


LP Regulator

These instructions explain how to operate the LP regulator..

Note: Contact **Ed Lee Sr.**, Sr. Applications Engineer at Marshall Gas Controls: **800-877-2495** ext **4115** for more information.

Time Estimate: N/A		Tools and Supplies: N/A	
	LP Regulator 30 lb. Kit		LP Regulator 40 lb. Kit
	601731	Regulator w/ Bracket	601731
	601731-101	Gas Kit	601731-1-2
	601685-01	Hose	601685-03
			Regulator w/ Bracket
			Gas Kit
			Hose

Note: These kits are used to update from the old style regulator to the newer two-stage style.

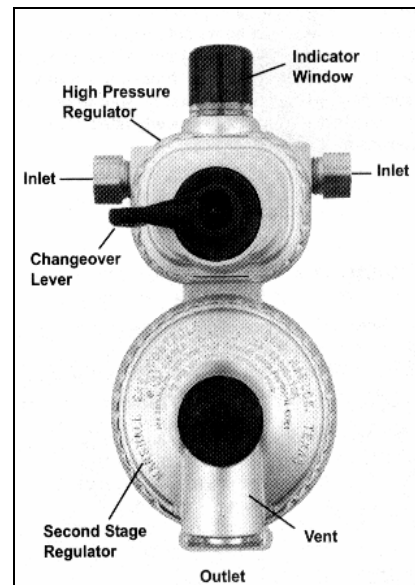
The model 250 two-stage, changeover regulator offers

- Convenience of changeover from empty to full gas cylinders
- Tow-pressure regulation

The top portion of the changeover is a dual high-pressure regulator that reduces container pressure to approximately 10 to 15 PSIG and sends it to the second stage regulator. The second stage regulator completes the regulation process by reducing the 15 PSIG inlet pressure down to 11 inches of water column (0.4 PSIG) outlet pressure.

Operation

1. Make sure all appliances and pilot lights are turned off.
2. Make sure there is propane in both cylinders before you start.
3. Rotate the black lever on the top front side of the regulator toward the cylinder you want to use first. This will be the "service" cylinder and the other will be the "reserve" cylinder.
4. Slowly open both cylinder valves.
 - The indicator on the top of the regulator will turn bright green. The indicator color will stay green as long as there is fuel coming from the service side.
 - When the service cylinder empties, the regulator will start drawing from the reserve cylinder providing an uninterrupted fuel flow to the system.
 - When it switches over, the indicator color changes from green to red. This red color indicates that the service cylinder is empty and needs to be filled.



To remove the empty cylinder:

1. Rotate the black lever all the way over towards the reserve cylinder. The indicator will turn green and the reserve cylinder becomes the service cylinder.
2. Shut off the cylinder valve on the empty cylinder.
3. Disconnect the empty cylinder and have it refilled.
4. After filling, reconnect the pigtail and slowly open the cylinder valve. The full cylinder now becomes the reverse cylinder.
5. Disconnect the changeover pigtails from the empty cylinder and have this cylinder refilled.

The type I connection makes a positive connection by threading on the ACME threads of the LP tank valve with a user-friendly right-hand turn motion. The fitting is thermally sensitive and shuts off the flow of gas if the temperature reaches a range of 240 degrees F – 300 degrees F.

This feature protects against uncontrolled fires and causes the cylinder valve's back check to close, shutting off the flow of propane. Inside the brass nipple portion is a flow-limiting device that limits the gas flow to 10 SCFH (standard cubic feet per hour) maximum flow when activated.

- User friendly: right hand, wrench-less, easy grip swivel nut
- Positive seal – Gas will not flow until a positive seal has been achieved
- Thermally Sensitive – Sleeve yields allowing back check to close, shutting off gas flow at the cylinder
- Flow-limiting device – senses excessive flow in gas regulator and closes flow down to a maximum 10 SCFH of air at 100 PSI bypass flow.
- Reduces gas flow in a failed system
- Checks system for large leaks

Testing the Auto-changeover regulator function

1. Make sure all appliances and pilot lights are turned off.
2. Have gas in both cylinders.
3. Have both pigtailed connected to the cylinder valves.
4. Rotate the cylinder selector lever all the way toward the cylinder that you want to use first. This will be your “service” cylinder (cylinder A). The other cylinder will be your “reserve” cylinder (cylinder B).
5. Open both cylinder valves and wait until the indicator turns green before attempting to light an appliance. If you try to light an appliance before the indicator has turned green, you will have low gas pressure feeding your appliance.

Note: *On systems that have one cylinder mounted next to regulator and the other cylinder mounted on the opposite side of the coach, or systems that have long high pressure lines, you may have to wait an additional minute.*

6. We need a demand on the system throughout the test. Do not light the furnace or water heater; they may reach temperature before the test is completed and shut down. Instead light two or three range burners and leave them running until the test is completed. Observe the burner flames; they should be blue with slight yellow tips.
7. Go to the regulator and we will simulate running out of gas in the cylinder that we have selected as our service cylinder (A) by closing its cylinder valve. The changeover indicator should slowly turn red. Once the indicator has turned red, go inside and check the burner flames, they should look exactly as they did before.
8. Go back to the regulator and rotate the selector lever toward the reserve cylinder (B). It is now your new service cylinder. As soon as you rotated the selector lever, the indicator should have turned green.
9. Once the indicator has turned green, disconnect the pigtail from cylinder (A). There should be no gas coming out of the disconnected pigtail.
10. If there is no gas coming out of the disconnected pigtail, then reconnect the pigtail to cylinder (A). Open its cylinder valve. This simulated removing the empty cylinder, having it refilled and putting it back in service.
11. Repeat steps seven through ten, starting with cylinder (B).

Type 1 (CGA 791) Connection Function Description

This fitting contains an excess-flow check-valve. This check-valve is designed to close and allow only a small bypass flow (no more than ten cubic feet per hour) of gas anytime there is a larger than expected flow through the system.

An excess-flow condition can be due to a broken high-pressure gas supply line and certain types of regulator failure. Also when the service valve is opened normally the excess-flow check –valve will close temporarily until the system is fully pressurized.

Functions: There are two functions performed by the excess-flow check-valve: check system for large leaks and reduce gas flow in a failed system

Function 1: Check your system for large leaks.

This function is performed each time you turn your gas system on.

- When you open the cylinder valve there will be a larger flow of gas from the cylinder valve into the Type-1 connector than the system is expected to see.
- The excess-flow check-valve sees this large flow as a major leak in the system and shuts down. As stated above it does not shut down completely, there is a small bypass flow.
- Assuming there are no leaks in the system and there is nothing on, this small bypass flow will slowly charge up the down stream system pressure.
- Once all of the pressures all the way back to the excess-flow check valve have been satisfied, a small coil spring down stream of the excess-flow check-valve ball will push the excess-flow check-valve ball wide open.
- Once this happens your system is ready for use. If there is a leak in the system that is a smaller than the bypass flow, then the time it takes to charge up the pressure in the down stream system will be extended.
- If the leak is larger than the bypass flow then the pressure in the down stream system will never charge up and the excess-flow check valve will stay in the shutdown position and there will be restricted fuel supply downstream.

Note: *On some recreational vehicle systems that have one cylinder mounted next to the regulator and the other cylinder mounted on the opposite side of the coach, or systems that have long high pressure lines you may have to wait an additional minute or more.*

Function 2: Reduces gas flow in a failed system.

The excess-flow check-valve is sensitive to the amount of gas that is flowing through it. If the flow through the check valve is greater than it is designed for then the check-valve will close. This excess-flow can be due to a broken high-pressure gas supply line or certain types of regulator failure.