

## OPERATING INSTRUCTIONS FOR YOUR ECO ANGUS BOILER

### Batch burning/Starting a Fire

1. Make sure that the loading chamber and the combustion chamber is clear of ash, charcoal or any metal items.
2. Turn the control panel on and in this instance the pump light will flash just to actuate the pump on the Laddomat valve for 30 seconds.
3. Add some paper to the base of the loading chamber and put some kindling and smaller pieces of wood on top so the loading chamber is maybe 20% full.

NOTE: It is essential all the wood put in the boiler is dry typically 15 to 20% moisture content .

4. Open the chimney flap, turn the chimney fan on and leave the door of the combustion chamber slightly ajar to aid the chimney draft.
5. Light the fire with a match or a blow torch either from the loading chamber or from underneath the slit nozzle at the base of the loading chamber and then shut the loading chamber door.
6. After about 5 minutes open the loading chamber door and then add some more wood until you are about 35% full with some slightly larger pieces of wood to build up the ember layer.
7. After another 10 minutes or so when the control panels has reached about 55°C open the loading chamber and use the poker to ensure an even ember layer.
8. Fill the loading chamber up to 50% with wood. It is best to place the logs lengthways one on top of another.
9. Shut the loading chamber door and the combustion chamber door.
10. Shut the chimney flap and turn off the chimney fan.
11. Press the red button on the control panel and set the temperature required on the control panel if batch burning to 84°C initially.
  - (i) When the temperature gets to 65°C the pump light will come on and the pump will start on the Laddomat valve. Invariably the temperature will **initially drop to around 55°C** as the cooler water from the base of the accumulator tank will slowly be mixed with the water on the flow from the boiler.
  - (ii) The pump light and the pump goes off at 60°C but will come back on at 65°C. This process can happen two or three times depending on the temperature of the primary water in the accumulator tank.

- (iii) The temperature will then climb to **72°C** and hold around or just above this temperature as there is a 72°C thermostatic cartridge in the Laddomat valve controlling the return temperature and aiding heat stratification in the tank. In practice it will hold on the control panel between 72°C and 78°C.
- (iv) After 30 minutes (approximately) you can then fill the loading chamber full and increase the required temperature to between 90°C to 92°C from 84°C if the control panel is showing a temperature in the mid 70's.
- (v) When the bottom temperature gauge reaches 72°C (which will take about 4 hours) it is then that the temperature will start climb into the 80's on the control panel and eventually if there is enough wood in the loading chamber reach the 90°C to 92°C set temperature.

This is because the Laddomat valve will be fully open when the return temperature from the accumulator tank is 72°C.

- (vi) A full batch burn will last approximately 5 to 6 hours.

#### **NOTES:**

1. It is usual that after reaching 72°C on the control panel (after about 30 minutes) the next 4 to 5 hours of burn time will be held at this temperature before the final stage of the burn that will last for 1 to 2 hours to raise the temperature to that set on the control panel.
2. When batch burning when the wood has fully burnt out after this 5 to 6 hour period it is best to turn off the boiler on the main switch unless you have a flue thermostat fitted to your installation. This way you saved the maximum amount of heat in the accumulator tank otherwise the pump on the Laddomat valve will run until the water jacket of the boiler reaches 60°C and this has the effect of slightly reducing the overall temperature in the tank itself.

## Reloading

### Boiler in Gasification Mode (Green Fan Light **ON**):

1. Check that the green fan light is on (Boiler in gasification mode).
2. Press the red button on the control panel - **This will hold up the boiler fan for up to 2 minutes.**
3. Turn on the chimney fan and open the chimney flap.
4. **Wait 30 seconds**
5. **Slowly** open the loading chamber door
6. Ensure there is an even ember layer – utilise poker provided if required to evenly distribute the embers.
7. Add wood as required.
8. Shut the loading chamber door.
9. Shut the chimney flap.
10. Turn the chimney fan off.
11. Press the red button on the control panel and the boiler will go back into gasification mode.

NOTE: If you take longer than **2 minutes** during reloading **the boiler fan will automatically turn on.** If further time for loading is required, press the red button on the control panel again and this will hold up the boiler fan for a further 2 minutes.

### Boiler in Slumber Mode (Green Fan Light **OFF**):

1. Check that the green fan light is off (Boiler in slumber mode).
2. Turn on the chimney fan and open the chimney flap.
3. **Wait 30 seconds**
4. **Slowly** open the loading chamber door
5. Ensure there is an even ember layer – utilise poker provided if required to evenly distribute the embers.
6. Add wood as required.
7. Shut the loading chamber door.
8. Shut the chimney flap.
9. Turn the chimney fan off.

## **Running the boiler 24/7**

In these circumstances the usual required temperature is set between 80°C to 85°C and the boiler is reloaded as and when required dependent on your heating requirements.

See reloading procedures above.

When continuously running the boiler it is important that the ash and products of combustion are cleared out of the combustion chamber **every second day**.

## **Clearing the Combustion Chamber in Continuous Operation Mode:**

1. Press the red button on the control panel - **This will hold up the boiler fan for up to 2 minutes.**
3. Turn on the chimney fan and open the chimney flap.
4. **Wait 30 seconds**
5. **Slowly** open the loading combustion chamber door
6. Place a suitable receptacle (metal ash tray) under the combustion chamber opening.
7. Using the tool provided (poker with the rectangular plate) you can pull forward the ash either side of the firebricks into the receptacle.
8. Spin the tool and pull forward the ash in the firebrick into the receptacle.

### **WARNING:**

**The products of combustion will be hot. Suitable safety measures must be taken.**

9. Shut the loading chamber door.
10. Shut the chimney flap.
11. Turn the chimney fan off.

## Cleaning & Routine Maintenance

### Weekly Maintenance

The following activities should be carried out at weekly intervals:

1. Visually check condition of door seal.
2. Clean Loading Chamber & Combustion Chamber as follows:
  - (i). Turn off the boiler power supply.
  - (ii). Leave the boiler for 12 to 24 hours to cool down.
  - (iii). Clean out the loading chamber.

**WARNING: Ensure that the boiler has been switched off and allowed to cool before cleaning the loading and combustion chambers.**

- (iv). Clean out the combustion chamber and remove the firebricks.
- (v). Ensure all ash deposits are removed (including underneath the heat exchanger tubes) by pulling forward the heat exchanger handle so the turbulators are off the base of the combustion chamber and remove all the ash and products of combustion.
- (vi). Check heat exchanger cleaning handle is moving freely (with about 90 degrees of play). If the handle is very stiff or cannot be moved the heat exchangers may need a more in depth clean – cleaning procedure is available on request.

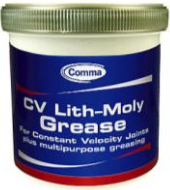
**NOTE:** If the turbulators are seized you will need a special tool to remove them for cleaning. The tool is available from Eco Angus – cost will be £85 + vat including delivery.

## Monthly Maintenance

The following activities should be carried out at monthly intervals:

1. Ensure that weekly maintenance activities have been carried out.
2. Loading Chamber & Combustion Chamber Door Seals:
  - (i) Visually check condition of door seal.
  - (ii) For doors fitted with a fibreglass rope type seal – the fibreglass rope should be coated with grease (CV/Lith Moly Grease). If the grease coating is absent or degraded, recoat with grease as required.

### **NOTES:**

1. Fibreglass Rope Door seal **must** be coated with grease at least once per month.
  2. CV/Lith Moly Grease is widely available from motor factor/ auto spares outlets such as Halfords.
  3. CV/Lith Moly Grease specified above is provided by Comma (Safety Data Sheet attached). If alternative CV/Lith Moly Grease is used the operator must consult the safety data sheet for the product before use.
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3. Loading Chamber & Combustion Chamber Door Handles:
    - (i) Apply CV grease on handle mechanism and door lock cam plates.

**NOTE:** Vaseline can be used on door handle mechanism if CV/Lith Moly Grease is unavailable.

## Other Maintenance:

Every 2 Months

4. Clean out boiler fan with soft bristle brush

**NOTE:** A vacuum cleaner can be used to remove the dust from the boiler fan. If this method is used ensure that the fan shield is fully open and the boiler fan is on.

Every 4 Months:

5. Sweep the chimney/flue including base of chimney fan.



## SAFETY DATA SHEET

COMMA - C V GREASE

Page: 1

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### Section 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product name: COMMA - C V GREASE

Product code: CV500G

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: Grease.

#### 1.3. Details of the supplier of the safety data sheet

Company name: Comma Oil &amp; Chemicals Ltd.

Dering Way

Gravesend

Kent

DA12 2QX

Tel: +44 01474 564311

Fax: +44 01474 333000

Email: sales@commaoil.com

#### 1.4. Emergency telephone number

Emergency tel: +44 01474 564311

### Section 2: Hazards identification

#### 2.1. Classification of the substance or mixture

Classification under CHIP: This product has no classification under CHIP.

#### 2.2. Label elements

Label elements under CHIP:

Hazard symbols: No significant hazard.

#### 2.3. Other hazards

PBT: This substance is not identified as a PBT substance.

### Section 3: Composition/information on ingredients

#### 3.2. Mixtures

##### Hazardous ingredients:

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHENIC; BASE OIL-U

EINECS	CAS	CHIP Classification	CLP Classification	Percent
265-155-0	64742-52-5	Substance with a Community workplace exposure limit.	-	30-60%

RESIDUAL OILS (PETROLEUM), SOLVENT-DEWAXED; BASEOIL - UNSPECIFIED

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