



Toyostove How to Remove A Stuck Fuel Nozzle

WARNING

Rural Energy Enterprises, Inc. does not accept liability for the improper use of this information. Installation, service, and maintenance of heating equipment should be performed by a qualified technician. Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or loss of life.

Correct system sizing requires considering many factors other than simply reading the nameplate of the existing unit. Key factors for correctly sizing a heating and cooling system include the following:

1. The local climate
2. Size, shape, and orientation of the house
3. Insulation levels
4. Window area, location, and type
5. Air infiltration rates
6. The number and ages of occupants
7. Occupant comfort preferences
8. The types and efficiencies of lights and major home appliances (which give off heat).

Homeowners should insist that contractors use a correct sizing calculation before signing a contract. This service is often offered at little or no cost to homeowners by gas and electric utilities, major heating equipment manufacturers, and conscientious heating and air conditioning contractors.

Many factors affect a home's heating or cooling requirement, or "load." A good estimator will measure walls, ceilings, floor space, and windows to determine the room volumes, and will assess the R-value of the home's insulation, windows, and building materials. A close estimate of the building's air leakage is also necessary. A blower door test is the best way to measure air leakage.

A good estimate will also include an inspection of the size, the condition of seals on joints and insulation, and location of the distribution ducts in forced air systems. The placement of supply and return registers should be appropriate for the system type and size.

The orientation of the house also affects heat gain and heat loss through windows. Overhangs can reduce solar gain through windows. Make sure the contractor uses the correct design for the outdoor temperature and humidity in your area.

Spare no effort to size your heater appropriately. An undersized heater will not provide adequate heat on the coldest days, and an oversized heater will not burn on high fire enough to keep the heat exchanger or exhaust, dried out. Condensation from oil exhaust contains sulfuric acid and other highly corrosive compounds that will corrode parts, resulting in higher maintenance costs and shortened life of the heater.

Sometimes carbon build-up can make a fuel nozzle extremely difficult to remove without damaging it. Here are some methods for making the removal easier:

1. Always use two 12mm open-end wrenches to loosen the fuel line flare fitting, one to loosen the flare fitting, the other to keep the nozzle from twisting. This will prevent damage to the fuel nozzle and rounding or egging of the flare fitting.



2. Use vice grips, locked onto the fuel nozzle in the upside-down position, as pictured. The nozzle enters the burner assembly at a downward angle. Positioning the vice grips like this will allow you to pull at the correct angle as the nozzle is removed, reducing your chances of bending the nozzle tube. Rotate the

nozzle gently as you pull.



3. If the nozzle will not come out, you may have to resort to applying some heat to the fuel nozzle guide tube, as indicated by the arrow in the picture below. To access this, you will have to disassemble the heater and remove the burner assembly. Turn the burner assembly upside-down. A portable torch works best, but a heat gun will work if no torch is available. Applying heat in this manner can damage the fuel nozzle gaskets (indicated below). If either of these gaskets has been compromised, replace it.



4. If the fuel nozzle has been bent, replace it. Even a slightly bent nozzle can restrict fuel flow into the burner, resulting in poor performance of the heater. Always be sure that the nozzle is clear and that the gaskets are in good condition.