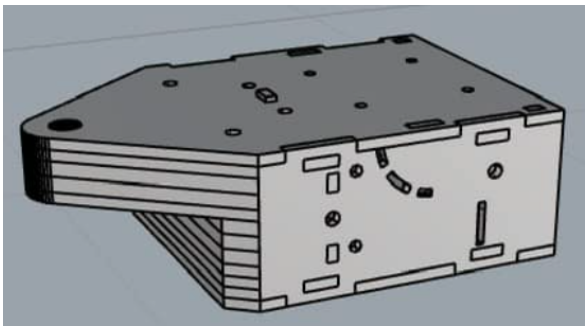
Scavenger Ankles Assembly Guide

Part: Ankles 1.0
Rev 2024.09.15 - BETA 2

Video Assembly Guide

Note: the original build video included steps that are not included in this guide, specifically the #10-24 security bolts/nuts using the 1/2" recessed holes.
https://www.youtube.com/watch?v=Y3EzIKDb8Kk



Finished Scavenger Ankle

Tools & Additional Parts

1. JB Weld HighHeat 550 degree Temperature Resistant Epoxy (Metal Glue) - Home Depot
2. Loctite Red
3. Rubber Mallet or Soft Face Hammer
4. Metal file
5. Crescent wrench
6. 90 degree countersink bit
7. Electric Drill
8. M6 Allen Wrenches or Screwdriver (depending on head of bolts)
9. 80 grit sandpaper (electric sander is recommended)
10. Heavy Gloves prevent metal shaving cuts

Tool recommendations

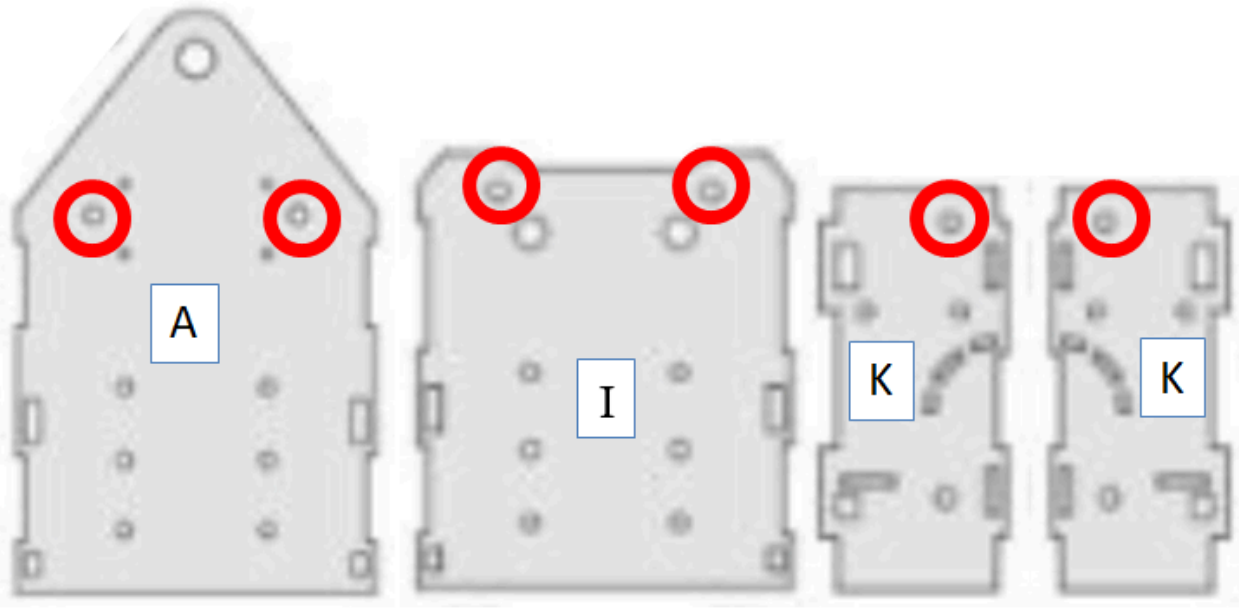
Aluminum Part List (for 2 Ankles)

Item	Qty	Name
A	2	Front Face
B	2	Front Inner
C	2	First Triangle
D	2	Second Triangle
E	8	Cable Channel
F	2	Main Bridge
G	4	Bridge Mount
H	2	Back Inner
I	2	Back Face
J	4	Side Inner
K	4	Side Face
L	2	Ankle Bracelet

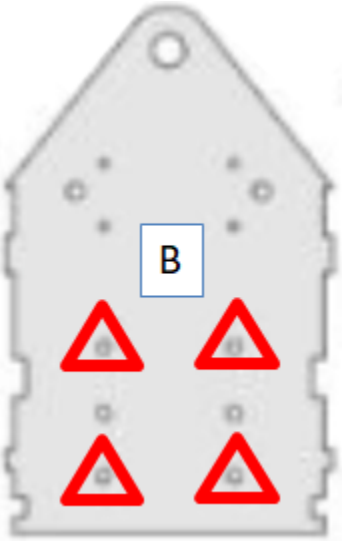
1. Countersink Holes

Using the 90 degree countersink, drill out countersinks M6 and #10-24 bolts if you're attaching metal greeblies). Test your countersinks as you drill to ensure the bolts sit just below flush with the plate surface. You will skim these later with body filler to hide them, so ensure they're below level with the plate so you can get a nice flat surface.

Drill out countersinks M6 bolts in plate parts A, I and K as marked below. Make sure the (2) parts K are facing opposite of each other before drilling the countersink.



Step 1B, optional for metal greeble attachments: Drill out countersinks #10-24 bolts in plate parts B.



2. Sand/File All Parts

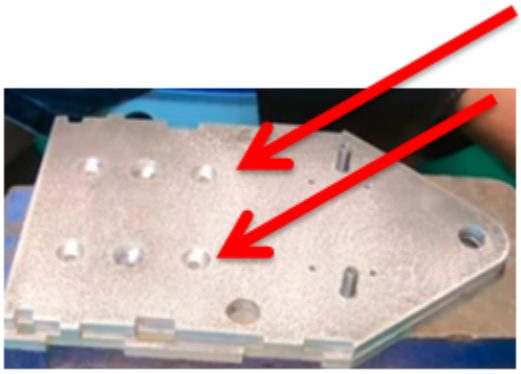
With work gloves, file all the edges of the aluminum parts to remove the burrs and sharp edges. Sand everything with 80 grit sandpaper. This is easier with a random orbital or mouse sander, but can be done by hand. This will provide better adhesion during the gluing process.

3. Glue Front Plates

(2) M6 x 30mm flathead bolts

Mix 2-part epoxy and apply a thin coat onto the entire surface of Part A. Make sure you do not put epoxy on the countersink side. Use two M6 x 30mm bolts.

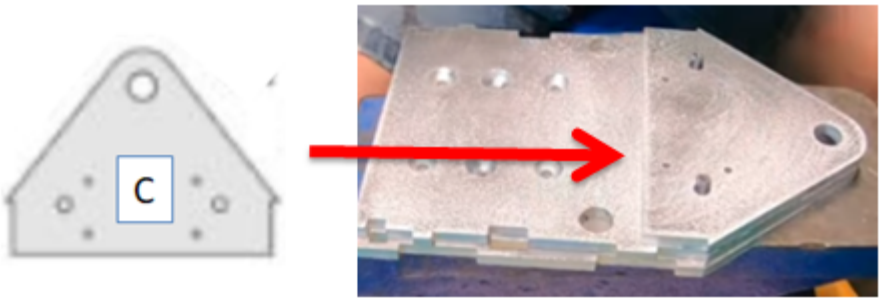
Place Part B on top. If you drilled this plate, make sure Part B countersink side is facing up.



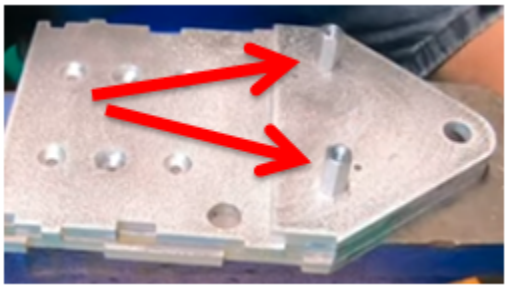
4. Attach Triangle Plates

(2) M6 x 18mm couplers

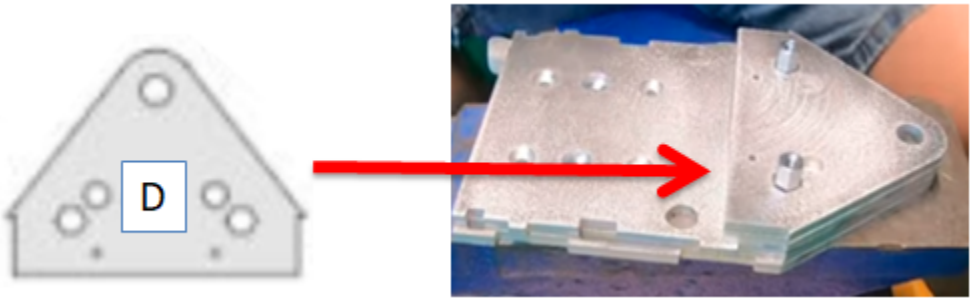
Epoxy Part C over top of Part B.



Screw (2) M6 x 18mm couples onto the M6 bolts.

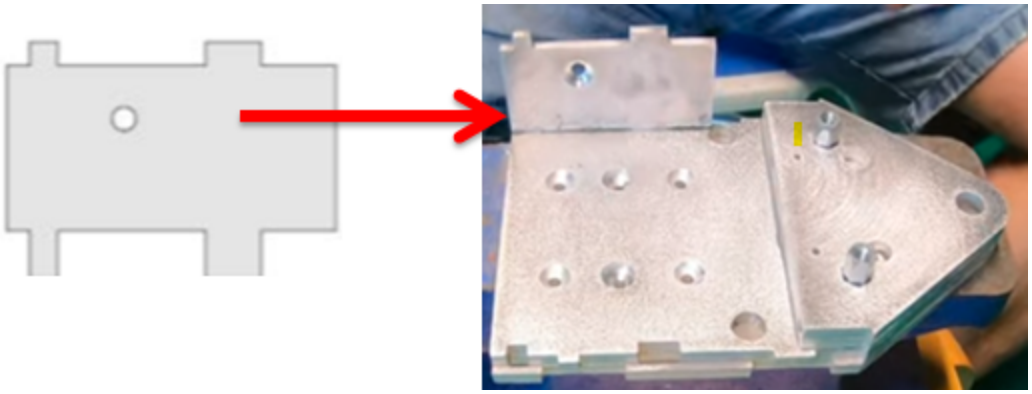


Epoxy and place Part D on top of Part C. Tighten the M6 bolt onto the coupler from the other side of Part A. Make sure the couplers are centered to Part D.

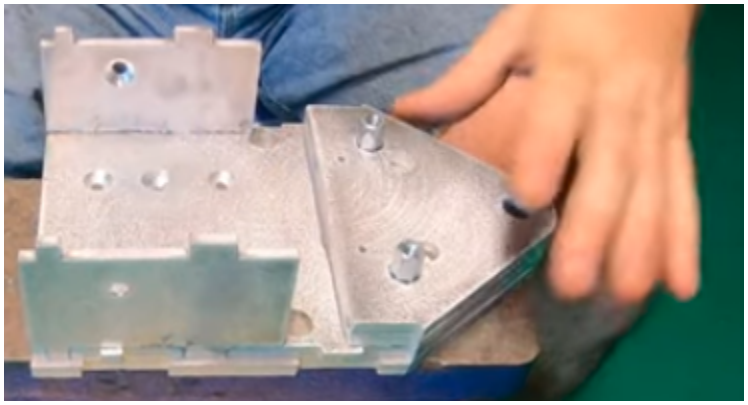


5. Attach Inner Side Plates

Locate the (x2) Part J. Glue bottom side of Part J and tap into ankle using a mallet. The short tab is facing to the top of the ankle, the longer side goes through the holes in Part A.



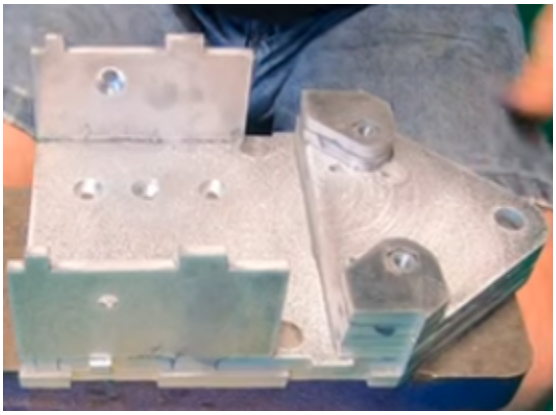
Repeat for the other side.



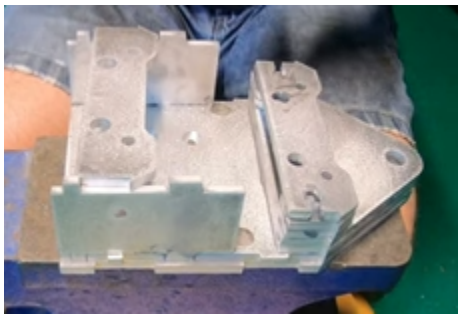
6. Attach Stack

(2) M6 nut

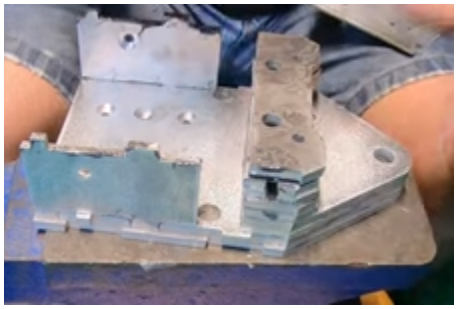
Epoxy and place (2) Part E over each of the couplers connecting them to Part D.



Epoxy and place (2) Part G over the small parts. Place a M6 nut on each side of the cutout.



Epoxy and place the Main Bridge Part F on top.

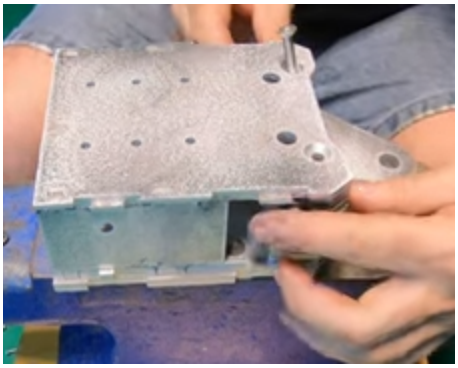


7. Attach Back Plates

(2) M6 30mm

Using a brush, apply epoxy to the existing parts. Ensure a thin layer will cover all the parts that come in contact. Lay the Inner Back Plate Part H on top of the stack and lightly tap with a mallet to get it set in place.

Now epoxy all of Part H and attach the Outer Back Face (Plate I), ensuring that the countersink side is facing up. Use a mallet to get everything flush, then lightly screw in M6 30mm bolts into each hole. Don’t tighten these down quite yet.

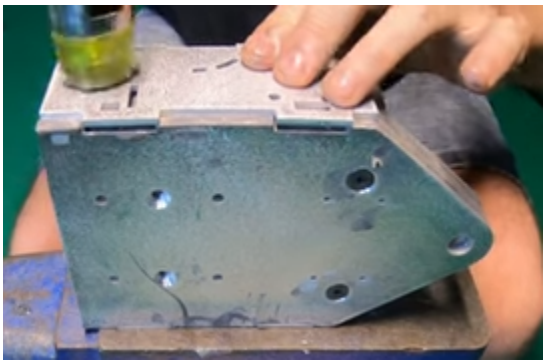


8. Attach Outer Sides

(2) M6 18mm

Using a brush, apply epoxy to the edges of the stacked plates and ensure they're aligned properly. Apply epoxy on all the edges that will meet the outer plate. Make this a thin layer, as you don't want squeeze-out through the detail holes (the little dash lines).

Use a mallet to tap the side plates in. Use M6 18mm bolts to attach to the M6 nuts that you dropped into the bridge plates. Now tighten the 30mm M6 bolts on the back plate to pull everything together tightly.



9. Cleanup and Clamping

Check all the sides of the ankle, and especially inside the large hole where the leg will attach. Use a rag to clean up excess epoxy - this will save you sanding/chiseling time later. Any blobs of epoxy will hinder the leg smoothly attaching to the ankle.

Use the rag and some small screwdrivers or picks to ensure all the detail holes are cleaned out, as well.

Finally, use 4 clamps at the top hole to ensure all the plates have some squeeze-out and no gaps while the epoxy cures.

10. Attach Ankle to Leg

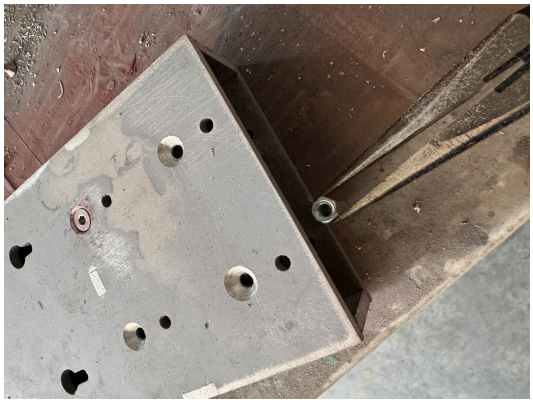
(4) #10-24 1/2" flat head screw
(4) #10-24 1-1/4" flat head screw

(4) #10-24 coupler

Countersink the four attachment holes on the leg for the #10-24 screws. Ensure these are level with the surface.

Parts needed for couplers and the four locations on the leg to countersink

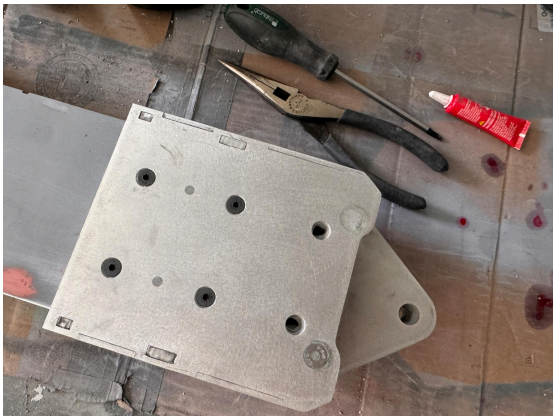
Using some long pliers, hold the coupler inside the leg. Using red loctite, screw the 1/2" bolts to the coupler and tighten it down. Check alignment from the other side using one of the longer bolts - just ensure everything is square and you can thread the screw in from the other side.



Using needle nose pliers to assist in attaching M6 couplers

Repeat for the other three attachment points.

On the back side of the ankle, countersink the four holes for the #10-24 screws. Again, ensure these are as perfectly level as possible - these screws will be exposed and painted white.



Four attachment points with black #10-24 screws

Slide the ankle bracelet onto the leg, then slide the ankle onto the leg. Screw the four bolts in by hand. Do NOT use power tools for this part, and do not use Loctite if you want to be able to remove the ankle.

Finished ankle attached to leg
(with 3D-printed beefy part attached)