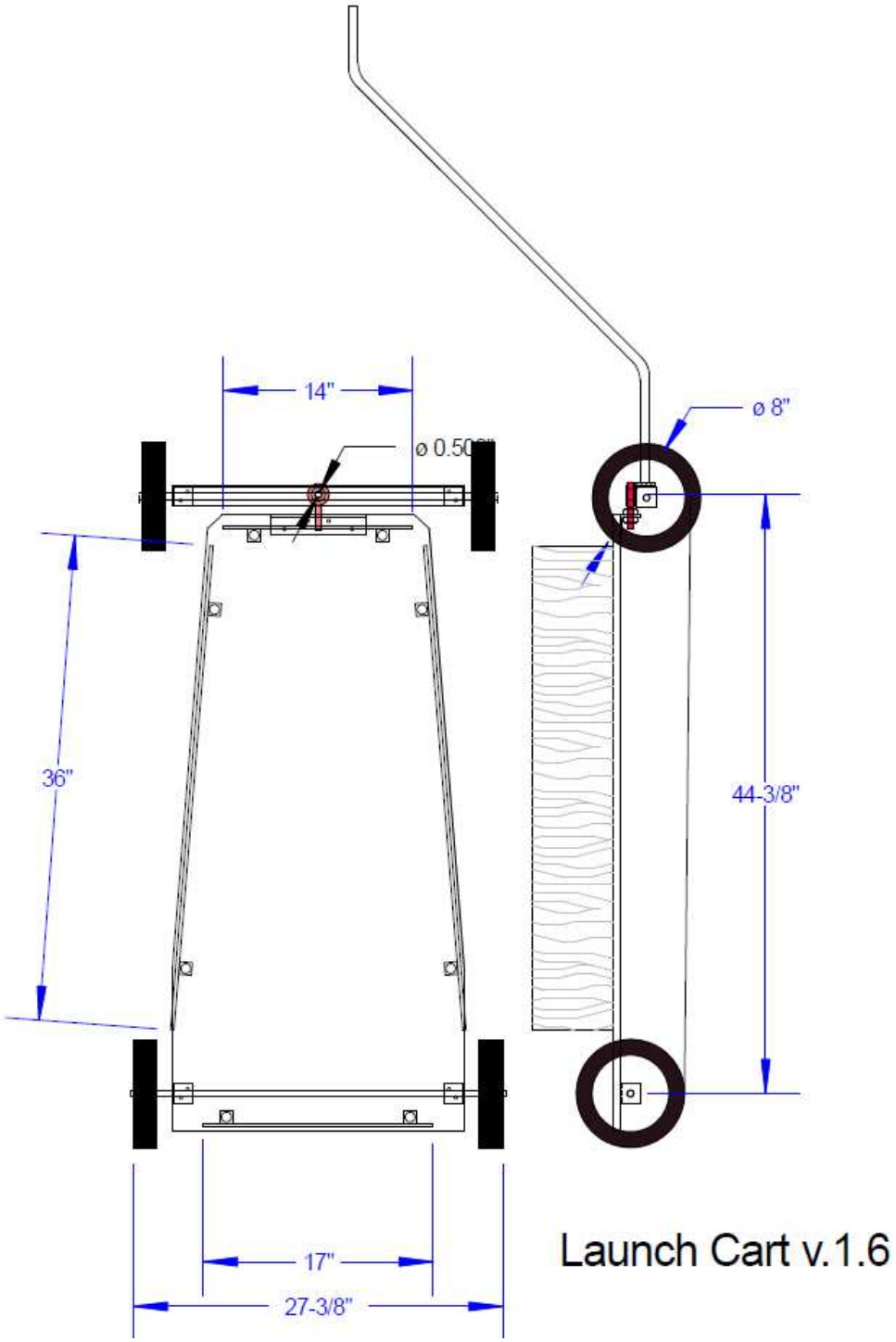
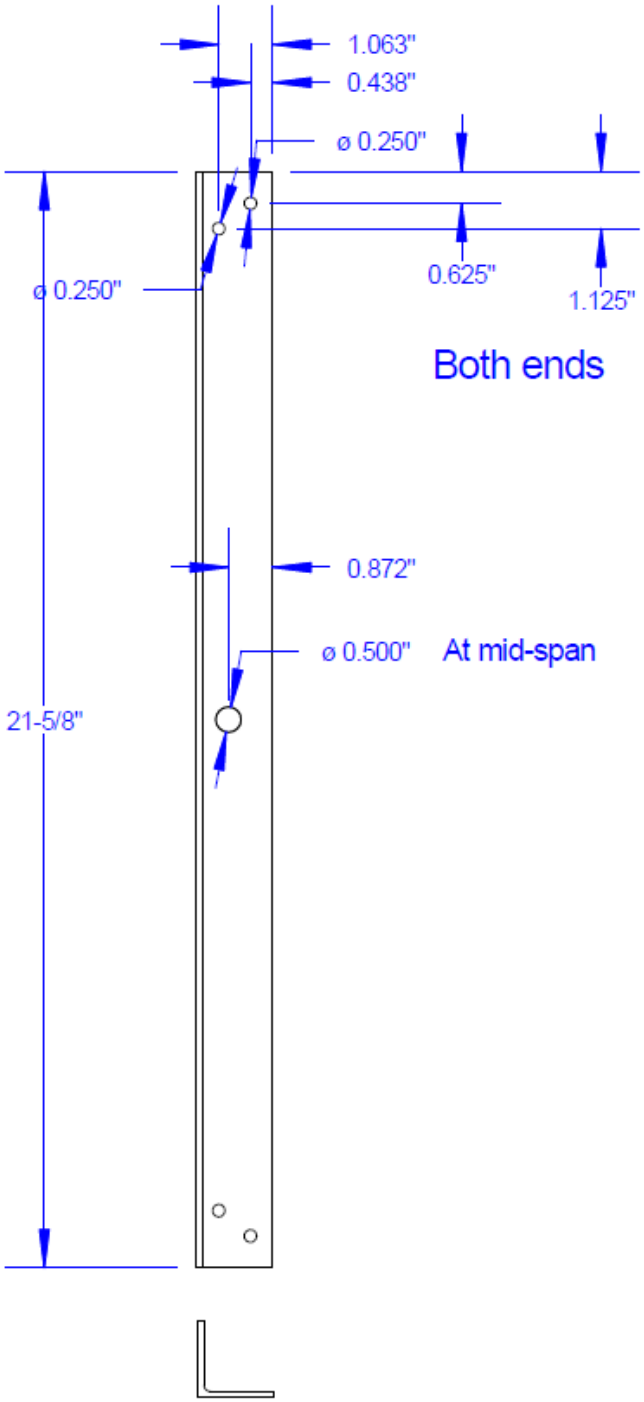
Launch Wagon Description

The Launch Wagon was designed and built for hauling supplies used to support a rocket launch. Supplies include launch pad and rods, launch controller, electronic items such as cameras and two-way radios, tool box including spare parts, tripods and other miscellaneous items needed to support a launch. The Launch Wagon concept was borne out of necessity. The distance from where we park the car to the actual launch location is about a kilometre. Carrying the supplies by hand was found to be too much of a burden. The Wagon needed to be large enough to carry needed supplies yet small enough to fit into the car. The design evolved into a wagon that could be easily taken apart (in order to fit in the car) and quickly reassembled on site. As the terrain along the trail to the launch site is very uneven, with lots of ruts, stones and other obstacles, it was clearly necessary for the wagon to be able to fully articulate. This feature was achieved by using a spherical bearing to attach the front axle to the wagon body. The wagon body and removable sides are made of plywood. Axles are attached with aluminum brackets. The four wheels are semi-pneumatic “lawn mower” type of 8 inch (20cm) diameter. The removable pulling handle is formed from ½ EMT and retained with a quick-release cotter pin. Standard ¼” bolts and nuts are used to attach the various brackets.



Launch Cart v.1.6

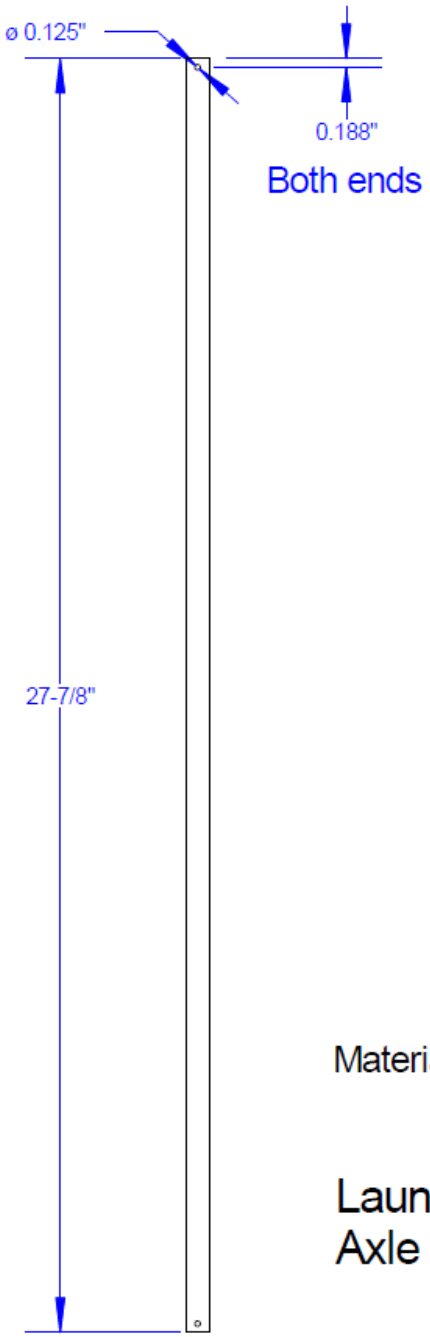


Launch Cart Axle Frame

quantity 1

Material: 1-1/2 x 1-1/2 x 1/8" aluminum 6061

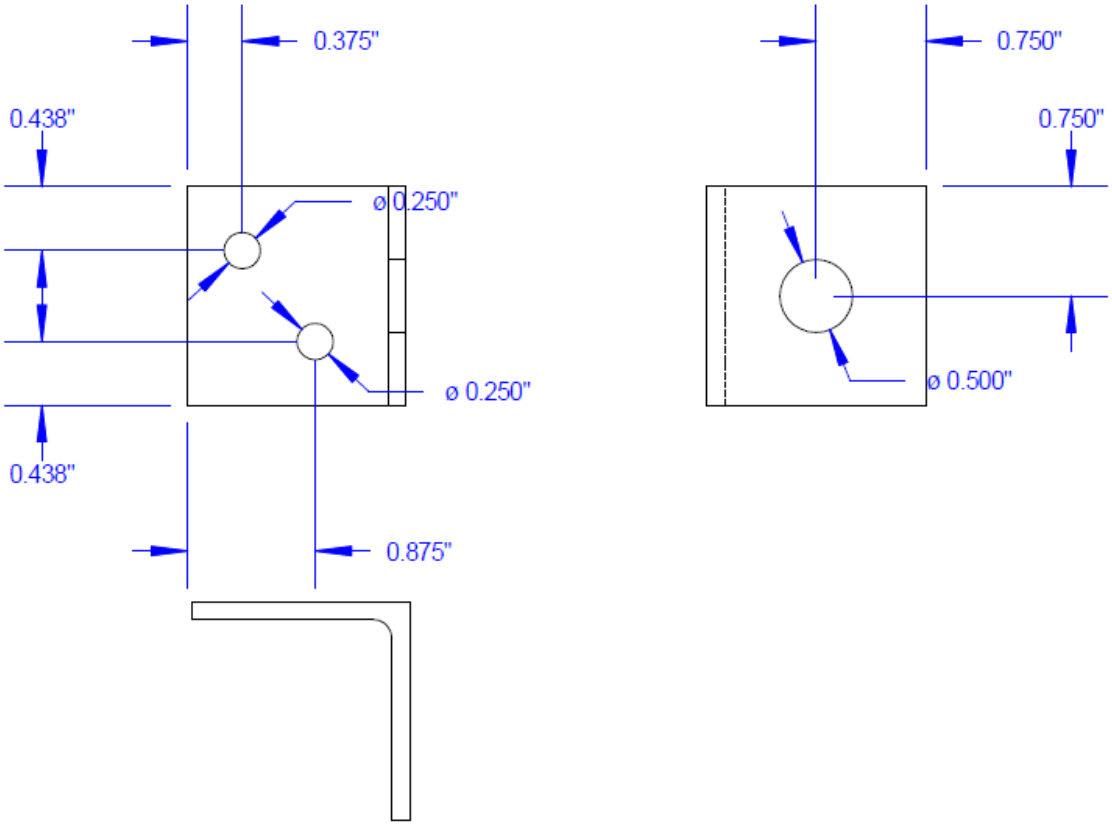
Author: R. Nakka



Material: 1/2 rod, steel

Launch Cart
Axle

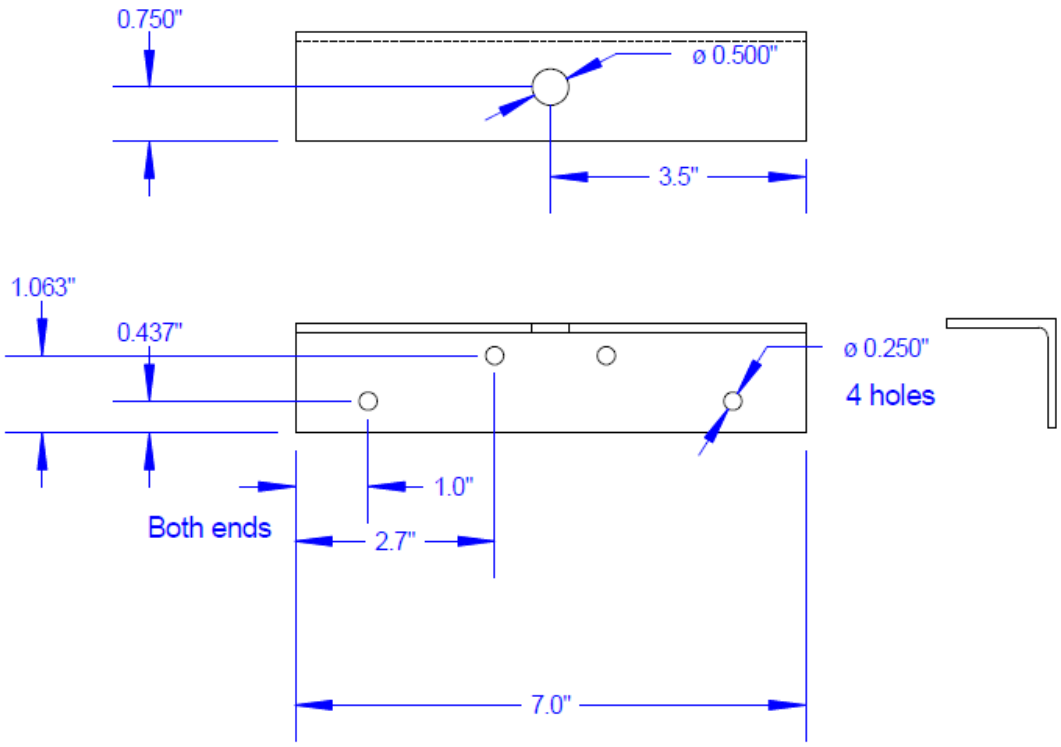
quantity 2



Material: 1-1/2 x 1-1/2 x 1/8" aluminum 6061

Launch Cart
Axle supports

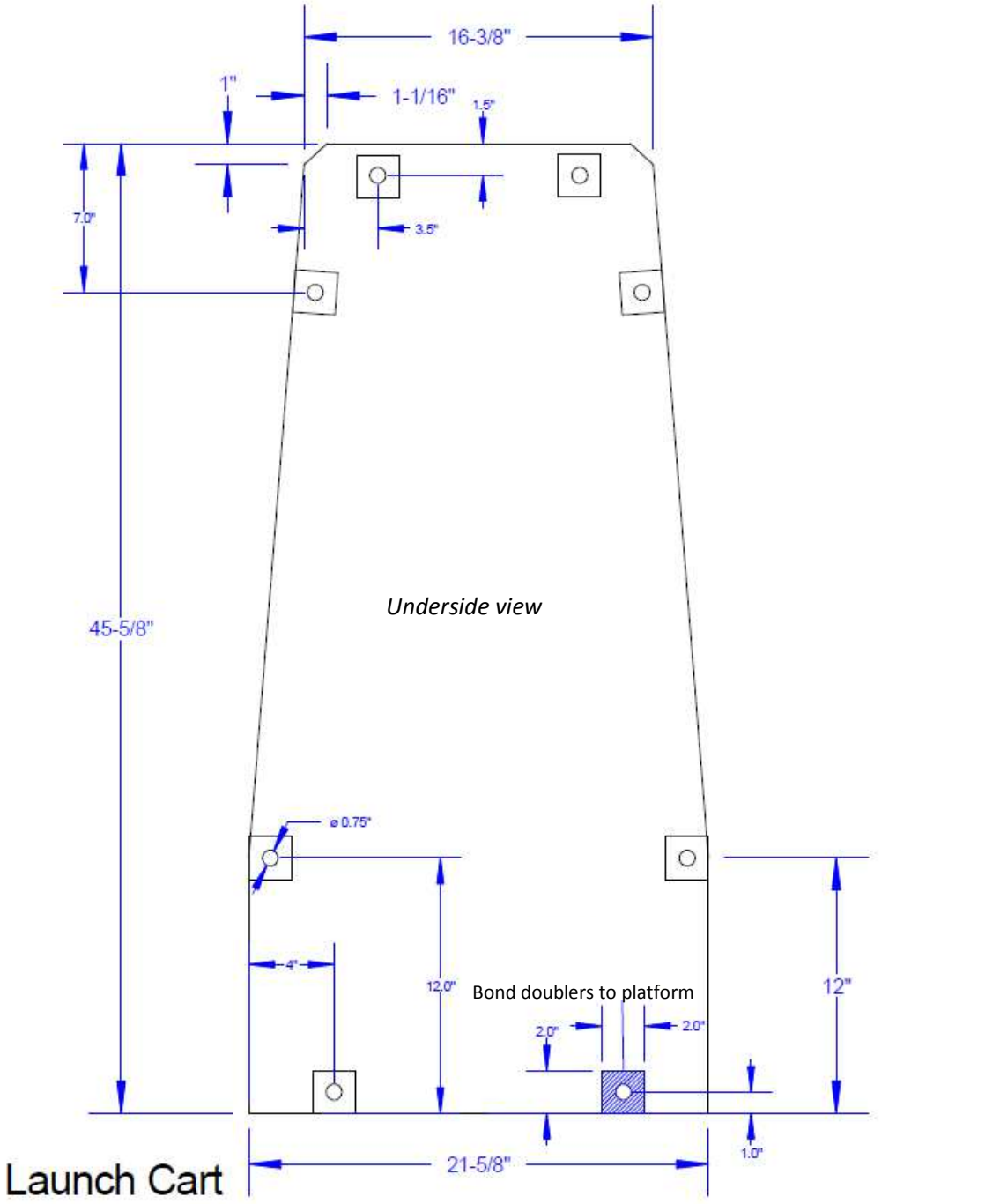
quantity 4



Material: 1-1/2 x 1-1/2 x 1/8 alum. angle

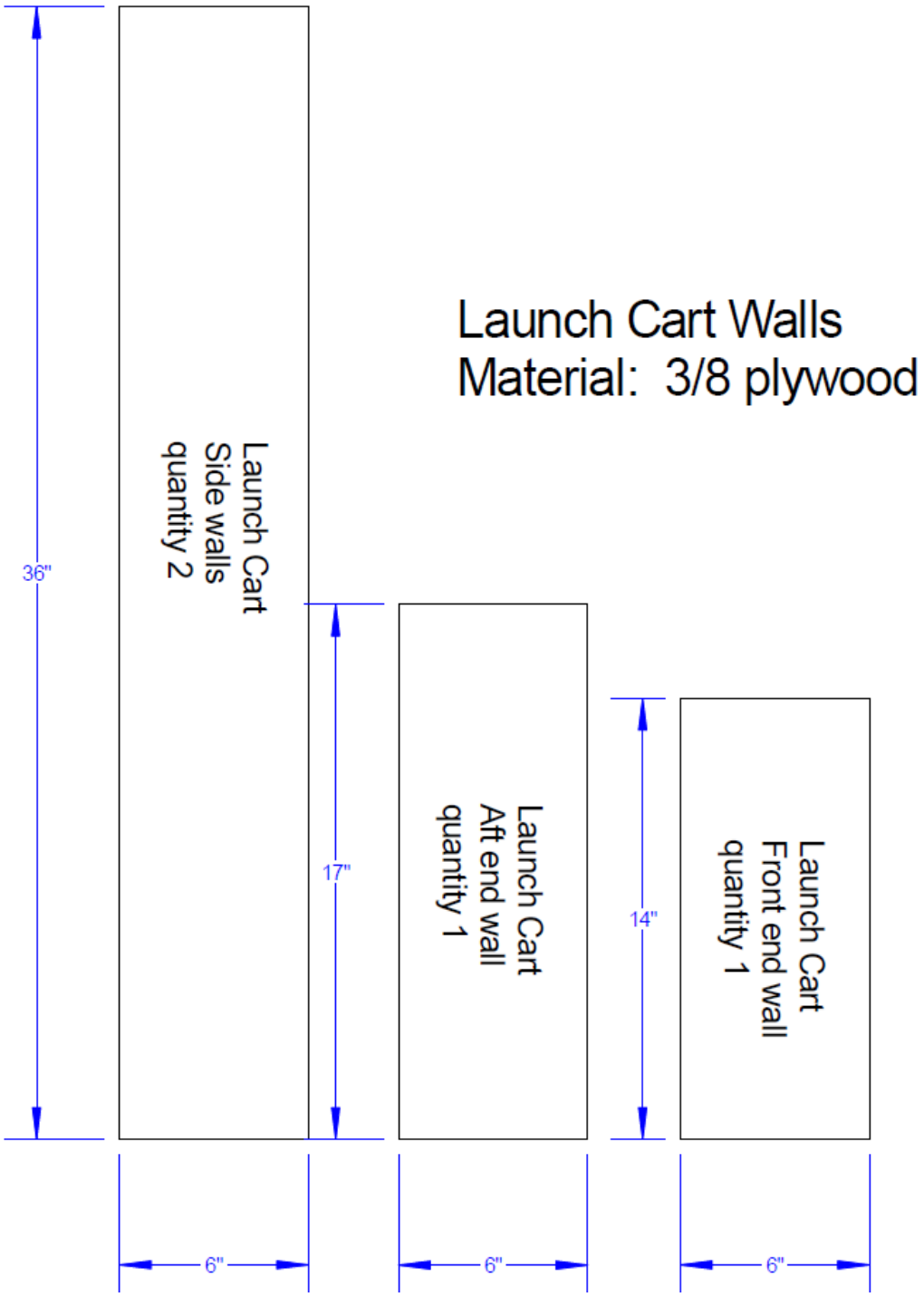
Launch Cart
Bearing Support

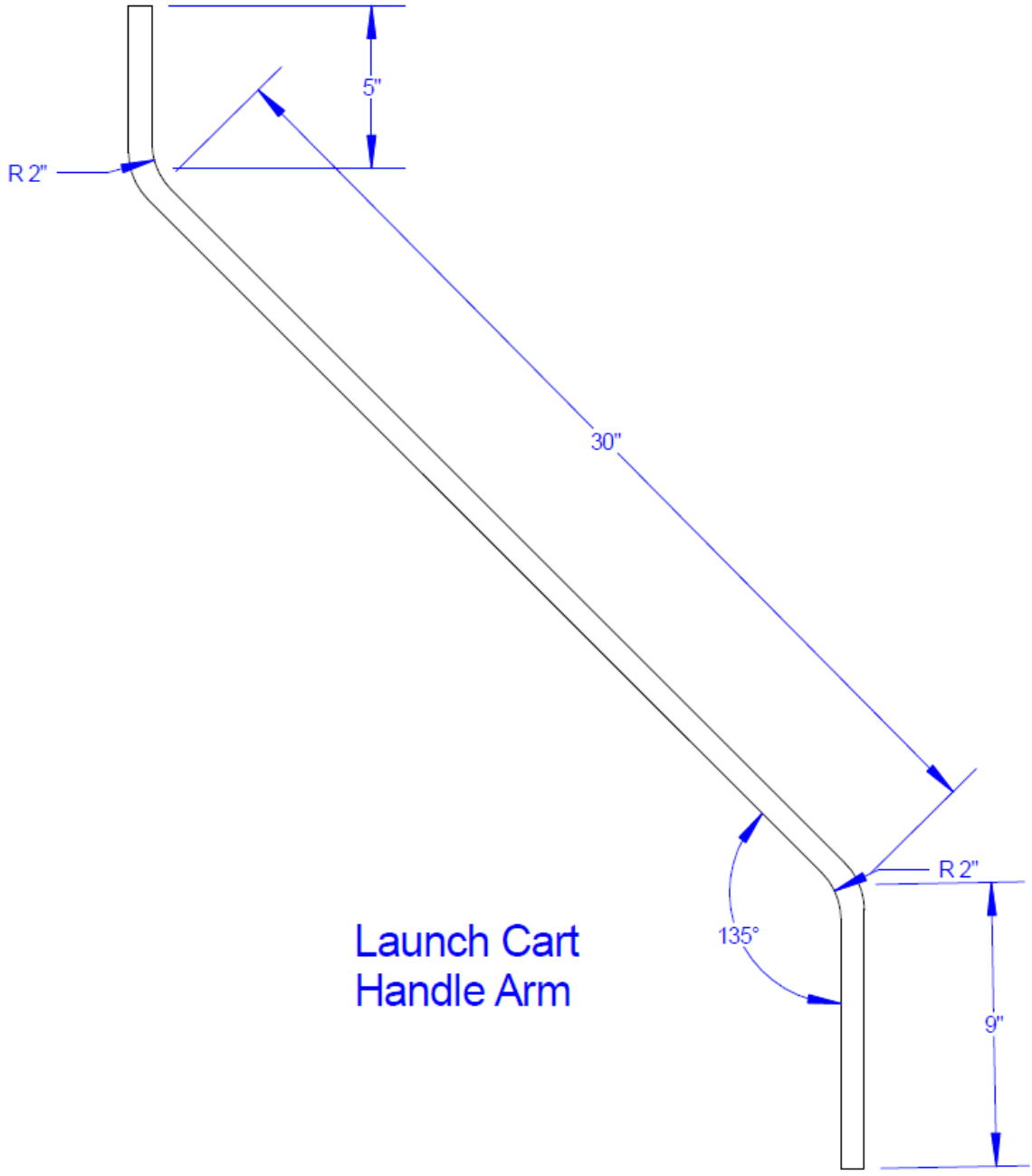
quantity 1



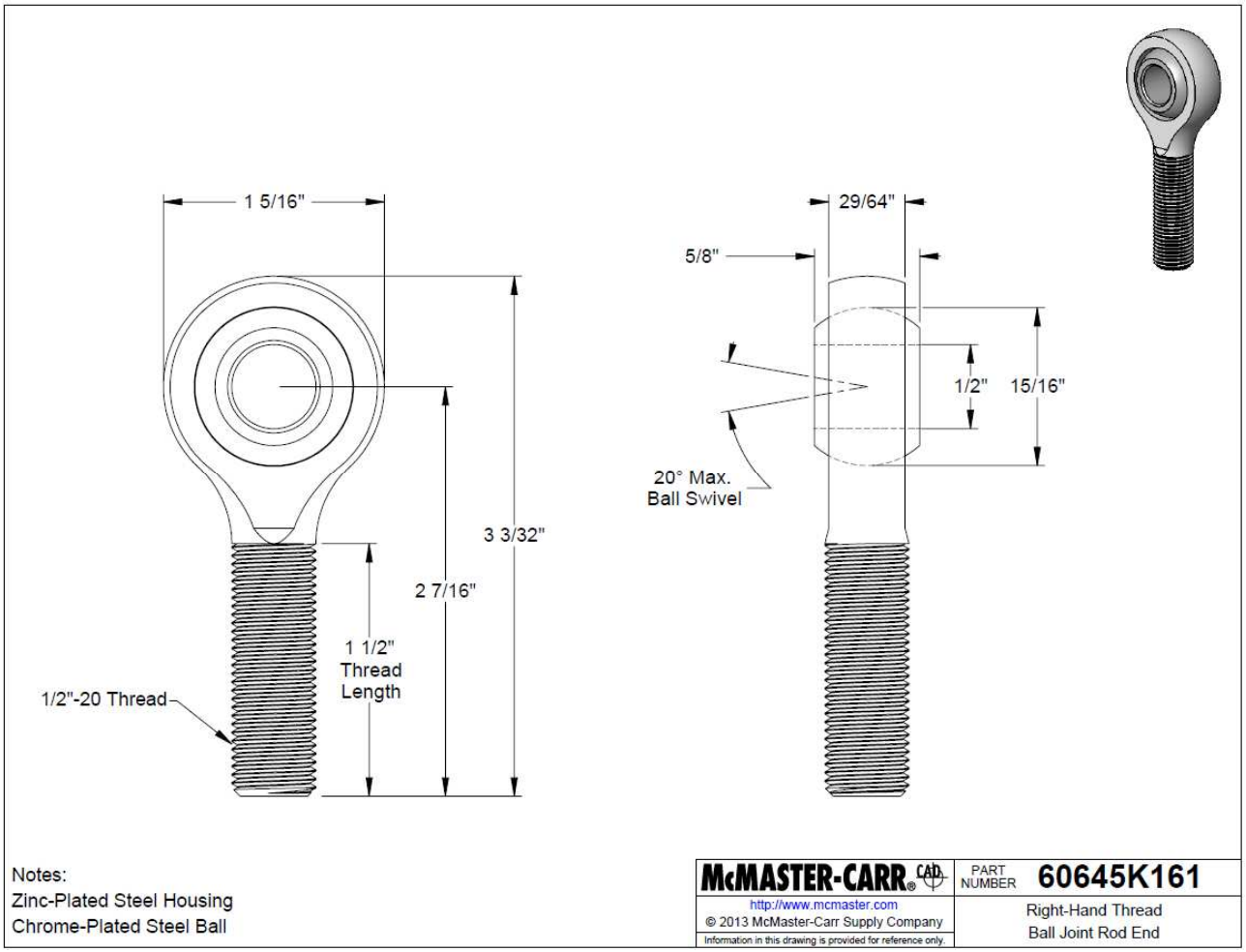
Launch Cart
Platform
quantity 1

Material: 1/2 spruce plywood with 3/8" doublers


Launch Cart Walls
Material: 3/8 plywood
Launch Cart
Side walls
quantity 2
Launch Cart
Aft end wall
quantity 1
Launch Cart
Front end wall
quantity 1
36"
17"
14"
6"
6"
6"



Launch Cart Handle Arm


1 5/16"
29/64"
5/8"
1/2"
15/16"
20° Max.
Ball Swivel
3 3/32"
2 7/16"
1 1/2"
Thread
Length
1/2"-20 Thread
Notes:
Zinc-Plated Steel Housing
Chrome-Plated Steel Ball
McMASTER-CARR
CAD
http://www.mcmaster.com
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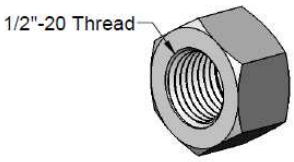
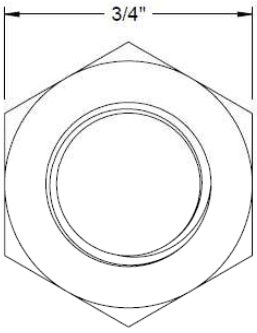
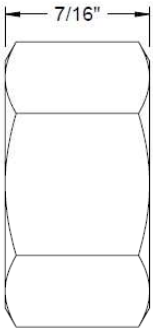
Information in this drawing is provided for reference only.
PART NUMBER 60645K161
Right-Hand Thread
Ball Joint Rod End







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PART NUMBER **94895A825**

Hex Nut

	Task	Est. Hours
☐ 1.	Cut out plywood Platform	0.5
☐ 2.	Cut out plywood Doublers	0.25
☐ 3.	Cut out Platform Sides	0.5
☐ 4.	Trim side support Posts	0.25
☐ 5.	Machine round ends, side support Posts	0.75
☐ 6.	Locate and Bond Doublers to Platform	0.5
☐ 7.	Drill holes in Platform for Posts	0.25
☐ 8.	Secure Platform sides to Posts	0.5
☐ 9.	Mount Axle Support Angles to Platform and Axle Frame	0.5
☐ 10.	Mound Bearing Support to Platform	0.25
☐ 11.	Mount Bearing to Bearing Support	0.25
☐ 12.	Drill cotter pin holes in Axles	0.25
☐ 13.	Secure Axle Frame to Bearing	0.25
☐ 14.	Fabricate Handle Attach Fitting	0.75
☐ 15.	Mount Handle Attach Fitting to Axle Frame	0.25
☐ 16.	Fabricate Handle	0.5
☐ 17.	Install wheels, fitting with bushings as required	0.5
☐ 18.	Paint Platform and Side Assemblies	1.0
		____
		8.0