



2010 43QGP Allegro Bus

4/10/2015

119 - FYI – POWERGLIDE CHASSIS, AIR SUSPENSION FOR TOWING R1.

Recently I've thought about the process needed to get our coach ready to be towed, while at the same time dreading that possibility. Tiffin when our chassis was built provided TWO locations where air pressure from an outside source (Tow Truck) could be inserted into the chassis air system.

One location is the front outside driver side electrical compartment, as seen below. A chassis modification was made to the OEM customer air manifold installing a 90 ° shut off valve between the female coupling and the customer air manifold. After the modification an external air supply can be plugged into the female air coupler without the need to fight air pressure resisting the insertion of the male air fitting into the female coupler.



The Powerglide chassis as stated above provides two locations for a tow truck to supply air pressure to the towed coach. Why you ask is air pressure needed when the coach is being towed? Air pressure is needed for TWO basic reasons the coach needs air pressure in the chassis air suspension to prevent damage to the coach while being towed AND the coach needs air

pressure in the primary and secondary air systems to allow the parking brake to be released. **Revision 1**, after more testing I found the following to be true on our Powerglide chassis. Assuming other Powerglide chassis are built the same way, this is what I've found. Connecting an external air supply to the FRONT customer air manifold allows the CHASSIS SUSPENSION to be pressurized, ONLY if the SUSPENSION UP switch has been energized while air pressure is present in the suspension system AND the ignition switch is turned ON. I underlined part of the previous sentence because IF there is ZERO air pressure in the SUSPENSION system AND the suspension has been dumped either manually or automatically (jacks down) the Air Shuttle Valve WILL NOT switch between suspension DOWN and suspension UP positions. The air suspension shuttle valve in addition to being electrically actuated is air pressure assisted in moving between the suspension DOWN and UP positions.

The SECOND location with Customer Air Supply access to the chassis air system is located in the DEF compartment along with **PRIMARY** and **SECONDARY** tank drains are the PS and DS tag axle air bag drains.

Another modification was made at this location. Air pressure gauges were added to the two tag axle air drains displaying the actual air pressure in EACH tag axle air bag at all times. As seen below the normal operating air pressure in the tag axle air bags is 40 PSI. When tag axle air bag pressure is dumped the air pressure in the tag axle air bags drops to 20 PSI. The 20 PSI difference allows the tag axle tires to continue rotating while backing or cornering and also prevents the tires from being scuffed or drug sideways which adds unnecessary wear to the tires.



FREIGHTLINER chassis unless a recent change has been made **DOES NOT** allow air pressure to be injected thru the customer air manifold, to prevent that from occurring Freightliner installs a check valve in the air system, preventing the tow truck from supplying air pressure thru the front customer air manifold for chassis suspension or parking brake release. Instead of allowing the tow truck to make the front connection Freightliner installs a Schrader valve into the bottom of the coach's air dryer. IMO, **ALL** tow truck operators are not aware they cannot inject air pressure on a Freightliner Custom Chassis using the customer air manifold connection on the Freightliner chassis. IMO, it is the **RESPONSIBILITY** of each coach owner to **KNOW** how to **SAFELY** have their coach towed. Is it right to place this responsibility on the owners shoulders, NO but at the same time how can you expect for a tow truck operator to know your coach chassis. **SPARTAN** chassis, what towing provisions are provided? I have NO information on towing the Spartan chassis. If you own a Spartan chassis coach, **SAFE** towing information is something you need to know about. Now back to the purpose of this file, **SAFELY** having your Powerglide chassis towed by making sure the coach suspension is properly inflated and the parking brake can be released. The photo below shows an air hose connected to the chassis' air **SUPPLY** system in this case the air hose connected is attached to my shop air compressor, acting as a tow truck.



After making the above connection the Customer Air Supply Valve is turned ON allowing the tow truck's air supply to pump air pressure into the coach's air tanks. The height difference of a deflated and inflated suspension is about

4 inches. When the tow truck has the front of the coach on its lift, **FOUR INCHES** makes a lot of difference between **POSSIBLY** damaging the stacked radiator, charge air cooler, air conditioner condenser or the lower portion of the rear cap as noted by at least one TRVN member.

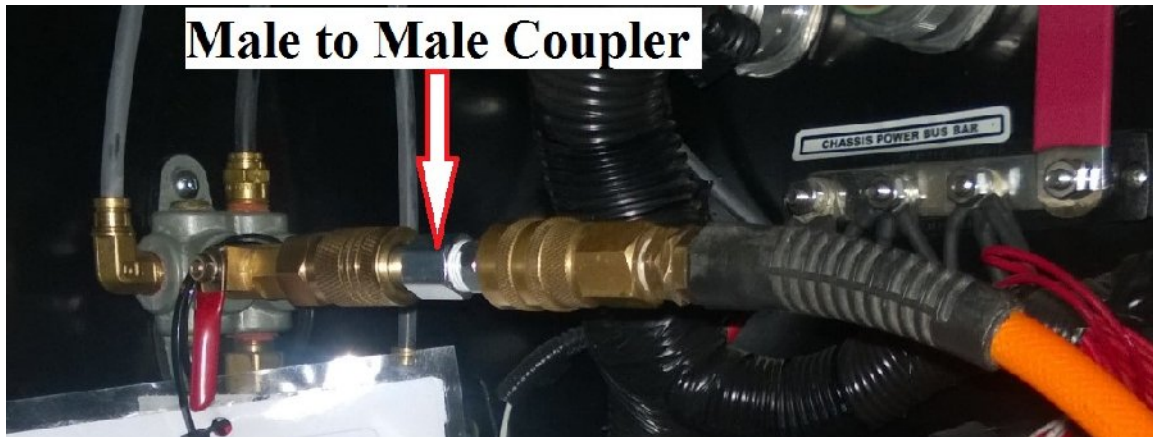
HOWEVER, we are not ready to begin towing the coach yet **FOUR** important steps need to be performed **before** the coach can be safely towed.

FIRST the coach rear skirt needs to be removed or tied up to prevent damage. I suggest the skirt be completely removed it's just too easy to damage this costly piece of plastic and metal. **SECOND** the drive line between the coach's rear differential and the transmission needs to be removed. Prior to removing the drive line the drive line and both universal joints should be **MARKED** (I suggest painting), that will visually show the proper rotation of the components for re-assembly. If the driveline is not turned (clocked) properly during reassembly it is possible to introduce an out of balance vibration into the drive line. **THIRD** after the tow trucks air pressure has been applied to the coach, the coach's **PARKING BRAKE** needs to be depressed allowing the coach to roll and be towed. **FOURTH** the coach air suspension switch (driver's side console) needs to be depressed on the **SUSP UP** end with the ignition switch turned **ON**, this allows the coach's suspension air bags to fill, lifting the coach suspension off the chassis blocks, this step may not be necessary **IF** the jacks had not been deployed/lowered causing an automatic **SUSP DOWN** condition.



The Powerglide chassis allows some flexibility by providing a **SECOND** location for making a tow truck air supply connection, as previously stated this connection will **ONLY** allow air pressure to inflate the coach air bags

for the chassis suspension system if the conditions on page 2 of this file have been met. To utilize the female connection a male to male coupler was assembled as show below. This male to male coupler allows a standard air hose female coupler to be connected to the front customer air manifold female connection. For air pressure to move into the chassis suspension the 90° valve will need to be turned ON.



One method of routing the tow truck air supply hose to the DEF compartment is shown below. Bungee cords are connected to the lower arm of window awnings pipe insulation was slid over the air hose to prevent damage to coach's sidewall. A second method is to install pipe loops under the basement routing the tow truck air hose thru them, tie wrapped to secure.

