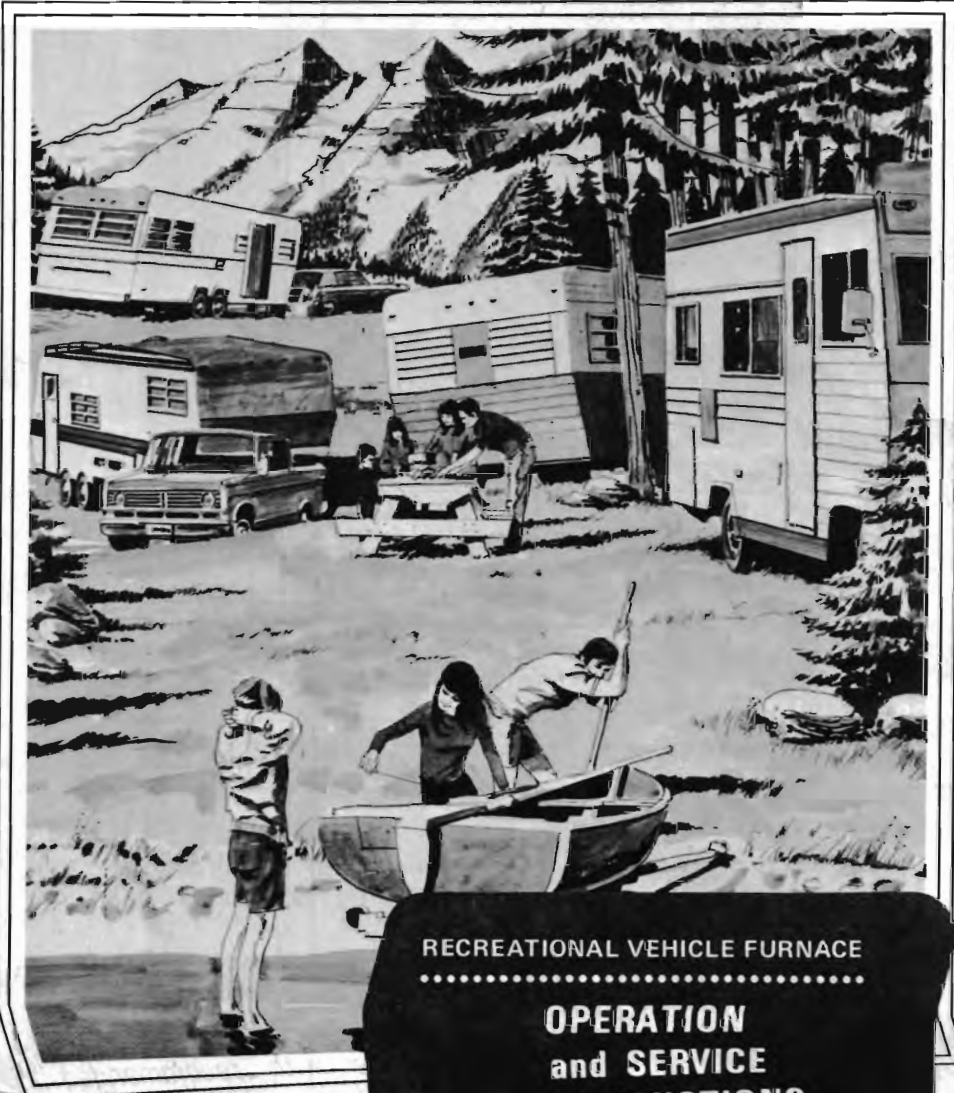


Coleman RV



RECREATIONAL VEHICLE

UNDER-COUNTER FURNACE



RECREATIONAL VEHICLE FURNACE



OPERATION and SERVICE INSTRUCTIONS

- MODELS
4219A
4225A
4230A
4235A

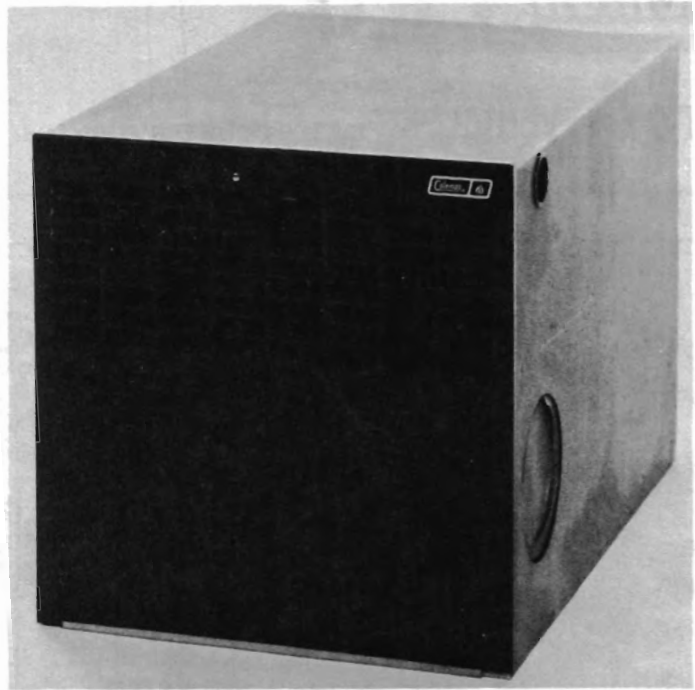


FIG. 1 Series 4200 Undercounter Furnace

Model No.	Electrical Supply	AGA Rating at Sea Level, BTUH	CGA Rating 0-4500' BTUH	Amps	Air Delivery
4219A789	115VAC/12VDC	16,000	16,000	.65	
4219A889	12VDC	16,000	16,000	3.2	*115
4219A899	12VDC	16,000	16,000	3.2	*115
4225A789	115VAC/12VDC	23,000	23,000	.7/5.9	*165
4225A889	12VDC	23,000	23,000	5.9	*165
4230A789	115VAC/12VDC	28,000	28,000	1.1/5.9	180#
4230A889	12VDC	28,000	28,000	5.9	180#
4235A789	115VAC/12VDC	31,000	31,000	1.3/7.1	200#
4235A889	12VDC	31,000	31,000	7.1	200#

* at 105° ATR

at 115° ATR

OPERATION UNDER GUARANTEE

This furnace has been manufactured from the finest materials by craftsmen skilled in the production of heating equipment. To insure long life, better performance and the

validity of the guarantee, the following conditions must be observed.

1. Recommended burner orifice sizes must be used.
2. Installation must be in accordance with recommended procedure.

UNDERSTANDING YOUR FURNACE

You should take a few minutes to become familiar with your Coleman undercounter furnace. Be sure you know how to operate the appliance and what to do if difficulties are encountered on a camping trip.

Your furnace is designed to convert LP fuel into usable heat in the vehicle. Your furnace will operate automatically and safely. The LP fuel is converted to heat at the burner and heats up the metal heat exchanger. The circulating blower delivers this heat into the home either through air ducts or the direct discharge grille.

The furnace includes a fan switch for automatic blower operation. It is normal at the end of an operational cycle for the blower to cycle on once or twice to extract all the heat possible from the heat exchanger. In mild weather, the pilot flame alone may be sufficient to trigger on the fan switch. To correct, adjust the pilot flame.

Your furnace also includes several safeties. The gas valve and pilot system are linked to provide positive shut off of the LP gas if the pilot should go out.

The furnace also includes an over-temperature safety (limit) switch which will shut down the burner temporarily if overheating occurs for any reason. In addition, the blower includes a sail switch which must activate, proving combustion air is present, before main burner ignition can occur.

SYSTEM INSPECTION

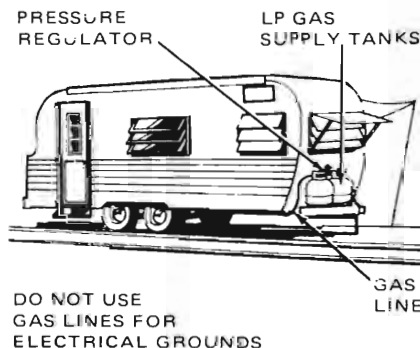
Every new furnace not providing satisfactory service should be inspected for proper installation and operation by a qualified Coleman serviceman. This furnace is designed for installation on floor duct systems of at least 21 square inches cross sectional area. Side duct systems should be a minimum size of 4" in diameter. If the furnace appears to cycle on the limit switch, the duct system should be examined for blockage or restricted areas.

FUEL SPECIFICATIONS

LP gas is used but butane gas should not be used whenever the outside temperature is expected to be below 32° F. Butane gas will not vaporize at temperatures below 32° F. Propane gas will vaporize down to approximately -44° F.

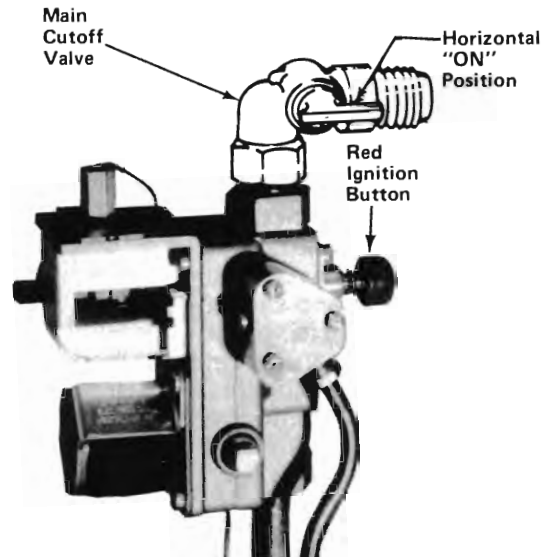
NOTE

Canadian approval is for use with propane gas only.



Check fuel supply line to make sure it is of adequate size..at least 3/8" tubing or 1/2" pipe.

LIGHTING YOUR FURNACE



LIGHTING INSTRUCTIONS

1. Turn on gas at outside LP tank. 2. Turn wall thermostat to "off". 3. Set power switch located on front of electrical box to desired power supply. 4. Turn main gas valve to off or vertical position and wait five minutes. 5. Turn main gas valve to on position. 6. Turn thermostat up until blower comes on. 7. Depress red button on right side of gas valve as far as possible and hold in. The blower will stop. A red glow will be observed through the observation window. If glow coil does not operate remove observation window and light with a match using lighter rod provided continuing to depress red button. Be sure to replace observation window. 8. Continue to hold in red button for one minute or until pilot remains lit after release of red button. The blower will come on immediately after release of red button. 9. Replace front panel. Turn panel knob clockwise. 10. Set thermostat to desired temperature.

For match lit models repeat the above instructions except items 6, 7, and 8 and follow instructions as shown below:

1. Leave thermostat in "off" position. 2. Remove observation window and insert lighted match using lighter rod provided. Depress red button on right side of gas valve as far as possible and hold in. 3. Continue to hold in red button for one minute or until pilot remains lit after red button is released. Be sure to replace observation window. Blower and main burner will not come on until thermostat is turned up.

For complete shut-down:

1. Turn main gas valve to off position.
2. Set power toggle switch to off position.

Mfg. by The Coleman Company, Inc., Wichita, Kansas
U.S. Pat. No's. 3,643,646 and 3,680,541; Patent Pend.

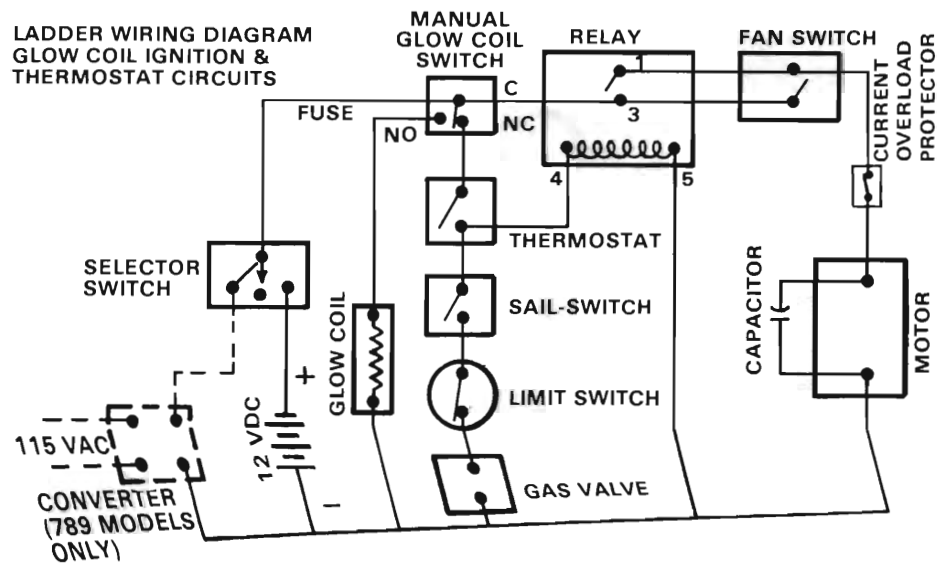
NOTE

1. In the interest of gas conservation, it is recommended that on extended pilot operation only, the pilot be turned off.
2. It may be possible air will get in gas line in changing bottles, therefore, it will take longer to light pilot.

SEQUENCE OF OPERATION

The ignition system is designed to operate from a 12VDC power source. The sequence of operation is as follows:

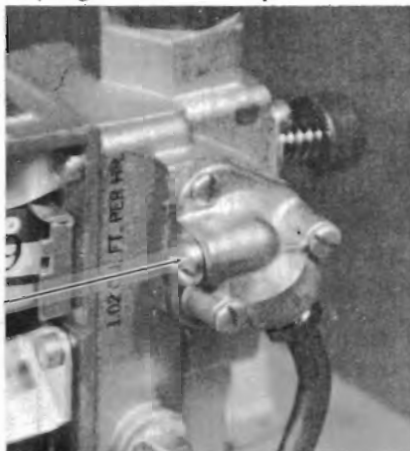
1. Immediately upon depressing the red button (Eaton) or turning and depressing red knob (General Controls) on control valve, several functions are initiated.
 - a. The manual electric switch on the gas valve is activated thereby energizing the glow coil and opening the electrical circuit through the thermostat.
 - b. In addition, a mechanical gas valve is opened thereby introducing gas to the pilot burner. A mechanical device prevents the flow of gas to the main burner solenoid as long as the red button is depressed.
2. The glow coil ignites the pilot gas which, in turn, heats a sensing element located at the pilot burner.
3. After being sufficiently heated, the heat sensing element serves the purpose of automatically "holding open" the mechanical gas valve.
4. The red button is then released (release and turn red knob to "ON" for General Controls) and the manual switch is transferred thereby de-energizing the glow coil and closing the electrical circuit to the thermostat. Also, gas flow now is introduced up to the main solenoid valve.
5. Furnace operation is controlled automatically by the thermostat. If the pilot is extinguished for any reason, the gas valve safety will drop out rendering the furnace inoperative until a pilot flame is again lighted.



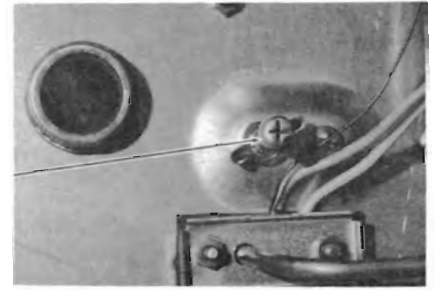
FURNACE ADJUSTMENTS

Since the pilot and main burner adjustment are preset at the factory, such field adjustments normally are not required. However, if some adjustment is necessary, proceed as follows:

1. Pilot Adjustment — Observe the pilot flame through the observation window. Only the tip of the pilot flame can be seen and should be soft blue, usually $3/16$ " or less. The pilot flame may be adjusted by removing the cap screw and rotating the small screw on the side of the gas valve counter-clockwise for more flame or clockwise for less flame.
2. Main Burner Adjustment — Adjust the main burner flame at the primary air adjustment screw located on the burner plate. Loosen the wing nut and turn screw in or out as necessary for blue flame burner adjustment. Slight yellow tipping is satisfactory.

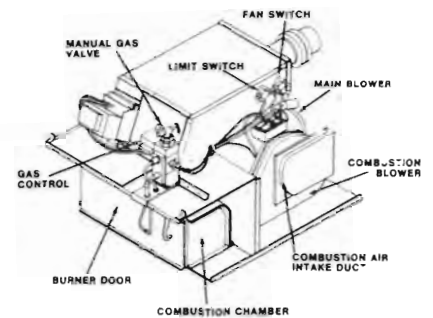


NOTE — Remove Cap Screw.



MAINTENANCE

The working parts of the furnace, called the heat unit assembly, have been mounted on a sliding tray which can be removed from the outer casing for servicing.



To keep your furnace in top operating condition, the following maintenance is suggested before lighting the pilot prior to each heating season.

1. Clean the circulating air blower.
2. Clean the combustion air blower.
3. Clean the inside of the furnace casing.
4. Thoroughly clean the burners. Clean the slots, then using air pressure, blow through the

slots to expel any contamination which might be present.

5. Check all piping joints and furnace controls with a soap solution to detect leaks. If bubbling is observed, a leak is indicated.

CAUTION

Never check for leaks with a lighted match!

6. The control compartment shall be kept clean.

By following this outline your forced air furnace will give years of clean, quiet, and efficient service.

OPERATION AND SERVICE INSTRUCTIONS

Overload Protection

All furnaces are equipped with an automatic reset circuit protector. If repeated resetting of the circuit protector is experienced it is recommended you contact your nearest authorized Coleman Recreational Vehicle Service Center for a checkout. (Consult the Service Center List packed in your customer envelope.)

Wiring

POLARITY must be observed when connecting a battery or external converter to the furnace. Connect the POSITIVE (+) post of battery or external converter to Red wire coming off the bottom of the toggle switch. Secure with wire nut. Connect NEGATIVE (-) post of battery or external

converter to the Black wire already under a wire nut with the Blue wire. Secure all three wires with wire nut.

CAUTION

If polarity is reversed, the blower will turn backward and the furnace will not heat.

Shutdown Instructions

Complete shutdown is recommended when your recreational vehicle is left unused for any appreciable time. For complete shutdown to be accomplished, the following instructions must be observed:

1. Turn main gas supply to the furnace OFF.
2. Turn toggle switch, supplying power to the furnace, OFF. (AC/DC models only)
3. Turn thermostat to the OFF position

A word about warranty service. You should read carefully your product warranty in the front of this book. Your warranty clearly details that The Coleman Company will repair your appliance if a defect in material or workmanship exists. For example, your warranty covers the labor and parts cost to replace the blower drive motor during the first year, when difficulties of this type normally occur. Your warranty does not cover such items as problems related to insufficient voltage, improper gas pressure, accident, abuse, and improper operation.

Where to obtain service. The Coleman Company actively

recruits, trains and contracts a nationwide network of authorized warranty repair stations. In many cases, the selling dealer will provide warranty service on Coleman equipment for the retail customer. If you should need service, contact either your dealer or one of those firms listed on the service center list packed with each product. Current up-to-date lists are printed at frequent intervals. Should you fail to get service locally or if you are in need of an up-to-date service center list, please write The Coleman Company, Inc., RV Products Division, 410 E. 37th St. North, Wichita, Kansas 67219.

Warranty Registration. The Coleman Company does not require that you register the warranty on your product. You should be prepared when seeking warranty service at the dealer or service center level, to show the purchase date of either your RV or the furnace, if purchased separately. Remember the warranty covers 12 months commencing at the day you purchase the appliance or accept delivery of your RV.

What to do if you can't get service. Occasionally we find some areas of the nation where top quality competent service simply is not available. In situations where

service is not available, or not rendered properly, please contact The Coleman Company at the above address for assistance. The Coleman Company will make every effort to arrange for quality service at the nearest available service center or make special arrangements with unaffiliated service firms in your area. On any request for service assistance, you should record the model number and serial number of the appliance (on the data plate inside the furnace) to help us in analyzing the problem.

What you are entitled to in service. The Coleman Company provides flat rate labor allowances as well as no charge parts availability to authorized service centers and dealers. In most cases where warranty repairs are necessary, there should be no additional charges to the retail customer. However, the warranty does not specifically provide for such items as problem analysis if no defect is found, mileage to and from the vehicle owner's premises, corrections of electrical problems with the coach circuitry, etc. You should have a clear understanding with the service agency as to what you would be expected to pay, if anything, over and above the warranty conditions.

TROUBLE SHOOTING CHARTS

PROBLEM FURNACE WILL NOT OPERATE

1. Make certain there is gas to the furnace. Turn all gas valves to "ON" positions.
2. Make certain the electrical power connections to furnace are made.
3. If operating on battery be sure battery is fully charged (12 VDC).

PROBLEM PILOT OUTAGE

1. Check gas supply.
2. Be certain observation cap (with gasket) is firmly secure.
3. Check vent terminal on outside of vehicle for flawless seal around vent itself and wall of vehicle.
4. Be certain 12 VDC electrical supply is operational in furnace -- (glow coil is glowing when red ignition button depressed.)
5. Check pilot flame — if not easily seen and of a blue color, then adjust to proper size and color.

PROBLEM INSUFFICIENT HEAT

1. Check for proper gas operating pressure.
2. Turn thermostat on and determine if main burner lights.

If blower does not start, check proper position of furnace electrical switch.

Disconnect the two leads at thermostat and tie together to determine if thermostat is defective.

If main burner lights, check air delivery at registers. Be sure registers are full open and ducts are not collapsed or disconnected.

PROBLEM NOISY OPERATION

DETERMINE SOURCE OF NOISE DUE TO FOLLOWING CAUSES

1. Blower wheel loose on motor shaft.
2. Blower wheel loose in hub.
3. Entire blower assembly loose in mounting frame.
4. Blower wheel hits housing.
5. Noisy blower motor.
6. Determine if noise is present only on converter (or 115 VAC) operation. Check for faulty converter.
7. If noise is burner howl, readjust main burner (See Furnace Adjustments).