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REPAIR WIRE GUIDELINES

Please read completely before attempting to repair a Gold Heat radiant heat mat

GENERAL GUIDELINES

*The fundamental rule of replacing wire in Gold Heat mats is to match the resistance of the repair wire to that of the original wire as closely as possible while ensuring the electrical resistance of the repair wire is **never higher** than the wire of the mat under repair.*

CHOOSING REPAIR WIRE

Each Gold Heat mat is constructed using one of about twenty stock wire types. The electrical resistance of the wire types varies. Small mats use wires with higher electrical resistance, while large mats are constructed using stock wires of low resistance. Using the wire stock with the appropriate resistance and choosing the correct wire spacing allows all Gold Heat mats to produce the same level of heat output: 15 watts/square foot.

When replacing a section of heating wire, one of the following three conditions is created:

a. If the replacement wire electrical resistance matches that of the mat under repair, the repaired section and the body of the heat mat will produce the design heat output. This is the **ideal** situation.

b. If the replacement wire electrical resistance is *lower* than the wire being replaced, then the repaired section will produce *less* heat than the stock mat, while the balance of the heat mat will produce slightly *more* heat.

   For small repairs using less than about two feet of wire, the difference in heat output is negligible, and this repair may be considered **ideal.**

   If the replaced wire length is longer, but the wire resistance *nearly* matches that of the stock wire, the repair results will likely be **acceptable.**

   Large repairs using replacement wire of substantially lower resistance than the stock wire will result in a the repaired area producing very little heat while the bulk of the stock mat produces substantially more heat than the original mat. This repair is **unacceptable.**

c. If the replacement wire electrical resistance is *greater* than that of the mat under repair, the repaired section will produce *substantially more* heat than the bulk of the mat, while the bulk of the stock mat will produce *less* heat than design. This repair is **unacceptable**

from both a product safety and customer satisfaction standpoint**.** If the wire resistance mismatch is high enough, the replacement wire may blacken or burn through, while the bulk of the stock heat mat will be noticeably cooler than before the repair.

WIRE TYPES

Most Gold Heat mats produced before 2010 used a colored PVC-jacketed wire now called our "Traditional" wire. There is more than one specific wire type (resistance) in each color, but each color of wire corresponded to a range of heat mat sizes (floor heated areas.) For example, there were two red wires used for heat mats of 26-34 square feet. There were three pink wires for heat mats covering 68-100 square feet. Larger mats used wire of lower resistance. A key to the Traditional wires follows:

Jacket Color	**Part Number**	**Resistance**	**Design Heated Area**
Pink	A010001-11, 14, 15	Lowest	68-100 sq ft
Yellow:	A010001-09, 10	Low	54-67 sq ft
Orange:	A010001-07, 08	Moderate	42-53 sq ft
Blue:	A010001-05, 06	Moderate	35-41 sq ft
Red:	A010001-03, 04	High	26-34 sq ft
Violet:	A010001-01, 02	High	17-25 sq ft
Green or : Gray	Varies	Highest	4-16 sq ft

Please note that, in general, *higher* part numbers refer to wire with *lower* resistance used on *larger* heat mats.

Gray and green jacketed wires are too fine for the customer to repair. Due to the small mat size and the difficulty of repairing the fine wire, the customer is advised to replace a broken gray or green mat rather than attempting a repair. If a repair is attempted, use violet wire to repair green wire mats.

Our Ruggedized wire with a stainless steel armored outer jacket was introduced in 2009 and is now used on all Gold Heat mats larger than 6 square feet. There are currently thirteen stock Ruggedized wire types, ranging from 'Rugged 6' (p/n RUG011-06) for small six-square-foot mats up to 'Rugged 90' (p/n RUG011-90) for large 90-100 square-foot mats. Since it is not color-coded, there is no way to reliably distinguish between Ruggedized wire types. When making repairs, careful attention must be paid to the Gold Heat mat documentation, including part number, wire type, and wire spacing. Please note that due to design revisions, a single part number may have used up to four different wire types during the product lifetime. Carefully establish the correct wire type for a mat under repair and when in doubt choose the next largest (lower resistance) wire type. As with the Traditional wire, *higher* part numbers refer to wire with *lower* resistance used on *larger* heat mats.