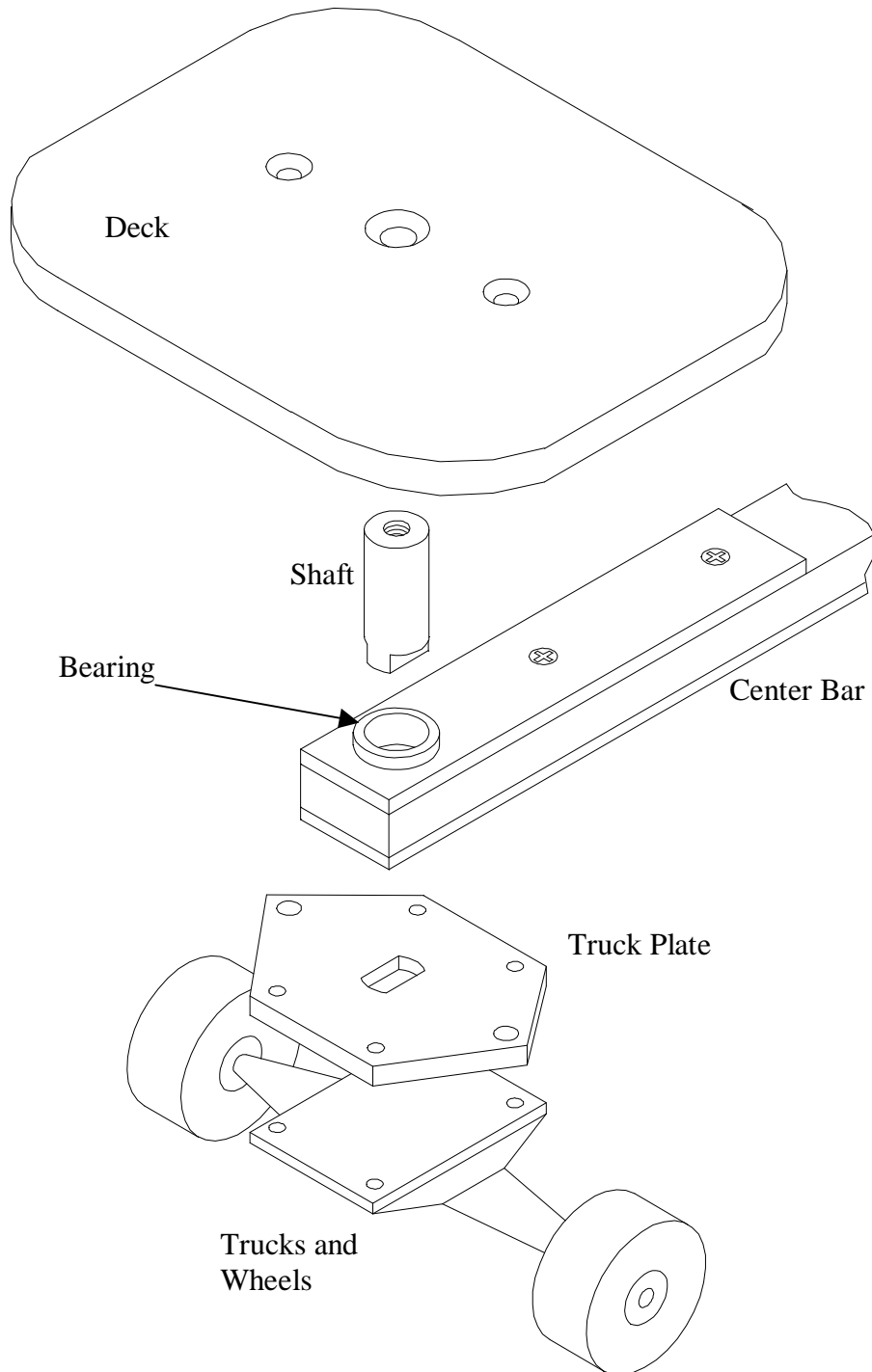


The Articulated Skateboard

Craft Center
Instructor: David Schoch

A guide to the parts of an articulated skateboard (Snakeboard®):



Materials needed:

<u>Part</u>	<u>Made of</u>	<u>Quantity</u>
• Skateboard	deck, trucks, and wheels	1
• Shaft	Round metal stock (3/4" diameter)	~4 in
• Center bar	Flat aluminum bar (1/4" x 1.5")	~4 ft
• Center bar	Hardwood (~3/4" x 1.5")	~2 ft
• Truck plate	Aluminum flat bar stock (3/8" x 4")	~8 in
• Bearings	3/4" ID, 1" OD, 1/2" long , bronze sleeve	4
• Bolts and nuts		
➤ 5/16-18 x 3/4" Flat Head Machine Screw (FHMS)		2
➤ 10-24 x 1.5" FHMS with nylock nuts		4
➤ 10-24 x 3/4" FHMS with nylock nuts		8
➤ 1/4-20 x 2.5" or 3" FHMS (or bolts) with nylock nuts		4

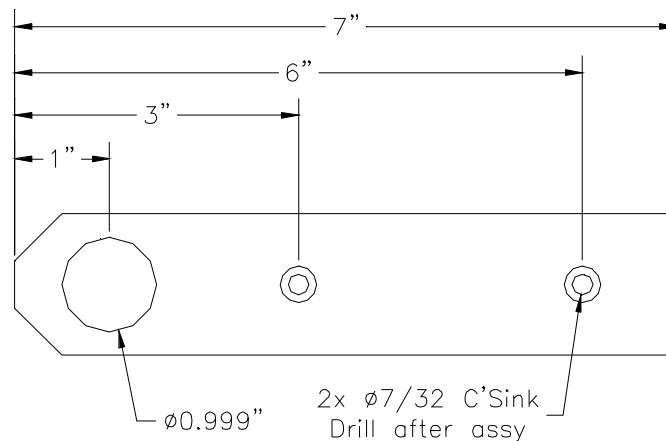
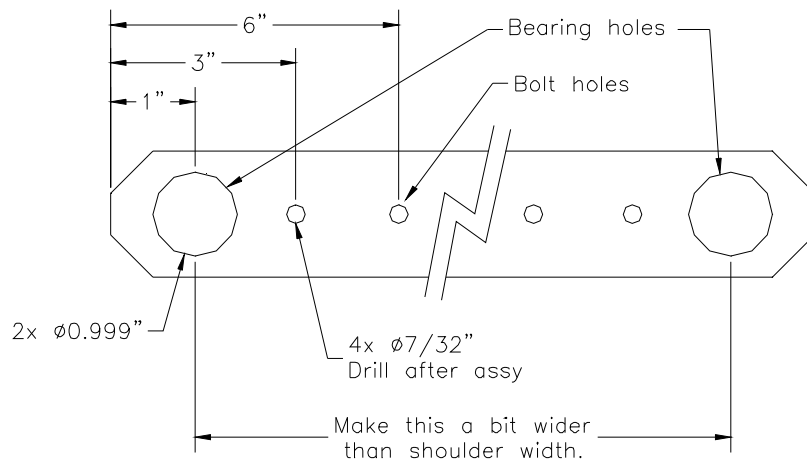
Note: Most materials can be purchased from McMaster Carr, <http://www.mcmaster.com/>

Other stuff that's good:

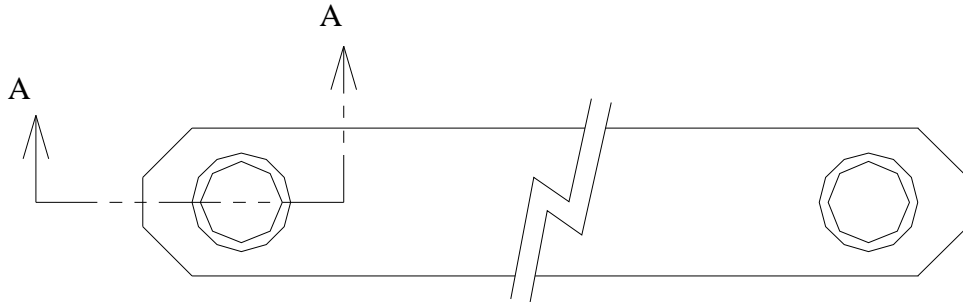
- Wheels – the bigger the better. Big wheels are less affected by cracks, rocks, branches, stairs, windshield wipers...the off-road skateboard wheels are ideal.
- Trucks – the wider long board trucks work the best. Short trucks tend to be tippy. Keep your trucks tight and use hard bushings. With loose trucks your board will turn more than your feet tell it, and it will be harder to learn.
- Always use nylock nuts. Standard nuts will loosen and fall off with all the vibration.
- The wider your wheelbase (foot to foot), the more stable your board will be. But if it's too wide, it will be very difficult to turn. Make it comfortable.
- The two ends of your board will have slight differences, so mark them. This will help you when you are assembling.
- Some dimensions are important, but most are not critical. If you have different design ideas, go ahead and try them. But I know this works, it's not too hard, and the Craft Center has all the tools you will need.
- Ride a little bit every day and you will get good fast. You can practice the basic motions in your own house (not on the board) which will help you get started, but that can't teach you how to lean into turns or other board dynamics.
- Practice on smooth ground. Tackle cracks, trails, and hills after you get control. Don't even try hills until you can stop without falling. Slow down on hills like on a snowboard – tack back and forth.
- Ride wherever you can. The UC Davis campus is a great place to ride, but I recommend not riding at crush times. The stretch from the CC to the Coffee House is a nice ride, especially if you cut through behind Hart Hall. Around the CC is also nice because of the smooth pavement, but keep in mind that it is supposed to be a pedestrian only area, and you can probably get a ticket if you are caught.
- Tricks – I've seen some crazy stuff on video, but almost everything requires your feet to be strapped in. Strapping in your feet gives you more control, more power, and more road rashes. Note that this board is mainly for travel and snowboard cross training, not for tricks. If you are serious about tricks, buy one of those lighter plastic boards with the foot straps.

Make the center bar

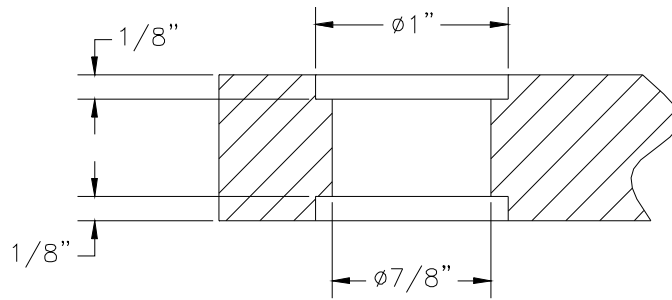
- Top and bottom material: Aluminum, 1" bar, 1/4" thick
- Middle material: Wood, at least 3/4" thick
- Cut the bottom aluminum and the wood pieces the same length, but finish the ends after the holes are drilled.
- Cut the 2 top aluminum pieces about 7" long.
- Clamp bottom and wood pieces together and drill small pilot holes (6), making sure that the 2 bolt holes on each end will go through the top aluminum pieces.
- Drill bearing holes in all 3 aluminum pieces to 15/16" diameter with the hole saw.
- Ream out bearing holes with the 0.999" reamer.
- Try to be consistent with your hole depths in the wood.
- Drill the 1" holes first (wood piece) with a Forstner bit, then connect them with the 7/8" hole.
- Line up your center bar by pressing in the 4 bronze bearings until they bottom out against the wood. Hard wood is best because it does not crush when the bearings bottom out.
- With the bearings pressed in, clamp the center bar and drill out the 4 bolt holes through all 3 layers and countersink the holes in the top aluminum piece.
- Round off or chamfer the ends; finish all together with a file after it is assembled.
- If the shaft is tight in the bearings, ream assembled bearings out with the 0.751" reamer.



Make the Center Bar (continued)



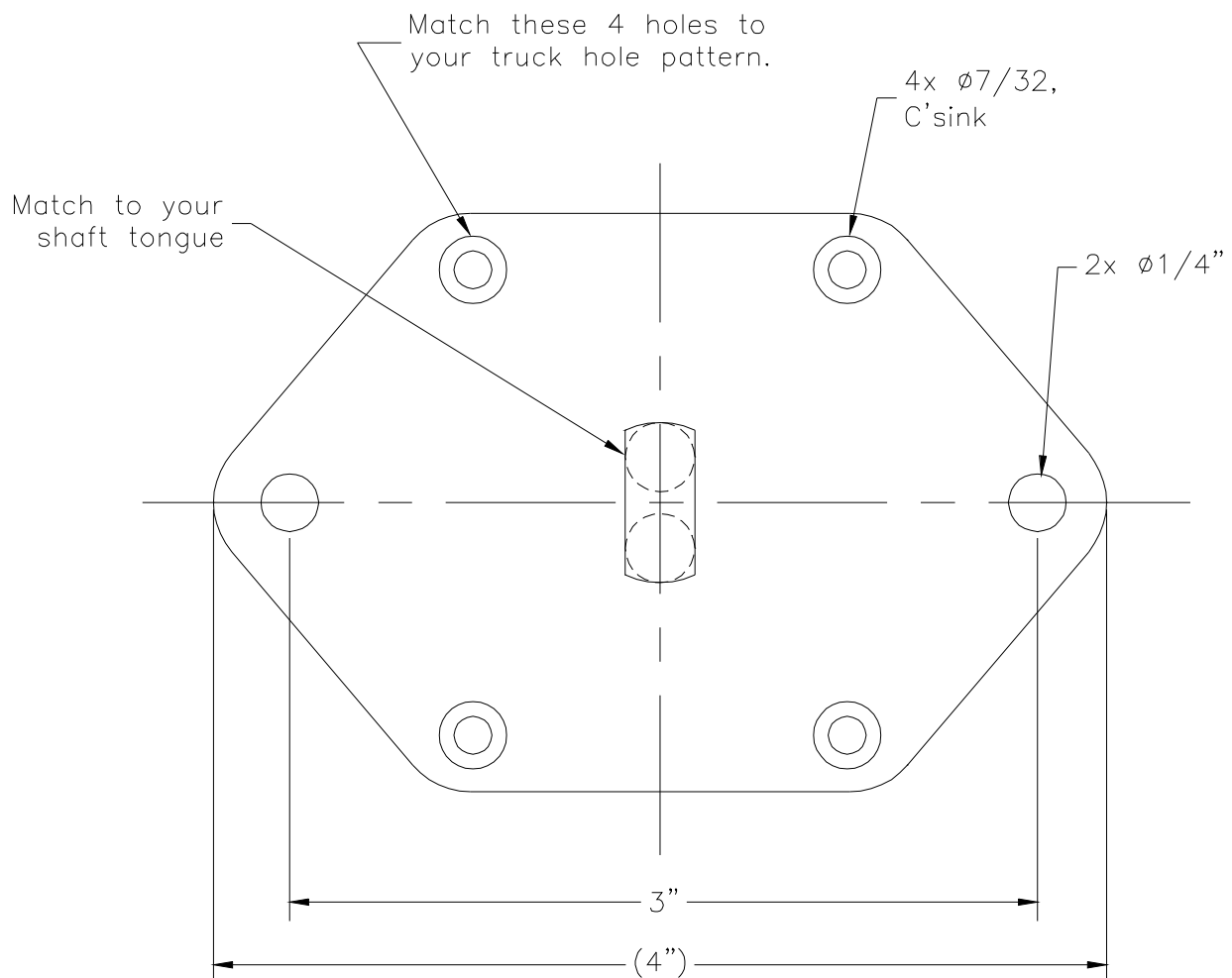
Wood Piece



View A-A

Make the truck plate

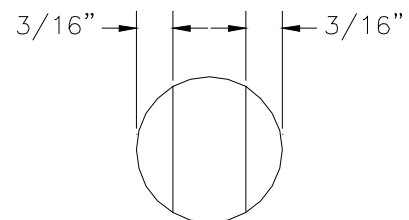
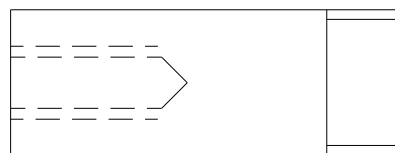
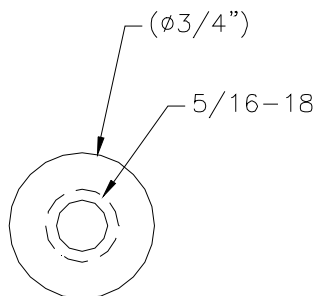
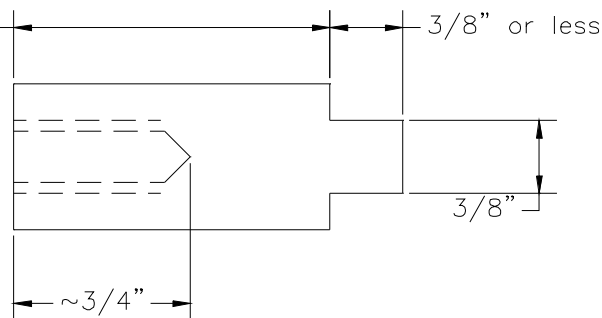
- Material: Aluminum, 3/8" thick
- Make 2 of these
- Trace truck outline and hole pattern on truck plate stock, rough-cut with bandsaw.
- Drill holes before filing to final shape.
- Side holes should be in line with truck axle.
- Try to make both parts identical and symmetrical.
- You might save time by cutting out, drilling, and filing both plates together.
- Drill/file the center slot after you make the shafts. The center slot must be centered between side holes. Shaft should fit tightly into the slot, or even a press fit.



Make the shaft

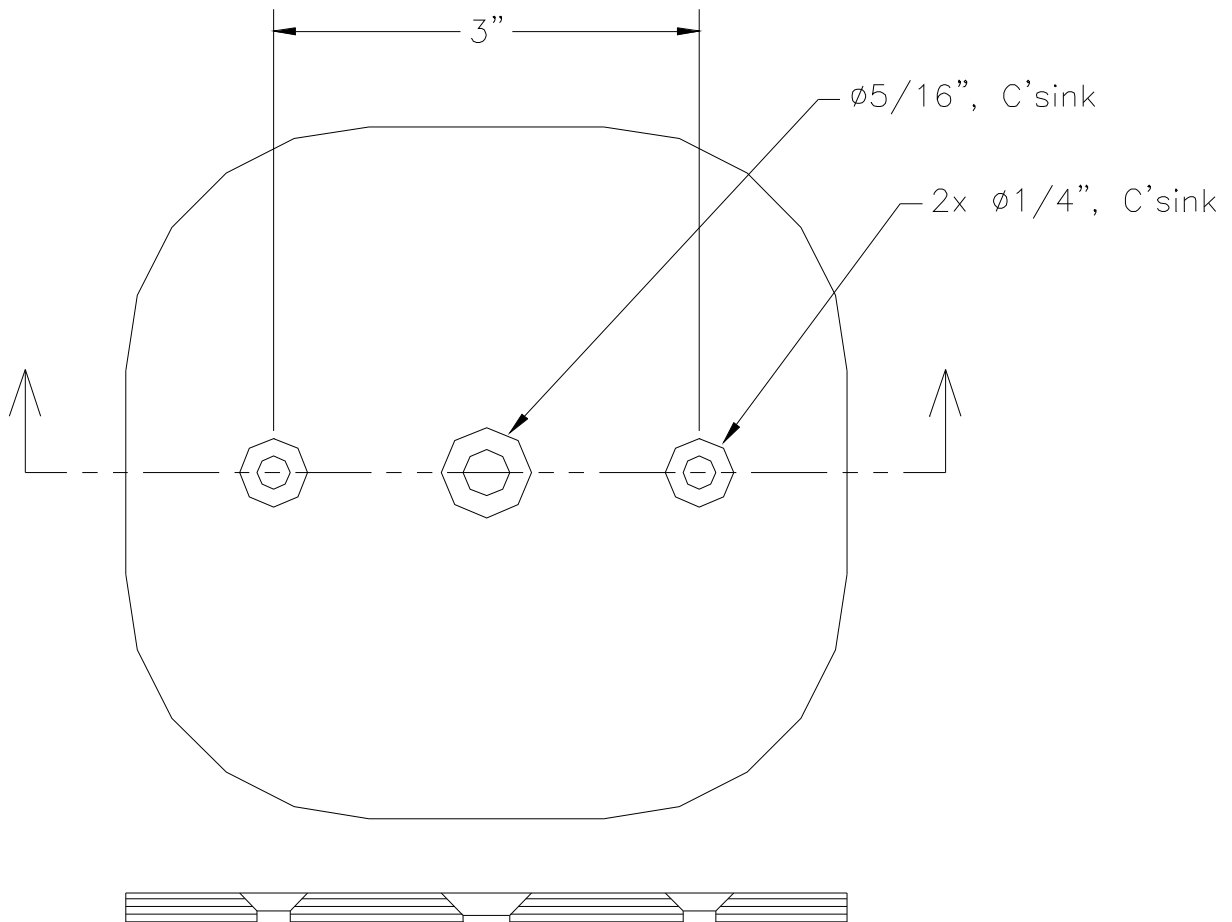
- Material: round steel bar, 3/4" diameter
- Make 2 of these
- Measure the thickness of your center bar + bearing assembly. Cut 2 shafts at least 1/2" longer than this thickness. **DO NOT CUT TOO SHORT!**
- Cut the tongue first, and fit to your truck plate – use a hacksaw with a sharp blade, do not use a bandsaw.
- The final tongue length cannot be longer than the truck plate is thick. It can be shorter. You can always grind it down after it is cut, so don't worry too much about the initial cut. But beware that the length without the tongue cannot be shorter than your center bar + bearing assembly. This is critical.
- Try to get the tongue shoulders even and square. It is important. Use a file to finish.
- Cut the center slots in your truck plates after the tongues are done.
- Square up (grind) the top of the shaft. Your total finished length should be almost 1/2" longer than the center bar/bearing assembly is thick.
- Center-punch, drill (17/64"), and tap the hole last – be sure to clamp the shaft securely and perpendicular to the drill press table. Be careful not to break the tap off in the hole. If you do, you buy the tap AND make a new shaft.

This distance to match
your center bar/bearing
assembly + 1/16"



Make the decks

- Material: Plywood or old skateboard deck. Dished skateboard deck is best.
- Make 2 of these; one skateboard deck can make 2 snakeboard decks. Do not include the tails.
- Countersink all holes.
- Make sure the center hole is centered, all hole spacing matches your truck plates, and all three holes are in line.
- The shape and size can be be anything, but be practical. Try to make it bigger than your foot.
- If you use plywood, cover your decks with grip tape, but leave the screw holes clear. Try to find plywood with many thin layers instead of few thick layers.
- If you can't find the long screws in flat heads, you will have to use bolts, which means your countersinks will be straight instead of tapered. Make the countersink big enough for a washer (and a socket wrench) if you are using bolts.



Hole spacing should match the holes in your truck plate.