

I've had my Tesla Model 3 since August, 2018. I travel extensively for my work and have had 2 tire blowouts. One occurred in the country, at night, where I had no cell phone reception. After the second flat my wife refused to drive the car due to lack of a spare tire, so I designed and built a tire rack that holds a mini spare tire securely in the rear trunk. It takes up about 1/3 of the trunk space, but I can still fit my golf clubs in the trunk with no problem. The trunk "cargo area" is accessible with the spare securely attached inside. The cargo area is where I store the jack and lug nut tools. I use a MAXIS T155/70/18 with a steel wheel. I searched the internet for the correct wheel & tire combination. The rack is fabricated from .75 plywood using .25 bolts and nuts specific for plywood assembly (Tee & Barrel nuts). The tire is mounted to the rack then placed in the rear trunk, securely held in place using turnbuckle hardware. No modifications to the Tesla M3 is required. The tire/wheel weighs 37 lbs., the rack is 14 lbs. My design is attached in the PDF file. You are welcome to build your own version.

If you are handy with a scroll saw, drill, and screw driver, then this is an easy project. All materials can be obtained from Home Depot or Lowes, and either store will rough cut the plywood so you can get it into your car. I cut these pieces with a CNC router (in my garage) and painted them flat black. If you prefer, I can cut the 5 wooden pieces for 55\$ (not painted). Include your zip code and I will calculate the shipping cost, and reply with a total price. With the cut plywood parts, all you will need is the common hardware listed in the BOM to complete the project. The pictures in this post show details of assembly and use. I've added a small cargo net that's visible on the underside of the rack. It's optional (Walmart auto center) and I use it to hold loose pieces like groceries, blankets, motor oil, etc.

Spare tire inside trunk, pushed forward into position



The 5 wooden parts



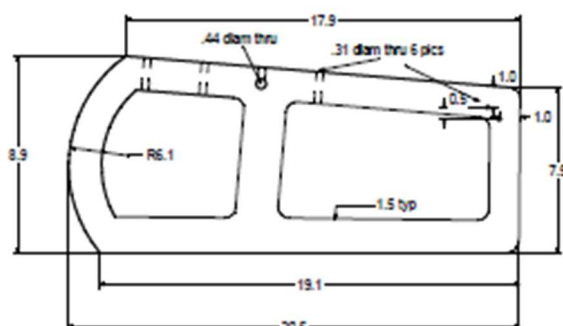
Required hardware



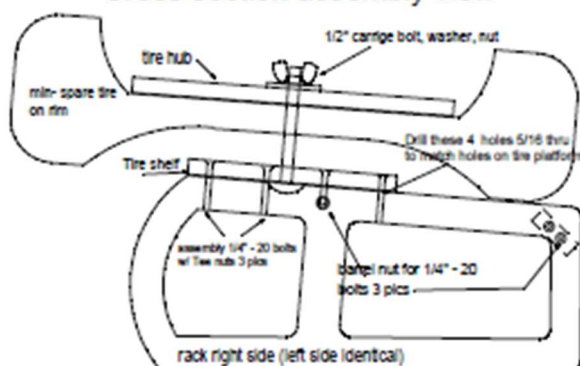
### Bill of Materials

ITEM	QUANTITY	DESCRIPTION
Side	2	12 x 24 x .75 plywood
Tire platform	1	9.5 x 36 x .75 plywood
Tire hub	1	12 x 18 x .75 plywood
Rear brace	1	2.5 x 34.5 x .75 plywood
Hub (wheel) bolt	1	4.5 x .5 carriage bolt w/ wing nut & washer
Barrel nuts	6	.625 long x .375 diam for .25 #20 thread
Tire platform bolts	6	.25 #20 x 2.25 flat head machine screw
Tire platform Nuts	6	.25 #20 Tee nuts for hard wood
Rear brace bolts	4	.25 #20 x 1.5 flat head machine screw
Rack Hold down	2	5/16 x 9.0 turnbuckle hook/hook (ACE hdwr)
Rack Hold down	2	.25 # 20 locking nuts
Rack Hold down	4	.32 ID steel fender washer
Rack primer paint	1 spray can	
Rack final paint	1 spray can	
<b>ADDITIONAL ITEMS</b>		
21mm lug nut socket	1	1/2 in drive, used wheel lug nuts
Long .5 drive breaker bar	1	used w/ 21mm socket on Lug nuts, they are very tight and need extra leverage
Car jack	1	the M3 is heavy & needs at least a 2 ton jack to lift 1 wheel
Mini spare tire	1	search the internet

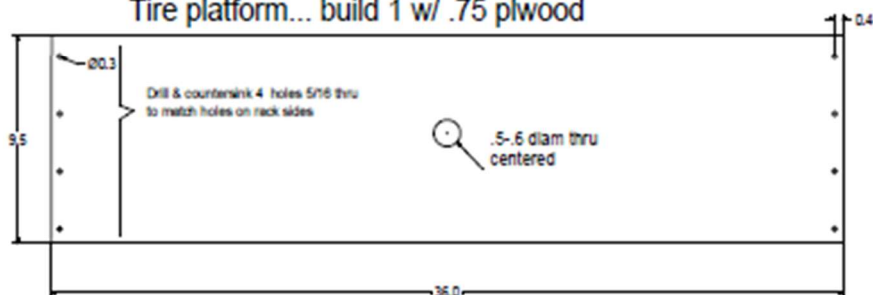
Rack sides... build 2 w/ .75 ply wood



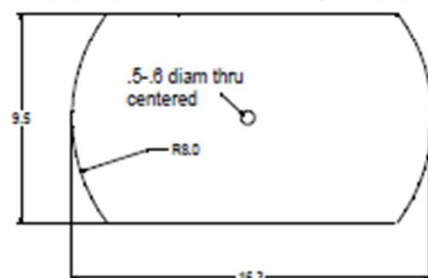
Cross section assembly view



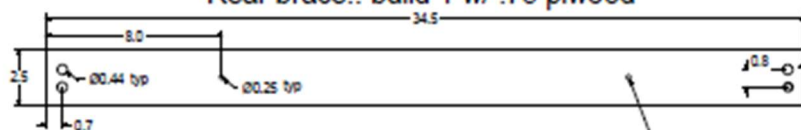
Tire platform... build 1 w/ .75 plywood



Tire hub... build 1 w/ .75 plywood



Rear brace.. build 1 w/ .75 plywood



Use barrel nuts and 1.5 x .25 #20 bolts to attach rear brace to rack sides.

Attach 2" eye bolts here. Then hook turn buckles to eye. Hook opposite side to rear seat latch hooks. Tighten so tire is held firmly to car body.

12.000"

use these 2 lines to check size if this sheet is plotted full scale.

12.000"

Notes:

- Plywood is .75 thick, sanded on 2 sides or better.
- All 1/4" screws and bolts are 20 threads/inch
- Drawing 10/25/19 Rev A By R.S. Forman
- rsf1a@comcast.net



Mini-spare tire mounted to rack .



Inside trunk, this side faces rear of car.



Inside trunk, this side faces rear seat back.



Left side detail



Spare tire inside trunk, pushed forward into position



Turn buckle attachment to rear seat latch hooks.  
Tighten to hold tire snug to upper deck.



"Cargo Area" access



Golf clubs still fit



