WEIL-McLAIN®

ECO® Tec

NOTICE Read the boiler rating label to determine the size and series number.

Series 2
80/110/150/199
Wall Mount Gas-Fired
Condensing Boilers – Combi and Heating Only Models

Multi-Boiler Wiring Kit Instructions (RS-485 Communication)

STOP! Read before proceeding

Hazard definitions

The following defined terms are used throughout this instruction to bring attention to the presence of hazards of various risk levels or to important information concerning the life of the product.

DANGER Indicates presence of hazards that will cause severe personal injury, death or substantial property damage.

WARNING Indicates presence of hazards that can cause severe personal injury, death or substantial property damage.

CAUTION Indicates presence of hazards that will or can cause minor personal injury or property damage.

NOTICE Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

WARNING **These instructions must only be used by a qualified installer/service technician**. Read all Instructions completely before beginning the installation. Failure to follow all instructions can cause severe personal injury, death or substantial property damage.

WARNING Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury (exposure to hazardous materials) or loss of life. Refer to the user's information manual provided with this boiler or available on-line at Weil-McLain.com. Installation and service must be performed by a qualified installer, service agency or the gas supplier (who must read and follow the supplied instructions before installing, servicing, or removing this boiler. This boiler contains ceramic fiber and fiberglass materials that have been identified as carcinogenic, or possibly carcinogenic, to humans).

P/N 383-700-272 Kit Contents:

Description	Part No.	Qty
Wiring Harness, RS-485 Communication	591392107	1
Vinyl Grommet	562248771	1
1/2" Sheet Metal Screw	562138550	2
1 1/2" Sheet Metal Screw	562137536	4
Communication Board	511330460	1
Junction Box Top	469040072	1
Junction Box Bottom	469040071	1
Plastic Anchor	563210627	4

Recommended tools

Phillips screwdriver
Flat blade screwdriver
Paper/pen
Boiler manual

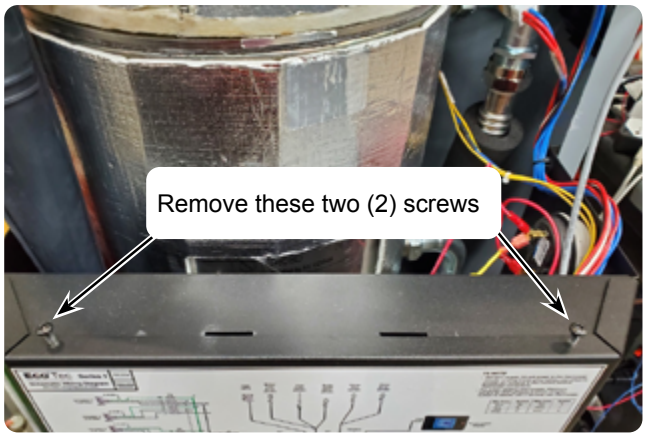
Before proceeding:

1. Shut down the power to the boiler.

WARNING **Shut off power to the boiler.** Failure to do so can result in severe personal injury, death or substantial property damage.

2. Remove door by disengaging the two (2) latches at the sides of the front door.
3. Slightly lift and pull the door away from the boiler to remove.

Figure 1 Removing Control Panel Cover



4. Remove two (2) Phillips head screws that hold control tray cover plate in place. Lift and pull cover away from tray. Set control tray cover to side.

Label wires before removing

CAUTION Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

Mounting the Junction Box

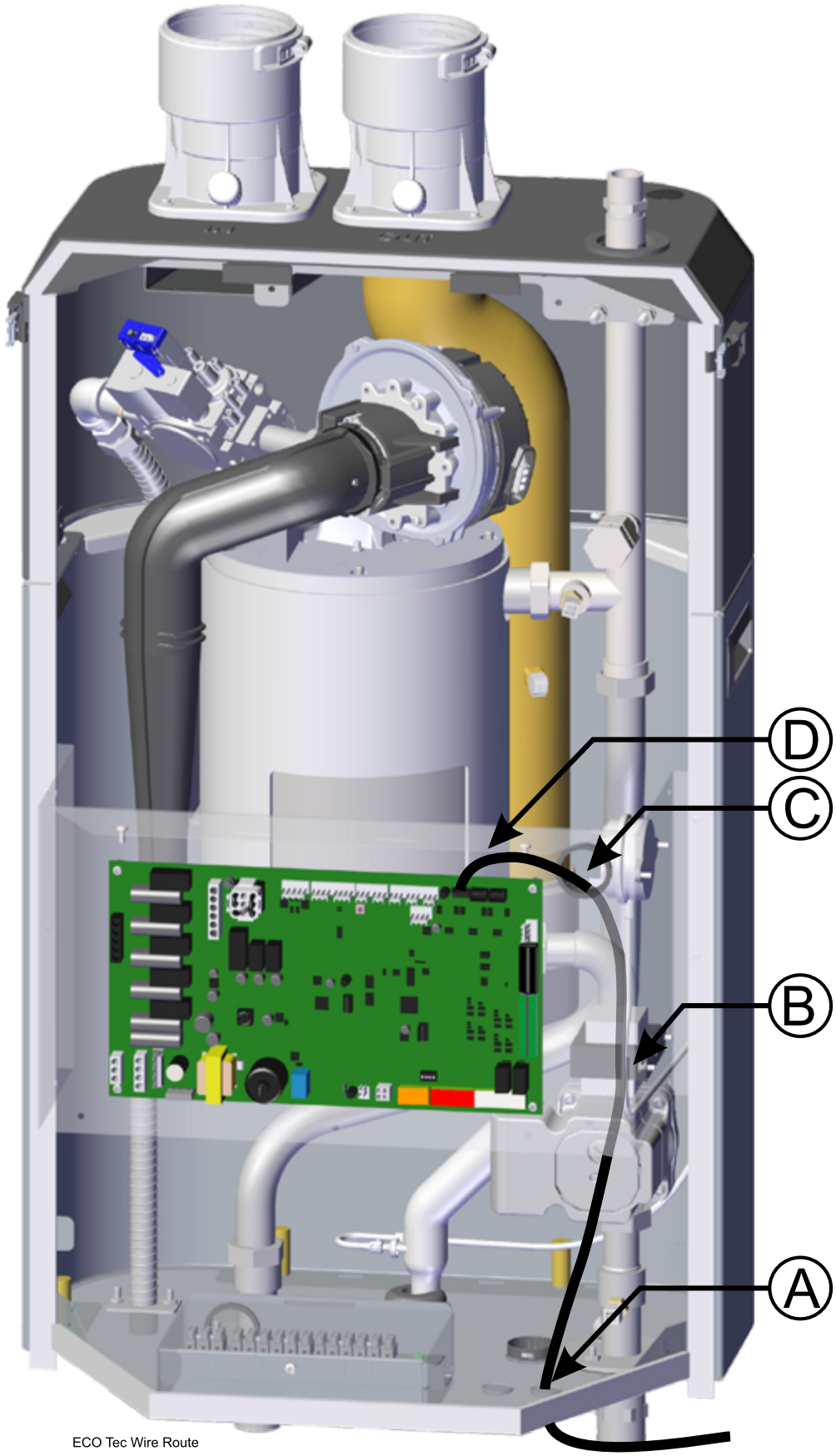
1. Measure and mark the mounting location, using the harness length as a reference. Ensure some slack to avoid stressing the wiring.
2. Install the junction box to a nearby surface using the four supplied screws through the holes in the junction box sides.
3. For drywall installations, use the included drywall anchors for mounting the junction box.

Figure 2 Junction Box

Installing Harness

1. Route the 5-pin side of the supplied harness through the low voltage knockout on the bottom of the boiler cabinet, indicated as “A” in Figure 3 on page 3.
2. The harness should route behind the control mounting bracket, indicated as “B” in Figure 3 on page 3.
3. Route the harness through the large opening on the top right of the control mounting bracket (“C” in Figure 3 on page 3). Make connection to boiler control board “D” in Figure 3 on page 3.
4. Press the mounting clip through the hole in the right side of the control mounting bracket at approximate location indicated by “B” in Figure 3 on page 3.
5. Firmly insert the grommet, supplied on the harness, into the knockout in the bottom of the boiler cabinet.
6. Connect the Ethernet side of the harness into the circuit board in the junction box. Firmly install the grommet.

Figure 3 5-pin Wire Routing



ECO Tec Wire Route

Wiring BMS/Multi-Boiler

Connector J12

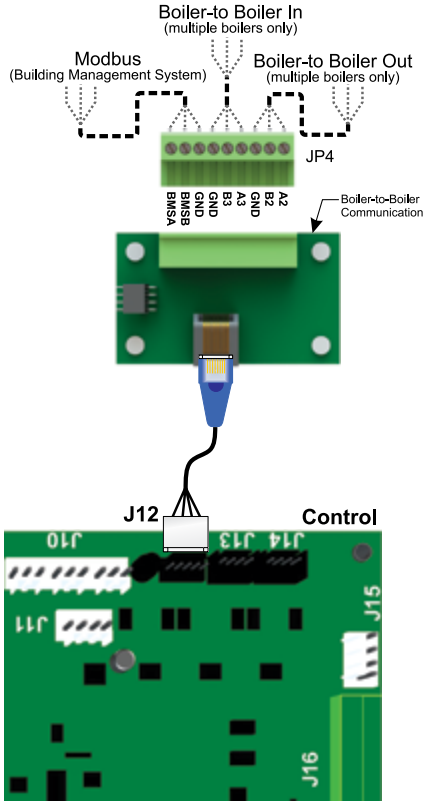
1. Wiring for RS485 communication harness endpoint circuit board is as follows:
   a. JP4-1 = A2 (RS485 Multi-boiler Bus A+)
   b. JP4-2 = B2 (RS485 Multi-boiler Bus B-)
   c. JP4-3 = GND (RS485 Multi-boiler Bus GND)
   d. JP4-4 = A3 (RS485 Multi-boiler Bus A+)
   e. JP4-5 = B3 (RS485 Multi-boiler Bus B-)
   f. JP4-6 = GND (RS485 Multi-boiler Bus GND)
   g. JP4-7 = GND (BMS Ground)
   h. JP4-8 = BMS B (BMS B-)
   i. JP4-9 = BMS A (BMS A+)
2. Boiler to boiler wiring connections (see wiring at right)
   a. Use shielded 3-wire cable. Do not exceed 1,000 feet length.
   b. Connect 3-wire cable between Boiler-to-Boiler OUT (JP4-GND, B2, A2) on one boiler to Boiler-to-Boiler IN (JP4-GND, B3, A3) on the next boiler.
   c. Continue this wiring until all boilers are interconnected.

NOTICE *DO NOT return last shadow's wires to Master's A3/B3/GND ports! This will create a communication loop, which will cause duplication of information and clashes in communication. The result is undesired and unknown behavior, up to and including complete loss of communication.*

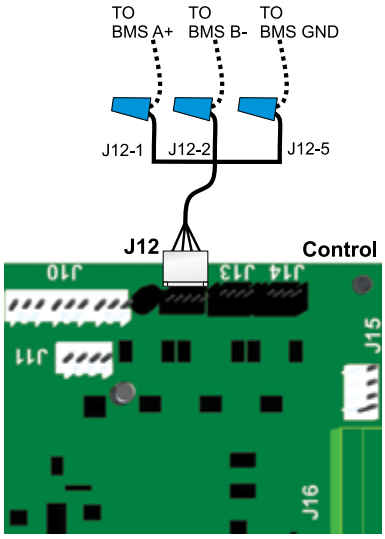
3. **For applications using <u>only</u> BMS**, use the wiring harness supplied with the boiler (and also sold separately, P/N 383-700-401). Remove pre-cut insulation on the harness and use wire nuts to tie in field wiring. BMS harness leads are as follows:
   a. J12-1 = BMS A+
   b. J12-2 = BMS B-
   c. J12-5 = BMS Ground
4. MODBUS to BMS
   a. The control is equipped with MODBUS communication to communicate with a BMS.
   b. Use terminal JP4 (JP4-BMS A+, BMS B-, GND) to wire to the BMS control.
   c. If the BMS uses BACnet protocol, install a BACnet converter between the BMS and the ECO Tec MODBUS-to-BMS terminals on JP4.
5. Navigate to the Modbus Setting screen on the display. This is accessed via the contractor menu by pressing and holding the WM Logo from the home screen.
6. Adjust all necessary Modbus settings to match the BMS system being utilized.
7. Install the junction boxfront panel using the supplied screws.

⚠WARNING **Reinstall control bracket front panel and boiler door after start-up or servicing. The door must be securely fastened to the boiler to prevent the boiler from drawing air from inside the boiler room.**

Multi-boiler or Combined Multi-boiler/BMS Applications - Wiring Diagram



BMS Only Application - Wiring Diagram



ECO Tec 120 wiring s