

2004 WINNEBAGO HORIZON DIESEL PUSHER - DASH A/C 134a NOTES

(Diagnose Clogged Receiver-Dryer, 2 Pressure Switches / Expansion Valve / Compressor)

Freightliner parts: 800-385-4-457, www.freightlinerchassis.com,

Other AC Parts Sources: www.A/Ccessfreightliner.com www.napaonline.com www.Amazon.com

BACKGROUND COMMENTS FIRST: I bought a set of A/C gauges at Harbor Freight for \$55; and 2.5CFM Evacuation Pump for \$75 (on sale). Then I spent hours watching YouTube videos on car A/C systems and read all I could on the subject.

Armed with knowledge, I set out to fix my RV-A/C system. I then spent all afternoon trying to apply what I learned; and after several failed attempts, my RV-A/C system was still not blowing cold air.

The next day I started analyzing the charts more thoroughly. And I concluded that my RV switches do NOT work quit the same as the YouTube video switches – but there were some similarities that only proved to confuse me more.

Then SUCCESS! And now my AC is blowing super cold (-45F temperature difference between the outside air temp of 88F and the vent air of 43F) which dispels the notion RV-A/C systems are inherently weak.

By reading my notes, you will learn some basics that may help you diagnose your system. But right off the bat I can tell you this: If you want to “tune-up” you’re A/C you should evacuate your lines; replace your Receiver-Dryer; flush the PAG oil out of the lines, and recharge your system with the recommended amount of 134a + 10% for extra measure.

MY COMPLAINT: The A/C Compressor Clutch would come on at 22psi and then turn off at 24psi. (Quick Cycle.) And my AC dash air went from poor to no cooling at all after adding additional 134a last season.

RECEIVER-DRYER FIX: How did I know? In my case, I found the Receiver-Dryer “Line-In” was warm to the touch (as it should be); but the Dryer “Line-Out “ was very cold; and a good Dryer would have only a 15F difference in line temperatures, which is hard to notice by touch.

To replace the Dryer it only took me 1 hours to fix. Moreover, the AC 134a placard on the firewall was right. It only took **40oz** to reach a -45F temperature drop from the outside air temp to the dash temp. (I put in 44oz or 10% more and my air was still ice-cold. I did this because I theorized that as my A/C system ages the 134a and PAG100 oil will get more contaminated so having a little more 134a couldn’t hurt. And it didn’t. ...But you also need to know you can have too much 134a and that will degrade your A/C system.

Here are picture of my 2004 Itasca Horizon A/C System:



OEM PARKER Receiver-Dryer (Vintage 2003) with HP-Red Schrader port on right. This line comes from your Condenser. **Napa Cross: #218093 (\$34)**; Freightliner Part # GAFP110704 (\$75). Other crosses include A/C/Delco #17-9969 or Fleetwood# 151779 or RV218396.



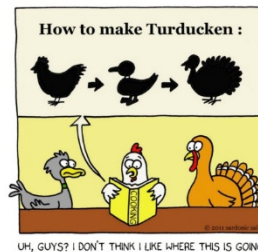
From Left to Right, notice the AC wire connector, the A/C relay, Thermostat, Blue LP Schrader port, Red HP Schrader Port... surrounded by a Binary Switch on the left and a Condenser Fan Control Switch on the right. And in the background that shiny block is your TXV-Expansion Valve. (You should clean all these electrical contacts!)



Note the check-valves are used to block descant from contaminating the A/C System in the event the Receiver Dryer fails.



COMMENT/OBSERVATIONS: My 2004 Itasca 40AD (on a Freightliner Custom Classic Chassis) built their A/C System by using an A/C-Delco (Receiver-Dryer), Ford-Sanden Compressor #4709, Mercedes TXV-Expansion Valve, and GM-Pressure switches. So we have a “Turducken” of sorts!



This confirms that all automotive and RV systems are alike – with the exception of plumbing fittings. SO YOU SHOULD PAY PARTICULAR ATTENTION TO YOUR PLUMBING MALE & FEMALE FITTINGS, before you start using whatever parts are available from Napa and even Amazon, which is great source for A/C parts.

Note: Two A/C repair techs said I probably had a bad compressor, but I knew that was wrong since I read the charts. From my experience: I think 99.99% of the population doesn’t understand an A/C systems; and 70% if all mechanics don’t either.

The good news is that the A/C shops do know how to repair your RV-AC system, but they are accustom to charging \$-450-\$650 per customer. What’s worse? You have to take the time to find an AC shop willing to work on your RV and then leave it 4 hours with them vs. the doing the AC job yourself.

I think everyone should invest in the tools and time to try to fix it yourself and then you will never need to pay for AC service in your RV or your cars ever again. And if you cannot fix your AC problems by evacuating and replenishing your AC dash system... then you can seek out a qualified AC repair shop.

LOW PRESSURE SWITCH LOCATION: My RV-AC system does NOT have a Low Pressure 20/40 PSI Clutch Cycling Switch like you will find in car A/C system. Why this is the case I am not sure. My guess is that my Heater Control Module and/or Vehicle Control Module (VCM) handles everything without using this common 20/40 PSI LP switch?

THERE ARE 2 INTERNAL CHECK VALVES ON THE OUTPUT SIDE OF THE RECEIVER-DRYER: Our A/C Delco Receiver-Dryer has two “back-to-back” check valves screwed into the Dryer’s “Line-out”. (The Line-out is on the smaller side of the Dryer. These check valves do NOT come with the Dryer and are hard to get. The Dryer is supplied Freightliner, but apparently Winnebago supplied the check valves. (Note: You need 2 check valves facing back-to-back inside.)

Since we did not want to wait for a new check valve to arrive in 3-5 days, we took the risk and cleaned our valves with spray silicon so as to not damage the little O-rings on the check valve. And we used solvent on a rag to clean the rusted spring. This approach worked fine for us.

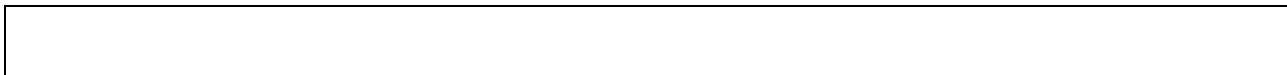
I’m also guessing these check valves provide necessary “back-pressure” in the system. After all. If the TXV-Expansion valve is open when you turn off your engine, so the A/C system can “equalize”, then you need the check valves to remain closed so pressure can build up in your compressor located 40+ feet away. Otherwise, it would take a long time for your A/C system to blow cold air out your dash vents.

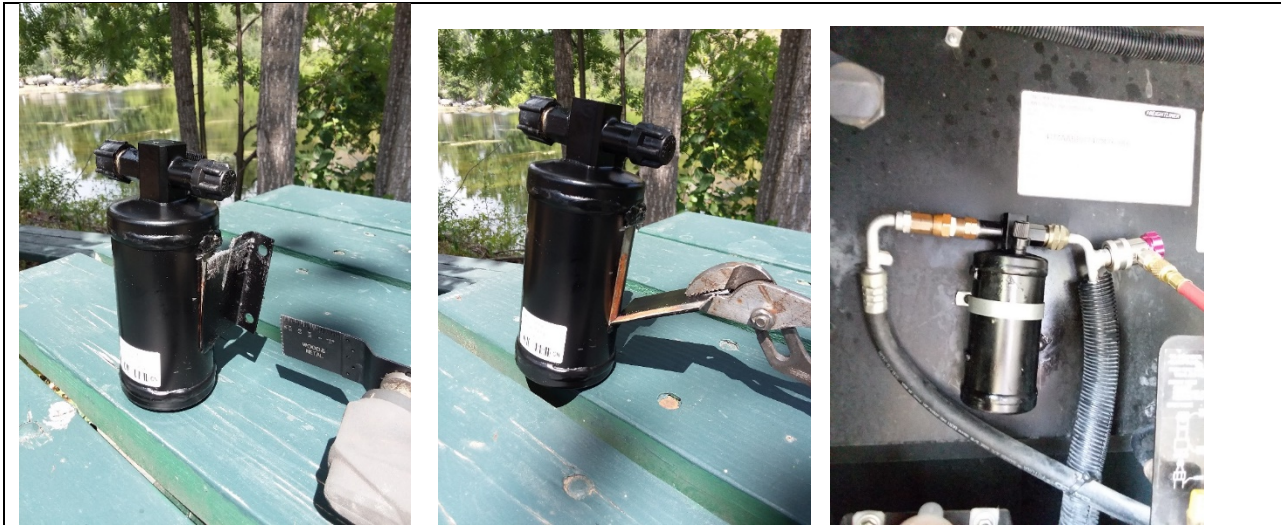
HOW TO REMOVE THE MOUNTING BRACKET ON YOUR AC-DELCO RECEIVE DRYER: The correct Receiver-Dryer Freightliner part number for our 2004 Itasca Horizon is GAFP110705 does not come with a mounting bracket... and that’s the one you want. However, we used a Napa# 218093 AC-Delco dryer, which is a cross to the Freightliner part number, but the Napa (AC-Delco) Dryer comes with a mounting bracket that has 2 welds and it faces in the wrong direction for our Winnebago application.

Further, you might not have a bad Receiver dryer at all. Remember, if you have a bad Dryer the Line-in side will be warm and the Line-out side will be very cold.

So before you do replace your dryer, you might consider removing the “Line Out” side and clean your check valves. But heres the thing: Everytime you evacuate your system and recharge it... that takes time. So most people just replace their Dryer and even their TXV-Expansion valve, because both parts are not that expensive, and the TXV is prone to failure. So that’s what we did.

Note: FLOW ON OUR DRYER IS FROM RIGHT TO LEFT !!!! And you can tell which-is-which, because the input side of the Dryer is larger than the output side. This will be more obvious when you look at your Dryer.





SUCCESS: Here's the finished results with an outside air temperature showing 88F... and our digital meat thermometer gauge read 43F... in the dash vent! That's a -45F difference! Finally!!!

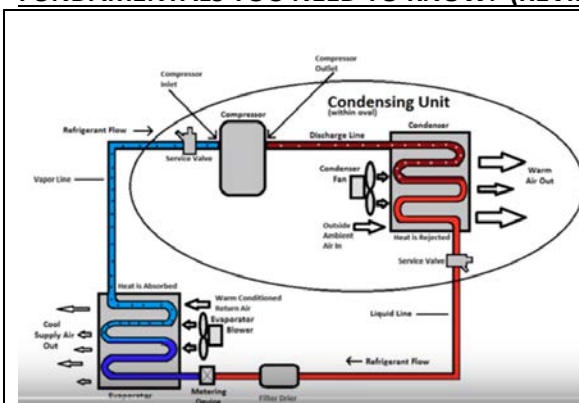


CLOSING COMMENTS: We recommend you clean all your electrical switch connections on the firewall. All of our electrical spade connections were rusted and on tight. So you might use a penetrating spray first, but be sure to use electrical contact cleaner before you reassemble.

Below we go into more detail about how A/C Systems work. This information is extremely helpful when diagnosing other components besides the dryer we talked about above.

The more you study these charts the better you will understand your AC System. And while at first everything may seem a little daunting at first; after a while it will "all come together" and you will find a solution to your AC problem.

FUNDAMENTALS YOU NEED TO KNOW: (REVIEW CHART BELOW AND THINK ABOUT THE FOLLOWING)

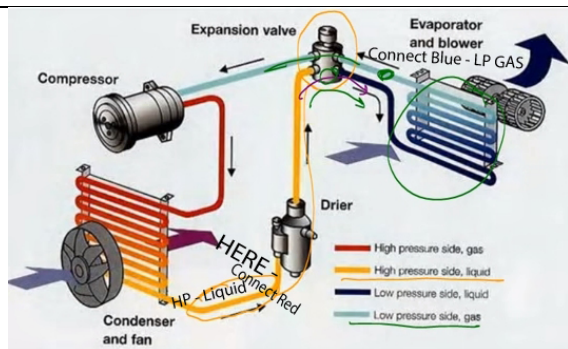


* We want to measure (PSI) at the hottest or highest Pressure point. And on our 2004 Itasca Horizon we have 2 different HP-Red-Schrader Valves we can use in front of our firewall ... and above the generator up front. Everything is in plain view and easy to inspect.

One High Pressure (HP) port is just before the Dryer, and the other HP port is just before the TXV-Expansion Valve, but if you trace the A/C line you will see it is also the port leading out of your Dryer. This can help you test for a clogged Dryer or a bad expansion valve.

Note: You should turn off the HP-Red Schrader valve when adding 134a to your system.

* We also want to measure at the Lowest Pressure point which is located just after the Expansion Valve. This is the larger line



These charts are very similar, but you need to study both of them to understand where and at what and where pressure/temperature changes occur.

This is where the refrigerant undergoes a “State Change” from liquid to gas and back to liquid again. And each time it does you are either giving off heat energy or absorbing heat energy.



leading back to the compressor. It should be cold to the touch.

* Adding refrigerant can increase the HP side, but may actually lower A/C efficiency. Further, people who keep putting 134a 1-2 cans more into the A/C system are also not going to be happy with the dash A/C air temp as this puts more stress on your A/C system. But it’s worth a try. If that doesn’t produce really cold air, then you have to start over from scratch and evacuate your system. Which is a good thing if you haven’t done that for more than 5 years.

* Adding stop leak once or twice maybe okay, but each time you add more 134a (with stop leak) you are also adding more oil to your system and degrading its performance. But yes, you can get “okay” cold air this way. However, we want very cold dash air (-45-40F drop) and when that happens you know your A/C system is properly filled and tuned. (See other section below on what to do about too much oil.)

* If you have one, use a digital thermometer to measure the A/C vent air temp. (We used a digital meat thermometer and it worked just fine.) Otherwise, use your hand and try to distinguish between “Cold” and “ICE COLD” if you start adding more 134a ...above what your placard on your firewall calls for. In our case that was 40oz.

HOW COLD SHOULD MY VENT A/C TEMP BE?

A good A/C system should be able to drop of at least 30F--45F from the outside air temperature (above 75F) or it should not leave the shop! At 90F a drop of -45F would be great! I.e., your dash air should be around 55F.

Note: Our 2004 Itasca Horizon also has a HP pressure port next to the condenser (located next to the radiator) but we did not bother testing it since our system was fixed to our satisfaction.



BEFORE DRYER FIX:

Our compressor clutch kept turning on-off-on; and Dryer inlet tube was warm, but outlet side was very cold... and the gauges read 20-22PSI on the Low Side as the compressor quick cycled; and the High-Side would not get over 125 PSI.

AFTER DRYER FIX:

We got a -45F difference from Outside air temp vs Dash Temp. And our gauges are now 24PSI on the Low-Side and steady; and 120PSI on the High-Side, with the outside air temperature at 80F. (We expected at least 150-200 PSI on the High-Side but didn’t get it.) And the A/C is blowing -45 degrees colder than the outside air temp.

RESOURCES:

AC SERVICE: https://www.rvtechmag.com/tech/51_r134.php

How To Diagnose An Expansion Valve: <https://www.yourmechanic.com/article/how-to-charge-the-air-conditioning-system-in-your-car>

OTHER OWNER COMMENTS AND FIXES:

Winnebago
Owner
Comment:

...On my Cummins 8.3L ISC with a Freightliner Chassis, it has a Sanden 4709 A/C compressor that sits on the upper right of the A/C accessory mount. It has ONE (1) wire going to it (8-in long and then a connector). That connector corrodes and causes the compressor to not engage. **I cleaned the wire connector and the air conditioning runs fine.** (Note: You may need to access the engine from the bedroom if you can't get to this wire.)

***Another thing to check, once you get your air conditioning compressor going, is this: **Are the air condenser fans mounted in front of the radiator working?** We went a long time without using the dash A/C, because of our condenser fan was seized and we didn't know it. Fortunately, these fans are common electric radiator cooling fans and run about \$65-85, but you will find it does take a little effort to replace the fan.

BULLET POINTS:

- * The average A/C repair costs is between \$-450-\$650, and not the \$79 advertized price you see on A/C billboards. But you can probably fix your first AC problem for \$200 including parts, gauges, and evacuation pump.
- * A/C parts are relatively cheap. Labor can be high due to the time it takes to diagnose, test, and verify.
- * Before you just add more 134a to your system to raise your LP and HP side, you need to consider the electrical part of the system (pressure switches); and where in the system restrictions or blockage are most likely to occur. This most often results in the Expansion Valve to be replaced, but not always. As we just found out our Receiver-Dryer was blocked; and the check valves were rusty and ugly brown.
- * There are only 3 A/C system parts that fail 80% of the time. These are the LP Switch, HP Switch, and/or the Expansion Valve. Receiver-Dryers can fail, but usually don't. However, they are cheap and it's a good idea to replace your Dryer on an old system or a system that has had no line pressure for a long time. Why? Because the desiccant in the Dryer becomes saturated from all the humidity in the air. And a hole in your A/C line means moisture is getting in.
- * Physics: Temperature is proportional to Pressure; i.e., if Temp goes up... so does Pressure; and if pressure goes down... so too much temperature goes down. The formula is $PV=nRT$. But when you remove the constants then you realize Pressure (P) is proportional to Temperature (T). (You can Google it if you like.) **Therefore, where you find blockage you will find warm temperature in the line -- to the touch -- and a "cold spot" on the other side of the line blockage.**
- * The normal operating range for the Low Pressure (LP-blue side) is between typically between 20-30 PSI.
- * Older A/C systems may not reach the optimal chart pressures; so most people follow this rule of thumb for determining the HP-Red Side PSI = $(2 \times \text{outside temp}) + 25$ to 50. This means on a 70F day your high-side gauge should read $(2 \times 70) + 25 = 190$ psi. ...and on a 90F day your HP- Red side gauge should read $(2 \times 90) + 25 = 205$ to 50 = 200 to 230 PSI. We found this is not the case on our RV.
- * REPEAT: Outside air temperature DOES dramatically affect the target PSI for HP & LP side on your gauges.

Switch #1) High Pressure Binary Switch: On our 2004 Itasca Horizon, the HP Binary Switch can be identified as the one with 2-spade connectors. (Hence binary and is "**normally closed.**") This HP-Switch is located just before the TXV-Expansion Valve. It's located on the HP-Red-Side line just left of the Red Schrader Port. **Note: if you jumper the Binary Switch with a fuse the compressor clutch will stay on**

This binary switch receives a 12V signal when you turn on you're A/C from inside the cabin (through the relay we suspect mounted on your firewall). Then the binary switch is connect in serial to the Thermostat (F/L Part #A46-3122-000). This thermostat has a 24" copper wire that runs inside your evaporator Box and will open if your Evaporator coils freeze. So if you suspect your thermostat is bad, just use a typical fuse to jumper the leads. But be sure you don't get frost coming out your of you dash vents, which would signal you have a frozen evaporator.

Winnebago is the best place to get your RV Binary Switch since we were not able to determine it's specifications. All we know it that your continuity tester should beep if the switch is working right at rest. However, this may be more than a simple interrupt switch. (We don't know.) And it could have Cut-in and Cut-out properties that the VCM needs to function property. (We don't know.) The **Winnebago Binary Switch Part # is: 10393012708 (\$33).**

Switch #2) High Pressure Condensor Fan Control Switch: Winnebago Part#: 10393001716 (\$49) or F/L#:A2252993-000 (\$175): On our 2004 Itasca, this switch is located to the right of the HP-Red-Schrader Port. This is a **"normally open"** switch and we think the Cut-in=225 PSI, and the Cut-out=175 PSI. This means the condensor fan will stay off until the outside air temp is above 175 PSI (which is about 65F); and then come on at 225PSI (or about 85F outside) and stay on until you turn you're A/C off. We measured 6V to this switch at rest. However, the VCM or Heater Control Module may kick this up to 12V at some point. (We don't know.)

SWITCH #3) 20/40 LOW PRESSURE "CLUTCH CYCLING" SWITCH: Maybe we have one on our 2004 Itasca Horizon or maybe we don't. Winnebago and Freighliner can't give us a part number and so it may not exist??? Maybe it does. Maybe it doesn't. And if it doesn't that would explain why there are 2 HP Switches by the Expansion Valve... and **if you jumper the Binary Swtich with a fuse the compressor clutch will stay on**, but the LP side will drop into a vacuum. (Why we don't know.) But many of these A/C switches on other cars are ground inturrupt switches and do not receive 12V like this switch does.

IMPORTANT NOTE: When you A/C is off the TXV-Expansion Valve will "equalize the HP side with the LP side" and come to a rest. And when you turn ON the A/C compressor... the LP side will drop to 20-30 PSI and the HP side will increase to a target PSI based on the outside air temperature.

Connect your HP-red & LP-blue A/C gauges and study this chart.

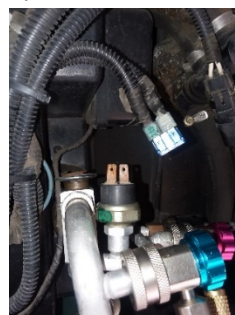
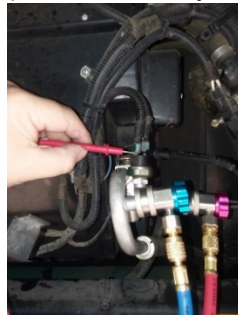
A/C DIAGNOSIS CHART

Low Side	High Side	Duct Temp	Possible Cause
Low	Low	Warm	Low refrigerant charge
High	High	Warm	Overcharge of refrigerant
High	High	Some Cool	Air in the system or Overcharge
Normal	Normal	Warm	Moisture in the system
Low	Low	Warm	Expansion valve stuck closed
Low	Low	Warm	Orifice tube plugged
Low	Low	Warm	High side restriction
High	Low	Warm	Compressor or control valve failed

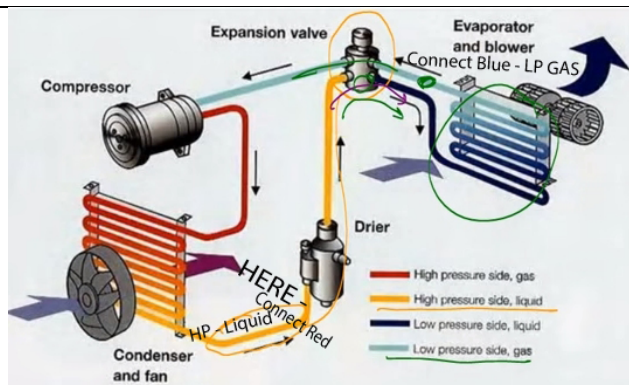
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CHECK WHAT'S EASIEST TO CHECK FIRST. THAT MEANS YOU CHECK THE BINARY SWITCH FIRST.

- 1) Check the Binary Switch for continuity. Is supposed to be closed at rest. Is it? And if you jumper the switch with a fuse, does your Compressor Clutch Stay on like it should? (Don't run with a jumper.)



- 2) If both your LP & HP are sort of their target specs, then you can add or subtract 134a to obtain proper gauge measurement. If nothing happens then you may have to evacuate your lines and start from scratch. ... but before you do that determine if your TXV valve will equalize when you turn the engine off? If it does not then may have a bad



Symptoms not on the chart:

If the pressures do not change at all when the compressor engages, then the compressor may have failed; or you may have a fully clogged Receiver-Dryer like we had!!! Touch the lines in and out to compare temperature difference. They should be close to the same temperature. (15F delta max)

+ **PRESSURE SWITCHES (2):** Located on High-Side Line leading into TXV Expansion Valve on our 2004 Itasca Horizon... AND NOT THE LOW-SIDE LINE!!!

+ **Common Relay** is mounted on the Firewall. (Note: Our Relay contacts were rusty!)

You may need to use penetrating oil if your switch is rusted or WD-40 will work. (Leave it sit for 2+ hours before you start pulling on it again.)

TXV or your Dryer check-valves are all blocked up.

3) Determine if you have too much oil in your system... and if you oil is brown and gooey. If so then you should flush out and replace with new oil.

4) If your gauges respond, but your oil is really brown, you might consider flushing the lines and then add new PAG100 oil. (Be sure this is the right oil for your compressor. PAG100 mixes with PAG46 and PAG150, but never mix PAG46 with PAG150.)

5) Check your Condenser using an infra-red temperature gun. (Only \$20 on Amazon.)

6) Replaced the Expansion Valve & Dryer to "tune-up" your A/C system!!! (Every 3-5 years.)

2004 Itasca Horizon 40AD A/C PARTS LIST:

2004 A/C Parts	FL Part#	FL Price	Cross To	Price
Expansion Valve (Mercedes 1977-91)	Mercedes Part # 126-830-0384	??	Napa# 207-452	\$34
A/C Receiver Dryer	GAFP110704	\$75	Napa# 218093 or (\$28) A/C-Delco# 151779	\$32
Compressor/ Ford Type (Mfg: Sanden #4709)	22-59343-00	\$500	Truckers A/C# 03-3440	\$249
Binary Pressure Switch (Normally Closed)	N/A	N/A	Winnebago Part # 10393012708	\$33
Condenser Fan Pressure Switch (Normally Open?) (Installed #70-553044-F01)	A2252993-000 N.C. Cut Out 225PSI Cut in 175 PSI	\$175	Winnebago Part # 10393001716	\$49
20/40 PSI LP Side Pressure Switch -- Clutch Cycling	??? This coach may or may not have one. We don't know???		We couldn't find the LP 20/40 Switch.	
Thermostat Switch	A46-3122-0000		Evans-Tempcon RV212093, HV034023 & RV212093	

Condenser A/C Fan	A22-23640-000			
Condenser	22-54660-000	\$600		

➔ **VACUUM PROBLEM???** After a lot of trouble shooting, another RV owner found a vacuum line... going to the controller under the dash... had split at the connector and was sucking air. So they just snipped a ½" off the end and re-positioned the hose to the controller... and the cold A/C air came back. Why? This vacuum actuates the "blend door" and without vacuum the "blend door" let cabin air into output side of the dash fan box... To check this you can turn your selector switch to "Defrost" and that should blow all the air to the windshield. If it doesn't you may have a "blend door" problem you can trace to your vacuum line and control.

➔ **SOME COACHES (LIKE NUMAR) HAVE A HOT WATER DIVERTER VALVE PROBLEM:** The problem was the water valve directs water into the heater core. This was malfunctioning and overwhelming the A/C. Solution... Replace fuse and relay. Then your A/C should work fine. (Note: I do not know if Winnebago has this same setup?)

➔ **COMPRESSOR SHORT CYCLING:** Several conditions cause short cycling, including a faulty or obstructed expansion valve, low refrigerant or too much, icy Evaporator coils in the dash or a clogged cabin air filter (if you RV has one), or **clogged Receiver-Dryer**... and even too much oil in the system. (Hopefully, you condenser is not all clogged up too from goeey oil or worse metal from a destroyed compressor.)

YOUR TXV-EXPANSION VALVE:

2004 Itasca Horizon (-450HP Cummins) Uses a Mercedes (Models 240-300-400; 1977-91) Expansion Valve \$24 on Amazon \$34 at Napa.
https://www.amazon.com/Mercedes-w123-late-Expansion-Valve/dp/B00AD967OQ/ref=sr_1_2?s=automotive&ie=UTF8&qid=1531984974&sr=1-2&keywords=mercedes+1268300384

Mercedes Expansion Valve Part#: 126-830-0384



Notice the copper capillary tube on top. And when the 134a liquid in the tube boils I think it tells the TXV-Expansion Valve to let more or less 134a through to the evaporator. (Like a squirt bottle.)



The A/C expansion valve regulates the flow of Freon. Plus it supports the process of Freon changing from a HP-liquid to a HP-gas.

As the Freon expands, it becomes cooler, and with the help of your evaporator and dash fan, heat from your cabin air is absorbed by the "Change In State" and you perceive that as cold A/C air out your vents.

HOW DO YOU KNOW IF YOUR TXV-EXPANSION VALVE IS BAD?

Most TXV-Expansion Vales fail due to clogging, causing it to stick in an open, closed or partially open position and must be replaced.

A good TXV-Expansion Valve will equalize when the system is turned off. When this happens your Blue-low-side gauge will rise... and the Red-high-side gauge will fall. And both gauges will read the same at rest.

A bad TXV valve will take 30+ minutes to equalize or more depending on the blockage. But before you assume you have a bad TXV Valve be sure the receiver dryer is not clogged up... or that your Dryer output check valves are not stuck.

DO YOU HAVE BROWN OIL IN YOU'RE A/C SYSTEM? PAG oil gradually darkens as it picks up moisture and particles. Dirty oil can clog expansion valves and orifice tubes, depriving the compressor of the lubrication it needs to reduce friction and heat.

**** NONE OF THE PAG OILS LIKE ONE ANOTHER.** PAG46 is the thinnest viscosity and is used in diesel trucks a lot. But our **Sanden #4709 calls for PAG100 medium viscosity oil.** PAG recommends you consult the compressor-oil chart to use the specific oil your compressor require, but when in doubt you can add PAG100, because it works best with PAG46 & 150.

OIL IS AS IMPORTANT AS THE REFRIGERANT IN AN AC SYSTEM. Most people don't think of A/C oil as being important. Probably, because they can't see it or measure it. But it's there! And while we don't know what "ICE" technology is... PAG adds it to their cans sold at Walmart; and our RV-A/C system is blowing ICE-COLD!

There is no way to check the oil level in the system accurately; the oil circulates with the gas and some portions of the oil is retained in the receiver/drier, the condenser, the evaporator, etc.

Most compressors probably take 6oz. of oil, and then you add 2 oz of more oil for every major component. However, most conventions are based on cars/trucks... so I think you need to add 3oz more for those very long AC lines. (Just a guess.) **...So I replenished my system with a total of 15 oz of new PAG100+ICE after I flushed all the old PAG100 oil out of the system. That is the equivalent of five 3oz cans of PAG100+ICE.**

Note: Too much oil and your compressor will make noise... too little oil and your compressor will fail prematurely or explode.

YOUR COMPRESSOR: On my 2004 Itasca Horizon 40AD (Cummins -450HP) our rig came with a SANDEN \$4709 (Ford Type Compressor) that uses PAG100 oil.

SANDEN #4709 (FORD TYPE – USES PAG100 OIL. “NEW HOLLAND” STYLE???)

<https://truckerA/C.com/sanden-compressor--4709-ford--new-hol4709.html>



SYMPTOMS of an oil-logged Evaporator include:

- Noisy compressor;
- Low oil level in the sight glass on the compressor's crankcase;
- TXV has a hard time controlling superheat (hunting)... check your gauges;
- Low evaporator and compressor superheat; and
- Warmer-than-normal box temperatures.

HOW DO YOU KNOW OF YOU HAVE A BAD RECEIVER-DRYER?

Rule of thumb: Wherever you find a spot where it is hot on one side and cold on the other -- chances are you have some blockage problems between the two temperatures.



PICTURE OF YOUR EVAPORATOR THERMOSTAT SWITCH (\$30)

Freightliner Part #: A46-3122-0000, Evans-Tempcon RV212093, HV034023 & RV212093
We found this switch on Ebay for \$55.

This switch has a 24" copper probe used to measuring the temperature of your Evaporator Box. It is an interrupt switch in series with your HP-Binary Switch that protects your Evaporator from freezing.

The Thermostat is Cold Off: 31F and Cold On: 39F

*This is a "normally closed" switch, so if you think the switches bad then just jumper up with a fuse. Then see if your AC System works or not?

<https://www.raneystruckparts.com/thermostat-ranco-with-24-cap-tube/>



CONDENSER FAN SWITCH ON OUR 2004 ITASCA HORIZON

*Freightliner HP (Pigtail) Switch installed in
2004 Itasca Horizon Part # : 70-553044-F01
Cut-Off = 225PSI CUT-IN=175PSI ????*

We are not sure of the specs for this Condenser Switch.
So we recommend you order it through Winnebago.

Winnebago Part # 10393001716 for \$49.

Freightliner also provides this switch, but their price is \$179.

END.

Another Thread:

<https://www.winnieowners.com/forums/f259/dash-air-361280.html#post3897610>

imnpr
sd

Winnebag
o Master



Join Date:
Jul 2014

Posts:
1,075

About 4 years ago I tuned up my Freightliner Dash AC system and it's still running strong.

Here's the link that will tell you how I did it.

<https://www.irv2.com/forums/f26/tune...ad-403626.html>

- * You need to buy the equipment at Harbor Freight.
- * Pick up the right adapter so you can dispense 134a out of the can.
- * Try to remove the old PAG100 oil the right environmental way
- * Change your Mercedes TXV and GM-Delco Receiver Dryer.
- * Vacuum the lines, which means they need to hold negative 25PSI for at lease a few hours.
- * Refill the the placard 134a weight + 10%.
- * Verify your dash is -43 to -45F compared to OAT. I.e., if it's 90F outside, a very good temperature out of your dash vents would be 45F-47F or better, but not much better if at all.

Note: Don't perform this service unless it is at least 80F outside. And things go faster and your system will work more efficiently in dry 90-105F weather.

Job over. Cost of pump and parts ~\$150-\$175 and 4 hours of your time.

Note: Your receiver dryer should be replaced every 5-7 years. My OEM dryer was made by Parker, but you can use an AC-Delco type if you cut off the mounting bracket.

* Also, your RV system does not work quite like a car.

So if you are skilled with a car AC diagnostics, and you know how your Hi & Low pressures fluctuate with OAT, you can forget about using those numbers. Instead, this is what you need to know: **If your High Pressure number is 4.5x to 5x your Low Pressure number, and you are getting -45 out your dash when the OAT is 90F-92F, then you did all you can do. And you did a good job!**

* Last but not least, to fine tune your AC is a little be like playing craps. Just don't get lost in the effort or you may find your system comes up craps and you have to start over (from the beginning) and evacuate your system.

* That last picture is/was my old Parker Receiver Dryer. And that blockage is why my system was not working very well.

Note: Where there is blockage... one side of the line will be hot to the touch and the other side will be cold and probably compensating. So look for this.

Attached Thumbnails



R/C DIAGNOSIS CHART

Low Side	High Side	Duct Temp	Possible Cause
Low	Low	Warm	Low refrigerant charge
High	High	Warm	Overcharge of refrigerant
High	High	Some Cool	Air in the system or Overcharge
Normal	Normal	Warm	Moisture in the system
Low	Low	Warm	Expansion valve stuck closed
Low	Low	Warm	Orifice tube plugged
Low	Low	Warm	High side restriction
High	Low	Warm	Compressor or control valve failed

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