

## 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:

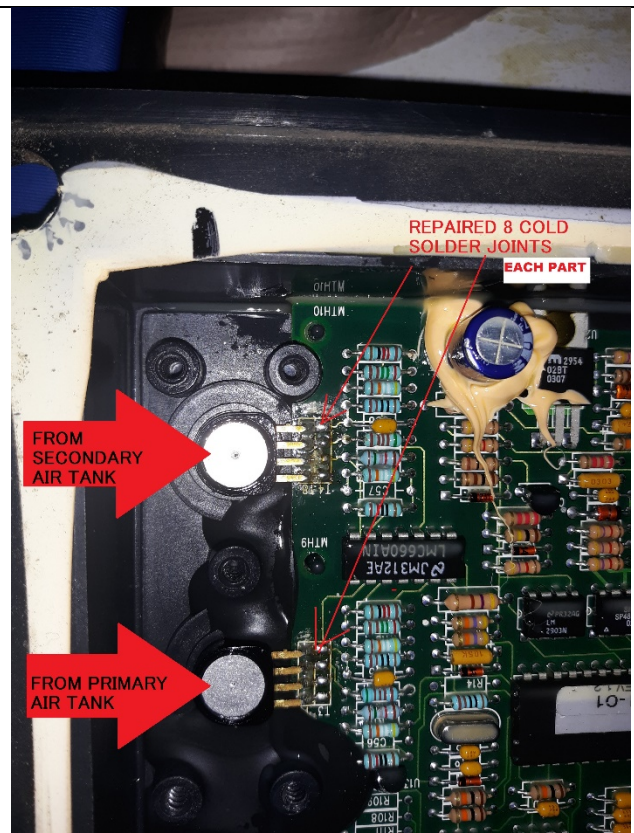
- \* Remove VDC off its 4 rubber mounts.
- \* Clean and split the VDC case by removing the back plate. It is glued down, but you can separate it using 2 thin putty knives.
- \* Remove the shiny metal cover piece and note the 2 nylon washers underneath. These go on top of each air sensor when you reassemble 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!!!

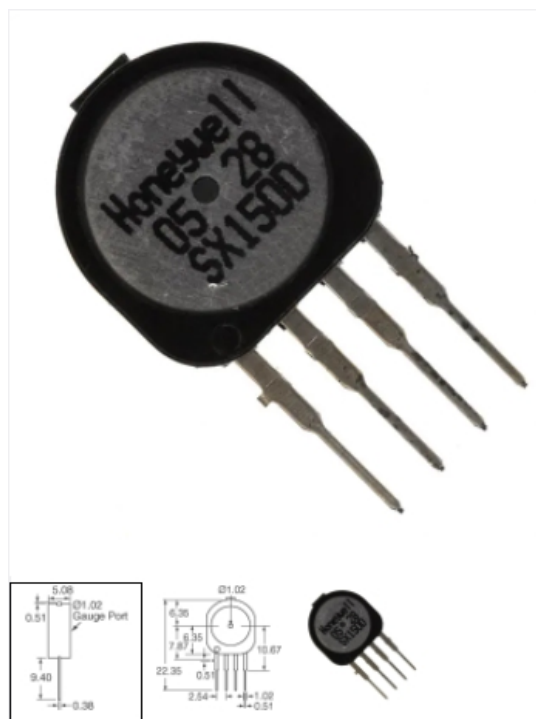
\* No need to clean the old glue off the case... Just add new RTV Silicon to seal the case.... And I chose to use black tape over the seam for added dust control.

\* 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, ± 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?

Thread...

<https://www.winnieowners.com/forums/f259/crazy-air-gauge-behavior-350416.html#post3874964>

### 2004 Itasca "Horizon" 40AD VDC Repair -- Many Thanks!!!

Many thanks to Merv-IOM who helped me fix my fluctuating air tank problem! ...Buddy, you saved me a lot of money!!!

...And FYI, Freightliner, Corpus Christy completely miss-diagnosed this repair.

Short Story: I took my RV to Freightliner, Corpus to fix this problem and they couldn't do it. Then they tried to send me on my way with a \$300 diagnosis fee and a \$2,000 quote to replace my instrument cluster.

I did not bite, because I was able to drive my RV just fine... and FL confirmed my engine air compressor was



working properly; and FL confirmed there was no moisture in my air tanks! So I left and continued on with my travels. ...But I also was not sure what I would do next?

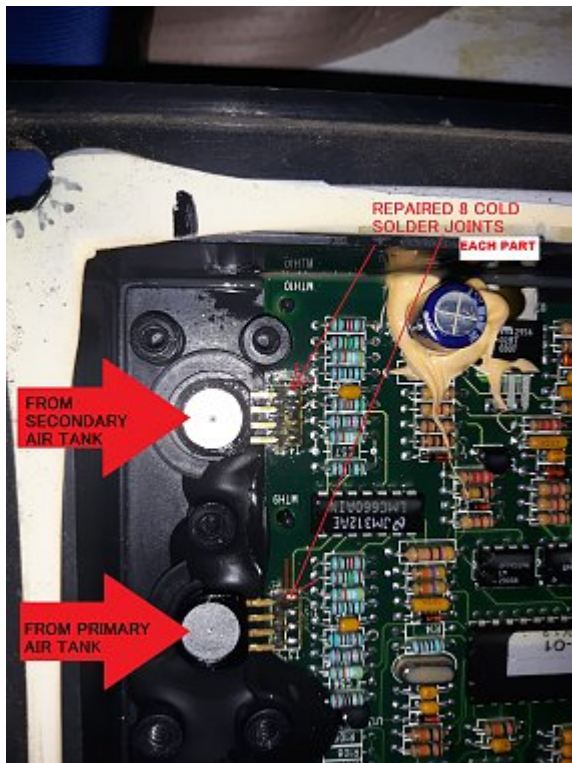
I decided to wait until I could get to my summer RV campsite, where I would have more time to investigate this problem and where I would have full hook-ups and internet and more time to do some research.

My research allowed me to find this thread, and a few others, and that armed with the knowledge to proceed.

So I easily removed my VDC and then took it to a local TV Repair shop to do the job. I wanted a professional to do the job, because I did not feel comfortable putting a hot iron the solder joint on such an important component. The shop charged me \$50 to clean and re-solder the 8 joints (on each air pressure switch for a total of 16) and I can tell the Tech felt guilty charging me that much, because he said it took 30 minutes to clean the contacts and only 2 minutes to reflow the cold solder joints.

In hindsight, I suppose I could have fixed it myself, because the TV Tech said he never removes solder when fixing a cold solder joint. ...Meaning, you just need to reflow the solder and add solder if need be.

Note: Many of these old VDC are still available at FL in the \$600 range and they have lots of stock, so there has to be other FL chassis that need this replacement. Therefore, even if you can't fix your VDC by re-soldering these joints, at least you know you can still buy one of these parts at FL and do the R&R yourself.



Note: The toughest part of the job was separating the red and green air lines to the VDC.

...And it the repair worked!!! ...Just make sure you put those 2 plastic washers on top of the air pressure switches, before you screw-down the metal cover plate!

So then, I wrote the GM at Freightliner, Corpus and asked for my money back. ...Which I am happy to report the GM promptly approved my request. So that was nice. I also shared the attached .pdf file so his techs can learn what to do if they ever work on this problem again.

But I really don't blame FL-Corpus for not knowing how to address this problem, because the VDC cold soldier joint problem went away 15 years ago after FL started installing MMDC units in late 2004 Freightliner chassis. However, that does not excuse them from trying to "get rid of me" by presenting me with a solution that was based on a misdiagnosis. ...And thank god I did not agree to that \$2000 repair, because it would not have solved the VDC

problem; and I don't even want to think about what would happen after that.

Note: FL Help & Tech Support (800)385-4357 was a great help and they knew all about the cold solder joint problem. So this is/was reassuring.

So I would like once again to express my appreciation to everyone who helped me solve my VDC air pressure gauge problem; and FYI, you not going to believe this, but after this repair my engine temperature gauge is now reading more accurately!

That said, I even think my engine is running smoother. Why?

I can't say for sure, but if fixing the VDC cold solder problem also improved the accuracy of my engine temperature gauge. Why? Well, I would say it's possible this VCD solder repair eliminated "noise in the circuit," and since the ECM talks to the VDC, I think it's possible the voltage to the ECM is now "cleaner" and more usable than it was before the solder fix... and that may explain why I think my engine is running smoother, albeit ever so little. Diesel engines have a certain sound that change after service.

For more details on how I completed this repair, see the attached .pdf.  
Attached Thumbnails