Floor Warming and Heating Systems

The following tools will be needed:
• Wire stripper (precision) for 30 AWG to 14 AWG wires.
• Utility knife.
• Soldering iron.
• Hot-air gun (for heat-shrinking effect).
• Finishing nail or mini screwdriver.
• Cutting pliers.

PROCEDURE
*(see note at the bottom if the heating element is too short)**

Cut the cable on each side of the damaged portion.

On each end of the cable to repair:

1. Remove 2 in (5.1 cm) of the green plastic sheath making sure not to cut the metallic braiding underneath.

2. Remove 1 ½ in (3.8 cm) of the wire braiding starting from the end. To do so, use cutting pliers to create an opening in the braiding at 1 ½ in (3.8 cm) from the extremity, making sure not to damage the wires inside. Once the opening has been created, release the conductors through the opening in order to expose them and using small scissors, cut a 1 ½ in (3.8 cm) length of excess braiding entre the extremity and the opening.

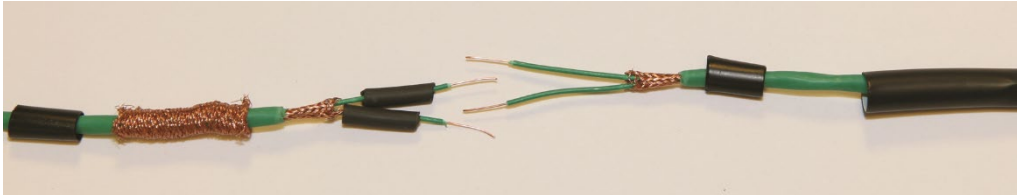
3. Remove 1/2 in (1.3 cm) from the cable insulation. Make sure not to make an incision in the heating element, which could eventually cause a breakage.

4. Insert one end of the cable with a sufficient length of the 5/6 in (0.8 cm) heat-shrinkable tube to completely cover and seal the section being repaired. Make sure that a minimum of 1/2 in (1.3 cm) of the heat-shrinkable tube is overlapping the plastic sheath on each side of the cable.

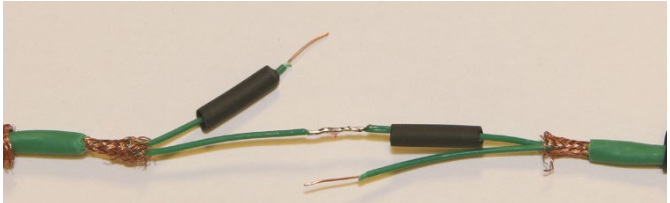
5. Slip a ¼ in x ½ in (0.6 cm x 1.3 cm) heat-shrinkable tube over the heating cable on each side that will be used to hold the braiding in place.

6. Cut a sufficient length of braiding on the support wire (from your repair kit) to cover the repair and overlap the exposed portions of the braiding. Compress the braiding on its support wire and insert the braiding on one of the sides of the cable to be repaired.

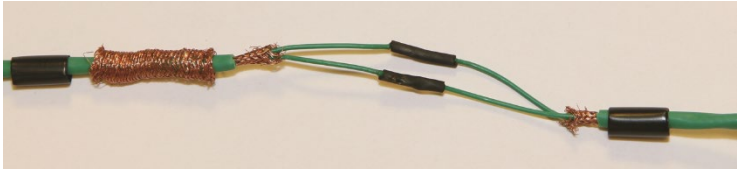
7. Insert a 1/8 in x 1 ¼ in (0.3 cm x 3.2 cm) heat-shrinkable tube over each conductor; the tube will cover each splice that has to be soldered.



8. Twist and solder the two corresponding heating elements with the lead wire, clean the welded joint if needed, and file all sharp parts that could damage the heat-shrinkable tube.



9. Slip the 1/8 in x 1 ¼ in (0.3 cm x 3.2 cm) heat-shrinkable tube over each splice and heat to shrink, making sure the heat-shrinkable tube covers at least ½ in (1.3 cm) of the insulation on each side.



10. Carefully move the metallic braiding over the repair and stretch it lightly to create a contact with the existing braiding. Then slip the ¼ in x ½ in (0.6 cm x 1.3 cm) heat-shrinkable tubes over each end of the metallic braiding, center and heat.

11. Slip the 5/16 in (0.8 cm) heat-shrinkable tube over the metallic braiding and cover at least ½ in (1.3 cm) of the green sheath at each end. Heat to shrink. The heat-shrinkable tube's internal adhesive must fully cover the cable at each end.

***NOTE: If the heating element is too short,** use a part of the heating resistor (from your repair kit) to connect to two ends (section 8). Measure the missing length; add 2 in (2.5 cm). Strip ½ in (1.3 cm) from both ends. When it is time to cut the braiding wire (section 6) and the 5/16 in (0.8 cm) heat-shrinkable tube (section 4), you will have to consider adding this measure to the recommended lengths. Since each heating elements will have to be soldered twice, you will need two 1/8 in x 1 ¼ in (0.3 cm x 3.2 cm) heat-shrinkable tubes (section 7).