

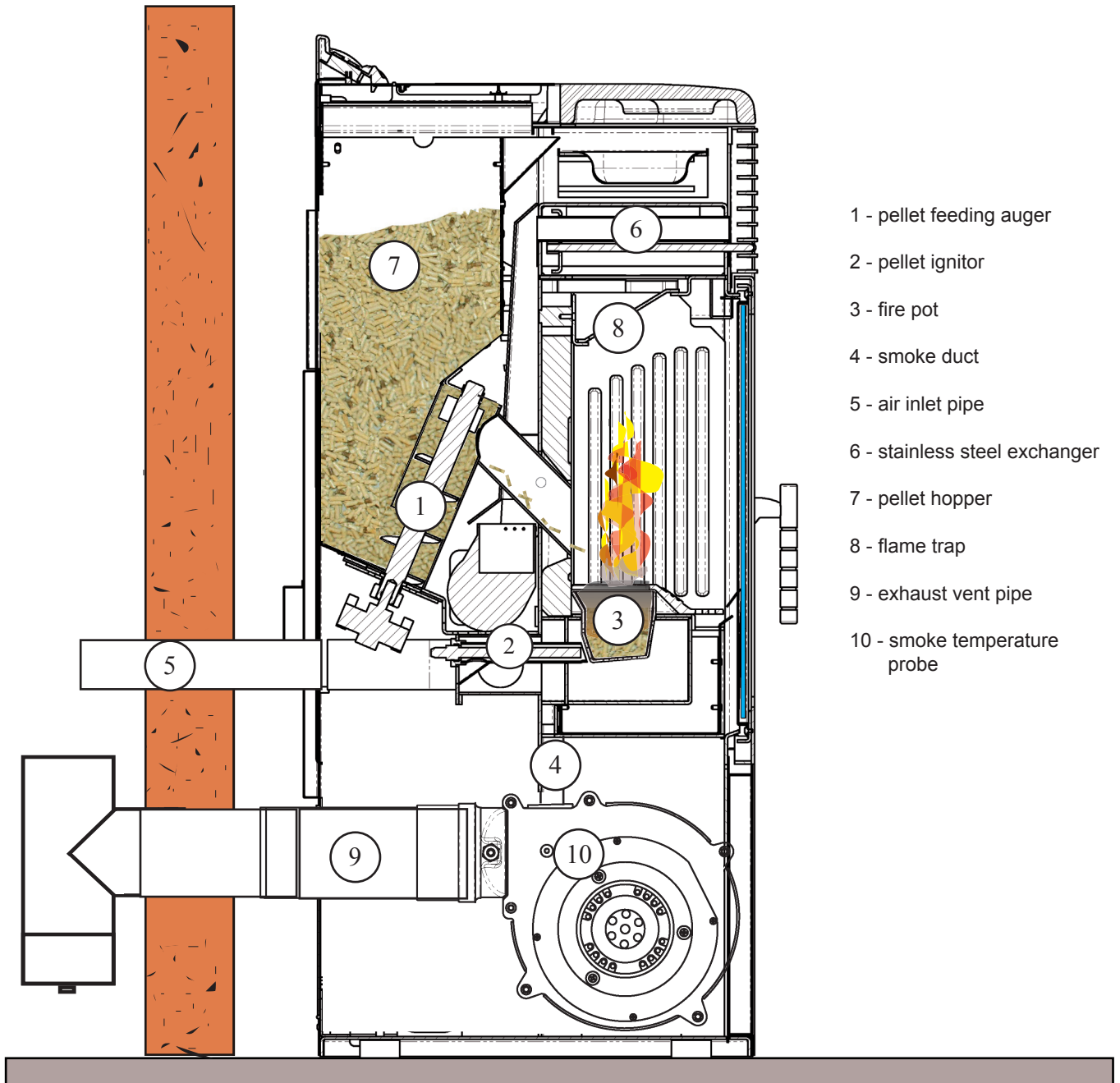
For USA-CANADA (110V - 60 hZ - °F)



INSTALLER'S MANUAL FOR "FLOW LINE, DESIGN LINE & BOX LINE" models

(for models with FLASH motherboard)- 01/NOV. 6th- 2008

1. How a stove is made



- 1 - pellet feeding auger
- 2 - pellet ignitor
- 3 - fire pot
- 4 - smoke duct
- 5 - air inlet pipe
- 6 - stainless steel exchanger
- 7 - pellet hopper
- 8 - flame trap
- 9 - exhaust vent pipe
- 10 - smoke temperature probe

This diagram shows the internal parts of a pellet stove.

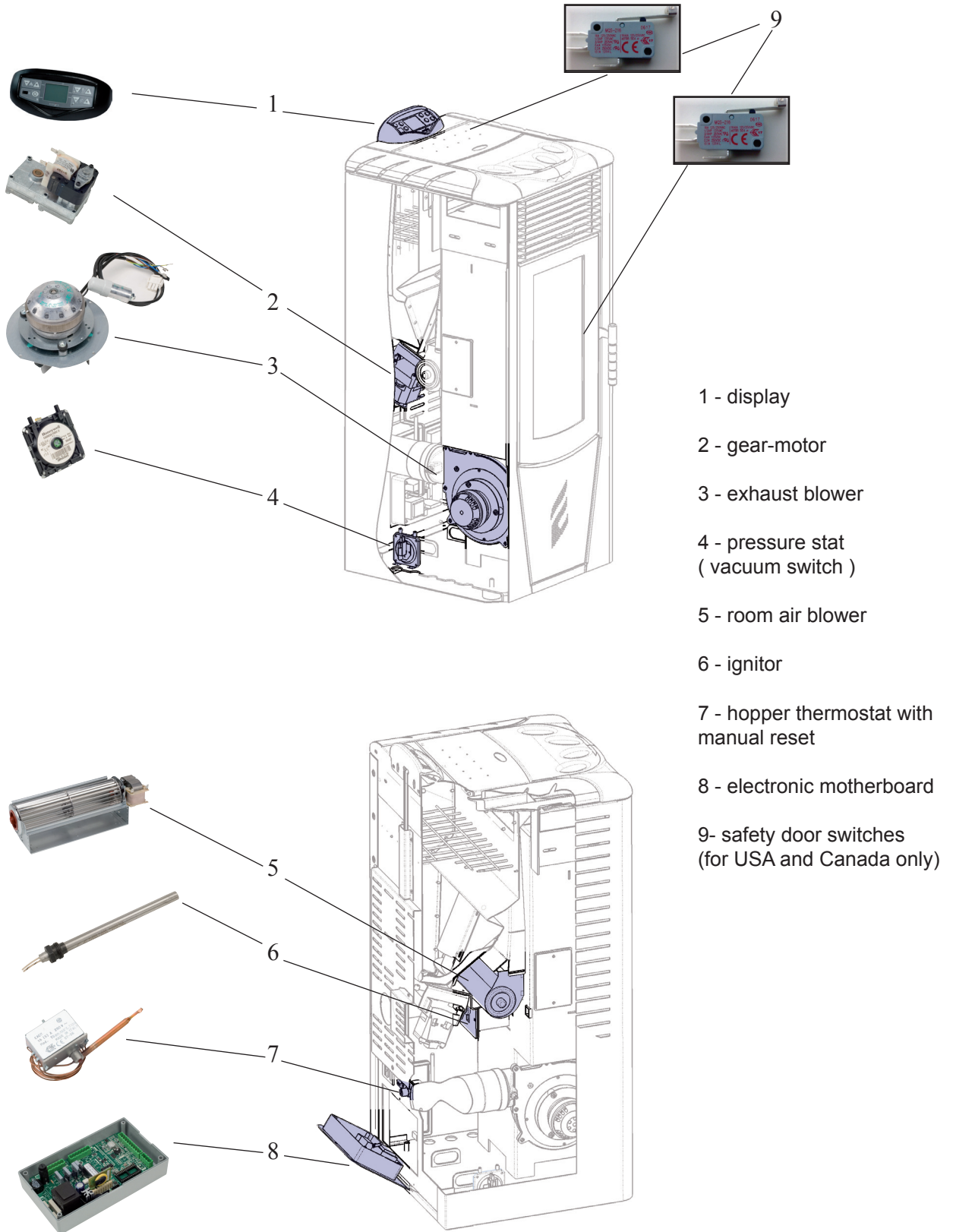
When the hopper is filled (7), the pellets are loaded into the firepot (3) by means of the auger (1). Ignition takes place via the ignitor (2) that overheats the air coming from the inlet (5), which, when in contact with the pellet, will allow the flame to develop.

At this point the discharge smoke is diverted towards the stainless steel exchanger (6) and through the smoke suction duct (4), it is then discharged into the exhaust pipe through the connection made with the smoke discharge (9).

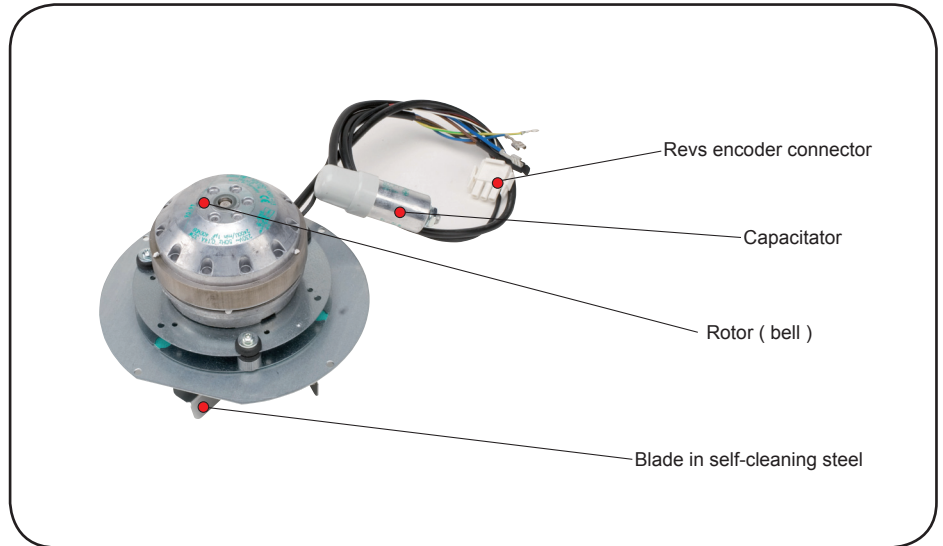
10 - smoke temperature probe

2. Components of a pellet stove

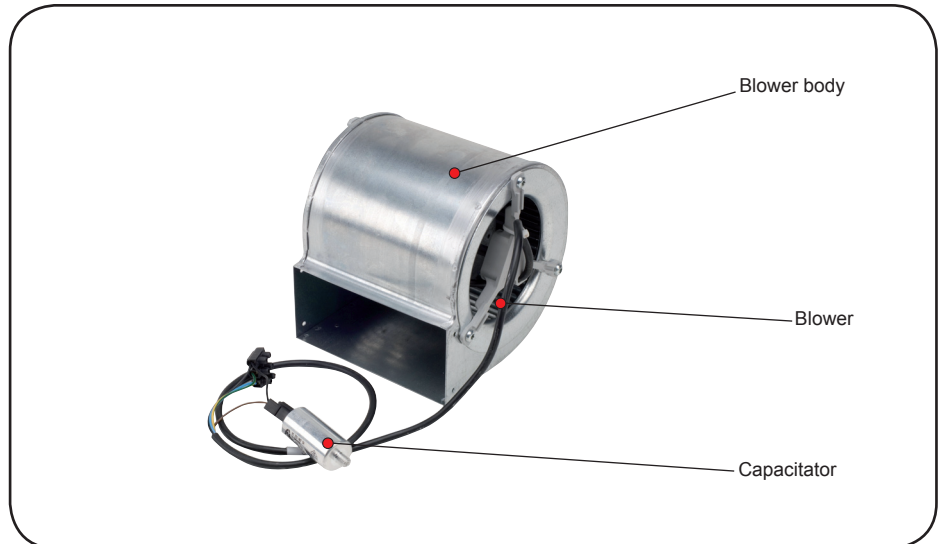
A series of electric devices are mounted inside the pellet stove that allow it to work properly. There are 9 main elements :



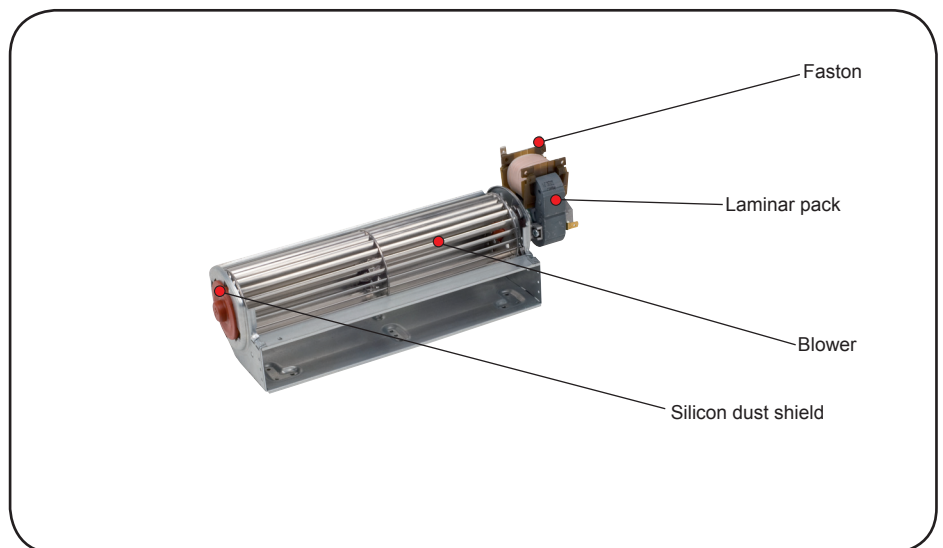
EXHAUST BLOWER



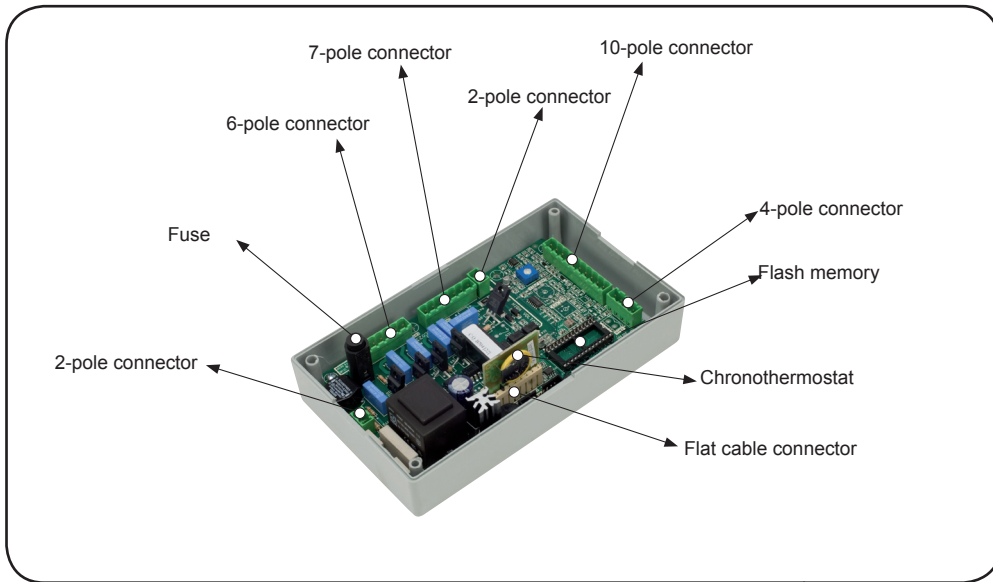
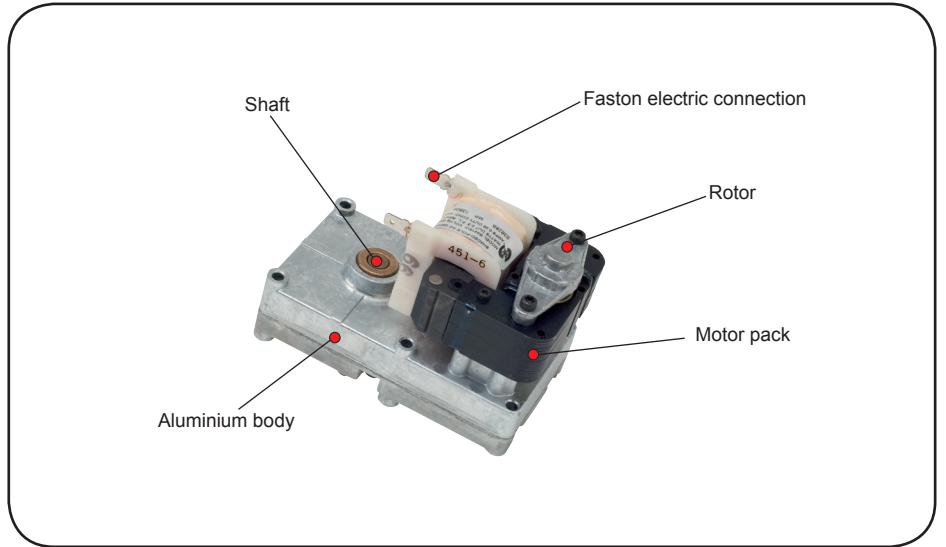
ROOM AIR BLOWER



ROOM AIR BLOWER



GEAR-MOTOR



ELECTRONIC MOTHERBOARD



DISPLAY



FLAT CABLE
(Connects from display to motherboard)



The VACUUM SWITCH is an electro-mechanical safety device that guarantees that the smoke duct is always free. It works by depression.



The HOPPER THERMOSTAT WITH MANUAL RESET checks that the hopper temperature never exceeds 90°C (194°F).



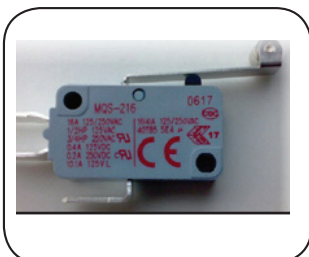
The SMOKE PROBE constantly measures the temperature of the stove's discharge smoke. It is fundamental that it is inserted correctly inside the smoke suction hose.
IMPORTANT! The smoke probe decides if the stove must be ignited or switched off.



The ROOM PROBE measures the temperature of the room where the stove is installed. You are advised not to rest the probe on the floor or against the wall. If possible tie the probe with the power supply cable so that it does not remain in contact with the floor or the wall.



The ELECTRIC FILTER guarantees that the correct voltage reaches the electronic motherboard. Otherwise a fuse is installed that must be replaced.



Hopper and front door safety switch (for USA and Canada only)

Table of contents

1.0	Operating conditions of a stove with ECT2008 AIR/BOX firmware	Page	4
1.1	Initial message	Page	4
1.2	Initial conditions of a stove	Page	4
1.2.1	“Cold” ignition phase	Page	5
1.2.1-A	Ignition phase	Page	5
1.2.1-B	Stabilisation phase	Page	6
1.2.1-C	Work phase	Page	6
1.2.1-D	Modulation phase	Page	6
1.2.1-E	Comfort climate	Page	6
1.2.1-F	Switching off phase	Page	7
1.2.2	Hot Re-ignition phase	Page	9
1.2.2-A	Re-ignition phase	Page	9
2.0	Supplementary Functions - Freestanding Stoves	Page	12
2.1	Automatic screw feeding	Page	12
2.2	Modify “SELECT RECEIPT”	Page	12
2.3	Pellet-air blend setting	Page	12
2.4	State of stove menu	Page	13
2.5	“TIME CLEAR” menu	Page	13
2.6	“FACTORY DEFAULT SETTINGS” menu	Page	13
2.7	“CLOCK SETTING” menu	Page	14
2.8	“CHRONOTHERMOSTAT SETTING” menu	Page	15
2.9	“SELECT LANGUAGE” menu	Page	15
2.10	Comfort climate activation	Page	15
2.11	Fast Access Menu	Page	15
3.0	Supplementary Functions - Inserts	Page	16
3.1	Automatic screw feeding	Page	16
3.2	Modify “SELECT RECEIPT”	Page	16
3.3	Pellet-air blend setting	Page	16
3.4	Rapid access menu	Page	16
3.5	“TIME CLEAR” menu	Page	17
3.6	“FACTORY CALIBRATIONS” menu	Page	17
3.7	“DATABASE” menu	Page	17
3.8	“CLOCK SETTING” menu	Page	17
3.9	“CHRONOTHERMOSTAT SETTING” menu	Page	17
3.10	“SELECT LANGUAGE” menu	Page	18
3.11	Comfort climate activation	Page	18
3.12	How to associate the remote control to the stove	Page	18
4.0	Alarms	Page	18
4.1	Temperature probe alarm	Page	19
4.2	Hot smoke smoke over-temperature alarm	Page	19
4.3	NO IGNITION Alarm	Page	19
4.4	Flame anomaly alarm	Page	19
4.5	No pellets alarm	Page	19
4.6	Black-out alarm	Page	19
4.7	Screw safety pressure stat alarm	Page	19
4.8	General thermostat alarm	Page	19
4.9	Suction-smoke fan faulty alarm	Page	20
4.10	Extractor anomaly alarm	Page	20
4.11	Screw blockage alarm	Page	20

5.0	Pellet stove operating statuses	Page	21
6.0	Operations linked to the “Final Clean” phase	Page	22
6.1	“Final clean” without Re-ignition attempt	Page	22
6.2	“Final clean” with Re-ignition attempt	Page	22
7.0	Temperature settings	Page	23
7.1	Settings via DISPLAY	Page	23
7.1.1	Connection status of the environment probe	Page	23
7.2	Setting via “EXTERNAL THERMOSTAT”	Page	23
7.2.1	Connection status of the external thermostat	Page	23
7.2.2	Operating procedures with external thermostat	Page	24
7.3	Table of thermostat settings (AIR and BOX versions)	Page	24
8.0	Safety Switches	Page	25
8.1	Safety Device for Auger when opening Hopper Door	Page	25
8.2	Safety Device for opening of Front Door	Page	25
9.0	Ducting Hot Air (Elena Airplus, Veronica, Laura) Only	Page	25
10.0	Wiring Diagram (AIR Models)	Page	26
10.1	Wiring Diagram (AIRPLUS Models)	Page	27
11.0	Firmware	Page	28
11.1	Usefulness of firmware	Page	28
11.2	How to use firmware	Page	28

1. 1. OPERATING CONDITIONS OF A STOVE WITH FIRMWARE ECT2008AIR/BOX

1.1. Initial message

A few seconds after stove is switched ON, the message shown in the following figure appears:

-VER. AIR



Fig.1

-VER. BOX



Fig.2

1.2. Initial conditions of a stove

The starting modes of an Ecoteck stove are:

- cold ignition start (t. smoke ≤ minimum threshold PR 13)
- hot ignition or "re-ignition" start (t. smoke > minimum threshold PR 13)

1.2.1 "COLD" IGNITION PHASE - STOVE STATUS "COLD"

This phase refers to every ignition phase with a temperature below the minimum threshold (PR 13)

A pellet stove in these conditions functions in 5 phases:

A - IGNITION PHASE

B - FLAME STABILIZATION PHASE

C - WORK PHASE

D - MODULATION PHASE

E - COMFORT CLIMATE ACTIVATION PHASE

F - SWITCHING OFF PHASE

A - Ignition phase

Ignition conditions:

Stove in "FINAL CLEANING" with attempt to ignite:

- if the temperature of the smoke is less than or the same as the extinction threshold ($T_{\text{smoke}} \leq PR13$), a PR 39 timer is activated (RE-IGNITION BLOCK) "THE DISPLAY SHOWS "FAN WAITING IGNITION". At the end of this time, the stove goes on to the ignition phase;

IMPORTANT!!! The above-mentioned timer (PR 39) has been introduced in order to guarantee the total absence of the flame or unburned pellet inside the fire pot before the stove is switched on.

DISPLAY SHOWING "START": in this phase the ignitor is pre-heated for an established time, linked to parameter PR 31. In this phase loading of the pellet starts according to PR 34 with the exhaust blower still de-activated (the ignition waiting time of the exhaust blower can be varied and regulated by parameter Pr31). When the exhaust blower is activated in the next phase this method makes it possible to have a quantity of pellets in the firepot that is necessary for the flame to start as soon as possible.

DISPLAY SHOWING "WAITING FLAME": in this phase, while the resistance is still working, loading of the pellet continues. At this time the T1 reference value for reading the smoke temperature delta (PR 33 DELTA FLAME) is memorised and this will later result in passing on to the "FLAME LIGHT" phase.

Pellet loading is regulated by PR 34 which indicates an On value on the gear-motor in seconds. To prevent surplus pellet inside the fire pot caused by non-ignition, the parameter PR32 has been set to limit loading time during the ignition phase.

N.B. : If, in the maximum time set for the auger to run (PR32), the smoke probe notices an increase in temperature equal to the value set in PR 33, the stove goes on from the WAITING FOR FLAME to the FLAME LIGHT phase without considering this time any more.

N.B. : If the switchboard does not give a warning that there is an increase in temperature equal to the value set in the PR 33 within the maximum "TIME OUT" (PR 01) the stove goes onto "NO IGNITION ALARM"

B - Flame stabilization phase

DISPLAY SHOWING "FLAME LIGHT": in this phase the ignitor automatically goes to the OFF status; the smoke extractor switches on at a number of revs set in the PR 17 parameter. The auger runs following parameter PR 05 and the flame will have a few minutes (PR 02) for stabilization.

During this phase, which has a given duration in minutes, (PR02), a check is carried out on the increase of the smoke temperature. The system memorizes the smoke temperature T0 at the time the starting phase. Then, at a frequency of one minute, a check is made to ensure that the temperature increases correctly.

C - Work phase

DISPLAY SHOWING "WORK": The stove carries out all the powers from PR 01 until it reaches the set one, while the heat exchanger, if the PR 15 "EXCHANGER THRESHOLD" is satisfied, switches on immediately at the set power.

When the stove is finally in work phase (ie. it reaches the preset power) the exhaust blower and the auger will follow the parameters corresponding to the requested work power (from PR 18 to PR 22 for the exhaust blower, from PR 6 to PR10 for the auger and from PR 23 to PR 27 for the room blower).

Each time the running power is changed it will take 40 seconds before a complete change is made.

DECREASE IN POWER		INCREASE IN POWER	
from P5 to P4	40"	from P1 to P2	40"
from P4 to P3	40"	from P2 to P3	40"
from P3 to P2	40"	from P3 to P4	40"
from P2 to P1	40"	from P4 to P5	40"

If, during the work phase, the smoke temperature reaches the maximum threshold (PR 14) the stove goes into ventilation to reduce the temperature. If the ventilation is not sufficient and the temperature continues to increase, reaching 269 °C / 516 F the stove automatically goes into „SMOKE OVER TEMPERATURE ALARM“.

If the switchboard indicates a constant decrease in temperature due to extinction of the flame, the stove goes to "NO PELLETS ALARM" reaching the threshold set in the parameter PR 12 ("NO PELLETS THRESHOLD").

IMPORTANT!!! Even if the smoke temp. reaches the value set in the PR 15, the heat exchanger does not switch on until the stove goes to WORK mode; this condition is necessary in order to avoid "jumps" in the Tsmoke in FLAME PRESENT, with the risk of displaying an unusual FLAME ANOMALY ALARM.

THE DISPLAY SHOWS "FIRE POT CLEANING": in this phase the stove cleans the fire pot according to the interval between cleaning operations of PR 03. The duration of each cleaning operation is regulated by the parameter PR 04. The exhaust blower turns according to the PR 29 settings with a pellet load of PR 30.

The purpose of this function is to prevent the firepot from clogging when the stove remains in operation for many hours during the day.

D - Modulation phase

DISPLAY SHOWING "MODULATION WORK": The temperature set by the ambient thermostat is reached, irrespective of the work power in which it finds itself. The stove goes on to work power 1 and will stay on power 1 until there is a drop in the room temperature.

E - Comfort Climate

Activate or Deactivate by holding buttons 4 & 6 together.

The Comfort Climate will shut the stove down when your desired room temperature is reached, then it will turn the stove back on when the room temperature drops below the differential set.



EXAMPLE: In this case, the desired room temperature is 70°F and the Comfort Climate differential is 2°F. The stove will shut down at 70°F and restart at 68°F.

FUNCTIONING: The value sets the temperature the stove goes back on again.

EXAMPLE:

See user and maintenance manual for air stoves /9.3 CONFORT CLIMATE

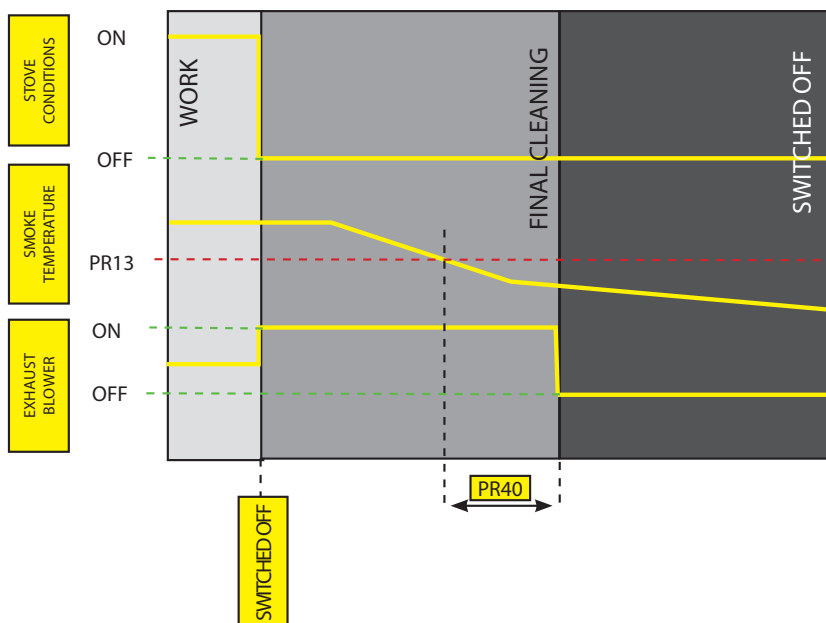
N.B.: The functioning of the stove in COMFORT CLIMATE mode can start up the phase of ignition and switching off several times through the day; this can compromise the duration of the ignitor for the automatic ignition of the stove.

F - Switching off phase

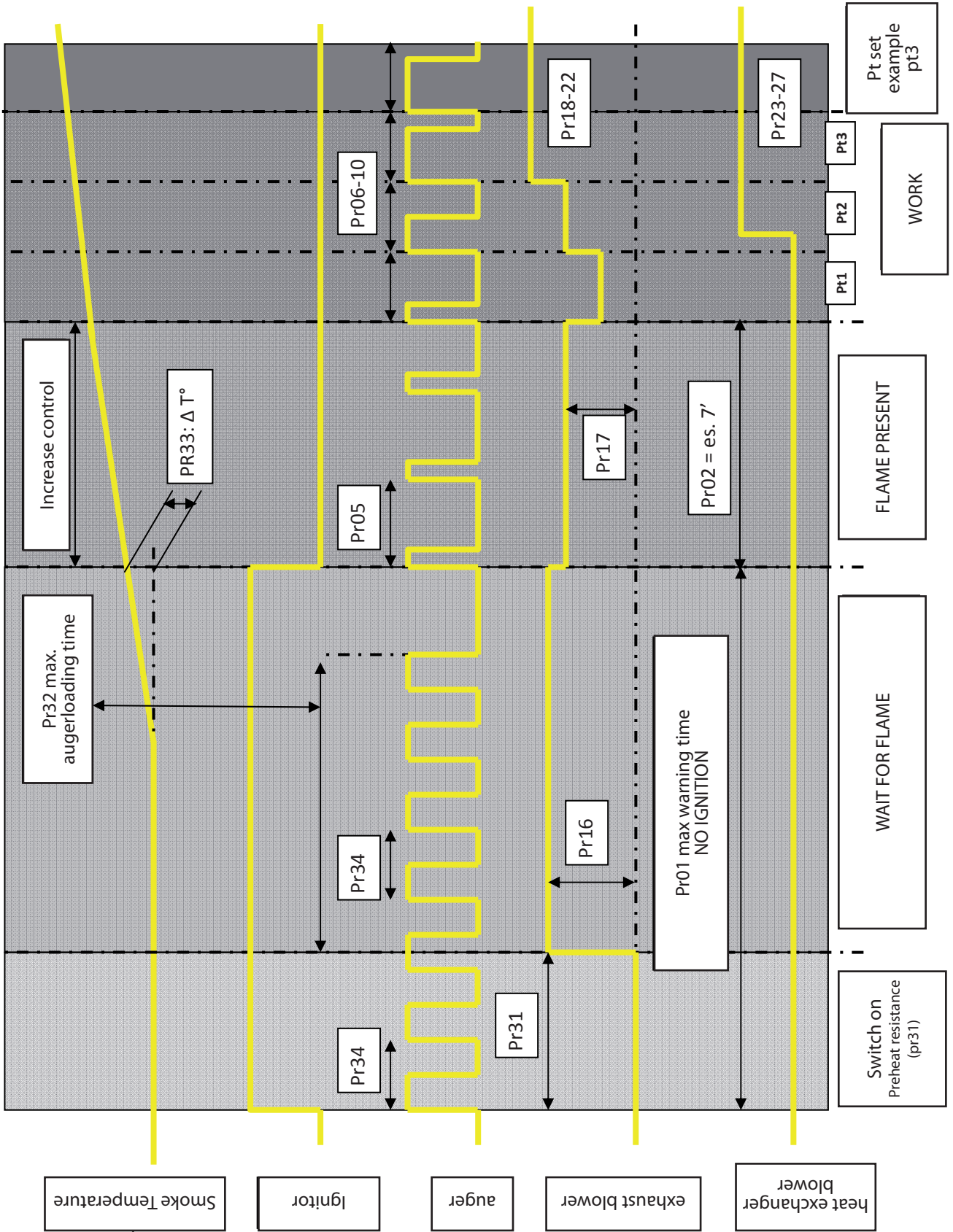
THE DISPLAY SHOWS "FINAL CLEAN": The switch-off button is pressed, the pellet loading gear-motor is switched off, the exhaust blower goes to maximum power and the heat exchanger runs at power 5.

When the smoke temperature reaches PR 13 (EXTINCTION THRESHOLD), the final clean continues according to time PR 40 (MIN: EXTINCTION T.) switching off the exhaust blower when this expires. The heat exchanger switches itself off according to the PR 15 ("EXCHANGER THRESHOLD") settings.

SWITCHING OFF DIAGRAM



Ignition



1.2.2 "HOT" RE-IGNITION PHASE - STOVE STATUS "HOT"

This phase refers to every ignition cycle with temperature below the re-start threshold (PR 11), in any case over the minimum threshold (PR 13, say when the stoves is already hot).

N.B. : the value relating to the restart threshold is a datum tested in the company on each of our stove models in order to identify the optimal restart condition. This parameter should not be changed significantly by the service centre (not over 5° C/10° F) unless Ecoteck technical center has been consulted.

A pellet stove in these conditions functions in 5 phases:

- A - RE-IGNITION PHASE
- B - FLAME STABILISATION PHASE (see previous section)
- C - WORK PHASE (see previous section)
- D - MODULATION PHASE (see previous section)
- E - COMFORT CLIMATE ACTIVATION PHASE (see previous section)
- D - SWITCH OFF PHASE (see previous section)

A – Re-ignition phase

Re-ignition conditions:

Stove in "FINAL CLEAN" with re-ignition attempt:

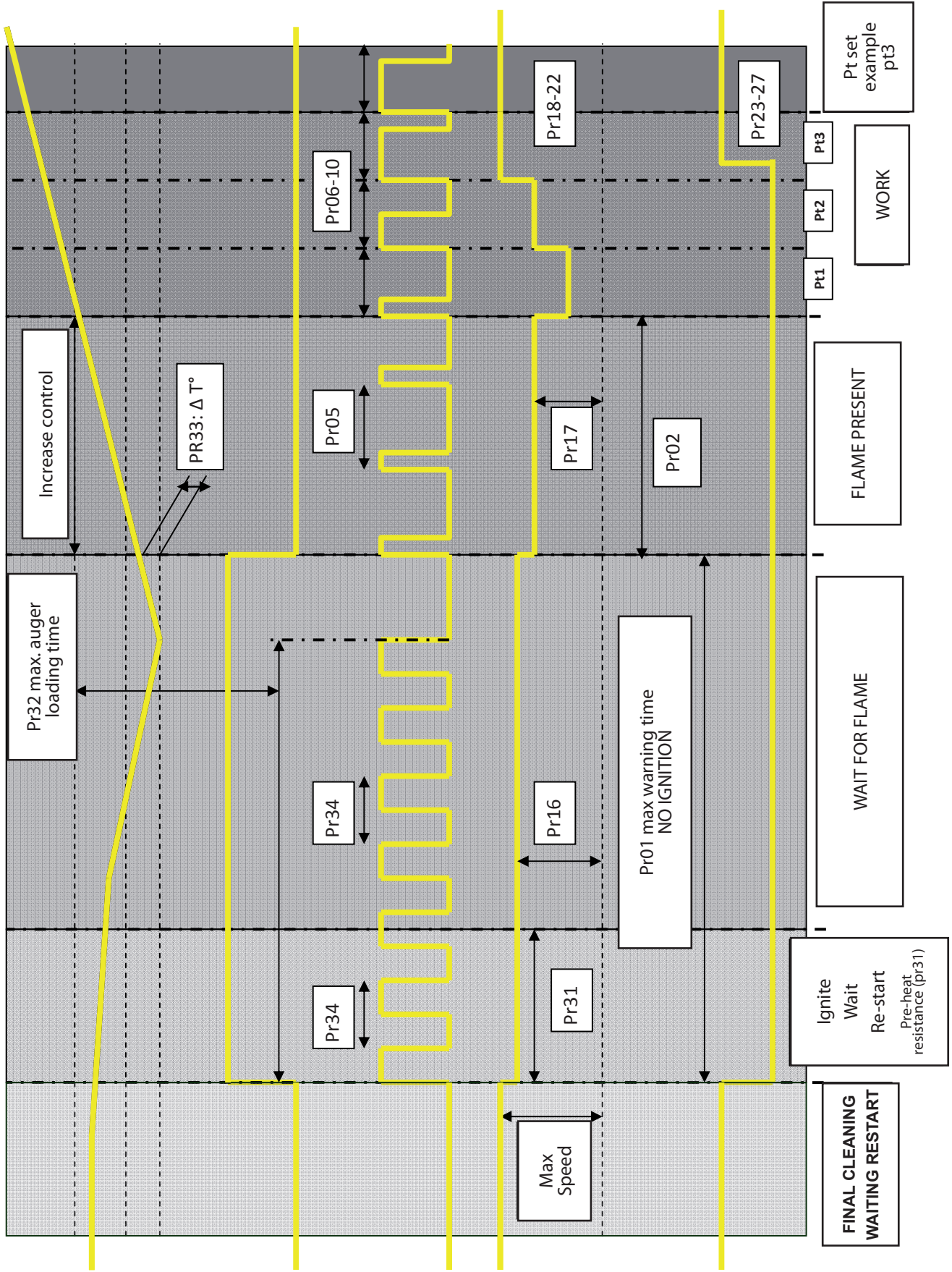
- if the smoke temperature is lower than or the same as the restart threshold ($T_{\text{smoke}} \leq PR11$), and in any case over PR13 "SWITCH OFF PHASE", the PR 39 timer switch ON (RE-IGNITION BLOCK). After that time the stove goes into re-ignition state;
 - if the smoke temperature is higher than the restart threshold ($T_{\text{smoke}} > PR11$) the stove continues with the final clean; after this threshold has been reached, the PR 39 (RE-IGNITION BLOCK) timer switches on and the stove goes into the re-ignition state;
- In both cases, during the period before re-ignition, the message "COOLING - WAITING START" will appear on the display.

RE-IGNITION : pre-heating of the ignitor for an established time, linked to the parameter "PREHEATING TIME PR 31". In this phase pellet loading starts according to PR 34 while the exhaust blower, which previously was carrying out the final clean, slows its revs and positions itself on the value set at PR 17 (fan speed in FLAME PRESENT phase).

IMPORTANT!!! This method makes it possible to solve the problem with the smoke extractor, which, passing from the OFF phase to the activation phase, could cause an anomalous increase in temperature which could elude the PR 33 "FLAME DELTA" when a flame is present.

N.B. : For all the other phases, the stove behaves in the same operating way as a normal ignition (See paragraph 1.2.1 from point B).

Re-ignition



Smoke Temperature

Ignitor

Auger

exhaust blower

Heat exchanger

2.0 SUPPLEMENTARY FUNCTIONS 7-KEY DISPLAY (AIR models)

In addition to the phases described in section 1, functions exist that can be activated on the display:



- SELECTION OF RECIPE ACCORDING TO TYPE OF INSTALLATION (protected by password B9)
- ZERO SET HOURS MENU (protected by a password 35)
- DEFAULT SETTING MENU (protected by a password A9)
- DATA BASE MENU (protected by a password)

NOTE: The functions accessible to the USER are illustrated below:

- CLOCK SETTING MENU
- CHRONOTHERMOSTAT SET MENU
- LANGUAGE MENU
- AUTOMATIC LOADING OF AUGER
- PELLET-AIR BLEND SETTING

2.1. Automatic loading of auger

On first ignition, automatic feeding of the auger must be carried out in this way: press button P4 for about 3" until the SET CLOCK MENU appears on the display. Then click button 4 until you reach "Menu 5 State Stove", then click button 6 to enter. Then by pressing button 5, change the screw status to 1. This will now turn the auger on for approximately 2 mins.

N.B. Remember to empty the fire pot before igniting the stove. Automatic auger feeding must be carried out only when the stove is in the OFF or FINAL CLEANING status.

2.2 Modify air - pellet blend: "CHOOSE RECIPE"

When first installing a stove you can modify the pellet-air blend. To access the "RECIPE" menu: Hold button down 4 for 3 seconds. Then click button 4 until you reach menu 10 "SELECT RECIPES", click button 6 to enter. Use button 5 and change the access code to B9. Now you can change which recipe you need by using the chart below.

RECIPE	PELLET LOAD		SMOKE DRAUGHT	
HORIZONTAL VENTING	from PR06 to PR10	0	from PR18 to PR22	+25 %
HORIZONTAL VENTING	from PR06 to PR10	0	from PR18 to PR22	+15 %
OFF	-	0	-	0
VERTICAL VENTING	from PR06 to PR10	10 %	from PR18 to PR22	-15 %
VERTICAL VENTING	from PR06 to PR10	15 %	from PR18 to PR22	-25 %

N . B . The various loads and draught values related to each menu section are added to any load and draught values of input the procedure described in paragraph. 2.3.

N.B.: The recipe specified above are not available for the ECT2008AIR/BOX01 version.

2.3 - Pellet - air blend setting (In use of enduser)

Setting the air - pellet blend allows the speed of both the smoke engine and the pellet feeding auger to be changed. This allows combustion to be adjusted by the end-user according to the stove's draught and according to the hardness of the pellet, in case this differs from original when first installation is done To access to settings press P6 and P7 together until "0 PELLET 0 DRAUGHT" appears. The quantity of pellet is changed with keys 4 and 5.

The speed of the smoke engine is changed with keys 6 and 7.



Values	Pellet
From 0 to 5	To decrease the pellet load.
0	Default value that considers the set combustion as excellent
From 0 to 5	To increase the pellet load

Values	Draught
From 0 to -5	To be carried out when there is too much draught and when there is no flame in the firebox
0	Default value that considers the set combustion as excellent
From 0 to 5	To be carried out when the pellet to be used is too hard and a stronger draught is required in the combustion chamber

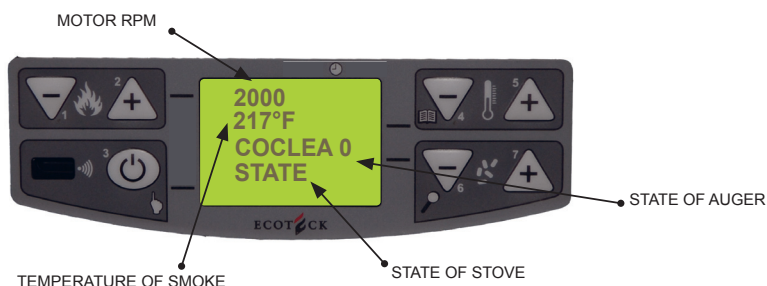
N.B. A change of 5% in the parameter value corresponds to each change of value, where by “useful” parameter we mean each value taken into consideration during the work phase: from PR06 to PR10 with regard to the “PELLET”, from PR18 to PR22 referring to the “DRAUGHT”

2.4 Menu “STATE OF STOVE”

In this menu, you can check the correct functioning of the most important components of the pellet stove, and some values which distinguish its correct functioning.

To enter this menu, proceed as follows:

1. Keep button P4 pressed for 2 seconds, CLOCK SETTING MENU will appear.
2. Press button P4 4 times: the display will show STOVE STATUS MENU
3. Access using button P6: the display will show the desired screen.
4. Confirm with button P6 to return automatically to MENU 05 STOVE STATUS. This menu is utilized by the TAC (Technical Assistance Center) when a problem occurs and by the customer when loading pellets into the hopper manually.



2.5 “WORKING TIME CLEAR” menu

In the TIME CLEAR menu it is possible to clear the total working time of the stove. Once the menu has been selected input the value 35 with key P5 as the access key and confirm with key P6. “DONE” will appear on the screen confirming the clear operation.

2.6 “DEFAULT SETTINGS” menu

To change the value of the stove parameters set by EcotECK, enter the DEFAULT SETTINGS MENU and with key P5 set value A9 as the access key and confirm with P6. To scroll the list use keys P6 and P7, to change the parameter value use keys P4 and P5. To exit the factory calibrations menu press key P3.

2.7 "CLOCK SETTING" menu

To set the clock, proceed as follows:

1. Keep button P4 pressed for 2 seconds, MENU 01 SET CLOCK will appear and confirm with P6.
2. DAY will appear: with buttons P4 and P5 set the current day according to the table shown below and confirm with button P6.

Message	Display showing
01	Monday
02	Tuesday
03	Wednesday
04	Thursday
05	Friday
06	Saturday
07	Sunday
OFF	Day Excluded

3. HOURS will appear on the display and the current time will be shown: with buttons P4 and P5 set the hours and confirm with P6.
4. MINUTES will appear on the display, with buttons P4 and P5 set the minutes and confirm with P6.
5. Confirming with P6 key, it automatically return to the 01 SET CLOCK MENU.

2.8 "CHRONOTHERMOSTAT SETTING" menu

With the chronothermostat function, switching on and off the stove for each day of the week can be programmed in two independent time intervals (PROGRAM 1 and PROGRAM 2).

To enter this menu, proceed as follows:

1. Keep button P4 pressed for 2 seconds, CLOCK SETTING MENU will appear.
2. Press key P4 once : the screen will display MENU 02 SET CRONO.
3. Access with key P6 : the display will show the desired screen.

DESCRIPTION OF THE STRINGS:

Description	Values that can be set
START PROG – 1	From OFF to 23:50 in 10' steps
STOP PROG – 1	From OFF to 23:50 in 10' steps
Day PROG – 1	Between on/off for days from Monday to Sunday
POWER PROG – 1	From 01 to 05
SET TAMB PROG – 1	From EST,07°C/45 F,08°C/47 F.....to MAN
START PROG – 2	From OFF to 23:50 in 10' steps
STOP PROG – 2	From OFF to 23:50 in 10' steps
Day PROG – 2	Between on/off for days from Monday to Sunday
POWER PROG – 2	From 01 to 05
SET TAMB PROG – 2	From EST,07°C/45 F,08°C/47 F..... to MAN

START PROG: this parameter shows the time PROGRAMS 1 and 2 are switched on.

STOP PROG: this parameter shows the time PROGRAM 1 and 2 are switched off.

Day PROG: this parameter is used to set the days on which you wish to activate program 1 and 2. To set this parameter, proceed as follows: set the required day (the days are Monday, Tuesday...) with button P5 and with button P4 select the value ON-OFF: if OFF is set programming will not be activated on the desired day, if ON is set the programming will be valid. After the programming operation, press P6 and go on to the next parameter.

POWER PROG: this parameter is used to indicate the stove's power when it is switched on with CRONO.

TEMPERATURE PROG: this parameter is used to indicate the ideal temperature you wish to reach in the room where the stove is installed during start with CRONO active. The setting in question is overwritten on top of the one set in manual work conditions.

2.9 **SETTING THE LANGUAGE (LANGUAGE MENU, STATUS STOVE ON)**

To set the language, proceed as follows:

1. Keep button P4 pressed for 2 seconds, CLOCK SETTING MENU will appear.
2. Press button P4 twice; the display will show LANGUAGE MENU.
3. Access with button P6: the display will show the language selection.
4. With buttons P4 and P5, select the language desired, confirm with button P6.
5. Confirm with button P6 to return automatically to MENU' 03 SELECT LANGUAGE MENU.

2.10 COMFORT CLIMATE activation

COMFORT CLIMATE is activated by pressing key P4 and P6 at the same time, and regulating a dedicated temperature delta at restart (see chapter 1.2.1 - E). See user maintenance manual par. 9.3. Another method to change the delta is that of accessing parameters in "DEFAULT SETTINGS". The parameter to be changed is PR42 (the values change from OFF to 68°F).

Once the set room temperature is reached, the stove (as per default) after about 4 minutes, goes from MODULATES WORK to ECO STOP mode.

2.11 Fast access menu

KEY COMBINATIONS	ACCESS TO	DESCRIPTION
P4 for 4 sec + P7	STATUS MENU	Stove, auger, exhaust blower and smoke temperature status
P4 + P6	COMFORT CLIMATE	See point E par. 1.2.1
P6 + P7	DRAUGHT/PELLET MENU	See par. 2.3
P1 + P2	DISPLAY VERSION AND CURRENT RECEIPT	Display firmware name and current receipt type
P7 for 4 sec	ACTIVATE/DEACTIVATE HEAT EXCHANGER 2	On for AIR PLUS versions, activates and de-activates the second heat exchanger
P5 + P7	HEAT EXCHANGER 2 SETTING	Only for AIR PLUS versions, changes the second heat exchanger parameters by 5% for each step (or unit)
P3 for 4 sec + P2	WORK	Useful method service phase for passing straight to the working phase without going through previous phases.
P5 + P6	COMFORT CLIMATE TIMER	ECO STOP activation timer after CHANGE WORK

3.0 SUPPLEMENTARY FUNCTIONS FOR INSERTS

For the Inserts , all the operations described in paragraph 2.0. are repeated. The difference between the two versions is found in the combinations of keys used to access motherboard programming.

The display allows activation of the following functions:

- SELECTION OF RECEIPT ACCORDING TO TYPE OF INSTALLATION (protected by B9)
- RAPID ACCESS MENU
- ZERO SET HOURS MENU (protected by a password 35)
- DEFAULT SETTING MENU (protected by a password A9)



NOTE: The functions accessible to the USER are illustrated below:

- CLOCK SETTING MENU
- CHRONOTHERMOSTAT SET MENU
- LANGUAGE MENU
- AUTOMATIC LOADING OF AUGER
- PELLET-AIR BLEND SETTING

3.1. Automatic loading of screw (AUGER)

On first ignition, automatic auger feeding must be carried out in this way: press key P5 for about 3" until "SCREW 0" appears on the screen. Activate and de-activate the screw status using keys P1 and P2. Repeat the operation until the fire box is completely loaded with pellets.

N.B. Remember to empty the fire pot before igniting the stove. Automatic auger feeding must be carried out only when the stove is in the OFF or FINAL CLEANING status.

3.2 Change "CHOOSE RECIPE"

To display this menu press key P7 and then P2. Press P7 again to access and P2 to input the reserved access key (B9). After inputting the key, confirm the operation with P7.

Scroll the recipes menu using P1 and P2. To confirm the recipe press P7.

After confirming the operation you return automatically to the "CHOOSE RECIPES" menu.

key P3 to return to the main menu.

For specifications relating to pellet loading and draught values refer to paragraph 2.2

3.3 - Pellet - air blend setting

The pellet - air blend setting makes it possible to change together both the exhaust blower speed and the pellet loading auger speed. This allows combustion to be adjusted according to the stove's draught and according to the hardness of the pellet. To access adjustment press P6 and P7 together until "0 PELLET 0 DRAUGHT" appears.

The quantity of pellet is changed with keys 1 and 2.

The speed of the exhaust blower is changed with keys 4 and 5.

For specifications relating to pellet-air blend values refer to paragraph 2.3

3.4 Rapid access menu

KEY COMBINATIONS	ACCESS TO	DESCRIPTION
P5 for 4 sec	STATUS MENU	Stove, auger, exhaust blower and smoke temperature status
P4 for 4 sec	COMFORT CLIMATE	See point E par. 1.2.1
P6	DRAUGHT/PELLET MENU	See par. 2.3
P1 for 4 sec	DISPLAY VERSION AND CURRENT RECEIPT	Display firmware name and current receipt type
P3 for 4 sec + P2	WORK	Method useful during the assistance phase for passing straight to the work phase without going through previous phases.
P5 + P6	COMFORT CLIMATE TIMER	ECO STOP activation timer after MODULATE WORK

3.5 "TIME CLEAR" menu

In the TIME CLEAR menu it is possible to clear the total working time of the stove. Once the menu has been selected input with key P2 the value 35 as access key and confirm with key P7. "EXECUTED" will appear on the screen confirming the clear operation.

3.6 "DEFAULT SETTINGS" menu

To change the stove parameters value, enter the DEFAULT SETTINGS menu and with key P2 set value A9 as access key and confirm with P7. To scroll the list use keys P1 and P2, to change the parameter value use keys P6 and P7. To exit the menu default settings press key P3.

3.7 "DATABASE" MENU

In processing phase.

3.8 "SET CLOCK" menu

To set the clock, proceed as follows:

1. Keep the P7 button pressed, CLOCK SET MENU will appear and confirm with the button P7.
2. DAY CLOCK will appear: with buttons P1 and P2 set the current day according to the table shown below and confirm with button P7.
3. TIME CLOCK will appear on the display and the current time will be shown: using keys P1 and P2 adjust the time and confirm with key P7.
4. MINUTES CLOCK will appear on the display; set the minutes with buttons P1 and P2 and confirm with button P7.
5. Confirming with key P7 you return automatically to the 01 SET CLOCK MENU.

For specifications relating to clock setting parameters refer to paragraph 2.8

3.9 "SET CRONO" menu

With the chronothermostat function, switching on and off the stove for each day of the week can be programmed in two independent time intervals (PROGRAM 1 and PROGRAM 2).

To enter this menu, proceed as follows:

1. Press button P7, CLOCK SETTING MENU will appear.
2. Press button P2 1 time: the screen will display the 02 SET CRONO MENU.
3. Access with button P7. the display will show the desired screen.

For the description of the strings refer to paragraph 2.9

3.10 "CHOOSE LANGUAGE" Menu

To set the language, proceed as follows:

1. Press button P7, CLOCK SETTING MENU will appear.
2. Press button P1 2 times: the display will show LANGUAGE SELECTION MENU.
3. Access with button P7. the display will show the language selected.
4. With buttons P1 and P2, select the language desired, confirm with button P7.
5. Confirming with key P7 you return automatically to the 03 CHOOSE LANGUAGE menu.

3.11 Activation of the COMFORT CLIMATE

COMFORT CLIMATE is activated by keeping P4 pressed and adjusting a temperature delta dedicated to restart (see chapter 1.2.1 - E). Another method to change the delta is to access parameters in "DEFAULT SETTINGS". The parameter to be changed is PR 42 (values vary from OFF to 20°C).

After reaching the set room temperature, after 255" the stove goes from MODULE WORK to ECO STOP mode, executing a FINAL CLEAN in underground. When room temperature goes below

Tset amb. - delta on/off

the stove executes the phases relating to manual ignition (pressing of key P3 after "FINAL CLEAN"), as clearly illustrated in paragraph 6.0.

3.12 How to associate the remote control to the stove

All input stoves are equipped with radio-wave, palm remote controls and a receiver located on the right-hand side of the stove. Sometimes, due to interference caused by other electric devices (microwave ovens, satellite decoders, mobile phones, cb,) the link between the stove and the remote control is interrupted (no field).

To reinstate the connection, proceed as follows:

- switch the stove off
- unplug the power supply lead
- on the remote control, press the triangle keys 1 and 2 for about 3 seconds
- with triangle key 2, select the frequency unit to be loaded (choose unit 0 , 1 , 2 , 3)
- reconnect power supply by plugging in the lead
- press red key

If the operation is successful, the screen on the remote control will show UNIT LOADED 0 , 1 , 2 , 3

4.0 ALARMS

If an operating anomaly should occur, the motherboard intervenes and warns that an irregularity has occurred operating in various ways depending on the type of alarm. Two alarms are charted below.

Alarm origin	Code	Display showing
Smoke temperature probe	02	SMOKE PROBE ALARM
Smoke over-temperature	03	SMOKE OVER-TEMP. ALARM
NO IGNITION	05	NO IGNITION ALARM
Flame anomaly	11	FLAME ANOMALY ALARM
Extinction during work phase	06	PELLETS FINISHED ALARM
Black-out	01	BLACK - OUT
Vaccum Switch	08	DEPRESSION ALARM
General safety thermostat (on side of hopper)	07	THERMAL SAFETY ALARM
Faulty exhaust blower	04	FAULTY FAN ALARM
Exhaust blower anomaly	12	SMOKE EXTRACTOR REVS ANOMALY
Auger blockage	-	SCREW BLOCKAGE ALARM

4.1 Smoke temperature probe alarm

This occurs if the smoke detection probe is faulty or disconnected.

4.2 Hot Smoke and Smoke over-temperature alarm

Hot smoke: This is triggered not as a real alarm but as a warning that the maximum threshold PR14 has been reached. When it is in this condition, although leaving the heat exchanger at P5, the motherboard reduces the pellet load and draught to P1 in order to cool the body and the SMOKE TEMP.

Smoke over-temperature alarm: This occurs when the Hot smoke has not managed to cool the smoke probe and the smoke probe records a temperature over 269°C/516 °F.

4.3 NO IGNITION alarm

This occurs when the Pr01 time has fully elapsed without the Tsmoke ≥ Pr33 increase condition occurring.

4.4 Smoke anomaly alarm

This occurs if the increase temperature conditions (par. 1.2.1 -B) have not occurred during the "FLAME PRESENT" phase.

N.B.: Every alarm condition causes the stove to go OFF immediately, with the smoke fan running at maximum power and the heat exchanger at speed P5 until the PR15 dedicated threshold is reached.

The alarm status is reached after the Pr35 time and can be canceled by pressing the P3 key.

4.5 Pellets finished alarm

This occurs if, during the "STABILISATION" phase, the smoke temperature does not reach the Pr12 value at the end of the phase. Or, during the "WORK" phase, if the smoke temperature goes below the same Pr12 value.

4.6 Black-out alarm

This is activated when power is lost, for a time over the PR38 parameter.

OPERATING MODE	BLACK OUT DURATION	NEW STATUS AT REINSTATEMENT OF THE MAINS VOLTAGE
OFF	any	FINAL CLEANING (*)
IGNITION	any	BLACK-OUT ALARM
WORK	< Pr38	WORK
WORK	> Pr38	BLACK-OUT ALARM
FINAL CLEANING	any	FINAL CLEAN (*)
ECO STOP	any	ECO STOP

(*) does not entail an ALARM condition

4.7 Screw (auger) safety pressure stat alarm

If the pressure stat (vacuum switch) records a pressure below the tripping threshold, the same is tripped to disconnect the auger (in series to the supply) and at the same time, through AL2 terminal in CN4, it allows the controller to acquire this change in status.

4.8 General thermostat alarm (On side of hopper)

If the general safety thermostat records a temperature over the tripping threshold (around 90°C/194 F), the same is tripped to disconnect the auger and at the same time, through terminal AL1 in CN4, it allows the controller to acquire this change in status. The thermostat is only fitted on the hopper (the threshold beyond which the device opens the contact is around 90 °C/194 F).

4.9 Smoke fan fault alarm

If the exhaust blower is faulty or the encoder does not read the number of revs, even just because the reading cable is disconnected or broken.

4.10 Exhaust blower anomaly alarm

If the exhaust blower works at a speed 15% below the set speed.

4.11 Auger blockage alarm

If a gear motor fitted with an encoder is used and parameter Pr48 has been set, blockage of the auger is recorded and causes the corresponding alarm message.

ALARM	CONDITION	INVOLVED PARAMETERS
SMOKE SENSOR ALARM		PR35
SMOKE OVER TEMP ALARM	SMOKE TEMP.>269°C/516 F	PR35
NO IGNITION ALARM	if SMOKE TEMP.<PR33 after TIMER PR01	PR01 / PR33/ PR35
ANOMALOUS FLAME ALARM	if SMOKE TEMP. in Ti < Ti-1 with reading error margin	PR02 / PR35
PELLETS FINISHED ALARM	SMOKE TEMP.<PR12	PR12
BLACK - OUT	Black out time >=PR38	PR38
DEPRESSION ALARM	Vacuum stat tripped	PR35
THERMAL SAFETY ALARM	temperature recorded at thermal >90°C/194 F	PR35
SUCTION FAULT ALARM	Encoder=0000	PR35
EXTRACTOR REVS FAULT	15% reduction in involved parameters	PR16-22 / PR29 / PR35
SCREW BLOCKAGE ALARM	Ratio-motor encoder=0000	PR35 / PR48*

IMPORTANT!!! Each alarm is displayed on the screen only after the parameter set in the pr 35 timer alarms delay, except for the "NO PELLET" and "BLACK-OUT" alarms

IMPORTANT!!! For each recorded alarm code, the stove enters the "FINAL CLEAN" status automatically (see point "f" of the paragraph "1.2.1 SWITCH-OFF PHASE")

IMPORTANT!!! When an alarm is tripped, it is no longer possible to start the stove until this alarm has been reset by pressing key P3.

5.0 OPERATING CONDITIONS OF A PELLET STOVE

STATUS	CODE (address: 0*21)	DISPLAYED MESSAGE	STATUS	INVOLVED PARAMETERS
OFF	0	OFF	If SMOKE TEMP:SMOKE < PR13 after TIMER PR40	PR13/PR40
ON/PRE-HEAT	1	IGNITE	If SMOKE TEMP. <= PR13	PR01/PR13/PR28/PR31/PR32/PR34
		COOLING WAITING START	If SMOKE TEMP. > PR13	PR01/PR13/ PR16 /PR28/ PR31/PR32/PR34
WAIT FOR FLAME	2	WAITING FLAME	After TIMER PR31	PR16/PR31/PR32/PR33/PR34
FLAME PRESENT	3	FLAME LIGHT	DELTA SMOKE TEMP. > = PR33	PR02/PR05/PR17/PR33
WORK	4	WORK	After TIMER PR02	PR02/PR06-10/PR15/PR18-22/PR23-27/PR41/PR43- 47*
MODULATION	4	MODULATION WORKING	if T.AMB. > = SET T.AMB.	PR06/PR18/PR23/PR43*
FIRE POT CLEANING	5	FIRE POT CLEANING	With PR03 frequency	PR03/PR04/PR29/PR30/
SHUT OFF	6	FINAL CLEANING	With pressing key P3	PR10/PR13/PR40/ PR47*
RE-IGNITION ATTEMPT	7	FAN – WAIT START	If SMOKE TEMP. <= PR13 after TIMER PR39	PR13/PR39
		FAN – WAIT RESTART	If SMOKE TEMP. > PR13 after TIMER PR39	PR11/PR13/PR39
ECO STOP	7	ECO STOP	If AMB. TEMP.>= SET T.AMB. with COMFORT CLIMATE activated	PR11/PR39/PR42

* The parameters with a * are only involved if the stove is fitted with a secondary blower. Therefor only "AIRPLUS" models.

6.0 OPERATIONS LINKED TO “FINAL CLEAN” PHASE

The purpose of the “FINAL CLEAN” phase is to burn all pellets in the fire pot during the extinction phase. In fact the smoke extractor is activated at maximum revs per minute. Its value is around 2700 rpm. In just a few minutes the surplus pellet is burnt in the basket and the stove starts the cooling phase also thanks to the support of the heat exchanger running at power of 5 until it succeeds in lowering smoke temperature to threshold PR15.

6.1 “FINAL CLEAN” without Re-ignition attempt

If extinction of the stove is required, the switchboard activates the “FINAL CLEAN” phase and behaves as follows:

EXTINCTION REQUEST	CONDITIONS	OPERATION	DISPLAY	EFFECT
-P3 for 4 seconds - Shut off CHRONOTHERMOSTAT ECO STOP	SMOKE TEMP.>PR13	FINAL CLEANING (until following condition)	FINAL CLEANING	OFF
	SMOKE TEMP.<=PR13	FINAL CLEANING (until timer PR40)	FINAL CLEANING	OFF

After the smoke probe has reached the value set in the PR13, the TIMER PR40 (“T-MIN EXTINCTION”) is activated in order to check that the flame has gone out completely.

IMPORTANT!!! the TIMER mentioned above, that can be set manually by the PR40, must have a value equal to the time needed to extinguish the flame, even after the “WAIT FLAME” phase where the firepot must consume a large amount of pellets before the “OFF” status.

6.2 “FINAL CLEAN” with Re-ignition attempt

If a Re-ignition is requested after the “FINAL CLEAN”, the switchboard must behave as follows:

EXTINCTION REQUEST	CONDITIONS	OPERATION	DISPLAY	EFFECT
- P3 for 4 seconds - Ignition with CRONOTHERMOSTAT - Ignition with COMFORT	SMOKE TEMP.>PR13	FINAL CLEANING (until next condition)	FAN WAIT RE-START	RE-START
	T.SMOKE<=PR11 & SMOKE TEMP.>PR13	FINAL CLEAN (until PR39 timer)	FAN WAIT RE-START	RE-START
	T.SMOKE<PR13	FINAL CLEAN (until PR39 timer)	FAN WAIT RE-START	START

Before every START - RE-START phase, the stove carries out a further final clean according to TIMER PR39 (“RE-IGNITION BLOCKAGE”) in order to burn all pellets inside the fire pot.

IMPORTANT!!! the TIMER mentioned above, that can be set manually by the PR40, must have a value equal to the time needed to extinguish the flame, even at high temperatures.

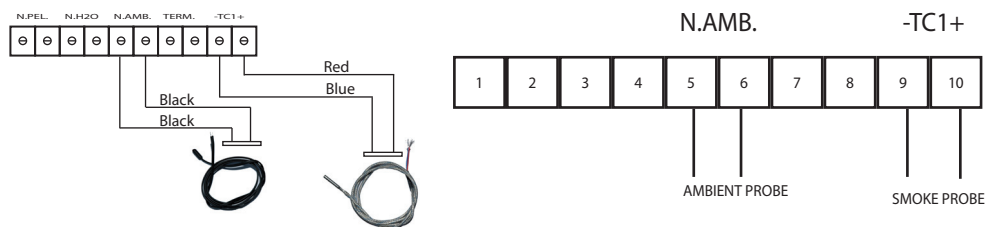
7.0 TEMPERATURE SETTINGS

7.1 Settings via DISPLAY

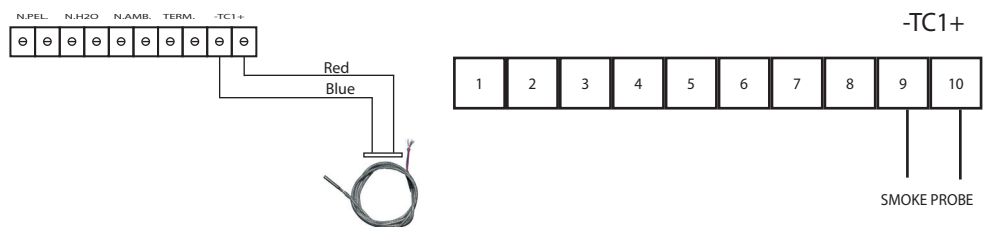
Room temperature can be changed using keys P4 and P5 (P4 to display the temperature setting and P1 and P2 to change the values in the BOX version). The screen displays the current temperature setting status.

7.1.1 TEMPERATURE PROBE CONNECTION STATUS

The AIR ambient probe connected to pin 5 and 6 of the 10-pole connector



No ambient probe is connected in the BOX version. The temperature is read on the remote-control



N.B.: Do not connect the bridge to pins 5 and 6 for versions with flash motherboard

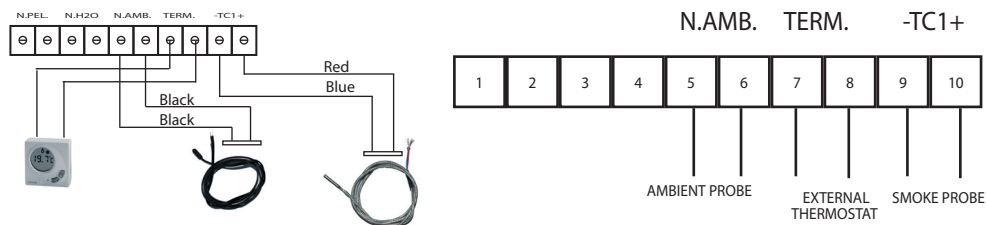
7.2 INSTALLING AN EXTERNAL THERMOSTAT

If an external thermostat is connected, the stove bypasses the ambient probe and the ambient setting is handled by an ON/OFF status of the external thermostat itself.

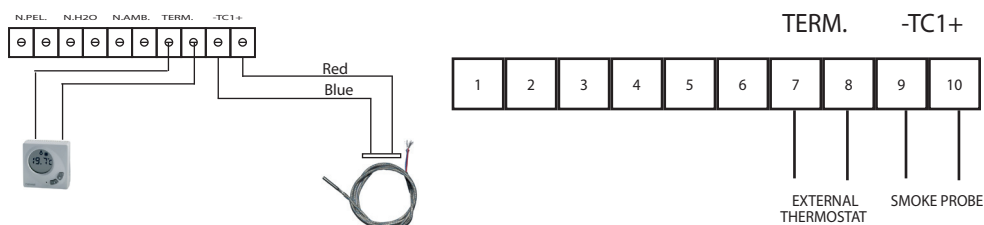
IMPORTANT!!! Both in the AIR and the BOX versions, to activate control via external thermostat, connect the cables of the external thermostat as described below. Also set the ambient setting at -EST. This is displayed after this sequence of values 08°.. 07' .. -EST.

7.2.1 EXTERNAL THERMOSTAT CONNECTION STATUS

AIR → external thermostat connected to 7-8 of the 10-pole connector



BOX → external thermostat connected to 7-8 of the 10-pole connector

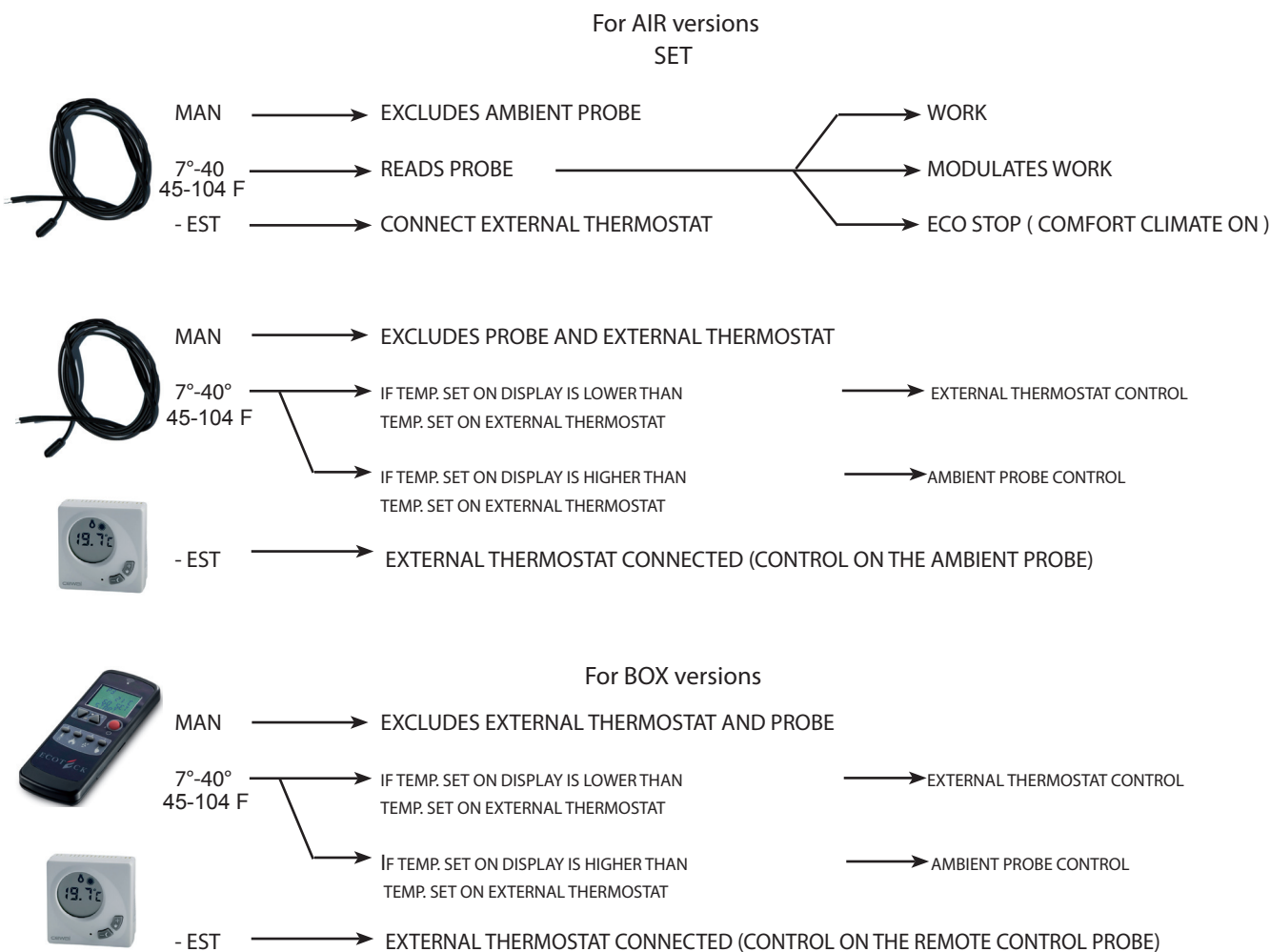


7.2.2 OPERATING PROCEDURES WITH EXTERNAL THERMOSTAT

Keeping the ambient probe connected (AIR version) to pin 7-8, connect the external thermostat. Bringing the temperature setting to the value “-EST” you totally exclude the internal probe (or probe located on the remote control for the BOX version) reading and in this way the temperature setting only depends on the external thermostat.

7.3 Thermostat settings table (AIR and BOX versions)

All the possible combinations for room temperature reading are illustrated in the following table.



IMPORTANT!!! It is advisable to bring the ambient SET status to the “EST” value in order to work with the external thermostat. In fact, in this way the message displayed on the screen is clearer with the t-on and t-off messages in the stove modulation and work phases.

IMPORTANT!!! In order to activate the COMFORT CLIMATE function with the external thermostat, a thermostat with an OFFSET of at least 3 °C/ 6 F is advisable.

N.B.: COMFORT CLIMATE can be activated with the external thermostat available for the ECT2008AIR/BOX03 version

8.1 SAFETY DEVICE FOR AUGER WHEN OPENING HOPPER DOOR

When you are feeding wood pellet into the hopper, we advice to stop the stove before operation; if you just need to check into hopper the level of wood pellets, for your safety as soon as you will open pellet door, the auger will stop automatically the feeding of the pellet; consequently, if the stove is in "WORKING" conditions, do not leave the hopper door (see ref B) open longer then one minute.

In case that the door will remain open longer then one minute, please always look at the combustion chamber and follow this procedure:

- If flame is available, close the hopper door, the stove will continue burning the pellet.
- If flame is not available, switch off the stove with button 3; then press button 3 again (see ref. B) for restart.
- Upon delivery of each stove, the hopper safety switch must be connected. In no specific order please connect the wiring to these two prongs.



Fig. A

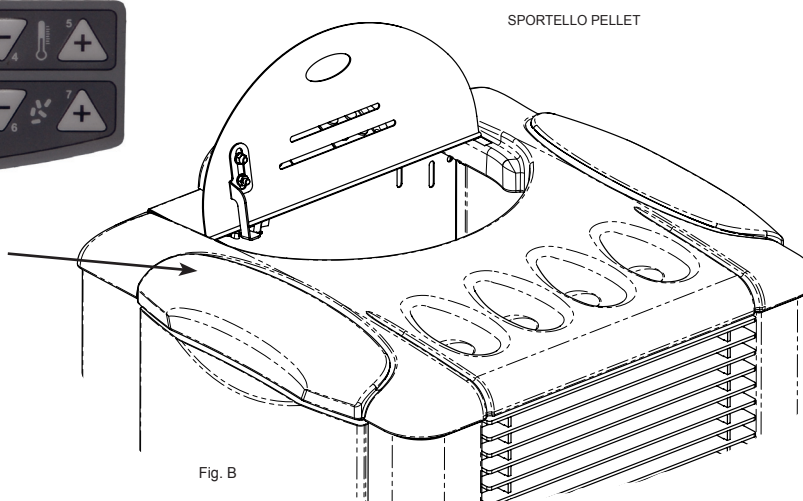


Fig. B

8.2 SAFETY DEVICE FOR OPENING OF FRONT DOOR

When the stove is in "WORKING" conditions, every time the front door will be open, the stoves safety system will start a count down for a period set with parameter 35 (company setting is 10");

After set time, the stove will shut down and display will show "NO DEPRESS"(see ref C); to reset alarm, please close the door and then press button 3 for reset; for restarting the stove press button 3 again.

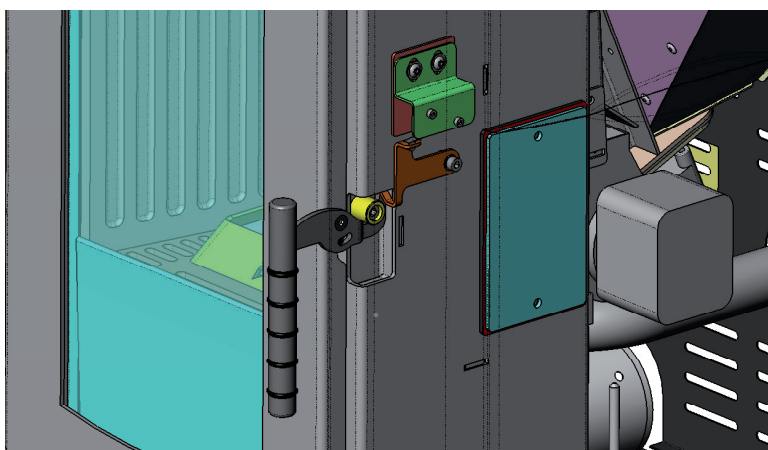


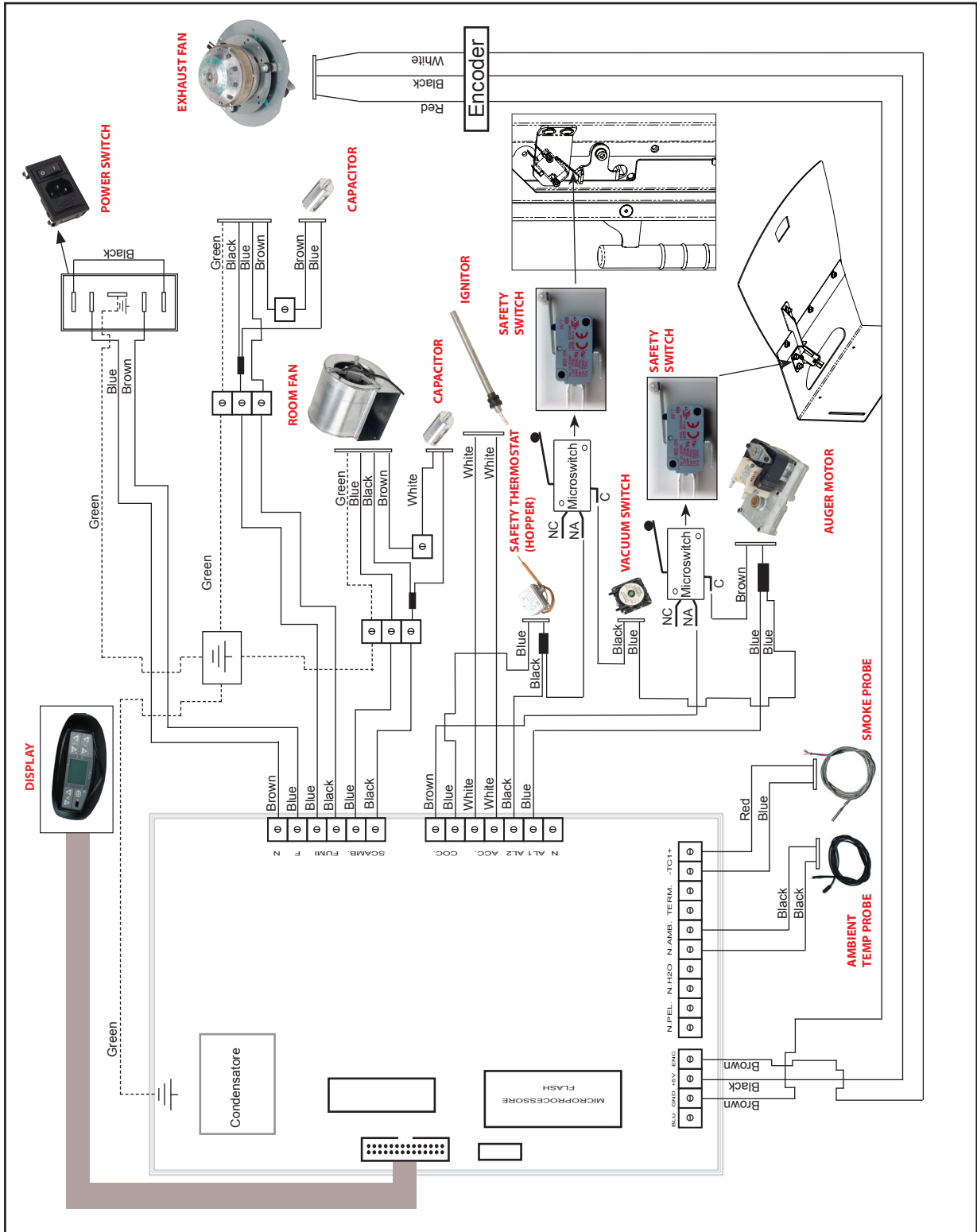
Fig. C

9.0 DUCTING HOT AIR. (ELENA AIRPLUS, VERONICA, LAURA) ONLY

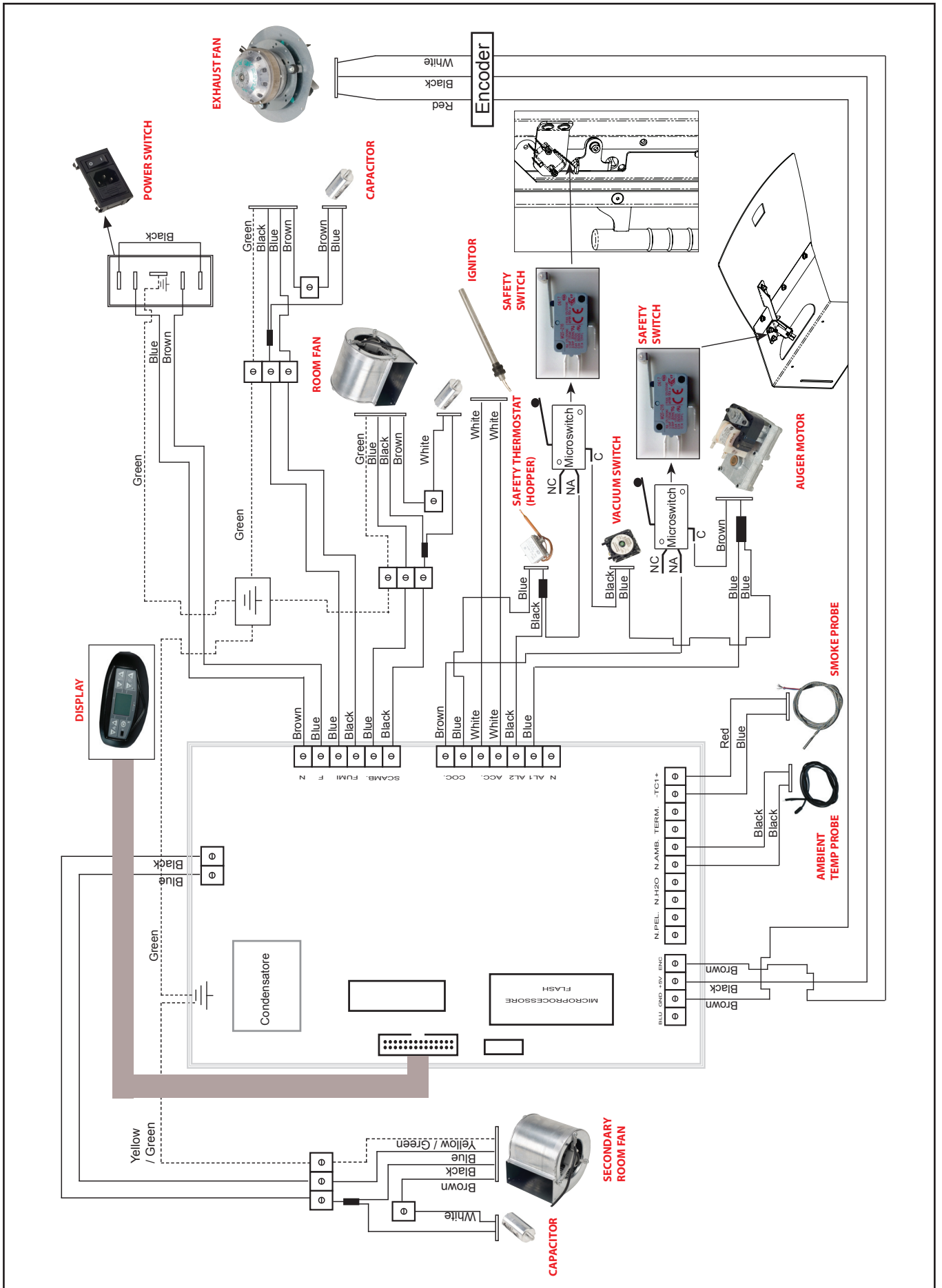
Ducting hot air to other rooms can be easily done by using a 3" inch flaxible duct. The 3" inch flexible duct must be UL Listed to UL Standard 181. To get the optimal efficiency out of your stove it is recommended not to run more than 12' feet per duct and to use an insulated flexible duct.

To connect the ducts to the back of your stove use a hose clamp and / or aluminum foil tape.

AIR models (USA-CANADA)



AIR Plus models (USA-CANADA)



9.0 FIRMWARE

The firmware is the software part of the electronic motherboard. It is composed of a series of instructions that allow the stove to be managed.

IMPORTANT!!! The firmware must not be confused with the parameters. These must in any case be entered in the motherboard.

A DATABASE will soon be available containing the pre-saved default parameters of every stove in production.

9.1 Usefulness of firmware

To date, solving a software problem would cause an enormous waste of time due to the physical delivery of chips between the manufacturer Ecoteck and the Assistance Center. The use of a firmware allows the problem to be solved by sending a file via e-mail.

The firmware used has the extension “.caf “:

-firmware for I023 motherboards, this will be used on all new stove models divided into air/box/hydro and will be programmed according to the required usage. Updates to modernise our product will be possible using this type of extension.

9.2 How to use the firmware

Firmware (with application and updates) will be published in the download area of our internet site (at the address **download.ecoteck.it**), together with a document that specifies how it works and any changes with respect to the old version on the market.

There are two main types of firmware:

- Optional update firmware: this type of firmware may contain updates that improve the stove’s efficiency. It is an optional firmware since the stove also works optimally with the previous firmware version.
- Obligatory update firmware: this type of firmware is provided when there are operating problems with the old firmware and it is advisable to update the motherboard.

Ravelli

G R O U P