Technical Specification Bulletin Number TB72

Fuel Type	Date of Issue	Edition
Oil	February 2003	2

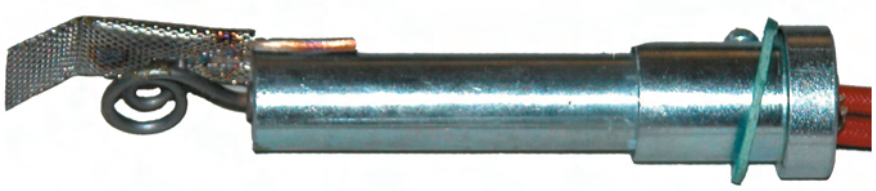
Euroheat
The Stove Company

Ignitor Replacement Oil Stoves

Ignitor identification

52mm

Short ignitor is found in stoves in which the ignitor mounting tube is braised to the burner



92mm

the long ignitor is fitted to the burner via a mounting tube witch is fixed in position by four nuts and bolts

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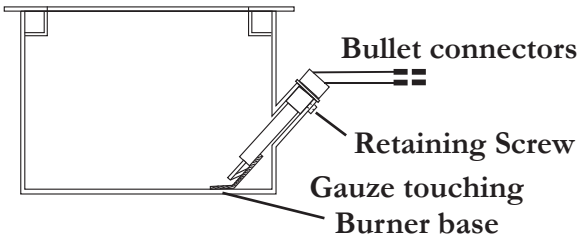
The Oil Stove Igniter.

The igniter ignites the oil by using the capillary action of its stainless steel gauze to draw oil up towards its heating element, where the heat from the heating element causes the oil to vaporize and ignite as it passes over the element. The heat generated from this initial ignition heats the gauze to perpetuate the vaporizing process until the heat generated warms the burner pot body sufficiently for the oil to vaporize as it enters the burner.

For clean and rapid ignition to be achieved the tip of the igniter's stainless steel gauze must rest on the pot bottom to allow oil to be attracted towards the ignition coil by capillary action with the minimum amount of oil having entered the burner.

Bending the gauze to increase the length sitting on the pot bottom may aid the capillary action, but increasing the area the of gauze in contact with the burner bottom will cause the small amounts of heat generated by the igniter's heating element to be conducted away from the gauze too rapidly and will delay the oil within the gauze reaching vaporizing temperature. If the conduction of heat away from the gauze is too great, the flame at the igniter gauze may extinguish when the igniter is de-energized as the gauze will not maintain a high enough temperature to sustain vaporization of the fuel.



If the oil flow from the oil valve is not fast enough during the ignition sequence it will not form a "puddle" to reach the igniter gauze quickly but will instead flow directly towards the pot middle; the oil will then only reach the gauze when the pot bottom floods with oil. This will cause the ignition to be delayed and because of the excess amount of oil within the pot, when ignition is achieved, the flue will not be hot enough to induce sufficient air into the burner to allow complete combustion of this excess oil. The consequence will be that for the first few minutes the flames will be noisy, very yellow and smoky until the excess oil has burned off and the flue has warmed.

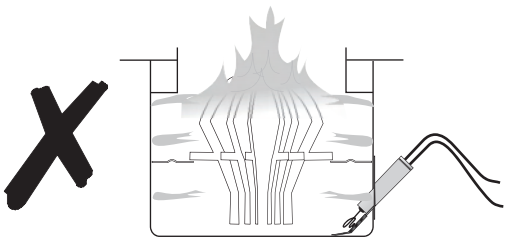
Because of the shiny finish of a new burner pot the initial "puddle" of oil takes a little longer to achieve than normal, but after running for several hours a fine deposit forms on the burner bottom which in subsequent ignition sequences assists in the oil spreading towards the igniter gauze.

If the low fire setting of the fuel oil valve has been tampered with, or the flue draught is too high and not within the specified limits, it is possible for all the incoming oil to burn from the igniter gauze and not heat, or maintain sufficient heat within the burner, to allow vaporization by the burner and catalyser.

The problem of oil not reaching the gauze, or indeed tending to burn at the gauze rather than spreading quickly to burn across the pot bottom, will be exacerbated by the pot not being level. Even if the pot was level with the stove top at the time of manufacture, time and heat will cause the seal between the stove and the burner to compress. This compression may not be uniform and, therefore, the pot itself must be checked to ensure it is level.

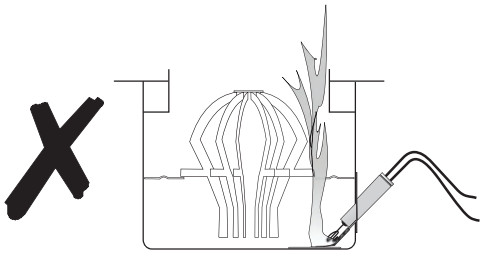
Igniter Failure

We examine every failed igniter returned to us and our records show that almost all failures can be ascribed to burners operating with an incorrectly set flue draught. After fitting the new igniter the flue draught must be checked using a reliable meter; we strongly recommend the Dwyer guage. Consult your installation guide for instructions and the flue draught necessary for your stove.



Noisy, ragged flames burning with haphazard shape below the secondary air holes is being supplied too much primary air causing the flame to burn within the burner barrel.

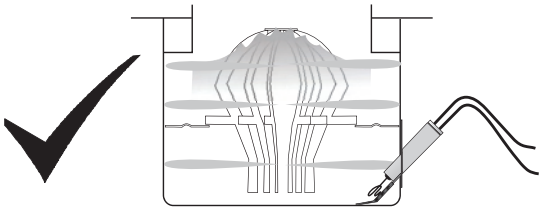
If the flue draught is too high when the stove is operating above the minimum burning rate the excess primary air will cause the flame to burn lower in the burner barrel than it should. This will cause not only the burner to overheat but also the sleeve of the igniter. The igniter will not be damaged simply by the high temperature, but because the conductor and insulator within the igniter sleeve have differing thermal expansion rates the conductor is abraded with each cycle of heating. This disparity and abrasion is of little significance within the temperature limits the igniter is designed to operate at, but when the igniter is regularly exposed to cycles of extreme temperatures the resultant movement between the conductor and insulator is high enough to abrade and wear away the cross section of the conductor. As the conductor thins its ability to pass the high currents during ignition sequences is reduced and it will eventually burn away.



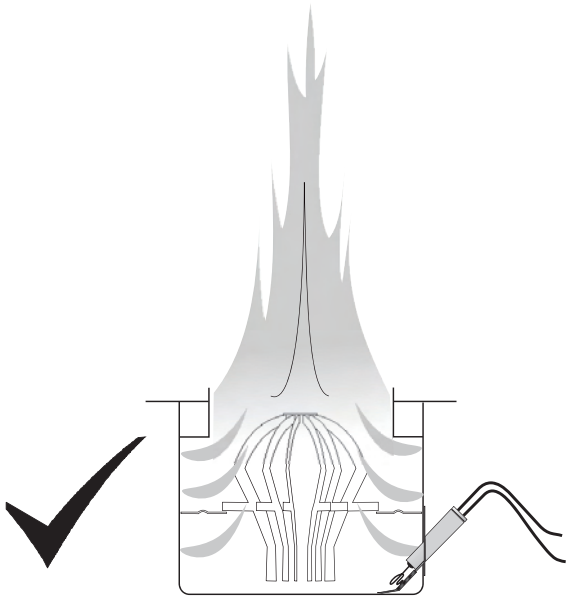
If the flue draught is too high at minimum setting the pot will cool, stop vaporizing, and the incoming oil will burn from the igniter wick with a long, dark yellow flame.

If the flue draught is too high when the stove is operating at its minimum setting it is possible that the excess air will cool the burner floor pan below the temperature at which it will completely vaporize the incoming oil. The build up of un-vapourised oil will collect at the igniter's stainless steel "wick" and will start to burn as a candle. This will further reduce the heat being transferred to the burner until it no longer vaporizes the oil and all the incoming oil burns on the igniter wick as a tall, thin, smoky yellow flame. This flame is of such poor and incomplete combustion that it is capable of chemically eroding the heater coil of the igniter. The coil will fail either because it is completely eroded away or the coil will overheat at the point of greatest erosion and will fail during ignition.

Correct Flame pattern

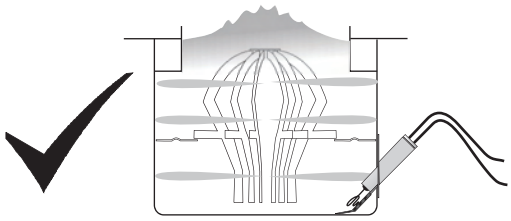


At the minimum setting, flames which come directly from the burner walls should be blue and gentle, causing the catalyser to glow at its lowest point. All flame activity should be no higher than the catalyser.



At maximum setting the flames from the burner walls will be drawn upwards, washing against the catalyser edges, the central core of flame will be bright yellow. It should be evident that the final, top row of holes in the burner are shaping the flame.

Ignitor Replacement Oil Stoves



The final row of holes, providing the secondary air, should always be supplying some air to the flame. This is best indicated by the flame being waisted at the height of the holes whenever the flame is of large enough size.

Harmony 5

Product code: 19991

Tools required
Small screw driver, 7mm socket (1/4 inch drive) and 7mm spanner. (Electricians pliers if required to cut cables).

Removal.
Turn off the electrical supply to the stove and remove the power cord before any work is undertaken on the
electric ignition.
Remove the coal kit from the stove carefully, it is fragile.
Remove the catalyser and 2 support rings.
Undo the 4 nuts and bolts that hold the swan neck to the burner and remove, withdrawing the igniter from
the burner at the same time. Undo the screw retaining the igniter in the swan neck and withdraw.
Undo the 2 leads at the transformer and withdraw the whole igniter. If this is not possible due to the stoves
installation the cables may be cut and bullet connectors (supplied) used to join to the new igniter cables.

Replacement.
Feed the new igniter cables through the stove back up to the transformer and reconnect to either terminal,
the cables are not polarised. Or join to original cables using bullet connectors.
Insert the igniter into the swan neck and secure with the retaining screw.
Using the new gasket insert the igniter attached to the swan neck back into the burner and refit using the 4
new nuts and bolts supplied.
Check that the metal gauze is touching the bottom of the burner.
Reconnect power cord and test (it will be seen to glow red after a few seconds).
Replace catalyser support rings, catalyser and coal kit.
Light the stove.

Harmony III & Coachman with 12kW boiler.

Product code: 186.42, 18642

Tools required
Small screw driver, (Electricians pliers if required to cut cables).

Removal.
Isolate the power supply to the run back timer.
The igniter for each burner can be accessed through either of the side doors.
The securing screw should be loosened and the igniter withdrawn from the swan neck.
Undo the cables at the transformer or if difficult to access cut, then use the bullet connectors.

Replacement.
Connect the wires of the new igniter to the transformer, or connect using bullet connectors (supplied) to the
original leads.
Slide the new igniter back into the swan neck and secure, ensure that the metal gauze is touching the burner
base.
Reconnect power supply and test.

Harmony I & II

Product code: 194.92, 194.93, 194.94, 19595

Tools required
Small screw driver, 7mm socket and 7mm spanner, 14mm spanner (Electricians pliers if required to cut cables).

Removal.
Turn off the electrical supply to the stove and remove the power cord before any work is undertaken on the
electric ignition.
Remove the coal kit from the stove carefully; it is fragile.
Remove the catalyser and 2 support rings.
Undo the 4 nuts and bolts that hold the swan neck to the burner and remove, withdrawing the igniter from
the burner at the same time. Undo the screw retaining the igniter in the swan neck and withdraw.
Undo the 2 leads at the transformer and withdraw the whole igniter. If this is not possible due to the stoves installation the cables may be cut and bullet connectors (supplied) used to join to the new igniter cables.

If access to the swan neck is difficult the burner may be loosened and rotated towards the front to facilitate
access.
Remove the cast iron burner protection plate by lifting it up and withdrawing it through the furnace door.
Isolate the stove from the oil supply from the tank. Undo the oil pipe at the decoking assembly.
Remove the 4 bolts (or screws) at the top of the burner.
Rotate the burner towards the front, then continue as above. The burner may be tilted to help with the removal of the igniter.

Replacement.
Feed the new igniter cables through the stove back up to the transformer and reconnect to either terminal,
the cables are not polarised. Or join to original cables using bullet connectors.
Insert the igniter into the swan neck and secure with the retaining screw.
Using the new gasket insert the igniter attached to the swan neck back into the burner and refit using the 4
new nuts and bolts supplied.
Check that the metal gauze is touching the bottom of the burner..
If the burner has been loosened and rotated, reverse the above procedure ensuring that the burner when
secured is level.
Reconnect power cord and test (it will be seen to glow red after a few seconds).
Replace catalyser support rings, catalyser and coal kit.
If the oil supply to the stove has been turned off to rotate the burner, turn it on, check for leaks.
Light the stove.

Harmony III 10” & Coachman 8” non boiler models

Product code: 194.96, 18668

Tools required
Small screw driver, 8mm socket or 8mm spanner, 14mm spanner. (Electricians pliers if required to cut cables).

Removal.
Turn off the electrical supply to the stove and remove the power cord before any work is undertaken on the electric ignition.

Remove the coal kit from the stove carefully, it is fragile.
Remove the catalyser and 2 support rings.
Isolate the stove from the oil supply.
Open the right hand side door and undo the oil pipe to the decoking assembly.
Undo the screws holding the burner in position and lower it down.
Undo the screw retaining the igniter in the swan neck and withdraw.
Undo the 2 leads at the transformer and withdraw the whole igniter. If this is not possible due to the stoves
installation the cables may be cut and bullet connectors (supplied) used to join to the new igniter cables.

Replacement.
Feed the new igniter cables through the stove back up to the transformer and reconnect to either terminal,
the cables are not polarised. Or join to original cables using bullet connectors.
Insert the igniter into the swan neck and secure with the retaining screw.
Check that the metal gauze is touching the bottom of the burner.
Lift the burner back into position and secure with the screws, ensure it is level.
Reconnect the oil pipe to the decoking assembly, check for any leaks.
Reconnect power cord and test (it will be seen to glow red after a few seconds).
Replace catalyser support rings, catalyser and coal kit.
Light the stove.

Nestor Martin Hearth Stove. A80,A100 & B80,B100

Product code: 19764A80, 19766A100, 19764B80, 19766B100

Tools required
Small screw driver, 7mm socket and 7mm spanner. (Electricians pliers if required to cut cables).

Removal.
Turn off the electrical supply to the stove and remove the power cord before any work is undertaken on the electric ignition.
Remove the coal kit from the stove carefully, it is fragile.
Remove the catalyser and 2 support rings.
Undo the 4 nuts and bolts that hold the swan neck to the burner and remove, withdrawing the igniter from the burner at the same time. Undo the screw retaining the igniter in the swan neck and withdraw.
Undo the 2 leads at the transformer, at the back of the stove by the oil control valve, and withdraw the whole
igniter. If this is not possible due to the stoves installation the cables may be cut and bullet

connectors (supplied) used to join to the new igniter cables.

Replacement.
Feed the new igniter cables through the stove back up to the transformer and reconnect to either terminal,
the cables are not polarised. Or join to original cables using bullet connectors.
Insert the igniter into the swan neck and secure with the retaining screw .
Using the new gasket insert the igniter attached to the swan neck back into the burner and refit using the 4
new nuts and bolts supplied.
Check that the metal gauze is touching the bottom of the burner.
Reconnect power cord and test (it will be seen to glow red after a few seconds).
Replace catalyser support rings, catalyser and coal kit.
Light the stove.

Nestor Martin Oxford Stove. C80 & C100

Product code: 79429, 79449
To replace the igniter follow the instructions for Harmony I & II stoves.

Nestor Martin Stanford 50 & 80

Product code: 19991 -Stanford 50, 19992 - Stanford 80

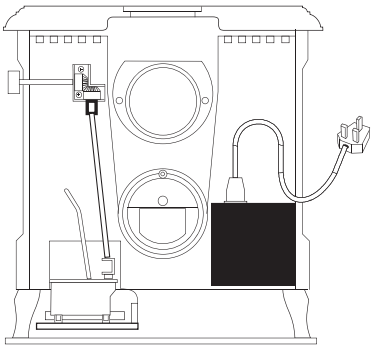
Tools required
Small screw driver, 7mm socket (1/4 inch drive) and 7mm spanner. (Electricians pliers if required to cut cables).

Removal.
Turn off the electrical supply to the stove and remove the power cord before any work is undertaken on the
electric ignition.
Remove the coal kit from the stove carefully, it is fragile.
Remove the catalyser and 2 support rings.
Undo the 4 nuts and bolts that hold the swan neck to the burner and remove, withdrawing the igniter from
the burner at the same time. Undo the screw retaining the igniter in the swan neck and withdraw.
Undo the 2 leads at the transformer and withdraw the whole igniter. If this is not possible due to the stoves
installation the cables may be cut and bullet connectors (supplied) used to join to the new igniter cables.

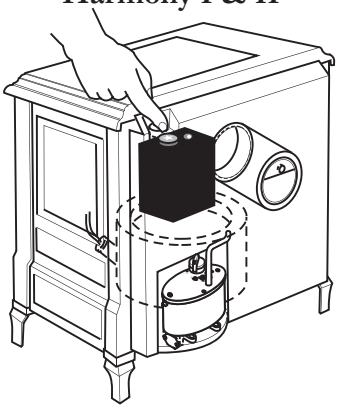
Replacement.
Feed the new igniter cables through the stove back up to the transformer and reconnect to either terminal,
the cables are not polarised. Or join to original cables using bullet connectors.
Insert the igniter into the swan neck and secure with the retaining screw.
Using the new gasket insert the igniter attached to the swan neck back into the burner and refit using the 4
new nuts and bolts supplied.
Check that the metal gauze is touching the bottom of the burner.
Reconnect power cord and test (it will be seen to glow red after a few seconds).
Replace catalyser support rings, catalyser and coal kit.
Light the stove.

Transformer Location

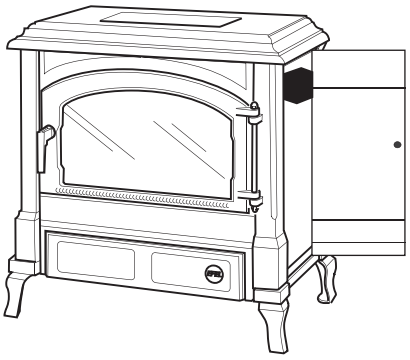
Harmony 5



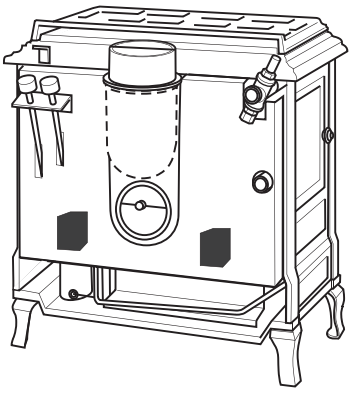
Harmony I & II



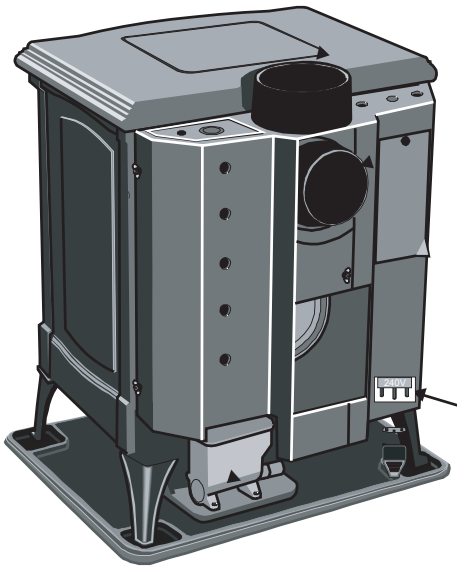
Harmony III & Coachman non Boiler models



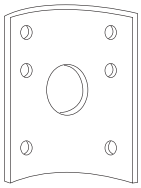
Harmony III & Coachman 12kW Boiler models

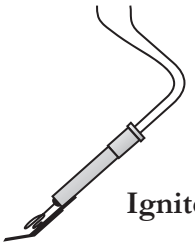


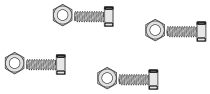
Nestor Martin Stanford 50 and Stanford 80

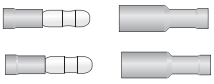


Igniter Kit Components

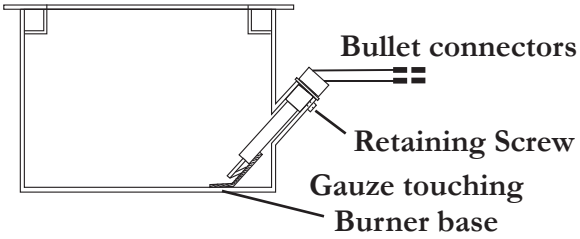

Gasket


Igniter

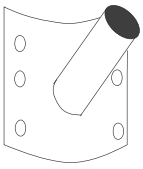

4 x Nut & Bolts


Bullet Connectors

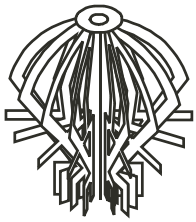
Correct positioning of Igniter



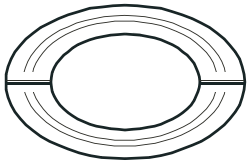
Component Parts of Oil Burner



Swan neck



Catalyser



Catalyser Support Ring

Fitting crimp connectors

When fitting crimp connectors, pull back the insulating sheath key the surface of the wire with a abrasive material (emery cloth, wire wool). Fit the connections using an appropriate crimp tool, make sure the connector is securely fitted for good continuity.