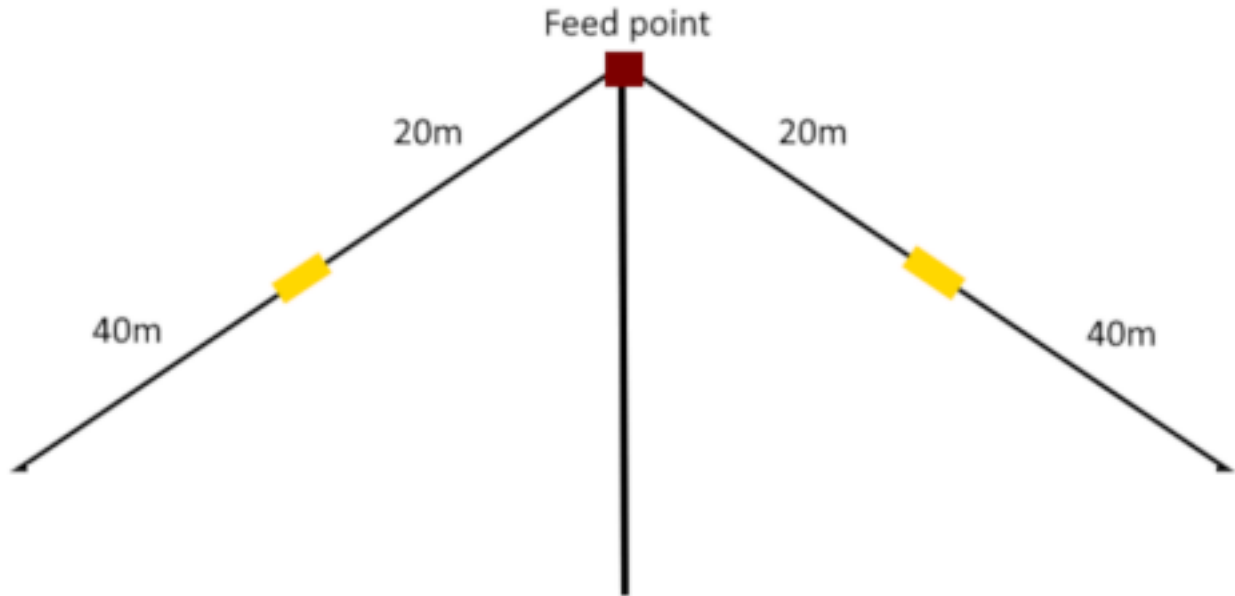


YOTA Link Dipole (20m & 40m)

YOTA Link Dipole Overview



Links open for 20m and closed/connected for 40m

This link dipole is designed to work best as an inverted V with the center being raised 15-20ft(5-6m) above ground. The center insulator has two supports, one for a rope(A) and the other for a small mast(B). This dipole design only requires one soldering connection and five crimp connections.





A B

Specifications:

Total Length: 65ft/20m

Antenna Area: 55ft/17m (Inverted V)

Connector: SO-239(UHF)

Maximum power: 15-20 watts SSB, 10 watts CW & Digital.

**You can use more power(100 watts) by using a choke on your coax at the feed point.

Examples:

LDG UNUN RU-1-1

<https://www.dxengineering.com/parts/ldg-ru-1-1>

Wireman #8231

<https://thewireman.com/product/balun-11-current-type-w2du-10m-80m/>

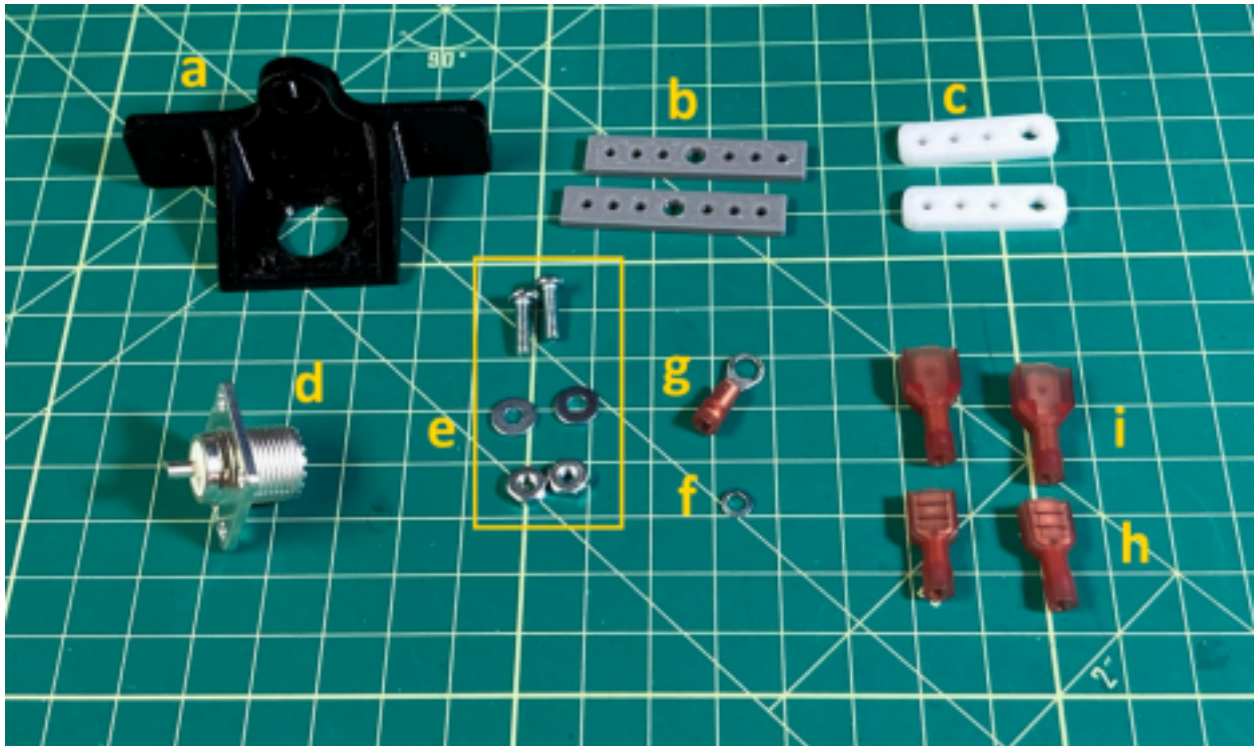
ABR Industries

<https://abrind.com/shop/ferrite-assemblies/current-type-ferrite-assemblies/>

Tools required:

- 1- Phillips screwdriver
- 2- Needle nose pliers
- 3- Wire Stripper and Crimper
- 4- Soldering Iron + Solder

Parts list:



- a- Center Insulator (Black)
- b - Link Insulator (Grey)
- c- End Insulator (White)
- d- SO-239 Chassis connector
- e- Screws, Nuts, Washers x 2
- f- Lock Washer
- g- Ring Terminal
- h- Blade Connector (F) x 2
- i- Blade Connector (M) x 2

Not Shown:

- j- Wire Elements x 4 (192")
- k- Paracord (10ft - 3m) x 2
- l- Winder

Tips:

Turn on your soldering iron/station before you begin, you should only need it for step 2. Start the build with only two pieces of wire elements(j), you will need the other wire elements(j) in step 6 to complete the antenna.

You can also print your own 3D parts if you want, the STL files are available online:

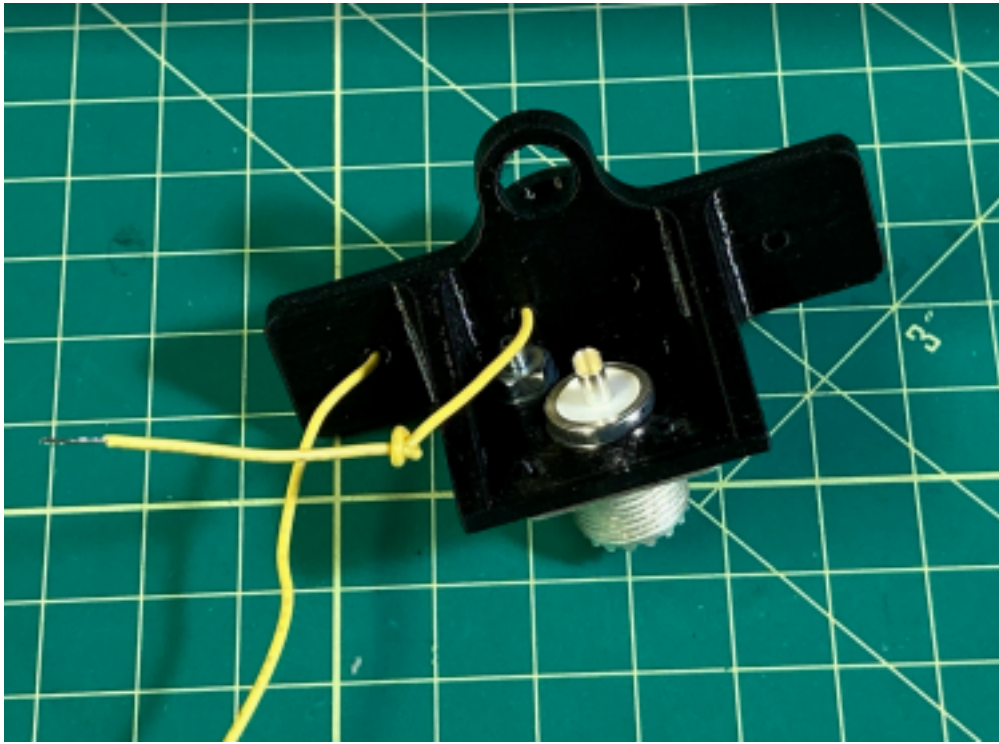
<https://youthontheair.org/yotadipole2024>

Building Instructions:

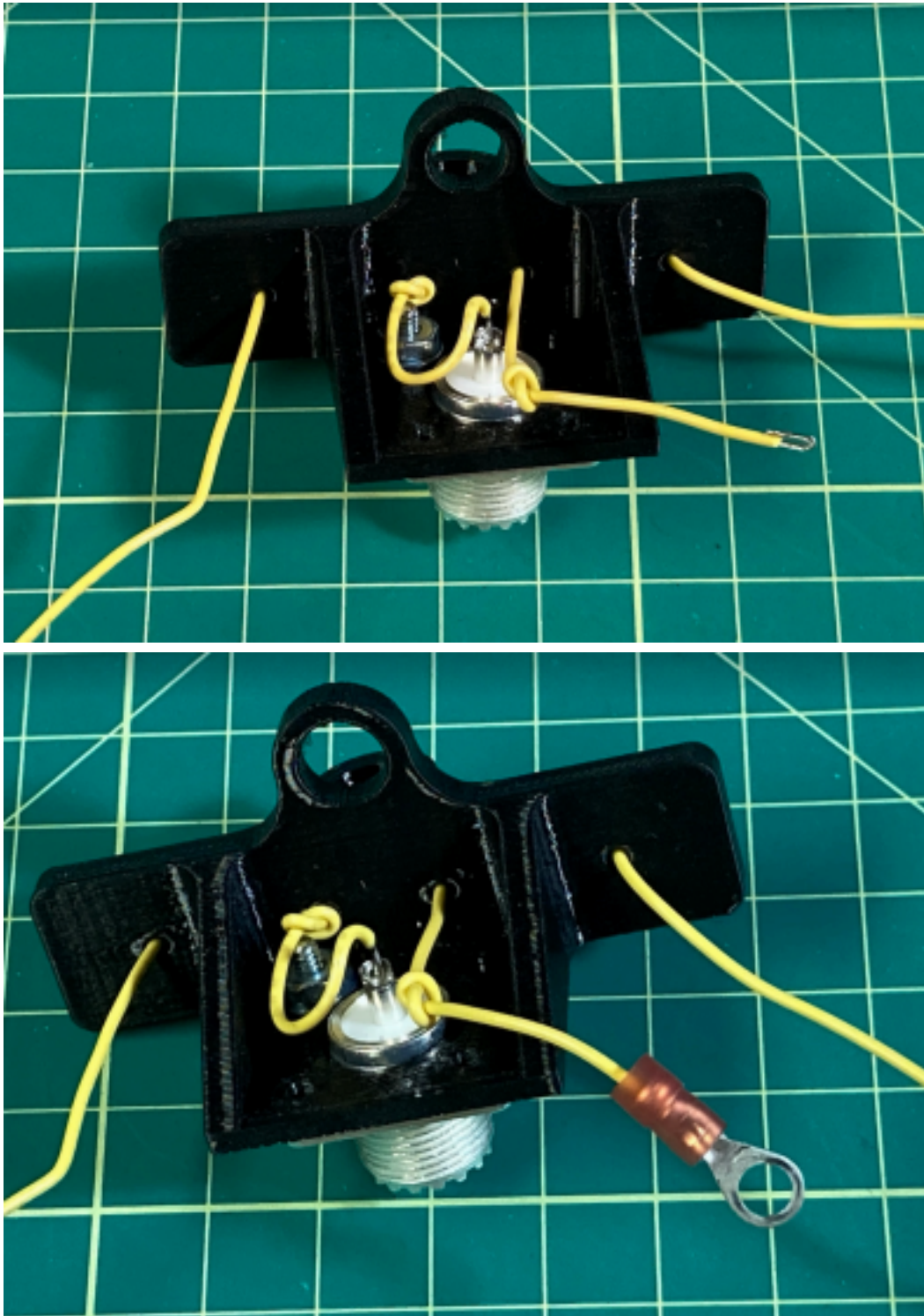
1- Align the SO-239 Chassis(d) connector with the BOTTOM of the Black Center Insulator(a). Secure the SO-239 to the Black Center Insulator(a) using 1 screw, washer and nut(e). Choose the hole on the TOP LEFT side, see picture below.



2- Take one segment of wire/element(j), run through the holes in the Black Center Insulator(a) on the LEFT side. Make an overhand knot about 2 inches/50mm from the end. The knot is for strain relief. Strip about 1/4 inch/5mm of insulation from the end of the wire using the wire strippers and then solder it to the center pin of the SO-239. Turn off the soldering iron, you shouldn't need it anymore..



3- Take another piece of wire/element(j), run through the holes in the Black Center Insulator(a) on the RIGHT side. Make an overhand knot about 2 inches/50mm from the end. The knot is for strain relief. Strip about 1/2 inch/10mm of insulation from the end of the wire using the wire strippers. Double back the exposed wire on itself and then crimp it to the Ring Terminal(g).

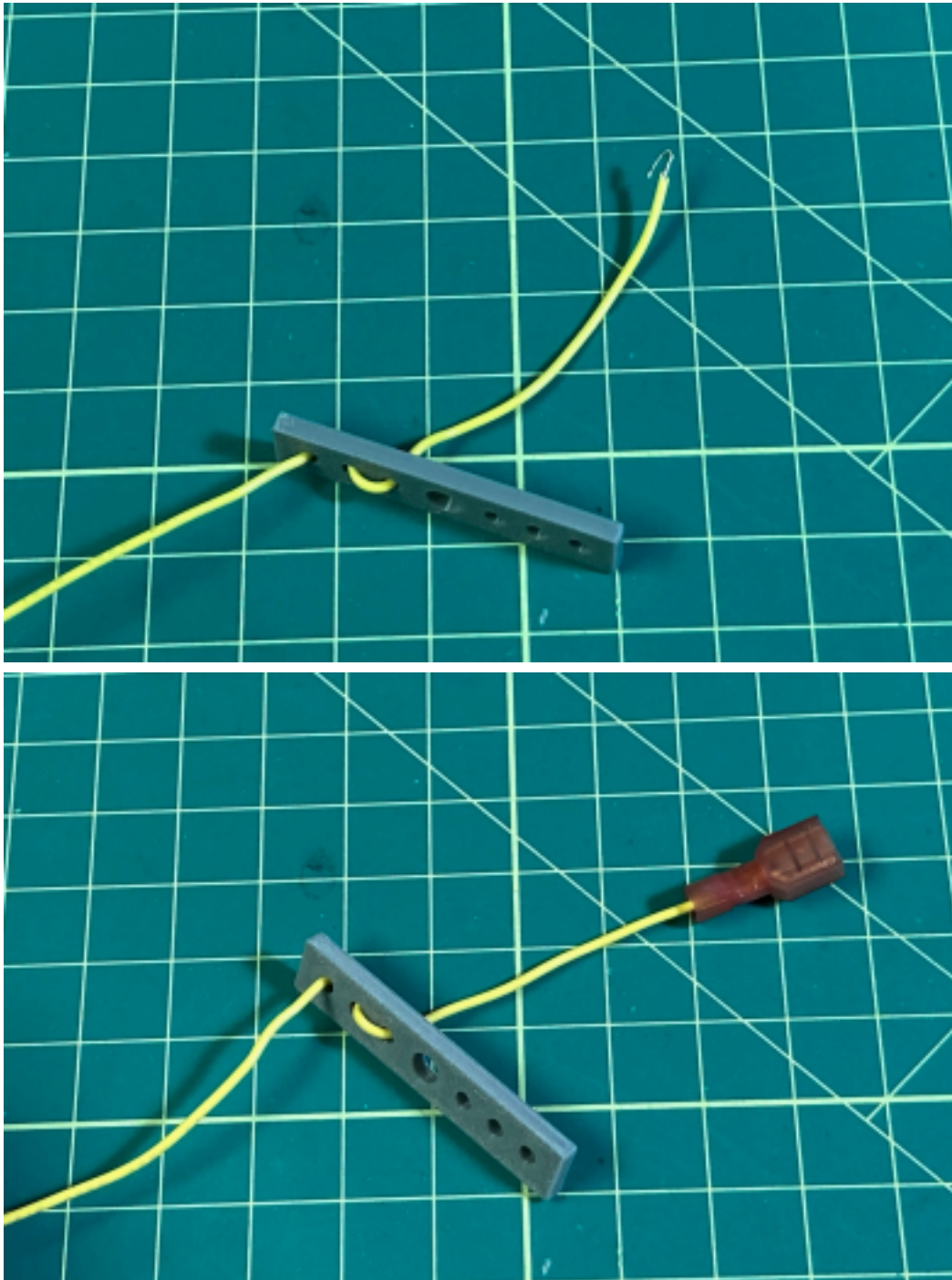


4- Insert the screw, washer(e), Ring Terminal(g), Lock Washer(f) and nut in the BOTTOM RIGHT side of the Black Center Insulator(a).

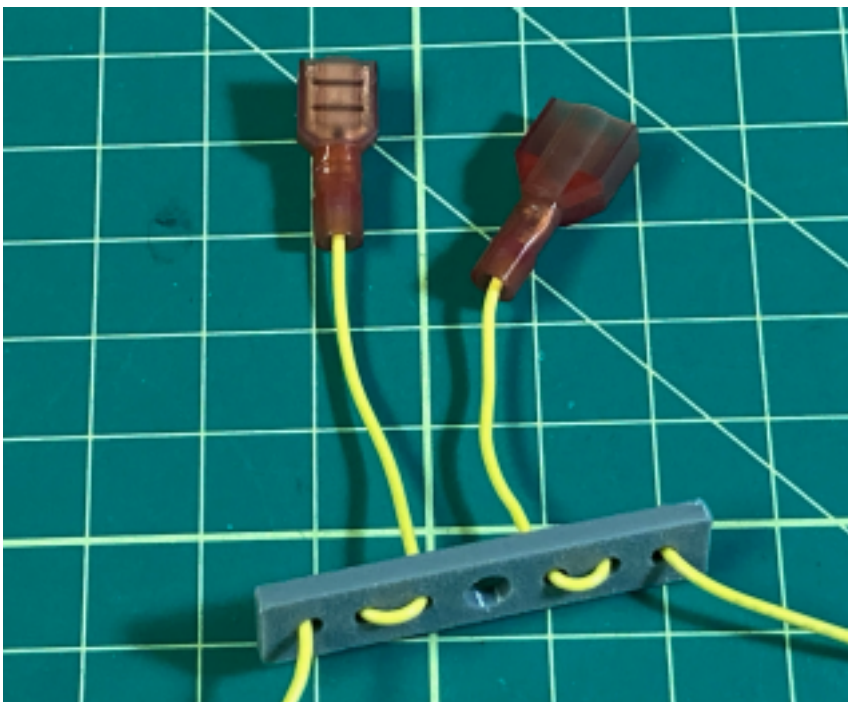
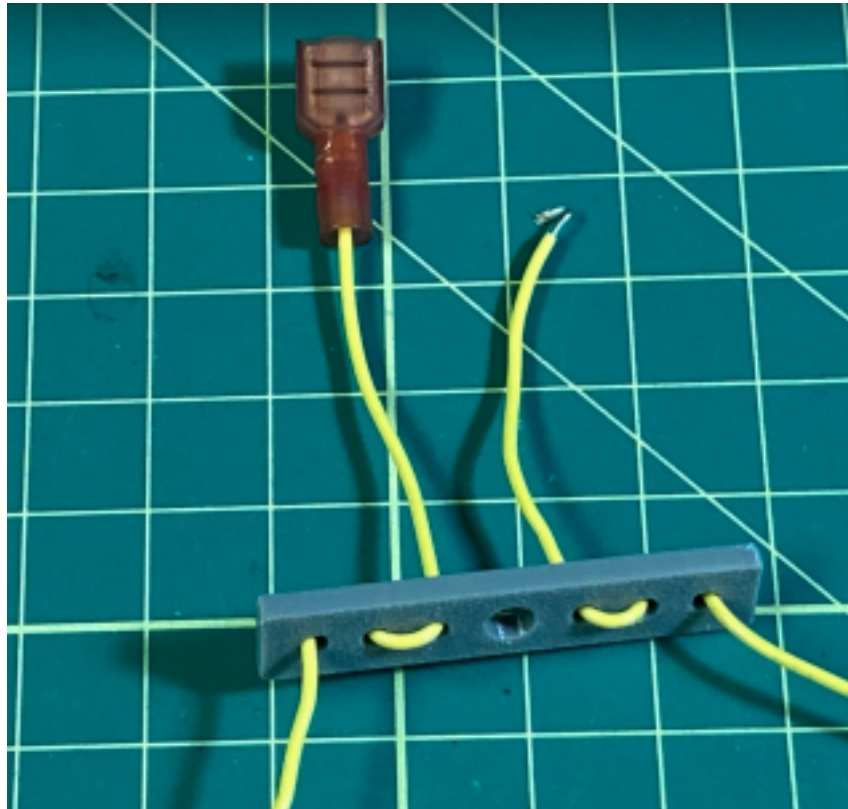


You now have a 20m dipole

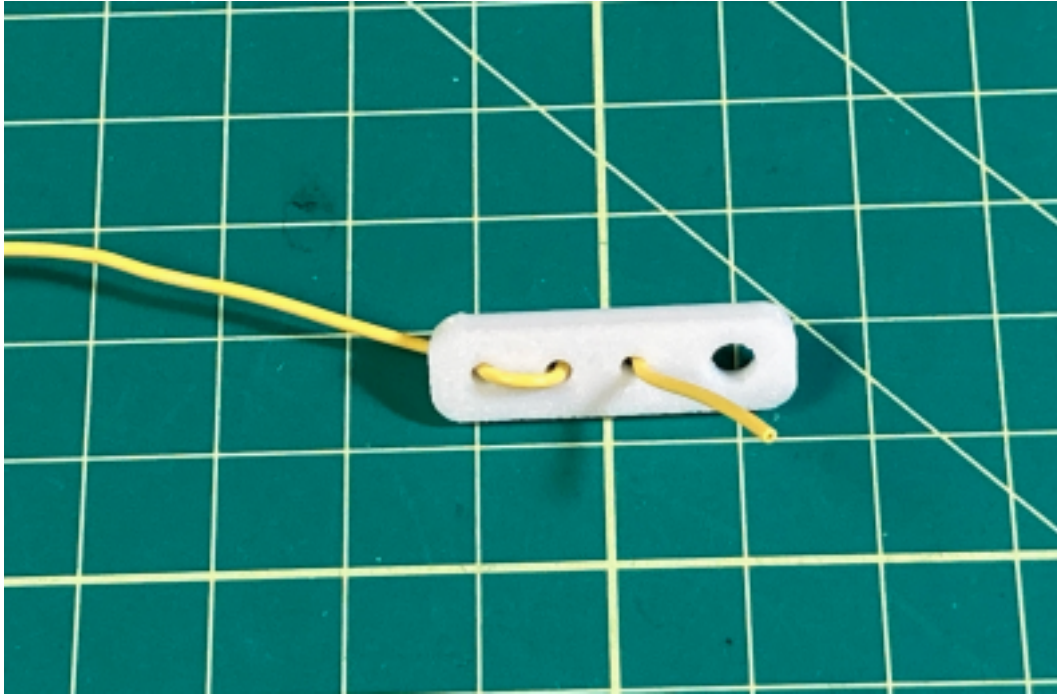
5- Insert the free end of the wire/element(j) into the Grey Link Insulator(b), Strip about 1/2 inch/10mm of insulation from the end of the wire using the wire strippers. Double back the exposed wire on itself and then crimp it to the Blade Connector F(h). REPEAT for the other 20m element(j).



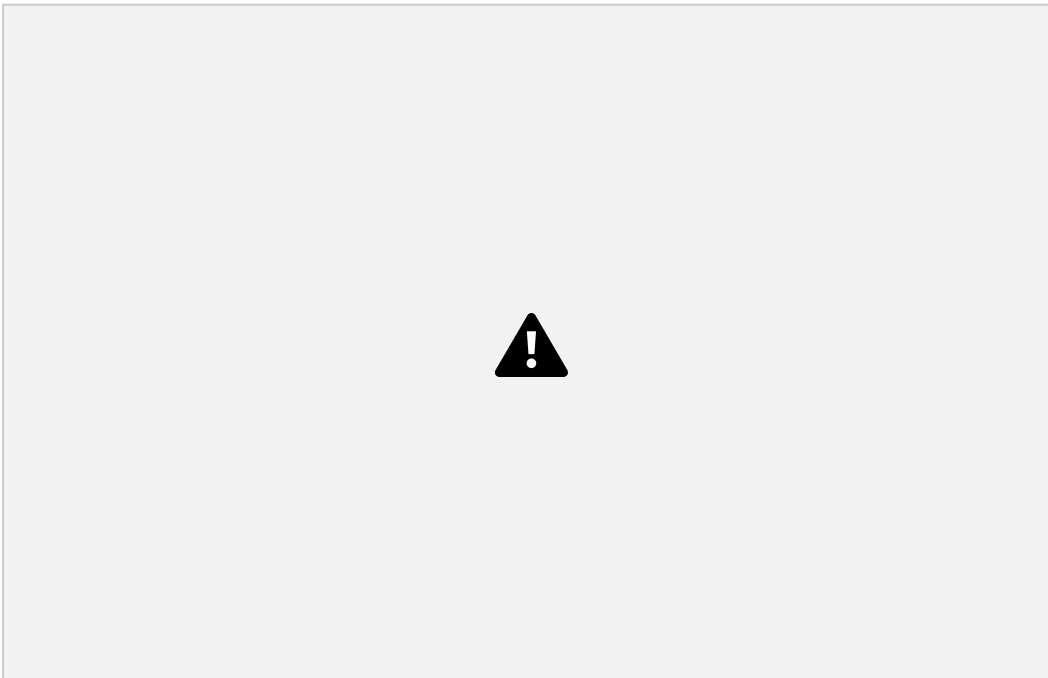
6- You should have 2 wire elements left, Insert a wire element(j) into the Grey Link Insulator(b), Strip about 1/2 inch/10mm of insulation from the end of the wire using the wire strippers. Double back the exposed wire on itself and then crimp it to the Blade Connector M(i). REPEAT for the other 40m element(j).



7- Insert the end of the 40m element(j) into the White End Insulator(c). REPEAT for the other 40m element(j).



8- Attach the Paracord(k) to the White End Insulator(c). You can use a double overhand knot or a fisherman's knot or any other knot to secure it. REPEAT for the other 40m element(j).



9- Wind your antenna on the Winder(l) provided for easy storage.



Congratulations, you now have a linked dipole for 20m & 40m.

Adjusting the resonant frequency.

There's two different ways to adjust the resonant frequency. The height above ground and the angle between the two elements from the feed point.

Height:

The higher the antenna is elevated the shorter the antenna will appear up to a half-wavelength about the ground. i.e. The resonant frequency will be higher. You can also lower the antenna to lengthen it and lower the resonant frequency.

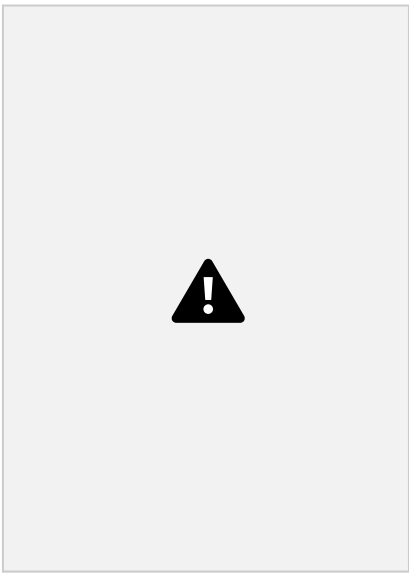
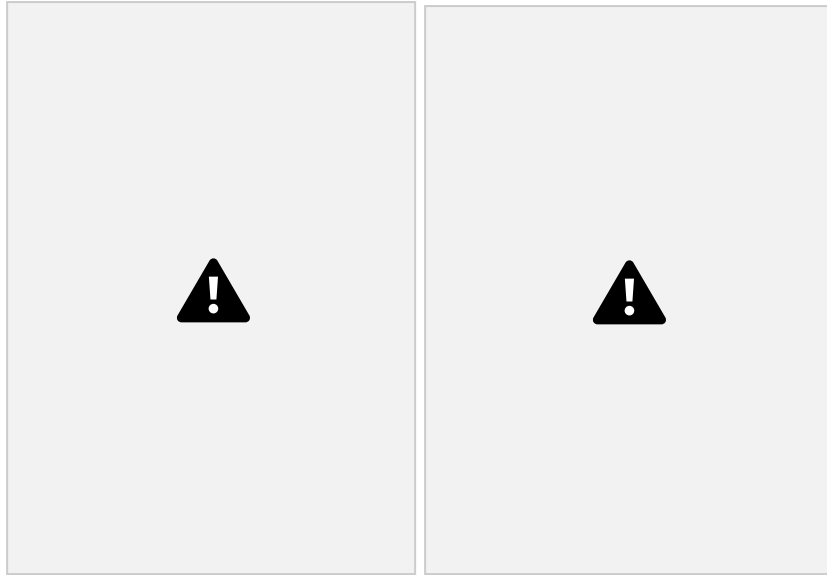
Angle:

The antenna is tuned to be deployed around 150 degrees, it should be resonant in the middle of the band. At 120 degrees the resonant frequency will be higher, at 180 degrees the resonant frequency will be lower.

NOTE: Changing any of these factors will impact the radiation pattern but don't worry too much about that. The antenna will work and make contacts!

SWR Charts:

Antenna setup as an inverted V, feedpoint at 20ft/6m.



20m - 180 degrees 20m - 150 degrees 20m - 120 degrees



Want to build your own at home:

** The STL files will be available for anyone who wants to print more insulators at home at:

<https://youthontheair.org/yotadipole2024>

SO-239 Chassis UHF Connector:

<https://www.dxengineering.com/parts/aml-83-798-2>

High Visibility Wire (24 awg)

<https://www.dxengineering.com/parts/cew-viz24-yel200>

RG8X Coax

<https://www.dxengineering.com/parts/dxe-8xdx050>

Winder

<https://www.dxengineering.com/parts/sbm-winder-gr>

#6-32 screws with #6 nuts, #6 washers and #6 lock washer.

<https://www.homedepot.com/p/6-32-x-1-2-in-Combo-Round-Head-Zinc-Plated-Machine-Screw-8-Pack-803021/204274603>

<https://www.homedepot.com/p/Everbilt-6-32-Zinc-Plated-Machine-Screw-Nut-12-Pack-802131/204274121>

<https://www.homedepot.com/p/Everbilt-6-Zinc-Flat-Washer-30-Pack-802451/204276448>

<https://www.homedepot.com/p/Everbilt-6-Zinc-Plated-Lock-Washer-30-Pack-802541/204276512>

Ring Terminal

<https://www.homedepot.com/p/Gardner-Bender-22-18-AWG-Stud-and-8-10-Stud-Vinyl-Insulated-Barrel-Ring-Terminal-Red-10-Pack-15-102/205846711>

Blade Connector

<https://www.homedepot.com/p/Gardner-Bender-22-18-AWG-0-250-Fully-Insulated-F-Disconnects-in-Red-15-Pack-15-151F/202523072>

<https://www.homedepot.com/p/Gardner-Bender-22-18-AWG-1-4-in-Fully-Insulated-M-Disconnects-Red-15-Pack-15-151M/202523103>

Arborist Throw Line

<https://www.amazon.com/Weaver-Arborist-Throw-Weight-Line/dp/B0044TXY56>