



DFTRK Cable Repair Kit Instructions

DESCRIPTION

Before attempting any cable repair, determine if there actually is a fault and its location. A Fault Detector Kit is available through Easy Heat technical help line. Thermal imaging devices may also be used in the detection of faults. Having to repair your Easy Heat DFT floor warming cable is an extremely rare occurrence. Damage is almost always a function of field conditions, such as impacts with tools or damage from use of staples.

The DFTRK Cable Repair Kit is intended to be used to repair any version of Easy Heat's DFT thin profile floor warming cable that has been damaged. This kit contains all the materials needed to replace (1) short—up to 1"—section of damaged heating cable, or repair/replace (1) heating cable-to-cold lead splices, or repair/replace (2) cable end splices.

This kit may require up to 24" of exposed cable.

KIT CONTENTS

- 8 Parallel Crimp Connector (large)
- 4 Shrink tubes (small)
- 1 Shrink tube (medium)

- 1 Shrink tubes (large)
- 2 Jumper wires
- 1 Bare copper wire

TOOLS REQUIRED

- Side cutters
- Crimping pliers
- Coaxial cable strippers or utility knife

- Heat gun
- Ohmmeter
- Insulation resistance tester (megger)



WARNINGS!

- Shortening of the heater cable will result in the cable running hotter. Excessive shortening may result in a risk of personal injury and/or fire. **DO NOT** install more than two DFTRK kits on any cable. Contact Easy Heat for additional information.
- Turn breaker off at the panel and tag the panel to ensure that no one turns the breaker on. Disconnect the heater wires from the thermostat as an added safety step and to conduct testing during and after repairs.
- Determine location of fault before beginning any repair work.
- **DO NOT** use this kit to repair the sensor wire.

CAUTIONS

- Heat guns, if not handled carefully, can result in burns. Heat shrink tubing and the sealant retain heat. Be careful in handling them before they have cooled completely.
- Excessive heat can damage shrink tubing and cable materials. Use care not to overheat materials. Damage from heat may not be visible.
- No wires should protrude past the ends of the connectors. Carefully trim wires flush as needed. Sharp wires and loose wire strands can pierce through the heat shrink and may result in shorting.
- Allow the inner heat shrink to cool before applying the outer heat shrink. Failure to do this may leave the inner tube too soft and result in damage as the outer tube is shrunk.

NOTE

For cold lead to heating cable splices, it is assumed that at least 2" of slack in the cold lead can be obtained to facilitate proper connections. If there is no slack in the cold lead it may become necessary to replace the old cold lead with a new cold lead. Contact EasyHeat to obtain a new cold lead.

For heating cable to heating cable splices, it is assumed that it is not possible to obtain any slack in the heating cable. For this reason, a jumper wire (for heating cable) and a bare wire (for ground braid) are provided in the kit to facilitate proper connections.

NOTICE: REPAIRING A DAMAGED CABLE WILL VOID THE ORIGINAL HEATING CABLE WARRANTY.

USA
2 Connecticut South Drive
East Granby, CT 06026
Tel: 800-523-7636
Fax: 800-824-7345

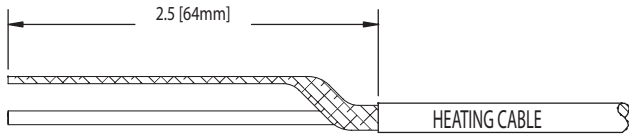
Canada
99 Union Street
Elmira, ON N3B 3L7
Tel: 800-794-3766
Fax: 800-361-4574

www.warmtiles.com
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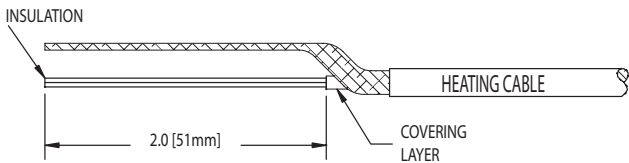
DIRECTIONS

COLD LEAD TO HEATING CABLE SPLICE

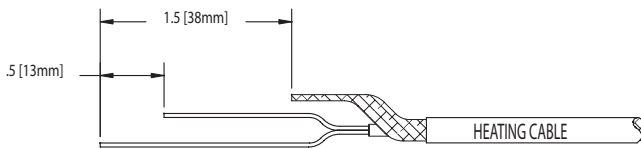
- Carefully expose the original factory splice by removing any mortar in which the splice is embedded. Remove the splice by cutting it off with sidecutters.
- Carefully expose about 12" of heating cable by removing any mortar covering it.
- Pull excess cold lead from wall cavity such that cold lead overlaps heating cable by 2".
- Remove 2.5" of outer jacket from heating cable (clear nylon) and cold lead (black PVC). Be careful not to damage ground braid beneath the jacket.



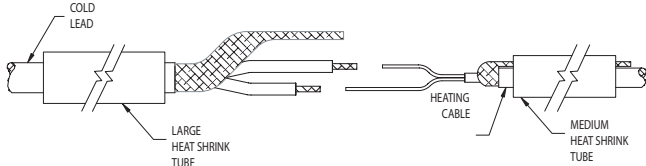
- Unbraid the ground braid back to the outer jacket and twist it to one side to form a pigtail on each cable.
- Carefully trim 2" of the covering layer on the heating cable, ensure that the insulation beneath is not damaged during this step.



- Using a very sharp, fine bladed knife (such as a utility knife or box cutter), split the insulation of the two heating conductors back to the covering layer.
- Trim one of the paired conductors 0.5" back, and the braid 1" back. Repeat this pattern on the other cable. This allows the ground braid connection to be offset from the primary conductor connections, which minimizes both the size of the repaired area and the potential for the ground connection to penetrate the primary connection.

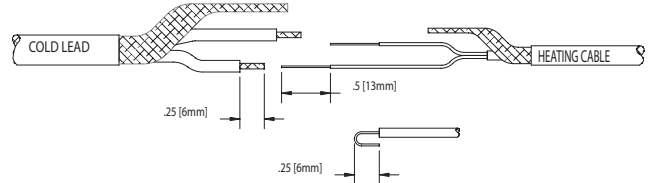


- Slide the medium shrink tube over one of the cables, and the large shrink tube over the other cable. The large and medium shrink tubes may be shortened to fit. If shortened, the large shrink tube must still provide at least 1" of overlap on each side of the splice.

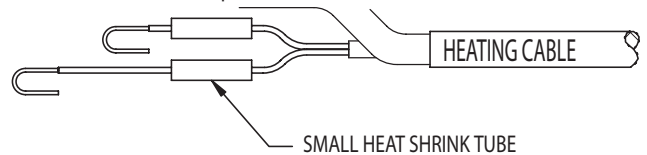


- Since the repaired area of cable will likely be larger than the original splice, it may be necessary to chisel out extra space in the floor below the splice to ensure the repaired area does not interfere with the finished floor.

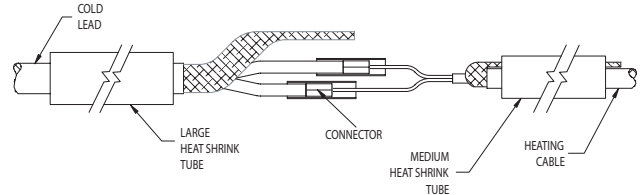
- Strip 0.25" of insulation from the ends of each cold lead conductor (2 total), strip 0.5" of insulation from the ends of each of the paired heating element conductors and fold these conductors back into a hook shape 0.25" long (2 total).
- Slide 1 small shrink tube over each of the heating cable conductors (2 total).
- Match up the heating element conductor to the



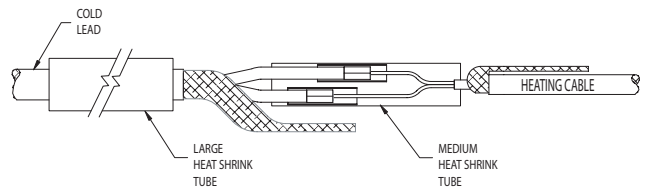
cold lead conductor. Insert each conductor into the large connector and crimp securely. After crimping, pull slightly on each conductor to ensure that the conductors are securely held within the crimp.



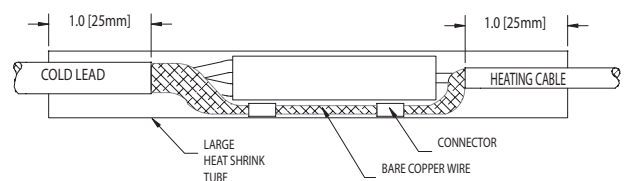
- Position the small shrink tube over the crimp connector, ensuring that all bare conductor/connector parts are under the shrink tube. Starting at the center of the shrink tube, heat with heat gun until completely shrunk.



- Slide the medium shrink tube over both of the heater crimp connections, ensuring that the shrink tube provides at least 0.25" of overlap on the covering layer. Starting at the center of the shrink tube, heat with heat gun until completely shrunk.

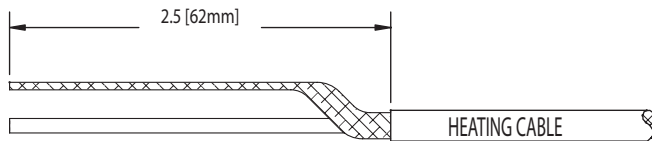


- Connect braid pigtails using bare copper wire to extend ground braid and crimp securely. After crimping, pull slightly on the ground braid to ensure that it is firmly held by the crimp.
- Position large shrink tube over entire splice area and shrink with heat gun. The shrink tubes must overlap each splice area by 1".

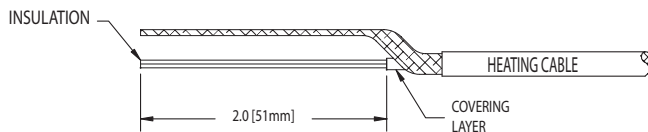


HEATING CABLE TO HEATING CABLE SPlice

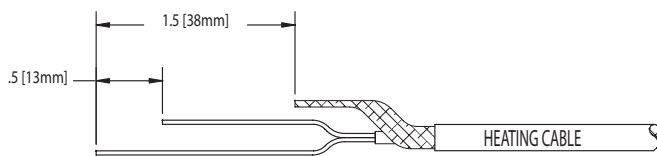
- Carefully expose the damaged heating cable by removing any mortar in which the heating cable is embedded. Remove any damaged heating cable by cutting it off with sidecutters. This repair kit is designed to accommodate situations where up to 1" of damaged cable needs to be removed.
- Carefully expose about 12" of heating cable on either side of the damaged area by removing any mortar/tile covering the cable in this area.
- Remove 2.5" of outer jacket from each side of the heating cable. Be careful not to damage ground braid beneath the jacket.



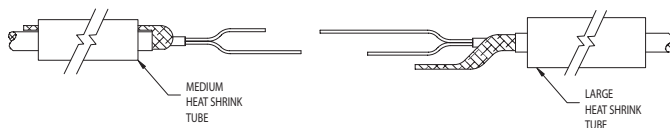
- Unbraid the ground braid back to the outer jacket and twist it to one side to form a pigtail on each cable.
- Carefully trim 2" of the covering layer of each cable, ensure that the insulation beneath is not damaged during this step.



- Using a very sharp, fine bladed knife (such as a utility knife or box cutter), split the insulation of the two heating conductors back to the covering layer. Repeat this for both cables.
- Trim one of the paired conductors 0.5" back, and the braid 1" back. Repeat this pattern on the other cable. This allows the ground braid connection to be offset from the primary conductor connections, which minimizes both the size of the repaired area and the potential for the ground connection to penetrate the primary connection.

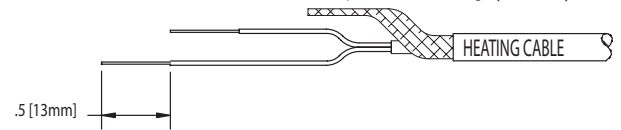


- Slide the medium shrink tube over one of the cables, and the large shrink tube over the other cable.
- The large and medium shrink tubes may be shortened to fit. If shortened, the large shrink tube must still provide at least 1" of overlap on each side of the splice.

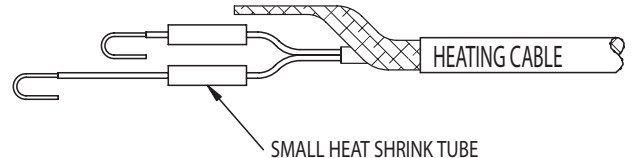


- Since the repaired area of cable will likely be larger than the original splice, it may be necessary to chisel out extra space in the floor below the splice to ensure the repaired area does not interfere with the finished floor.

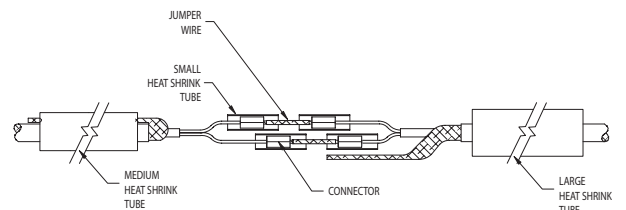
- Cut the jumper wires to the required length and strip 0.25" of insulation from the ends (4 total), strip 0.5" of insulation from the ends of each primary conductor and fold these conductors back into a hook shape 0.25" long (4 total).



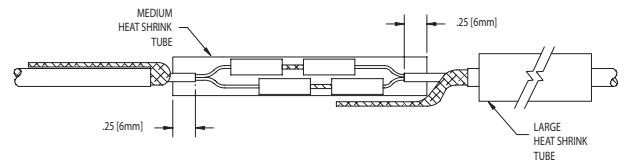
- Slide 1 small shrink tube over each of the conductors (4 total).



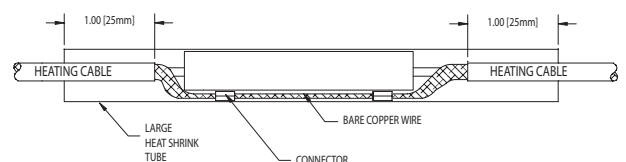
- Insert the hooked conductor of each cable into the small connector and crimp securely to the jumper wire. After crimping, pull slightly on each conductor to ensure that the conductors are securely held within the crimp. Trim any overlaps.
- Position the small shrink tube over the crimp connector, ensuring that all bare conductor/connector parts are under the shrink tube. Starting at the center of the shrink tube, heat with heat gun until completely shrunk.



- Slide the medium shrink tube over all four of the heater crimp connections, ensuring that the shrink tube provides at least 0.25" of overlap on the covering layer. Starting at the center of the shrink tube, heat with heat gun until completely shrunk.

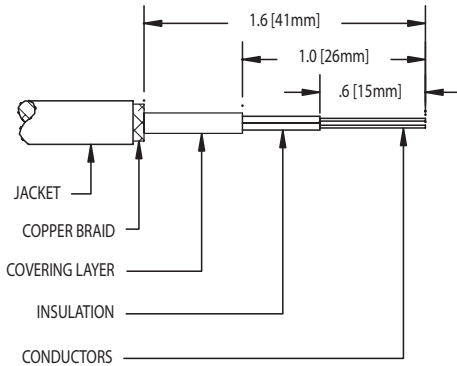


- Connect braid pigtails using bare copper wire to extend ground braid and crimp securely. After crimping, pull slightly on the ground braid to ensure that it is firmly held by the crimp.
- Position large shrink tube over entire splice area and shrink with heat gun. The shrink tubes must overlap each splice area by 1".



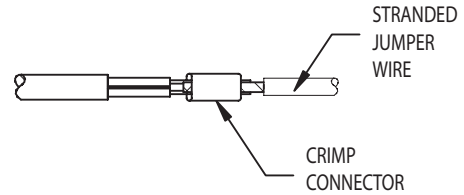
HEATING CABLE TAIL SPLICE

- Carefully expose the original factory splice by removing any mortar in which the splice is embedded. Remove the damaged tail splice by cutting it off with side-cutters.
- Carefully expose about 12" of heating cable by removing any mortar covering it.
- Remove 1.6" of outer jacket from heating cable (clear nylon) and ground braid beneath the jacket.
- Carefully trim 1" of the covering layer on the heating cable; ensure that the insulation beneath is not damaged during this step.

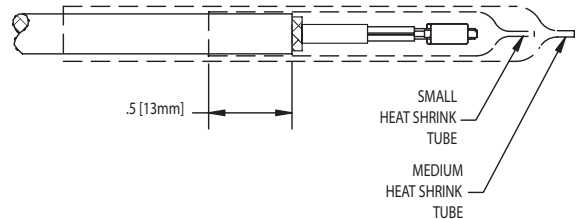


- Using a very sharp, fine bladed knife (such as a utility knife or box cutter), split the insulation of the two heating conductors back to the covering layer.

- Strip 0.6" of insulation from the ends of the paired heating element conductors. Insert the striped conductors into the crimp connector (one) on the opposite end insert the stripped section of a jumper wire to act as a filler. Crimp securely. Cut off excess jumper wire. Next, pull slightly on the crimp to ensure that the conductors are securely held.



- Slide 1 small shrink tube over the crimped heating cable conductors, ensuring that the shrink tube provides at least 0.5" of overlap on the covering layer. Starting at the center of the shrink tube, heat with heat gun until completely shrunk. Before the shrink tube becomes completely shrunk, use a pair of pliers to pinch the end closed.
- Position the medium shrink tube over entire splice area and shrink with heat gun. The shrink tube must overlap each splice area by 1". Starting at the center of the shrink tube, heat with heat gun until completely shrunk. Before the shrink tube becomes completely shrunk, use a pair of pliers to pinch the end closed.



TESTING

- Test the resistance between the primary conductors of the cold lead with an ohmmeter. Record the resistance in the Repair and Test Record.
- Test the insulation resistance of the cable between the primary conductor and the ground braid with a 500 VDC megger. The resistance should be greater than 20 Megohms. Record the resistance in the Repair and Test Record.

REPAIR AND TEST RECORD

Repair Address _____ Repair Date _____

Repair Location (bathroom) _____ (kitchen) _____ (foyer) _____ (others) _____

Cause of Damage _____ Repair Completed by _____

Original Cable Length _____

Heater Resistance (Ω) _____ Ground Continuity (Yes) Insulation Resistance ($M\Omega$) _____ ($> 20 M\Omega @ 500 VDC$)

NOTICE: REPAIRING A DAMAGED CABLE WILL VOID THE ORIGINAL HEATING CABLE WARRANTY.