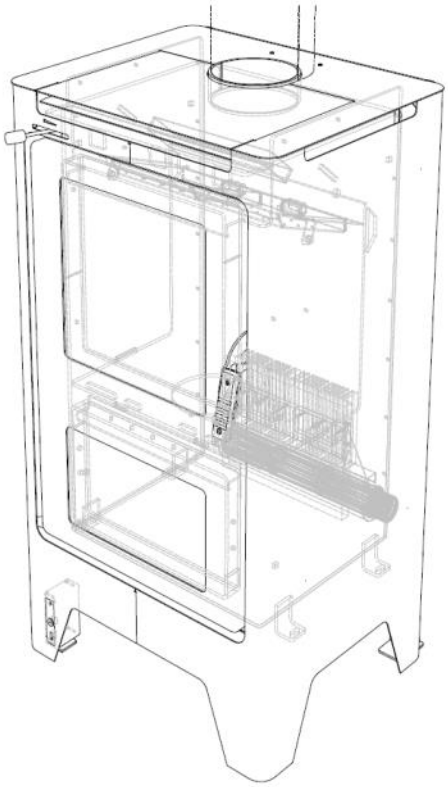
Issued: October 2018 V1.34

Specifications, Installation and Operating Instructions for the:
FERVA Saturn - Ultra Low Emission Burner

FERVA



TEG TECHNOLOGY

USB

Saturn

KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

Proudly Manufactured By:

harris HOME FIRES

Harris Home Fires
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Testing and Certification

MODEL	AS/NZS 2918:2001	CM1	AS/NZS 4012:1999	AS/NZS 4013:1999	ECan Cert Number
Saturn	Complies	0.4g/kg emissions, 73% Efficiency	N/A	N/A	169888
Saturn	Complies	N/A	76%	0.2g/kg	172501

RESOURCE CONSENT CRC171534

Pursuant to Section 104 of the Resource Management Act 1991

The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO:	W H Harris Limited
A DISCHARGE PERMIT (S15):	To discharge contaminants to air from an ultra low emission burner.
COMMENCEMENT DATE:	06 Sep 2016
EXPIRY DATE:	06 Sep 2051
LOCATION:	Within Christchurch Clean Air Zone 1, Kaiapoi Clean Air Zone 1 and Rangiora Clean Air Zone 1

Warnings

- The installation of any solid fuel burner requires a Building Consent prior to installation commencing. We recommend the installation of a Ferva solid fuel burner or flue system be undertaken by the holder of a current SFAIT (Solid Fuel Appliance Installation Technician) qualification issued by the NZHHA (NZ Home Heating Association Inc.). www.nzhha.co.nz
- Your appliance and flue system should not be modified in any way without the approval of the manufacturer.
- Any modification of the appliance that has not been approved in writing by the testing authority is considered as breaching CM1.5, AS/NZ 4012/13 and AS/NZ 2918:2001.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Do not leave children un-attended near a lfire and keep them well away from the fire when in use. Supervise young children to ensure that they do not play with the appliance.
- Do not use flammable liquids or aerosols to start or rekindle the fire. Also do not use such flammable materials in the vicinity of this appliance when it is operating.
- The use of some types of preservative-treated wood as a fuel can be hazardous.
- Always keep clothing, firewood, furnishing and other combustible materials at a safe distance from the fire.
- Do not attempt to open the bottom door when fire is in use.
- Do not touch any part of the fire other than the door handle and the air control when in use as all other parts can be extremely hot.
- Cracked/broken door glass, makes the installation unsafe. Do not operate the fire with cracked glass.
- Do not use the fire if there is a malfunction, a suspicion of breakage or unusual noises. Contact your nearest Ferva dealer or Harris Home Fires.
- This appliance should be operated & maintained at all times as per instructions given in this manual.

Failure to follow above warnings, cautionary measures and instruction given in this installation and operation manual will void the warranty of this product.

Dimensions

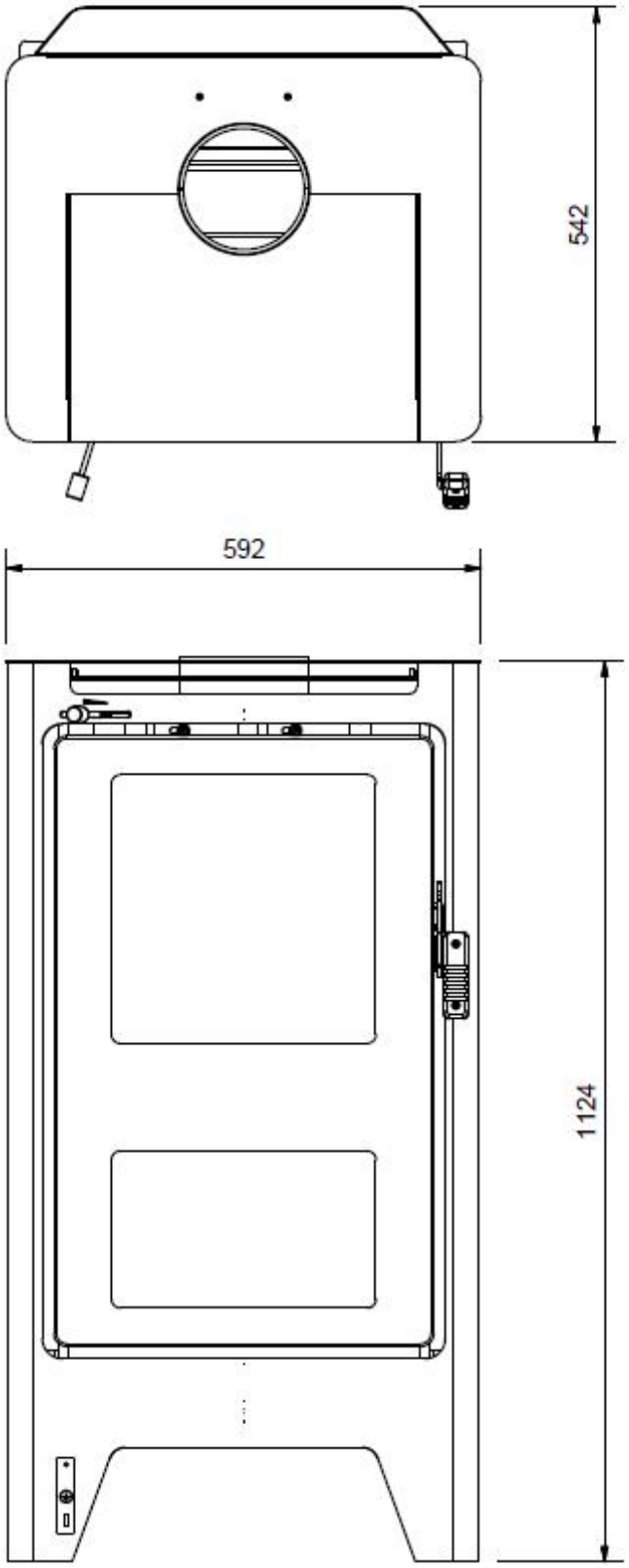


Fig 1.

Minimum Safe Installation Clearances to COMBUSTIBLE Materials

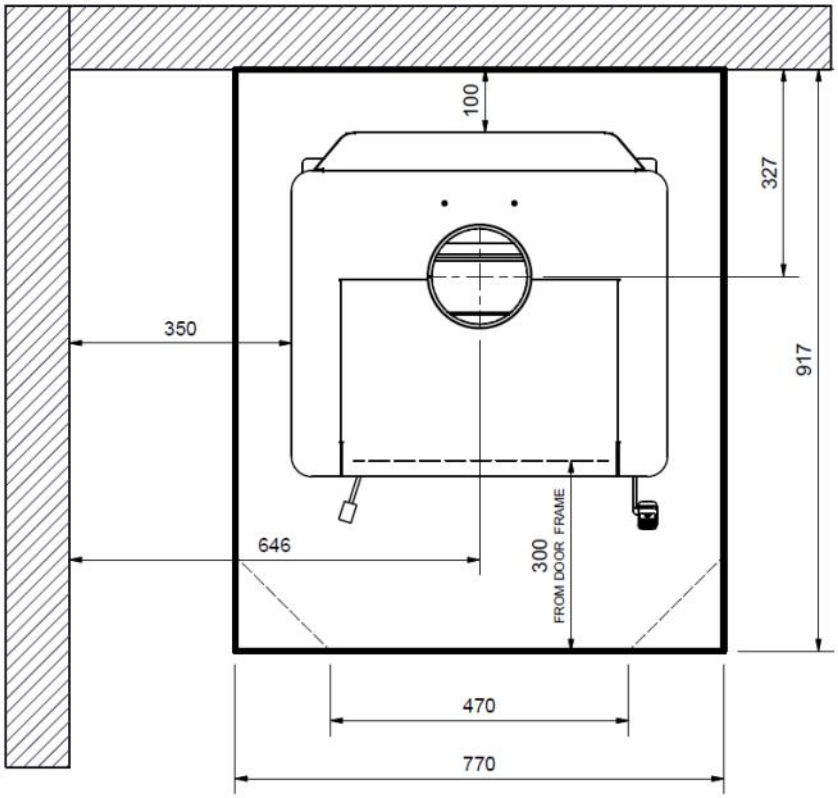


Fig 2.

Technical Requirements

Floor protector:
Ash Hearth, any non-combustible material of any thickness

Flue Shield:
None

Reducing Clearances
The 'rear clearance' (100mm) and the 'flue centre to rear wall' (327mm) can be safely reduced to **65mm** and **292mm** respectively, without the use of a heat shield as described in AS/NZS 2918:2001.
We recommend the clearances as shown in this diagram are used for ease of servicing and maintenance, as reducing the clearances may make it more difficult, but not impossible to carry out these tasks.

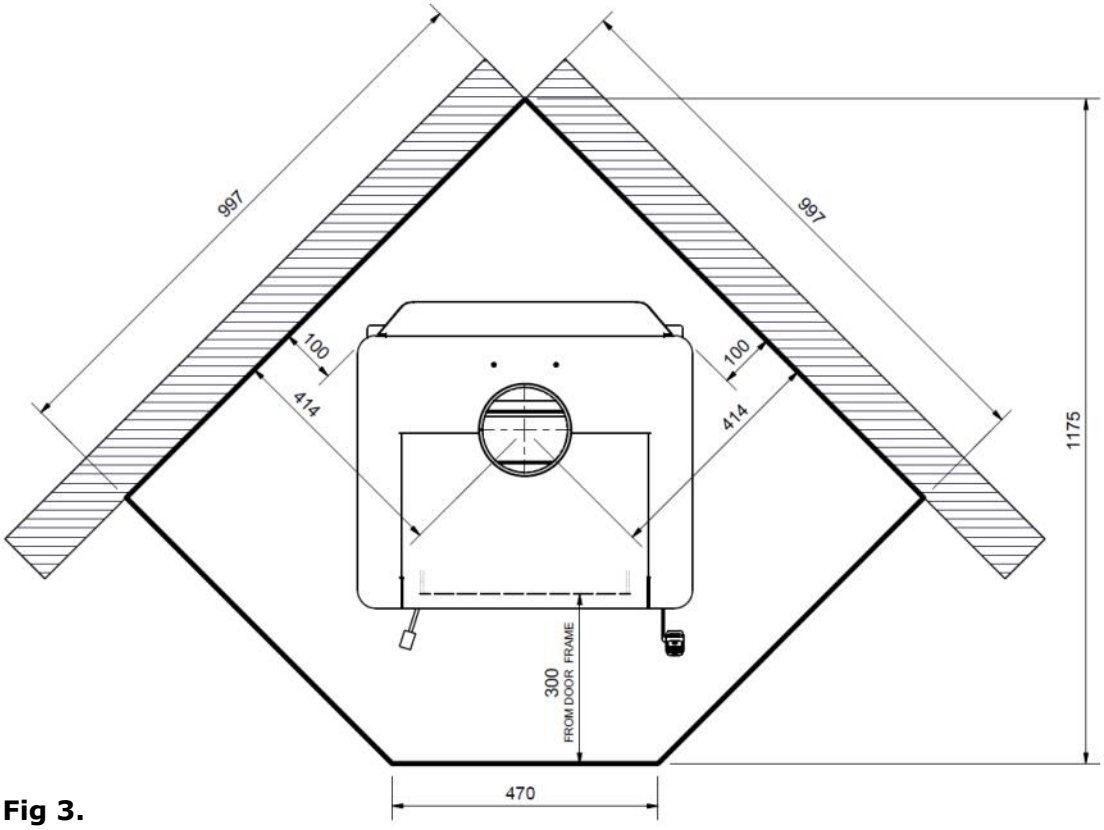


Fig 3.

Installation Instructions

We recommend this appliance be installed by a trained and NZHHA qualified installer.

Warning: the appliance and flue system shall be installed in accordance with AS/NZS 2918 and the appropriate requirements of relevant building code/codes.

Warning: appliances installed in accordance with this standard shall comply with the requirements of CM1.5 where required by the regulatory authority, i.e. the appliance shall be identifiable by a compliance plate with the marking "Tested to CM1.5".

Caution: mixing of appliance or flue system components from different sources or modifying the dimensional specification of components may result in hazardous conditions. Where such action is considered, the manufacturer should be consulted in the first instance.

Caution: cracked and broken components e.g. glass panels or ceramic tiles, may render the installation unsafe.

- Maintain a clearance of at least 1 metre between front of the appliance and building structure or any other substantial immovable object.
- Your appliance shall be seismically restrained, including the floor protector using the provided holes or brackets. The restraints should be sufficient enough to resist a seismic loading equal to 0.4 times the mass of the appliance. We recommend a minimum of 8mm dynabolts on concrete floors and 8mm coach screws for wooden floors, of appropriate length.

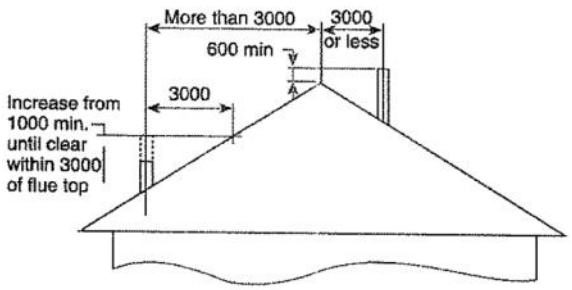
Minimum Flue Height

The top of the flue system should be at least 600mm above the highest point of the roof ridgeline, if the point of intersection of the flue system and the roofline is less than 3 metres from the ridgeline horizontally.

If the point of intersection of the flue system and the roofline is greater than 3 metres horizontally, the top of the flue system shall be at least 1 metre above the point of intersection with the roofline. (refer FIG 3)

FIG 3.

DIMENSIONS IN MILLIMETRES



MINIMUM HEIGHT OF FLUE SYSTEM EXIT

These are considered to be **minimum dimensions,** and depending on local conditions, **taller flue system heights may be required for satisfactory performance. The total flue height should be no less than 4.6m from the level of the hearth.**

Flue Installation Detail

Your Ferva appliance should be installed with a HeatSaver Flue System.

A HeatSaver Flue System is available from all authorised Ferva dealers throughout New Zealand.

Use of a flue system other than a genuine HeatSaver Flue System may affect the safety of the installation, and may affect your warranty.

Insist on a genuine HeatSaver Flue System.

HeatSaver Flue Kit Installation

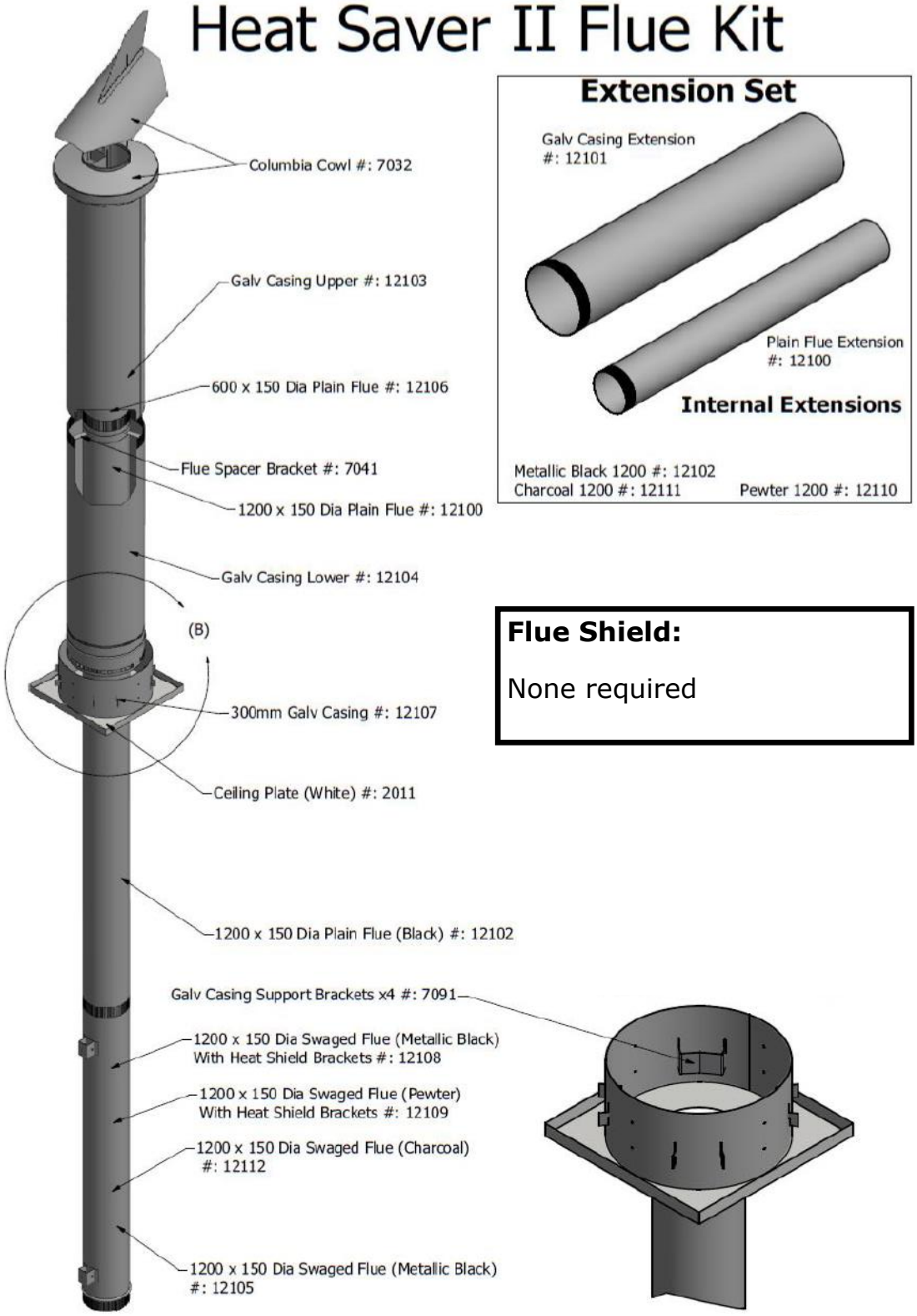
HeatSaver
FLUE SYSTEM

INSTALLATION INSTRUCTIONS

- This HeatSaver flue system is tested and certified to AS/NZS 2918:2001 Appendix F, which means it is approved for use on all solid fuel appliances with a flue diameter of 150mm.
- A copy of the Laboratory Test Certificate for this HeatSaver Flue System is included as part of these Installation Instructions, (refer to paperwork with flue kit).
- Installation of any solid fuel appliance should only be carried out by suitably trained and quali -fied personnel.
- Position the stove to the desired position, always ensuring that the manufacturer's minimum clearances to combustibles are complied with.
- Check that there are no roofline ridges or valleys in the way, or if they cannot be avoided, that the installer knows how to weatherproof the penetration and reinstate the full strength of the structure.
- At the ceiling level, construct a square frame of 300mm x 300mm internal dimensions and cut away the ceiling materials from the inside of this frame.
- Lower the 300mm flue pipe casing into this frame and nail in place when the bottom edge is 25mm below the ceiling level and the 8 nail holes provided are touching the timber frame.
- Check all 4 locating brackets are securely in place and drop 250mm diameter lower casing in place. This will naturally settle so it protrudes 25mm below the ceiling.
- Make roof penetration, assemble and fit required flue length and install with upper casing. Secure all joins with at least 3 stainless steel rivets or self tapping screws.
- Frame and brace upper installation as required and flash the roof to shield penetration.
- Fit ceiling plate to ceiling.
- When trimming the stainless steel flue length, ensure the flue is flush with the casing at the top. If it is higher than the casing, the cowl can not be fitted correctly.
- Fix the bottom section of the HeatSaver Columbia Cowl in place and ensure that it is firmly down on top of the casing. Then attach top section by bending tab away from the shaft to al- low the top section to slide down onto the washer. Bend tab back in place once done. Do not over bend tab so that it touched the shaft. See page 6
- Secure the flue to the fire, drill through flue neck on fire and secure with 2 to 3 s/s screws or rivets.
- All flue joints should be sealed using a flue cement.
- Ensure a 25mm clearance from the 250mm diameter casing to any combustible material.

HeatSaver Flue Kit Installation

Heat Saver II Flue Kit



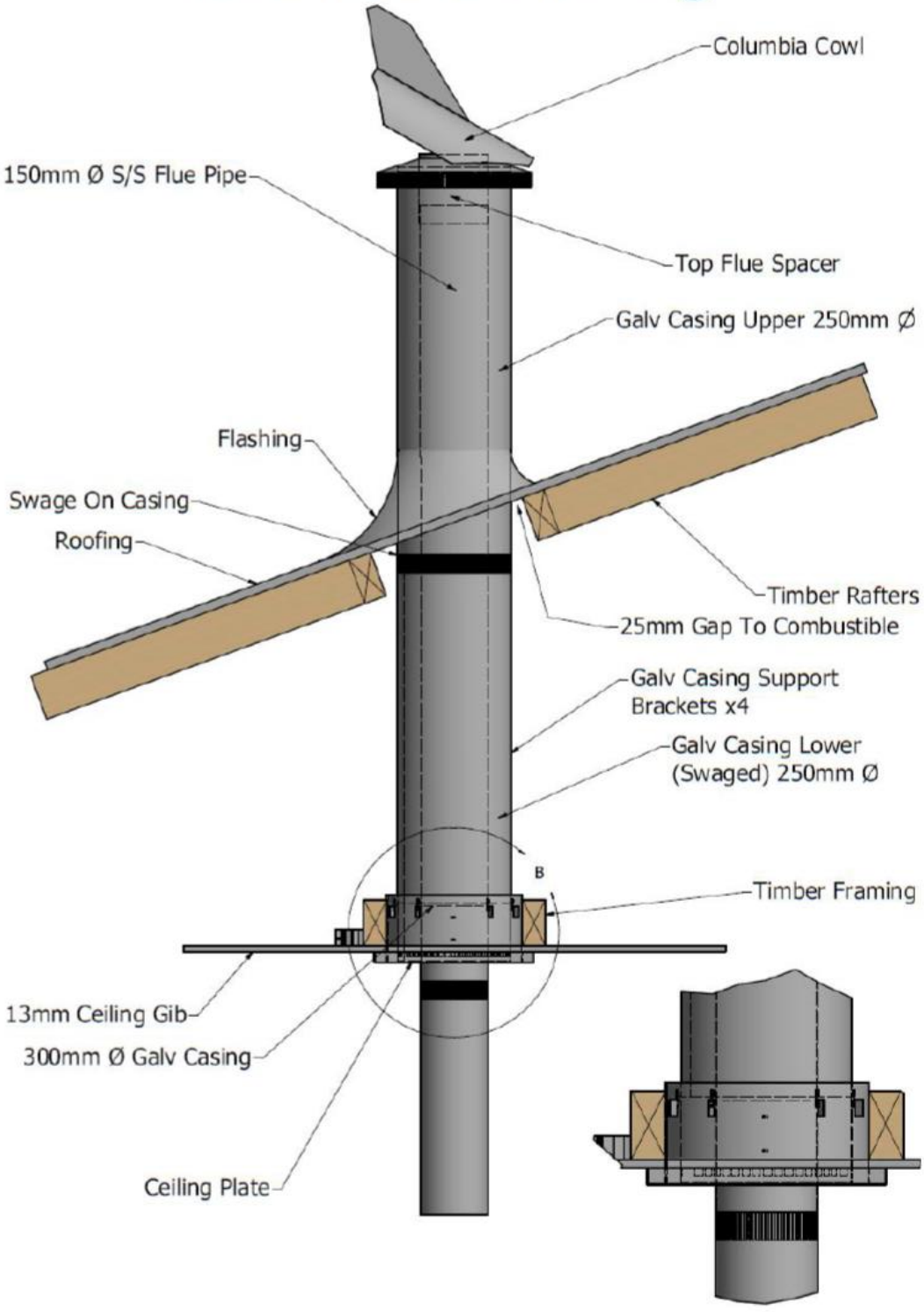
Flue Shield:

None required

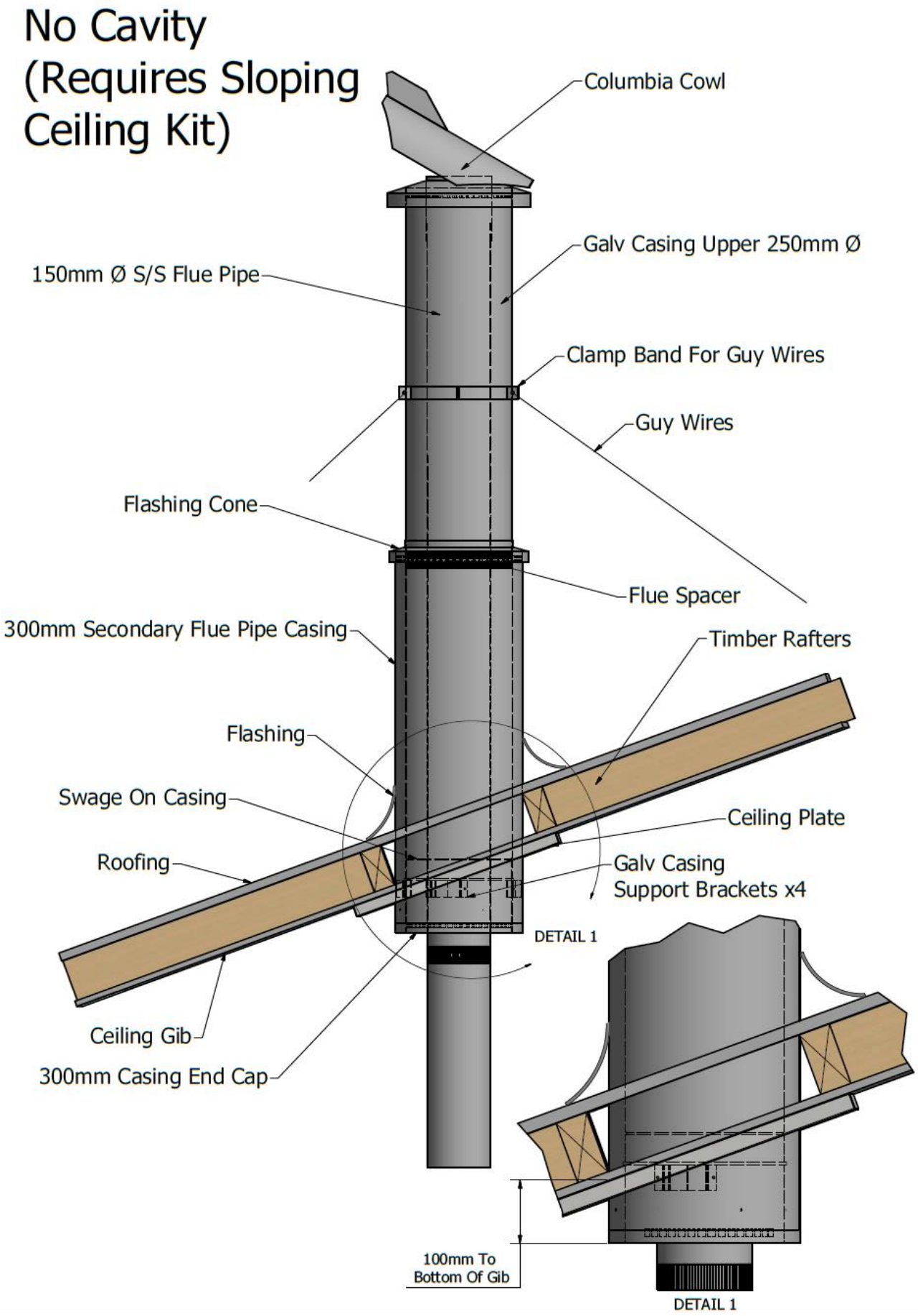
2

HeatSaver Flue Kit Installation

Standard Ceiling

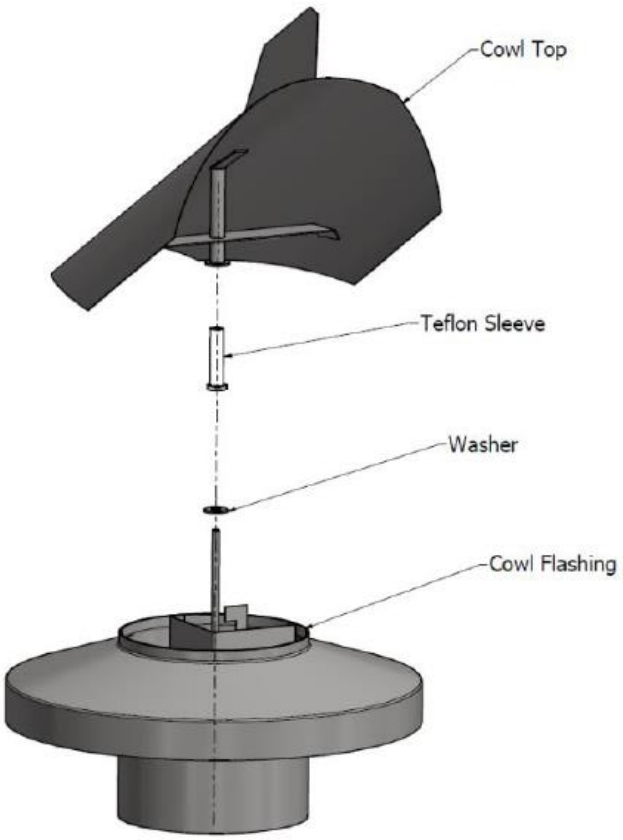


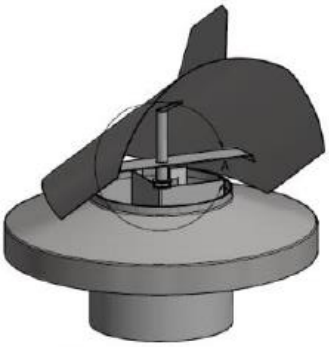
HeatSaver Flue Kit Installation

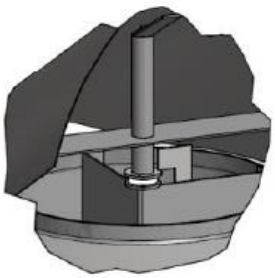


Columbia Cowl

Your Columbia Cowl is fitted with a Teflon Sleeve to reduce noise and wear. The Teflon Sleeve may need to be replaced over the life of the fire and should be checked during an annual service or when the flue is cleaned. If the shaft is dry and dirty, it should be cleaned back to a bare metal finish and a thin layer of graphite or high temperature grease applied before replacing the Teflon Sleeve.
Older versions of the Columbia Cowl do not have a Teflon Sleeve and require re-greasing one to two times a year







HeatSaver Flue Kit Installation

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Report 09/1943 **January 27th, 2009** **Page 1/1**

Customer: **W.H. Harris Ltd.**
41 Braddon St.
P.O. Box 4043
CHRISTCHURCH

COPY

P701/1

Accreditation Laboratory Registration Number 395

This laboratory is accredited by International Accreditation New Zealand (IANZ). The tests reported herein have been performed in accordance with the terms of our accreditation. This accreditation does not extend to any opinions or any interpretations of test results contained in this report.

IANZ has a Mutual Recognition Arrangement (MRA) with the National Association of Testing Authorities (NATA), Australia, such that both organizations recognize accreditations by IANZ and NATA as being equivalent. Users of test reports are recommended to accept test reports in the name of either accrediting body.

Compliance Certificate

Appliance: HeatSaver 150 mm Diameter Flue Kit

Test Standard: AS/NZS2918:2001 Appendix F

Full Report: 02/749R

(The full report contains the information on the test methods, details of the appliance tested and the results of the test)

This report:

Prepared by: W. S. Webley

Approved by: W. S. Webley

Release Date: 2/3/09

Lighting Procedure

Because a downdraft fire operates differently from a traditional fire, it is important to follow these steps to ensure the fire will operate as intended and to ensure a clean and efficient light up.

What you will need:

- Approximately 16 pieces of kindling wood, about 1kg in weight
- 4 x pieces of small sized wood (intermediate load 1), approximately 300mm in length, 1.2kg in weight (total)
- 4 x pieces of medium sized wood (intermediate load 2), approximately 300mm in length, 2.5kg in weight (total)
- 2 x fire lighter cubes
- 1 x long handle lighter

Important: Ensure installation instructions have been adhered to before lighting the appliance.

For your comfort, it is advised that you light your first fire with the windows open to allow the escape of paint fumes. This will normally happen for the first 30 minutes of the first burn. Ensure the fire is run at a high temperature during this period.

Step 1.
Loading the kindling wood

Stack the 16 pieces of kindling wood in a 'cross stack' style with the 2 fires lighter placed at the front of the stack.

Lighting Procedure

Step 2.
Light the kindling wood

Light the 2 fire lighter cubes and immediately push the door to a 'cracked open' position

Leaving the door in the 'cracked open' position, is a very important part of the start up process. In this position, the door should **not** be fully closed. It should just be gently push closed until the door latch just rests against the firebox, without engaging the door handle, leaving an opening between the door and the firebox.
If the door is fully shut, the fire will go out because the fire is not up to operating temperature. This is because the door handle opens and closes the 'bypass damper' which changes the operation of the fire from updraft to downdraft. Downdraft can only be sustained when the fire is up to temperature.

5 to 10 mins

Step 3.
Place 'Intermediate load 1' into the fire

After approximately 5 to 10 minutes (or when the kindling wood has fully ignited), place the 4 pieces of small wood (intermediate load 1) into the fire and return the door to the cracked open position.

Lighting Procedure

5 mins

Step 4.
Place 'Intermediate load 2' into the fire

After approximately 5 minutes, place the 4 pieces of medium wood (intermediate load 2) into the fire and return the door to the cracked open position.

6 mins

Step 5.
Close the door

After approximately 6 minutes, the fire is now at a temperature where the fire can be switched into downdraft mode. Simply raise the door handle to 90 degree position, push the door fully against the firebox, and push the door handle downwards so that it tightly engages the catch. In the fully closed position the fire will operate in downdraft mode.

Cracked Open Position

Fully Closed

Normal Operation

Once you have completed the start-up procedure, your fire is ready to resume its normal operation.

The fire is designed to take 2 pieces of wood approximately 300mm long and about 1.5kg each (total load of 3kg).

Your appliance should be reloaded when the previous load has burned down to red embers.

The Ferva Saturn is design to be reloaded in a similar way to traditional fires, simply open the door, place the logs in an appropriate position and close the door.
The action of the door handle will release the by pass damper when opened and close it when the door is fully closed, so no additional operation is required for this feature.

Once the logs are in place and the door is shut, you are free to adjust the main air control to run the fire on either a high or low setting.

Important: firewood should be loaded in a sideways direction when operating this appliance.

The door must be closed at all times during the operation, except during the light up procedure, refuelling and occasional poking of the fire when necessary. Ensure door seals are maintained in good condition.

Cleaning and Maintenance

Removal of Ashes from fire

Step 1.
Remove Crucible Cap

Step 2.
Using an appropriate tool, scrape ashes down the centre hole

Step 3.
Open bottom door and remove ash tray and safely dispose of ashes

Step 4.
Return the fire to its normal configuration

Disposal of Ashes
Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground well away from all combustible materials, pending final disposal once cooled.

Caring for your Fire

Cleaning your Glass
Wiping your glass regularly with a damp cloth when cold will keep the glass clean. If a thick build up of creosote builds up, oven cleaner works well to remove it.

Cleaning the Outside of the Fire
Ferva fires are finished in a high temperature paint. Only use a damp cloth (no chemicals) when cleaning the outside of the fire. If any scratches occur, you can easily touch up the fire with an aerosol can of matching paint. This is available from your retailer or Harris Home Fires.

Cleaning the Flue
Keeping your flue clean is important. We recommend that you have your chimney swept at least once a year. A blocked flue not only effects the performance of the fire, but can also be a hazard as you are susceptible to chimney fires.

Ash Level
Do not let the level get too high as you run the risk of logs and coals falling out of the fire. You also get less wood in the firebox.

Consumables

Some parts of your Ferva fire are considered consumable. They are designed to be replaced as they will degrade over time. The life of the consumables will vary depending on;

- Frequency of use. How often the fire is used
- Rate of burn. Is the fire burning on low or high the majority of time
- Type of fuel. Some woods are much harsher than others.
- Level of ash.

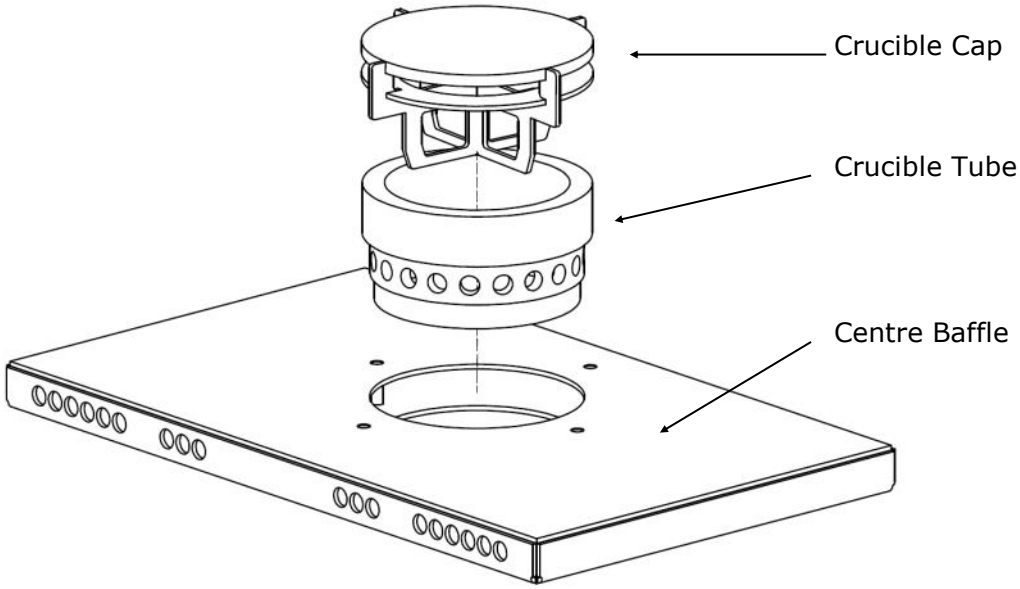
General items that are considered consumables:

- Baffles
- Fire bricks
- Crucible parts
- Glass seals and door ropes

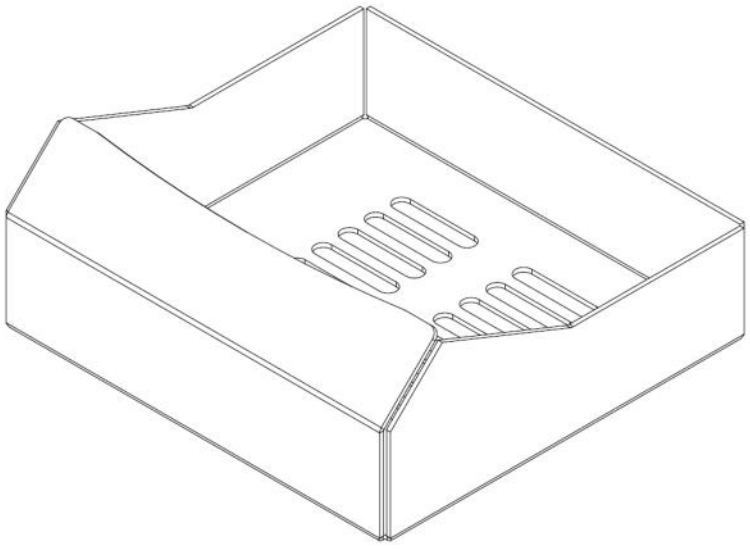
It is very important that you replace these parts when they show sign of wear. They effect how the fire runs and you may increase your fuel consumption or lower your efficiency if not replaced, and can in some cases, damage the firebox. It is generally obvious once a part is in need of replacement. Steel components may split or large holes may appear and fire bricks may disintegrate. Fire bricks that are cracked but still remain in place are completely safe to use and only need to be replaced when they no longer remain in place. A cracked fire brick may still last years of use.
We recommend you check your fire visually several times a year for damaged components.

Consumables

Crucible Parts

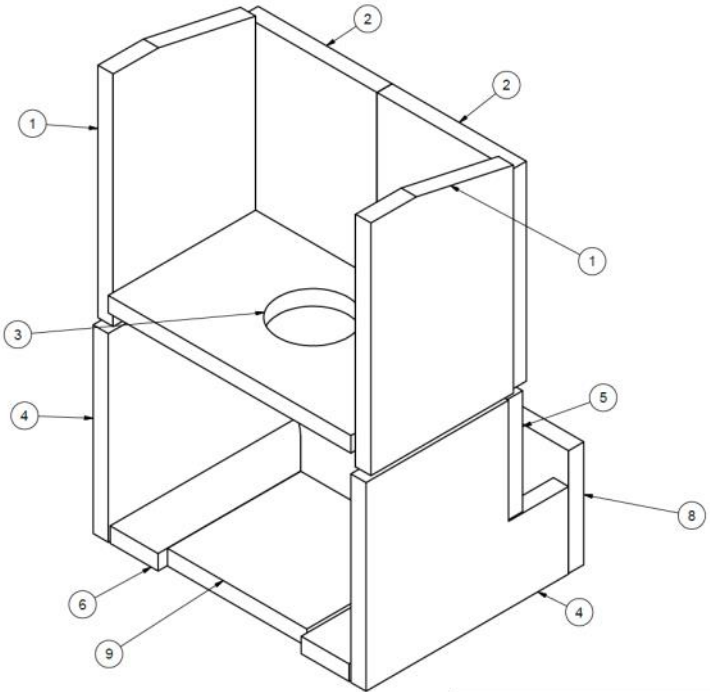


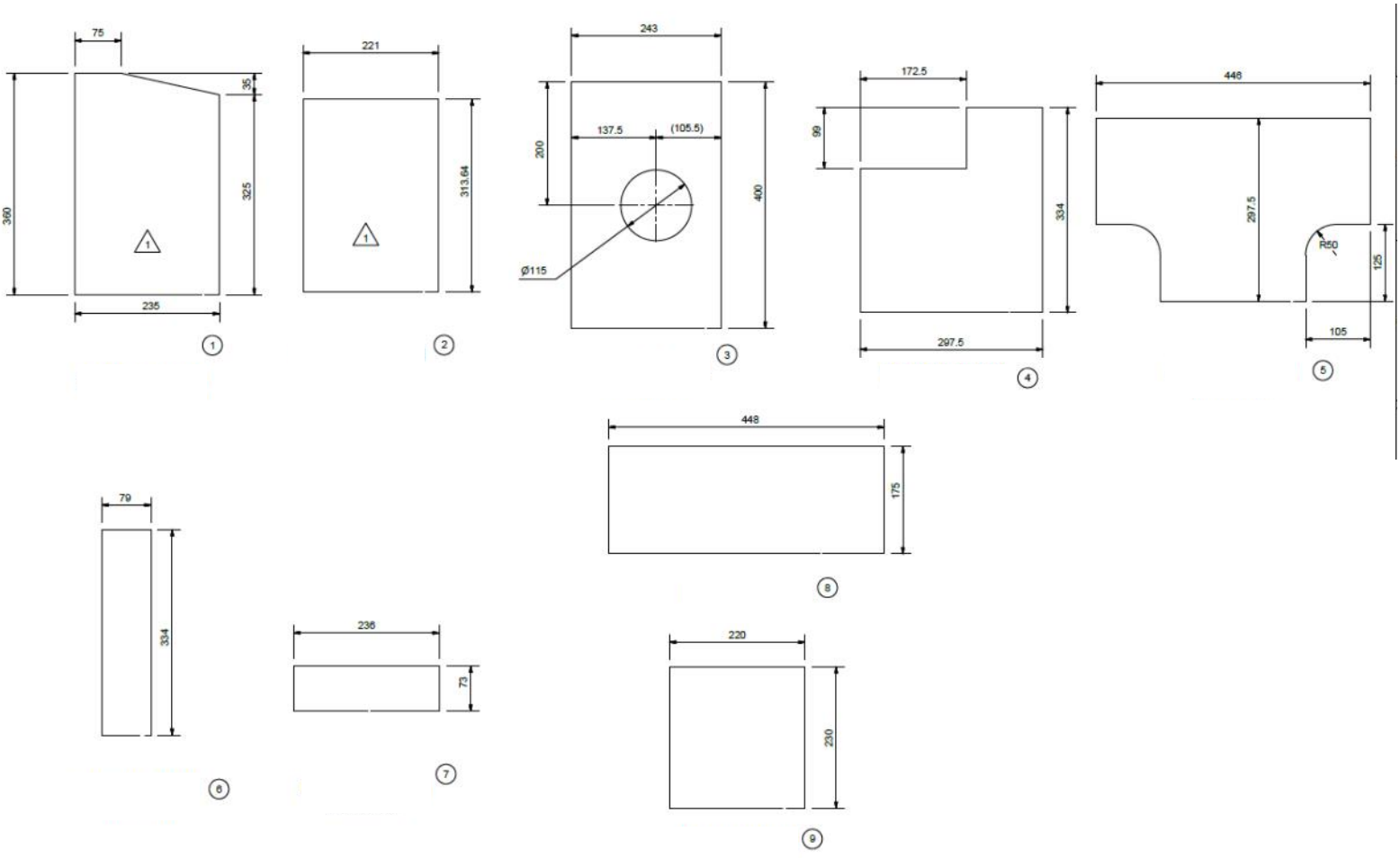
Ash Tray



Consumables

Fire Bricks





Creosote Formation

A small intense fire is preferable to a large smouldering one, to reduce the amount of creosote. When wood is burned slowly it produces tar and other organic vapours, which combine with expelled vapour to form creosote. These creosote vapours condense in the relatively cool flue of a slow burning fire. As a result, creosote residue accumulates on the flue. When ignited, this creosote makes an extremely hot fire.

The flue should be checked at least every 2 months, during the burning season, to determine if a creosote build up has occurred. If this is the case, it should be removed by a chimney sweep to reduce the risk of an unexpected flue fire.

Your appliance has been designed to produce low levels of creosote at high and low settings.

In the event of a chimney fire, close the firebox door, fully close the heat control, vacate the premises and call the fire service.

Storage of Fuel

Do not store fuel within installation clearances or within the space required for refuelling or ash removal.
Wood should always be stored in a dry place out of the rain. We recommend your wood be seasoned for at least 3 months before use. Dry wood also burns hotter and more efficient than wet wood.

The fuel approved for use in Clean Air Zones in this appliance is wood with a moisture content of less than 25% of dry weight. This usually means green timber left for at least three months to air dry.

Useful Tips
Get the most out of your fire

Tips for lighting the fire
- Use finely cut, dry kindling wood.
- Firelighter cubes or gel work best when ensuring ignition of the kindling.
- Cross stack kindling over and around fire lighter like a small tower.
- Use ample kindling wood to ensure a good fire, you want to get the fire hot as fast as you can.

Tips to help get the highest heat output:
- Open the air slide to increase the amount of combustion air to the combustion zone.
- Use smaller pieces of wood and lots of it. Small pieces of wood have a larger surface area compared the same volume of wood but in larger pieces.
- Feed the fire regularly. Keep the fire topped up with fresh wood to keep the temperature up in the combustion zone.
- Use dry wood. Wood with a moisture content of less than 16% will burn much hotter than damp wood. Use a moisture meter to determine the moisture content of the wood.
- Use a soft wood. Soft woods like Radiata Pine burn fast and hot.

Tips for increasing the burn time:
- Shut down the air slide to decrease the amount of combustion air to the combustion zone.
- Use large pieces of wood. Large pieces have a smaller surface area compared to small pieces of the same volume and will burn slower.
- Use a hard wood like Blue Gum (where permitted). Hard woods are denser and take longer to burn.
- Completely fill the fire box with large pieces of wood. The more wood in the fire, the longer it takes to burn.
- Load the wood at the right time. If you load the fire when there is a large amount of red embers, the wood will all combust at the same time. A good idea is to let the fire burn down quite considerably and push the embers off to one side. Stack the wood in the firebox and the wood will ignite on one side only and slowly burn from one side to the other.

Operating Instructions for the Thermoelectric Generator (TEG)

Your TEG is designed to automatically turn on when the fire is in use and will automatically turn off once the fire has cooled down. There is no on/off switch.

The fan has 2 settings.
(I) Low or quiet setting (switch down)
(II) High setting (switch up)

Adjust the fan speed to suit your needs. The high setting should be used to distribute the heat quicker and the low setting to be used once the room is up to temperature or you desire the quiet setting.

The LED light indicates when the unit is generating power.

When you light the fire, it will take approximately 15 to 20 minutes until the fan is operational. The LED light will come on some time before the fan has started. The fan may run for some time after the fire has gone out.

Your TEG does not require any maintenance, but the fire will require normal maintenance as illustrated in this manual.

The USB socket can be used to charge cell phones and other portable USB devices. It supplies 5VDC @500mA. Only connect one device at a time.

IMPORTANT

It is very important that the rear fire bricks in the bottom chamber remain in place. If removed, the TEG may be damaged from overheating. Cracks in the rear bricks are totally acceptable as long as they remain in place. If your rear bricks are severely damaged and can no longer remain in place, they should be replaced before using the fire.

Because the TEG is a low voltage system, there is no risk of electrocution from the appliance. DC devices are considered very safe.

Trouble Shooting

My fire won't turn down

The first thing to be aware of is that some new clean air fires do not shut down like old fires. Old fires used to shut all the way off and the wood would just smolder.
Other reasons for this problem may be:

- Consumable parts have burned out and needs replacing, visually check.
- Door seal is not sealing properly and may need replacing. Take a thin strip of news paper, close the door on it at various spots, if the paper can be easily pulled out, then either a new door rope is needed or door latch needs adjusting by redistributing the washers on the door latch.

There is rust on my fire

Rust appearing on your fire can only occur when moisture or water is present and has began to oxidize the steel.

- Identify where the water or moisture has come from and fix the problem.
- Lightly sand the effected area and use matching FERVA aerosol high temperature paint to touch up.

My glass is dirty

Your glass can get dirty easily if you use poor quality or wet wood or spend a lot of time with the fire on the low setting.

- Give the fire a good hot run on the high setting to burn off the residue on the door
- If that fails, there are special cleaners especially for this purpose or oven cleaner works well. Do not get chemicals on the paint work.

My fire smokes when I open the door

There are many reasons which may cause this symptom and it is often a process of elimination to remedy the problem.

- Your flue length may be too short. Even though it may be of legal length, every installation is different and you may require an additional length of flue.
- Your flue may be blocked, have the flue looked at.
- The baffle may not be in place correctly, visually check to see if it has moved.
- You may need a cowl like the Columbia cowl to help encourage draw, especially where there are environmental problems like high winds.
- Your flue may be getting too cold. If the flue gases get too cold, they can struggle to be exhausted and when the door is opened, they find it easier to exit via the door than the flue. If you suspect your flue is getting cool, turn the fire up onto high for a few minutes before reloading, this will increase the temperature of the flue and increase the flue draught.
- Check that the installer has sealed **ALL** the flue joints and there are no gaps which will leak air into the flue, reducing the draw.

The paint has been damaged

Paint finishes are not as durable as enamelled finishes, but they are extremely quick and easy to touch up and the fire can look new in minutes.

- If damage has occurred to the paint, lightly sand the effected area and touch up using Ferva High Temperature Paint.

My fire seems to be performing poorly, not burning well on high

If your fire doesn't seem to burn well at the high level, check the following:

- Negative pressure, make sure there are no extraction devices like fans creating a negative pressure in the home.
- The flue length is long enough.
- The wood is dry.
- The flue is clean.

FERVA

10 Year Firebox Warranty

1 Year Parts Warranty

Your FERVA fire is warranted for a period of 1 year to the original purchaser, from the date of purchase, against defective materials and workmanship which includes the firebox and all parts.

If a part defect occurs, return the part to the retailer or directly to Harris Home Fires along with a copy of the retailers receipt and the part will be replaced at no cost.
If a firebox defect occurs, either contact the retailer or Harris Home Fires and it will be repaired or replaced at our discretion with all costs covered.
This warranty does not cover damage caused by mishandling, misuse, failure to follow the manufacturer's installation and operating instructions, or work done by others, such as installers, or plumbers etc. The manufacturer shall not be responsible for site conditions such as insufficient draught, downdraughts, or routine servicing and adjustments.
Damage caused by the failure to replace consumables like air tubes, baffles and fire bricks may void the warranty.

Your FERVA firebox is then covered by a further 9 year warranty against defective materials and workmanship during normal domestic use.
In the case of a claim after the first year, this warranty covers the replacement or repair at the manufacturer's discretion and includes freight, painting and all required refurbishment.

TEG TECHNOLOGY

Your Thermo-Electric Generator (TEG) is covered by a 1 year warranty which includes labour. In the event of a failure after the first year you may purchase a replacement TEG or may send the unit back to HHF for refurbishment. It may be that only a minor part needs replacing which will significantly reduce the cost.

harris HOME FIRES

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