CALORA PREMIX
CONDENSING GAS BOILER

CALORA PREMIX 14/20/24/28/30/35 HM/HCH/HST



SERVICE MANUAL

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■ Service Menu



■ Entering the menu:

You may enter service menu by pressing RESET button no. 2 for 10 seconds.

You may leave service menu by pressing ON/OFF button no. 1 for 1 second.

It is possible to select respectively one of the following options through the heater circuit buttons no. 4 and 6.

"tS"; Provides entry to service parameters.
"In"; Provides information on some data which do not appear on the screen.
"Hi"; Provides information about the last 8 errors.
You may enter the parameters by pressing on the RESET button no. 2.

■ **"tS" Service Mode:** It is the menu including the parameters which the service may change.

- During the first entry to menu, "tS" icon starts to flash on the LCD.

By pressing on the RESET button no. 2 and selecting “tS”, “000” is shown on the screen.
When pressed on the RESET button no. 2 again, a request is established for the user password.
The password value is adjusted through CH- and CH+ (4 and 6) buttons. (The password value is 003). Password entry is defined in the system via DHW+(3) button. When the password is matched, "—" appears on the screen.

- You may enter the parameters when you press on the (RESET) button no. 2 again.

"tS" parameters start when "POO” is shown on the entry screen.
DH W+(3) and D HW-(5) buttons change the parameters.
It is possible to select and adjust the value of one of the parameters through CH+(4) and CH-(6) buttons. This value is saved automatically.

- There are 2 ways for leaving “ts" parameters. The setting menu is left if no buttons are pressed within 2 minutes or ON/OFF button no 1. is pressed.

The service may only access and make changes on "P00, P01, P26, P27, P33, P37, P38, P39, P42” parameters.

LIST OF SERVICE PARAMETERS

Category	Parameter	Description	Unit	Range		Default Value
				Lower	Upper	Calora Premix 24 HM
Type of Gas Boiler	P00	1-HM Model	Num	1	5	1
		2- HM+Solar				2
		3-HST				3
		4-HST+Solar				4
		5-Only CH				5
Gas Type Selection	P01	Gas Type Selection 0=Natural gas/l=LPG	Num	0	1	0
Ignition fan speed	P02	Natural Gas	*50	20	135	55
		LPG	d/min*50	20	135	55
Water filling	P03	Water filling 1= activated / 0 = deactivated / 2 = automatic	Num	0	2	0
DHW	P04	Maximum DHW setting	°C	30	65	65
DHW Maximum Fan Speed	P05	Natural Gas	d/min*50	20	150	138
		LPG	d/min*50	20	150	132
DHW Minimum Fan Speed	P06	Natural Gas	d/min*50	20	150	42
		LPG	d/min*50	20	150	40
DHW	P07	DHW Pump Additional Running Time	Seconds	0	255	30
DHW	P08	Freezing Protection Runninng-Up Temperature	°C	0	50	8
DHW	P09	Freezing Protection Runninng-Up Temperature	°C	0	50	35
DHW storage tank	P10	DHW heat requirement type 0= sensor/ 1= thermostat (for 3 and 4)	Num	0	1	0
DHW storage tank & solar storage tank	P11	DHW Anti Legionary setting point (for 3 and 4)	°C	0	70	60
DHW storage tank & solar storage tank	P12	DHW Anti Legionary time out (for 3 and 4)	Day	1	7	7
DHW storage tank & solar storage tank	P13	Supply temperature difference (for 3 and 4)	°C	0	20	5
DHW storage tank & solar storage tank	P14	Maximum supply temperature (for 3 and 4)	°C	0	90	85
DHW solar storage tank/HM + Solar	P15	Solar temperature activated (for 2 and 4)	°C	5	20	12
DHW solar storage tank/HM + Solar	P16	Solar temperature deactivated (for 2 and 4)	°C	5	20	8

DHW solar storage tank/HM + Solar	P17	Minimum running time of solar pump (for 2 and 4)	Seconds	0	120	60
DHW solar storage tank/HM + Solar	P18	Solar temperature limit (for 2 and 4)	°C	100	150	130
DHW solar storage tank/HM + Solar	P19	Solar storage tank temperature limit (for 2 and 4)	°C	50	100	80
DHW solar storage tank/HM + Solar	P20	Solar mode functionality 0 = priority/ 1 = parallel (for 2 and 4)	Num.	0	1	0
DHW solar storage tank/HM + Solar	P21	Delay in heat request after the activation of solar pump (for 2 and 4)	Seconds	0	60	10
DHW solar storage tank	P22	Real user setting point difference (for 4)	°C	0	30	15
CH	P23	Maximum CH setting	°C	20	90	80
CH	P24	CH maximum fan speed (Natural gas)	d/minx50	20	150	138
		CH maximum fan speed (LPG)	d/minx50	20	150	132
CH	P25	CH minimum fan speed (Natural gas)	d/minx50	20	150	42
		CH minimum fan speed (LPG)	d/minx50	20	150	40
CH	P26	CH Burner Dwell Time	min	0	10	3
CH	P27	CH Pump Additional Running Time	min	0	255	1
CH	P28	CH pump 1= continuous / 0= overflow	Num.	0	1	0
CH	P29	CH minimum time-NOT BEING USED	min	0	5	2
CH	P30	CH slope ration-NOT BEING USED	°C/min.	0	60	4
CH	P31	CH frost protection On	°C	0	10	6
CH	P32	CH frost protection Off	°C	0	20	15
CH	P33	Outside Air Sensor Curve Selection	Num.	0	30	0
CH	P34	Turn off degree for over running time of thermostatic pump	°C	0	100	80
CH	P35	Turn on degree for over running time of thermostatic pump	°C	0	100	85
DHW	P37	System configuration l=Pakkens Hydroblock 2=Fugas Hydroblock 3=Bitron (Emas Hydroblock)	Num	1	3	3

CH	P38	Heating System Type 0=Radiator Heating/ l=Floor Heating	Num	0	1	0
CH	P39	Eco Mode Hysteresis Opening Set Value	Num	0	1	1
CH	P40	Supply-rotation sensor Swap control time	Seconds	0	255	10
CH	P41	Supply-rotation sensor Swap control hysteresis	°C	0	50	10
DHW	P42	DHW Hysteresis Turn Off 0: Turn off at 71°C	Num	0	1	0

- CH Burner Dwell Time: The device dwells at least for this time when shut down from hysteresis. If the heating water temperature drops below the hysteresis opening value at the end of this period, the device starts to burn again, and the device will not activate unless it falls below this value.
- CH Pump Additional Running Time: From the heat request, the solar pump continues to run for a specified period.
- Eco Mode Hysteresis Opening Set Value:

P39	1	0
Set Value	CH Return Water	CH Return Water
30	27	22
35	27	22
40	31	26
45	34	29
50	36	31
55	40	35
60	44	39
65	47	42
70	51	46
75	53	48
80	57	52

P39: 1 Default setting value. For example, when the CH setpoint is set to 30°C, no flame is generated until the boiler return water temperature sensor reaches 27°C.
P39: 0 The parameter that can be set by the service. It can be activated by the service when the user wishes to consume less fuel in ECO mode.

LIST OF DEFAULT PARAMETERS

Category	Parameter	Description	Unit	Range		Defined Value
				Sub	Up	Calora Premix 24 HM
DHW	1	DHW P factor	Num.	0	255	60 (for 1 and 2) 10 (for 3 and 4)
DHW.	2	DHW 1 factor	Num.	0	255	235 (for 1 and 2) 150 (for 3 and 4)
DHW	3	DHW hysteresis on	°C	0	10	1 (for 1 and 2) 0 (for 3 and 4)
DHW	4	DHW hysteresis off	°C	0	10	3 (for 1 and 2) 2 (for 3 and 4)
DHW	5	CH setpoint limit - LOW	°C	10	100	85 (except 5)
DHW	6	CH setpoint limit - HIGH	°C	10	100	90 (except 5)

DHW	7	3 Way Valve return period	Sec	0	15	0 (except 5)
CH	8	CH P factor	Num.	0	255	25
CH	9	CH 1 factor	Num.	0	255	245
CH	10	CH Hysteresis off	°C	0	10	4
CH	11	CH Hysteresis on	°C	0	10	3
System	12	Fan offset value	d/min x 50	0	40	31
System	13	Fan offset value LPG	d/min x 50	0	40	31
System	14	Fan slope ratio below the lower level	d/min x 50/sec	0	5	1
System	15	3 way valve type 0=Electricity/1= Hydraulic	Num.	0	1	1 (except 5)
System	16	Low water pressure limit	/10 Bars	0	8	4
System	17	High water pressure limit	/10 Bars	25	35	33
System	18	Nominal value of water pressure	/10 Bars	4	25	8
System	19	Water filling time out	Min.	1	5	1
System	20	Maximum gas discharge temperature	Num.	0	100	95
System	21	Supply pump 0 = constant speed / 1 = PWM modulation	Num.	0	1	0
System	22	CH supply/return delta temperature (PWM pump)	°C	4	24	10
HE Protection	23	CH supply/return delta temperature 2	°C	2	40	35
HE Protection	24	CH time loop-NOT BEING USED	Sec	0	100	2
HE Protection	25	CH desired setpoint drop step-NOT BEING USED	°C	0	100	1
HE Protection	26	CH desired setpoint drop time-NOT BEING USED	Sec	0	100	10
HE Protection	27	DHW time loop	Sec	0	100	2 (except 5)
HE Protection	28	DHW desired setpoint drop time	Sec	0	100	12 (except 5)
HE Protection	29	DHW desired setpoint drop time	Sec	0	30	18 (except 5)
HE Protection	30	DHW desired setpoint raise time	Sec	0	100	18 (except 5)
System	31	Flue gas sensor selection	Num.	0	1	0

SAFETY PARAMETERS						
Category	**Parameter**	**Description**	**Unit**	**Range**		**Defined Value**
				Sub	**Up**	**Calora Premix 24 HM**
Safety	1	Fan kP Up factor	Num.	0	127	30
Safety	2	Fan KI Up factor	Num.	0	255	245
Safety	3	Fan kP drop factor	Num.	0	127	30
Safety	4	Fan ki drop factor	Num.	0	255	245
Safety	5	Maximum absolute fan speed	d/min x 50	10	180	150
Safety	6	Minimum absolute fan speed	d/min x 50	10	180	20
Safety	7	Pre-sweeping	Sec	0	15	3
Safety	8	Final sweeping	Sec	0	255	60

Entry to Information Mode (In): In (Information) Menu provides information about the status of the devices during operation. The values of some data can be viewed simultaneously by entering this menu.

- ✓ When you select “In” via button 2 after entering the main menu, “i00” is displayed on the screen, and then it is possible to select the desired parameter by pressing on DHW-(5) and DHW+(3) buttons.

- ✓ It is possible to see the value of the parameters by selecting one of them through CH+(4) and CH-(6) buttons.

  In case of short or open circuits in the sensors, "—" is displayed on the screen.
  The real fan speed is always displayed as d/min/10.
  The real flame flow is always displayed as uA*10.

- ✓ It is possible to return “In” parameter by pressing on the (RESET) button no. 2 for 1 second, then you can leave the “In” mode by pressing again the button no. 1.

- ✓ There are 2 ways for leaving “In" mode. The setting menu is left if no buttons are pressed within 2 minutes or button no 1. is pressed.

Code	Definition	Range
İ00	CH Outgoing Water Sensor Temperature (°C)	Between 00-125
İ01	CH Return Water Sensor Temperature (°C)	Between 00-125
İ02	DHW Sensor Temperature (°C)	Between 00-125
İ03	DHW Sensor Temperature (°C) - Boiler Lower	Between 00-125
İ04	Solar Panel Temperature (°C)	Between 00-125
İ05	Flue Gas Sensor Temperature (°C)	Between 00-125
İ06	Outside Air Sensor Temperature (°C)	
İ07	Real Fan Speed (d/min/10)	
İ08	Real Water Pressure (Bars)	
İ09	İonization Current (µa*10)	Between 00-99
i10	Production Release	C X.Xx

Entry to Previous Error Display Mode (Hi): Provides information about the last 8 errors from the end to start.

✓ After entering the main menu, "H01" is displayed on the screen by selecting "Hi" with button 2.

It is possible to select the desired parameter by pressing on the DHW- (5) and DHW+ (3) buttons.

It is possible to see the value of the parameters by selecting one of them through CH- (6) and CH+ (4) buttons.

✓ It is possible to return to “Hi” parameter by pressing on the (RESET) button no. 2 for 1 second, then you can leave the “Hi” mode by pressing again the button no. 2.

✓ There are 2 ways for leaving “Hi" mode. The setting menu is left if no buttons are pressed within 2 minutes or button no 1. is pressed.

H01	Previous error l(Last error) -EXX or
H02	Previous error 2 - EXX or FXX
H03	Previous error 3 - EXX or FXX
H04	Previous error 4 - EXX or FXX
H05	Previous error 5 - EXX or FXX
H06	Previous error 6 - EXX or FXX
H07	Previous error 7 - EXX or FXX
H08	Previous error 8 - EXX or FXX

Error Code	Error Type	Possible Cause	Solution
E01	Ignition Error	Gas is not supplied to the gas boiler.	1-Check that the gas valve is open. 2-Check the line for gas. 3-Press the Reset button. 4-If the error persists after reset (or if it recurs) notify E.C.A authorized service.
		Gas settings are out of adjustment	Check if the gas settings are at appropriate range. If not, adjust them.
		Fan-venturi-silencer assembly error	Check whether the assembly of fan-venturi and silencer is correct.
		There may be a problem in the cable connections.	1- Check that the ignition electrode cable (electrode and electronic card side) is connected or whether there is loose contact or not. 2- Check that the gas valve cable (gas valve and electronic card side) is connected or whether there is loose contact or not. 3- If cable problem is detected during the above controls, replace the cable group.
		The siphon drain may be closed.	1-Siphon cables may be short-circuited.

			Check the cables, replace them if there is a problem. 2-If the problem continues, check whether the siphon and the siphon drain are closed.
		The ignition electrode may be defective.	1- Check the ignition electrode distances and replace them if not appropriate. 2-Remove the ignition electrode and clean it if there is oxidation.
		Gas valve may be defective.	Replace the gas valve.
		The electronic card may be	Replace the electronic card.
E02	False Flame Signal	Occurs if flame is detected in the burner when the gas valve is closed.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
			Replace the electronic card.
E03	Over Temperature Warning	Occurs when the outgoing or return temperature exceeds 90°C.	1- Check that the installation water valves of the gas boiler are open. 2- If the gas boiler has given this error in winter mode, check that the valves of at least 1 radiator are open. 3- Press the Reset button. 4- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		It may be due to the failure of temperature sensors.	1- Remove the outgoing and return water temperature sensors and measure their resistance. If not appropriate, replace them.
		Internal By-Pass system may not be running.	Replace three way valve shaft group.
		There may be a problem in water circulation.	1- Pump connection cables may be unplugged or there may be loose contact. Check the cables, replace them if there is a problem. 2- Pump may be defective. If defective, replace it. 3- There may be clogging in heating system. Operate the gas boiler in both winter and summer modes and observe the temperature changes, if there is problem only in winter mode, the heating system is clogged.
		The electronic card may be	Replace the electronic card.
E05	Inability to receive feedback from the fan for more than 1 minute	Fan or fan cable problem	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service. 1- Fan modulation cable

			connector may be unplugged or there may be loose contact. Check the relevant cables in on fan and electronic card side, if there is a problem, replace them. 2- Fan may be defective. If defective, replace it.
E08	Flame circuit error	The electronic card may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
			1- Replace the electronic card. 2- Check the ignition electrode cable. 3- Check the ignition electrode.
E09	Valve does not give feedback	Gas valve may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service. 3-Replace the gas valve.
E12	EEPROM control error	The electronic card may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
E15	Temperature sensors measurement deviation error	Temperature sensors may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		The electronic card may be defective.	1-Check whether the temperature sensors are plugged. 2-Replace the outgoing and return water temperature
E16	Outgoing water temperature sensor error	No temperature change is detected at the outgoing water temperature sensor.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		The electronic card may be	Replace the electronic card.
E17	Return water temperature sensor error	No temperature change is detected at the return water temperature sensor.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service. 1- Check whether the return water temperature sensor is plugged. 2- Replace the return water temperature sensor.
		The electronic card may be	Replace the electronic card.
E18	Temperature sensor error	Temperature change over temperature sensor is too high (>30°C)	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service. 1-Check temperature sensor cables,

			replace them if there is a problem. 2- Replace the outgoing water temperature sensor. 3- Replace the return water temperature sensor.
		The electronic card may be	Replace the electronic card.
E21	Analog-to-Digital Converter (Adc) Error	The electronic card may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
			Replace the electronic card.
E33	Return water temperature sensor error	Return water temperature sensor is short or open circuit	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
			1-Return water temperature sensor cables may be unplugged or there may be loose contact. Check the cables, replace them if there is a problem. 2-If the problem persists, replace the return water temperature sensor.
		The electronic card may be	Replace the electronic card.
E35	Outgoing water temperature sensor error	Outgoing water temperature sensor is short or open circuit	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
			1-Outgoing water temperature sensor cables may be unplugged or there may be loose contact. Check the cables, replace them if there is a problem. 2-If the problem persists, replace the outgoing water temperature sensor.
		The electronic card may be	Replace the electronic card.
E80	Temperature difference error between return water and outgoing water temperature sensor	Return water temperature sensor temperature is greater than outgoing water sensor temperature	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		There may be problem is temperature sensors.	1-Check the locations of outgoing and return water temperature sensors. 2-If the problem persists, replace the temperature sensors.
		There may be a problem in water circulation.	1-Check whether the pump cable is plugged and if there is a loose contact. 2-Check whether the pump is running. If the pump is not running; -Replace the pump cable.

			-If the problem persists, replace the pump.
		The electronic card may be	Replace the electronic card.
E82	Flame loss error (more than 3 flame losses within 4 minutes)	Flame detection problem	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		Gas settings are out of adjustment	Check if the gas settings are at appropriate range. If not, adjust them.
		Mixture of waste gas into fresh air due to the improper flue installation	1- Check the flue installation and the installation requirements stated in the manual. 2- Measure the emission at fresh air part of the bracket on the gas boiler. CO^2 level must be %. If it is higher than this value, dismantle the flue and check its joints and seals, make sure that there is no clogging in the waste gas and suctiion lines.
		Fan-venturi-silencer assembly error	Check whether the assembly of fan-venturi and silencer is correct.
		Extremely low gas pressure	Check the gas pressure from the gas valve inlet. (It must be higher than 8 mbars).
		The ignition electrode may be defective.	1- Check the ignition electrode distances and replace them if not appropriate. 2-Remove the ignition electrode and clean it if there is oxidation.
		Gas Valve may be defective.	Replace the gas valve.
		The electronic card may be	Replace the electronic card.
F07	Excess Flue Gas Temperature Error	Occurs when the flue gas temperature exceeds 95°C.	notify E.C.A authorized service.
		The pressure sensor may be defective and there may be no water in the device.	Check the presence of water in the device by opening the drain valve. If there is no water in the device and the pressure sensor reads pressure replace the pressure sensor. If there is no water in the device, press water into the device up to 1.5-2 bars.
		Flue gas sensor may be defective	In parameter mode "In", enter parameter I05 to determine which temperature the sensor reaches and compare it with another measuring instrument. If there is any difference, replace the flue gas sensor.
		The pump does not operate or there may be low flow of water in the device	1-Check whether the pump cables are plugged and if there is a loose

			contact. 2-Check whether the pump is running. If the pump is not running; -Replace the pump cable. -If the problem persists, replace the pump.
		There may be clogging on the gas side of main heat exchanger.	Use a feeler gauge to check that there is a clearance of at least 0.4 mm between the coils of the heat exchanger. Clean the heat exchanger if there is an area where the feeler gauge could not pass through. If the problem persists, replace the heat exchanger.
		The installation or gas boiler CH circuit system may be clogged.	Check that the installation and gas boiler heating circuit are not clogged.
		The electronic card may be	Replace the electronic card.
F13	Over reset error	Pressing Reset button more than 5 times within 1 hour	Notify E.C.A authorized service.
			Check the error history. Perform the relevant intervention basedon the last error in the error history.
		The electronic card may be	Replace the electronic card.
F25	Electronic Card Failure	Electronic card software error	Notify E.C.A authorized service.
			Replace the electronic card.
F34	Low Supply Voltage	Occurs when the supply voltage drops below 170V.	Unless the voltage returns to normal values, the system remains blocked and heat requests are not met.
		The electronic card may be defective	Replace the electronic card.
F37	Low Water Pressure Error	Occurs when the water pressure sensor detects objectionable low water pressure (0.4 bars) for your device.	1- Check the heating circuit water pressure of your device. 2- Fill the system with water until the pressure value reaches 1.5-2 bars (At pressures over 0.8 bars, the device will leave fault mode.) 3- Check your valves and installation for leaks. 4- If the problem persists (or recurs), notify E.C.A authorized service.
		There may be a problem in the pressure sensor or cable connections.	1- Pressure sensor cables may be unplugged or there may be loose contact. Check the cables, replace them if there is a problem. 2- If the problem persists, replace the pressure sensor.
		Filling tap may be defective.	Check that the filling tap is functioning properly. If the system pressure does not increase even though the filling tap is open, replace the filling tap.

		Installation pressure problem	If the water pressure cannot rise above the bar even though the filling tap is open, the water pressure of the user in the installation is insufficient.
		Installation leakage problem	There may be water leakage in the installation or in the valves.
		The electronic card may be	Replace the electronic card.
F39	Outdoor Sensor Error	Outdoor sensor may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		There may be a problem in the cable connections.	1- Outdoor sensor cables may be unplugged or there may be loose contact. Check the cables, replace them if there is a problem.
		The electronic card may be	Replace the electronic card.
F40	High Water Pressure Error	Occurs when the water pressure sensor detects objectionable high water pressure (3.3+0.3 bars) for your device.	1-Check the heating circuit water pressure of your device. 2-Disconnect the device and switch it on again. 3-If the error persists (or recurs), notify E.C.A authorized service.
		There may be a problem in the pressure sensor or cable connections.	1- Pressure sensor cables may be unplugged or there may be loose contact. Check the cables, replace them if there is a problem. 2-If the problem persists, replace the pressure sensor.
		Safety valve may be defective.	Replace the safety valve.
		Expansion tank may be defective.	Check the expansion tank pressure, if not appropriate, replace it.
		The electronic card may be	Replace the electronic card.
F47	Water Pressure Sensor Error	Water pressure sensor is not connected or there is loose contact.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
			Pressure sensor and pressure sensor cables may be unplugged or there may be loose contact. Check the cables and the sensor, replace them if there is a problem.
		The electronic card may be	Replace the electronic card.
F50	Boiler Sensor Error	Boiler sensor may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		Parameter control	Check that P00 parameter is “1” (P00:

			2,3,4 is used for HST model use.)
		Boiler sensor may be defective.	Boiler sensor and boiler sensor cables may be unplugged or there may be loose contact. Check the cables and the sensor, replace them if there is a problem.
		The electronic card may be	Replace the electronic card.
F51	PT1000 solar sensor error	PT1000 solar sensor may be defective.	1- Press the Reset button. 2- If the error persists (or recurs) after reset, notify E.C.A authorized service.
		Parameter control	Check that P00 parameter is “1”. (P00: 2 or 4 is used for solar model use).
		PT1000 solar sensor may be defective.	PT1000 solar sensor and PT1000 solar sensor cables may be unplugged or there may be loose contact. Check the cables and the sensor, replace them if there is a problem.
		The electronic card may be	Replace the electronic card.
F52	Domestic water temperature sensor error	Domestic water temperature sensor may	Notify E.C.A authorized service.
		Domestic water temperature sensor may be defective.	Domestic water temperature sensor and domestic water temperature sensor cables may be unplugged or there may be loose contact. Check the cables and the sensor, replace them if there is a problem.
		The electronic card may be	Replace the electronic card.
F53	Flue gas temperature sensor error	Flue gas temperature sensor is short or open circuit	1- Flue gas temperature sensor cables may be unplugged or there may be loose contact. Check the cables, replace them if there is a problem. 2- If the problem persists, replace the flue gas temperature sensor.
		The electronic card may be	Replace the electronic card.
F81	Temperature sensor deviation test pending	Temperature sensors may be defective.	Notify E.C.A authorized service.
		Outgoing or return temperature sensors may be defective.	Outgoing-return or domestic water temperature sensor and outgoing-return or domestic water temperature sensor cables may be unplugged or there may be loose contact. Check the cables and the sensor, replace them if there is a problem.
		The electronic card may be	Replace the electronic card.

Gas Conversion

Gas conversion process (Natural Gas-LPG) gas throttle washer replacement, gas pressure setting (capacity settings) change via gas valve and P01 parameter changes through service parameters are performed. Natural gas and LPG parameter values are given below. The diameter and stock code shall be available on the gas throttle washer as marking (if there is no marking, it must be marked with color pen).

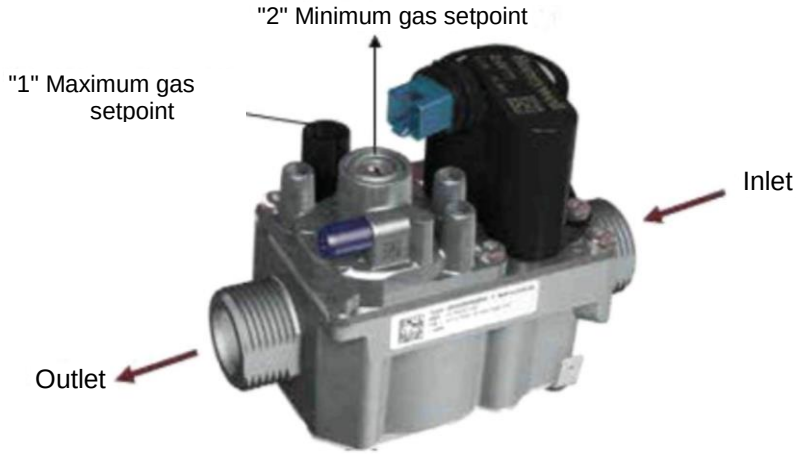


Gas Adjustment Table

Capacity	Gas Type	Gas Oriffice (mm)	Maximum Fan Speed (rpm)	Minimum Fan Speed (rpm)	Ignition Fan Speed (rpm)	Fan Offset Fan Speed (rpm)	Front Cover (Open) CO2 (Max/Min) (%)	Front Cover (Close) CO2 (Max/Min) (%)
24 kW	NG	7,65±0,05	6250	1850	2750	3400	9,3±0,2 / 8,7±0,2	9,5±0,2 / 8,9±0,2
24 kW	LPG	6,5±0,05	6100	1850	2750	3250	10,4±0,2 / 9,7±0,2	10,6±0,2 / 9,9±0,2
24 kW-V2	NG	6,4±0,05	6050	1800	2750	3400	9,2±0,2 / 8,7±0,2	9,4±0,2 / 8,9±0,2

Gas Pressure Adjustment

Maximum and minimum gas pressure adjustment procedures are listed below.



Adjustment of maximum outlet pressure;

- The front panel of the device is removed and the control panel is tilted forward.
- The device is set to the maximum operating position (test mode). (Test mode: CH is activated by continuously pressing the temperature increase and decrease keys (keys 4 and 6 on the control panel) for 5 seconds).
- "1" Turning the maximum gas setpoint clockwise slowly increases the gas flow to the burner, otherwise decreases.

- During adjustment, the CO2 value is checked from the emission device.
- Maximum gas adjustment is completed when CO_2 falls within the range specified in the table.

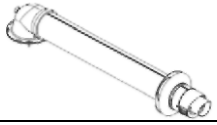
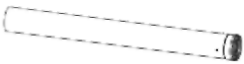
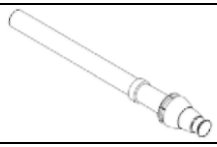
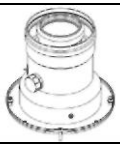
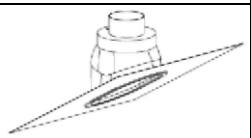
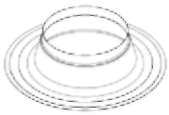
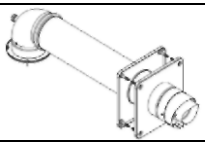
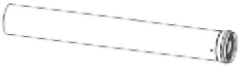
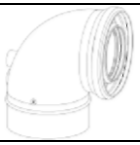
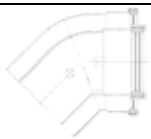
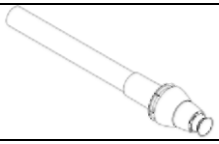
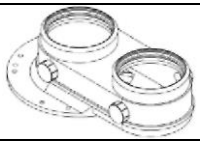
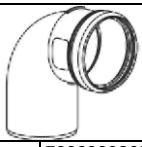
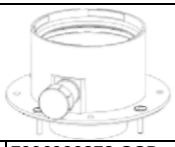
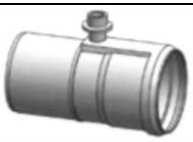
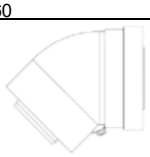
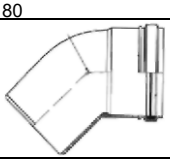
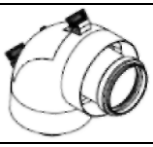
Required Equipment: 4 mm Allen

Adjustment of minimum outlet pressure;

- The device is set to the minimum operating position. To do this, press the CH temperature decrease button (button 6 on the control panel) while the device is in test mode.
- After removing the protection cap of the "2" minimum gas setpoint screw shown in the figure, gas flow increases by turning it clockwise, otherwise decreases.
- During adjustment, the CO2 value is checked from the emission device.
- Minimum gas adjustment is completed when CO_2 falls within the range specified in the table.
- It is important not to forget to install the cover of the "2" minimum gas pressure regulator after the adjustments.
- Disassembled front panel and control panel are reassembled.

Required Equipment: T40 Torx Screwdriver

Flues

7006990058 Ø60-100 Flue Set Condensing Bracket 667 Inner Clamped Pipe	7006990059 CCB Extension and Flue Extension Ø 60-100-100 cm	7006990060 CCB Extension and Flue Extension Ø 60-100-50 cm	7006990061 CCB Extension 90° Bracket Ø 60-100 cm
			
7006990063~-1.0 CCB Vertical Flue Terminal Ø 60-100-125 cm	7006990064~-1.0 CCB Vertical Flue Adaptor Ø 60-100 cm	7006990065 CCB Inclined Roof Adaptor Ø 60-100	7006990066 CCB Flat Roof Adaptor Ø 60-100
			
7006990067~-1.0 CCB Vertical Hermetic Flue Ø 80-125 - 76 cm	7006990068 CCB Extension Flue Extension Ø 80-125 - 50 cm	7006990069 CCB Extension Flue Extension Ø 80-125 -100 cm	7006990070 CCB Extension 90° Bracket Ø 80-125 cm
			
7006990071 CCB Extension 45° Bracket Ø 80 -125 cm	7006990072-1.0 CCB Vertical Flue Kit Ø 80 -125 cm	7006990073-1.0 CCB Flue Adaptor Ø 80 -125 cm	7006990074~-1.0 CCB Twin Flue Kit Vertical Ø 80-80
			
7006990076 CCB Extension Flue Extension Ø 80 - 50 cm	7006990077 CCB Extension Flue Extension Ø 80 -100 cm	7006990078 CCB Extension 90° Bracket Ø 80	7006990080 CCBT-Adaptor Ø 80 cm
			
7006990081 CCB Condensate Chamber Ø 80	7006990062 CCB Extension 45° Bracket Ø 60	7006990079 CCB Extension 45° Bracket Ø 80	7006990368 CCB Observation bracket Ø 60/100 cm	7006990373 CCB Observation bracket Ø 80/125
				

Circuit Diagram



■ Parts Assembly / Disassembly Operation Descriptions

- **Front Cover Disassembly:** Remove the 2 screws that connect the front cover, side plates and subframe and remove the front cover.

  Torque:4+0.4 Nm



- **Side Panel Disassembly:** Remove the 2 screws that secure the control panel to the side covers. **Torque**:3+0.3 Nm

NOTE: All parts can be replaced without removing the side panel. Side panel disassembly is provided for information purposes.



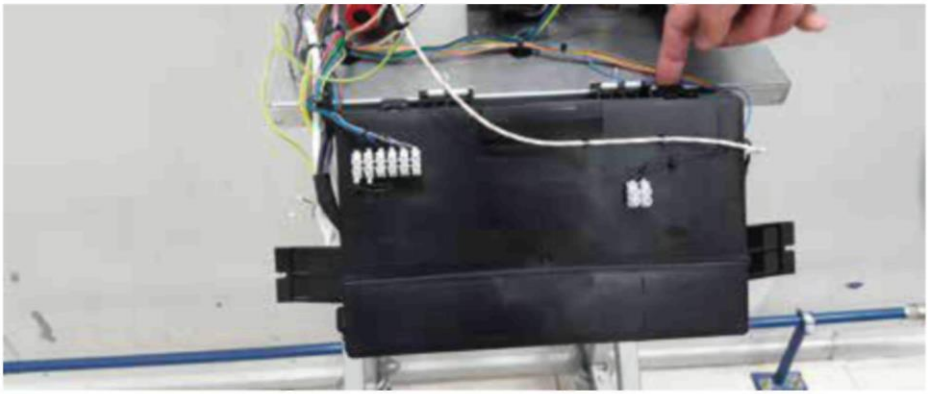
The side covers and 4 screws that connect the subframe and body are removed.
Torque:4±0.4 Nm

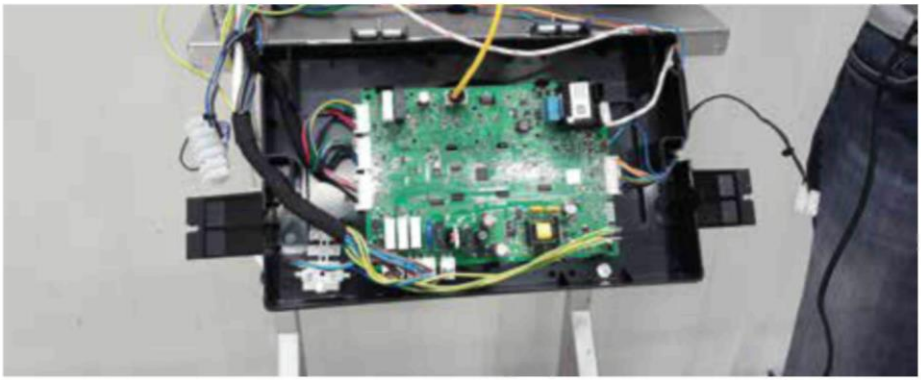


Side covers are removed.

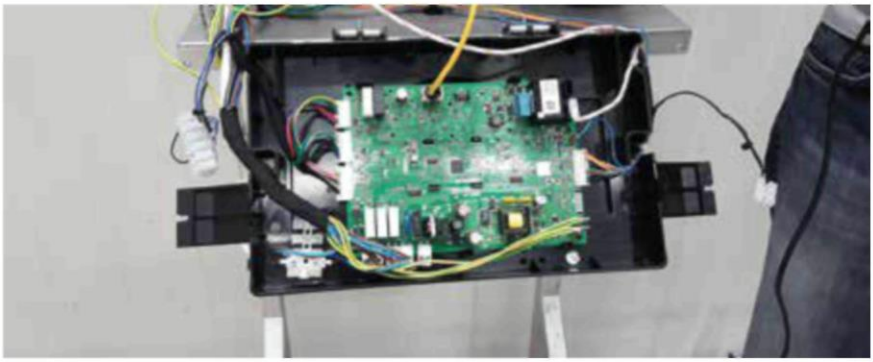


- **Control Panel Disassembly:** The room thermostat connectors for the ignition and ionization cables installed on the tabs on the control panel are removed. The cover is opened by lifting the tabs of the control panel.





- **Motherboard Connections:** Each of the sockets required to be installed on the motherboard is shown in the following illustration.

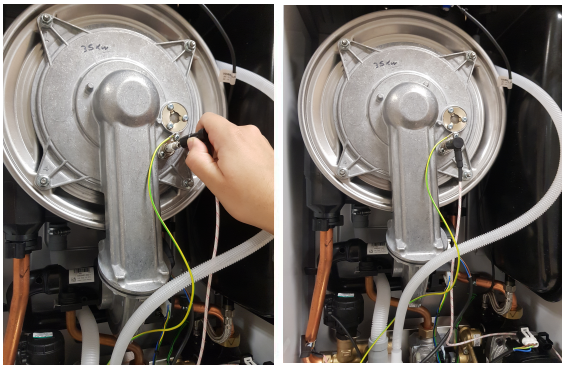


Assembly and disassembly of the flue gas sensor: The flue gas sensor is connected to the port shown in the illustration.



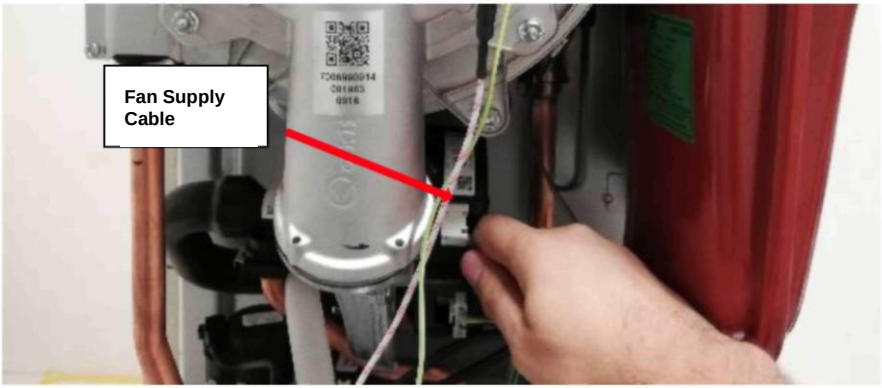
- **Assembly and Disassmbly of Ignition and Ionization Electrode:** The electrode and earth wire are connected as shown in the illustration.

WARNING !!! When inserting the electrode, a “click” sound must be heard.

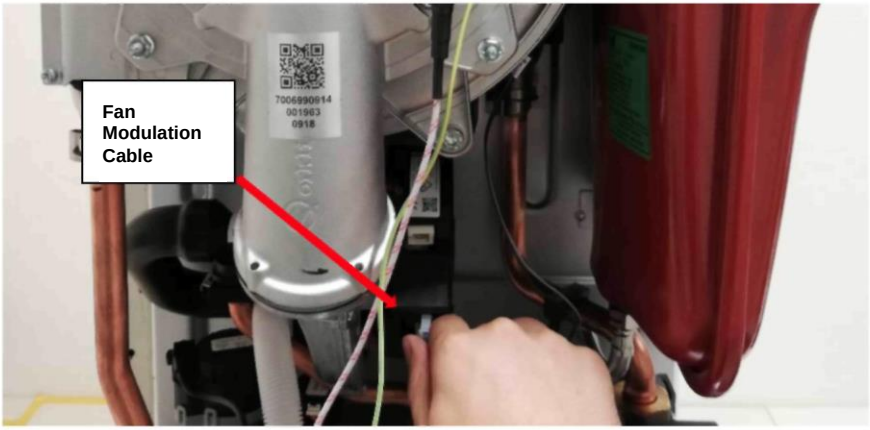


- **Assembly-disassembly of fan cables:** Fan modulation and fan supply cables are installed as shown in the illustration.

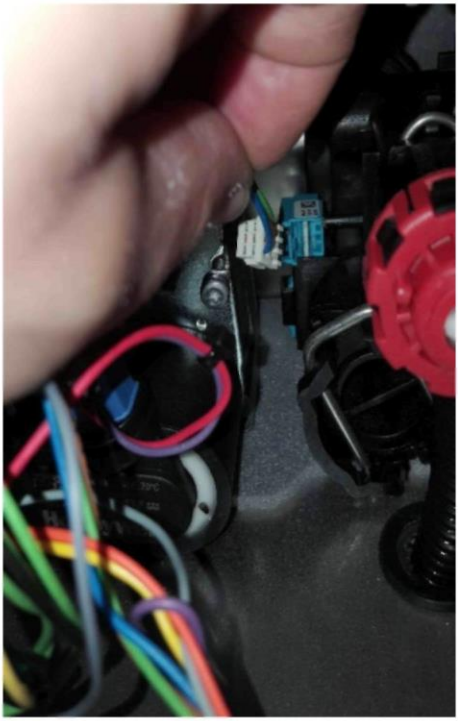
High Voltage:



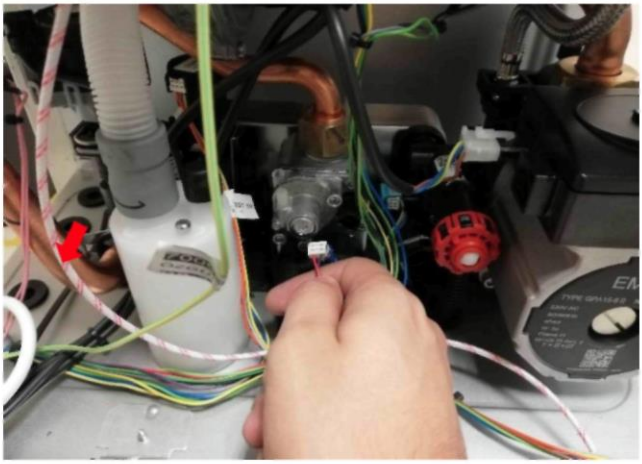
Low Voltage:



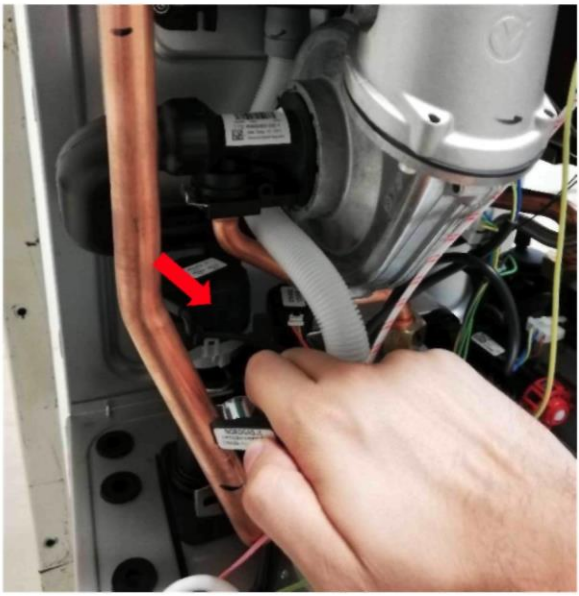
- **Assembly-Disassembly of Flow Sensor and Its Cable:** The flow sensor (Hail Effect Sensor) on the domestic water circuit shown in the illustration and the connector on it can be easily removed and installed.



- **Assembly-Disassembly of Gas Valve Cable:**



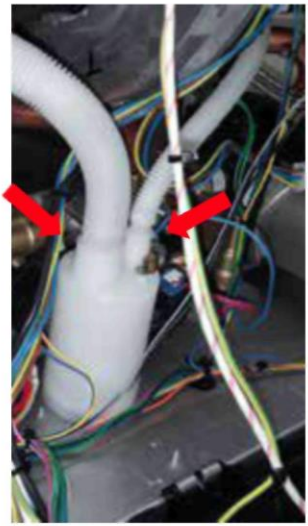
- **Assembly-Disassembly of Surface Type NTC and Its Cable:** Calora Premix gas boilers are equipped with 2 surface type NTCs over heating outgoing and return pipes.



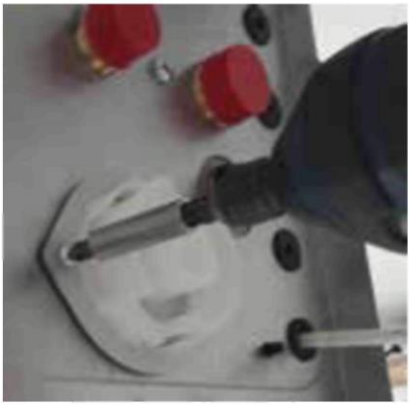


- **Assembly-Disassembly of Siphon and Siphon Hose:**

The two hoses on the siphon are removed.



To unscrew the siphon completely, remove the 2 screws attached to the subframe. Torque: 1.8 ±0.1 Nm





- **Assembly-Disassembly of Motorized Valve:** The clip that secures the manifold and the motorized valve is dismantled and the motorized valve is removed.



The cable of the motorized valve is connected as shown in the illustration.

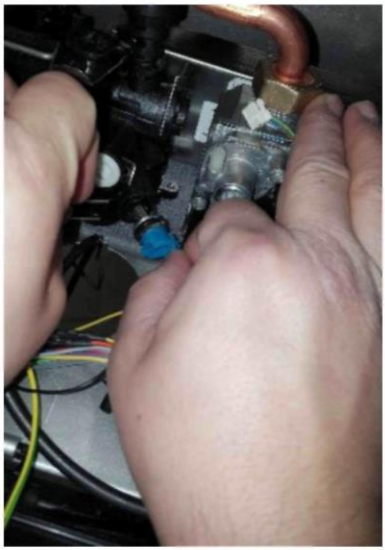


Assembly - Disassembly of Water Pressure Sensor: In order to disassemble the water pressure sensor, the siphon must first be removed completely. The water pressure sensor cable is then disassembled.

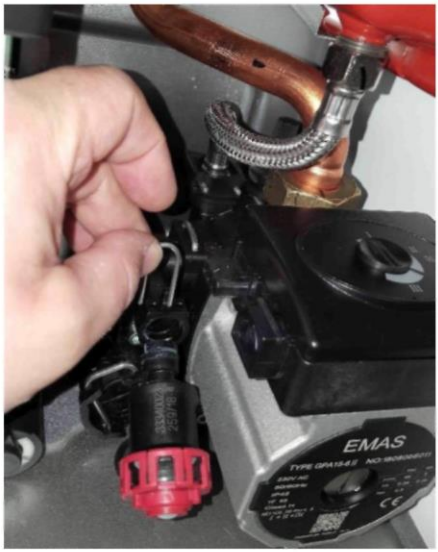


After removing the clip, the water pressure sensor is disassembled. Make sure that the gasket is present when reassembling.

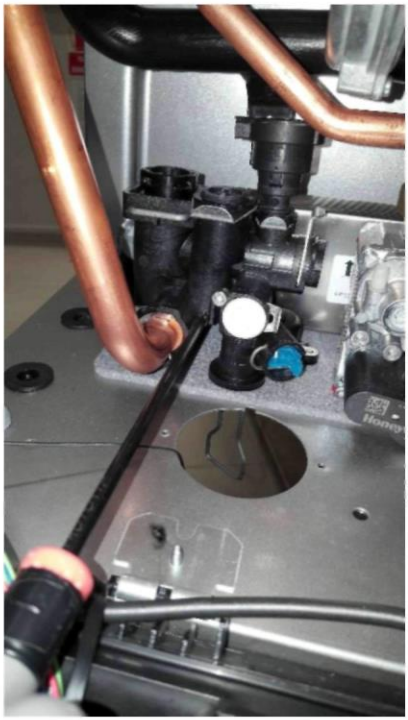
- **Assembly - Disassembly of Immersion Type NTC:** The clip securing the immersion type NTC is disassembled and the NTC is removed.



- **Assembly - Disassembly of 3 Bars Safety Valve v2:** First, the hose at the end of the safety valve is removed. Then the clip on the manifold is disassembled. The safety valve is removed.



Assembly - Disassembly of Plate Heat Exchanger: The bolts on the manifolds are unscrewed with the allen and the plate heat exchanger is removed.
Torque: 4 ± 0.4 Nm

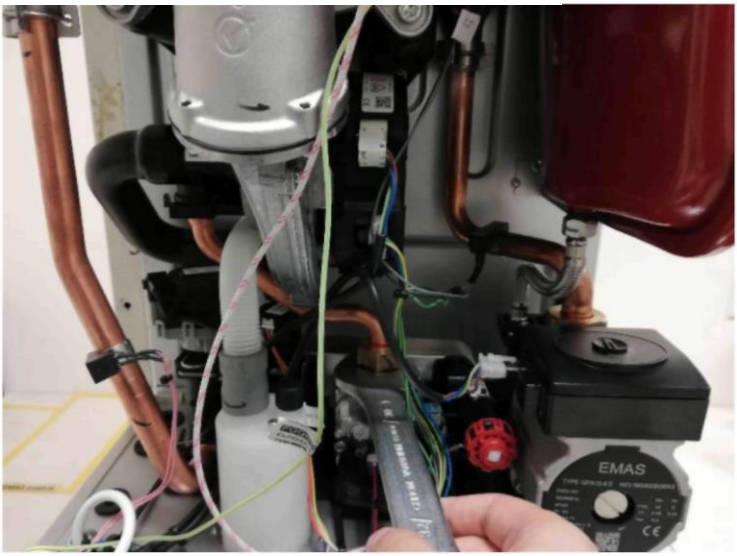




- **Assembly - Disassembly of Gas Valve:** The 2 bolts that secure the gas valve to the subframe are removed. Torque: 3 ± 0.3 Nm



The brass nut, which combines the gas valve and the gas pipe, is unscrewed with the allen key.
Torque: 30 ± 0.3 Nm



- **Assembly - Disassembly of Venturi:** The gas pipe and the clip securing the venturi are removed. The bolt securing the silencer to the combustion body is removed. After removing the silencer, the venturi is removed by rotating.



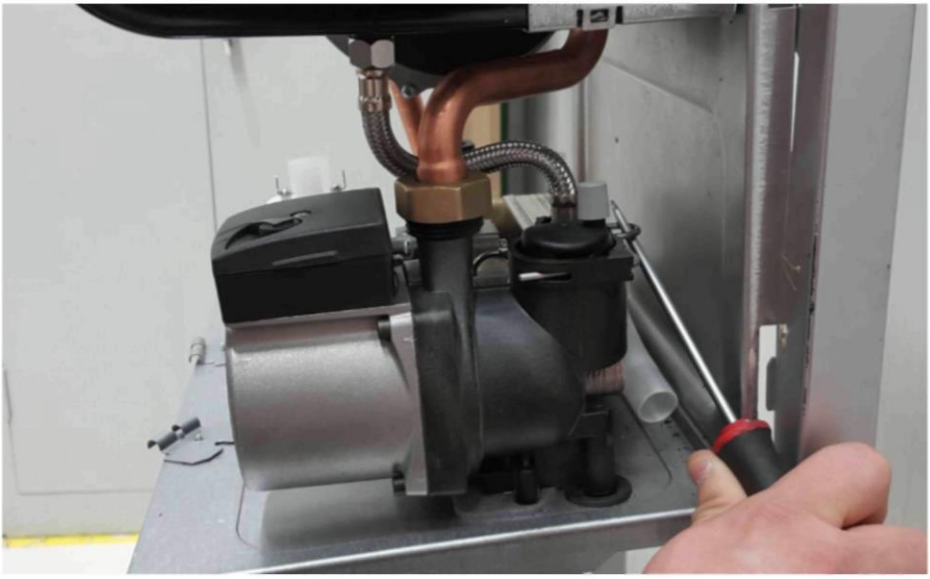




After removing the silencer, the venturi is removed by rotating.



- **Assembly - Disassembly of Expansion Tank:** To remove the expansion tank, the clip to which the flex hose is connected to the pump is removed with a hand tool.



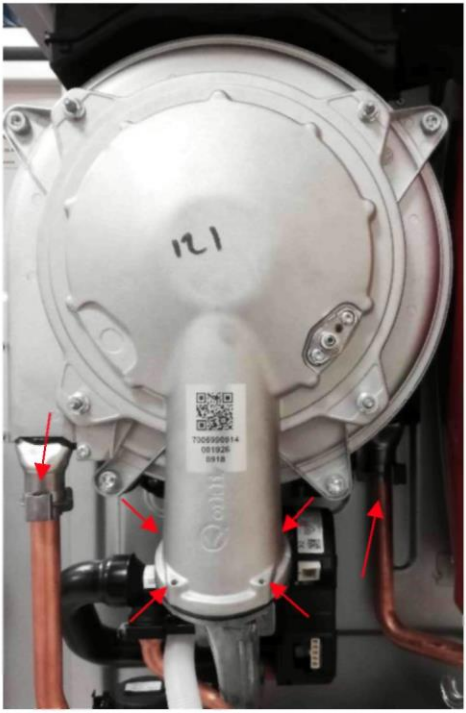
The connection nut of the expansion tank and the flex hose is unscrewed with the allen key.
Torque: 10+0.5 Nm~



The holder brackets of the expansion tank are removed.
Torque: 4 ±0.4 Nm



- **Assembly-Disassembly of Main Heat Exchanger Group:** The screws connecting the fan and manifold are removed with the allen key. The clips of the inlet-outlet pipes are disassembled.
  Torque: 1.8+0.3 Nm~



CALORA PREMIX (VALMEX VERSION)

The screws connecting the heat exchanger to the rear sheet plate are removed.

Torque: 2+0.5 Nm~



The ignition-ionization screws are unscrewed with the allen key.

Torque: 1 ± 0.2 Nm





4 heat exchanger cap screws are removed. When disassembling and reassembling the heat exchanger cap, nut tightening must be performed diagonally.

Torque: First tighten the 4 nuts with 7 ± 0.5 Nm, then perform a second tightening with a torque of 9 ± 0.5 Nm.





CALORA PREMIX (CONDEVO D2 VERSION)

The screws connecting the heat exchanger to the rear sheet plate are removed.

Torque: 2+0.5 Nm~



The ignition-ionization screws are unscrewed with the allen key.

Torque: 1 ± 0.2 Nm





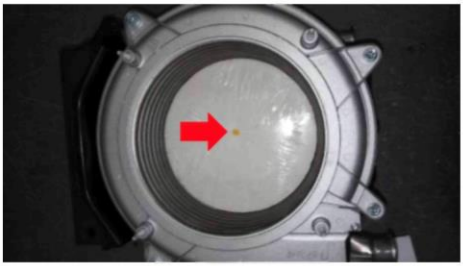
4 heat exchanger cap screws are removed. When disassembling and reassembling the heat exchanger cap, nut tightening must be performed diagonally.

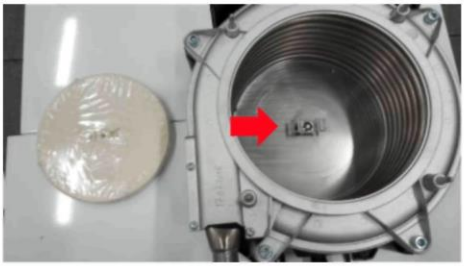
Torque: First tighten the 4 nuts with 7 ± 0.5 Nm, then perform a second tightening with a torque of 9 ± 0.5 Nm.





- **Disassembly of Heat Exchanger Duroboard:** To disassemble the Duroboard, drill the Duroboard from its midpoint marked in the illustration. This is performed until the Duroboard middle connection in the illustration appears. Duroboard is then pulled out.





In order to install the new Duroboard, the part in the middle of the heat exchanger is removed by rotating. The removed part is inserted in the middle of the new Duroboard as shown in the illustration. Duroboard is then rotated and attached to the screw in the middle of the heat exchanger.

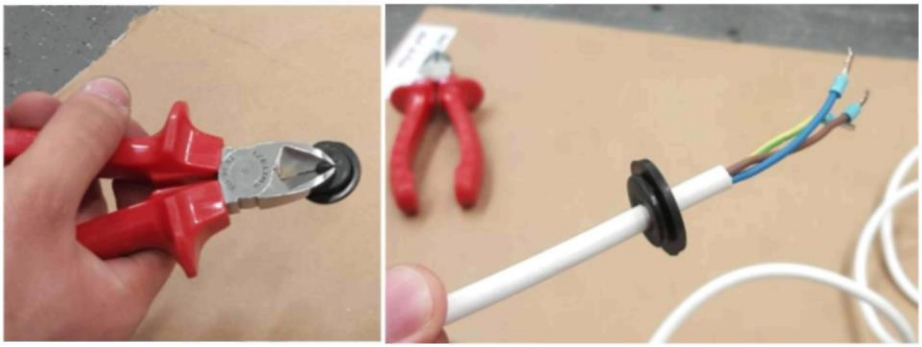




- **Connection of Controllers:** The tread rubber on the subframe is removed.



The end of the tread rubber is cut and passed into the thermostat cable.

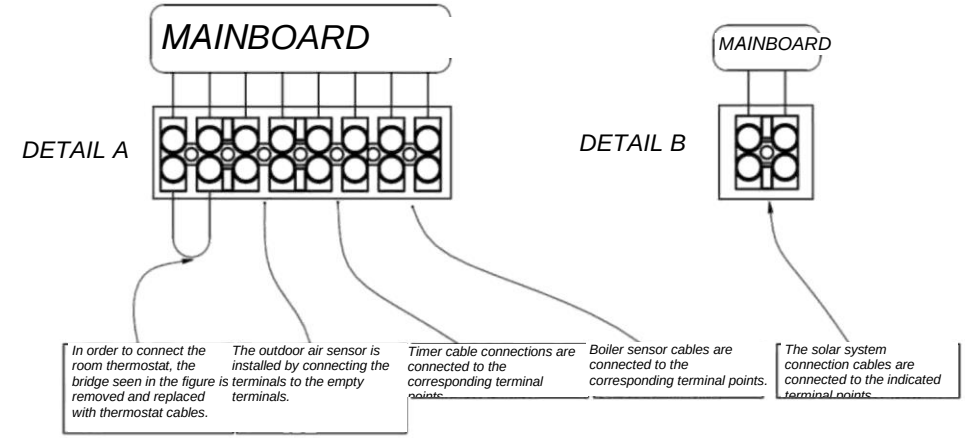


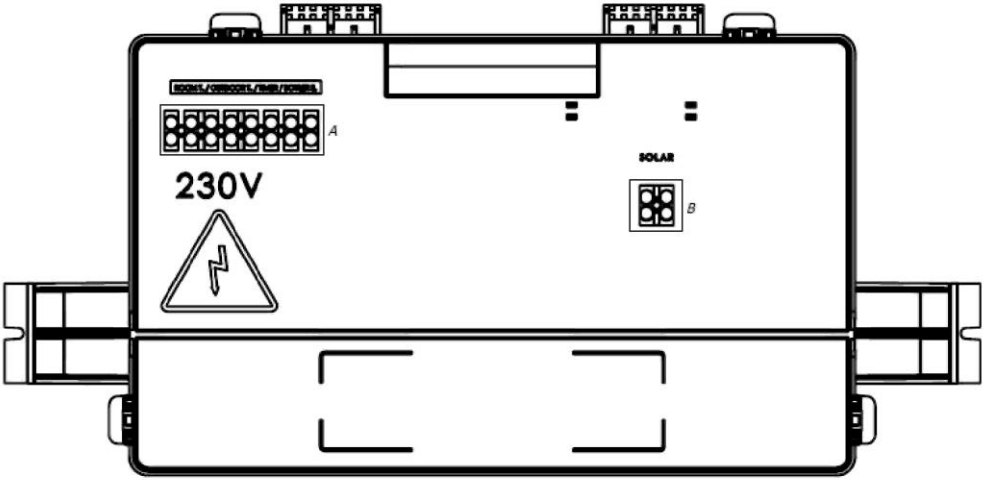


The phase and neutral ends of the thermostat cable are connected to the connector inlets shown in the illustration.



- **Connection of Controllers:**

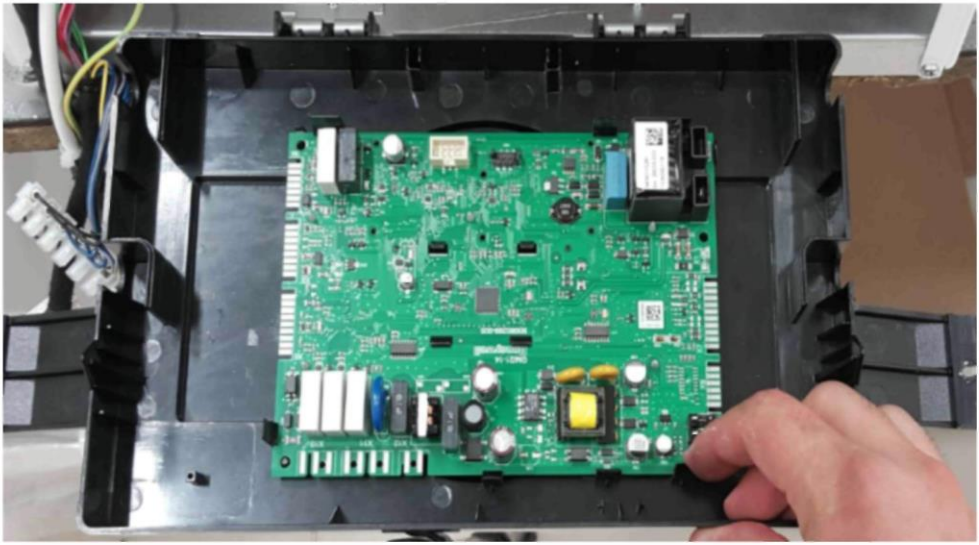




Cancel the bridge on the room thermostat connection

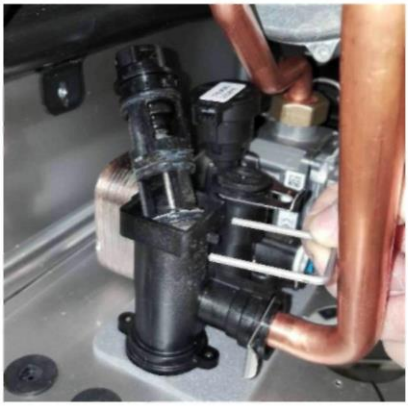
- **Assembly - Disassembly of Mainboard:** The three screws securing the motherboard on the control panel are removed, then the tabs securing the motherboard are flexed and the motherboard is removed. During the assembly and disassembly of the control panel, the keypad must be assembled with the reset and on/off keys facing up. Torque:0.5 + 0.1 Nm



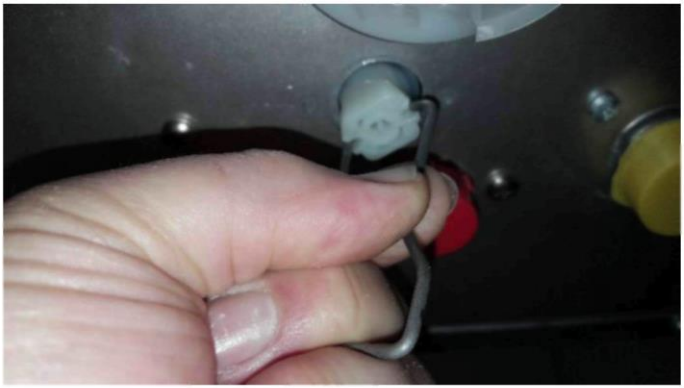


- **Assembly-Disassembly of 3 Way Shaft Group Mounting Part:** The mounting part on the outlet manifold is removed with the allen key.





- **Assembly-Disassembly of Filling Tap:** It is unscrewed with screwdriver as shown in the illustration.



Assembly-Disassembly of Pump: Remove the heater inlet pipe nut with a wrench.
Torque: 25 ± 1.5 Nm



Inlet manifold is disassembled.

Torque: 3 ± 0.3 Nm



The bolt connecting the pump and the chassis is removed.

Torque: 3 ± 0.3 Nm



Assembly - Disassembly of Flow Sensor: Using a thin hand tool, the clip is disassembled and the plug is removed.



The turbine and the flow limiter are removed with the help of a thin hand tool.



NOTE: When the turbine and flow limiter will be reinstalled, its tabs must correspond to the channels. When the turbine is in full position, a “click” sound is heard.

Disassembly of Domestic Water Filter: A thin hand tool is used to remove the filter from the domestic water inlet pipe.



Inserting gas throttle washer: A throttle washer is placed between the 2 gaskets and placed in the gas valve.

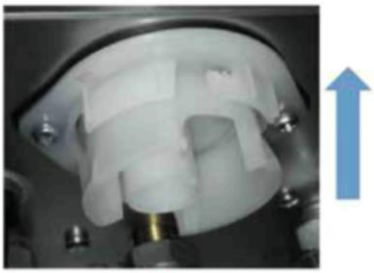


CCB Part Descriptions

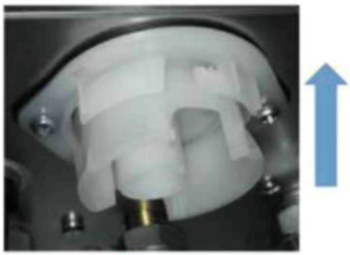
- Siphon

Subject	Description
Part Function	It is the component that allows condensate and rain water discharge without allowing the waste gas discharge.
Impact in Error Condition	1- Water rise in the siphon due to siphon clogging 2- Discharge of the waste gas to the external environment by the siphon from the discharge part
Main Related Error Codes	E01, E82
Error Detection-Test Method and Maintenance	Visual inspection and cleaning of dirt, burrs etc. in the siphon Siphon cleaning steps: 1- Move the siphon upwards. 2- Rotate counterclockwise. 3- Pull down with a hand tool or by hand. 4-Wash and clean the dirt accumulated in the siphon. 5-Clean the accumulation, if any, in the condensate hose.





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SOLUTION STEPS FOR E01-E82 ERRORS ARISING FROM SIPHON

Steps to be followed in case of an error arising from the siphon:

1- Check the siphon drain line. The siphon should be located at the drain installation outlet, below the gas boiler lower level and any bends or elbows that may cause water to accumulate along the outlet line must be avoided. The standard dishwasher/washing machine drain hose must be used for the drain line.





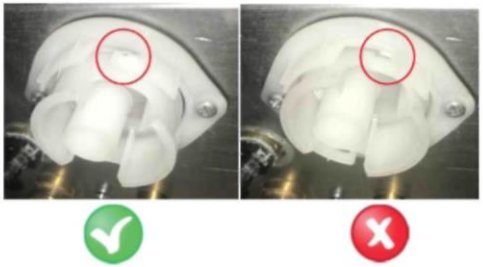




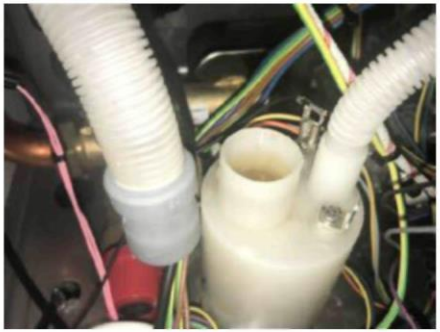
2- Make sure that the tabs on the siphon lower body are intact (not broken) and that the lower body assembly is correct.

When the siphon tabs are broken, the lower body of the siphon slides upwards (towards the gas boiler) and may cause the siphon to clog, preventing the operation of the water gauge.

Make sure that the tabs of the siphon lower body are seated onto the groove on the upper body.



3- Before draining the siphon, remove the condensate hose from the siphon inlet to ensure that the error is caused by the clogging. Check the water level visually. After making sure that the siphon is clogged (if there is water up to the top level of the siphon), remove the lower body of the siphon.



a) Check the siphon for dirt. If there is dirt, clean it.
b) If there is no dirt inside the siphon that may cause clogging, check the water gauge. Check the cover part of the water gauge for any burrs.
c) Check whether there is water in the water gauge visually or by shaking the water gauge. If there is water in the water gauge, it will cause clogging of the siphon.



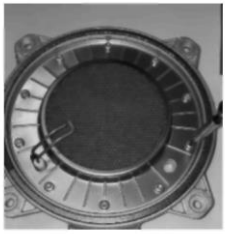
- **Mainboard**

Subject	Description
Part Function	Checks all electronic and electromechanical components. Displays the overall operating status of the gas boiler and sensor data.
Impact in Error Condition	In general, in case of PCB faults, the error code is displayed on the LCD and the heating requirement is not met.
Main Related Error Codes	E01, E02, E08, E12, E21, F25
Error Detection and Test Method	Visual Inspection: Check that the cable connections are smooth and undamaged and check the component/circuit abnormality on the electronic card (tarnish, solder cracking/fracture, etc.)
Maintenance Requirement	No special maintenance is required.



- **Burner**

Subject	Description
Part Function	It is the component from which the gas and air mixture emerges and the flame forms on it.
Impact in Error Condition	1- Irregularity in the emissions of the gas boiler 2- Sound problem due to combustion 3- Loss of Flame
Main Related Error Codes	E01, E82
Error Detection and Test Method	Visual Inspection: Check if there are closed holes, oxidation, deformation etc. on the burner and replace it with new burner cap

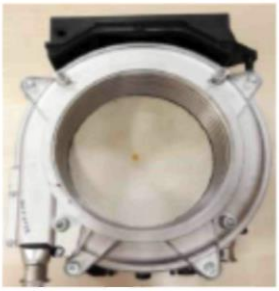




CALORA PREMIX (VALMEX VERSION)

- **Main Heat Exchanger**

Subject	Description
Part Function	It is the main element that enables the transfer of heat to the water in the central heating circuit, and it provides the heating of the system by transferring the heat generated as a result of combustion in the burner to the water pipes.
Impact in Error Condition	1- Failure to meet heating requirement completely 2- Water or gas leakage
Main Related Error Codes	E01, E03, F07
Error Detection and Test Method	1- Check for pollution on the pipes of the heat exchanger flaps and clogging between the pipes 2- Visual inspection of cracks-holes on heat exchanger pipes 3- Boiling and bubble etc. sound coming from the heat exchanger 4- Fresh air emission measurement test
Maintenance Requirement	Heat exchanger inner pipe cleaning





Description of Maintenance	Maintenance Method
Heat Exchanger Inner Pipe Cleaning	1- Unscrew the 4 nuts and open the burner cap. 2- Remove the deposits on the pipes with vacuum cleaner. 3- Clean the deposits on the pipes with a brush. 4- Wash the inside of the heat exchanger with water. 5- Complete the process by cleaning the siphon as the dirt will accumulate in the siphon after washing with water. Note: Never use acidic or alkaline-based cleaners to clean the accumulation.



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CALORA PREMIX (CONDEVO D2 VERSION)

Subject	Description
Part Function	It is the main element that enables the transfer of heat to the water in the central heating circuit, and it provides the heating of the system by transferring the heat generated as a result of combustion in the burner to the water pipes.
Impact in Error Condition	1- Failure to meet heating requirement completely 2- Water or gas leakage
Main Related Error Codes	E01, E03, F07
Error Detection and Test Method	1- Check for pollution on the pipes of the heat exchanger flaps and clogging between the pipes 2- Visual inspection of cracks-holes on heat exchanger pipes 3- Boiling and bubble etc. sound coming from the heat exchanger 4- Fresh air emission measurement test
Maintenance Requirement	Heat exchanger inner pipe cleaning



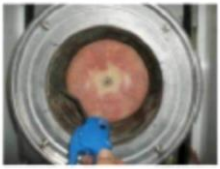


Description of Maintenance	Maintenance Method
Heat Exchanger Inner Pipe Cleaning	1- Unscrew the 4 nuts and open the burner cap. 2- Remove the deposits on the pipes with vacuum cleaner. 3- Clean the deposits on the pipes with a brush. 4- Wash the inside of the heat exchanger with water. 5- Complete the process by cleaning the siphon as the dirt will accumulate in the siphon after washing with water. Note: Never use acidic or alkaline-based cleaners to clean the accumulation.









2 3 4

- **Plate Heat Exchanger**

Subject	Description
Part Function	1- It is the component that is used to transfer the hot water coming from the main heat exchanger to the domestic water to meet the domestic water requests. 2- Continues water circulation by itself (Internal By-Pass) in case all radiator valves are shut down.
Impact in Error Condition	1- In case of partial or whole clogging, the domestic water does not heat or continuously overheat 2- Overheating in central heating circuit as internal By-Pass function is not fulfilled 3- Continuous pressure increase in central heating system (penetration of domestic water into central heating circuit due to perforation in plate heat exchanger)
Main Related Error Codes	E03, F07, E16, E17, E80, F40
Error Detection and Test Method	1- Visual inspection of plate heat exchanger for leakage to external environment 2- Check whether the central heating circuit pressure changes by 0.3 bars or more by opening the domestic water
Maintenance Requirement	Inner Cleaning of Plate



Test Description	Test Method
Gas Valve Resistance Control	1- Plate heat exchanger is disassembled in place. 2- Descaler (HN03) is filled into the plate heat exchanger holes and waited for 10 minutes. 3- Descaler is drained and the inside of the plate heat exchanger is washed with water.



- **Gas Valve**

Subject		Description
Part Function		Sets the amount of gas needed for combustion and transmits it to the venturi.
Impact in Error Condition		1- The gas boiler does not burn. 2- Gas regulation will not be smooth.
Main Related Error Codes		E01, E02, E08, E12, E21, E82
Error Detection and Test Method		Visual Inspection and Testing: 1- Check that the cable connections are smooth and undamaged 2- Resistance control 3- Voltage Test
Maintenance Requirement		No special maintenance is required.



Test Description	Test Method
Gas Valve Resistance Control	The device is disconnected from the power supply. The resistance between the gas valve connector pins is measured. It is checked to be between 110-120 ohms.





Gas Valve Supply Voltage Measurement	The device is disconnected from the power supply. Gas vaşve connector is removed. The device is re-energized. When the device performs the ignition test, it is checked that the resistance of the connector terminals from the electronic card is in the 23-25 V range.



- **Pump**

Subject	Description
Part Function	1- Provides water circulation in the central heating circuit. 2- Thanks to the internal air relief valve on it, it allows to discharge the air in the central heating installation.
Impact in Error Condition	1- Gas boiler switches to overheating error or temperature is not felt in temperature sensor error. 2- Water cannot be heated in domestic water request. 3- Frost protection function does not work properly. 4- Water emerges from the pump air relief valve instead of air and is discharged into the gas boiler.
Main Related Error Codes	E03, E16, E17, E80, F07, F37
Error Detection and Test Method	Visual Inspection 1- Check that the cable connections are smooth and undamaged 2- Check that the connectors on the pump are properly assembled 3- Check whether water is coming from pump air relief valve 4- Voltage Test 5- Check if the water filter is clogged
Maintenance Requirement	No special maintenance is required.



Emas Energy Efficient Pump



Grundfos Energy Efficient Pump



Air Relief Valve

Test Description	Test Method
Pump Voltage Control	The voltage between the high voltage supply connector pins (phase-brown and neutral-blue) of the pump is measured when the device is powered on. It is checked whether it is in the 215-240 VAC range.

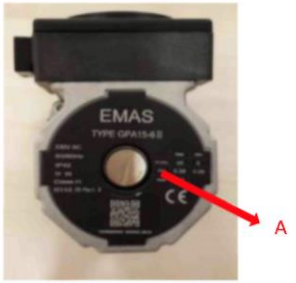


Standard Pump



Energy Efficient Pump

Test Description	Test Method
Pump Blockage Control	For the standard pump, the plug indicated with "A" is opened to check whether there is any action in the interior. If there is no action, unblocking can be performed by turning counter-clockwise. 2- Energy efficient pumps have auto-blocking function. When the pump is blocked, it automatically tries to operate at maximum torque every second and to solve the blocking condition. In order to support the blocking operation manually, it is necessary to press the point indicated by "R" with the screwdriver no. 2 and turn it counterclockwise.





- **Venturi**

Subject	Description
Part Function	It is the component that mixes the gas coming from the gas valve and the air absorbed from the silencer part.
Impact in Error Condition	1- Combustion emission value is defective. 2- The device load is higher or lower. 3- There can be audible operation. (Whistling sound)
Main Related Error Codes	E01, E82
Error Detection, Test Method, Maintenance	Visual Inspection: 1- Check whether there are any burrs, dirt, etc. at the inlets and outlets of the venturi 2- Check its installation with gas pipe, fan and silencer 3- Check combustion emission values with gas analysis device



- **Fan**

Subject	Description
Part Function	Send the gas-air mixture mixed in the venturi to the burner for
Impact in Error Condition	1- The gas boiler does not burn. 2- Fan does not modulate. It always operates at maximum speed. 3- There will be audible operation.
Main Related Error Codes	E01, E05, E82
Error Detection, Test Method, Maintenance	Visual Inspection: 1- Check whether there are any burrs, dirt, etc. at the inlets and outlets of the venturi 2- Check its installation with gas pipe, fan and silencer 3- Check combustion emission values with gas analysis device



Test Description	Test Method
Fan Voltage Control	The voltage between the fan high voltage supply connector pins is measured. It is checked whether it is in the 215-240 VAC range.



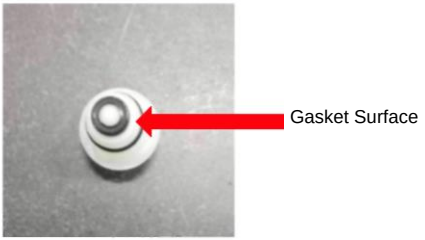
- **Silencer**

Subject	Description
Part Function	It is the component in which the fresh air required for combustion is regulated and absorbed in the air flow and [illegible]
Impact in Error Condition	1- Combustion emission values deteriorate, 2- The device load may be higher or lower. 3- There can be audible operation. (Whistling sound)
Main Related Error Codes	E01, E82
Error Detection, Test Method, Maintenance	1- Visual inspection: Check whether there are any burrs, dirt, etc. at the inlets and outlets of the silencer 2- Check its installation to venturi 3- Check combustion emission values with gas analysis device



- **Filling Tap**

Subject	Description
Part Function	It is used for filling the central heating system with water.
Impact in Error Condition	1- The gas boiler cannot be filled with water at all. 2- When filling the gas boiler, it cannot be closed and opens the safety valve and causes water drainage. 3- It causes mixing of domestic water and central heating water. 4- Low pressure error may occur by discharging the water in the central heating circuit due to defective tap in areas where the domestic water network pressure is too low.
Main Related Error Codes	F40, F37
Error Detection, Test Method, Maintenance	Visual Inspection and Testing: Check whether there is any dirt, burrs, corrosion, deformation, etc. on the gasket part of the filling tap



- **Surface type NTC**

Subject	Description
Part Function	It is the element that measures the inlet and outlet temperature of the water in the central heating circuit.
Impact in Error Condition	1- Since the set temperature adjusted by the user is different from the actual temperature, it may be uncomfortable. 2- The device does not operate.
Main Related Error Codes	E15, E16, E17, E18, E33, E35, E80, F81
Error Detection and Test Method	Visual Inspection and Testing: 1- Check that the cable connections are smooth and undamaged 2- Check whether there is rust, corrosion or deformation on the interior side contacting the copper pipe 3- Resistance control
Maintenance Requirement	No special maintenance is required.



Test Description	Test Method
Surface Type NTC Resistance Control	The device is disconnected from the power supply. The outgoing and return water surface type NTCs are removed from the gas boiler and allowed to cool for about 10 minutes at room temperature. The resistance between the NTC terminals is measured. Check that the resistance value is appropriate according to the following table.



Ambient Temperature (°C)	Resistance measured at Surface Type NTC terminals (kohm)
0~-5	27.3~-22.1
6~-10	21.2~-18
11~-15	17.3~-14.7
16~-20	14.1~-12.1
21~-25	11.6~-10
26~-30	9.63~-8.3
31~-35	8.6~-6.95
36~-40	6.7~-5.8

- **Immersion Type NTC**

Subject	Description
Part Function	It is the element that measures the outlet temperature of the water in the domestic water circuit.
Impact in Error Condition	1- Since the set temperature adjusted by the user is different from the actual temperature, there may be discomfort and temperature fluctuations. 2- The device does not operate.
Main Related Error Codes	E18, F52
Error Detection and Test Method	Visual Inspection and Testing: 1- Check that the cable connections are smooth and undamaged 2- Check whether there is rust, corrosion or deformation on the immersion probe side 3- Resistance control
Maintenance Requirement	No special maintenance is required.



Test Description	Test Method
Immersion Type NTC Resistance Control	The device is disconnected from the power supply. Immersion Type NTC is removed from the gas boiler and allowed to cool for about 10 minutes at room temperature; the resistance between the NTC terminals is measured. Check that the resistance value is appropriate according to the following table.



Ambient Temperature (°C)	Resistance Measured at Surface Type NTC Terminals (kohm)
0~-5	27.3~-22.1
6~-10	21.2~-18
11~-15	17.3 14.7
16~-20	14.1~-12.1
21~-25	11.6~-10
26~-30	9.63~-8.3
31~-35	8.6~-6.95
36~-40	6.7~-5.8

- **Flue Gas Sensor**

Subject	Description
Part Function	It is the element that protects the device from overheating by measuring the flue gas temperature.
Impact in Error Condition	1- In case of erroneous operation of outgoing or return surface type NTC sensors, the device continue to burn without warning of overheating and may cause deformation in heat exchanger. 2- The device does not operate.
Main Related Error Codes	E18, F07, F53
Error Detection and Test Method	Visual Inspection and Testing: 1- Check that the cable connections are smooth and undamaged 2- Check whether there is rust, corrosion or deformation on the immersion probe side 3- Resistance control
Maintenance Requirement	No special maintenance is required.



Test Description	Test Method
Immersion Type NTC Resistance Control	The device is disconnected from the power supply. The flue gas temperature sensor is removed from the gas boiler and allowed to cool for about 10 minutes at room temperature. The resistance between the NTC terminals is measured. Check that the resistance value is appropriate according to the following table.



Ambient Temperature (°C)	Resistance Measured at Flue Gas Temperature Sensor Terminals (kohm)
0~-5	30.9 24.5
6~-10	24~-19.5
11~-15	19~-15.7
16~-20	15.2~-12.7
21~-25	12.2~-10.3
26~-30	9.8~-8.4
31~-35	8~-6.9
36~-40	6.5~-5.7

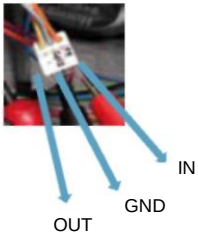
- **Water Pressure Sensor**

Subject	Description
Part Function	It is the element that measures the water pressure in the central
Impact in Error Condition	1- The device gives low or high water pressure error. 2- The person using the water pressure sees it different from the actual value. 3- The user may not see any pressure increase even if the
Main Related Error Codes	F37, F40, F47
Error Detection and Test Method	Visual Inspection and Testing: 1- Check that the cable connections are smooth and undamaged 2- Check if the water inlet hole of the water pressure sensor is clogged 3- Voltage Test
Maintenance Requirement	No special maintenance is required.



Test Description	Test Method
Immersion Type NTC Resistance Control	When the power of the device is switched on, the connector on the water pressure sensor is disconnected and DC voltage measurement is performed between the terminals shown below. Check that the voltage is in the range of 4.9-5.1 V DC.





- **3-Way Valve Motor**

Subject	Description
Part Function	It is used to direct water to central heating and domestic water circuits.
Impact in Error Condition	1- The boiler stays only in central heating mode. 2- Radiator cores may heat when it is in summer mode. 3- Sound may come from the motor during the position changes of motorized valve. 4- There may be overheating problem.
Main Related Error Codes	E03, F07
Error Detection and Test Method	Visual Inspection: 1- Check that the cable connections are smooth and undamaged 2- Check that the connectors on the three way motor are properly assembled 3- Voltage Test (For central heating and domestic water positions) 4- Position Control
Maintenance Requirement	No special maintenance is required.



Test Description	Test Method
3 Way Motorized Valve Voltage and Position Control (Central Heating)	When the power of the device is switched on, the connector on the water pressure sensor is disconnected and DC voltage measurement is performed between the terminals shown below. Check that the voltage is in the range of 4.9-5.1 V DC.



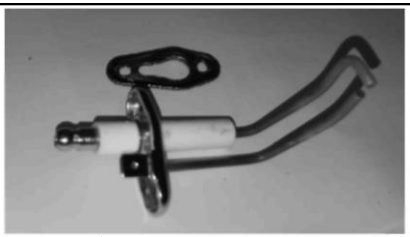


- **3 Bar Safety Valve**

Subject	Description
Part Function	When the water pressure in the central heating system reaches 3 bars, it opens the drain terminal and discharges excess water.
Impact in Error Condition	1- Low pressure error due to excessive water discharge 2- High pressure error due to no water discharge 3- Risk of leakage in the installation if the user continues to fill water after high pressure error
Main Related Error Codes	F37, F40
Error Detection and Test Method	1- Check whether the water pressure in the central heating circuit is leaking from the safety valve terminal when it is in the range of 0.8-2.5 bars 2- Turning on pressure test
Maintenance Requirement	No special maintenance is required.
	
Test Description	Test Method
Safety Valve Turning On-Off Pressure Test	The central heating system is filled with water by opening the filling tap. At the range of 2.7-3.3 bars, safety valve should open its discharge due to high water pressure and continue to discharge until the water pressure falls to the range of 2.5-2.7 bars.

- **Ignition - Ionization Electrode**

Subject	Description
Part Function	1- To ignite the gas and air mixture coming from the burner and start the combustion 2- To detect whether flame has formed in the burner.
Impact in Error Condition	1-If the distance between the terminals of the electrode increases or decreases too much, it does not ignite and burn. 2- Audible combustion (explosive combustion) as a result of late ignition of the device 3- Reduction of ionization current due to electrode moving away from the burner and loss of flame of the gas boiler at some times
Main Related Error Codes	E01, E82
Error Detection and Test Method	1- Visual inspection: If there are oxide etc. on the rods of the electrode, it must be cleaned with a cloth. 2- Electrode measurement controls 3- Ionization current control



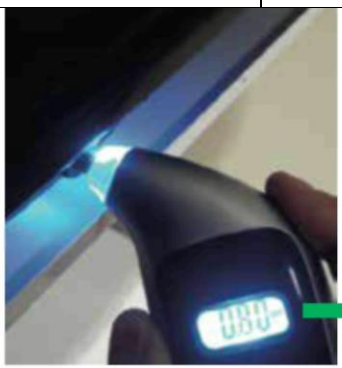
Test Description	Test Method
Electrode Measurement Controls	The distance of the electrode rod to the burner must be between 9.7 and 12.7 mm.
	
Test and Maintenance Description	Test and Maintenance Method
Ionization Current Control	The gas boiler is switched on-off. After switched on, "in" is entered for the information mode. I09 information parameter is entered. Wait for 2 minutes in this parameter and check whether the ionization current is at least "40" or higher on the LCD screen.

- **Expansion Tank**

Subject	Description
Part Function	The cold water filled in the central heating system expands as it heats up. It is used to prevent the expanding water from increasing the system water pressure.
Impact in Error Condition	Pressure increase in central heating circuit and water discharge from safety valve
Main Related Error Codes	F40
Error Detection and Test Method	Expansion tank gas pressure measurement



Test and Maintenance Description	Test and Maintenance Method
Expansion Tank Gas Pressure Measurement	The water in the central heating system is drained, then the gas pressure is measured from the expansion tank valve with a manometer. The measured pressure value must be more than 0.5 Bars. Otherwise, gas must be added until the pressure reaches 1 Bar. (If the pressure drop occurs within 6 months in the gas added expansion tank, the expansion tank must be replaced.)



Must be greater than 0.5 Bars

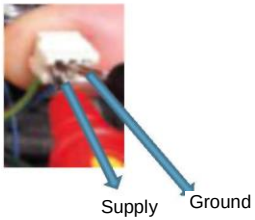
- **Flow Sensor**

Subject	Description
Part Function	It is the element that enables the gas boiler to understand the domestic water request.
Impact in Error Condition	The device cannot understand domestic water requests. It always operates in central heating even if there is domestic water request.
Main Related Error Codes	Visual Inspection and Testing: 1- Check that the cable connections are smooth and undamaged 2- Check the effect of oxidation etc. in the flow sensor cable inlet area 3- Voltage Test 4- Filter cleaning and flow turbine group control Note: If parameter P00 is "5", the device will not operate in domestic water since it will only be in central heating mode.
Error Detection and Test Method	No special maintenance is required.



Test Description	Test Method
Flow Sensor	When the device is switched on, the domestic water is switched on. The electrical connector on the flow sensor is disconnected and DC voltage is measured between the terminals shown below. Check whether the voltage is in the range of 11.5-12.5 V DC.





- **Flow Turbine**

Subject	Description
Part Function	When there is domestic water request, its turbine structure starts to rotate and forms the magnetic field that the flow sensor will detect.
Impact in Error Condition	The device cannot understand domestic water requests, it operates in the central heating mode even if there is domestic water request.
Main Related Error Codes	
Error Detection, Test Method, Maintenance	Visual Inspection and Testing: 1- Check for deformation, fracture, crack etc. in the flow turbine blades 2- Filter cleaning and flow sensor control Note: If parameter P00 is "5", the device will not operate in domestic water since it will only be in central heating mode.





- **3 Way Shaft Group (Mounting Part(**

Subject	Description
Part Function	1- It is the group that takes action from the 3-way motorized valve in order to ensure the switching of the gas boiler to summer mode and winter mode. 2- In case the central heating circuit valves are closed, it performs Internal By-Pass function.
Impact in Error Condition	1- In case of stuck, the gas boiler can continuously stay in summer mode or winter mode. 2- Gas boiler may not perform Internal By-Pass feature. 3- Water leakage may occur at the connection of the three-way motorized valve.
Main Related Error Codes	E03, F07
Error Detection, Test Method, Maintenance	Visual Inspection and Testing 1- The gas boiler is switched to winter mode and operated, and it is checked whether there is a temperature increase in the outgoing water temperature sensor. 2- The gas boiler is switched to summer mode and operated The immersion type temperature sensor is checked for temperature increase. When the gas boiler is operating in summer mode, the radiator core closest to the gas boiler must not be heated. 3-The 3-way motorized valve is removed and its underneath is checked for water.



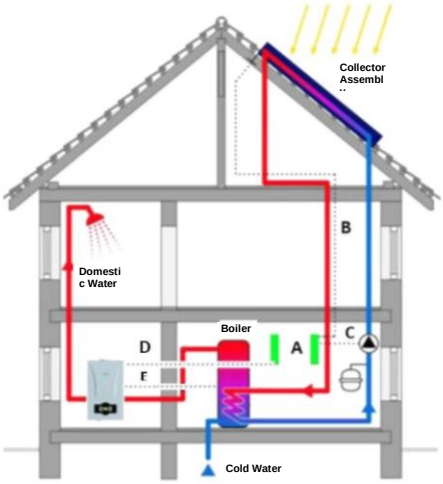
Use with Solar Energy
Pressurized Solar System Installation with Single Serpentine Boiler
Applicable Gas Boiler Model: Calora Premix HM Models

Operating Mode: The gas boiler is connected directly to the boiler under the domestic water line inlet. The solar card "A" (7006990568), which is installed in the gas boiler, controls the PT 1000 sensor and Solar pump connected to it. It is connected to the terminal "E" (Boiler Sensor - HONEYVV.T7106A10-7706952618) with "solar" text at the rear side of the gas boiler's control panel. Hot water needs up to 40°C can be met directly from the gas boiler and the gas boiler does not operate. In case of requests above 40°C, the gas boiler operates to support reaching the set temperature. The water in the boiler is used as domestic water flowing directly from the tap. Required Parameter Changes: Parameter P00 is selected as "2", the "HM+Solar" configuration is activated.

System Equipment:

A : Solar Card - 7006990568
B : PT1000 Sensor Cable Assembly - 7006990806
C: Solar Pump Cable Assembly - 7006990807
D: Solar Card-Boiler Electronic Card Connection (Solar card coded 7006990568 includes cable, solar card boiler is assembled in electronic card box)
E: Boiler Sensor - HONEYW.T7106A10 - 7006952618

System Diagram:



Pressurized Solar System Installation with Double Serpentine Boiler
Applicable Gas Boiler Model: Calora Premix HSTM Models
Operating Mode: The gas boiler domestic water line is connected to the boiler upper serpentine. The solar card "A" (7006990568), which is installed in the gas boiler, controls the PT 1000 sensor and Solar pump connected to it. It is connected to the terminal with “boiler sensor” text at the rear side of the gas boiler’s control panel and to “E” Boiler Sensor
HONEYW.T7106A10 - 7006952618". The water temperature in the boiler is adjusted to the desired temperature.
The water in the boiler and the water heated by the boiler do not mix.
Required Parameter Changes: Parameter P00 is selected as "4", the "HST+Solar" configuration is activated.
System Equipment:

A : Solar Card - 7006990568
B : PT1000 Sensor Cable Assembly - 7006990806
C: Solar Pump Cable Assembly - 7006990807

D: Solar Card-Gas Boiler Electronic Card Connection (Solar card coded 7006990568 includes cable, solar card gas boiler is assembled in electronic card box)

E: Boiler Sensor- HONEYVV.T7106A10- 7006952618

