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Retrofit or Upgrade a Water Heater in a Caravan Holiday home

Many customers wish to replace an existing water heater in their caravan with a new one. The possible options area as follows:

1. Replace a Morco water heater with the same Morco model
2. Replace an obsolete Morco water heater with a similar specification current model
3. Upgrade a Morco water heater to a higher specification current model
4. Replace another brand of water heater with a current Morco model
5. Upgrade any water heater to a combination boiler.

1. Replace a Morco water heater with the same Morco model

To replace the water heater with a current model does not necessarily require the purchase of a new flue or boiler fitting kit, although it is good practice to replace the fitting kit. If the installer is concerned about the condition or serviceability of the flue or fittings then they should be replaced.

2. Replace an obsolete Morco water heater with a similar specification current model

There are 3 types of obsolete Morco water heaters:

- D51B
- G101
- G111E

The D51B can be easily replaced with the D61B or D61E. The G101 and G111E can easily be replaced with the G11E. The water and gas fittings in the original installation can be retained but it is good practice to replace them. All open flued water heaters MUST have an overall flue length of at least 600mm and at least 250mm of this must be external to the caravan. The flues detailed overleaf fulfil this criteria.

The only material difference between the installation of obsolete and current models is the smaller flue diameter used on some D51 installations.

If your current installation has an 83mm diameter flue you will need to replace it at the same time that you replace the heater with a 90mm diameter flue. The options that you have are outlined in the table below.

Obsolete Water Heater	Flue Diameter (mm)	Equivalent Replacement Water Heater	Flue Diameter (mm)	Replacement Flue Option1	Option 2	Option3
D51B	83 or 90	D61B or D61E	90	FTM038	FTFT250 + FTFP600	FTFT250 + FTPWDS420
G101	110	G11E	110	FTFTPG101	FTM055	
G111E	110	G11E	110	FTFTPG101	FTM055	



FTM038 - this flue provides the external flue terminal and internal flue pipe in one kit. The flue pipe slides inside the flue terminal allowing the water heater to be located between 100 and 500mm from the ceiling. The 600mm length of the external pipe ensures that the water heater installation conforms to regulations regardless of the length of the internal flue pipe.



FTFT250 - this terminal is 250mm high and therefore conforms to the regulations. It MUST be used with an internal flue pipe of at least 350mm length. Both the FTFTP600 and FTPWDS420 can be used for this purpose. These internal flue pipes are 600mm and 420mm in length respectively and can be used either uncut or cut down provided the length is at least 350mm. The only difference between the two internal flue pipes is that the FTPWDS420 is twin skinned, the outer skin is painted white for decorative effect and it avoids anyone inadvertently touching the hot inner flue pipe during use.

3. Upgrade a Morco water heater to a higher specification current Morco model.

There are 2 basic designs of water heater:

1. Room sealed/fan flued – model F11E
2. Open Flued – all other models

The room sealed F11E provides advantages outlined later in this section.

There are 3 reasons for an upgrade as highlighted in the table below:

Existing Open Flue Model	Replacement Water Heater	Reason for Upgrade
D51B, D61B or D61E	G11E	More Hot Water
G101, G111E or G11E	F11E	Room Sealed
D51B, D61B or D61E	F11E	More Hot Water and Room Sealed

If you plan to change from a D51 or D61 model to a G11E in order to enjoy a better hot water delivery then the following issues need to be taken into account:

- The G11E can only be fitted in a dedicated boiler cupboard separated from the living/dining/kitchen by a full height door. Some D51/D61 are installed in kitchen cupboards so direct replacement with a G11E is not allowable.
- The G11E is more powerful than the D51/D61 models and will require the gas pipe, gas cylinder and gas regulator to be sufficiently large to cope with the extra power. Your Gas Safe Engineer will be able to advise you but generally the specification should be as below:
 - Gas pipe - 22mm copper from the end of the bottle rubber hose to within 3m of the water heater and 15mm copper for the remaining 3m.
 - Gas cylinder - at least 19kg propane. If other gas appliances use the bottle then a 47kg bottle should be used
 - Regulator - a 4kg per hour regulator is recommended
- The G11E will require a new flue and a new fitting kit as they are of a different size to the D51/D61 models
- The G11E will require additional ventilation in the boiler cupboard - this is because it requires more air to burn to create the extra hot water. This ventilation can either be achieved by doubling the size of the existing floor and wall vents in the cupboard or Doubling the surface area of the floor vents AND fitting a flue with integrated high level ventilation such as the FTM055 (see photo below). Details of ventilation requirements are in the product manual.
- As the G11E is an open flued water heater with no fan, it requires the use of a vertical flue.



FTM055- The right hand item is the external terminal and is the regulation 250mm high. The left hand item fits through the hole in the roof and the wide flange 1/3rd of the way down needs to be secured to the outer skin of the roof. It provides the regulation 350mm between the heater and the ceiling. Once installed it allows air to flow into the boiler cupboard via the outer pipe. Flue gases then exit via the inner pipe and terminal.

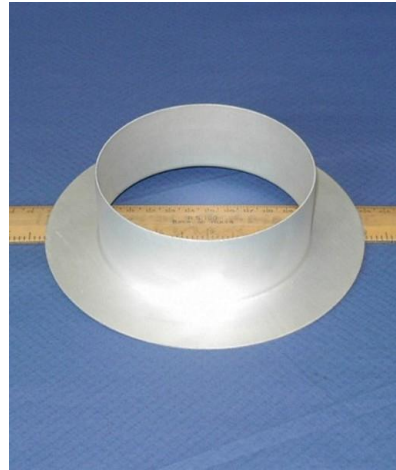
If you plan to change from any open flued model to an F11E in order to enjoy a better hot water delivery and/or the benefits of a room sealed water heater then the following issues need to be taken into account:

- The F11E is more powerful than the D51/D61 models and will require the gas pipe, gas cylinder and gas regulator to be sufficiently large to cope with the extra power. Your Gas Safe Engineer will be able to advise you but generally the specification should be as below:
 - Gas pipe - 22mm copper from the end of the bottle rubber hose to within 3m of the water heater and 15mm copper for the remaining 3m.
 - Gas cylinder - at least 19kg propane. If other gas appliances use the bottle then a 47kg bottle should be used
 - Regulator - a 4kg per hour regulator is recommended
- The F11E will require a new flue and a new fitting kit as they are of a different size and type to the D51/D61 models.
- The F11E requires a 240V mains electricity supply so a 3 pin socket will need to be placed near to the boiler.
- As the F11E does not need any ventilation, any existing floor and wall ventilation in the boiler cupboard can be closed off.
- The F11E has no pilot light as it has electronic ignition.
- Because the F11E is fan flued it can use a vertical or horizontal flue. As all open flued water heaters are vertically flued then the use of a horizontal flue will require the existing roof hole to be made water tight. To install a horizontal flue it is best for the water heater to be mounted on or close to an external wall. The standard flue is 600mm long (RSF003) and 1000mm extensions (RSF041) and right angle elbows (RSF115) are available. If you need extensions or elbows please call Morco for advice. We supply an aluminium external flue collar (RSF060).
- The white portion of the horizontal flue can be cut down to a minimum length of 235mm to ensure the flue projects from the external wall a suitable distance.

F11E Room Sealed/Fan Flued Water Heater Flue Kits



RSF003 Horizontal Flue Kit

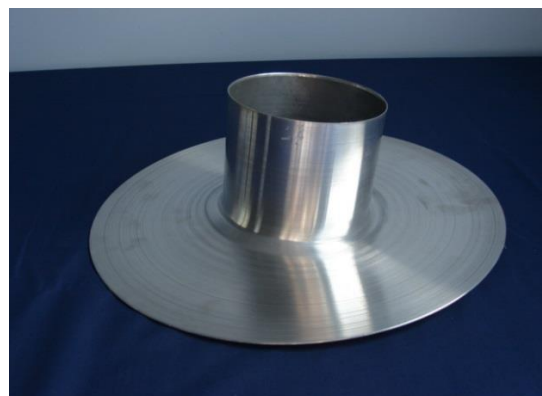


RSF060 External Flue Collar

If you wish to use a vertical flue and hence utilise the existing hole in the roof then the existing flue components will need to be removed and replaced with a roof plate. We supply a 14 degree roof plate (RSF050 in picture) or a 5 degree roof plate for use with older bow sprung caravan roofs (not pictured). The roof plate fits to the outside of the roof and to maintain water tightness we suggest a good deal of silicon and some screws are used. The vertical flue is dropped in from the outside and the bottom of the black tube **MUST** reach the flange on the roof plate. The long white section of the vertical flue can be cut down to within 100mm of the black tube to ensure the flue mates with the boiler correctly. The black tube **CANNOT** be cut down. If the boiler is being fitted where a flue extension is required then use an RSF041 1000mm extension and cut it to fit accordingly.



RSF045 Vertical Flue



RSF050 14 degree Roof Plate

4. Replace another brand of water heater with a current Morco model

There are many similarities between brands of water heaters that make the replacement of one with another much simpler than it may seem.

All instantaneous gas water heaters require the following connections:

- LPG gas supply
- Cold water supply
- Hot water outlet
- Mains Electricity- only for fan flued/room sealed heaters such as the Morco F11E

The majority of water heaters found in caravan holiday homes are open flued and hence have vertical flues.

If the existing water heater flue complies with the following you do not need to purchase a new flue:

- For the D61 models a 90mm diameter vertical flue is required
- For the G11E a 110mm vertical flue is required
- For both D61 models and the G11E the flue must be at least 600mm in total length with at least 250mm external to the caravan
- The flue terminal must be a louvered terminal as in the earlier photos. If it is a mushroom type terminal it must be replaced
- For the F11E model you will need to replace any existing vertical or horizontal flue

If the vertical flue diameters are different to the 90 or 110mm standard then you will need to purchase a new Morco flue that corresponds to Morco water heater (see the earlier table on flue compatibility).

New fitting kits will be required in order to replace water heaters from other manufacturers.

A Gas Safe Engineer will find the installation straightforward for both types of water heater.

Fitting Kits

Morco supply a number of fitting kits for their water heaters and the table below should be used to determine the correct kit:

Fitting Kit Code	Models	Gas Pipe Diameter
FW0402	D61B and D61E	15mm
FW0403	D61B and D61E	10mm
FW0404	G11E	15mm
PKR	F11E	15mm

5. Upgrade any water heater to a combination boiler.

It is possible to replace any water heater with a combination boiler in order to provide central heating in addition to instantaneous hot water. This is a simpler operation than it may seem but is still best carried out by a Gas Safe engineer. Morco offer a central heating kit design service. If you provide us with the following information we will provide a quote for a kit that has all the components necessary for a full system:

- The number and size of the radiators or towel rails required
- The type of flue - horizontal or vertical
- The position of the boiler in the holiday home (this may determine if a flue extension is needed).

The kit will include all pipes, pipe fittings, pipe insulation, radiators, towel rails, TRV radiator valves, combination boiler and flue.