Grand Blanc High School Robotics Team

Initial Member Deliverables
Strip and Crimp a Wire

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Mentor(s) to ask if you have questions about, and may sign off on this Challenge: Clinton Bolinger or Cathy Fillwock

Gather the following Materials:

1. One piece of wire from the **SCRAP WIRE RECYCLING BIN** in the back room that is 6 to 8 inches in length. **DO NOT USE NEW WIRE FOR THIS CHALLENGE.**
2. See Brandi or Cathy in the conference room to check out a "Strip and Crimp a Wire" materials:
    1. IMPORTANT NOTE: Please only take what you need, NOT the whole container
        1. TWO connectors
        2. ONE stripper/crimper tool
    2. If any materials are missing, please inform one of the Mentors listed above BEFORE you get started.

Challenge Instructions:

a. Watch the "How to strip and crimp" video tutorial on YouTube, here: https://youtu.be/-WN-lBkjkAc
b. Use the materials that you gathered from the wire recycling bin, along with the connectors and tools from the Supplies Kit to strip and crimp BOTH ends of the wire.
c. Ensure that a proper crimp has been made:
    a. The connector should match the gauge of the wire
    b. No strands of wire should be exposed around the base of the connector
    c. A "pull, push, pull" test should be administered on BOTH ends to guarantee the connector will not come loose.
        i. Hold the wire securely in your non-dominant hand
        ii. Pull the terminal as hard as you can with your dominant hand
        iii. Push the terminal as hard as you can with your dominant hand
        iv. Pull the terminal as hard as you can with your dominant hand
        v. If the terminal comes off or moves, you must re-do the crimp.
        vi. If your terminal remains in tact, you have made a good connection.

Engineering Notebook Entry Instructions:

a. In your Engineering Notebook, draw a picture of the wire you terminated, and indicate:
    a. Color and Gauge of wire used
    b. Type and color of connector used
    c. Location of crimp(s)

b. Use COMPLETE SENTECES to answer the following questions:
    a. Why is it important to use the "pull, push, pull" test when terminating a wire?
    b. As the gauge of the wire increases, what happens to the diameter of the wire? (This question may require research this on the internet)
    c. Use the attached document to determine the following:
        i. What gauge wire is used for a 40A (amp) circuit?
        ii. What gauge wire is used for a 20A (amp) circuit?
        iii. What gauge wire is used for a 30A (amp) circuit?

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To Complete Your Challenge:

1. Ensure that your Engineering Notebook entry is complete.
2. Bring your Engineering Notebook and your terminated wire to one of the Mentors listed on this challenge to have it tested.
3. Ask one of the listed Mentors to approve your Engineering Notebook entry and have your deliverables checklist validated.
4. Put away Deliverables Materials to the correct place in the Conference Room:
    a. Return the Stripper/Crimper tool to the "Strip and Crimp a Wire" kit
    b. Sign the check-in/check-out log.
    c. If anything is missing, please inform Brandi when you check the kit back in.
5. Put away your completed wire:
    a. If you do not want to keep your wire, please cut the terminals off of it, and return the wire to the recycling bin.
    b. If you intend to keep it, make sure you put it away, and do NOT leave it lay around at Premier (or else it will be thrown away).
6. Clean your workspace AND the floor around you:
    a. Wipe off tables,
    b. Push in Chairs,
    c. Sweep the floor.