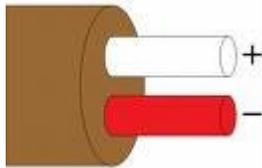


Service Bulletin: MART Power Washer

MART Tech Services

Proper Thermocouple & Thermocouple Wire Connection

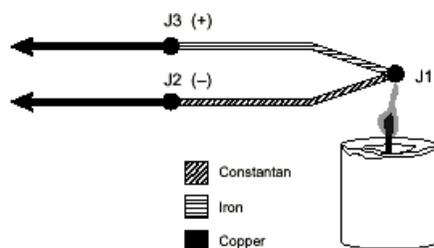
The wire color for connection of thermocouples on the MART Power Washer makes an important difference. The wires between the temperature controller and the thermocouple are made of special materials.



Each wire, one with red insulation and one with white insulation, is made of a different material. One is made of iron and the other is made of a metal called constantan.

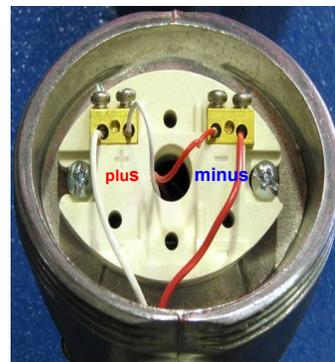
The wires are made of the same material as the elemental material used to make a thermocouple. In fact, a thermocouple is nothing more than a junction made from these two materials.

When these two dissimilar metal wires are fastened together an ultra small EMF (Electro Motive Force) or voltage is created at the joint.



This voltage varies with the temperature of the joint. The higher the temperature the higher the voltage. By calibrating the voltage to a know source the joint becomes a "J" type thermocouple.

It is important to use the same wire material from the thermocouple, as a new Junction is created when dissimilar metals are connected together. If the thermocouple wire types are reversed, two new junctions are created that are in series with the thermocouple junction in the tank. The output voltage produced is now a combination of the three junctions, two of which are in the air and one that is in the solution. Needless to say this is not what the temperature controller expects to "see" and it doesn't work. The temperature measurement signals to the temperature controller will be wrong and the temperature control will be extremely inaccurate.



Connect white wire to plus (+) and red wire to minus (-)



Connect white wire to #1 and red wire to #2

For correct connections, always make sure like materials connect to like materials. On MART washers the correct connections are: From the thermocouple, connect the White positive (+) wire to the # 1 terminal located on the temperature controller. Next, connect the Red negative (-) wire to the # 2 terminal located on the temperature controller.

For further information please contact
MART Tech Services
M-F 8:00 AM to 5:00 PM (central)
or visit our SUPPORT website
24 hour 7 days a week.

www.marttechservices.com