

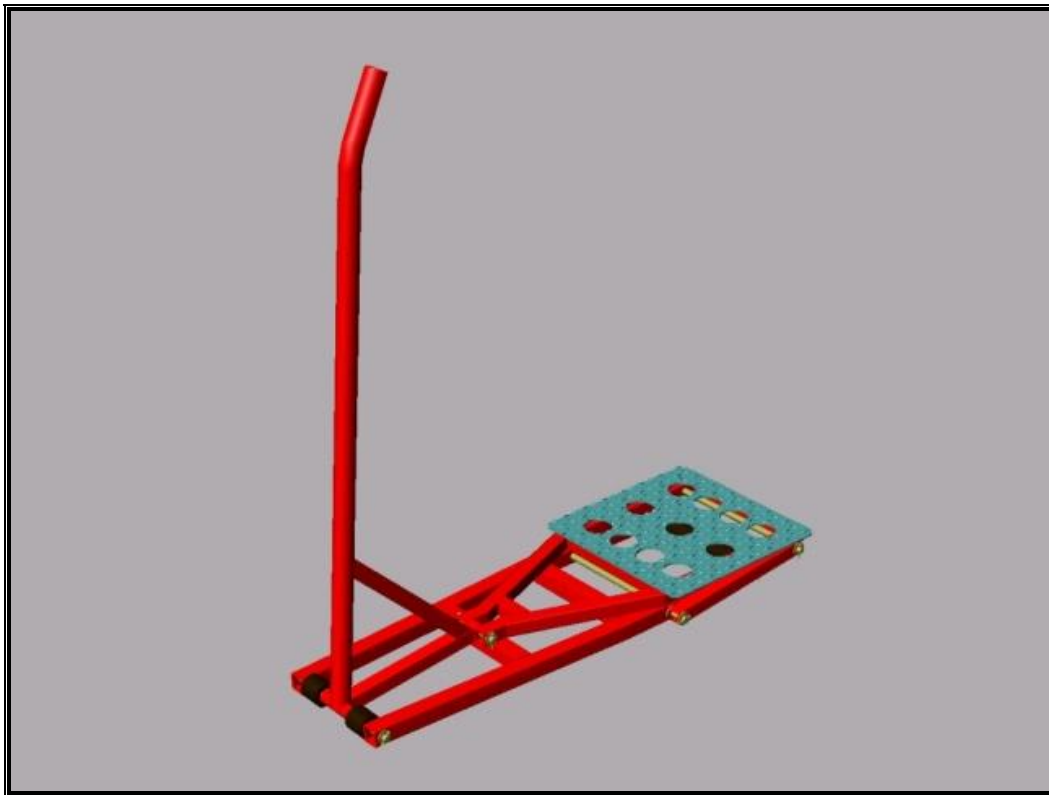
# Rorty Quick Lift Jack.

## Introduction.

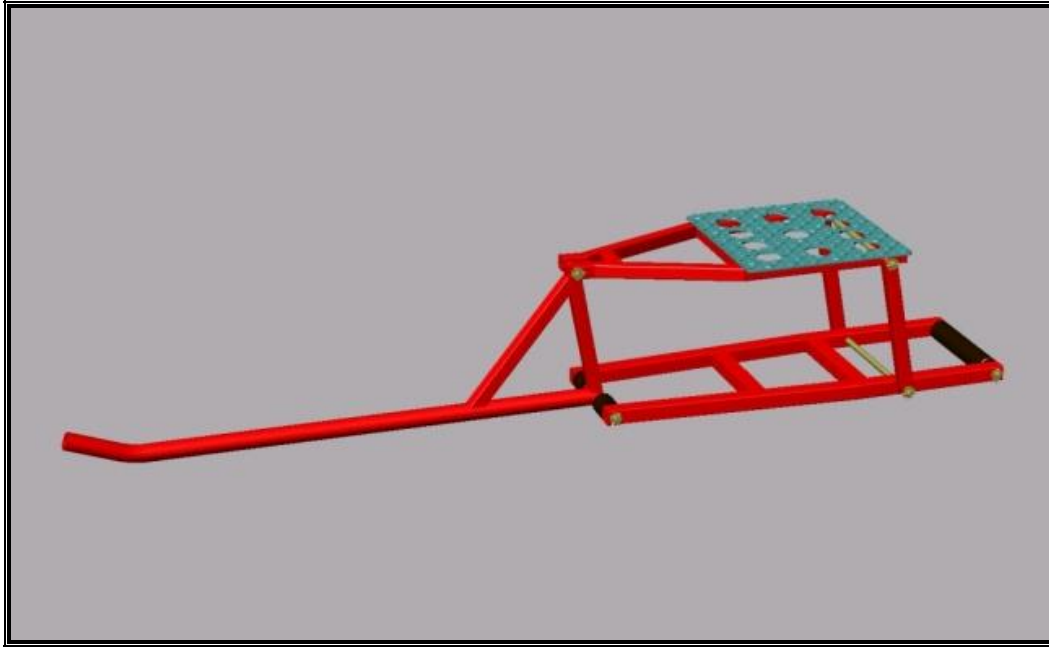
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Purchasing this Manual entitles the purchaser to build a single Rorty Quick Lift Jack. Furthermore, Rorty Design reserves the sole right to make any and every financial gain, from this Manual and any resulting device or derivative.



This quick lift jack is a fixed height jack: it will lift a motorcycle, kart or the front or rear of a car by a fixed amount. It does not provide incremental lift heights. The real benefits are that it is light, has a very low closed height, and the open height can be changed during fabricating to a figure of your choice by simply altering the lengths of the three links. The standard height, when closed, is 65mm (2 ½"), and 305mm (12") when open.



The standard configuration shows a large, square, diamond-plate lifting-platform, but any dedicated jacking-point fixtures or diff locators can quite easily be attached to the frame.

Three tough engineering-grade plastic rollers allow the jack some necessary movement during the lifting operation. The rollers can be used for manoeuvring but should not be used for transporting heavy loads once lifted. The end of the handle is angled upward, providing an easy grip without being too obtrusive.

Most workshops and home builders will probably already have the majority of the requisite materials at hand.

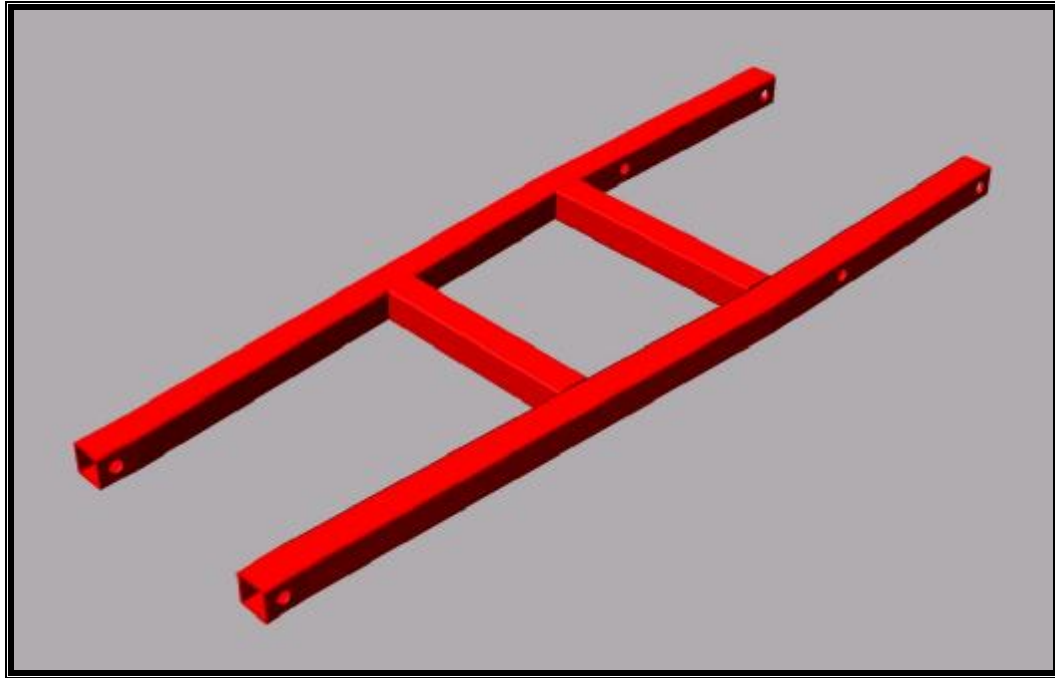
## **Materials And Fasteners List.**

1. Base frame:  
2100mm x 30mm x 30mm x 3mm SHS.
2. Top frame:  
2950mm x 25mm x 25mm x 3mm SHS.
3. Handle:  
1250mm x 25 DN 3.2mm wall pipe.  
600mm x 25mm x 25mm x 3 SHS.  
100mm x Ø 25mm round bar.
4. Tray plate:  
330mm x 330mm x 3mm aluminium diamond plate or chequer plate.
5. Rollers:  
300mm x Ø 41mm Nylon round rod.
6. Pivot bars:  
1350mm x Ø 12mm bright round bar.
7. 14 # 12mm flat washers.
8. 10 # 20mm x 3mm split pins.
9. Approximately 18 # 4.8mm blind rivets.

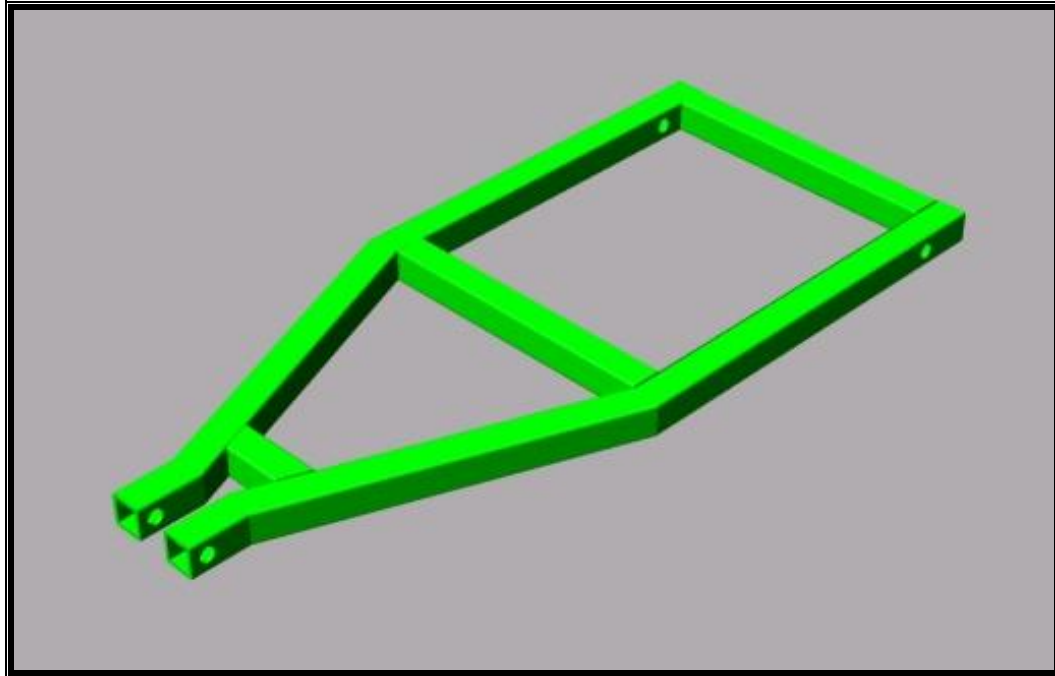
## General Construction.

### Bottom And Top frames.

1. From the dimensions shown in Drawing 1, cut the parts for the base frame from 30mm x 30mm x 3mm SHS.
2. Carefully mark and drill the 12mm holes for the pivot bars.
3. On a level surface, weld the base frame together ensuring the frame is square and flat.



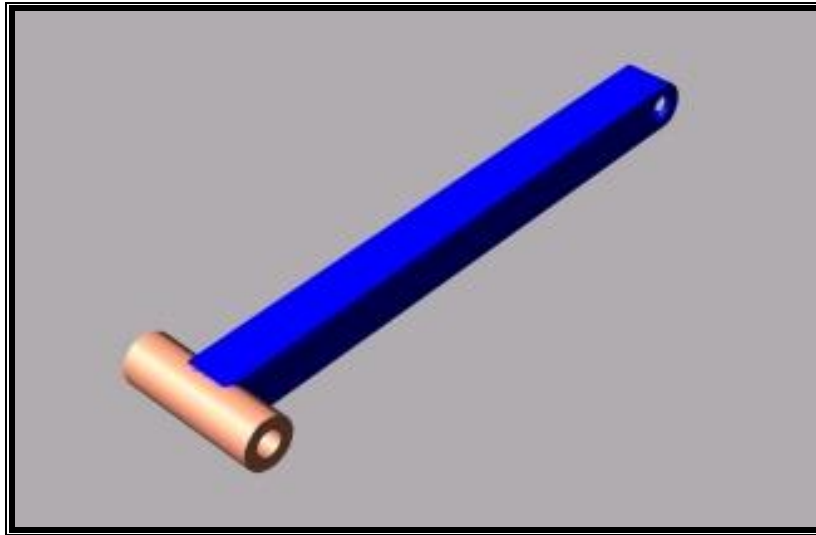
4. From the 25mm x 25mm x 3mm SHS, cut the parts for the top frame.
5. Carefully mark and drill the Ø 12mm holes for the pivot bars.
6. On a level surface, weld the base frame together ensuring the frame is square and flat.



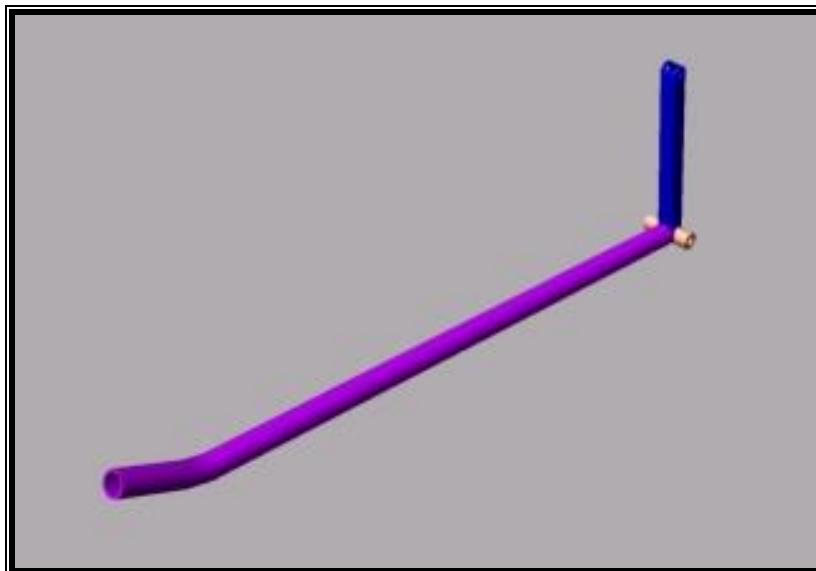
#### Handle.

7. Make the handle pivot by boring a Ø 12.2mm hole through a 75mm length of 25mm round bar.
8. To make the handle lever, take approximately 300mm of 25mm x 25mm x 3mm SHS and centrally pop a punch mark 12.5mm from one end. Place a compass in the punch mark and scribe a radius on the end of the SHS.
9. From the punch mark, measure along 270mm and pop another punch mark centrally on the SHS arm.
10. At the first punch mark, drill through the SHS with a 12mm drill bit. At the second punch mark, use a Ø 25mm hole saw and arbour to make a fishmouth.

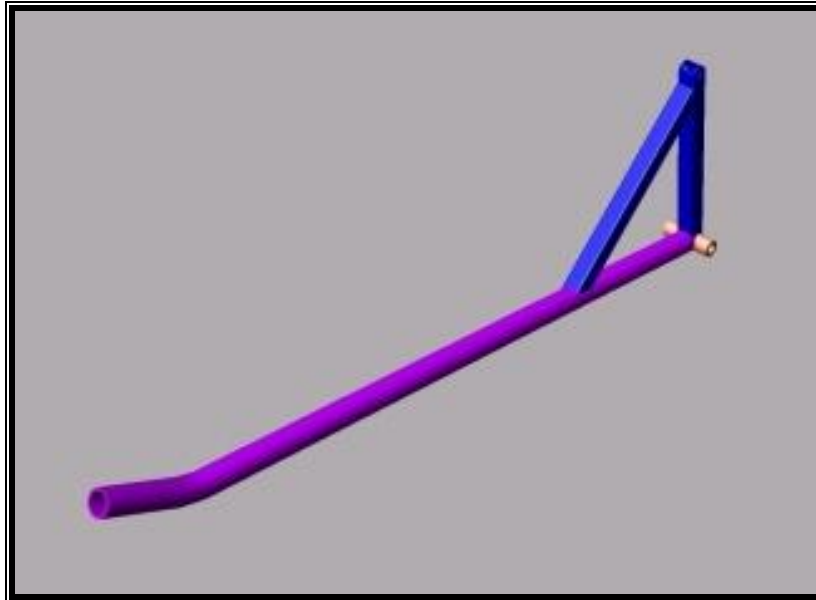
11. Place the handle pivot centrally in the lever arm's fishmouth that you've just cut and weld it in place.



12. Cut a one-metre length of the 25mm DN (nominal bore) pipe for the handle and 125mm from one end, bend the end up by 20°.
13. Cut and grind a fishmouth in the straight end of the handle so it fits neatly onto the handle pivot and around the SHS lever arm.
14. Tack-weld the handle to the pivot and lever arm. Check the assembly is true and square and then fully weld it.

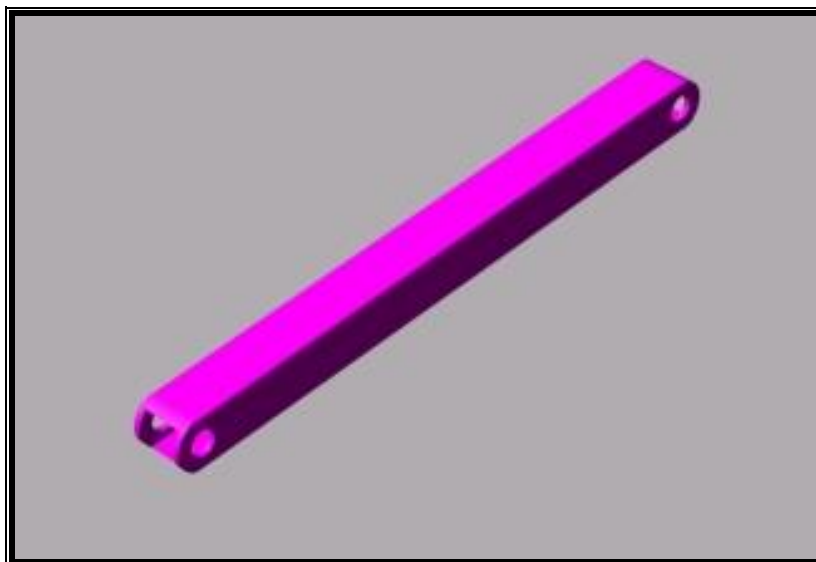


15. Cut roughly a 300mm long brace for the handle from some more 25mm SHS and grind a fishmouth in one end at an angle of about  $51^\circ$ . Cut the other end of the brace at  $50^\circ$ . The length and placement of the brace isn't too critical.
16. Weld the brace to the handle and lever arm.



#### Links.

17. Refer again to Drawing 1. In a similar fashion to the lever arm on the handle, mark, punch, drill and radius two more pieces of 25mm SHS for the links. Pay particular attention to the radiused ends, as they could foul the plate during operation if not accurately made.

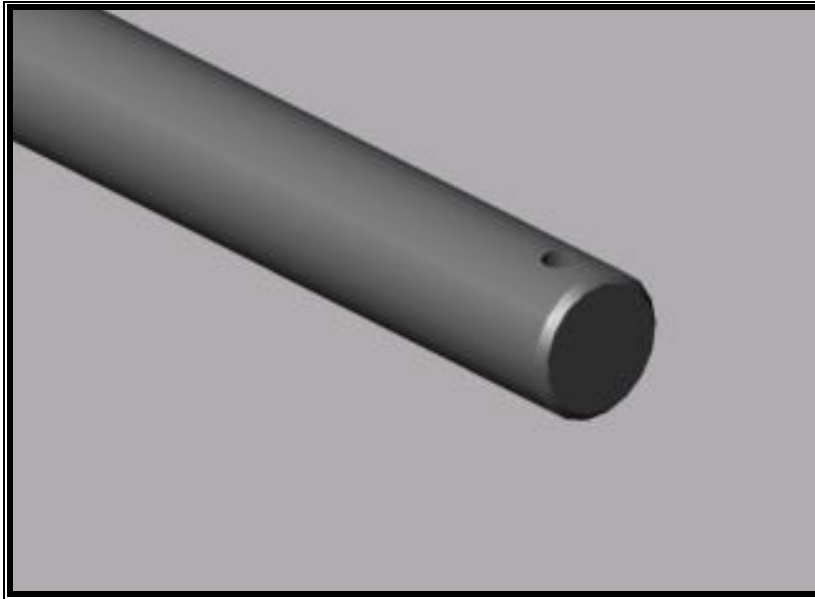


### Painting.

18. Check the integrity of all the welds and tidy them up with a file or grinder if applicable.
19. Use a proprietary degreaser or turps to remove any anti-spatter or oil from the metalwork.
20. Suspend the parts from wires and spray a couple of light coats of polyurethane paint over all exposed surfaces.

### Pivot Bars.

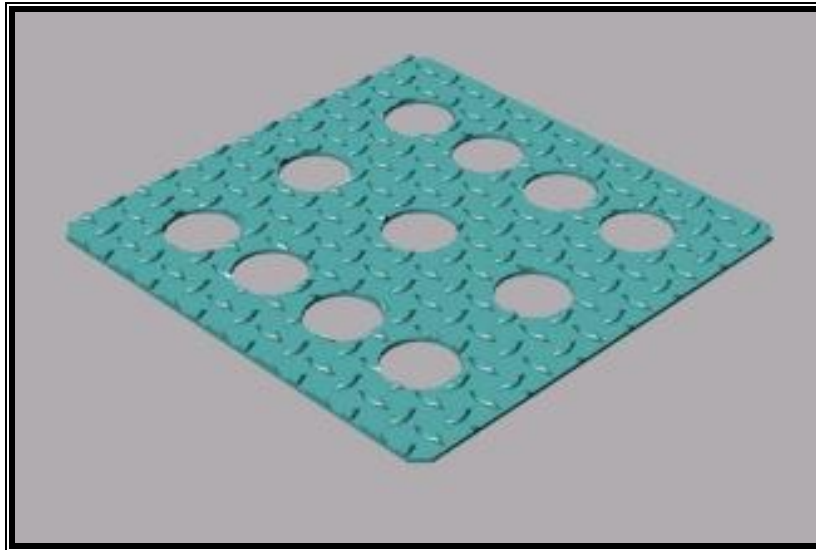
21. Cut the five pivot bars to length: 2 # 344mm long, 1 # 294mm long, 1 # 240mm long, and 1 # 93mm long.
22. From the ends of each bar, measure back 4.5mm and drill through with a  $\varnothing$  3mm drill bit.
23. Dress the ends of the bars on a grindstone.





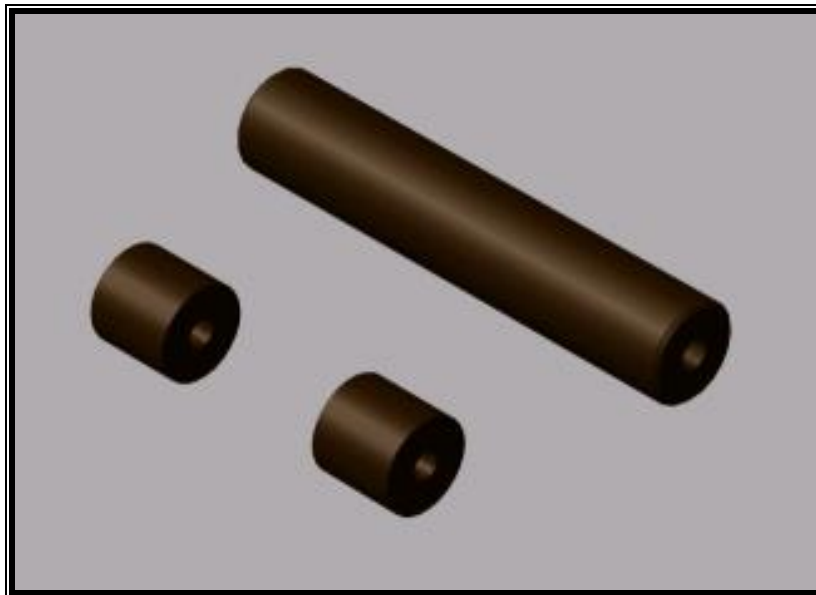
### Plate.

24. Cut a 330mm x 330mm square of 3mm aluminium diamond plate or chequer plate. If desired, large holes can be cut in the plate with a hole saw to assist with drainage or location.



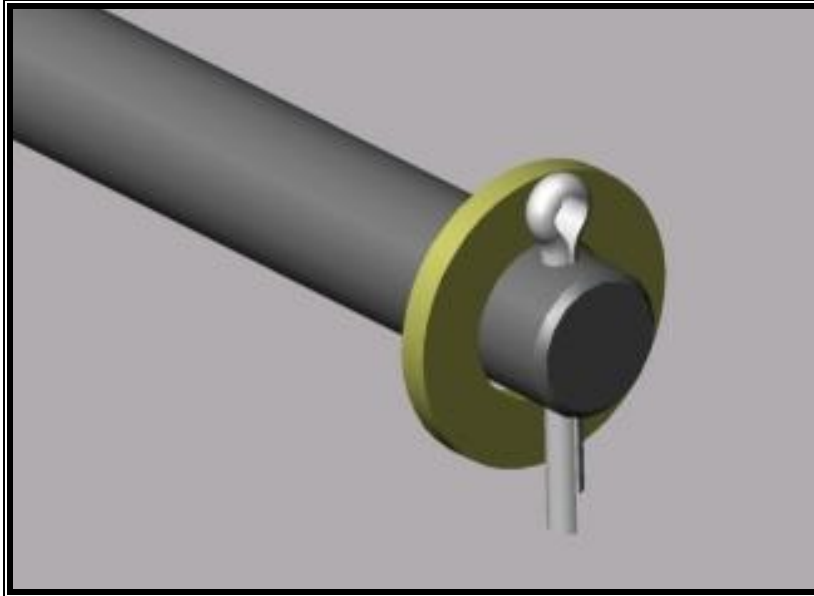
### Rollers.

25. Turn the three rollers from Nylon rod to the dimensions shown in Drawing 1.

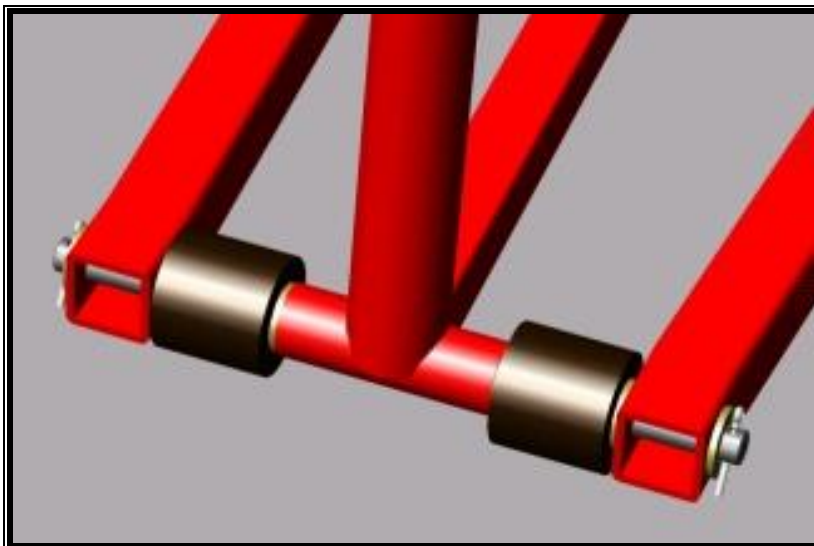


## Assembling The Quick Lift Jack.

26. Slide a washer onto one end of the 240mm long pivot bar, and insert a split pin into the hole to retain it.



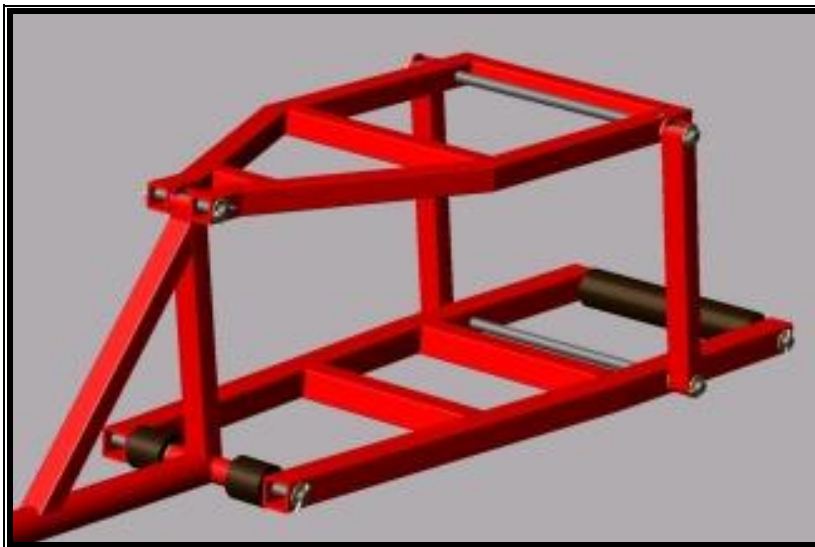
27. Push the bar into one side of the narrow end of the bottom frame. Keep pushing the bar through, and add first a washer, then one small roller, another washer, the handle assembly, another washer, the second small roller, and another washer. When the bar comes through the other side of the frame, fit a final washer and split pin. Splay the legs of the two split pins.



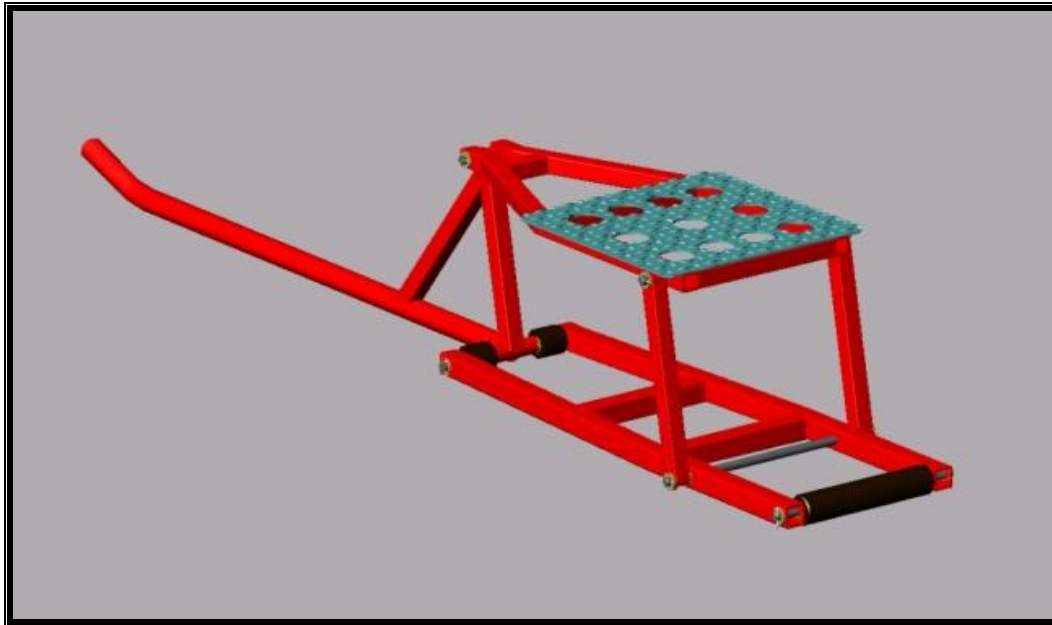
28. Assemble one of the 344mm long pivot bars in a similar fashion, attaching the two links to the bottom frame in the process.



29. Now you're getting the hang of it, take the 294mm long pivot bar and insert it into the wide end of the bottom frame, not forgetting to include the washers and large roller.
30. With the second 344mm long bar, attach the top ends of the links to the wide end of the top frame.
31. Push the 93mm long pivot bar simultaneously through the narrow end of the top frame and the end of the handle lever.



32. Make sure all the washers are correctly fitted and the split pins are securely positioned.
33. Clamp the plate to the top of the top frame and drill approximately eighteen evenly spaced holes through it and into the frame. Attach the plate to the frame with the blind rivets.
34. And finally, apply a few drops of oil to all moving parts and pivots.



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