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> [Flame King ACR-2a 2-Stage Auto Changeover LP Propane Gas Regulator Instruction Manual](#)

## Flame King ACR-2a

# Flame King ACR-2a 2-Stage Auto Changeover LP Propane Gas Regulator

Instruction Manual for RVs, Vans, and Trailers

## 1. INTRODUCTION

Thank you for choosing the Flame King ACR-2a 2-Stage Auto Changeover LP Propane Gas Regulator. This device is designed to provide a continuous and reliable propane supply to your RV, van, or trailer by automatically switching from an empty primary tank to a full reserve tank. This manual provides essential information for the safe and efficient installation, operation, and maintenance of your regulator.

## 2. KEY FEATURES

- **Automatic Changeover:** Allows removal of an empty cylinder for refill without interrupting the propane supply.
- **Dual Tank Compatibility:** For RVs with dual propane tanks, it automatically switches from the primary tank to the reserve tank when the primary is empty.
- **UL Listed:** Certified for safety and performance.
- **Standard Connections:** Inlets are 1/4" SAE inverted flare, and the outlet is 3/8" NPT female pipe thread.
- **High BTU Rating:** Rated for 345,200 BTU.
- **Double-Stage Design:** Maintains constant gas pressure under changing demand and conditions.
- **Factory Set Pressure:** Regulator is factory set at 11WC (water column).
- **Compatibility:** Compatible with Flame King's 48-inch Thermo Plastic Hose (Model 100383-48) and 12-18 inch INVERTED FLARE Pigtailed (Models E12INPT, E15INPT, or E18INPT).

## 3. SPECIFICATIONS

Attribute	Value
Model	ACR-2a
Manufacturer	Flame King

Item Weight	1.74 pounds
Product Dimensions	7 x 4 x 4 inches
Inlet Connections	1/4" SAE inverted flare
Outlet Connection	3/8" NPT female pipe thread
BTU Rating	345,200 BTU
Factory Set Pressure	11 WC (water column)

## 4. WHAT'S IN THE BOX

The Flame King ACR-2a package includes:

- Flame King ACR-2a 2-Stage Auto Changeover LP Propane Gas Regulator

*Note: Pigtails, propane tanks, and mounting racks are sold separately. Ensure you have the correct pigtail type (1/4" inverted male flare) for compatibility.*

## 5. INSTALLATION

### 5.1 Safety Precautions

- Always ensure all propane tanks are turned off before beginning installation.
- Perform installation in a well-ventilated area.
- Use appropriate tools and ensure all connections are tight.
- Always check for leaks after installation using a leak detection solution (e.g., soapy water). Never use an open flame to check for leaks.
- It is recommended that installation be performed by a qualified technician.

### 5.2 Mounting the Regulator

The regulator comes with a horizontal flat metal mounting bracket with a pre-drilled bolt hole. This bracket allows for easy attachment to any horizontal wooden or metal bar or shelf using a bolt, nut, and washers.

## BEST PRACTICES TO PREVENT PROPANE REGULATOR FREEZE-OUT IN COLD WEATHER

When temperatures drop, propane regulators can be prone to freezing, leading to reduced gas flow or complete system shutdowns. To ensure uninterrupted propane use during winter, follow these best practices:

### 1. Keep Moisture Out of the System

- Ensure propane tanks are properly sealed to prevent moisture contamination.
- Use high-quality propane from reputable suppliers to minimize water content in the fuel.
- Regularly drain moisture from the system if applicable.
- Never let your propane tank run completely dry. Even if a tank hasn't been directly exposed to the elements, a small amount of water can still get inside if the tank is empty and the valve is left open. Air containing moisture can seep in, leading to rust and corrosion over time, which can cause long-term system issues.
- Check with your propane supplier to see if they offer winter-grade propane mixtures. Some dealers provide specially blended propane formulations that help prevent water from freezing in the regulator and fuel lines, improving cold-weather performance.

### 2. Protect the Regulator from Snow and Ice

- Install a regulator cover or hood to shield it from direct snow, ice, and freezing rain.
- Avoid placing the regulator in areas where ice or snow runoff can accumulate.

### 3. Maintain Proper Tank and Regulator Ventilation

- Keep the regulator vent clear of obstructions such as ice, snow, dirt, or insect nests.
- Ensure the regulator's vent hole is positioned downward to prevent moisture accumulation and ice blockage.

### 4. Prevent Overcooling of the Tank

- Keep the propane tank at least 30% full to maintain proper vaporization pressure.
- Insulate the tank with a weather-resistant thermal blanket (designed for propane use).
- Elevate the tank off the ground on a stable platform to reduce contact with frozen surfaces.

### 5. Use a Two-Stage Regulator System

- A two-stage regulator setup improves propane pressure consistency and helps prevent freeze-ups.
- Ensure regulators are properly sized for the demand of your appliances.

### 6. Apply Heat Safely

- Use a low-wattage electric heat source or heat tape designed for propane regulators.
- Never use an open flame or direct heat source to thaw a frozen regulator.

### 7. Regular Maintenance and Inspections

- Inspect the propane system regularly for leaks, moisture buildup, or frost accumulation.
- Have a qualified technician perform annual maintenance on the regulator and propane system.

By following these best practices, you can minimize the risk of propane regulator freeze-outs and ensure a steady fuel supply throughout the cold winter month

Image: The Flame King ACR-2a regulator shown mounted on a dual propane tank rack, demonstrating its typical installation setup. Propane tanks and pigtails are not included with the regulator.

## Mounts Perfectly on Dual Propane Rack



### Pigtails, Tanks and Mounting Racks are Sold Separately

Image: A diagram illustrating how the Flame King ACR-2a regulator mounts perfectly on a dual propane rack, connecting two propane cylinders. Pigtails, tanks, and mounting racks are sold separately.

## 5.3 Connecting Propane Tanks

The regulator is designed for use with two propane tanks. It features two 1/4" SAE inverted flare inlets for connecting pigtail hoses from your propane tanks and one 3/8" NPT female pipe thread outlet for connecting to your RV's propane system.

- Connect the pigtail hoses from each propane tank to the 1/4" SAE inverted flare inlets on the regulator. Ensure these connections are secure.
- Connect the 3/8" NPT female pipe thread outlet of the regulator to your RV's main propane line. Use gas-rated PTFE tape on threaded connections where appropriate, but not on flare fittings.



Image: The Flame King ACR-2a regulator shown with pigtail hoses connected to its inlets, ready for attachment to propane tanks.

## Compatible with the following hoses by Flame King



48-inch Thermoplastic Hose  
100383-48



12-inch to 18-inch Pigtails  
E12INPT, E15INPT, OR E18INPT

Image: This graphic displays the types of hoses compatible with the Flame King ACR-2a regulator: a 48-inch Thermoplastic Hose (Model 100383-48) and 12-18 inch Inverted Flare Pigtails (Models E12INPT, E15INPT, or E18INPT).

### 5.4 Leak Test

After all connections are made, slowly open the valves on both propane tanks. Apply a leak detection solution to all connections. If bubbles appear, tighten the connection and re-test. If bubbles persist, turn off the propane supply and consult a qualified technician.

## 6. OPERATION

The Flame King ACR-2a regulator is designed for automatic changeover, ensuring a continuous propane supply.

### 6.1 Initial Setup and Primary Tank Selection

- Ensure both propane tanks are open.
- Turn the lever on the regulator towards the tank you wish to designate as the primary supply.
- If there is propane in the primary tank, the indicator will show **CLEAR**. Propane will begin to flow from this tank only, through the regulator, and to your appliances.



Image: A close-up of the Flame King ACR-2a regulator showing the indicator window displaying a clear color, indicating that the primary propane tank has sufficient propane.

## 6.2 Automatic Changeover

- When the primary tank runs out of propane, the indicator will automatically show **RED**.
- The regulator will then automatically switch over to pulling propane from the other (reserve) tank without interruption to your propane supply.



Image: A close-up of the Flame King ACR-2a regulator showing the indicator window displaying a red color, signaling that the primary propane tank is empty and the system has automatically switched to the reserve tank.

## 6.3 Replacing an Empty Tank

- Once the indicator shows **RED**, you can rotate the lever to the other side (towards the now active reserve tank). The indicator will go **CLEAR** again.
- This action allows you to safely remove the empty tank for refilling while propane continues to flow from the second tank.
- After refilling, reconnect the tank and open its valve. You can then switch the lever back to this tank to make it the primary, or leave it as the reserve.

## 7. MAINTENANCE

Regular maintenance ensures the longevity and safe operation of your propane regulator.

### 7.1 General Maintenance

- Inspect the propane system regularly for leaks, moisture buildup, or frost accumulation.
- Have a qualified technician perform annual maintenance on the regulator and propane system.

### 7.2 Best Practices to Prevent Propane Regulator Freeze-Out in Cold Weather

When temperatures drop, propane regulators can be prone to freezing, leading to reduced gas flow or complete system shutdowns. To ensure uninterrupted propane use during winter, follow these best practices:

#### 1. Keep Moisture Out of the System

- Ensure propane tanks are properly sealed to prevent moisture contamination.
- Use high-quality propane from reputable suppliers to minimize water content in the fuel.
- Regularly drain moisture from the system if applicable.
- Never let your propane tank run completely dry. Even if a tank hasn't been directly exposed to the elements, a small amount of water can still get inside if the tank is empty and the valve is left open. Air containing moisture can seep in, leading to rust and corrosion over time, which can cause long-term system issues.
- Check with your propane supplier to see if they offer winter-grade propane mixtures. Some dealers provide specially blended propane formulations that help prevent water from freezing in the regulator and fuel lines, improving cold-weather performance.

#### 2. Protect the Regulator from Snow and Ice

- Install a regulator cover or hood to shield it from direct snow, ice, and freezing rain.
- Avoid placing the regulator in areas where ice or snow runoff can accumulate.

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- Keep the regulator vent clear of obstructions such as ice, snow, dirt, or insect nests.
- Ensure the regulator's vent hole is positioned downward to prevent moisture accumulation and ice blockage.

#### 4. Prevent Overcooling of the Tank

- Keep the propane tank at least 30% full to maintain proper vaporization pressure.
- Insulate the tank with a weather-resistant thermal blanket (designed for propane use).
- Elevate the tank off the ground on a stable platform to reduce contact with frozen surfaces.

#### 5. Use a Two-Stage Regulator System

- A two-stage regulator setup improves propane pressure consistency and helps prevent freeze-ups.
- Ensure regulators are properly sized for the demand of your appliances.

#### 6. Apply Heat Safely

- Use a low-wattage electric heat source or heat tape designed for propane regulators.
- Never use an open flame or direct heat source to thaw a frozen regulator.

#### 7. Regular Maintenance and Inspections

- Inspect the propane system regularly for leaks, moisture buildup, or frost accumulation.
- Have a qualified technician perform annual maintenance on the regulator and propane system.

By following these best practices, you can minimize the risk of propane regulator freeze-outs and ensure a steady fuel supply throughout the cold winter months.

## 8. TROUBLESHOOTING

This section addresses common issues you might encounter with your Flame King ACR-2a regulator.

Problem	Possible Cause	Solution
No propane flow or low pressure	Empty propane tank(s)	Check tank levels. Replace or refill empty tanks.
No propane flow or low pressure	Regulator indicator is RED but tanks are full	Ensure the lever is pointed towards a full tank. If it remains red, the regulator may be faulty or there's an issue with the pigtail connection to that tank.
Regulator freezing	Moisture in the system, low tank levels, extreme cold	Refer to the "Best Practices to Prevent Propane Regulator Freeze-Out" section in Maintenance. Do not use open flame to thaw.
Gas smell	Loose connections, damaged hose/regulator	Immediately turn off propane supply. Perform a leak test with soapy water. Tighten connections. If smell persists or damage is visible, replace affected components and consult a professional.
Pigtail connection issues	Incorrect pigtail type (NPT vs. inverted flare)	Ensure pigtails have 1/4" SAE inverted flare connections. Adapters may be needed if using NPT pigtails, but direct connection with correct pigtails is preferred for safety.

If you encounter issues not listed here or if solutions do not resolve the problem, contact Flame King customer support or a certified propane technician.

## 9. IMPORTANT SAFETY INFORMATION

**WARNING:** Propane gas is highly flammable and explosive. Failure to follow these instructions could result in fire, explosion, property damage, personal injury, or death.

- Always install and operate this regulator in accordance with local codes and regulations, and the manufacturer's instructions.
- Never use an open flame to check for gas leaks. Use a leak detection solution.
- Ensure adequate ventilation when using propane appliances.
- Do not store propane cylinders indoors or in enclosed spaces.
- Keep propane tanks and regulators away from heat sources, sparks, and open flames.
- Regularly inspect hoses and connections for wear, damage, or leaks. Replace damaged components immediately.
- If you smell gas, immediately turn off the propane supply at the tank, ventilate the area, and do not operate any electrical switches or appliances. Contact a qualified professional.
- Only use accessories and replacement parts approved by Flame King.

## 10. WARRANTY AND SUPPORT

For specific warranty information regarding your Flame King ACR-2a regulator, please refer to the documentation included with your purchase or visit the official Flame King website. For technical support, troubleshooting assistance, or to inquire about replacement parts, please contact Flame King customer service directly.

**Flame King Contact Information:**

Please visit [www.flameking.com](http://www.flameking.com) for the most current contact details and support resources.