

EQUALIZER SYSTEMS

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SERVICE INFORMATION FOR GULF STREAM COACH

Many of the perceived problems with leveling and slide systems can be traced back to low voltage. For the Equalizer leveling and slide systems to work properly, you must have a minimum of 10.5 VDC. This voltage must be measured at the pump while attempting to operate the system. It is possible to have enough voltage to run the pump but not enough to open the valves required to make things move. Never try to service a unit until you have confirmed good voltage.

Hydraulic Hose Placement

All of the hoses in our systems have color coded stickers on them to insure correct placement. There are solid colored stickers which always are attached to the closed end of the device, and striped colored stickers which always go to the rod end of the cylinders. The color code is as follows:

- Brown-Left Front Jack
- White-Right Front Jack
- Orange-Left Rear Jack
- Yellow-Right Rear Jack
- Green-Slide One (Main Slide)
- Purple-Slide Two (Bed Slide)

There is a sticker on the pump manifold to show which hoses goes to which port. These colors are also used on the wires that go to the coils for each valve on the manifold.

Manual Override Procedure

Manual override can be used to extend or retract any jack or slide individually, totally, or any combination. To retract you must do the following:

On each cartridge valve there is a small screw in the center. Turn the screw clockwise until it stops. This opens the valve for that function.

There is a red knob on each of the two directional valves on the manifold. Pull out the red knob and turn half of a turn, so that the knob stays out.

Then insert the handle into the hand pump which is located next to DV-1 on the manifold, and begin pumping.

When you have everything retracted, return all valves to their original position. Failure to do so could result in a jack coming down or a slide coming out while the coach is being driven,

The extend procedure is the same, except that you do not open DV-1.

There are two additional pumps that have been used on single slide Class "C" units without jacks, which require a different procedure. There is one single function pump that has two directional valves. Each valve is marked either extend or retract. To operate, pull out the red knob for the function that you wish to use and begin pumping the hand pump. The current single function pump has only one directional valve. The normal position for this pump is extend. To operate manual override for extend, just begin pumping the hand pump. To retract with this pump, pull out the red knob, and begin pumping.

Hydraulic System Purge Process

Any time that air has been introduced into the system, problems can occur. This can be the result of a leak in the system, or perhaps a hydraulic component has been replaced in the system. If this has occurred, follow the following procedure:

- Make sure that the pump reservoir is filled with fluid. Always check the level and fill when all jacks and slides are retracted. There is a line on the reservoir indicating the proper level. Equalizer recommends using Dexron II/III transmission fluid, which is compatible with the hydraulic fluid that Gulf Stream has used in the past.
- Manually retract all jacks and slides until you hear the pump go into bypass. This is indicated by a high pitch sound coming from the pump.
- Re-check fluid level and add if needed.
- Manually extend all jacks to full extend by running two jacks at a time to prevent twisting of the coach frame. Also extend all slides to full extend. Leave sitting for at least 15 minutes.
- Again fully retract all slides and jacks. Re-check fluid level and add as needed.
- Repeat this procedure at least one more time.

Manual Leveling Troubleshooting Guide

Symptom	Possible Cause	Corrective Action
Panel will not turn on	Blown fuse on panel or supply Broken power or ground wire Low battery voltage Damaged main harness Defective control panel	Replace fuse Trace and repair Charge batteries Trace and repair Replace
Panel on but jacks won't operate	Low battery voltage Bad electrical connection Defective pump motor solenoid Defective control panel	Charge batteries Trace and repair Replace Replace
Jacks will retract but not extend	Low battery voltage Ignition switch in wrong position Defective leg switch Bad electrical connection Defective control panel	Charge batteries Check and change if necessary Replace Trace and repair Replace
Jacks will extend but not retract	Incorrect hose connection Incorrect wiring at pump Defective control panel	Trace and repair Trace and repair Replace
Leg LED's on Panel stay on	Defective leg switch Defective pressure switch Defective control panel	Replace Replace Replace
Hydraulic pump Inoperative	Low battery voltage Defective pump motor solenoid Breaker tripped Bad electrical connection	Charge batteries Replace Reset breaker Trace and repair

Legs bleed down from leveled or stowed position	Air in hydraulic system Defective valves on pump Defective cylinders Incorrect hose placement	Purge the system Replace Replace Trace and repair
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Slide-Out Timing Adjustment

The Equalizer main slide has a trantorque bushing on the timing shafts which is used to adjust the room position from side to side if the room is not sealing on both sides. Run the slide out away from the coach 10 to 12 inches and check the measurement on each side. If an adjustment needs to be made, locate the trantorque bushing in near the center of the timing shaft assembly. You will see a large hexagon piece that is pinned to one shaft. On the other side you will find two small hexagons. Use a 1 ¼” wrench on the pinned hex and a 1 ¼” wrench on the other hex to loosen the bushing. The bushing will break loose and then tighten again. Make sure that you go past the tight point to insure that it is loose enough. Square up the room to the coach by pushing the side that needs to move in. When both sides are equal, tighten the trantorque bushing. The manufacturer recommends 100 ft. lbs. Any further adjustments to the room would be in the way that the room is attached to the mechanism, which is done by Gulf Stream. Any further help with adjustments to the room would come from the Gulf Stream technical department.

Slide-Out Troubleshooting Guide

Symptom	Possible Cause	Corrective Action
Slide will not go out	Bad electrical connection	Trace and repair
	Low battery voltage	Charge batteries
	Defective slide-out switch	Replace
	Physical Obstruction	Locate and remove
	Timing shafts bound up	Adjust
Slide will not come in	Low battery voltage	Charge batteries
	Bad electrical connection	Trace and repair
	Defective slide-out switch	Replace
	Physical Obstruction	Locate and remove
	Timing shafts bound up	Adjust
When one slide is retracted another slide extends	Incorrect hose connection	Trace and repair

Timing Shafts

We have used two different types of bearings on our timing shafts. The original bearings that we used were actually aluminum blocks with bronze bushing inserts that the timing shafts spin in. These are identified by the aluminum bronze combination. Also, when these are used, there are shaft collars that lock down to the shafts next to the bearings. We no longer use these bearings because we found that over time, if they are exposed to the right conditions, they will seize to the shafts. When this occurs, the bushing rotates in the aluminum housing instead of the shaft rotating in the bushing. When we discovered the problem, we began using an anti-seize compound on the shafts to prevent this from occurring. When this happens, the slide will usually go out okay, but the cylinder does not have enough force to overcome the problem on retraction. When this occurs, you must change the timing shafts. Our new bearings that we use are a cast iron block ball bearing that locks down to the

shaft, so that it rotates within the bearing. Even if these rust to the shaft, it does not matter because they will still turn freely within the bearing block. When ordering replacement shaft assemblies, it is important to know which you have, because the bolt pattern of the bearings is not the same.

Timing Shaft Replacement

When it is necessary to replace a timing shaft, you must perform this task with the room almost fully in. You will see a cut out in the outer tube of the slide and a cut out in the inner tube of the slide that allows the gear to come out. These are inline when the slide is almost fully in.

- Bring the slide in to line up the gear removal holes.
- Disconnect the trantorque bushing in the center of the two shafts.
- Loosen the set screws on the shaft collars or bearings depending on which you have.
- Remove the bolts from the bearings.
- Remove the shafts from the coach.
- Install new components in reverse order.
- The center bearing or bearings should be tightened first. Set the top of the bearing 1/16 to 1/8" below the top of the bearing mount plate.
- After the center bearings are tight, pull down gently on the shaft to make sure you have the gear engaged in the gear rack and tighten the bearing. Do not pull down to hard as this can cause the gear to bind in the rack. Conversely, if you are too loose, it can skip and bind.
- Make sure that the gear is lined up properly with the gear rack, and tighten the shaft collars or bearing set screws.
- Adjust the room and tighten the trantorque.

Ruling Out a Bad Connection on Switch Circuit

When you have a problem with the slide not coming in or going out, the quickest way to rule out an electrical issue is to put the pump in the manual override state and push the switch. If the room stills does not move, then you know to look elsewhere. If the room does move, then you need to trace the wiring for the switch circuit. If the pump does not run at all when you attempt to move the room, it could also be related to the Gulf Stream interlock. Some of the units have the power run through a seat switch, and some have the power linked to the park brake. Consult Gulf Stream technical help for this.

This just covers a few of the issues that you may encounter. Anytime that you need help, feel free to call our toll free number for immediate assistance. Below are the names and contact information for our warranty supervisor, and our technical support person. Feel free to call anytime, and if you have an after hours emergency, you can follow the instructions on our phone service to get help.

