

# Instruction Sheet

## Replacement Control Board

102-520

### SmartPlus® and Hot-Link Plus® Circulators

### with Run Time Adjustment Dial and 72-hour Memory Backup

SUPERSEDES: NEW

EFFECTIVE: April 7, 2017

Plant ID No. 001-4242

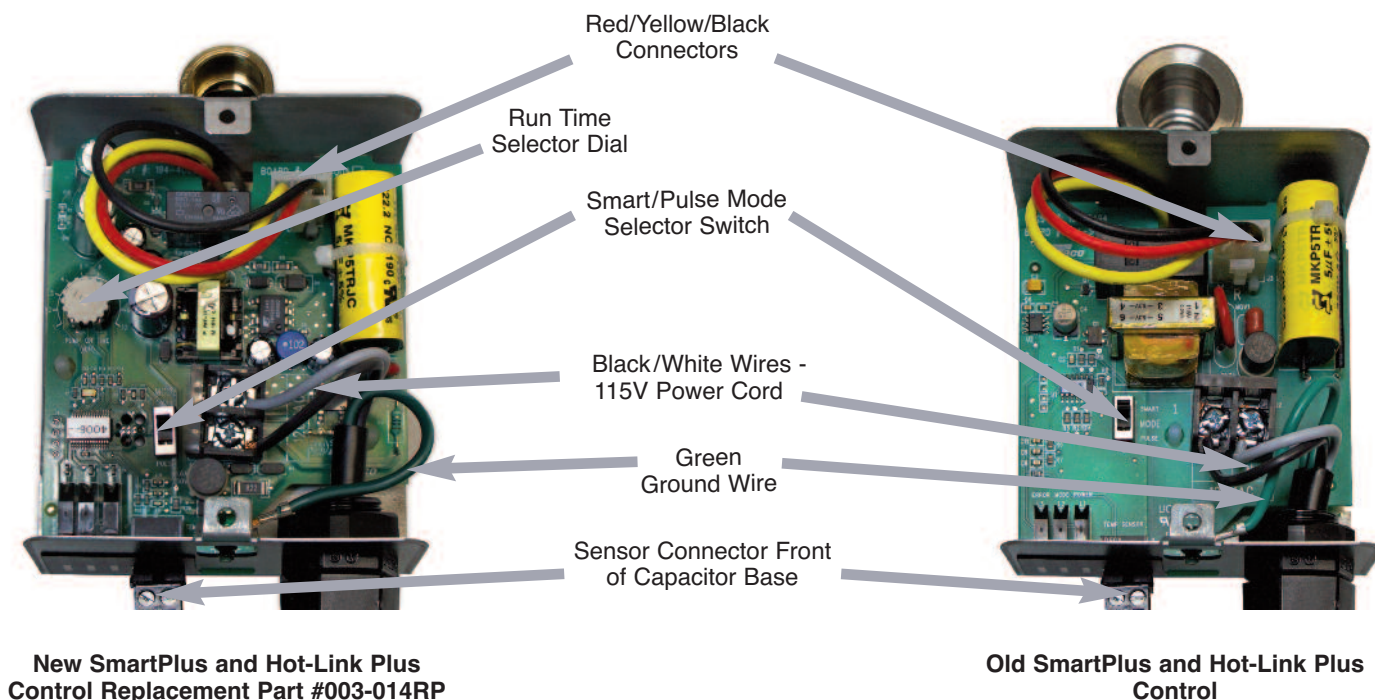
MODELS COVERED: SmartPlus® (ALL), Hot-Link Plus® (ALL)

#### REMOVING THE CONTROL BOARD:

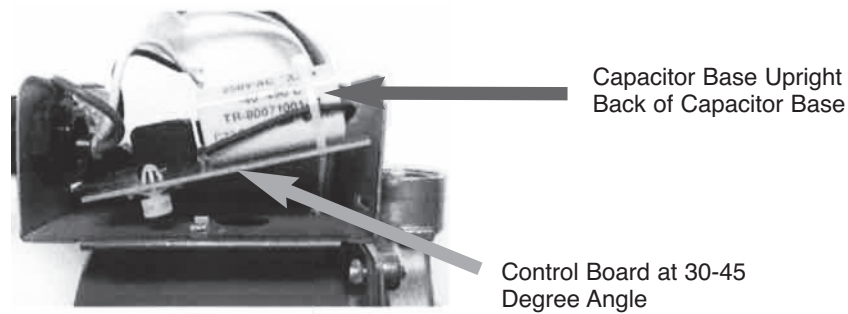
**Note: Make sure the circulator and hot water line have “cooled” before servicing the circulator.**

1. Unplug the circulator 115V power cord from the electrical outlet.
2. If the circulator needs to be removed from the system to access the control board, make sure the system is properly drained and/or water shut-off valves are closed prior to removal.
3. Unclip and remove the external temperature sensor wire from the temperature sensor receptacle on the circulator.
4. Remove the (2) capacitor base cover screws using a screwdriver. Remove the capacitor cover to access the control board.
5. Unclip the three wire (black/yellow/red) connector from the control board. (Refer to Diagram #1)
6. Using a screwdriver, loosen the (2) screws that hold the black and white power cord wires to the control board and slide the wires out and away from the screws. (Refer to Diagram #1)
7. The control board is ready for removal. The board is held in place with three protruding tabs: two tabs at the back of the board and one tab at the front (side with the temperature sensor connector). To remove the board, gently push the rear capacitor base away from the control board tabs and lift the back of the control board upward. Lift the board to a 30-45 degree angle and slide the board back to clear the front tab on the board and the temperature sensor connector from the capacitor base. Remove the board. (Refer to Diagram #2)

Diagram #1



## Diagram #2



### INSTALLING THE CONTROL BOARD:

1. Make sure the circulator is not plugged into the electrical outlet.
2. Make sure the capacitor base is clean and free of debris. Install the control board by positioning the board at a 30-45 degree angle (front tab and temperature sensor connector pointing down) and carefully slide the front of the control board and temperature sensor connector into the front of the capacitor base. Make sure the board tab is aligned with the slot in the capacitor base and the temperature sensor connector is aligned in the capacitor base temperature sensor hole. Once the front tab and temperature sensor connector are aligned, push forward to secure the tab and temperature connector in the capacitor base. Once secure, gently push the back of the board down until the two rear tabs on the control board snap into the slots in the capacitor base. Visually inspect the board and capacitor base to ensure the control board is properly seated. (Refer to Diagram #2)
3. Once the board is secure, connect the three wire (red/yellow/black) connector clip into the receptacle on the control board. (Refer to Diagram #1)
4. Connect the black wire from the 115V line cord to the "H" connection on the control board and the white wire from the 115V line cord to the "N" connection on the control board. If the green ground wire was disconnected during removal of the original board, secure it to the green ground screw provided on the capacitor base. Make a final check to ensure that the black, white, and green wires from the line cord are securely fastened. (Refer to Diagram #1)
5. Set the mode to desired operation by setting the switch to "SMART" or "PULSE" mode.
- 6a. For SmartPlus® replacements, set the run time dial to 3 (3 minutes ON, 10 minutes OFF) and adjust higher or lower as needed.
- 6b. For Hot-Link Plus® replacements, set the run time dial to 5 (5 minutes ON, 10 minutes OFF) and adjust higher or lower as needed.
7. Carefully slide the capacitor cover over the capacitor base and secure with two screws.
8. Reconnect temperature sensor plug to the terminal receptacle on the control board.
9. If the circulator was removed from the piping to service, install the pump, then fill and purge the system properly before the circulator power cord is plugged into the electrical outlet.
10. Once the system is filled and purged properly, plug the power cord into a standard 115V properly grounded outlet. The pump will immediately start and run in PULSE mode (ON for programmed run time setting, OFF for 10 minutes). If SMART mode has been selected, the pump will PULSE for the first seven (7) days while it begins to record the homeowners' daily hot water usage patterns. On the 8th day and thereafter, learned daily usage patterns will determine when the pump will operate.

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Taco, Inc., 1160 Cranston Street, Cranston, RI 02920 | Tel: (401) 942-8000 | FAX: (401) 942-2360

Taco (Canada), Ltd., 8450 Lawson Road, Suite #3, Milton, Ontario L9T 0J8 | Tel: (905) 564-9422 | FAX: (905) 564-9436

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