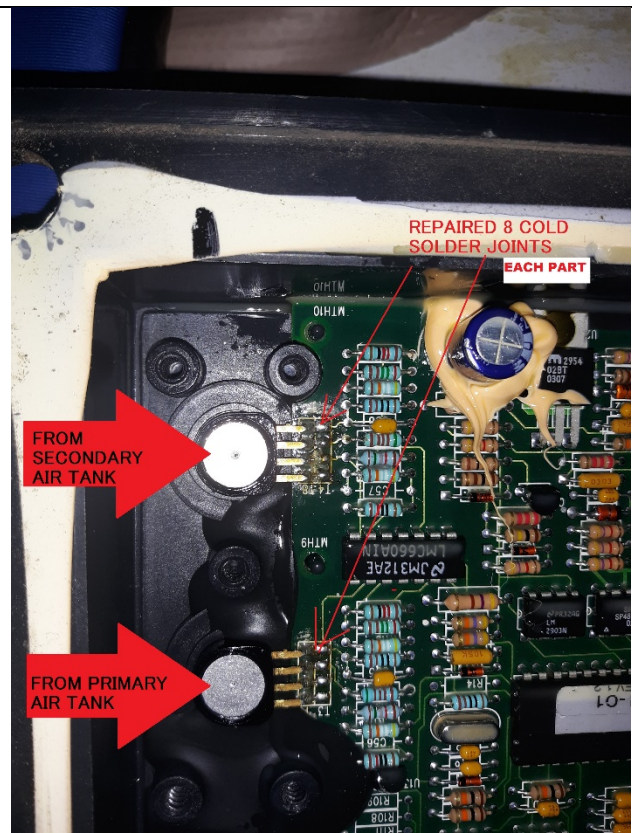
- \* Remove VDC off its 4 rubber mounts.
- \* Clean and split the VDC case by removing the back plate. It is glued down, but you can separate it using 2 thin putty knives.
- \* Remove the shiny metal cover piece and note the 2 nylon washers underneath. These go on top of each air sensor when you reassemble it and you must have these washers properly in place or air will leak out when you reassemble the VDC.
- \* I elected to take the VDC to an electronics TV repair shop so they can properly clean and re-solder 8 contact points on each sensor. So there are 16 total solder points, and they charged me \$50.

Note: There is corrosion coating that will take more time to remove than it will take to re-solder. ...Don't remove any solder. ...Just add a little more. ...And it's best to hang a wire clamp off each of the air pressure sensor leads so you don't over heat the sensor when soldering! ...When you are done soldering, coat solder points with "super glue" to protect it and to reduce vibration effects.

- \* Reassemble. Don't forget to put the 2 nylon washer back on top of the sensor!!!

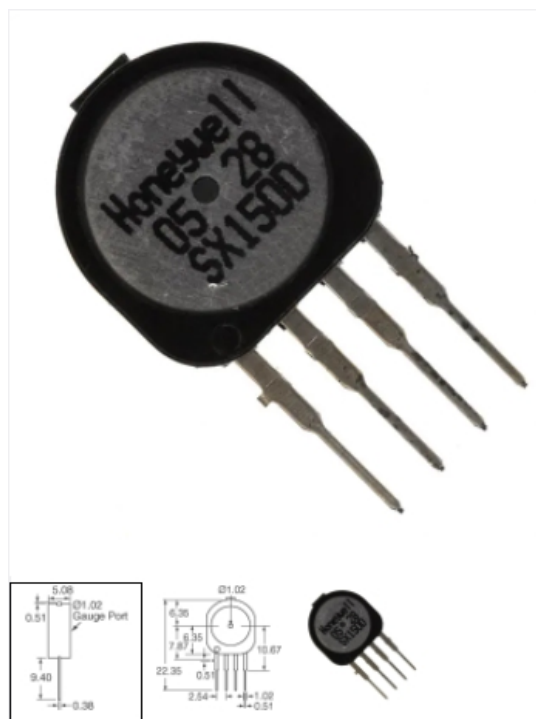
\* No need to clean the old glue off the case... Just add new RTV Silicon to seal the case.... And I chose to use black tape over the seam for added dust control.

\* Torque to 15 lb-ft. so the rubber mounts can absorb the road vibrations. Don't over torque! And if you are like me and 99% of the other RV owners with bad "cold solder" joints in your VDC air pressure sensors, then your gauges should be reading normal! ...Or you may have a new normal, but your air tank gauge will read above 110PSI. (If your old reading was slightly higher... don't worry about it. It's a relative gauge pressure and does not have to be exact.



I did not have to replace my Honeywell air pressure switches, but here's some information on these parts:

**Honeywell SX150D** (200PSI Max range) So you might want to use the sensor with part# **"NSCSSNN150PDUNV"** This is a 150PSI replacement part !!!!



The sx150d has been discontinued, but there are a few still available with some research. Next suitable replacement is **NSCSSNN150PDUNV**. This is a 150PSI replacement part !!!! ...and my 2004 Horizon uses 150PSI max air tank gauges.

#### THE FIX:

I drained the air tanks

...pulled the 2 air hoses (red and green)

...unplugged the 2 electric plugs

... unbolted the 4 bolts

... pried the backing off

... took off the metal support plate

... added a little solder to each of the two sensors on the board (total of 8 points)

➔ Done. Easy fix. Just be sure you don't overheat the sensor or it will fail.

➔ Keep the sensor leads cool, maybe use a heatsink clamp.

➔ I put new o-rings under new sensors (a/c o-ring kit from autozone), snugged down sensor compression plate, too tight and you will strip the plastic threads! Plugged in to test.

➔ Then I used JB weld to seal the connector block back in and final seal up.

#### REPLACE THE SENSORS

If you find blobs of silicon on a suspected failed sensor that maybe okay since these are silicon sensors; or perhaps it ruptured.

End result, near full success. ➔ Gauges run about 15 psi over the original sensors even when no pressure, but readings are uniform and buzzer cuts out at 65 psi, so I don't care.

<https://www.digikey.com/product-detail/en/honeywell-sensing-and-productivity-solutions/SX150D/287-1077-ND/266766>



**Honeywell**

# NSCSSNN150PDUNV

HONEYWELL

TruStability® Board Mount Pressure Sensor - Uncompensated/Unamplified: NSC Series,  $\pm 0.25\%$  Accuracy, Analog mV Output, SIP, Manifold Mount Inner Diameter Seal, 150 psi Differential, 1.8-12V Supply, Liquid Media On Port P1, No Special Options

RoHS Compliant



[https://www.masterelectronics.com/honeywell/nscssnn150pdunv-43767342.html?ref=searchads360feed&utm\\_term=NSCSSNN150PDUNV&gclid=Cj0KCQjwvb75BRD1ARIsAP6Lcqt\\_mQ8IWC4gCfRynQPBxjOwHBkZD3tzK\\_Lxxo411EOhon5C\\_AKYPYigaAgG\\_EALw\\_wcB&gclsrc=aw.ds](https://www.masterelectronics.com/honeywell/nscssnn150pdunv-43767342.html?ref=searchads360feed&utm_term=NSCSSNN150PDUNV&gclid=Cj0KCQjwvb75BRD1ARIsAP6Lcqt_mQ8IWC4gCfRynQPBxjOwHBkZD3tzK_Lxxo411EOhon5C_AKYPYigaAgG_EALw_wcB&gclsrc=aw.ds)

## Side Note About VSC-Speedometer Problems

\* The fact the engine started, indicates that the 30 amp engine fuse is good.

TO TEST VDC... Talking to speedometer properly, you first posted that the cluster fuses where both good. ...If they were blown, that could indicate a defective ground or a Defective Display.

Your coach has a built-in Diagnostic Function that indicates whether or not the MC is receiving DATA from the Vehicle Data Computer (VDC)

If the data is not received from the VDC for more than 45 seconds, the Icon lights will "Dance" or initiate a chase pattern.

...And I think your transmission sensor is the pickup point for speedometer information, so you may just need to remove the right sending unit (sensor) and clean the end. Note: The Allison has 2 sending units, but only one is the speed sensor. I just can't remember which one it is?