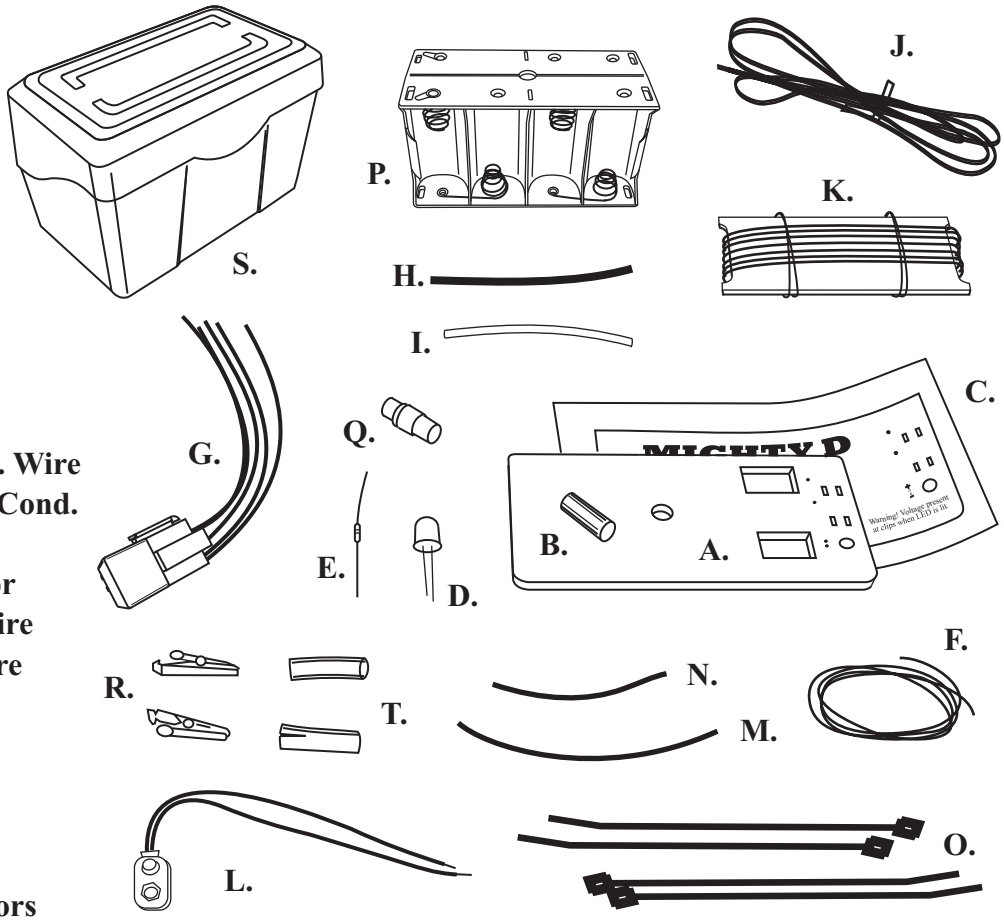
MIGHTY D
Launch Controller Assembly

Rev B 7/6/12

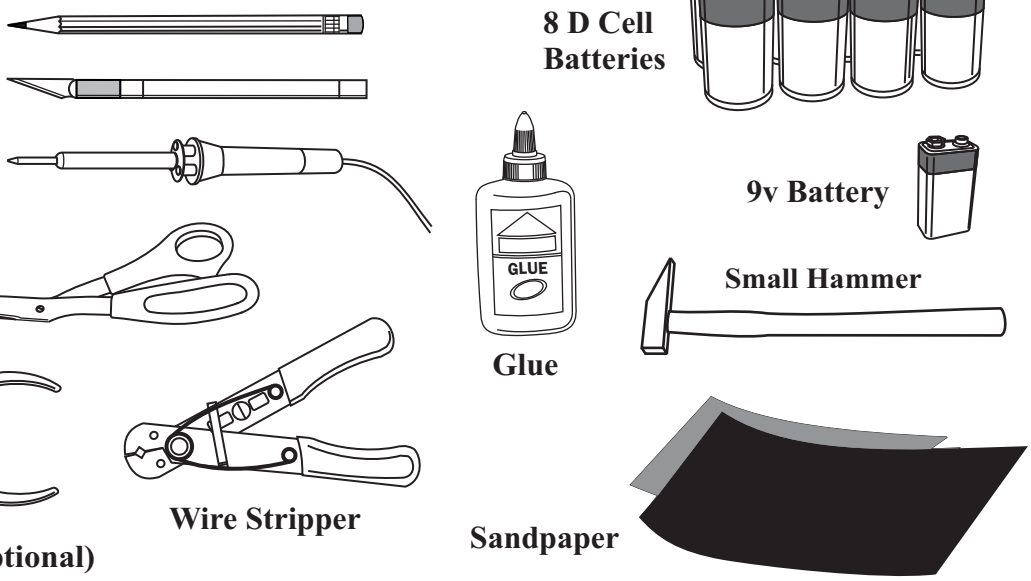
BMS Means Quality Parts
Balsa Machining Service
11995 Hillcrest Drive
Lemont, IL 60439-4145
www.balsamachining.com

Mighty D Parts List:

- A. Faceplate
- B. Dowel
- C. Face Plate Sticker
- D. LED
- E. Resistor
- F. Solder
- G. Relay
- H. Black Heat Shrink
- I. White Heat Shrink
- J. 5' Red/Black 2 Cond. Wire
- K. 20' 24 AWG Clear 2 Cond. Wire
- L. 9v Battery Connector
- M. 4 ½" Long White Wire
- N. 3" Long Orange Wire
- O. Tie Wraps
- P. Battery Holder
- Q. RCA Phone Jack
- R. 2 Alligator Clips
- S. Controller Case
- T. Clip Storage Insulators

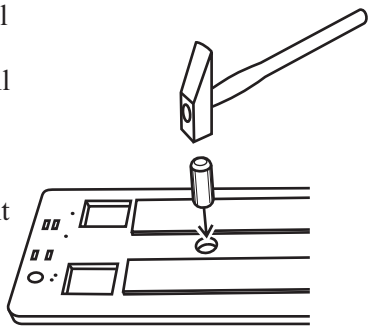


Additional Supplies You'll Need To Complete this Kit:

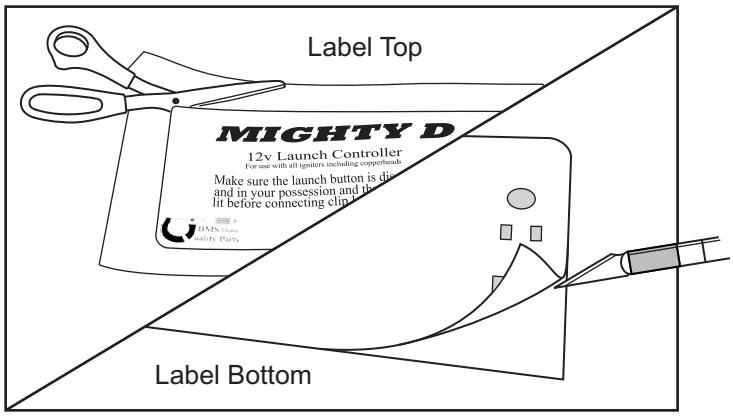


Step 1. Set **faceplate** on a firm flat surface with the **foam tape** facing up.

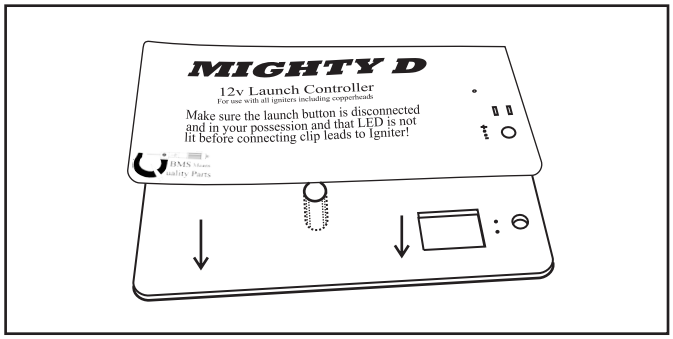
Apply glue to cut end of **dowe**l (not end with radius).
Insert into hole and using small hammer, tap into hole until flush with front side of **faceplate**.
Remove excess glue from front side and set aside to dry.
While this dries, proceed to the "Launch Button Assembly" (last two pages)



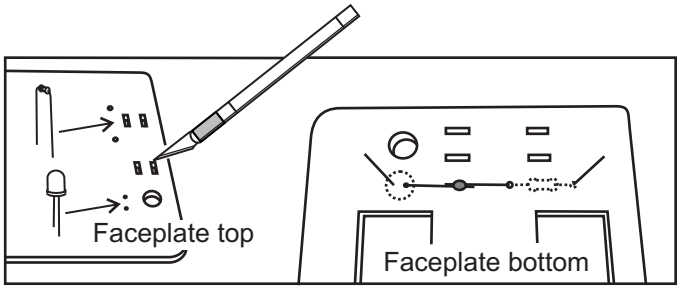
Step 2. Cut out the **face plate sticker** on the solid line border.
Using the tip of your hobby knife peel up one corner of the adhesive backing in preparation for the next step. Use care here so that you peel up only the backing and don't delaminate the sticker itself. Practice on some of the scrap pieces first.



Step 3. After sanding smooth the front of the face plate where the dowel was glued, remove the sanding dust. Completely remove the backing from the face plate sticker and after carefully lining it up, apply the sticker.
Hint: It will be easier to apply the sticker if the dowel is poking through a hole in your work surface so the panel is flat. An upside down cardboard box with a hole in it works well.

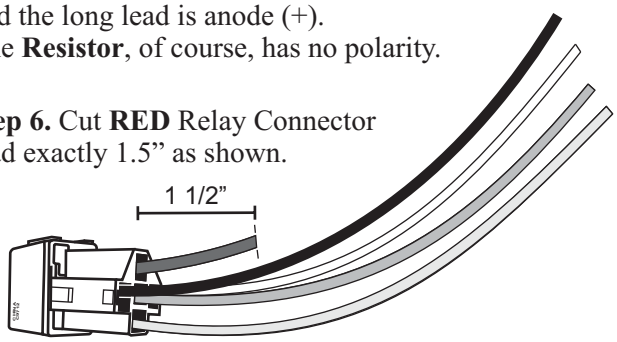


Step 4. Using a hobby knife, poke thru the four holes marked on the **faceplate** for the **resistor** and **LED**. Cut out the four small rectangular openings for the **wire ties**.



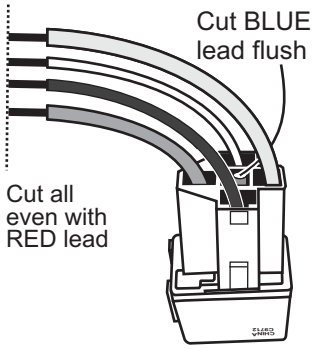
Step 5. Mount the **LED** and **Resistor** and Solder center leads as shown. The short lead of the **LED** is cathode (-) and the long lead is anode (+).
The **Resistor**, of course, has no polarity.

Step 6. Cut **RED** Relay Connector lead exactly 1.5" as shown.



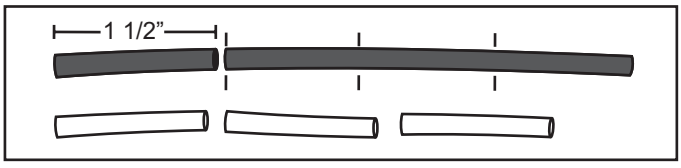
The center **BLUE** lead, which is not used, should be cut flush to the connector top.

Bend all leads bundled at a right angle as shown, cut remaining leads even with **RED** lead.



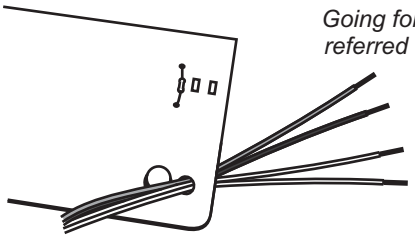
Step 7. Strip ½"insulation off all four **connector** leads.

Step 8. Cut three pieces of 3/16" **(black) heat-shrink** 1 ½" long.
Cut three pieces of 1/8" **(white) heat-shrink** 1 ½" long.
Set aside for use in following steps.



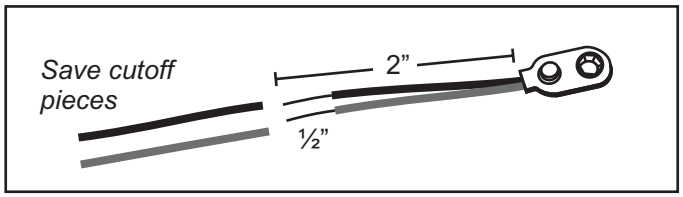
Step 9. Pass one end of the 5 foot length of **red/black 2 cond. wire** and one end of the 20 foot length of **24 AWG clear 2 cond. wire** thru the hole in the face plate as shown.
Separate the conductors for about 3" and strip 1/2" insulation off both wire in each pair.

Going forward these wires will be referred to as the "red/black pair" and the" 24 awg pair".

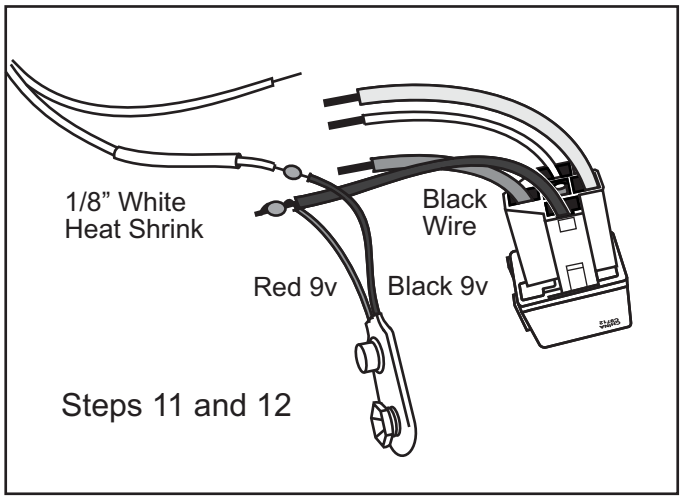


Separate 3" and strip ½" off all ends

Step 10. Cut the red and black leads of the **9v Battery Connector** to 2" long and save the cutoff pieces for later use.
Strip ½"insulation off each lead.

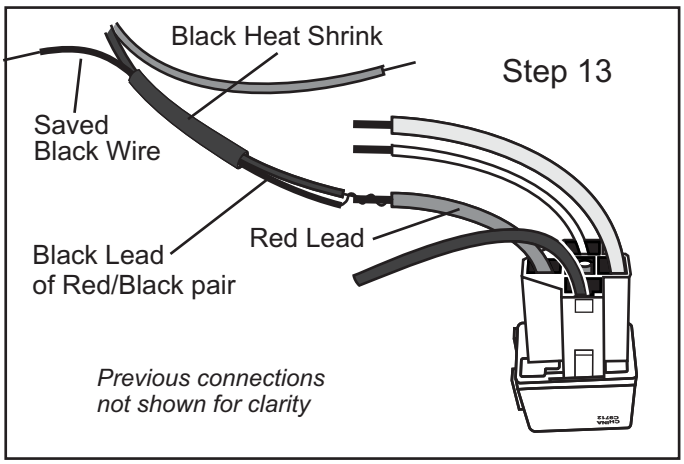


Step 11. Twist **RED 9v Battery Lead** with **BLACK Relay connector Wire** and solder as shown.

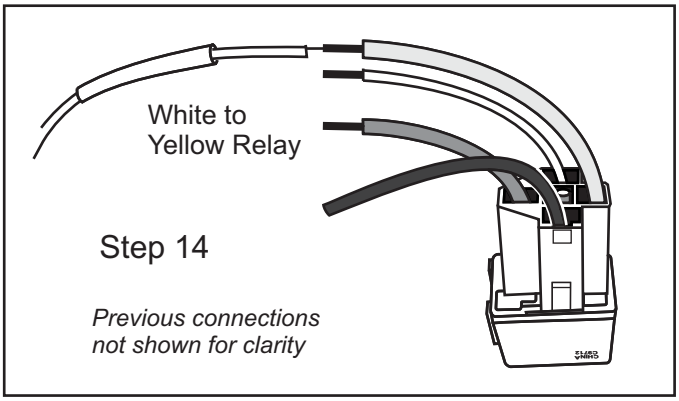


Step 12. Place piece of 1/8" **White heat-shrink** over **Copper colored lead** of **"24 AWG pair"**.
Solder this lead to the **Black** lead of **9v Battery connector**.

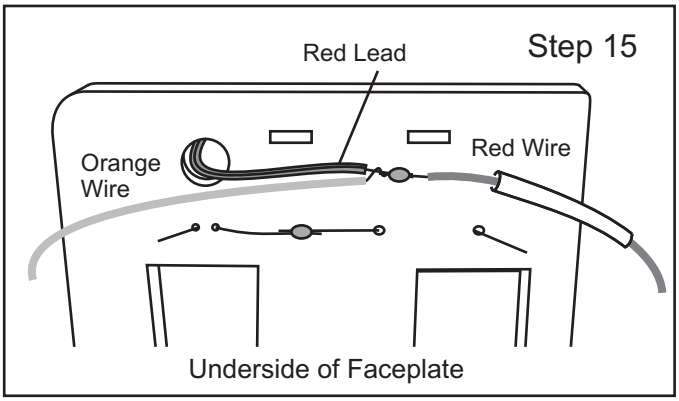
Step 13. Take saved **Black Wire** from **9v Battery Connector** and cut 2" long. Strip ½"insulation off the end not already factory stripped.
Connect to **Black** Lead of **Red/Black pair**.
Place piece of **Black Heat Shrink** over the **Black** wires before connecting and soldering to the **RED** Lead of **Relay Connector**.
Connect as shown in the drawing below making sure to orient wires as shown.



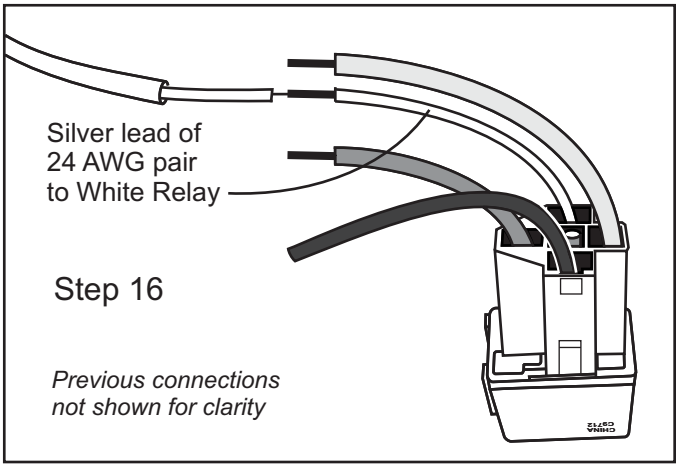
Step 14. Strip ½" of insulation off the supplied **4 ½" White wire** and solder to the **YELLOW** lead of the **Relay Connector**.



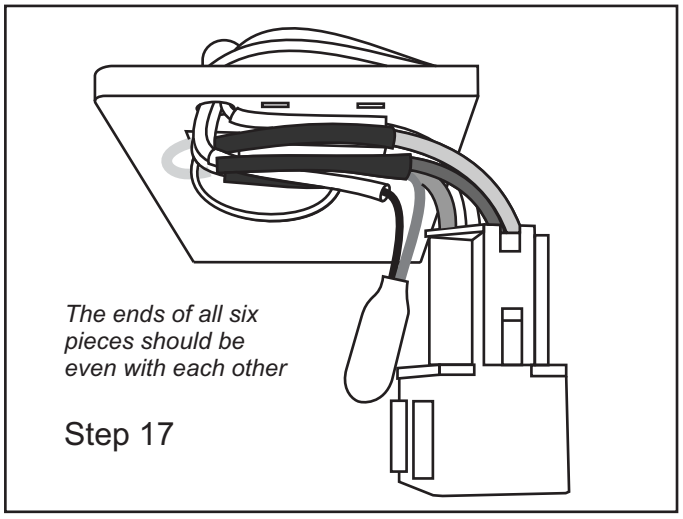
Step 15. Strip ½"insulation off the supplied **3" long orange wire** along with **1 ½" Red wire** previously cut off and saved from the **9v Battery Connector**.
Solder as shown to remaining **Red lead** of **Red/Black pair.**



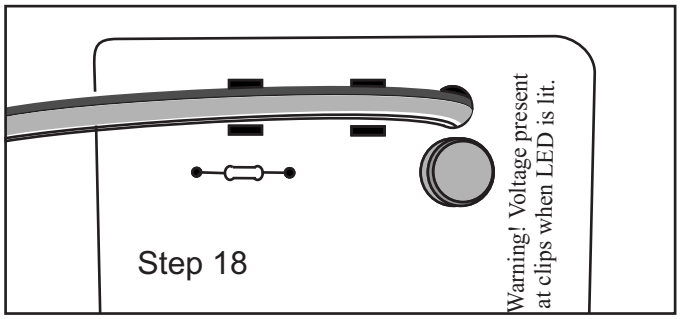
Step 16. After slipping a piece of the previously cut **White heat-shrink** over the remaining **(Silver colored) lead** of the **"24 awg pair"** solder it to the **WHITE** lead of the **Relay Connector.**
Make sure you keep the heat-shrink tubing away from the joint being soldered to avoid the end close to the soldering iron from shrinking prematurely as you solder connections.



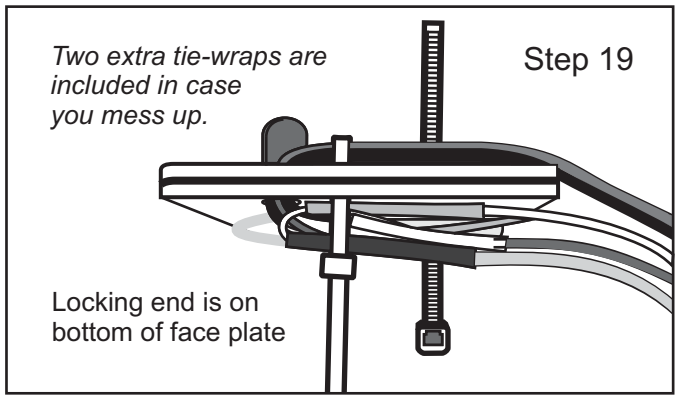
Step 17. Now place or move all six pieces of the **heat-shrink** over all splices. While holding the **relay connector** at a right angle as shown all six pieces should line up in one bundle.
Now shrink using a heat-shrink gun (if you own one you know how to do this). If you don't own one, the hot air coming out of a toaster slot works fine. Just hold the bundle of wire with the **heat-shrink tubing** over the top of the toaster until the heat-shrink shrinks.
Don't over do it and burn yourself!



Step 18. Now pull the **two wire pairs** back through the **top panel** and position the wires for final connections such that the bundle of splices is centered on the rectangular slots.

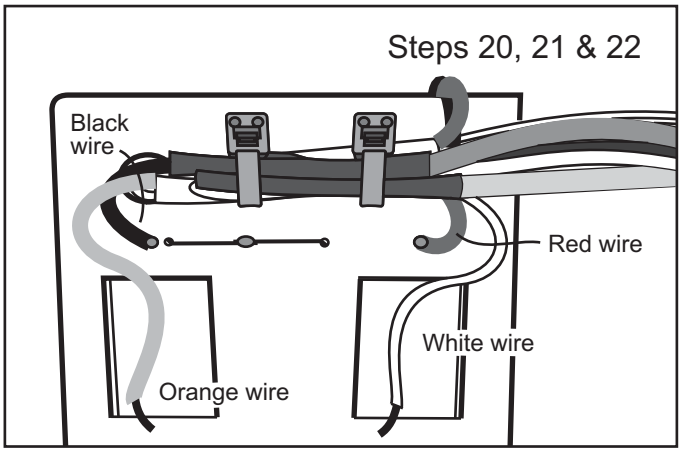


Step 19. Feed the **tie-wraps** through the slots making sure the wires are trapped on both side panels as shown. Partially secure the **tie-wraps** at this point *but do not pull tight yet.*



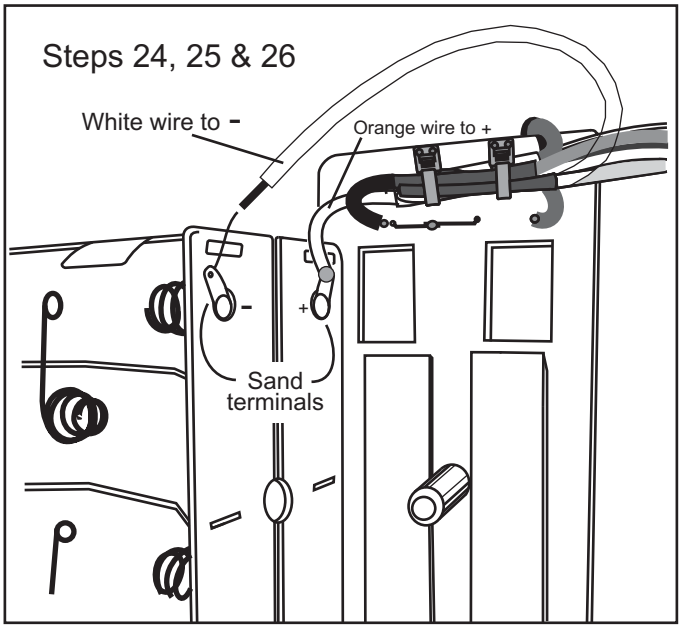
Step 20. Strip 1/4" insulation off the **Red wire** (if not already done) and solder to free **resistor** lead.

Step 21. Strip 1/4" insulation off the **Black wire** (if not already done) and solder to **cathode** lead (-) of LED.



Step 22. Strip 3/8" of insulation off remaining **Orange and White wires.**

Step 23. Making sure all wires are properly positioned, pull the **tie-wraps** tight.

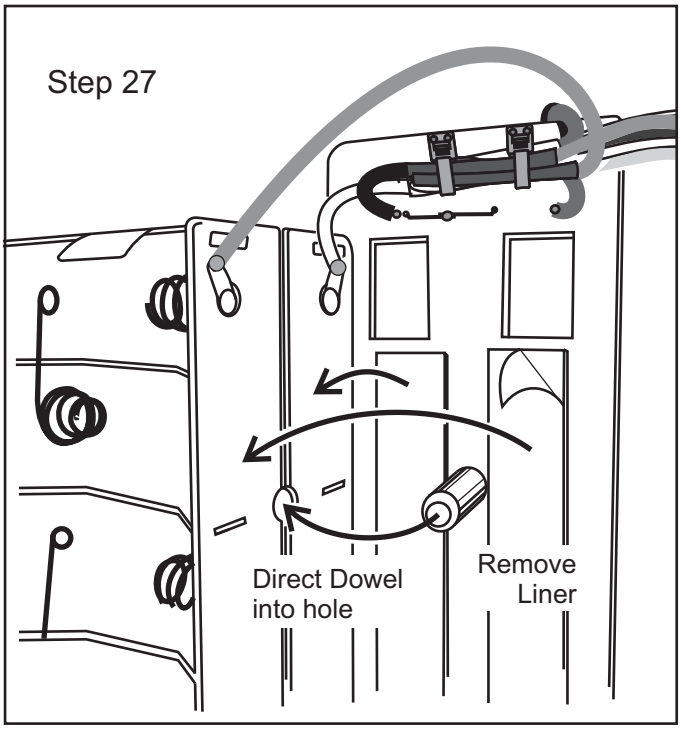


Step 24. Using fine sandpaper sand top side of terminals of the **D cell battery holder.** This will allow the solder to flow well.

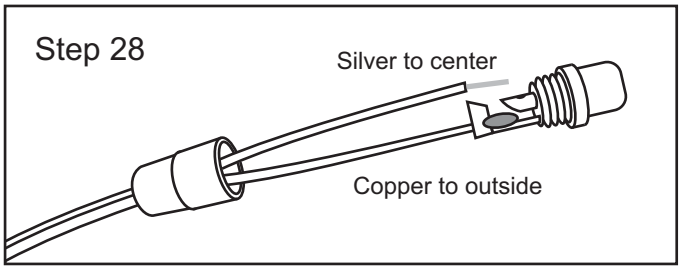
Step 25. Solder **White wire** to negative terminal of **D cell holder.** When doing this do not heat excessively or you will start melting the plastic of the holder. Heat only long enough for the solder to flow.

Step 26. Solder **Orange wire** to positive terminal of **D cell holder.** When doing this do not heat excessively or you will start melting the plastic of the holder. Heat only long enough for the solder to flow.

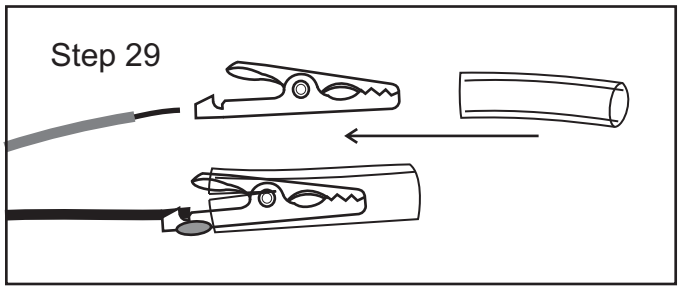
Step 27. Remove liner from foam adhesive tape. Insert **dowel** in front panel into hole in **D cell holder**, making sure it goes down straight and that all wires clear, push until **D cell holder** is firmly attached to panel.



Step 28. Solder **female RCA phono jack** to end of **24AWG** wire.
Connect the **Silver** colored lead to the **center conductor** and the **Copper** colored lead to the **outer connector**.

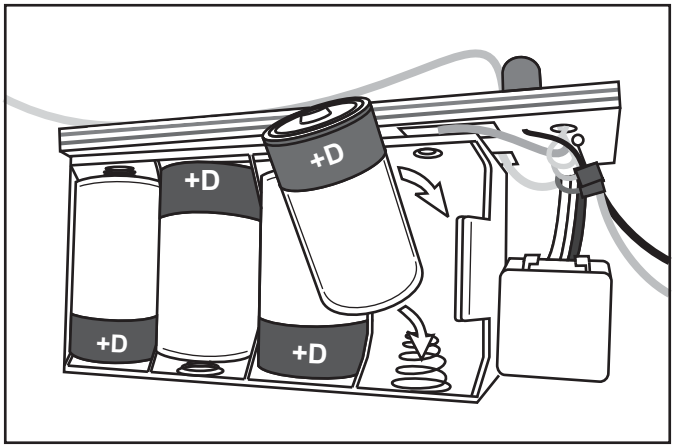


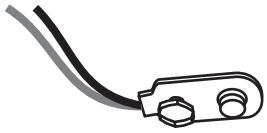
Step 29. Solder **alligator clips** to the end of the "**Red/ Black pair"**.



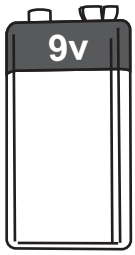
When storing and transporting the Mighty D Controler, leave the clear plastic insulators on the micro clips.This will prevent any possibility of a short or drain of the batteries.

Step 30. Place the Eight D Cell Batteries into the D Cell Holder. The fit will be tight.
Be sure to insert the positive and negative sides correctly.
Sometimes in transport the batteries can shift up or down and lose contact with the terminals. Before launching press the batteries down on the negative spring then up to contact the positive terminal.

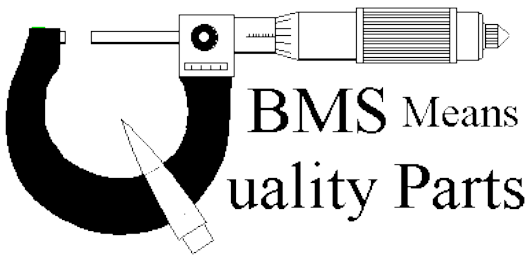




Step 31. Press the 9v battery onto the 9v connector.



*The **MIGHTY D** Launch Controller assembly is complete!*



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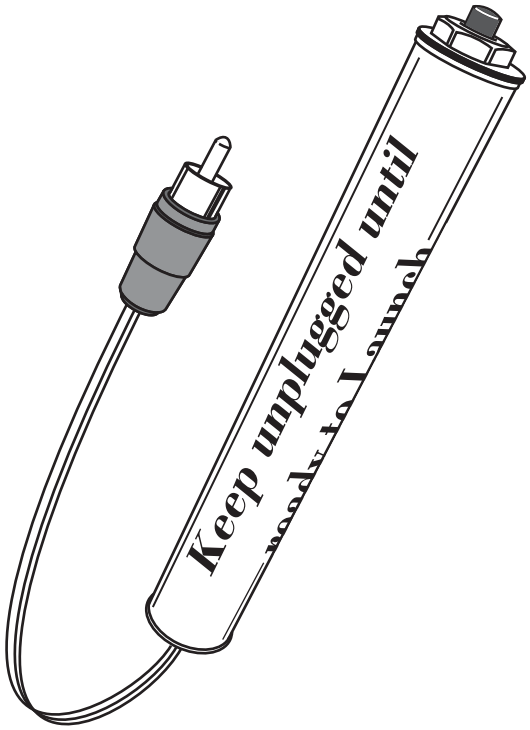


Additional Supplies You'll Need To Complete this Kit:

Scissors

Pencil

Hobby Knife

Soldering Iron

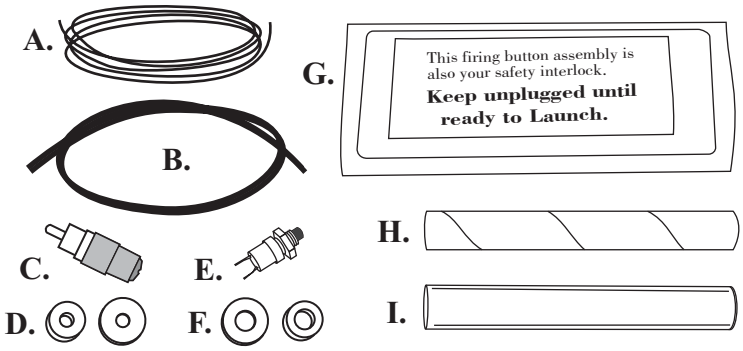
Wire Stripper (Optional)

Small Pliers

Medium or Thick CyA Super Glue

Inventory the parts you should have:

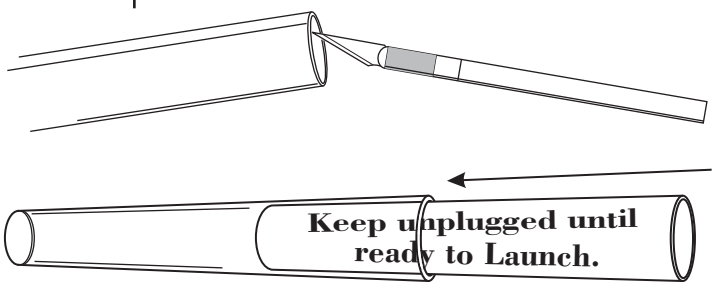
A. Solder
B. Wire
C. RCA Plug
D. RCA Plug End Rings *(smaller center holes)*
E. Launch Button
F. Launch Button End Rings *(larger center holes)*
G. Self Adhesive Label
H. Brown Interior Tube
I. Clear Plastic Tube



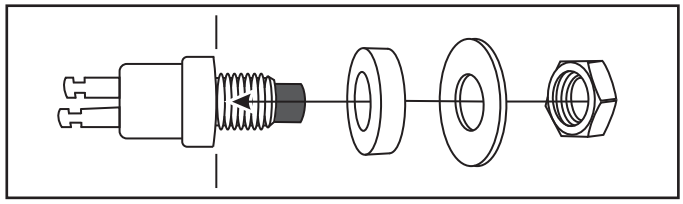
Step 1
Using scissors, cut out the **self adhesive label** on the outside black line.
To draw a straight line down the **brown interior tube**, set the tube in a door frame and draw a pencil line down it's entire length
Peel off the back of the **self adhesive label**. Stick the **label** edge down the pencil line. Slowly and smoothly roll the **label** around the **tube** without wrinkles.

Step 2
Using your hobby knife, remove any burrs off the inside edge of the **clear plastic tube**.

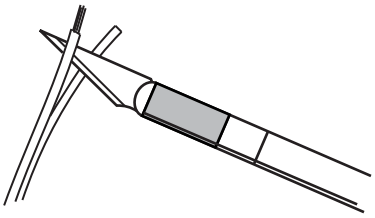
Slide the **Brown Interior Tube** with **Label** into the **Clear Plastic Tube**.
Slide in carefully with a twisting motion, it will be a tight fit. Both tube ends should be even on both sides.



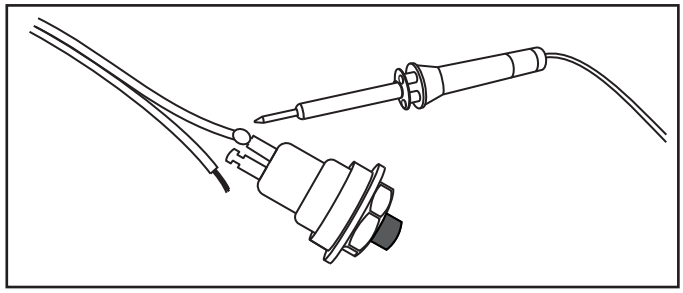
Step 3
Slide the two **launch button end rings** over the threads of the **launch button** as shown.
Screw the **nut** over the threads securing the **rings** into place.



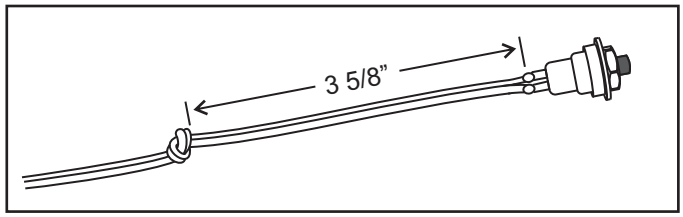
Step 4
Using your hobby knife, separate the **wires** on both ends ½" down.



Step 5
Remove 1/4" of insulation off the **wires.** Twist the exposed **wires** together.
Solder the **wires** onto the two **launch button** terminals.

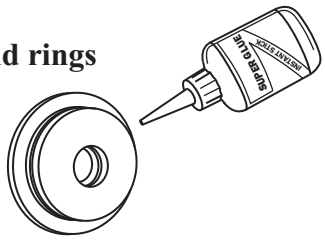


Step 6
Tie a strain relief knot into the **wire** 3 5/8" from the solder points.

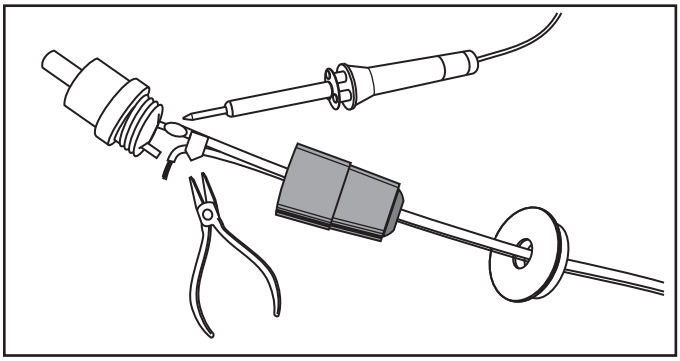


Step 7
Slide the knotted **wire** through the **tube assembly**. Run a thin bead of thick CyA around the end edge of the **plastic tube**. Press the **end rings** into the glue bead gluing the **launch button assembly** onto the **tube**.

Step 8
Glue the two **RCA plug end rings** together using the middle holes as a center guide.

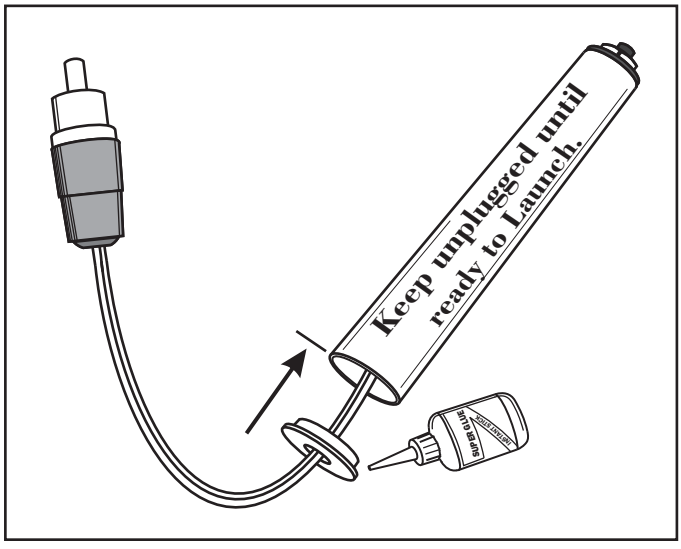


Step 9
Slide the glued **RCA plug end rings** over the other end of the **wire**.
Unscrew the end cap from the **RCA connector**.
Slide the **end cap** down the **wire** towards the **rings**.



Step 10
Strip 1/4" insulation off the open end of the **wires**.
Solder the **wire** ends to the **RCA plug** terminals.
Using small pliers, crimp the strain relief over the connected wires.
Tighten the **end cap** on the **RCA plug** threads.

Step 11
Slide the glued **RCA plug end rings** down the **wire** near the **plastic tube**. Glue the **rings** on the open end of the **plastic tube** using CyA glue.



*The **MIGHTY D** **Launch Button Assembly** is complete!*