



### NOTE

Installing and servicing boiler equipment, parts and accessories, can be hazardous due to gas and electrical components.

Only trained personnel should install or service heating equipment.

When working on boiler equipment, observe precautions in the literature, on tags, and on labels attached to the unit.

### NOTE

These instructions are to be closely followed, and referenced to the details in the boiler's current certified Installation and Operating Instruction Manual.

PART	DESCRIPTION	BOILER MODEL
P-749B	Controller Replacement Kit	DC Series – All Models HC Series – All Models

Table 1: Boiler / Water heater models using this kit

Note: the previous version of this kit, P-749, predated models DC/HC 15-95 and DC/HC 15-96. Only the P-749B (software version 2.10) can replace a board for a 15-95 or 15-96.

### WARNING

For your safety, turn off electrical power supply at service panel and allow unit to cool before proceeding. Failure to do so can cause severe personal injury or death. The ability to properly perform service on this equipment requires certain expertise, mechanical skills, tools, and equipment. If you do not possess these, do not attempt to perform any service on this equipment. A failure to follow this warning could result in possible damage to this equipment, serious personal injury, or death.



Figure 1: P-749B DC / HC Controller Replacement Kit

- 1- Replacement Controller, 500-115A
- 1- Instructions, IBC part 120-297

### When to Install the P-749B Controller Replacement Kit

The P-749B DC / HC series boiler / water heaters Controller replacement kit supports all models of the DC / HC series. The controller must be configured to operate with the boiler model.

If the old controller shows signs of corrosion or water damage, care must be taken to identify and correct the water source before proceeding with this replacement. If combustion air condensation has caused water damage to the boiler / water heater, contact your IBC representative about part number 250-868, Deflector Shield, before installing a replacement control board.

### Tools Needed













- Philips screwdriver
- Small flathead screwdriver
- Needlenose Pliers



**How to Install the P-749 Controller**

HC 20-125	PA 11
DC 20-125	PA 12
HC 33-160	PA 21
DC 33-160	PA 22
HC 13-50	PA 31
HC 23-84	PA 41
DC 23-84	PA 42
HC 29-106	PA 43
DC 29-106	PA 44
HC 33-124	PA 45
DC 33-124	PA 46
HC 15-95	PA 51
DC 15-95	PA 52
HC 15-96	PA 61
DC 15-96	PA 62

Figure 2: Parameter Types by Model

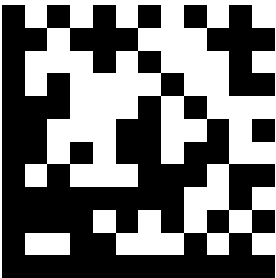
1. Retrieve and record any settings desired from the old controller, if possible. Enter Installer Setup mode as per step 13 below. Settings can be recorded in the column provided in Fig. 3.
2. Remove any call for heat, and remove power from the boiler / water heater.
3. Remove cabinet front door panel.
4. Pull forward the bottom tray which holds the controller.
5. Disconnect the electrical connections from the old board: the three white plugs require unlatching their clips to be lifted out. The green terminal strips can be removed by pulling upward. Needlenose pliers are recommended for removing the five ground connectors.
6. Note that the entire tray can now be easily removed from the boiler if desired. Undo and set aside for re-use the two Phillips screws on the underside of the controller tray. Remove old controller from tray.
7. Place the replacement board in the original board’s position, so buttons are centred in their holes and mounting holes align. Install the two screws for the board chassis. Confirm that the front panel buttons engage with the new controller (you should feel and hear that the buttons click when pressed).
8. Reinsert boiler tray if necessary. Attach the grounding wires, terminal strips and plugs as the original board was wired. Make sure plugs are fully engaged.
9. Close the tray, power up the board and wait ten seconds. The board will display dashes.
10. Press the service button  and the reset buttons  simultaneously to get zeros in the Main and Service windows. Press the + button below the main window repeatedly until a “25” is displayed. Press the service button  once to enter Model Setup menu.
11. The main window will display “PA”; by pressing the + button, choose the appropriate PA type according to the model of the boiler. See Figure 2. Save the choice by pressing the Reset button . A “P” will display for about 5 seconds.
12. The boiler controller is now set up for the correct model. The final step will be to enter operational parameters in the User and Installer menus. The user menu is accessible simply by pressing the Thermometer icon  for two seconds. The LED by the radiator icon  indicates the +/- buttons can be used to adjust the Space Heating water temperature (see publication DC /HC Controller Manual for more information). Toggle to enter the DHW temperature setup. Saving changes is done by pressing the Reset button .
13. Enter the Installer menus by pressing the service button  and the reset buttons  simultaneously to get zeros in the display windows. Press the + button until a “15” is displayed in the Main window. Press the service button  to enter Parameter 1, System Type. See Figure 3 for a complete list of parameters. A column is provided for the Installer to record settings. Use the service button  to scroll through the parameters, the +/- buttons to adjust values, and the Reset button  to save all changes. If further information is required see the IBC publication DC / HC Controller Manual.

Note: after installation, upon powering up the boiler, the board will briefly display r 2.10 and a PA x-. This is the software revision number and the first digit of the selected PA type.



PARAMETER	DESCRIPTION	DEFAULT	RANGE / OPTIONS	INSTALLER'S RECORD
<b>USER SET UP</b>				
	Boiler / Water Heater Supply Temperature	180°F (82°C)	86°F (30°C) to 194°F (90°C)	
	Tankless Domestic Hot Water Temperature	120°F (49°C)	104°F (40°C) to 149°F (65°C)	
<b>15 - INSTALLER SET UP MENU</b>				
1	System Type (SEE CHART BELOW FOR ADDITIONAL DETAILS)	DC series = 0 HC series = 1	DC - 0 – Both Space Heating and Tankless DHW HC - 1 – Space Heating and Indirect DHW Tank. DHW must be turned on by pressing the Tap . Bottom LED must be ON. DC - 2 – Tankless DHW Only HC - 3 – Space Heating Only DC - 4 – Space Heating and Tankless DHW with a Storage Tank. DHW must be turned on by pressing the Tap . Bottom LED must be ON. DC - 5 – Tankless DHW with a Storage Tank Only. DHW must be turned on by pressing the Tap . Bottom LED must be ON. DC - 6 – Space Heating, Indirect DHW Tank and Tankless DHW	
5	Min Heating Curve Supply Water Temp	90F (32°C)	50°F (10°C) to 194°F (90°C) Must be at least 18°F (10°C) lower than Parameter "5."	
5.	Max Heating Supply Water Temp	194°F (90°C)	Range 86°F (30°C) to 194°F (90°C)	
6	Min Outdoor Design Temp	14°F (-10°C)	Range to -22°F (-30°C) to 55°F (13°C)	
7	Summer Shut Down Temperature	64°F (18°C)	Range 59°F (15°C) to 86°F(30°C) Pump and burner will not operate if the Outdoor Temperature is above this setting	
8	Internal Boiler / Water Heater Pump Post Purge	1 min	Range 0 min to 15 min	
9	External DHW Pump Post Purge	1 min	Range 0 min to 15 min	
L	Indirect Tank Temperature if using a sensor. Note: Use only IBC 10KΩ Sensor	140°F (60°C) Fixed tank differential of 9°F (5°C) below the set-point, must use an IBC 10KΩ tank sensor	104°F - 149°F (40°C – 65°C)	
L.	Tankless DHW with Storage Tank offset temperature (Boiler / Water Heater operates at the Tankless Domestic Hot Water Temperature setting plus this offset temperature to efficiently generate DHW)	18°F (10°C)	2°F – 27°F (1°C – 15°C) Fixed tank differential of 9°F (5°C) below the set-point, must use an IBC 10KΩ tank sensor.	
n	Boiler / Water Heater Water Supply Temp for heating Indirect DHW Tank	170°F (77°C)	Range 149°F (65°C) to 194°F (90°C)	
n.	Comfort and ECO Comfort Mode: Heat exchanger temperature maintained while in standby	110°F (43°C)	Range 0 or 104°F – 149°F (40°C – 65°C) <b>NOTE:</b> If set to 0 then the temperature will be the same as the temperature set for the Tankless DHW in the user menu.	
O.	Space Heating Delay (min)	0 min	Range 0 – 15 min: The Boiler / Water Heater will not respond to a Space Heating call for X min.	
o	Space Heating Delay after heating DHW	0 min	Range 0 – 15 min: The boiler / water heater will not respond to a call for heat after the tankless DHW call for heat has ended for X min.	

Figure 3: User and Installer Setup Menus



**IBC Technologies Inc.**

8015 North Fraser Way  
Burnaby, BC  
Canada V5J 5M8

**Toll Free:** 1.844.432.8422

Tel: 604.877.0277

Fax: 604.877.0295

**[www.ibcboiler.com](http://www.ibcboiler.com)**

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