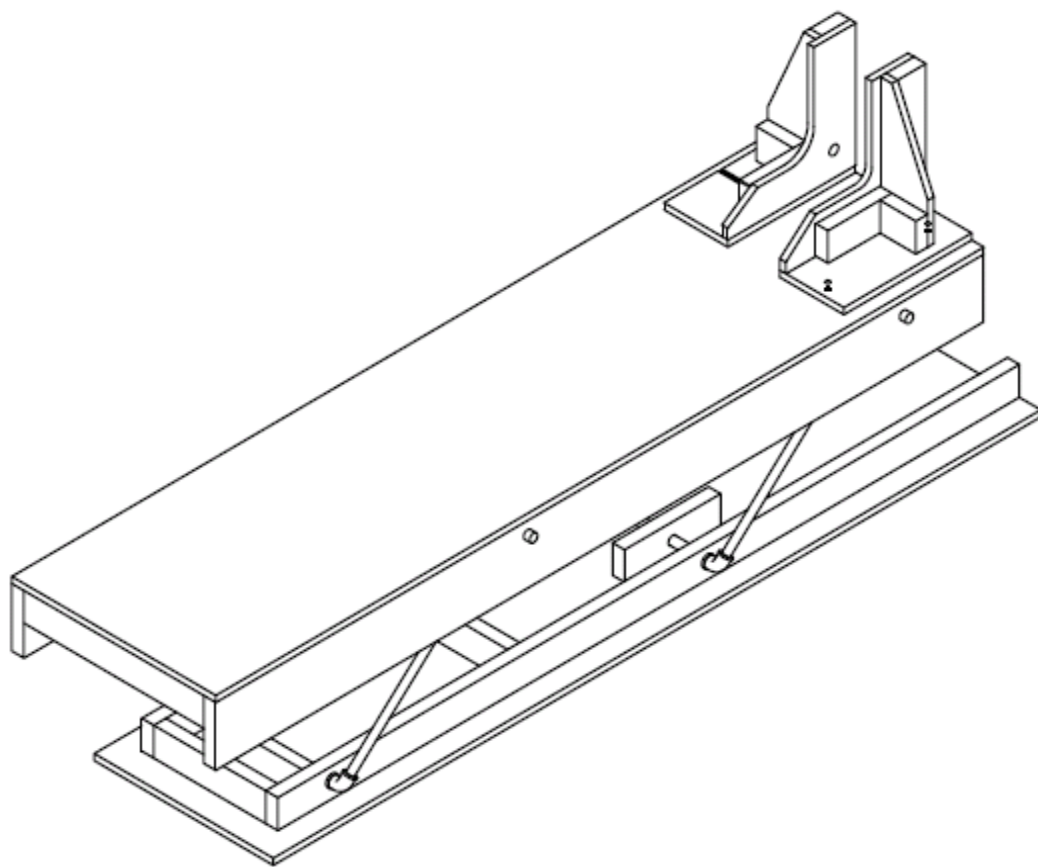


Motorcycle Lift Assembly Instructions



Lift Table Assembly Instructions

The following pages will assist you in the construction of your Motorcycle Lift Table. You will find this a great addition to your garage or shop. Lift your motorcycle, lawn mower, etc.. Also makes a great moveable workbench.

This guide is just that. You should not make any changes or additions to the design. If you are not comfortable performing the tasks in these instructions, seek help from someone more experienced. You should have the jack you are going to use before you make the lift. The floor jack I use is: [ITEM 4172-2VGA](#) readily available from [Harbor Freight Tools](#) and you should not be a problem to find. Do not use one of those small compact (cheap) jacks for the auto parts store.

This guide is setup in 5 sections:

1. Materials List
2. Cutting List
3. Drilling the Holes
4. Assembly
5. Drawings

You will need a few wood working hand tools to make your Motorcycle Lift:

- Circular Saw
- Hand Wood Saw
- Small Square (8")
- 3/8" Drill (variable speed is best)
- Pipe Wrench (8" –10")
- Pliers (Channel Lock)
- 1-1/4" Wood Bit (Flat Spade type)
- 1/2" Wood Bit (Flat Spade type)
- Set of Horses

Motorcycle Lift Table

Materials List

Quantity	Description	Size
Lumber		
1 Sheet	¾" Type BC Plywood	4' x 8'
2	2x8 Board	8'
5	2x4 Board	8'
¼ Sheet	¾" Type BC Plywood	4' x 2'
¾" Pipe Steel - Black		
2	18" Pipe	¾" x 18"
5	24" Pipe	¾" x 24"
2	5" Pipe	¾" x 5"
2	12" Pipe	¾" x 12"
4	Tee	¾"
2	Union (<i>not a straight coupling!</i>)	¾"
4	2-1/2" Nipple	¾" x 2-1/2"
4	90 Degree Elbow	¾"
Miscellaneous Hardware		
1 Box	Deck Screws	2"
1 Box	Deck Screws	3"
1 Tube	Construction Adhesive	Large
6	Tee-Nut - 3 Prong	5/16"
3	T-Knob	5/16"
3	Bolt-Full Thread (Carriage Bolt)	5/16" x 1-1/2"
3	Flat Washers	5/16"
1	Wood Drill Bit	1-1/4"
1	Pony Clamp	¾" Pipe Clamp
1	Wood Drill Bit	½"
1	8' of Small Cord	1/8"
5	Small Eye Hook	¼"

Lift Table:

Plywood Cuts:

The plywood for the top should be cut 25-1/2" wide at the home center where you buy it. The base will end up approximately 22-3/8" wide depending on the width of the saw kerf. The plywood for the wheel clamp should be cut according to the supplied drawings. The excess can be used as a ramp to roll the bike onto the lift.

2x4 Cuts:

Qty	Description	Size
2	Stringers	92-3/4"
2	Cross Brace	13-3/4"
5	Pipe Brace	12"
1	Rear Cross Brace	22-1/2"
1	Long Support Latch*	34-7/8"
2	Short Support Latch*	28"

*May need to be trimmed to fit depending on the hydraulic jack.

Wheel Clamp 2x4 Cuts:

Qty	Description	Size
2	Upright	15-1/4"
2	Brace #1	6-1/2"
2	Brace #2	6"

Lift Table Assembly:

After cutting all of the 2x4 lumber to size you are now ready to begin assembling the table. Drill all holes according to the attached drawings.

1. Drill 1-1/4" through holes, in the 2x8's at 10" and 57", 1-1/2" down from the top edge (See drawings). Lay the 2 boards one on top of the other, line up the edges, clamp and drill through both at 1 time. Set 2x8 stringers aside for now.
2. Drill 1-1/4" through holes, centered in the 2x4 base stringers at 39" and 86". Lay the 2 boards one on top of the other, line up the edges, clamp and drill through both at 1 time. (See drawings)
3. Drill 1-1/4" through holes, centered at in all 2x4x12" pipe braces at 6"

Assemble the base:

4. Setup the horses and place the base plywood piece on them.
5. Measure the base width (approx. 22-3/8") and mark center (approx. 11-3/16" from edge) at each end.
6. From the center mark, measure 6-7/8" toward each edge and mark at both ends.
7. Secure the 2 - 92-3/4" stringers on these marks with construction adhesive and 3" screws, 3" apart along the full length. The ends must be even with the front edge. Do not drive screws into the 1-1/4" cross-holes.
8. Secure the 2 - 13-3/4" cross braces at the positions shown in the drawing with construction adhesive and 3" screws, 3" apart along the full length.
9. Secure the cross braces with 3" screws through the stringer into the ends of the cross braces.
10. Place 1 - 12" pipe brace inside the stringers at the location (toward the front) shown in the drawing.
11. Slide an 18" piece of pipe through the stringer, pipe brace and through the opposite stringer to make sure that the pipe brace is properly aligned.
12. Secure the pipe brace 2-7/8" in from right stringer with construction adhesive and 3" screws, 2" apart at 1", 3" and 5" from each end of the pipe brace. Do not drive screws into the 1-1/4" cross-holes.

Now to assemble the pipes!

13. Slip 2 pipe braces onto the top forward 18" pipe.
14. Slip 2 pipe braces AND the long latch and short latch onto the top rear 18" pipe. Make sure the latches are between the 2 pipe braces.
15. Screw a Tee fitting onto each end of the 18" pipe. Make sure to be careful of the orientation of the openings, tighten with wrench. (See drawings)
16. Screw the 2-1/2" nipples into the end of each Tee fitting. Tighten with wrench.
17. Screw 90° elbow onto the end of each 24" pipe. Tighten with wrench.
18. Screw 24" pipe into Tee fitting. Tighten with wrench.
19. Push 5" (from the left side) and 12" (from the right side) pipe thru holes in the stringers. (See drawings)

20. Mount union onto the end of each 5" and 12" pipe, inside the frame. (See drawings) Do not tighten union nut yet.
21. Place pipe frames with elbows in front of each through hole and screw 5" and 12" pipe into each elbow completing pipe frame. Tighten with wrench. Tighten Union nut with wrench.
22. Lay each pipe frame toward the front of the base. Make sure the latches are pointing toward the front of the base.
23. Drive 2 - 3" screws into the edge of each latch board, 1" and 5" from the end. Flip the latch boards over and drive 1 - 3" screw in at 3" from the end. This adds protection from the latch board possibly cracking under load.
24. Flip the latch boards back over pointing toward the front.
25. Screw in an eyehook about 2" up from the end of each latch board facing up.

Mounting the top:

26. Place the left and right 2x8 stringers onto the ends of the 2-1/2" pipe nipples. (See drawing for orientation)
27. Orient the pipe braces 5" in from each 2x8 stringer. (See drawing)
28. Apply construction adhesive to the top of each stringer and pipe brace.
29. Secure the plywood top to the 2 - 96" 2x8 stringers with 3" screws, 3" apart along the full length. The ends of the 2x8 stringers must be even with the front and rear edge of the plywood. Be careful to stay 1" away from the through hole for each pipe nipple. Do not drive screws into the 1-1/4" cross-holes.
30. Secure the pipe braces 5" in from each stringer with construction adhesive and 3" screws, 2" apart at 1", 3" and 5" from each end of the pipe brace. Do not drive screws into the 1-1/4" cross-holes.
31. Secure rear cross brace with construction adhesive and 3" screws.
32. Secure the cross brace with 3" screws through the stringer into the ends of the cross brace.

Installing the latch lifting cord:

1. The lift table is now nearly complete. Lift the table up onto it's side and pull the base away from the top.
2. The pipes will act like a scissors and open up. Pull the base away until the pipes are at about 90° to the top.
3. Swing the latch boards up to the top and mark the location of where the eye hooks line up. Screw an eyehook into this position in the underside of the top.
4. At 90° to this position on the left 2x8 stringer screw in an eye hook.
5. At the front edge of the 2x8 stringer near the top, screw in an eye hook.
6. Thread the cord through the 2 eyehooks in the latch boards. Tie a square knot into the end.
7. Thread the cord up through the eyehooks in the underside of the top, left stringer 2 positions.
8. Fold base back into the top. Pull latches out of the way if necessary.
9. Flip lift back onto its base and place on the ground.

10. Place your floor jack into the area at the front with the lifting cup centered under the pipe. I turn the cup so that the pipe runs through the raised edges.
11. Begin lifting the top by closing the valve and pumping the jack.
12. The first latch will lock in at approximately a 12" height.
13. The second latch will drop in at approximately a 24" height. This will depend on the lifting height of your jack. You may have to trim the latch board a little to make it drop in.
14. After the long latch has dropped into place release the floor jack and allow the latch to hold the top in the raised position.
15. Make sure the cord is pulled taught and tie a 3" loop in the end of the cord for a hand pull. Cut off excess cord.
16. Raise jack again to lift top off of the latch, pull and hold the release cord, release jack.
17. Once the lift has fully dropped, release cord.
18. Paint lift table. I used left over deck paint.

Wheel Clamp Assembly:

1. Cut plywood and 2x4 pieces as per the drawings.
2. Mark and drill 2 – ½" holes in left plywood bottom plate.
3. Cut slot in right plywood bottom plate. To do this, mark and drill a ½" hole at the inside end of the slot. Lay your square even with the edge and draw 2 lines from the edge to each side of the ½" hole. Cut down the lines with a circular saw to the edge of the hole and then finish the slot with a handsaw.
4. Mark where the 1-1/4" hole will be drilled through both of the uprights.
5. Place the 2 "L" (marked A in the dwgs.) shaped pieces on the bench and mark left and right. We are making 2 opposing pieces so the 2x4 pieces will be mounted on opposite sides.
6. Apply construction adhesive to the 15-1/4" 2x4 "D" and place on the "L" shaped plywood "A". Attach with 2" screws through the plywood into the 2x4 at the top and bottom at this time. Avoid screws in the area that will be drilled.
7. Drill 1-1/4" hole thru 2x4 and plywood as shown in drawing.
8. Finish securing with about 10 more screws each.
9. Apply construction adhesive to the inside edge of upright 2x4 "D".
10. Secure plywood piece "B" to the edge of "D" and secure with 2" screws 2" apart. Do not screw into the 1-1/4" hole.
11. Apply construction adhesive to the back of 2x4 "E" and secure with 2" screws.
12. Apply construction adhesive to 2x4 "F" and secure with 2" screws.
13. Apply construction adhesive to all bottom surfaces and secure bottom plywood bottom plate "C" with 2" screws.

Assemble Wheel Clamp

The wheel clamp assembly uses the ¾" Pony Clamp and a 24" pipe.

1. Place both wheel clamp halves side by side. Align 1-1/4" hole.
2. Screw the top of the Pony clamp onto the 24" pipe.
3. Slide pipe through the hole in both wheel clamp parts.
4. Slip the sliding end of the pony clamp onto the pipe tight against the wood stop.
5. Screw the small keeper onto the end of the pipe.
6. Tighten clamp

Attach Wheel Clamp to Lift Table

1. At the front edge of the Lift Top, mark the center. It should be 12".
2. Place the wheel clamp assembly on the Lift Top, align with front edge and open it as wide as it will go.
3. When fully open, find the center and align this with the center of the lift top.
4. With a pencil, mark the center position of the 2 fixed holes in the left clamp base and the furthest inside location of the slot. This will be where the T-Nuts will be located for mounting the wheel clamp.
5. Remove the wheel clamp and drill a hole in all 3 locations for the T-Nuts.
6. From underneath the top, place the T-nut in each hole and drive into place with a hammer.

To make the T-Bolts used for attaching the wheel clamp, I use a 5/16" bolt with some thread locking (Loc-Tite or Super Glue) compound on the threads and then screw the bolt into the T-Knob fully. I then cut the head of the bolt off and clean up the end.

Use a flat washer under each T-Knob.

Mount the clamp onto the Lift Table with the T-screws. I mark the outline of the left side base onto the Lift Table top with a marker so that it's easy to position the clamp each time.

Some pictures of the Prototypes



I added 3 extra Tee-Nuts to the clamp as a place to keep the T-Knobs when not in use. I later added a Handle to the right side.



I drilled a hole through each clamp face and put a 1" screw in to secure the clamp in place.



Lift the table by placing the cup of the floor jack under the cross pipe at the front.

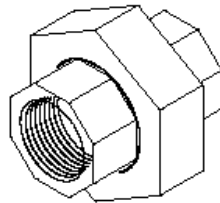


Resources

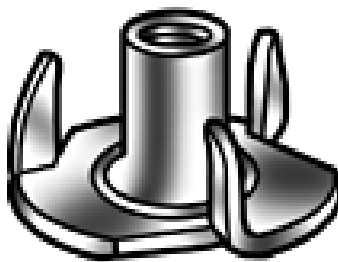
Do Not Use Straight Couplings



Use Only Unions!!



Floor Jack	Harbor Freight Tools	ITEM 4172-2VGA
Pony Clamp	Harbor Freight Tools	ITEM 31255-8VGA
Casters Swivel	Harbor Freight Tools	ITEM 34733-1VGA



Tee-Nut

Available at nearly any hardware store or home center

<http://www.harborfreight.com>

2-1/4 TON GARAGE JACK



HEAT-TREATED AT MAXIMUM STRESS POINTS

At 70 lbs. this smooth rolling jack is ideal for shop use. Heavy-duty steel wheels move easily on garage floors. 47-1/4" handle length. 25-1/2" x 13-3/4" chassis.

- Design: floor jack
- Capacity: 2-1/4 ton
- Maximum Height: 19-1/4"
- Minimum Height: 5"
- Weight: 70 lbs.

ITEM 4172-2VGA

<http://www.harborfreight.com>

3/4" HEAVY DUTY CAST IRON PIPE CLAMP (2 PC)



Constructed from durable cast iron. Lifetime Warranty. Threaded Pipe not included.

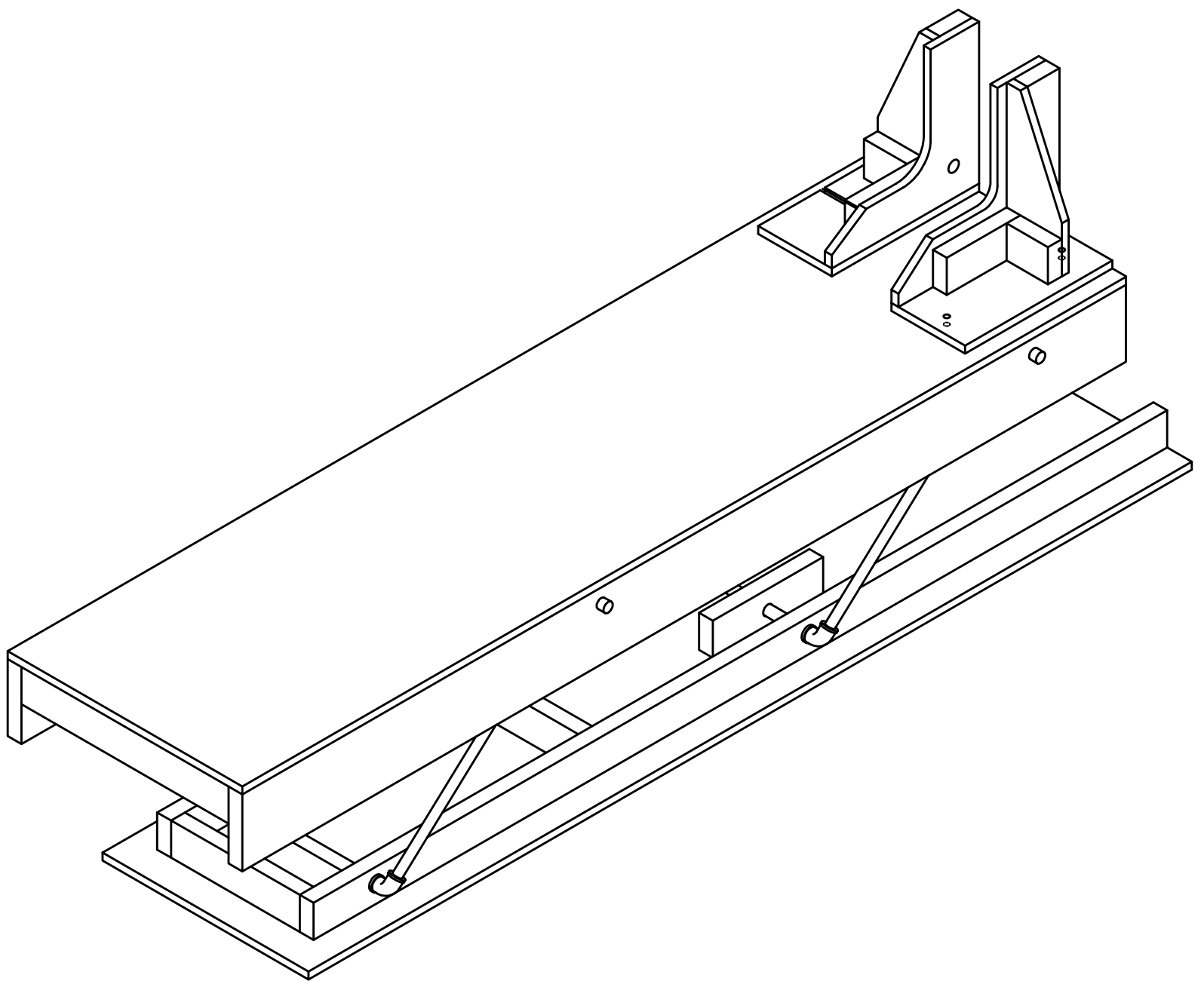
- Clamp: 3/4"
- Throat depth: 1-1/2"
- Shipping weight: 2.4 lbs.

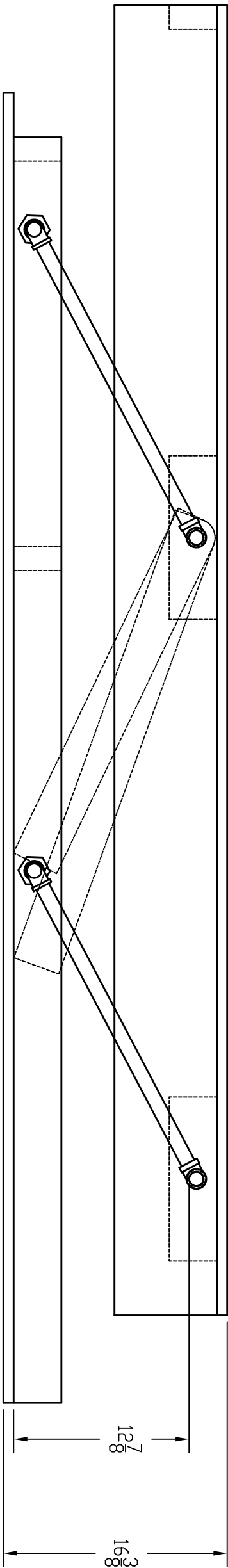
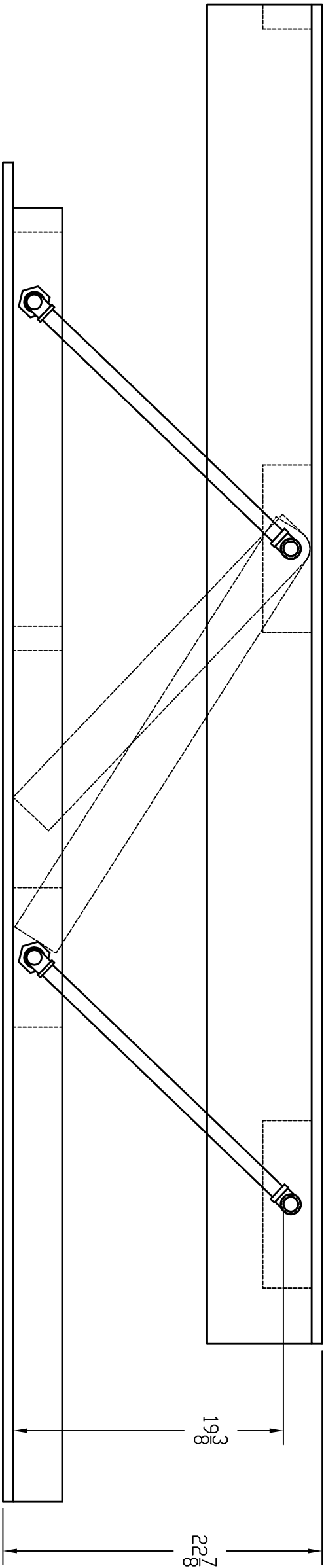
ITEM 31255-8VGA

DISCLAIMER

The author/distributor of these plans/drawings specifically disclaims any liability or risk of personal injury, property damage, or other damages, incurred directly, or indirectly as of consequence of the use of these plans/drawings. Use of these plans/drawings constitutes an agreement that the author/distributor has no liability for their used application.

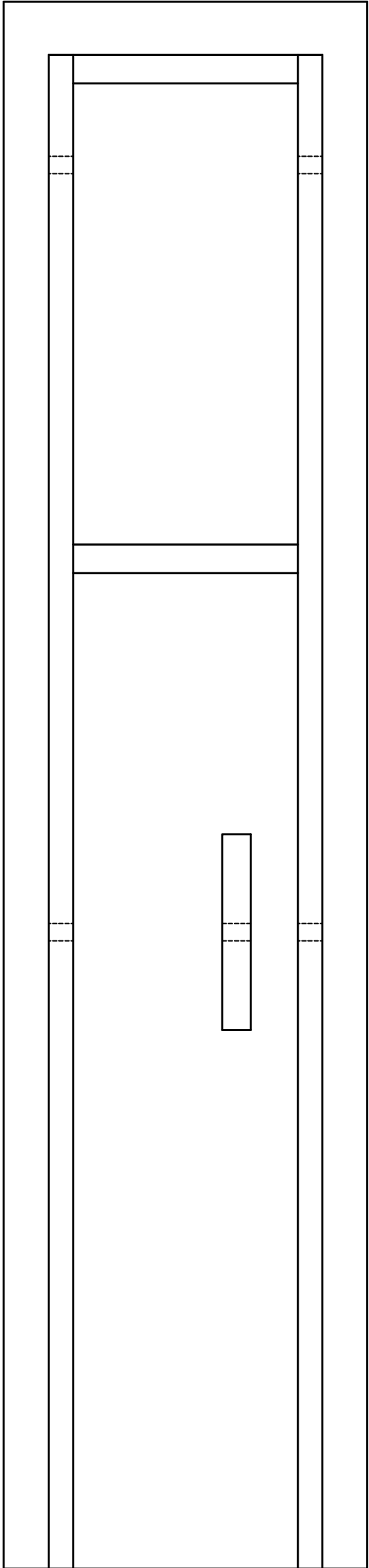
Motorcycle Lift Drawings





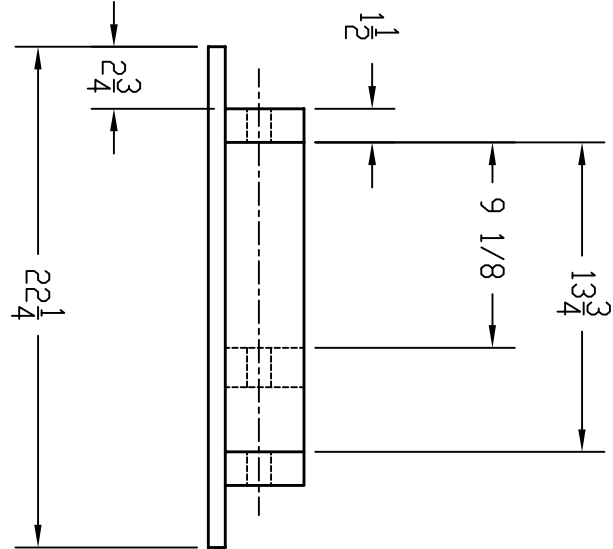
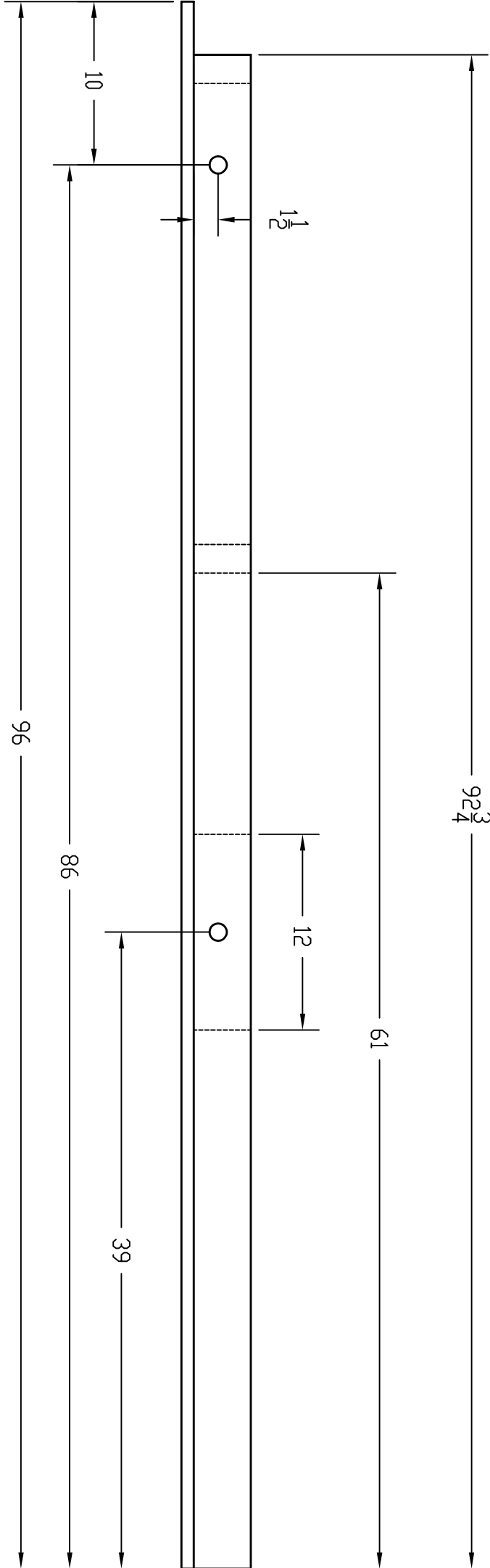
BASE

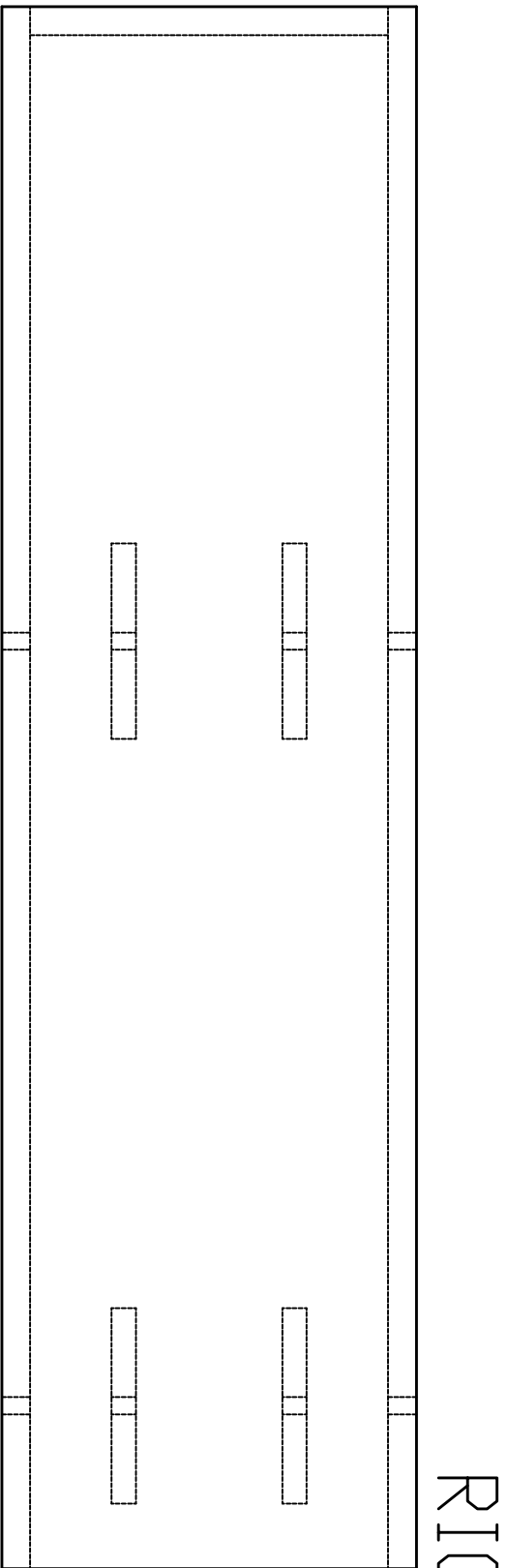
RIGHT



FRONT

LEFT

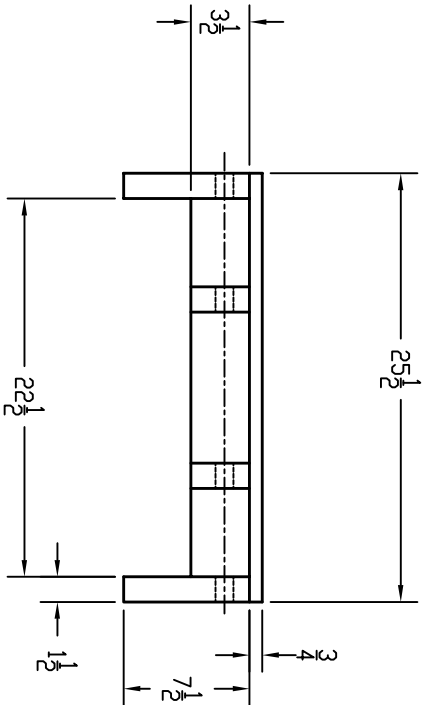
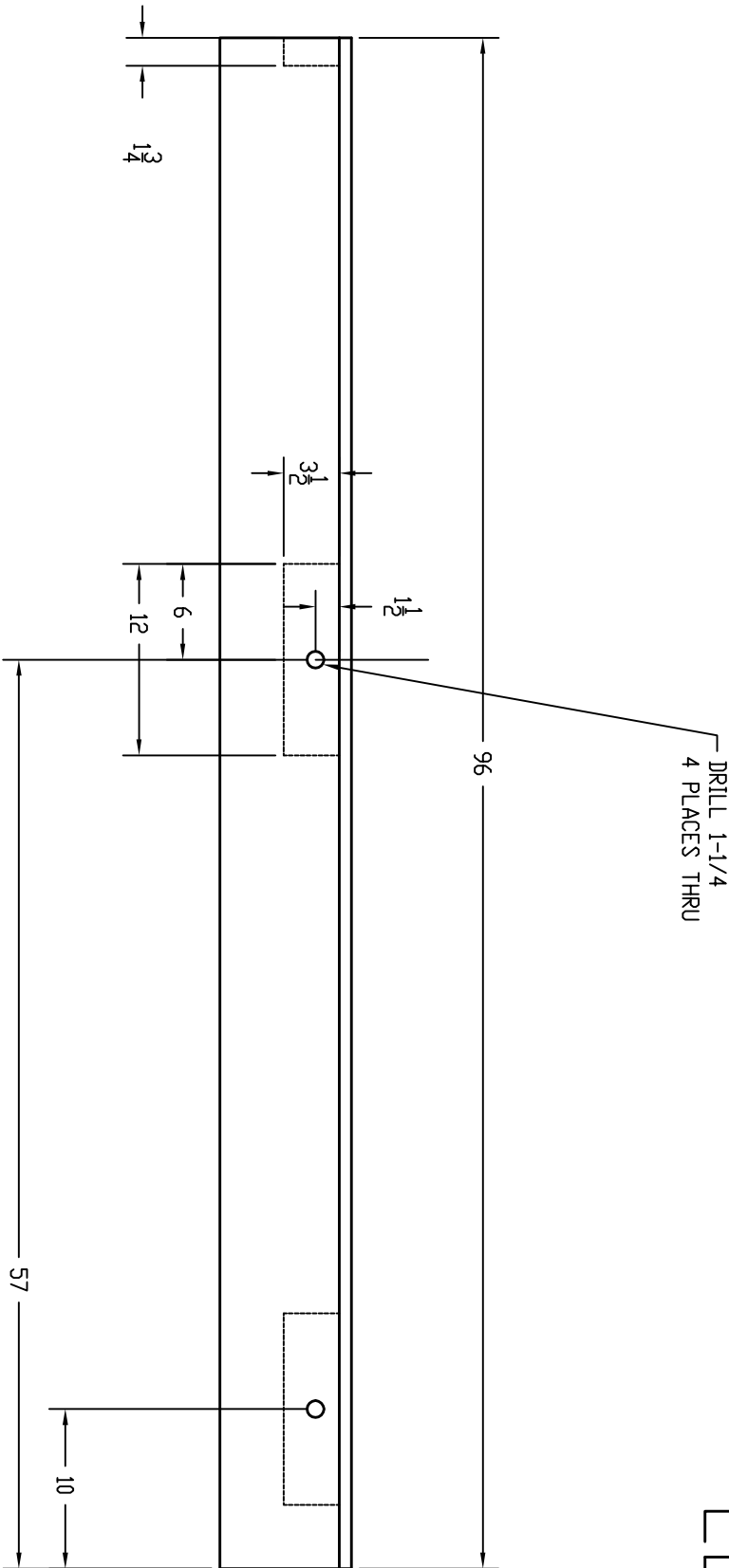


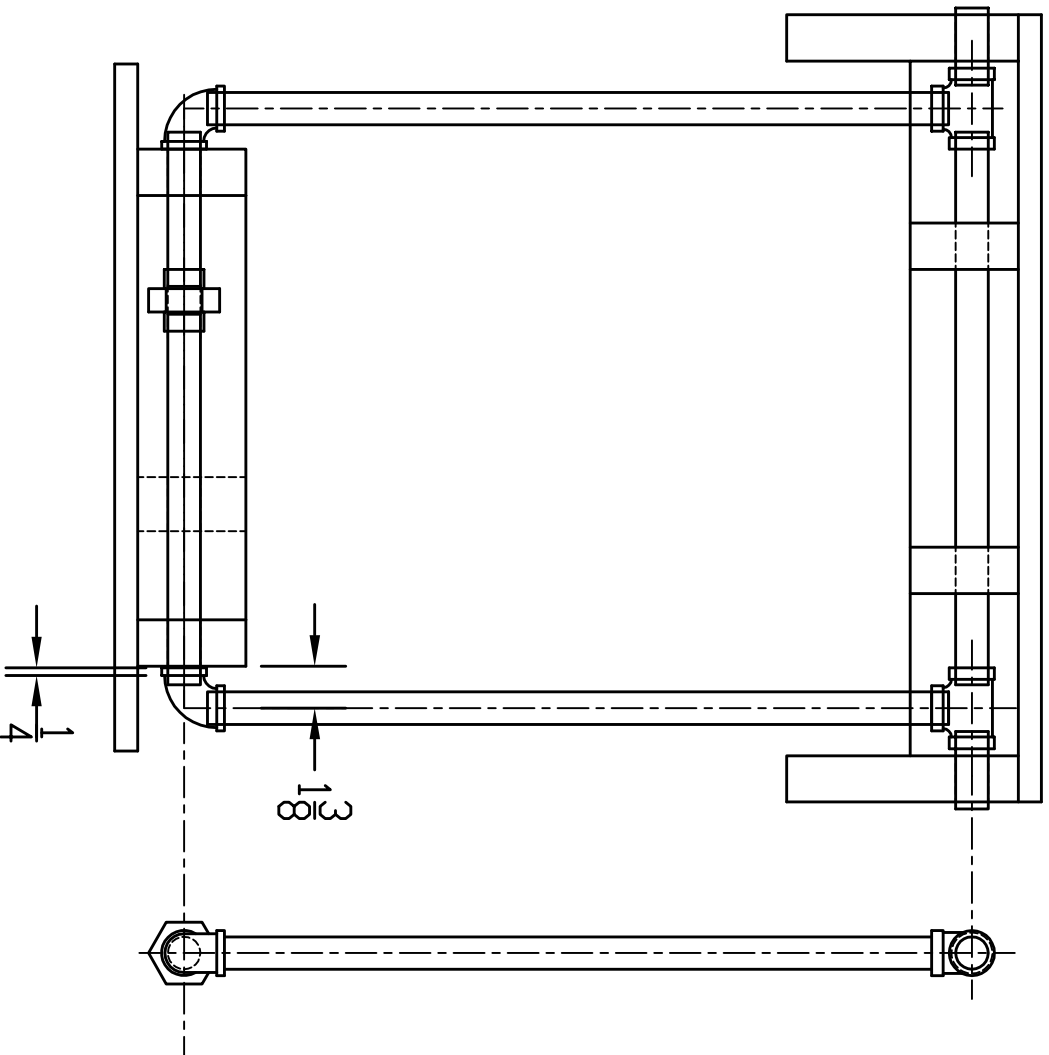


RIGHT

FRONT

LEFT





3/4" PIPE TEE
BLACK IRON
2 REQ'D

3/4" PIPE
BLACK IRON
18" LONG

3/4" PIPE
BLACK IRON
2-1/2" LONG

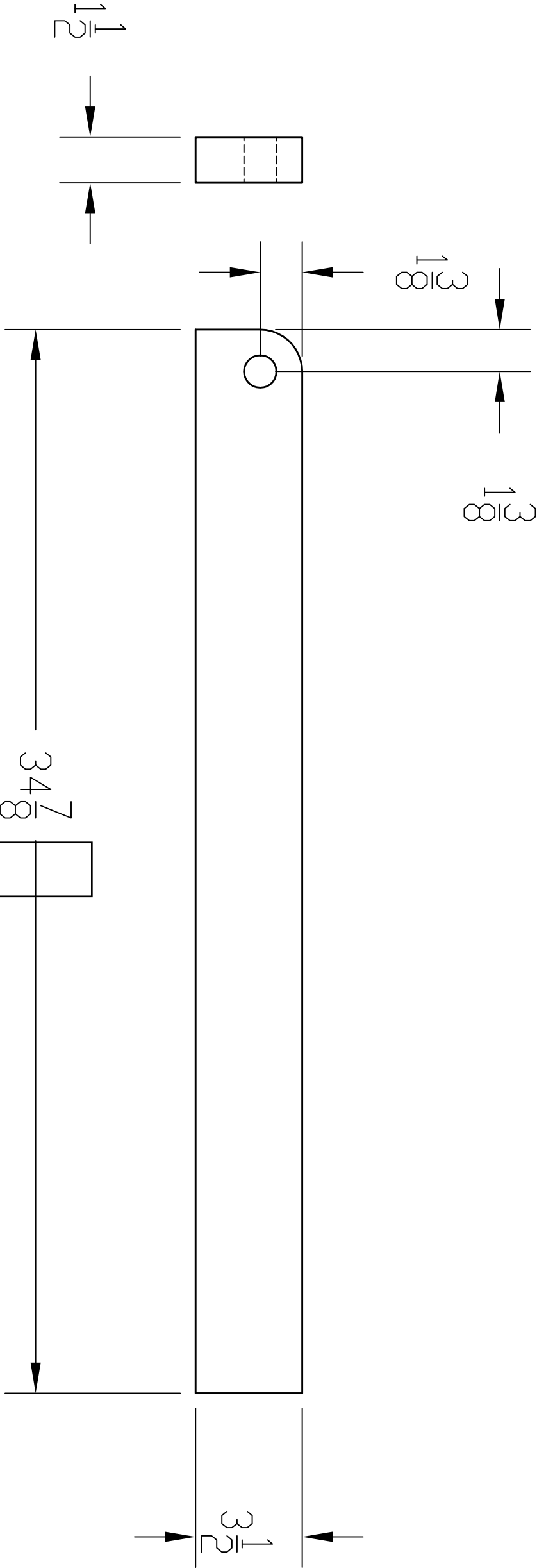
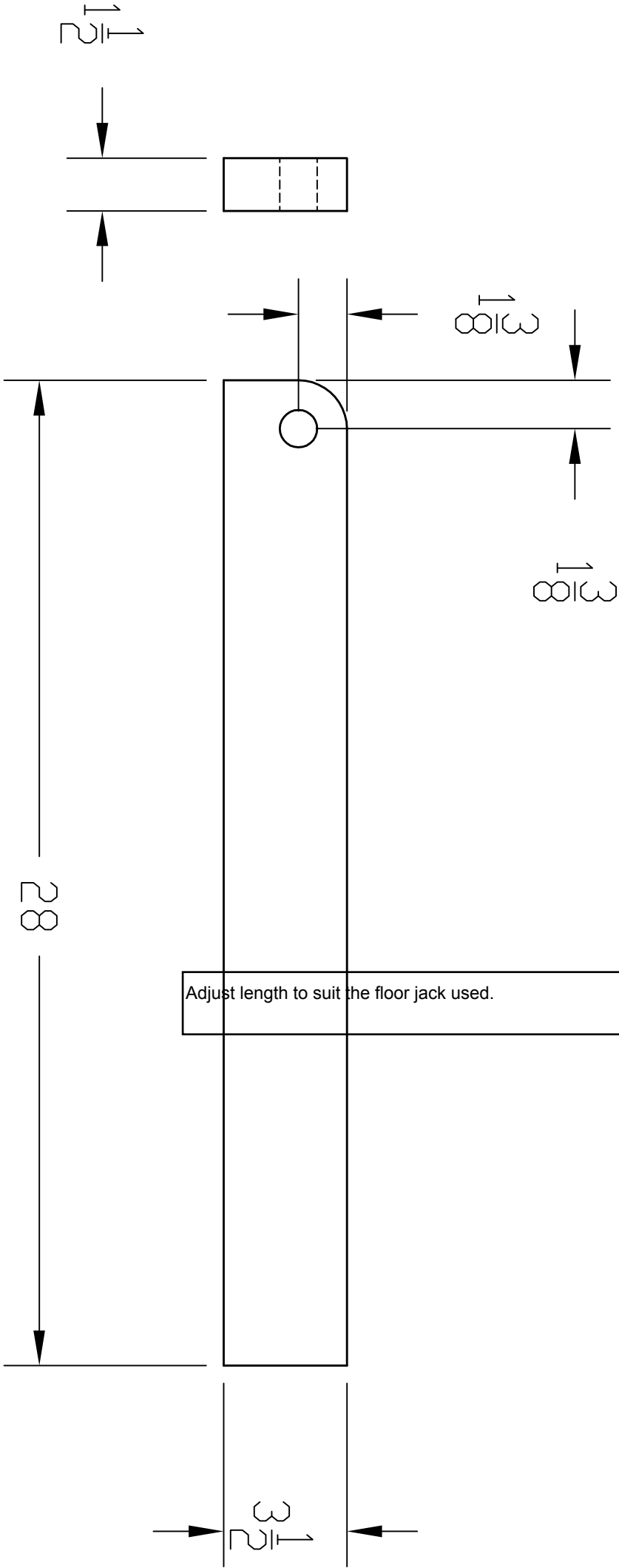
3/4" PIPE
BLACK IRON 24" LONG
2 REQ'D

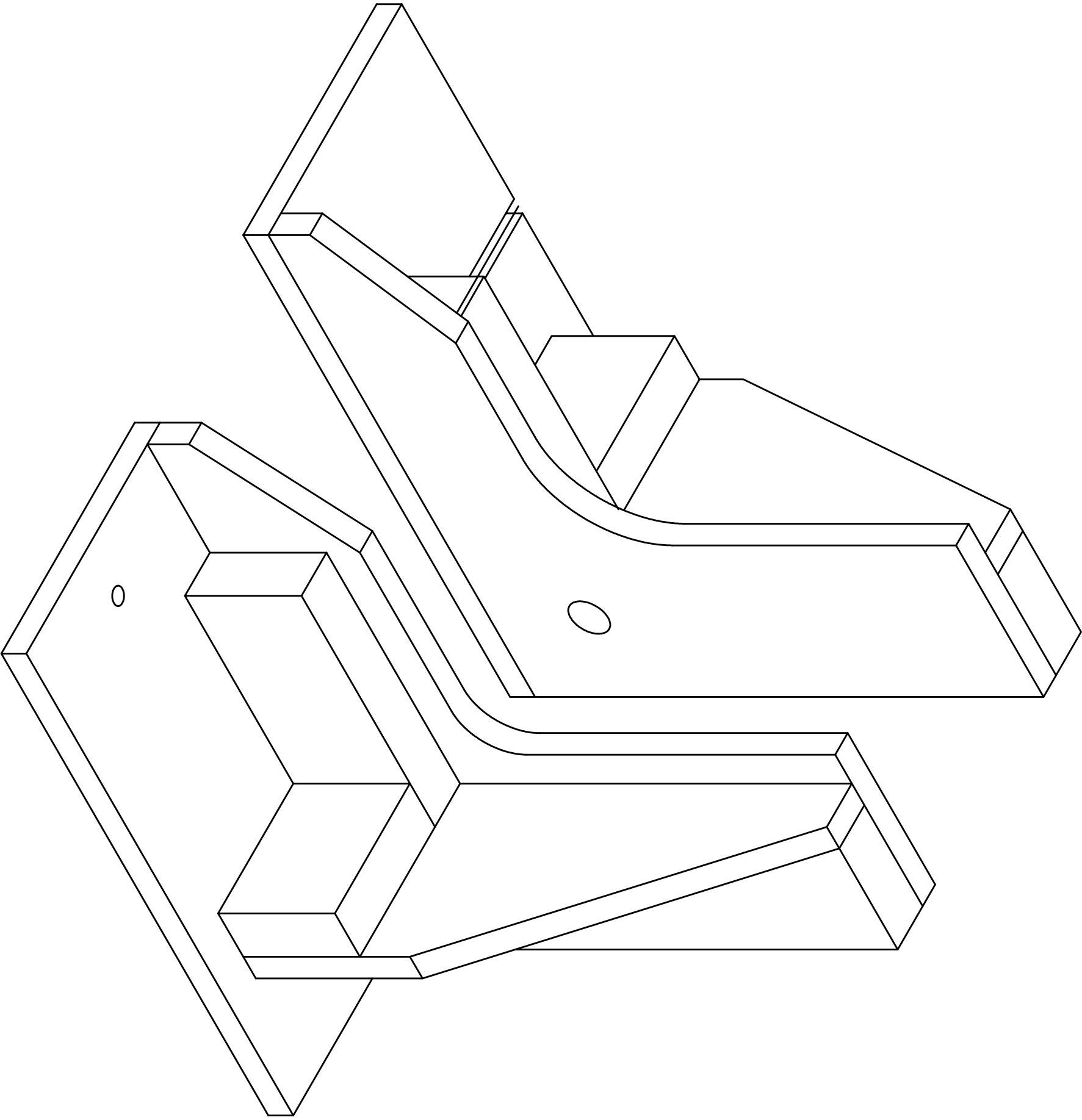
3/4" 90° PIPE
BLACK IRON
2 REQ'D

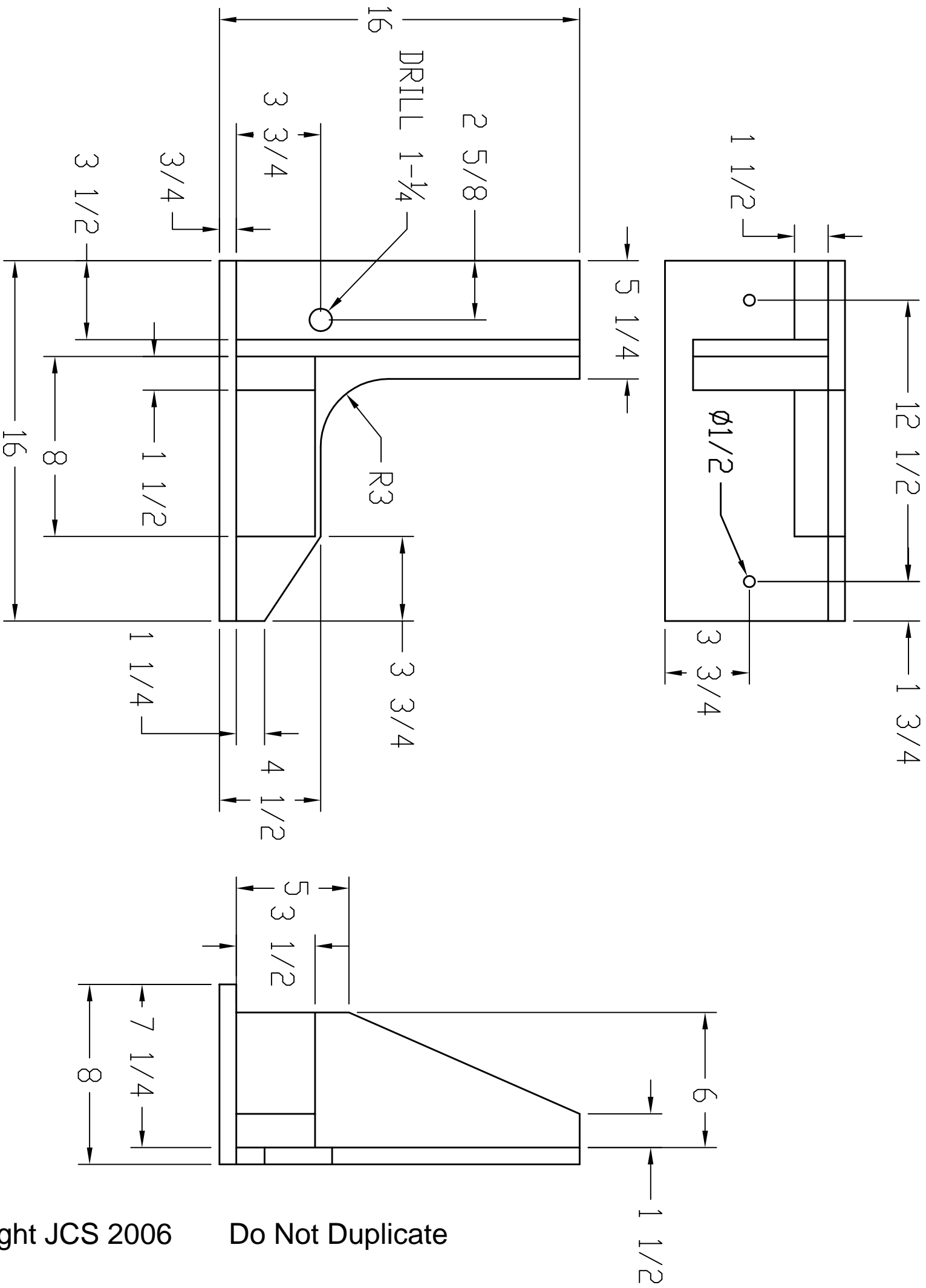
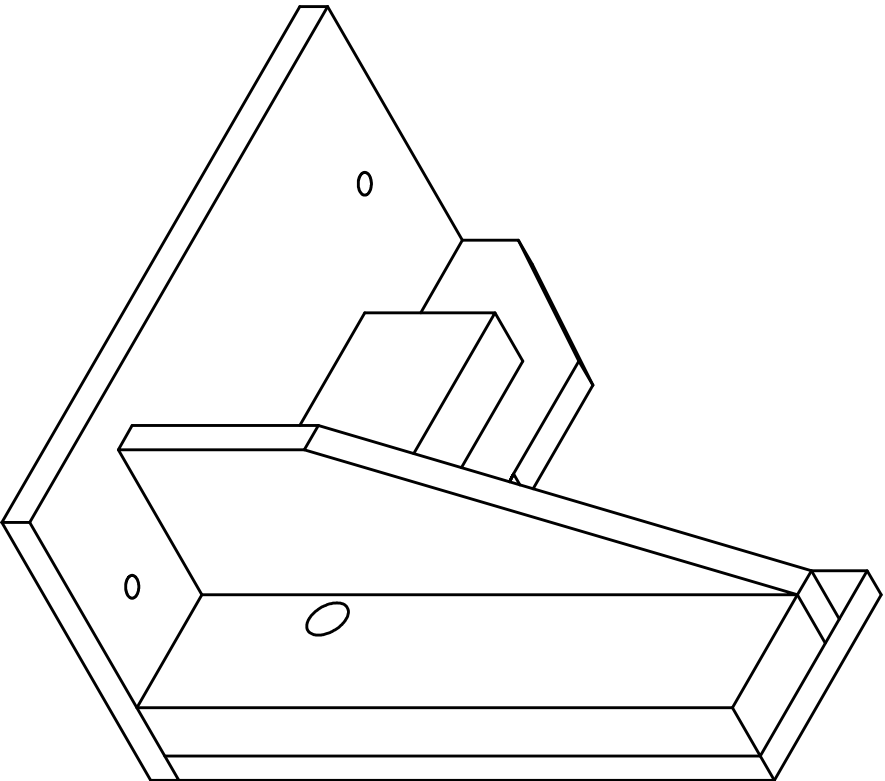
3/4" PIPE
BLACK IRON 5" LONG

3/4" PIPE UNION
BLACK IRON

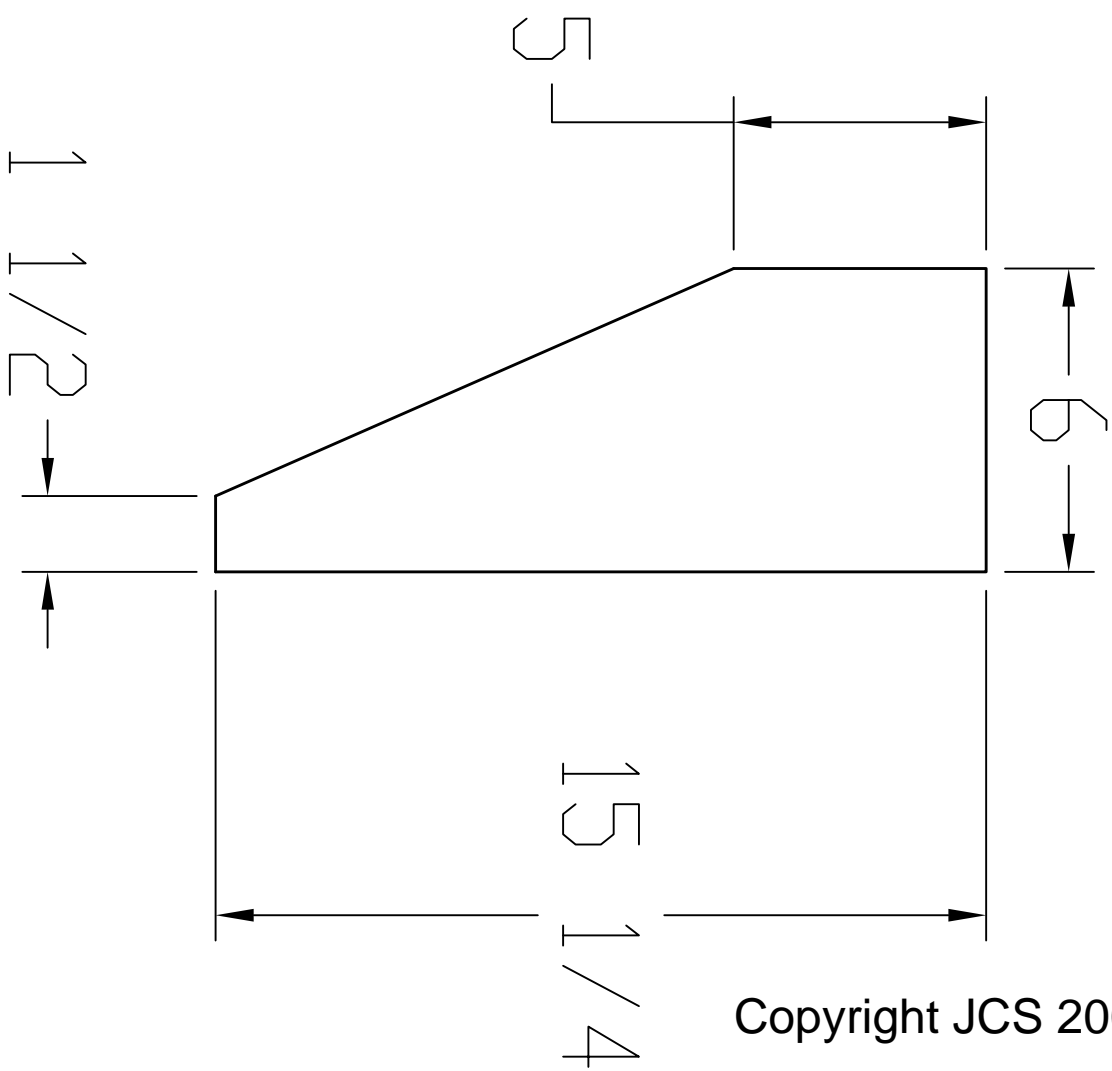
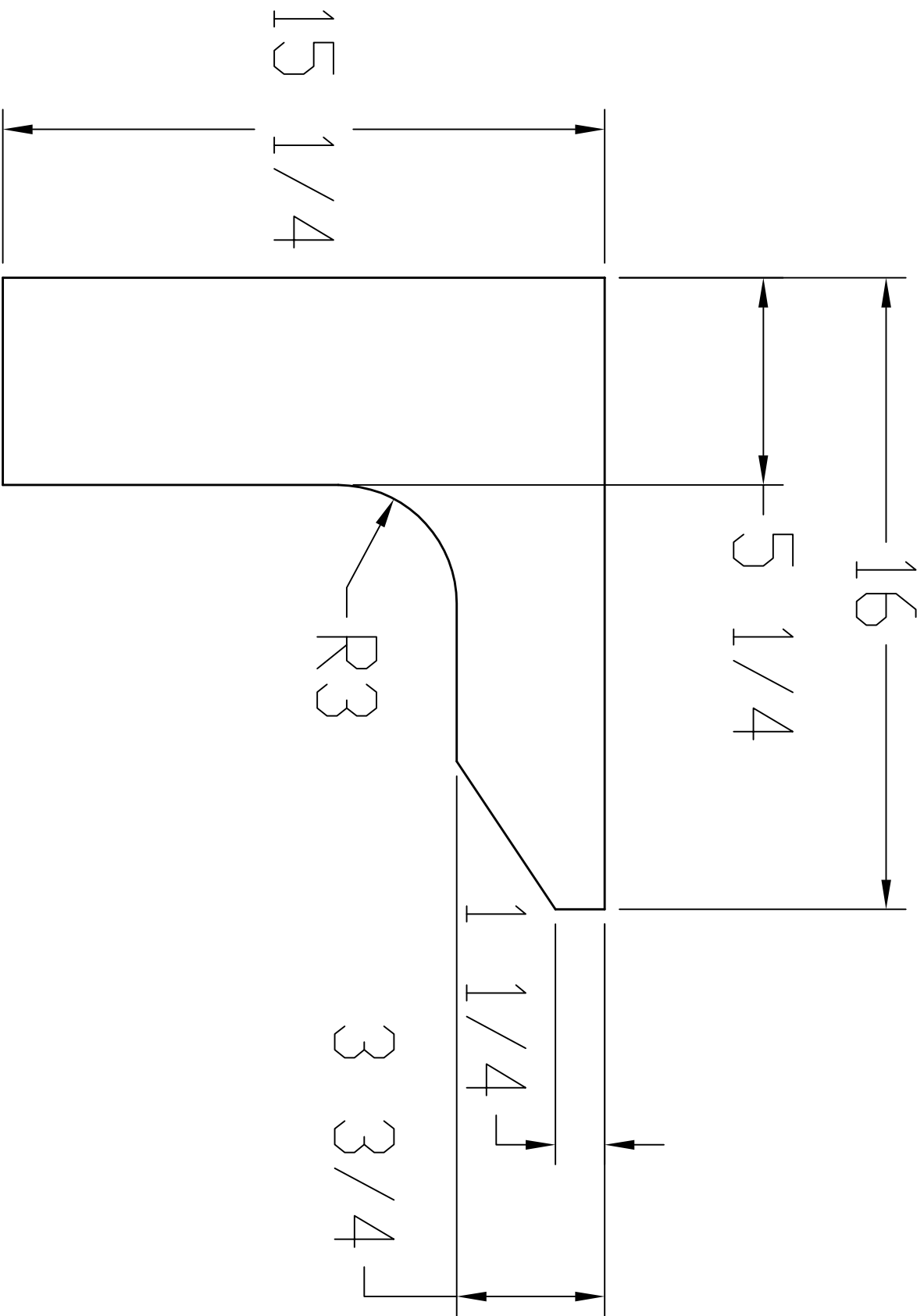
3/4" PIPE
BLACK IRON 12" LONG

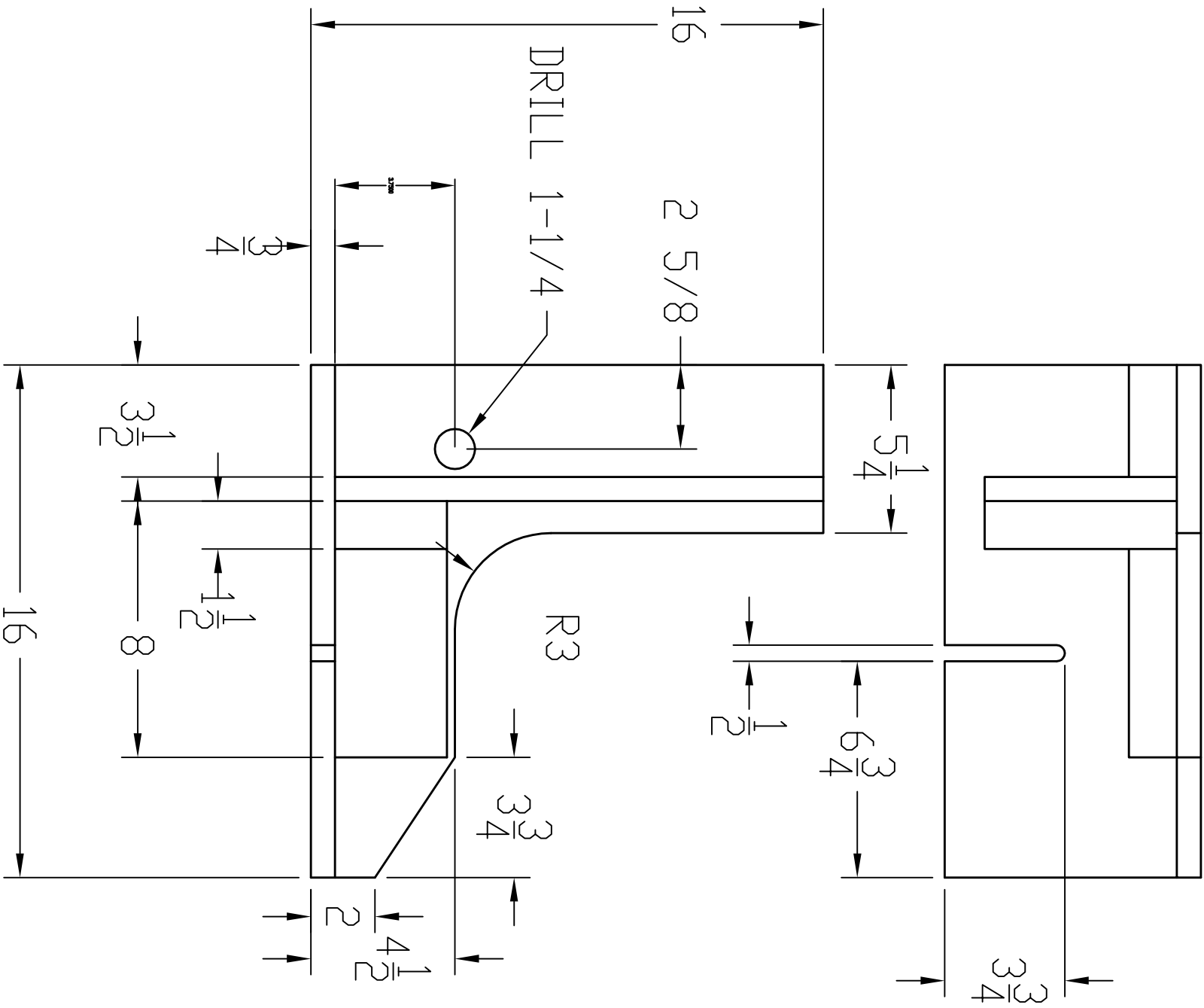




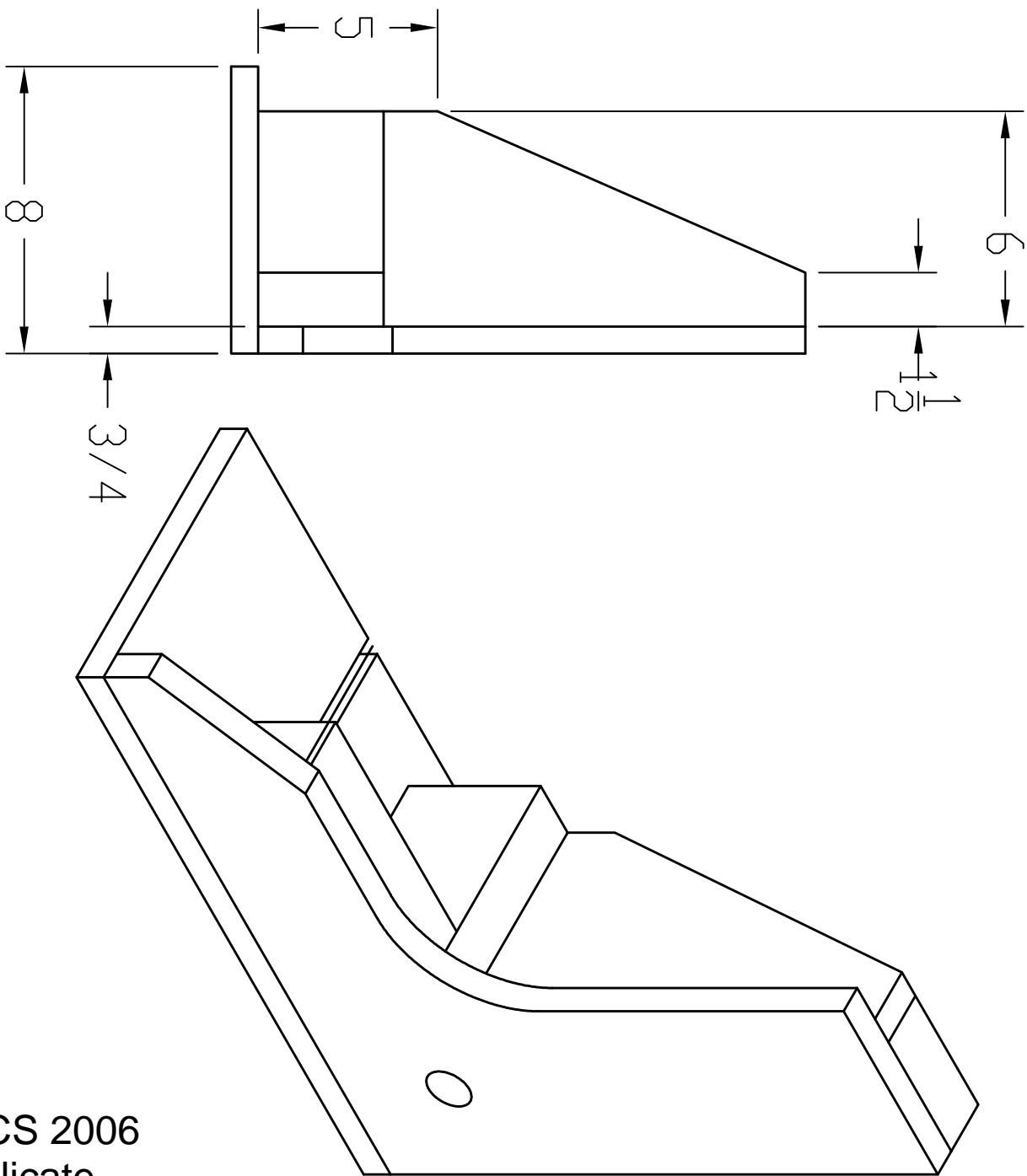


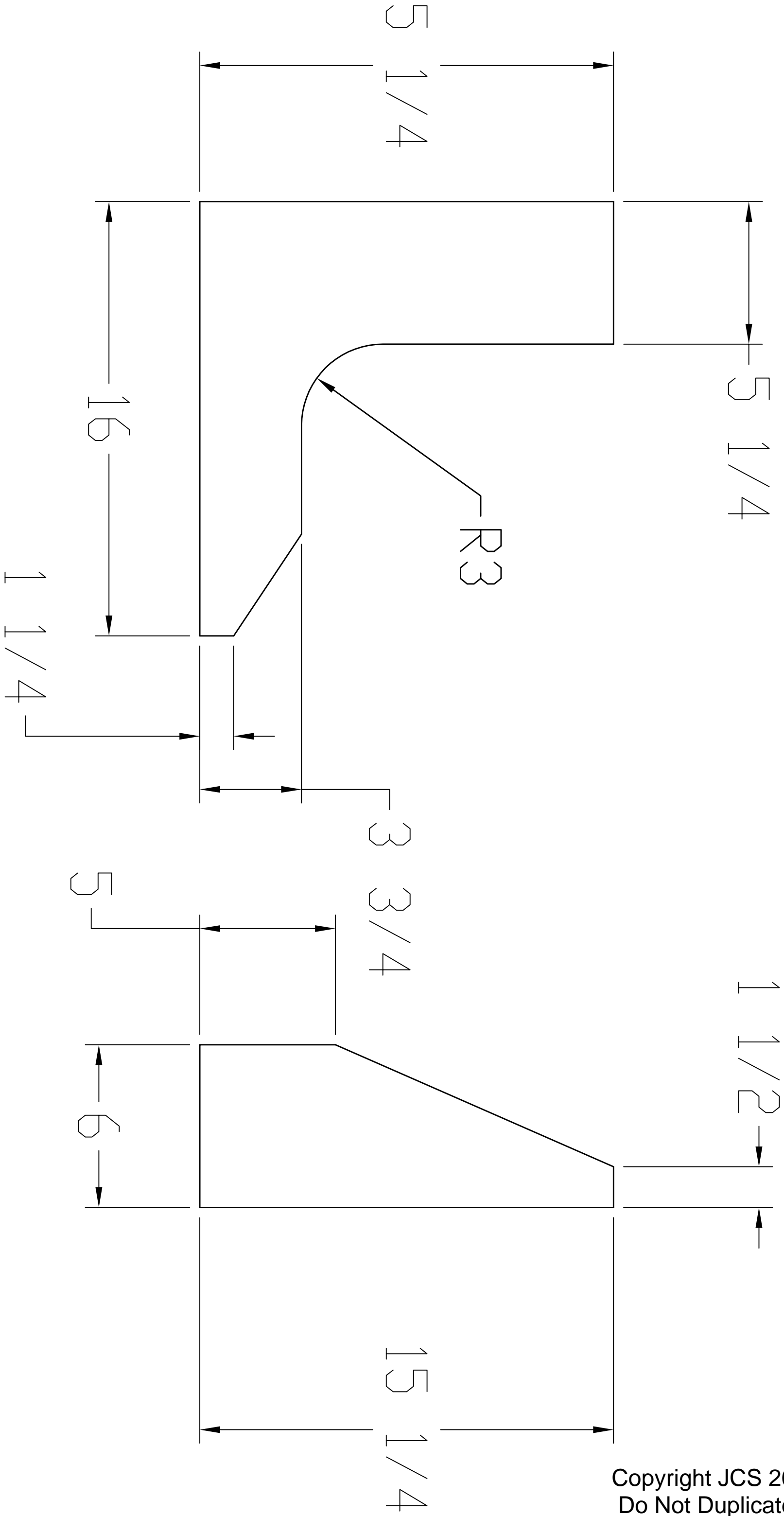
LEFT SIDE

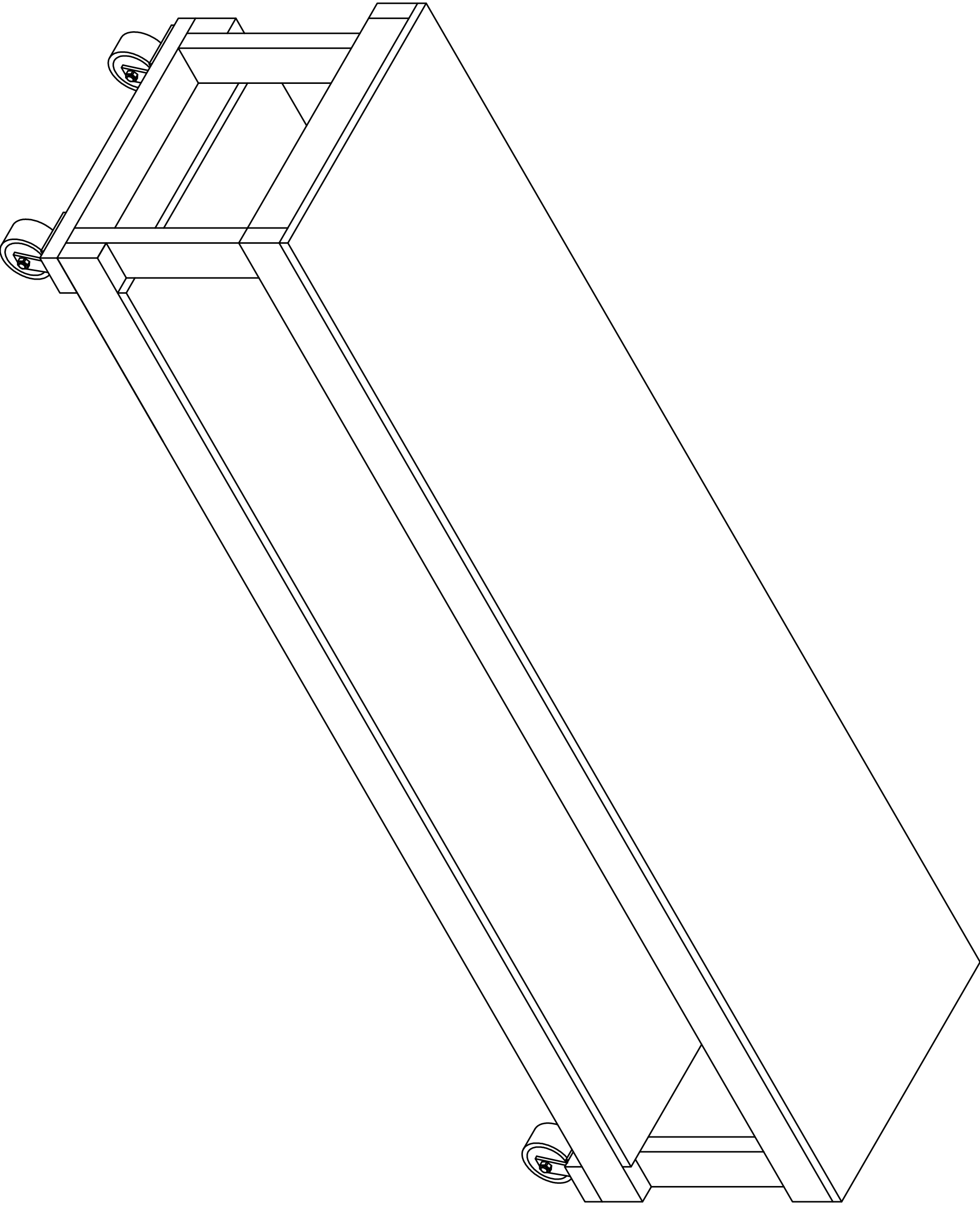


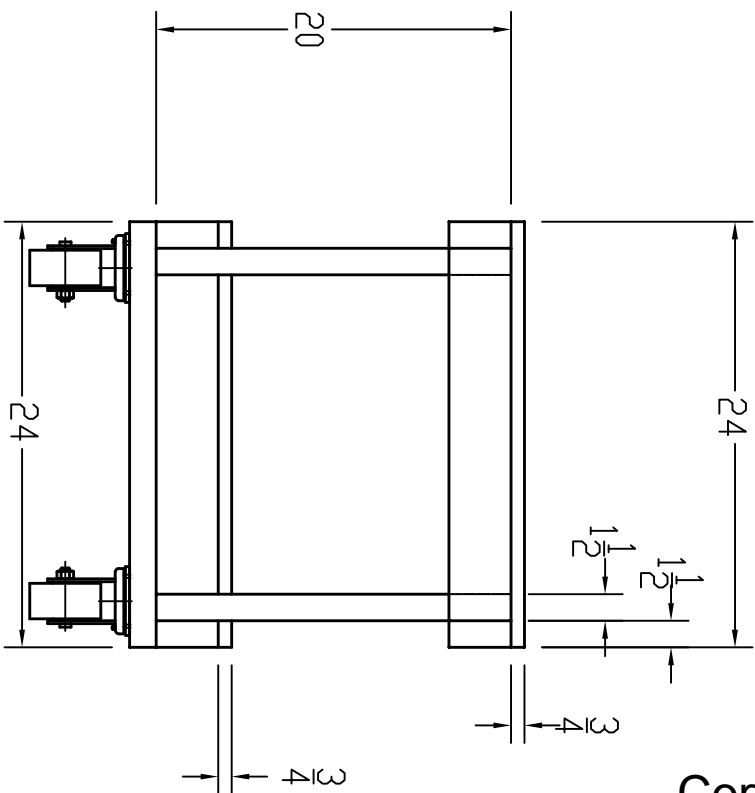
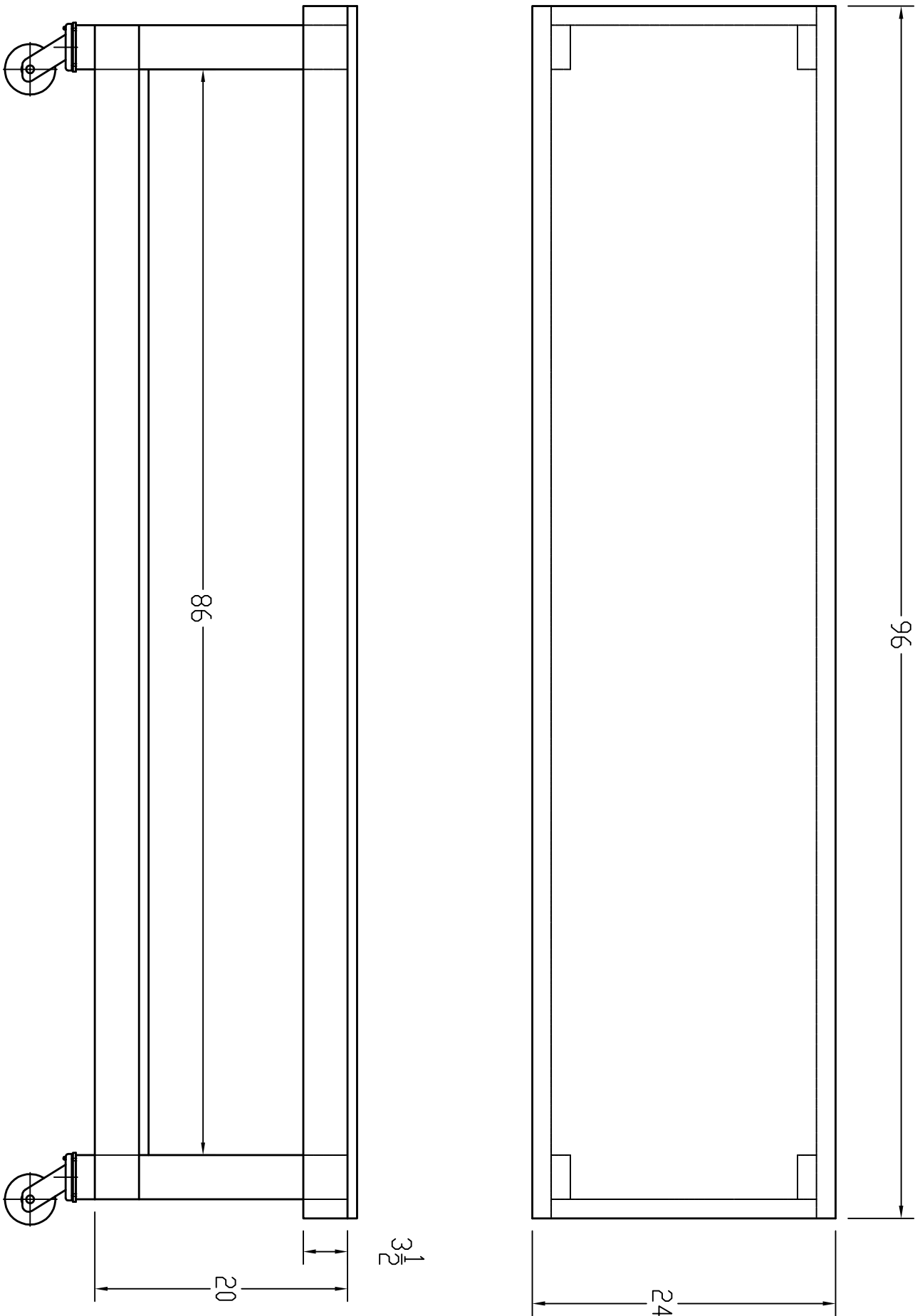


RIGHT SIDE

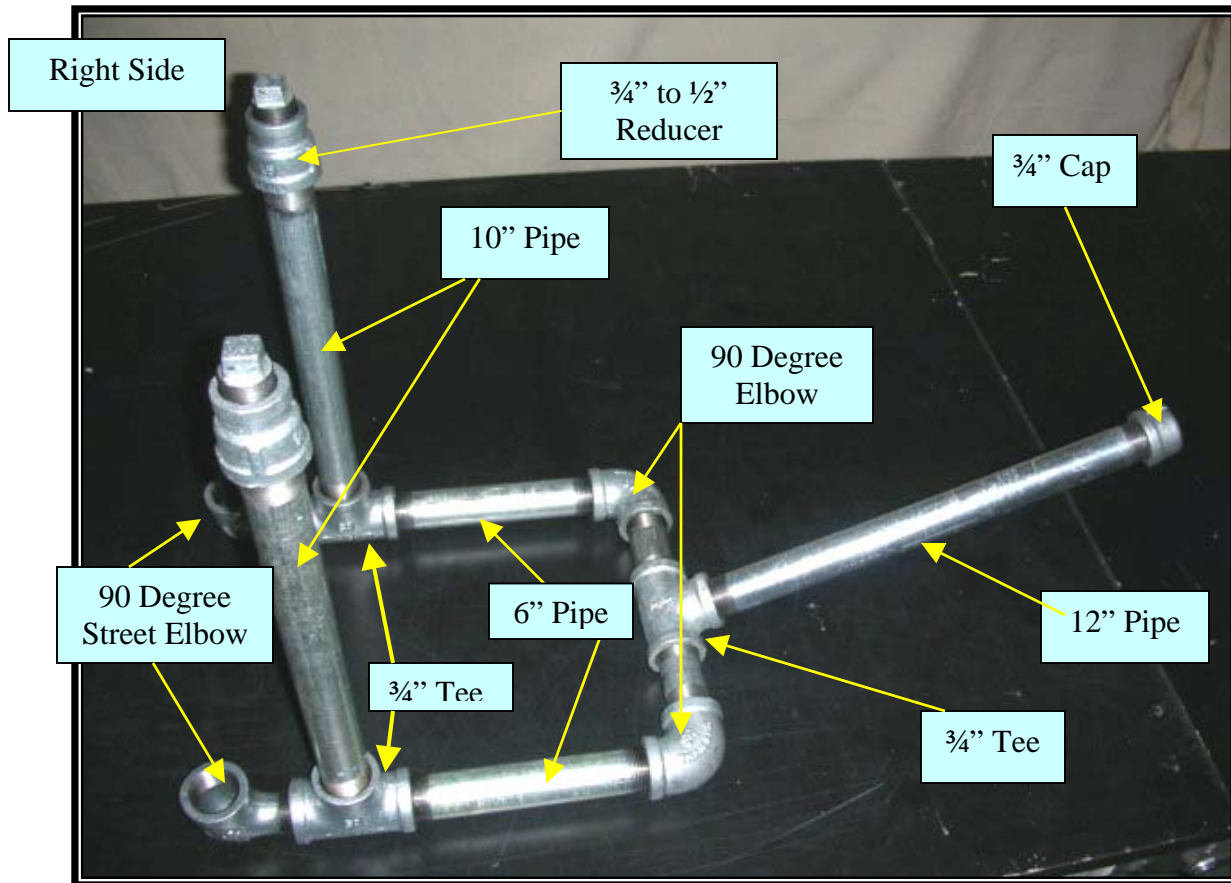








Motorcycle Front Wheel Stand



All $\frac{3}{4}$ " galvanized Pipe unless noted.

Qty	Description
1	12" Pipe
1	$\frac{3}{4}$ " Pipe Cap
3	$\frac{3}{4}$ " Tee
2	90 deg. Pipe Elbow
2	6" Pipe
2	10" Pipe
2	90 deg. Street Elbow
2	$\frac{3}{4}$ " to $\frac{1}{2}$ " Pipe Reducer
2	$\frac{1}{2}$ " Pipe Plug
2	2-1/2" Pipe

Assembly Tips:

- Clean the threads and use Loctite to keep all joints tight. You will need to make sure to get the oil off of the threads.
- The right side needs to be very tight. The Tee that the 12" handle, 2-1/2" pipe and 90-degree elbow must be tightened. I also clean the threads and put some Loctite on the threads when assembling. If you don't get these fittings tight then when you push down on the handle it will turn.
- Make sure the pipe plug fits into the base of your fork. If not, then either grind the plug to fit or pick up a smaller plug.
- I used galvanized pipe for this project because it looks cleaner and won't rust over time. Black pipe (or a mix) will work as well.
- The 10" legs are sized for a 17" (60/70 sidewall) tire on a sport bike. If you have a different sized tire on the front of your motorcycle, then you will have to adjust the length of the section of pipe to suit your tire size.



