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Instruction No. **GF-125U**

AERCO INTERNATIONAL, Inc. Northvale, New Jersey, 07647 USA

User's Manual

Esteem 399 Low NOx Gas Fired Boiler

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Telephone Support

(800) 526-0288

Direct to AERCO Technical Support

(8 to 5 pm EST, Monday through Friday)

Please have the unit's model number and the serial number from the rating label on the backside of the control panel when calling about service or troubleshooting.

Model #_____

Serial #_____

AERCO International, Inc.
100 Oritani Dr.
Blauvelt, NY 10913

www.aerco.com

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⚠ Warnings and Cautions ⚠

Installers and operating personnel MUST, at all times, observe all safety regulations.

The following general warnings and cautions must be given the same attention as specific precautions included in these instructions. In addition to the requirements included in this Manual, the installation MUST conform with local building codes, or, in the absence of local codes, ANSI Z223.1 (National Fuel Gas Code Publication No. NFPA-54). Where ASME CSD-1 is required by local jurisdiction, the installation must conform to CSD-1.

Where applicable, the equipment must be installed in accordance with the current Installation Code for Gas Burning Appliances and Equipment, CGA B149, and applicable Provincial regulations for the class. Authorities having jurisdiction should be consulted before installations are made.

IMPORTANT

This Instruction Manual is an integral part of the product and must be maintained in legible condition. It must be given to the user by the installer and kept in a safe place for future reference.

DANGER!

INDICATES THE PRESENCE OF A HAZARDOUS SITUATION WHICH, IF IGNORED, WILL RESULT IN DEATH, SERIOUS INJURY OR SUBSTANTIAL PROPERTY DAMAGE.

WARNINGS!

MUST BE OBSERVED TO PREVENT SERIOUS INJURY OR SUBSTANTIAL PROPERTY DAMAGE.

CAUTIONS!

Must be observed to prevent damage or loss of operating effectiveness.

NOTICE

Indicates special instructions on installation, operation or maintenance, which are important to equipment but not related to personal injury hazards.

WARNING!

BEFORE ATTEMPTING TO PERFORM ANY MAINTENANCE ON THE UNIT, SHUT OFF ALL GAS AND ELECTRICAL INPUTS TO THE UNIT.

WARNING!

THE EXHAUST VENT PIPE OF THE UNIT OPERATES UNDER A POSITIVE PRESSURE AND THEREFORE MUST BE COMPLETELY SEALED TO PREVENT LEAKAGE OF COMBUSTION PRODUCTS INTO LIVING SPACES.

WARNING!

FLUIDS UNDER PRESSURE MAY CAUSE INJURY OR DAMAGE TO EQUIPMENT WHEN RELEASED. BE SURE TO SHUT OFF ALL INCOMING AND OUTGOING WATER SHUT OFF VALVES. CAREFULLY DECREASE ALL TRAPPED PRESSURES TO ZERO BEFORE PERFORMING ANY BOILER MAINTENANCE.

WARNING!

DO NOT USE MATCHES, CANDLES, FLAMES, OR OTHER SOURCES OF IGNITION TO CHECK FOR GAS LEAKS.

CAUTION!

Many soaps used for gas pipe leak testing are corrosive to metals. The piping must be rinsed thoroughly with clean water after leak checks have been completed.

CAUTION!

DO NOT use this boiler if any part has been under water. Call a qualif ed service technician to inspect and replace any part that has been underwater.

IMPORTANT

The Installer must identify and indicate the location of the emergency shutdown manual gas valve to operating personnel.

Emergency Shutdown

If overheating occurs or the gas supply fails to shut off, DO NOT turn off or disconnect the electrical supply to the pump. Close the manual gas shutoff valve (Figure 1) located external to the unit.

Prolonged Shutdown

After prolonged shutdown, the startup procedures in the Installation and Maintenance Manual should be followed, to verify all system operating parameters.

Operating Cautions

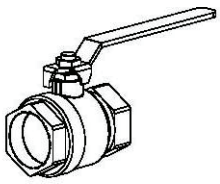
- Do not block flow of combustion air. If a blockage should occur and is easily accessible and removable, remove it. If blockage is not obvious or cannot be removed, have the unit and system checked by a qualified service technician.
- Do not allow contaminated air to enter the unit's combustion air inlet. See page 3 for details.
- The Esteem is equipped with a low water cutoff device (LWCO). The boiler and system piping must be filled and pressurized to 12 psig prior to startup. The unit will shut down if the pressure falls below 10 psig.

Boiler & System Water

- Have the boiler and system water chemistry checked at least annually by a qualified service technician.
- Do not use petroleum-based cleaning or sealing compounds in the boiler or system. Gaskets and seals in the system may be damaged. This can result in substantial property damage.
- Do not use any product not specifically designed for boiler / hydronic heating systems. Serious damage to the unit, piping system, personnel and / or property may result.
- Continual fresh makeup water will reduce the life of the Esteem. Addition of oxygen can cause internal corrosion in the system components. All leaks in the piping system must be repaired at once to prevent makeup water.
- Do not add cold water to a hot unit. Thermal shock can cause premature failure to the boiler heat exchanger.

To shut Down the Unit

Turn the external manual gas valve handle clockwise ↷ to "CLOSE".



MANUAL GAS SHUTOFF VALVE

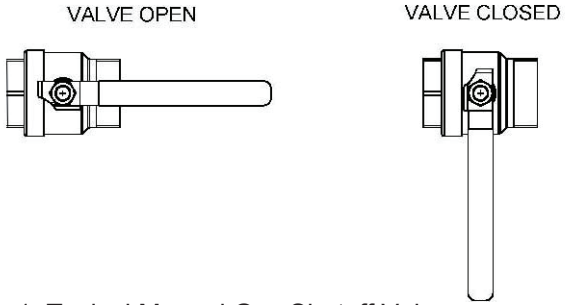


Figure 1: Typical Manual Gas Shutoff Valve

Chapter 1 Combustion Air

Prevention of Contamination

WARNING!

IF THE ESTEEM COMBUSTION AIR INLET IS LOCATED IN ANY AREA LIKELY TO CAUSE OR CONTAIN CONTAMINATION, OR IF PRODUCTS, WHICH WOULD CONTAMINATE THE AIR CANNOT BE REMOVED, THE COMBUSTION AIR MUST BE RE-PIPED AND TERMINATED TO ANOTHER LOCATION. CONTAMINATED COMBUSTION AIR WILL DAMAGE THE UNIT AND ITS BURNER SYSTEM, RESULTING IN POSSIBLE SEVERE PERSONAL INJURY, DEATH OR SUBSTANTIAL PROPERTY DAMAGE.

WARNING!DO NOT OPERATE A ESTEEM UNIT IF ITS COMBUSTION AIR INLET OR THE UNIT IS LOCATED IN OR NEAR A LAUNDRY ROOM OR POOL FACILITY. THESE AREAS WILL ALWAYS CONTAIN HAZARDOUS CONTAMINATES.

Pool and laundry products and common household and hobby products often contain fluorine or chlorine compounds. When these chemicals pass through the burner and vent system, they can form strong acids. These acids can create corrosion of the heat exchanger, burner components and vent system, causing serious damage and presenting a possible threat of flue gas spillage or water leakage into the surrounding area.

Please read the following information. If contaminating chemicals will be present near the location of the combustion air inlet, the installer should pipe the combustion air inlet to another location per the Esteem installation manual.

Potential Contaminating Products

- Spray cans containing chloro/fluorocarbons
- Permanent wave solutions
- Chlorinated wax
- Chlorine - based swimming pool chemicals and spa cleaners
- Calcium chloride used for thawing ice
- Sodium chloride used for water softening
- Refrigerant leaks
- Paint or varnish removers
- Hydrochloric acid / muriatic acid
- Cements and glues
- Antistatic fabric softeners used in clothes dryers
- Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms
- Adhesives used to fasten building products and other similar products

Areas likely to have these products

- Dry cleaning / laundry areas and establishments
- Beauty salons
- Metal fabrication shops
- Swimming pools and health spas
- Refrigeration Repair shops
- Photo processing plants
- Auto body shops
- Plastic manufacturing plants
- Furniture refinishing areas and establishments
- New building construction
- Remodeling areas
- Garages and workshops

The above lists are NOT comprehensive. Installer, the end user and service personnel are responsible for certifying the safety of any and all materials that may affect the quality of the combustion air.

Chapter 2 Maintenance Schedule

For the Service Technician

On an annual basis, or more frequently if conditions warrant, the following maintenance should be performed by a qualified service technician:

General

- Attend to any reported problems.
- Inspect the interior of the boiler jacket area; clean and vacuum if necessary.
- Clean the condensate trap and fill with fresh water.
- Check for leaks: water, gas, flue and condensate.
- Verify flue vent piping and air inlet piping are in good condition and sealed tight.
- Check boiler water pressure, piping and expansion tank.
- Check control settings.
- Check ignition electrode (sand off any white oxide; clean and reposition).
- Check ignition wiring and ground wiring.
- Check all control wiring and connections.
- Check burner flame pattern (stable and uniform).

Additional items if combustion or performance is poor:

- Clean heat exchanger and flue ways.
- Remove burner assembly and clean burner head using compressed air only.

Once the maintenance items are completed, review the service with the owner.

For the End User

- Ongoing, as local conditions warrant.
- Check the area around the unit.
- Check and remove any blockage from the combustion air inlet and ventilation openings.
- Check the temperature/pressure gauge.

Monthly:

- Check vent piping.
- Check combustion air inlet piping.
- Check the pressure relief valve.
- Check the condensate drain system.

Every 6 months:

- Check boiler piping and gas supply piping for corrosion or potential signs of leakage.
- Operate the pressure relief valve.

WARNING!

FOLLOW THE MAINTENANCE PROCEDURES GIVEN THROUGHOUT THIS MANUAL. FAILURE TO PERFORM THE SERVICE AND MAINTENANCE OR FOLLOW THE DIRECTIONS IN THIS MANUAL COULD RESULT IN DAMAGE TO THE ESTEEM OR IN SYSTEM COMPONENTS, RESULTING IN SEVERE PERSONAL INJURY, DEATH OR SUBSTANTIAL PROPERTY DAMAGE.

Chapter 3 Maintenance Procedures

WARNING!

THE ESTEEM MUST BE INSPECTED AND SERVICED ANNUALLY, PREFERABLY AT THE START OF THE HEATING SEASON, BY A QUALIFIED SERVICE TECHNICIAN. IN ADDITION, THE MAINTENANCE AND CARE OF THE BOILER AS EXPLAINED IN THIS MANUAL MUST BE PERFORMED TO ASSURE MAXIMUM EFFICIENCY AND RELIABILITY. FAILURE TO SERVICE AND MAINTAIN THE ESTEEM AND THE SYSTEM COMPONENTS COULD RESULT IN EQUIPMENT FAILURE, CAUSING POSSIBLE PERSONAL INJURY, DEATH OR PROPERTY DAMAGE.

Daily Maintenance

Check the Surrounding Area

WARNING!

TO REDUCE POTENTIAL OF SEVERE PERSONAL INJURY, DEATH OR SUBSTANTIAL PROPERTY DAMAGE, ELIMINATE ALL THE MATERIALS LISTED ON PAGE 2 FROM THE AREA SURROUNDING THE UNIT AND FROM THE VICINITY OF THE COMBUSTION AIR INLET.

IF CONTAMINANTS HAVE BEEN NEAR THE UNIT OR AIR INLET FOR AN EXTENDED PERIOD, CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE UNIT FOR POSSIBLE ACID CORROSION DAMAGE.

IF PRODUCTS CANNOT BE REMOVED, IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO RE-PIPE THE AIR INLET PIPING AND RELOCATE IT AWAY FROM THE CONTAMINATED AREAS.

Combustible / flammable materials - Do not store combustible materials, gasoline or other flammable vapors or liquids near the unit. Remove immediately if found.

Air contaminates - Products containing chlorine or fluorine, if allowed to contaminate the combustion air, will cause acidic condensate within the unit. This will cause significant damage to the unit. Read the list of potential materials listed on page 2 of this manual. If any of these products are in the room from which the unit takes its combustion air, they must be removed immediately or the combustion air intake must be relocated to another area.

Check Combustion Air Inlets

- Verify that ventilation air openings to the mechanical room are open and unobstructed.
- Verify that the unit's vent termination and combustion air intake are clean and free of obstructions. Remove any debris on the air intake or flue exhaust openings. If removing the debris does not allow the unit to operate correctly, contact your qualified service technician to inspect the unit and the vent / combustion air system.

Check Temperature Display and Pressure Gauge

- Ensure the pressure reading on the pressure gauge does not exceed 25 psig. Higher pressure readings may indicate a problem with the expansion tank.
- Ensure the temperature on the display panel does not exceed 194 ^{o}F. Higher temperature readings may indicate a problem with the operating thermostat controls.
- Contact a qualified service technician if problem persists.

Monthly Maintenance

Check Vent Piping

- Visually inspect the flue gas vent piping for any signs of blockage, leakage or deterioration of the piping. Notify a qualified service technician immediately if any problems are found.

WARNING!

FAILURE TO INSPECT THE VENTING SYSTEM AS NOTED AND HAVE IT REPAIRED BY A QUALIFIED SERVICE TECHNICIAN CAN RESULT IN THE VENT SYSTEM FAILURE, CAUSING SEVERE PERSONAL INJURY OR DEATH.

Check Combustion Air Inlet Piping

- Visually inspect the combustion air inlet piping for any signs of blockage. Inspect the entire length of the combustion air inlet piping to ensure piping is intact and all joints are properly sealed.
- Notify a qualified service technician if any problems are found.

Check Pressure Relief Valve

- Visually inspect the primary pressure relief valve and the relief valve discharge pipe for signs of weeping or leakage.
- If the pressure relief valve often weeps, the expansion tank may not be operating properly. Immediately contact a qualified service technician to inspect the unit and system.

Check Vent Condensate Drain System

- While the unit is running, check the discharge end of the condensate drain tubing. Ensure no flue gas is leaking from the condensate drain tubing or tee connection by holding your fingers near the opening.
- If you notice flue gas leaking from the opening, this indicates a dry condensate drain trap. Fill the condensate trap assembly. Contact a qualified service technician to inspect the unit and condensate line and refill the condensate trap if problem persists regularly.

WARNING!

UNDER SOME CIRCUMSTANCES THE ESTEEM MAY NOT PRODUCE ENOUGH CONDENSATE TO KEEP THE CONDENSATE TRAP FULL OF LIQUID. IF THE TRAP IS NOT FULL, SMALL AMOUNTS OF FLUE GASES CAN BE EMITTED INTO THE SURROUNDING AREA THROUGH THE CONDENSATE DRAIN LINE OR TEE.

- Ensure the condensate drain line is not blocked by pouring water through the plug port on the condensate drain assembly. The water should flow out of the end of the drain line. If water does not appear at the end of the drain line, contact a qualified service technician to inspect and clean the condensate line.
- To fill the condensate drain assembly, if necessary, remove the plug from the condensate assembly. Slowly pour water into the trap assembly until water appears at the end of the drain line. Stop filling and replace plug.

Check Automatic Air Vents (If Used)

1. Remove the cap “A” from any automatic air vent in the system and check operation by depressing valve “B” slightly with the tip of a screwdriver. See Figure 2.
2. If the air vent valve appears to be working freely and not leaking, replace cap “A”, screwing it on fully.
3. Loosen cap “A” one full turn to allow vent to operate properly.
4. Have the air vent replaced by a qualified service technician if it does not operate correctly.

Every 6 Months Maintenance

Check Water and Gas Piping

- Remove the boiler front jacket panel and perform a gas leak inspection per steps 1 through 6 of the Operating Instructions on page 7. If gas odor or leak is detected, immediately shut down the unit following procedures on page 7. Call a qualified service technician.
- Visually inspect for leaks around the internal boiler water connections and around the heat exchanger. Visually inspect the external system piping, circulators, and system components and fittings. Immediately call a qualified service technician to repair any leaks.

WARNING!

HAVE LEAKS FIXED AT ONCE BY A QUALIFIED SERVICE TECHNICIAN. FAILURE TO COMPLY COULD RESULT IN SEVERE PERSONAL INJURY, DEATH OR SUBSTANTIAL PROPERTY DAMAGE.

Operate Pressure Relief Valve

- Before proceeding, verify that the relief valve outlet has been piped to a safe place of discharge, avoiding any possibility of scalding from hot water.

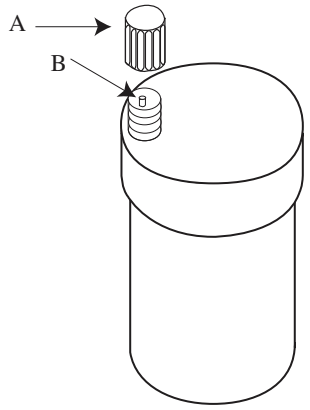


Figure 2: Automatic Air Vent

WARNING!

TO AVOID WATER DAMAGE OR SCALDING FROM VALVE OPERATION, A DISCHARGE LINE MUST BE CONNECTED TO THE RELIEF VALVE OUTLET AND DIRECTED TO A SAFE PLACE OF DISPOSAL. THIS DISCHARGE LINE MUST BE INSTALLED BY A QUALIFIED SERVICE TECHNICIAN OR HEATING / PLUMBING INSTALLER IN ACCORDANCE WITH THE ESTEEM INSTALLATION MANUAL. THE DISCHARGE LINE MUST BE TERMINATED SO AS TO ELIMINATE POSSIBILITY OF SEVERE BURNS OR PROPERTY DAMAGE SHOULD THE VALVE DISCHARGE.

- Read the temperature display and pressure gauge to ensure the system is pressurized. Lift the relief valve top lever slightly, allowing water to relieve through the valve and discharge piping.
- If water flows freely, release the lever and allow the valve to seat. Watch the end of the relief valve discharge pipe to ensure that the valve does not weep after the line has had time to drain. If the valve weeps, lift the lever again to attempt to clean the valve seat. If the valve does not properly seat and continues to weep afterwards, contact a qualified service technician to inspect the valve and system.
- If the water does not flow from the valve when you lift the lever completely, the valve or discharge line may be blocked. Immediately shut the unit down per the instructions below. Call a qualified service technician to inspect the valve and system.

Chapter 4 Operating Instructions

Safety

FOR YOUR SAFETY READ COMPLETE INSTRUCTIONS BEFORE PROCEEDING

WARNING!

IF YOU DO NOT FOLLOW THESE INSTRUCTIONS EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

⚠ *IF YOU SMELL GAS* ⚠

- ***DO NOT*** try to light any appliance.
- ***DO NOT*** touch any electric switch; do not use any phone in your building
- ***DO NOT*** use a cell phone in your building
- Immediately call your gas supplier from a Different Location. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

NOTICE

This appliance does not have a pilot.

It is equipped with an ignition device which automatically lights the burner . ***DO NOT*** try to light the burner by hand.

CAUTION

BEFORE OPERATING, smell all around the appliance area for gas. Be sure to smell next to the f oor because some gas is heavier than air and will settle on the f oor.

WARNING!

USE ONLY YOUR HAND TO TURN THE EXTERNAL MANUAL GAS VALVE. NEVER USE TOOLS. IF THE VALVE WILL NOT TURN BY HAND, DON'T TRY TO REPAIR IT; CALL A QUALIFIED SERVICE TECHNICIAN. FORCE OR ATTEMPTED REPAIR MAY RESULT IN A FIRE OR EXPLOSION.

WARNING!

DO NOT USE THIS APPLIANCE IF ANY PART HAS BEEN UNDER WATER. IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE APPLIANCE AND TO REPLACE ANY PART OF THE CONTROL SYSTEM AND ANY GAS CONTROL WHICH HAS BEEN UNDER WATER. OPERATING INSTRUCTIONS

Operation

STOP!

Read all the safety information on the preceding page. This appliance is equipped with an ignition device which automatically lights the burner. DO NOT try to light the burner by hand.

1. Set room thermostat(s) to lowest setting.
2. Turn the external manual gas valve handle clockwise “CLOSE” (valve handle shall be perpendicular to gas piping).
3. Turn the service switch on the Esteem 399 Low NOx control panel OFF.
4. Remove the front jacket panel on the unit.
5. Turn the external manual gas valve handle counter-clockwise to “OPEN” gas supply (valve handle shall be parallel to gas piping).
6. Wait five (5) minutes to clear out any gas.
   - If after 5 minutes, you smell gas in the jacket enclosure or around the unit, **STOP!** Do not touch any electrical equipment. Leave the building and call your gas supplier.
   - If you don’t smell gas, go to the next step.
7. Turn the service switch on the Esteem 399 Low NOx control panel “ON”.
8. Set room thermostat(s) to desired setting(s).
9. Replace the front jacket panel.
10. Make sure the panel is seated firmly in place and all mounting screws are tightened.

WARNING!

IF THE UNIT WILL NOT OPERATE WITH A CALL FOR HEAT AND THE SYSTEM PIPING IS NOT HOT, FOLLOW THE INSTRUCTIONS “TO TURN OFF GAS TO APPLIANCE”, BELOW AND CALL YOUR SERVICE TECHNICIAN OR GAS SUPPLIER.

NOTICE

The Esteem 399 Low NOx control panel display will show a sequence of numbers (0,1,2,3,4,etc.) as the left digit. Sequence digit 3 or 4 indicates the boiler is f ring. Sequence digit 0 means there is no call for heat (all external thermostats are satisf ed).

TO TURN OFF GAS TO APPLIANCE

1. Set the room thermostat to lowest setting.
2. Turn the service switch on the Esteem 399 Low NOx control panel to “OFF”
3. Turn the external manual gas valve handle clockwise ↷ to “CLOSE”

Chapter 5 BOILER CONTROL DISPLAY

Standby Mode

After the boiler is turned on, the control panel will display STANDBY mode as shown in the figure above.

This is the standard mode for the Esteem. The control automatically returns to this mode after 20 minutes if no keys have been pressed on the display.

The first character shows (on left side of display) the current status of the boiler depending on the condition of both the boiler and the burner. The last 3 characters indicate the current boiler supply temperature.

If the burner is blocked due to a “soft” lockout, the display alternates between a 9 followed by the boiler outlet temperature and a “b” with a two digit error code

0 180	STANDBY, no demand for heat
1 180	Fan prepurge (10 seconds) or post purge cycle
2 180	Ignition sequence
3 180	Burner ON for space heating (CH)
4 180	Burner ON for domestic water heating (DHW)
5 180	Pre-check for air flow prior to prepurge cycle
6 180	Burner OFF due to reaching supply temperature set point
7 180	Post pump cycle for primary space heating (1 minute)
8 180	Post pump cycle for domestic hot water (30 seconds)
9 180	Burner blocked:
b 18	Supply temperature too high (202°F) .Burner will remain OFF until outlet temperature drops below 200°F
b 19	Return temperature too high (202°F). Burner will remain OFF until temperature drops below 200°F
b 24	Return temperature is measured higher than supply temperature. Burner will remain OFF until corrected.
b 25	Supply temperature increased too quickly. Burner will remain OFF for a 10 minute period. Burner will recycle, increasing waiting period 1 minute for a max. 15 minutes
b 26	Factory supplied LWCO pressure device or external limit (terminals 15 & 16) is OPEN. Burner off for 150 seconds, auto reset.
b 28	No blower signal
b 29	Blower signal present, Burner will remain OFF until condition terminates
b 30	Temperature rise between the supply and return is more than 72°F. Burner will remain OFF for 150 seconds. Burner will recycle increasing wating period 1 minute each cycle for a max. 20 cycles.
b 33	Short circuit measured across optional DHW temperature sensor terminals
b 35	Short circuit measured across flue temperature sensor terminals. Burner OFF until corrected.
b 35	Open circuit measured across optiona DHW temperature sensor terminals.
b 40	Open circuit measured across the flue temperature sensor.
b 52	Flue temperature greater than 240 F less than 250°F. Burner off for 150 seconds
b 65	Wait for the blower to start

Setting Boiler Parameters

Parameter Mode PARA

To access PARAMETER mode when the system is in STANDBY mode, press the MODE button once.

To scroll through the list of parameters, simply press the “STEP” button. To modify a parameter value, use the + or - keys. Then press “STORE” to save the value you just changed. The display flashes once to confirm the data has been saved.

To activate the parameters you changed, press MODE once more (which brings you into INFORMATION mode). However, if you do not press a key, the system returns to STANDBY mode after 20 minutes and automatically enables the changes

Key:	Display	
MODE	PARA	Pressing MODE once

Key:	Display	Description of parameters
STEP	1.148	Domestic Hot Water Setting **(See Note 1)**
STEP	2.801	DHW Application Selection **(See Note 2)**
STEP	3.801	CH Application Selection **(See Note 3)**
STEP	4.186	CH Maximum Boiler Operating Setpoint

Note 1: This parameter is factory set to 140°F. It is important to note the control adds 46°F to this setting, therefore the actual domestic hot water boiler setting is 140 °F + 46°F = 186°F.

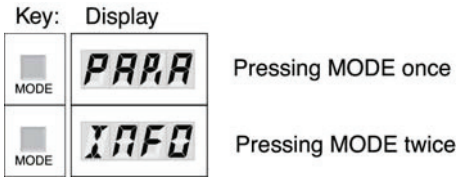
Note 2: This parameter should not be changed from the factory setting of 01. The performance of the DHW will be affected and can become unreliable.

Note 3: This parameter should not be changed from the factory setting of 01. The performance of the CH (Central/Space Heating) will be affected and can become unreliable.

Accessing Boiler Information

Information Mode INFO

To switch from STANDBY mode to Information mode, press MODE twice.



Press STEP until the system displays the information you need. The decimal point located behind the first position flashes to indicate that the boiler is in INFO mode.

NOTICE

The ignition counters and burner hours are split into three two digit numbers.

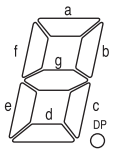
Example:

Write the numbers down from left to right to arrive at 123,456 CH ignitions.

NOTICE

In the INFO Mode a temperature reading of -22 typically indicates an “open” circuit. A temperature reading of 240 typically indicates a short-circuit.

Information Mode Items



DISPLAY DIGIT SEGMENTS

Item	Value
1	Supply Water Temperature ºF
2	Return Water Temperature ºF
3	DHW Water Temperture ºF (Optional)
4	Outdoor Temperture ºF (Optional)
5	Flue Temperature ºF
6	Boiler Setpoint ºF
7	Rate of Increase of Supply Water Temperature ºF/Sec.
8	Rate of Increase of Return Water Temperature ºF/Sec.
9	Rate of Increase of DHW Water Temperature ºF/Sec.
A	Not Used
B	Not Used
C	Not Used
D	Not Used
E	Ionization Current in micro-ampere
F	Analog Input Voltage
G	Not Used
H	MCBA Internal Temperture ºF
I	CH Ignition Counter (100 thousands / 10 thousands)
Seg. e	CH Ignition Counter (thousands / hundreds)
Seg. c	CH Ignition Counter (ten / ones)
J	CH Ignition Hours (100 thousands / 10 thousands)
Seg. e	CH Ignition Hours (thousands / hundreds)
Seg. c	CH Ignition Hours (ten / ones)
L	DHW Ignition Counter (100 thousands / 10 thousands)
Seg. e	DHW Ignition Counter (thousands / hundreds)
Seg. c	DHW Ignition Counter (ten / ones)
N	DHW Burner Counter (100 thousands / 10 thousands)
Seg. e	DHW Burner Counter (thousands / hundreds)
Seg. c	DHW Burner Counter (ten / ones)

Error (Hard Lockout) Mode

If a system fault occurs while the boiler is running, the system goes into lockout and the display starts to flash with the first digit as an E and the next two digits represent the fault code.

For a detailed description of the error codes, reference the Esteem Trouble Shooting Guide.

WARNING!

DURING A HARD LOCKOUT OR LOW WATER CONDITION THE BOILER WILL NOT RE-START WITHOUT SERVICE. IF THE HEATING SYSTEM IS LEFT UNATTENDED IN COLD WEATHER, APPROPRIATE SAFEGUARDS OR ALARMS SHOULD BE INSTALLED TO PREVENT PROPERTY DAMAGE.

Boiler Freeze Protection Feature

The boiler control has a freeze protection feature built in. This feature monitors the boiler temperature and responds as follows when no call for heat is present.

- 46 °F Boiler circulator is ON
- 38 °F Boiler circulator is ON and burner operates at low fire.
- 50 °F Burner OFF and boiler circulator operates for approximately 10 minutes.

CAUTION

The boiler freeze protection feature is disabled during a Hard Lockout, however the CH circulator will operate.

CAUTION

During a hard lockout or low water condition the boiler will not re-start without service. If the heating system is left unattended in cold weather , appropriate safeguards or alarms should be installed to prevent property damage.

Display	Hard Lockout
E 00	Flame detected prior to burner startup
E 02	Failed ignition after 5 attempts
E 03	Gas valve harness not properly connected
E 04	Power supply lost after lockout occured
E 05	Internal control failure
E 06	Internal control failure
E 07	Internal control failure
E 08	Internal control failure
E 09	Internal control failure
E 11	Internal control failure
E 12	External limit (terminals 13 & 14) control is OPEN
E 13	Internal control failure
E 14	Internal control failure
E 15	Internal control failure
E 16	Internal control failure
E 17	Internal control failure
E 18	Supply Temperature exceeds 212°F
E 19	Return temperature exceeds 212°F
E 25	Supply temperature increased too rapidly
E 28	No blower signal present
E 29	Blower signal does not reset to zero
E 31	Supply temperature sensor is short circuited
E 32	Return temperature is short circuited
E 36	Supply temperature sensor is OPEN
E 37	Return temperature sensor is OPEN
E 40	Flue temperature sensor is OPEN
E 44	Internal control failure
E 52	Flue temperature exceeds 250°F
E 60	Internal control error - failure to read parameters
E 61	Internal control failure
E 65	Inadequate power supply to the fan

Appendix A: Replacement Parts

Jacket Components

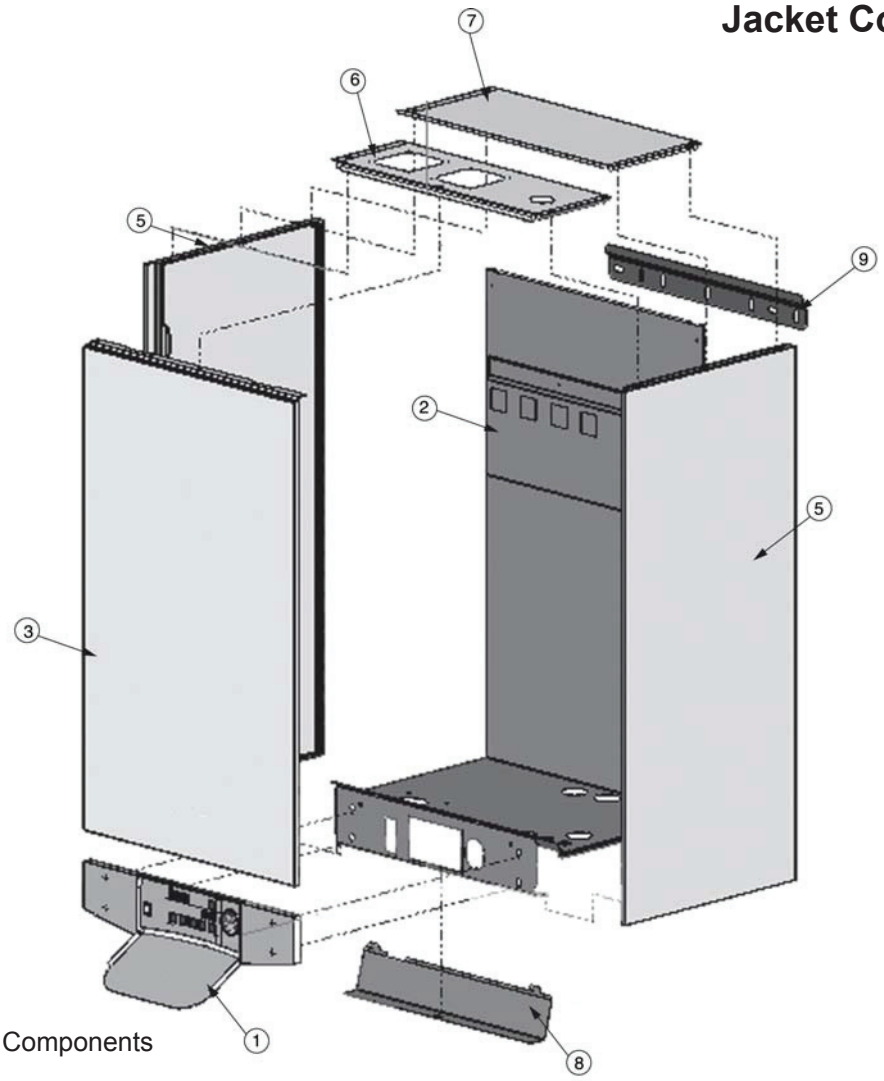


Figure 3: Jacket Components

Item	Part #	Description
1	38027	Display Control Panel
1A	38028 (Left) 38029 (Right)	Display Control Panel Extensions (Not Shown)
2	34028	Base Panel
3	37051	Front Jacket Panel
5	37052	Side Jacket Panel (Left and Right)
6	37053	Top Jacket Panel
7	37054	Top Jacket Access Panel
8	37055	Control Cover Panel
9	33113	Wall Mounting Bracket with 1 Hardware

Internal Components

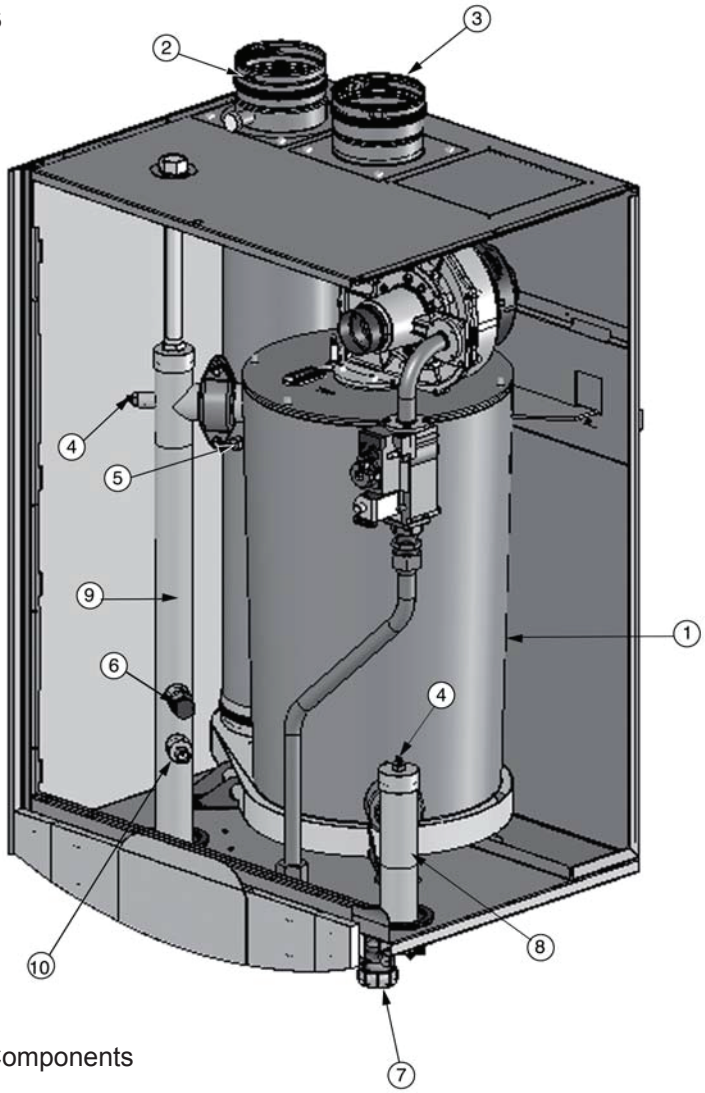


Figure 4: Figure 4: Internal Components

Item	Part #	Description
1	28191	Heat Exchanger Body
2	38030	Vent Outlet Adapter
3	38031	Combustion Air Inlet Adapter
4	61022	Supply & Return NTC Sensor (NTC1, NTC2)
5	61023	Flue NTC Sensor (NTC5)
6	60013	LWCO Pressure Device
7	22123	Condensate Drain Assembly
8	22124	Boiler Piping - Return Assembly
9	22125	Boiler Piping - Supply Assembly
10	67003	Pressure Gauge and Fitting

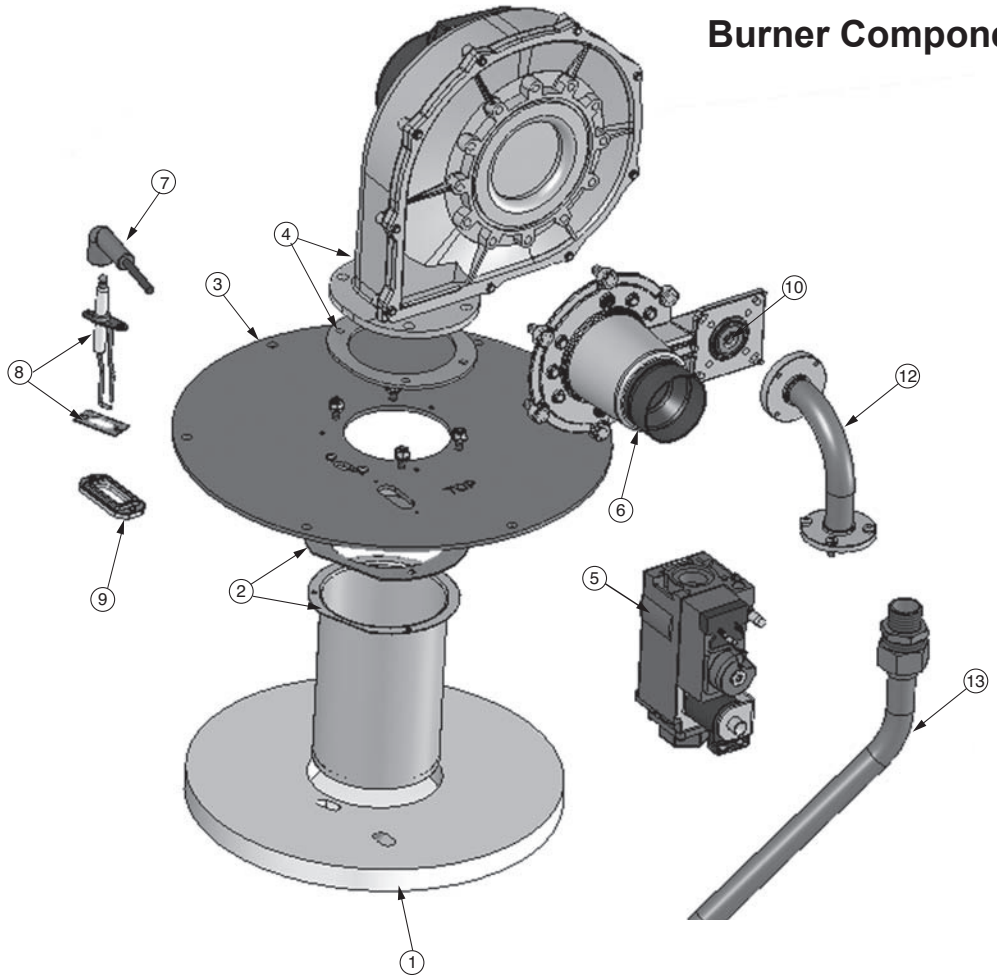
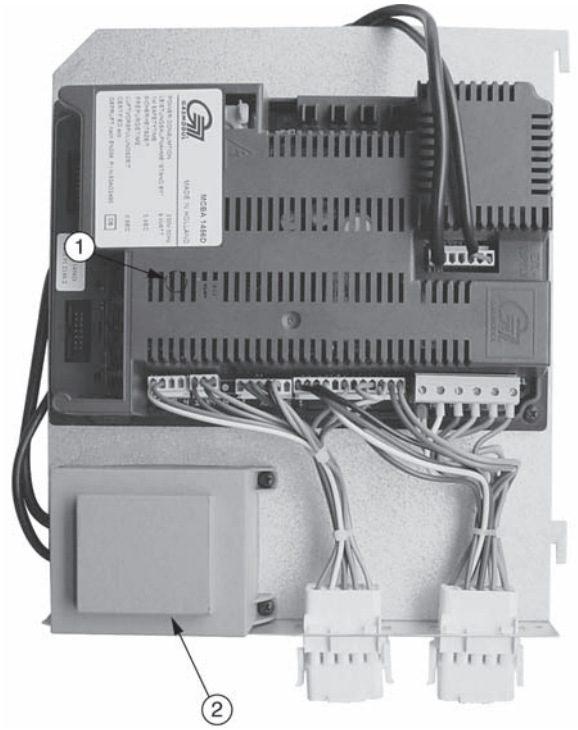


Figure 5: Figure 5: Burner Components

Item	Part #	Description
1	83025	Combustion Chamber Insulation
2	24230	Burner Head with Gasket
3	36059	Burner Plate
4	58026	Blower with Gasket
5	92078	Gas Valve
6	--	Venturi
7	63086	Ignition Cable
8	58027	Igniter with Gasket
9	58028	Sight Glass Assembly (Glass, Gasket and Bracket)
10	--	Propane Orifice - Not Shown
11	--	Burner Plate Gasket - Not Shown
12	22126	Gas Valve Piping
13	22127	Gas Supply Piping

Electronic Components



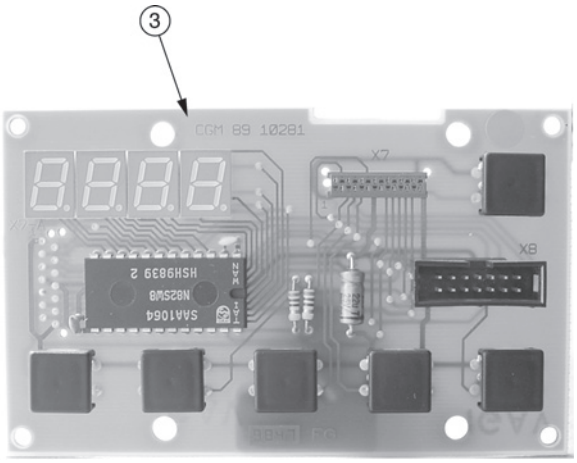


Figure 6: Figure 6: Electronic Components

Item	Part #	Description
1	64061	Esteem Control Module
2	64062	Transformer with Surge Protection
3	64063	Esteem Control Module Display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ETL
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