

PC Board

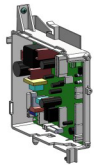
Installation Instructions

For Use With Rinnai Tankless Water Heater Models:

RU199i/e, RUR199i/e, CU199i/e, RU180i/e, RU160i/e, RUR160i/e, CU160i/e, RU130i/e, RSC199i/e, RSC160i/e

PC Board Part Numbers:

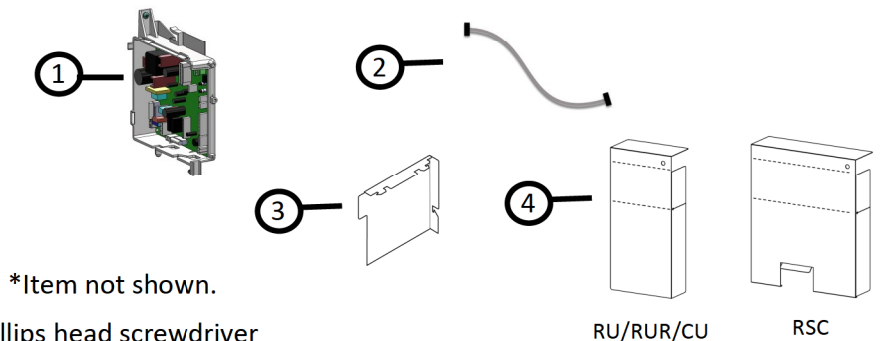
Residential: 105002002 (RU, RUR and RSC Model)
Commercial: 105000237 (CU Model)



Items Inside Product Box

Before installation, please make sure all parts are located inside the product box.

Item #	Item	Qty
①	PC Board	1
②	Data Transfer Cable	1
③	PC Board Electric Cover	1
④	EC Cover	1
⑤	Screws*	2



*Item not shown.

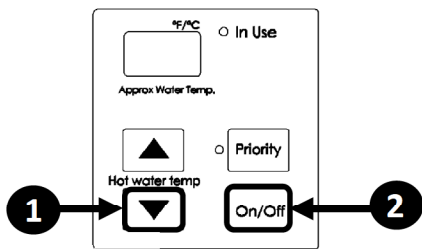
TOOLS/MATERIALS REQUIRED Phillips head screwdriver

INSTRUCTIONS

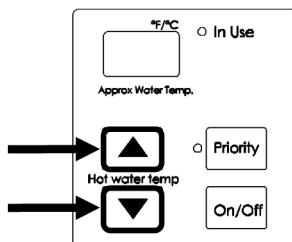
Data Collection

Collect the "Combustion Hours" and "Combustion Cycle" data per the following procedure. Write the values for Combustion Hours and Combustion Cycles in the following table. This information will be used to confirm accurate data transfer.

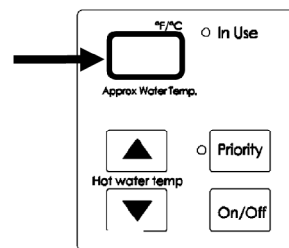
1. Press and hold the ▼ (Down) button.
2. While holding the ▼ (Down) button for 2 seconds, press and hold the "On/Off" button (hold both buttons simultaneously).



3. Use the ▲ (Up) and ▼ (Down) buttons to scroll to the desired information described in the Performance Data Table.



4. To exit performance data, repeat step 2 above.
5. When complete, the set temperature appears in the display.



Performance Data Table

Record Combustion Data Below

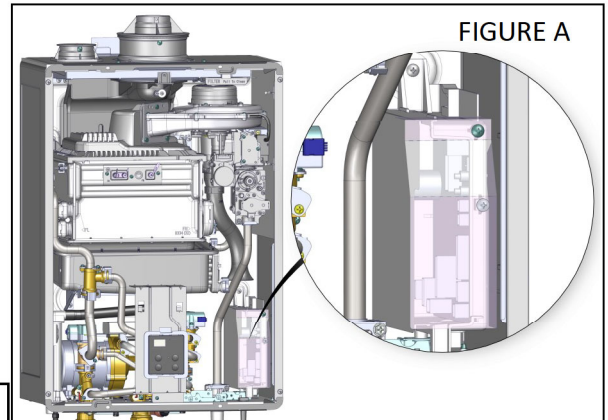
The following can be used to confirm data transfer was successful. If data transfer is not successful, contact Rinnai Customer Care at 1-800-621-9419

#	DATA	COLLECTED
03	Combustion Hours (X100)	
04	Combustion Cycles	

U334-9051X01(00)

Data Transfer

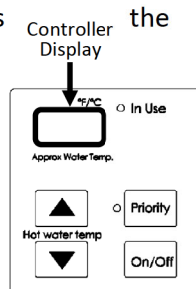
1. Remove front panel from water heater.
2. Disconnect the electrical power.
3. Locate the PC Board in the lower right side of the water heater. (FIGURE A)
4. Remove screw at top of PC Board to remove original PC Board from the water heater. (FIGURE B)
5. Disconnect all wire harnesses from the original PC Board. (FIGURE C)
6. Set original PC Board aside for future use.
7. Connect all wire harnesses to the new PC Board. (FIGURE D)
8. Connect Data Transfer Cable (provided) to the green connector at the top of both the new PC Board and the original PC Board as illustrated. (FIGURE D)



CAUTION ⚡

Do not touch any other areas on the PC board besides the (A) and (B) buttons as directed while power is supplied to the appliance. Parts of the PC board are supplied with 120 volts.

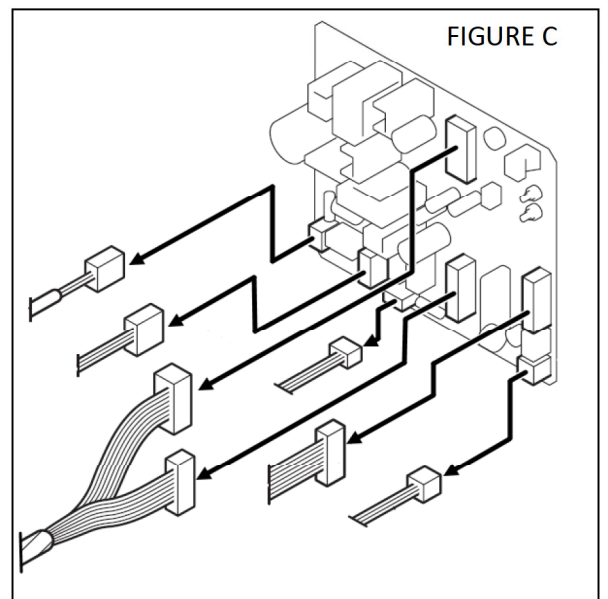
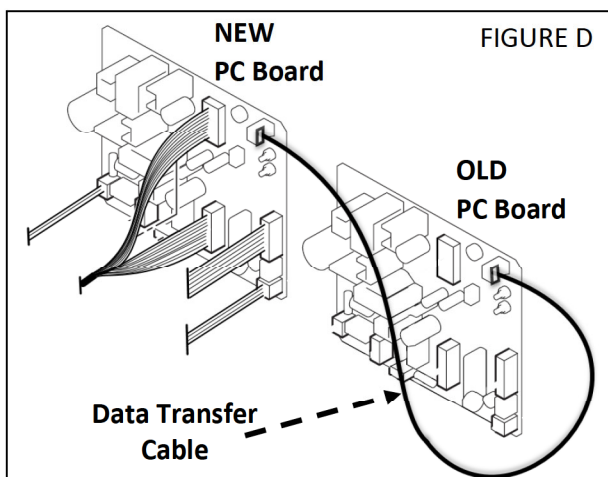
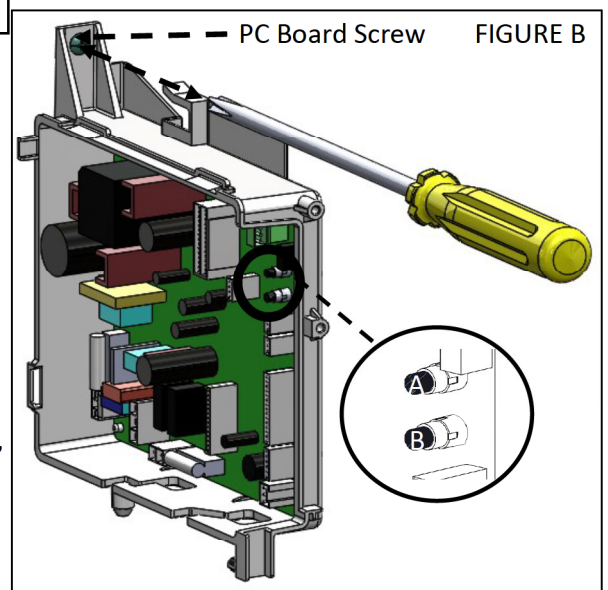
9. Connect the electrical power.
10. Press the (B) button on the new PC Board for 1 second. (FIGURE B)
11. When “ t ” appears on the controller press (A) button on the new PC Board for 1 second.
12. The controller will display the set temperature and then flash “PFS”.



NOTE: If controller displays “bRd” or nothing within 10 seconds, disconnect power and data transfer cable and repeat steps 8 to 12.

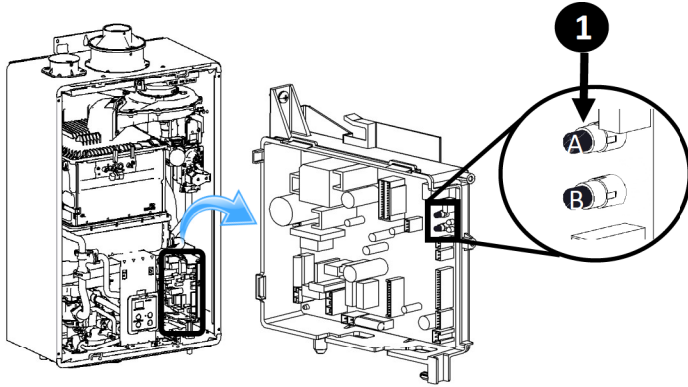
If data transfer is repeatedly unsuccessful proceed to the “Set Parameters Manually” section of these instructions after completing step 16.

13. Press the (B) button on the new PC Board to exit data transfer.
14. Disconnect electrical power.
15. Disconnect the data transfer cable from the new PC Board
16. Reconnect electrical power to the water heater.
17. Reinstall front panel.

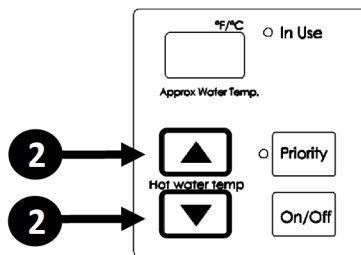


Set Parameters Manually (If data transfer procedure is unsuccessful)

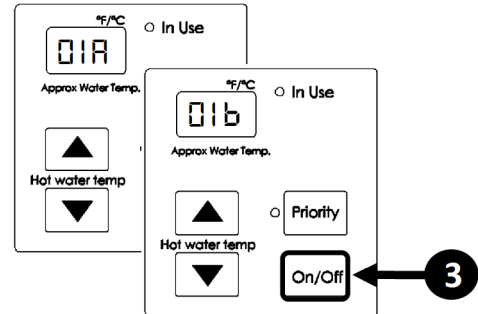
1. Press the “A” button for 1 second.



2. Use the ▲ (Up) and ▼ (Down) button on the controller to select a setting number (See *Parameter Settings Table*).



3. Once the desired setting number is selected, use the “On/Off” button on the controller to change the selection for the setting number.
Example: Display will change from 01A to 01b for Maximum Temperature setting (as shown below).



4. To exit the parameters, press the “A” button on the PC board for 1 second.

Parameter Settings Table (For Models without Internal Recirculation Pump)

Default is **A** for all settings below except **10**, **12**, **13**, and **14** which are factory set.

SETTING #	SETTING DESCRIPTION	SELECTION					
		A	b	c	d	E	F
01	Maximum Set Temperature	Residential: 120°F Commercial: 140°F	Residential: 140°F Commercial: 185°F				
02	High Altitude (Installation Location)	0 - 2,000 ft (0 - 610 m)	2,001 - 5,400 ft (610 - 1,646 m)	5,401 - 7,700 ft (1,646 - 2,347 m)	7,701 - 10,200 ft (2,347 - 3,109 m)		
03	Service Soon ¹	Disabled	0.5 Year	1 Year	2 Years		
04	Recirculation Settings	No Recirculation	Recirculation (Dedicated)				
05	Recirculation Mode ²	Economy	Comfort				
06	Control Switch	BMS ³	Air Handler (AH)				
07	Units in Standby (EZ Connect)	2	1				
08	Cascade	Secondary	Primary				
09	Units in Standby (Cascade) ⁴	1	2	3	4	5	6
10	Gas Type (Factory Set)	NG	LPG				
11	Maximum Flow Rate ⁵	Standard	High				
12	Water Heater Model (Factory set values and not adjustable)	Without Pump	With Pump				
13		199 (3237)	180 (2934)	160 (2530)	130 (2024)		
14		Internal (Indoor)	External (Outdoor)				
15	Low Activation Mode	On	Off				
17*	First Day Pump Operation	Pump Off	Pump On				

¹ See section “Service Soon, 55” in the Installation and Operation Manual for more information.

² Setting 05 is available only if setting 04b is selected.

Economy mode cycles the pump less often, using less energy to maintain the circulation loop temperature.

Comfort mode cycles the pump more frequently, ensuring the loop temperature remains higher (but also uses more energy).

³ BMS = Building Management System

⁴ Setting 09 is available only if setting 08b is selected.

⁵ Selecting “High” will increase the water flow rate to the maximum capacity.

*For the first 24-hours of operation, Smart-Circ will learn hot water usage patterns and operate pump based on the learned patterns. On the first day, when the tankless water heater has no learned patterns, the unit can be set to no pump operation (Pump Off/No Recirc) for the first 24 hours or to the pump operating (Pump On/Recirc) every 15 to 30 minutes for the first 24 hours.

Parameter Settings Table (For Models with Internal Recirculation Pump)

Default is A for all settings below except 10, 12, 13, and 14 which are factory set.

SETTING #	SETTING DESCRIPTION	SELECTION			
		A	b	c	d
01	Maximum Set Temperature	Residential: 120°F	Residential: 140°F		
02	High Altitude (Installation Location)	0 - 2,000 ft (0 - 610 m)	2,001 - 5,400 ft (610 - 1,646 m)	5,401 - 7,700 ft (1,646 - 2,347 m)	7,701 - 10,200 ft (2,347 - 3,109 m)
03	Service Soon ¹	Disabled	0.5 Year	1 Year	2 Years
04	Recirculation Settings	No Recirculation	Recirculation (Dedicated)	Recirculation (Crossover)	RUR only: Cross-over (Short Loop)
05	Recirculation Mode ²	Economy	Comfort		
06	Control Switch	BMS ³	Air Handler (AH)		
07	Units in Standby (EZ Connect)	2	1		
10	Gas Type (Factory Set)	NG	LPG		
11	Maximum Flow Rate ⁴	Standard	High		
12	Water Heater Model (Factory set values and not adjustable)	Without Pump	With Pump (RUR)	With Pump (RSC)	
13		199 (3237)		160 (2530)	
14		Internal (Indoor)	External (Outdoor)		
15	Low Activation Mode	On	Off		
16	Pump Speed (RSC only)	Max	Low		
17*	First Day Pump Operation	Pump Off	Pump On		

¹ See section "Service Soon, 55" in the Installation and Operation Manual for more information.

² Setting 05 is available only if setting 04b, 04c, or 04d is selected.

Economy mode cycles the pump less often, using less energy to maintain the circulation loop temperature.

Comfort mode cycles the pump more frequently, ensuring the loop temperature remains higher (but also uses more energy).

³ BMS = Building Management System

⁴ Selecting "High" will increase the water flow rate to the maximum capacity.

*For the first 24-hours of operation, Smart-Circ will learn hot water usage patterns and operate pump based on the learned patterns. On the first day, when the tankless water heater has no learned patterns, the unit can be set to no pump operation (Pump Off/No Recirc) for the first 24 hours or to the pump operating (Pump On/Recirc) every 15 to 30 minutes for the first 24 hours.

WARNING Failure to correctly follow these instructions may result in electrocution causing serious injury or death..

NOTE: Diagnostic Code 21 will appear on the controller display if "Set Parameters Manually" or "Data Transfer" procedures are not completed.

If You Need Service

Contact Rinnai Customer Care at 1-800-621-9419.