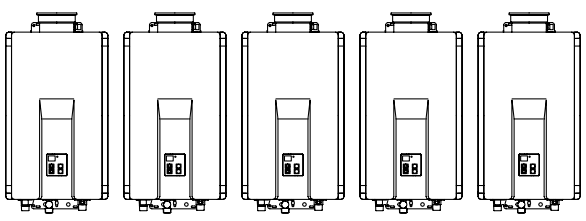
U306-1030(00)

070 00012 32035 9

Rinnai®

Manifold Electronic Control System Installation Instructions

MSB-M
MSB-C1



Note:

- Up to 5 water heaters can be connected together using the MSB-M and MSB-C1 kits.
- When over 5 water heaters are connected together, MSB-M units are connected using MSB-C2 kits.
- If multiple MSB-M are used, then at least three water heaters should be connected to each MSB-M.
  Ex: With 7 water heaters, one MSB-M should control 4 water heaters and the other MSB-M should control 3 water heaters.
- United States & Canada: For use with Rinnai Tankless Water Heaters (except for models V53e, V53i and R63LSe which must use pressure activation valves, PVA).
- Please contact Rinnai if you have further questions on the applicable water heater models.

⚠ WARNING

Disconnect all water heaters from their power source before carrying out the following installation procedures.

NOTE: The front cover panels of each water heater must be removed prior to completing the following installation procedures.

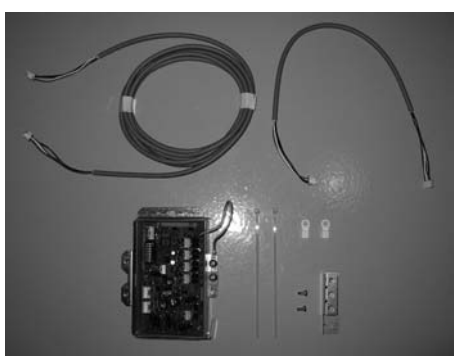
Kit Components

MSB-M (Pack A)

(For wiring Units 1 and 2)

Parts List

Part	Qty
Control Board	1
Communication Cable A (18 in, 450 mm)	1
Communication Cable B (9.8 ft, 3 m)	1
Cable tie bracket	2
Cable tie	2
Instruction Sheet	1
bracket	1
Screw	2



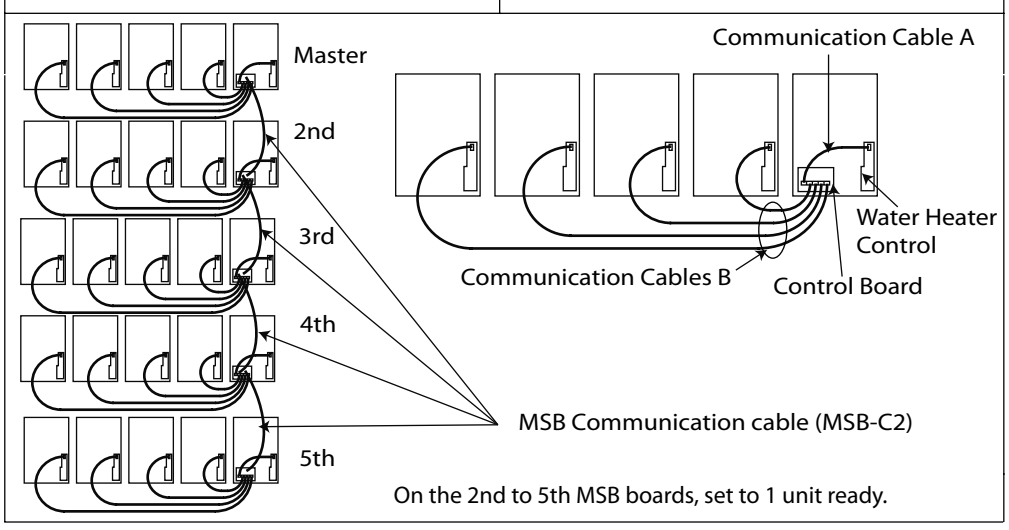
MSB-C1 (Pack B)

(For wiring Units 3, 4 and 5)

Parts List

Part	Qty
Communication Cable B (9.8 ft, 3 m)	1
Cable tie bracket	2
Cable tie	2
Instruction Sheet	1

Note: One MSB-C1 is required for each water heater (Units 3, 4, and 5)

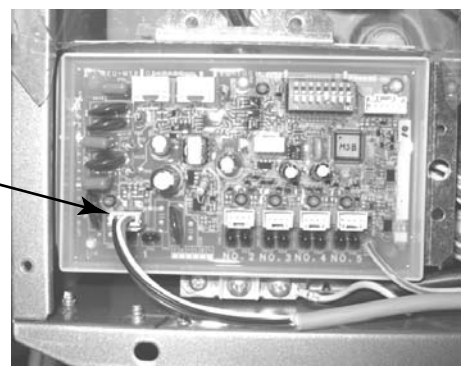


For Unit 1:

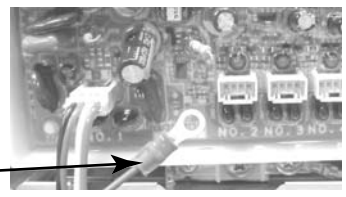
1) Remove the screw from the sheet metal reinforcement plate located at the bottom of the water heater cabinet, and then use it to secure the Control Board to the water heater cabinet.

If installing on a condensing water heater, refer to the additional instruction showing below.*

2) Connect the connector from Communication Cable A (18 inch, 450 mm cable) to socket No. 1 on Control Board.

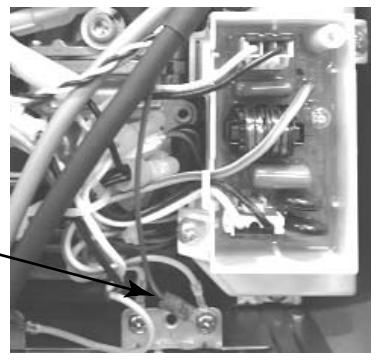


Ground wire of Communication Cable A

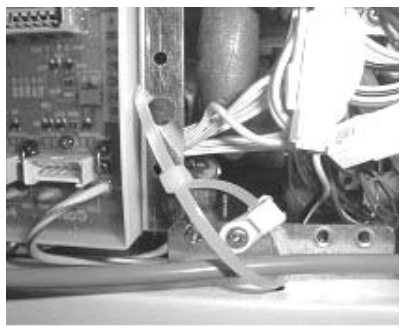


3) Connect the connector from Communication Cable A to the 4-pin socket located at the top of the water heater control board. Communication Cable A ground wire terminal should be grounded with the PC board ground wire.

Ground wire of Communication Cable A

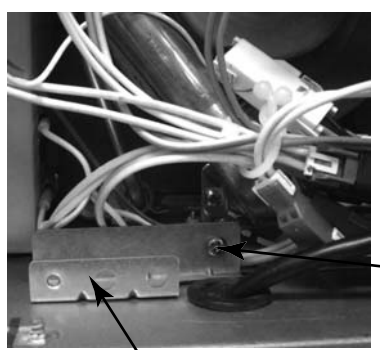


4) Attach the cable tie bracket to the bottom of the water heater cabinet using the existing screw. Loosely secure the cable tie through the bracket and around the communication cable. DO NOT TIGHTEN THE CABLE TIE AT THIS TIME - the Communication Cables B from the other water heaters must be secured by this cable tie.



* These condensing water heaters require a bracket for the control board:
RC98HPi (REU-KA3237FFUD)/RC98HPe (REU-KA3237WD)
/RC80HPi (REU-KA2530FFUD)/RC80HPe (REU-KA2530WD)
/REU-KM3237FFUD/REU-KM3237WD/ REU-KM2635FFUD
/REU-KM2635WD

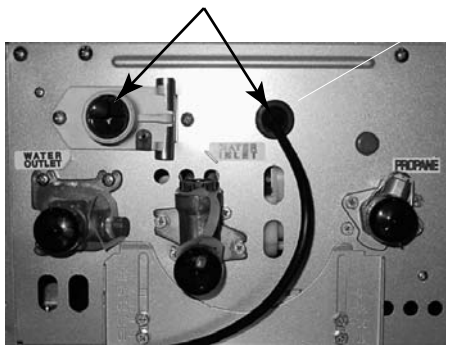
Attach the control board to this bracket with one screw in Step 1.



Install the bracket with one screw as shown above and continue with the rest of the installation.

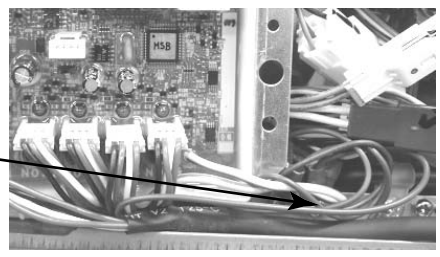
For Units 2, 3, 4, and 5:

5) Run the 4-pin connector of Communication Cable B (9.8 ft, 3 m cable) up through the cable access in the bottom of Unit 1's cabinet.

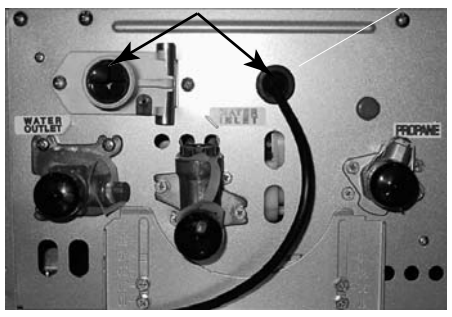


6) Connect the connector of the Communication Cable B to socket 2 on the Control Board. The Communication Cable B ground wire terminals should be grounded with the MSB ground wire and Communication Cable A ground wire terminal.

Ground wires of Communication Cable B

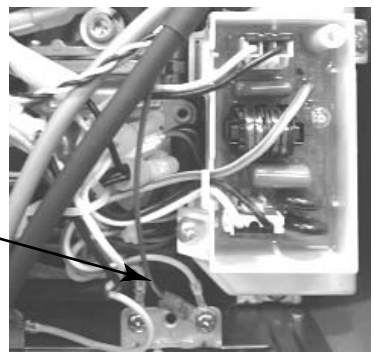


7) Run the other end of Communication Cable B through the cable access in the bottom of Unit 2's cabinet.



8) Connect the 4-pin connector from Communication Cable B to the 4-pin socket located at the top of the water heater control board of Unit 2. Communication Cable B ground wire terminal should be grounded with the PC board ground wire.

Ground wire of Communication Cable B



9) Attach the cable tie bracket to the bottom of the water heater cabinet using the existing screw. Pull all of the excess cable up into Unit 2's cabinet, and then secure it tightly to the bracket using the cable tie.

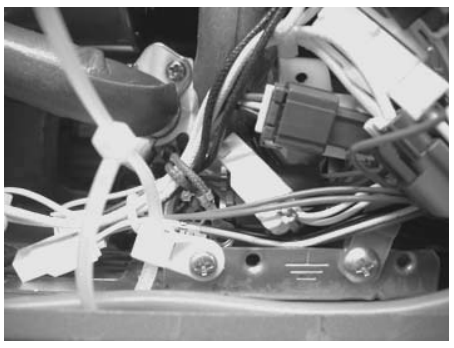
10) Repeat steps 5 to 9 for Units 3, 4, and 5, as applicable.

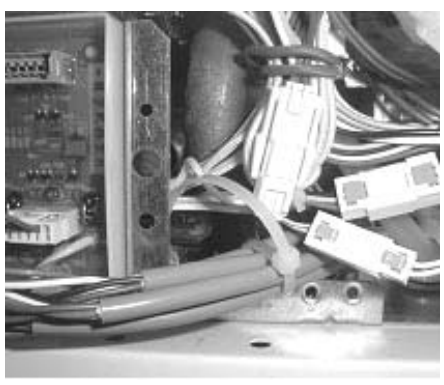
Note: Communication Cable B for Unit 3 plugs into socket 3, Unit 4 plugs into socket 4, etc.

11) After making all of the connections to the Control Board, tighten all of the cable ties used to secure the Communication Cables.

12) Place the front cover panels back on each of the water heaters using (4) screws.

13) Restore power to the water heaters.





System Operation

- The Control Board can electronically connect up to 25 water heaters.
- When multiple water heaters are operating, they will attempt to supply equal amounts of hot water.
- On initial water flow demand, from 1 to 3 units which can be determined by Dip SW setting of Master MSB board will open their servos valves until flow demand is determined. See Dip SW table for open water flow valve. Only the necessary number of water heaters will begin to fire to meet demand. Water heaters not firing will close their valves.
- As the default setting, 3 units will open its servo valve until flow demand is determined.
- It is recommended that the dip switch settings on MSB boards other than the Master MSB board be set for 1 unit ready.
- When installation is completed, do a test run for all units.
- After the test run, check and clean the water filter on all units.
- The temperature setting for all of the connected water heaters is controlled by the temperature controller connected to the water heater with the Master MSB Board. Temperature controllers connected to the other units will provide maintenance codes for their respective units.
- If water heaters do not use a temperature controller, the temperature setting for the water heater with the Master MSB board is used.
- If a water temperature over 140 degree F is desired, then an MCC-91 controller needs to be connected to Master Control Board.
- For proper operation, it is not recommended that different models be connected together. Combining different models may result in lower performance.
- The order in which each water heater operates is occasionally rotated to ensure equal usage among the entire system.

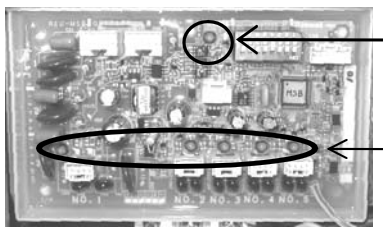
Dip SW table for open water flow servo valve

When viewing the installed MSB board, the dip switch will be as shown below (upside down).

	3 units ready (default)	2 units ready	1 unit ready
Dip SW setting	No1 OFF No2 OFF	No1 ON No2 OFF	No1 ON No2 ON

NOTE: In a recirculation system, in order to increase the temperature setting, it is necessary to turn off the power supply to the circulation pump, increase the temperature setting, and then turn the pump back on. No additional action is necessary when decreasing the temperature setting.

Indicator lights on the Control Board indicate the status of each of the water heaters as follows:



LED 1 ~ 5	EXPLANATION
Solid	Water flow servo valve is open when water heater is in standby or working.
Flashing Slowly (1.2 sec on / 0.5 sec off)	Water flow servo valve is closed when water heater is not operating.
Flashing Quickly (0.5 sec on / 0.5 sec off)	An error is detected. A temperature controller must be connected to this unit to read the error code.
Off	No unit detected at this connection.