



14 Foot Tandem Axle Utility Trailer

Purpose and other trailer information

The purpose for building this trailer was to replace an older smaller utility trailer that began to rust through and wasn't big enough to haul some of the items that we needed to. This new trailer will be used to haul around four wheelers and occasionally a larger lawn and garden tractor in the spring to get serviced as well as anything else from lumber to brush and many other items.

All of the materials for this trailer were purchased, the only items that were donated were the sandblasting and paint job completed at a local welding shop, this shop also donated the primer.

Bill Of Materials Cost \$2469.17

Metals

1. <u>1/4"x3"x4" Angle</u>	<u>40 Feet</u>	<u>\$103.01</u>
2. <u>1/4"x2"x3" Angle</u>	<u>20 Feet</u>	<u>\$36.56</u>
3. <u>1/4"x2"x2" Angle</u>	<u>100 Feet</u>	<u>\$134.43</u>
4. <u>1/4"x3" Flat bar</u>	<u>2 Feet</u>	<u>\$10.40</u>
5. <u>11 gauge 2"x2" Tubing</u>	<u>72 Feet</u>	<u>\$144.00</u>
6. <u>11 Gauge 3"x3" Tubing</u>	<u>24 Feet</u>	<u>\$74.40</u>
7. <u>1/4"x2"x4" Tubing</u>	<u>8 Feet</u>	<u>\$35.60</u>
8. <u>1/4" Diamond plate</u>	<u>4 Square Feet</u>	<u>\$84.83</u>
9. <u>1/4" Expanded sheet metal</u>	<u>7x6 Feet</u>	<u>\$60.00</u>
10. <u>1/4" Standard 3 inch C Channel</u>	<u>20 Feet</u>	<u>\$35.94</u>
11. <u>2 fenders 66 inches long</u>		<u>\$115.00</u>

Wood

1. <u>Eight 14 foot 2x8s</u>		<u>\$112.00</u>
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Other

1. <u>4 gallons of gloss black enamel paint</u>		<u>\$108.00</u>
2. <u>2 gallons of enamel primer</u>		<u>\$143.00</u>
3. <u>128 quarter inch carriage bolts, nuts, and washers</u>		<u>\$72.00</u>
4. <u>Safety chains</u>		<u>4-9 \$1200</u>
5. <u>Trailer jack</u>		
6. <u>Tail lights and wiring harness</u>		
7. <u>One single brake 2 ton tandem axle and leaf spring assembly</u>		
8. <u>4 trailer tires</u>		
9. <u>128 quarter inch carriage bolts, nuts, and washers</u>		

Tools Used

Welders/consumables

Lincoln Electric Invertec V350 pro Wire diameter .035
Gas- 75% Argon 25% Carbon Dioxide 25-30 CFH

Parameters

Wire speed 200-300

Volts 18-20

Cutting machines

Jet equipment Horizontal Bandsaw

Track bug plasma cutter

Portable hand plasma cutter

Scotchman 65 ton shear

Scotchman 35 ton shear

Drill Presses

Wilton model 2404 gear driven press

South Bend Precision 14" drill press

Power tools

Milwaukee 115mm grinder

Bosch 1380 slim grinder

Dewalt

Dewalt drill

Dewalt impact driver

Hand tools

Hammers

Slag hammer

Welpers

Screwdrivers

Center punches

Socket set

Plyers

Air tools

Air grinder

Impact gun

Other

Extension cords

Torpedo level

4ft level

6ft level

90 and 45 degree magnets



Safety

Safety gear

High quality eyes protection

Auto darkening welding helmet

Passive shade welding helmet

Clear grinding shield

#5 shade goggles/ face shield

Ear muffs / ear plugs

Jeans with no holes

Closed toed shoes/ boots

Leather welding coat

Long sleeve shirt

Welding gloves

Work gloves

Welding beanie

Grinder guards



SAFETY PROCEDURES

1. Eye protection worn at all times
2. Proper safety gear worn all the time
3. No loose or baggy clothing in shop
4. No open toed shoes
5. Proper shade used when welding and plasma cutting
6. Use all tools for their intended purpose
7. Welding done in open areas free of flammable items with good ventilation
8. Shop and welding area cleaned after each use



STEP ONE MAIN FRAME

Materials

1. Two pieces of 3"x4"x1/4" angle cut 72" long with 45 degree miter cut on both ends
2. Two pieces of 3"x4"x1/4" angle cut 168" long with 45 degree miter cut on both ends

Steps- Grind a small bevel on both the top and bottom on the ends of the angle with the 45 degree miters of all pieces. Lay out all four pieces in a rectangle either on level floor or leveled on blocks with the 4" flange up. Check the diagonals by measuring from one corner to the opposite on the other end and repeat with the remaining corners, adjust the frame and measure again until both diagonals are equal and the frame is square. Tack the pieces together on one side, flip the frame, check the diagonals, adjust, and tack weld on bottom then flip frame back over.

STEP TWO CROSSMEMBERS

Materials

1. Eight pieces of 2"x2"x1/4" angle 71 1/2" long cut square on both ends

Steps - On all crossmembers grind a bevel on the outside of the angle on both ends. Refer to drawings for placement and direction of the crossmembers. Tack all crossmembers in place. Measure and check that the frame is close to square. Make the required adjustments so that it is square. Once square go back finish weld all of the welds in an alternating order to keep from warping.

STEP THREE SIDE RAIL UPRIGHTS

Materials

1. Eighteen pieces of 2"x2" 11 gauge tubing 16" long cut square on both ends

Note - The 66 inch gap between the uprights on both sides of the trailer is meant to fit fenders that are 9" wide, 19" tall and 66" long.

Note - Refer to attached drawing for location of the four uprights on each corner of the trailer, these will be used for making sure all of the tops of the other uprights are inline with each other.

Steps - The first step is to clamp the four uprights on each corner. Depending on which upright you clamp first refer to drawings for exact placement and clamp them in place. Tack the four corner up rights in place. Tie a string to the top of one of the back uprights and run the string down the outside of the upright to the upright in the front of the trailer, across the front and back down the outside of the other side of the trailer and tie it once again. Once the string is tied refer to the drawings for the placement of the other uprights and proceed to clamp and adjust them so that the tops are close to or touching the string. Once clamped in place tack the upright and move on to the next upright. **Note- Do Not complete welds, move on to step four.**

STEP FOUR TOP RAIL

Materials

1. One piece of 2"x2" 11 gauge square tubing 76" long with 45 degree miters cut on both ends
2. Two pieces of 2"x2" 11 gauge square tubing 170" long with a 45 degree miter cut on one end

Steps - Grind a small bevel on the 45 degree miters of all of the top rail pieces and also on the top of all of the uprights. Lay one of the 170" long pieces on the top of the up rights with the end with the 45 degree miter at the front of the facing the inside of the trailer. Repeat step two for second side rail on the opposite side of the trailer. Lay the 76" long rail across the front uprights with the 45s butting up to the 45s of the side rails. Before tacking welding clamp the top rails down to the uprights and adjust until the 45s matchup and the sides of the uprights are flush with the side of the top rails. Tack all of the top rails in place. Now go back and finish weld all of the welds on both the uprights and the entire side rail, when welding, weld in an alternating pattern. Once all welds are completed flip the trailer over to prepare for step five.

STEP FIVE TONGUE

Materials

1. One piece of 3"x3" 11 gauge square tubing 112" long cut square on both ends
2. Six pieces of 2"x2"x1/4" angle 5" long cut square on both ends

Note- The 3"x3" tubing does not rest on the trailer crossmembers but is suspended 1/4" below them by the 2"x2" angle.

Steps - Lay the 3"x3" tubing on the trailer and measure to make sure it is centered with one end protruding 40 inches from the front of the frame. Shim up the other end of the tubing so that it is level with the rest of the trailer frame. Clamp the 2"x2" angle pieces according to drawings in step five. **NOTE- Detailed view of tongue supports in drawing step five continued.** Tack weld the tubing and all tubing supports in place. Lay the 3x4" angle pieces with the 3 inch side resting on the frame in place according to the dimensions in the drawings in step five. Once in place measure and mark the angle on the end of the angle that meets the tubing of the tongue and cut the required angle. After the angles have been cut on the 3x4" angle lay them back into place and remeasure according to the dimensions to insure they are correctly placed. Tack weld the 3x4" angle pieces in place.

NOTE- Do not fully weld the tongue in place once tack welded continue on to step six.

STEP SIX LEAF SPRING MOUNTS AND COUPLER

Note- This trailer is designed for an axle assembly with a total width of 69 inches

Materials

1. Two center leaf spring brackets-supplied by axle supplier
1. Four front and back leaf spring brackets supplied by axle supplier
2. Four leaf springs supplied by axle supplier
3. Bolts and shackles for leaf spring assembly also supplied by the axle supplier
4. One Tongue coupler

Steps - First center the two middle leaf spring brackets on the center of the frame pieces according to the blueprints on the exact location of these two brackets. Once these two brackets are in place choose the same point on each bracket and measure from there to the center of the front of the tongue to make sure that they are both the same distance from that point to ensure the axle assembly will be square with the rest of the trailer, once this has been measured tack weld the brackets in place. Now that the first two brackets are tack welded in place the other four leaf spring brackets can be set. **Note - since not all leaf spring assemblies are the same follow the instructions given with axle kit or contact the supplier for exact measurements for the other brackets.** These four leaf spring brackets can now be tack welded into place. With the leaf spring brackets now tack welded on go ahead and assemble the leaf spring suspension to make sure that everything fits together properly and can fully move. If one of the sides of the suspension do not move properly some minor adjustments can be made by grinding off the tacks and repositioning the brackets. Once both sides of the leaf spring suspension can move properly clamp on the tongue coupler. To make sure that the trailer will pull straight choose a point on two of the same leaf spring brackets and measure from there to the center of the coupler and adjust the coupler until both measurements are the same. Once the coupler has been adjusted tack weld it in place. **Note- Do not complete welds on leaf spring brackets, move on to the next step.**

STEP SIX CONTINUED AXLE ASSEMBLY

Materials

1. Two 3500 lb axles supplied in axle kit
2. Eight U bolts with nuts supplied in axle kit
3. Four U bolt axle plates

Steps - Place the Axle with the brakes under the front leaf spring and the axle without the brakes under the rear leaf springs. Block up both axles so that the axles and leaf springs line up correctly according to the axle assembly instructions. Once the axles are in place and lined up with the leaf springs secure them in place with the u bolts. Tighten all of the bolts the entire axle assembly according to the suppliers recommendations. Once all of the bolts are tight rock the axles and springs back and forth to make sure that the axles can move properly and all the way, if axles do not move properly the brackets can still be ground off and adjusted until there is full suspension movement. Once the suspension has full movement, works properly, and is square with the coupler, all of the leaf spring brackets can be fully welded into place along with the coupler and all of the other tack welds from step five and six.

STEP SEVEN SIDE STEPS, TAIL LIGHT MOUNTS, AND FENDER MOUNTS

1.Side step

Materials

1. Two pieces of 2"x2"x1/4" angle cut 6 3/4" long
2. Two pieces of 3"x1/4" plate lon 8 1/2" cut to fit
3. One Piece of 1/4" diamond plate cut to fit top of right step
4. One piece of 1/4" diamond plate cut to fit top of left step

Steps - Tack the 2"x2" angle in place, the location of this angle is depicted in both pages of step seven continued in the drawings. Once tacked in place the flat plate can now be cut to fit the gap depicted in step seven, the flat plate can now be tacked into place. The 20 3/4" x 9" diamond plate can be clamped into place so that the notch for the rail upright can be marked and cut out. Once notched out clamp in place once again and cut to fit the step shown in step seven. The plate can now be welded onto the step. The trailer can now be flipped over and the wheels can be put on.

2.Fender mounts

Materials

1. Two pieces of 2"x2"x1/4" angle 6 3/4' long cut square both ends

Steps - Clamp the mount in place according to the drawings in step seven and adjust it until it is square and level with the trailer. Tack the mount in place and adjust once again if necessary and fully weld them in place.

3.Tail light mounts

Materials

1. One piece of 2"x2"x1/4" angle 8 3/4" long cut square both ends

Steps - Clamp the mount in place according to the drawings in step seven and adjust it until it is square and level with the trailer. Tack the mount in place and adjust once again if necessary and fully weld them in place.

STEP EIGHT RAMP

1.Ramp

Materials

1. Five pieces of 2"x2"x1/4" angle 60" long cut square both ends
2. Two pieces of 2"x2"x1/4"angle 72" long cut square both ends

Steps - Lay the four outer pieces of the ramp on either a flat floor or leveled on blocks according to the drawings in step eight. Square the outer pieces of the frame and tack them in place. Lay the crossmembers into place and adjust them so that the frame remains square. Tack the crossmembers in place one at a time so that the frame can still be adjusted if needed. Once all of the crossmembers are tacked in place and the ramp is square go back and finish all of the welds on the ramp in.

2.Ramp reinforcement

Materials

1. Three pieces of standard c channel cut 17 1/4" long and notched as depicted in step eight continued as single notched crossmember
2. One piece of standard c channel cut 19" long and notched as depicted in step eight continued as double notched crossmember

Steps - Clamp all four of the crossmembers into place and ensure that they are square with the ramp according to the drawings in step eight continued. Tack all of the crossmembers in place. Once all of the crossmembers are tacked in place go back and fully weld them in place.

3.Expanded sheet metal

Materials

1. Depending on availability one piece of expanded metal 72"x62" can be used or two pieces can be used and the seam between the two can be where the horizontal crossmembers are located.

Steps - Cut the expanded metal so that it is offset $\frac{1}{4}$ " from both sides and $\frac{3}{4}$ " from the ground end of the ramp. Weld the sheet in an alternating order jumping from side to side and down the center to keep it from warping.

4.Hinges

Materials

1. Three two piece hinges

Steps - Clamp the hinges in place on the ramp according to the drawings in step eight gate hinges. Make sure that the correct side of the hinge gets welded to the ramp and also that one of the hinges faces the opposite direction of the other two so that the gate can not slide off once welded to the trailer. Tack weld all of the hinges to the ramp and make sure they all have full movement. Fully weld all 3 hinges to the ramp.

5.Ramp attachment

Steps - Prop up the ramp so that the hinges are $\frac{1}{2}$ " below the top of the angle on the back of the frame according to the drawing in step eight ramp attachment. Once the hinges are all in the correct positions burn in 3-4 good tacks on each hinge and test the movement of the ramp to make sure it can be fully closed. If the ramp has full movement fully weld all of the hinges to the trailer.

6. TUBING CAPS AND GATE LATCHES

Materials

1. Six pieces of 2"x2"x1/4" angle cut 1 1/2" long
2. Two pieces of 1/4" plate cut 1 3/4"x1 3/4"

Steps - The first step is to tack the tubing cap into place according to the drawing in step nine.

Once these are tacked in place the rest of the latch pieces can be clamped and tacked into place according to the drawings in step nine. Once all of these are tacked into place the gate can be clamped closed so that it does not move. The holes for the pins to keep the gate shut can then be drilled. **Note-** The pins used were 5/8" pins but other sizes can be used. Once the holes are drilled and the pins fit and function properly all of the tubing caps and gate latches can be fully welded.

STEP TEN RAIL POCKETS

Materials

1. 14 2"x4"x1/8" steel tubing cut 2" long

Steps - Locate the 14 different pocket locations and mark them. Clamp and tack weld them on one at a time. Once they are all tacked in the correct locations complete all of the welds on them.

STEP ELEVEN FENDERS

Materials

1. Two 66" fenders

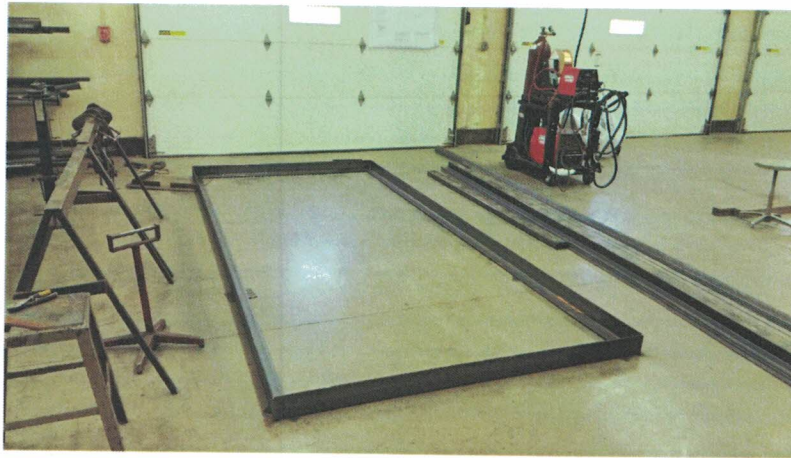
STEPS - Make sure the fenders fit into the gap between the fender mount and the step of the trailer. If the fenders fit and no modification is needed clamp the fenders in place and make sure that they are adjusted and in correctly. Once clamped in place tack weld both fenders in place and adjust them if they moved during tack welding. Weld both of the fenders in place using intermittent welds to keep from burning through the thin metal.

Finishing steps

1. The safety chains and jack can be welded according to the instructions that come with them.
2. Once all of the welds are complete all welds that show on the trailer such as on the side rail can be ground down and finished off with a flapper disc.
3. The trailer can now be sandblasted and painted.
4. Once painted the lights and wiring can all be installed.
5. The last step once the lights and wires have been installed is to stain and install the floorboards.

PICTURES

Step 1 Frame



Step 2 Frame cross members

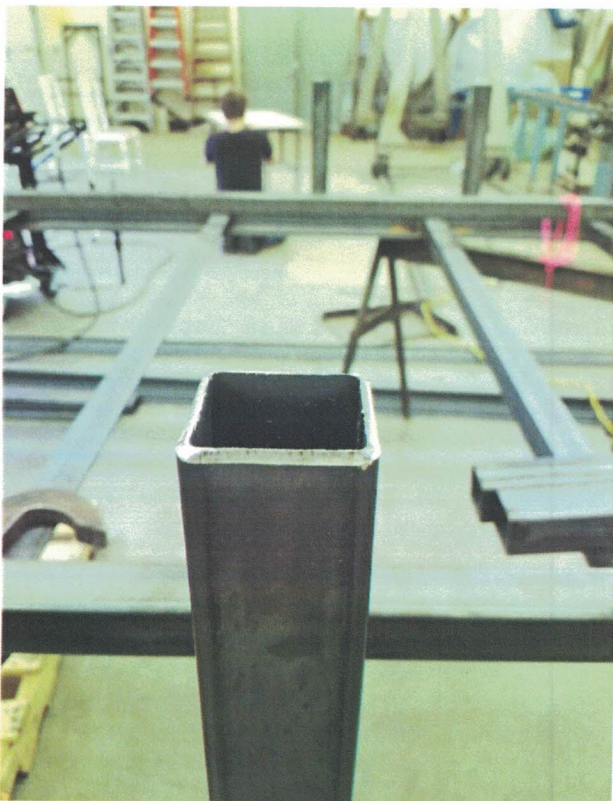


Step 3 Rail uprights

String shown below used to keep uprights straight



Step 4 Top rail

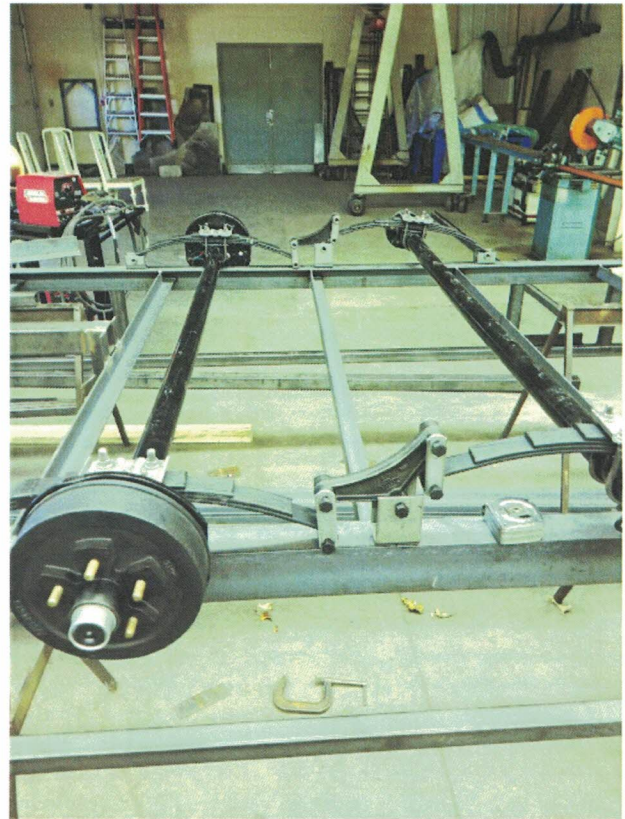




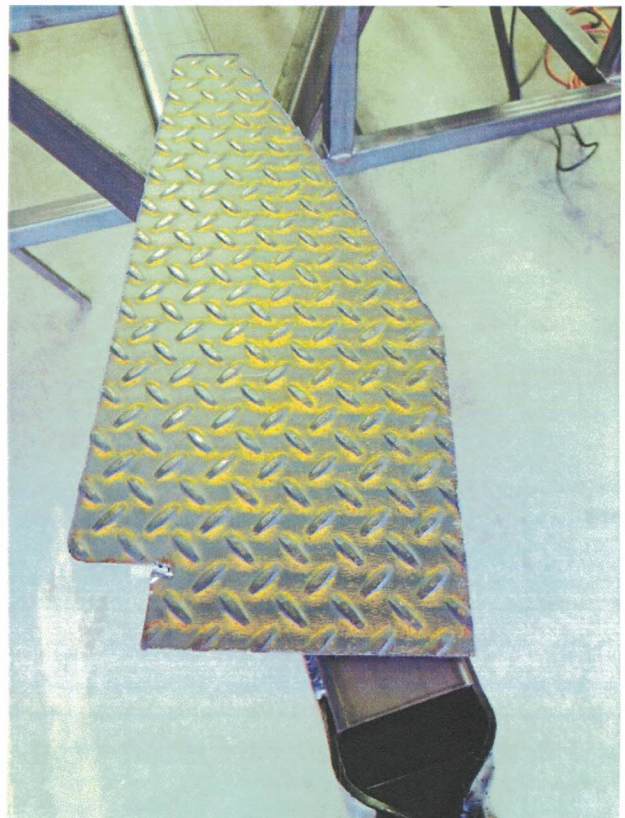
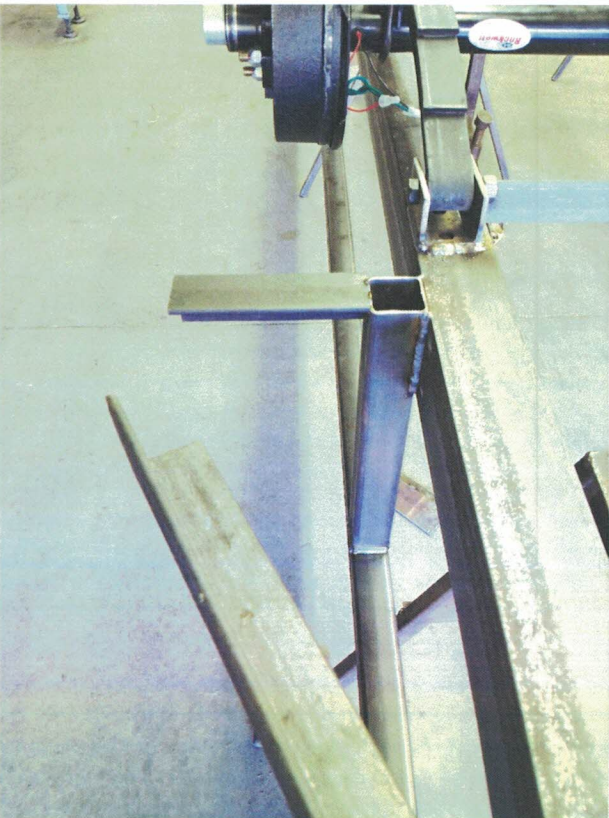
Step 5 Tongue

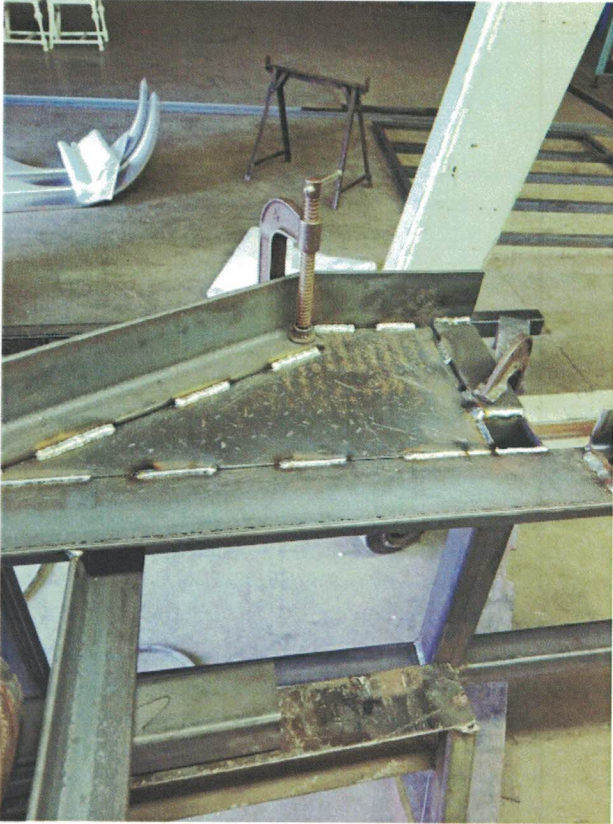


Step 6 Leaf spring mounts and axle assembly

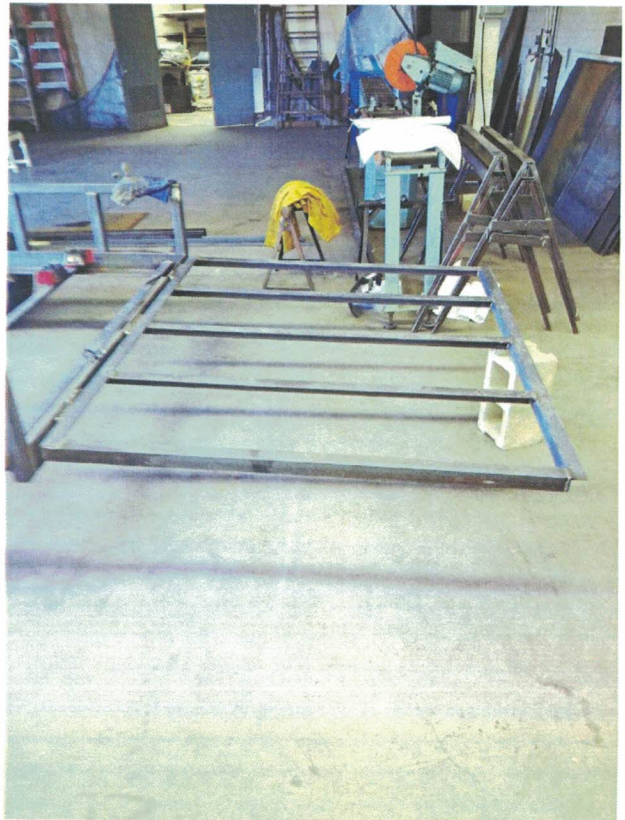


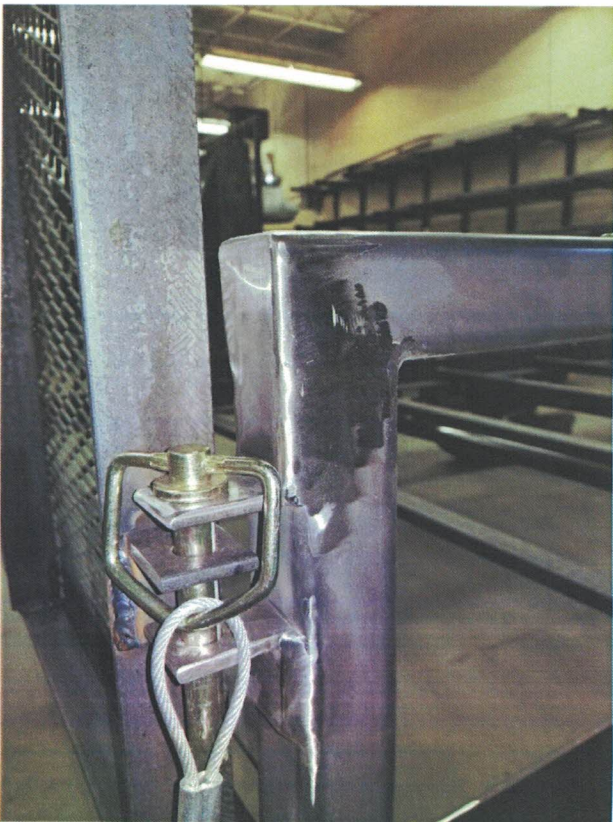
Step 7 fender mounts and side steps





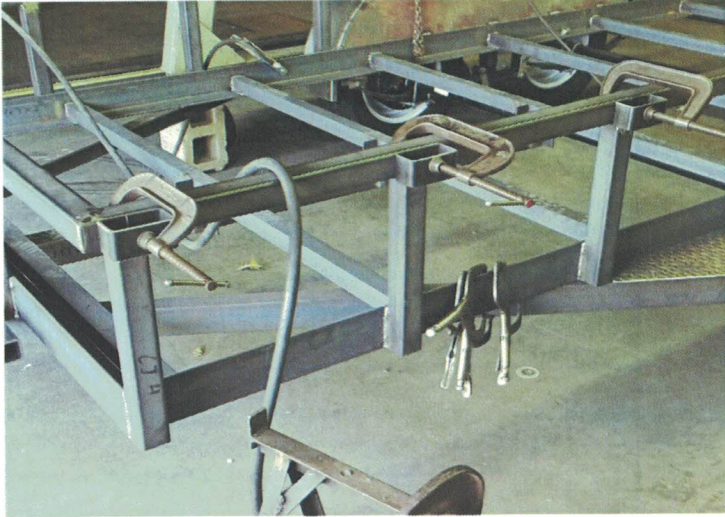
Step 8 Ramp



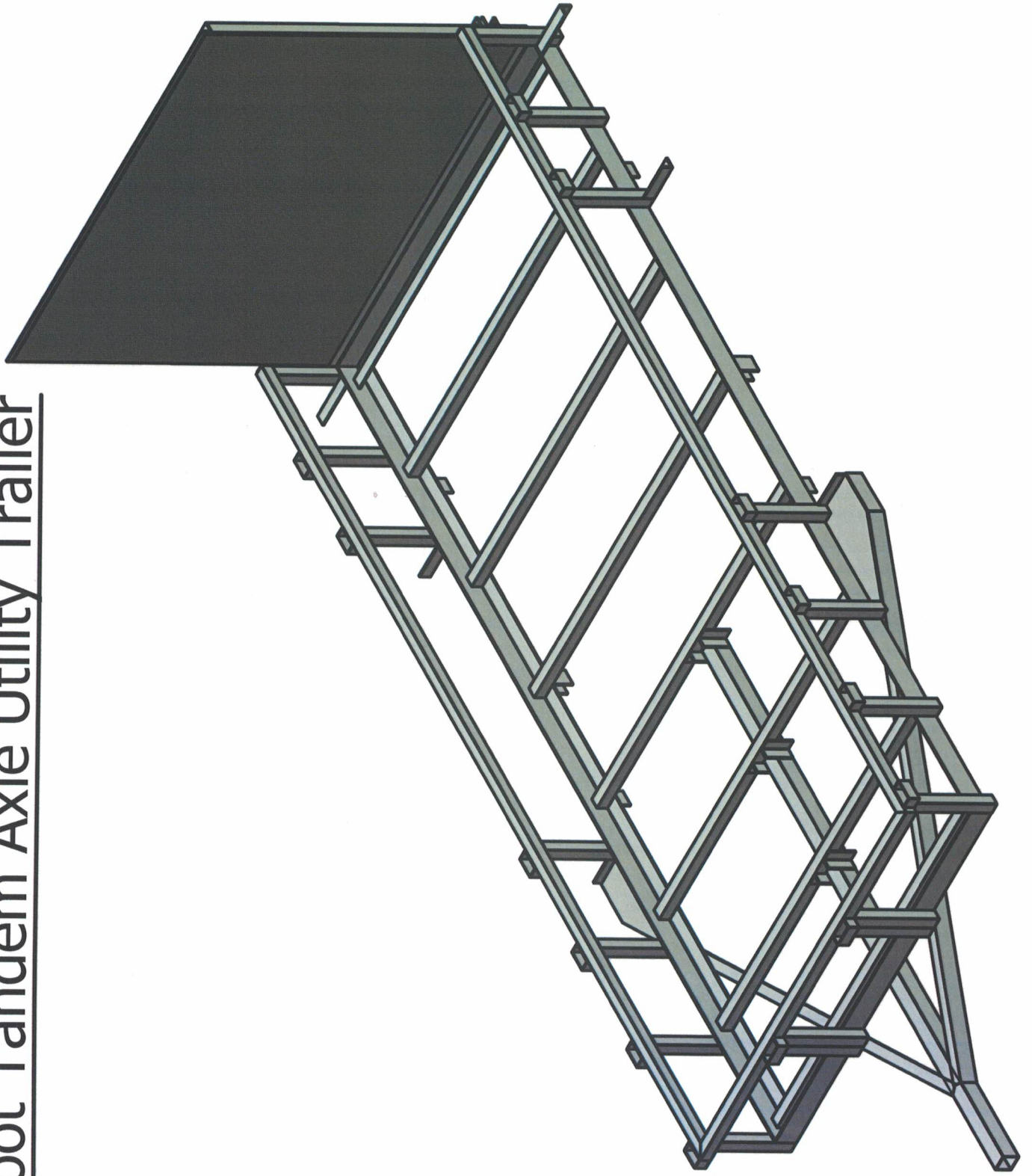


Side pockets and fenders

The fenders ordered were too long, because of this a large portion of the fender had to be removed out of the center as shown below.



14 Foot Tandem Axle Utility Trailer



1

1

2

1

4

2

B

A

B

A

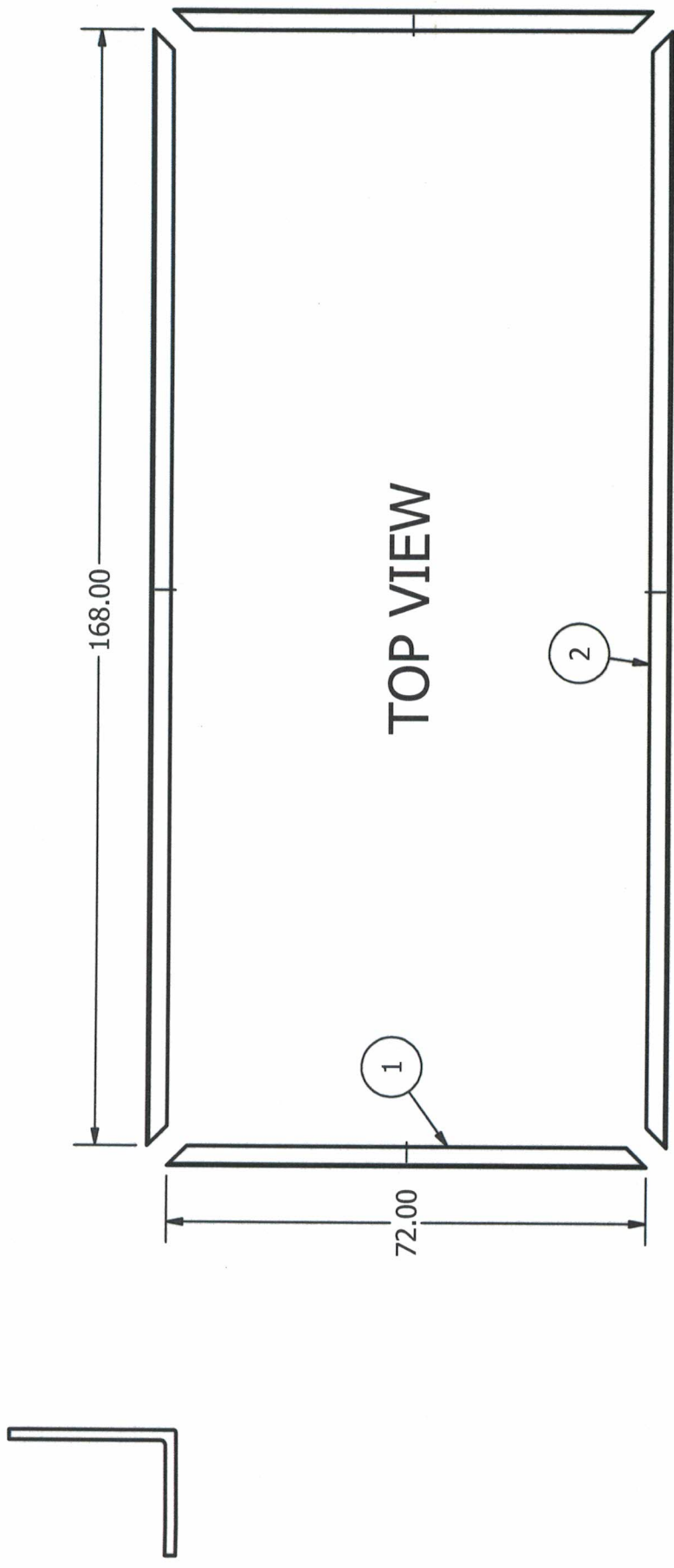
1

STEP ONE MAIN FRAME

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	1/4"x3"x4" angle	72" long cut 45 degrees on both ends
2	2	1/4"x3"x4" angle	168" long cut 45 degrees on both ends

VIEW PAGE TWO FOR FURTHER INSTRUCTION
ON ASSEMBLY OF THE MAIN FRAME

4" FLANGE UP
ON ALL PIECES



TOP VIEW

Scale 1/25

FRONT

2

2

1

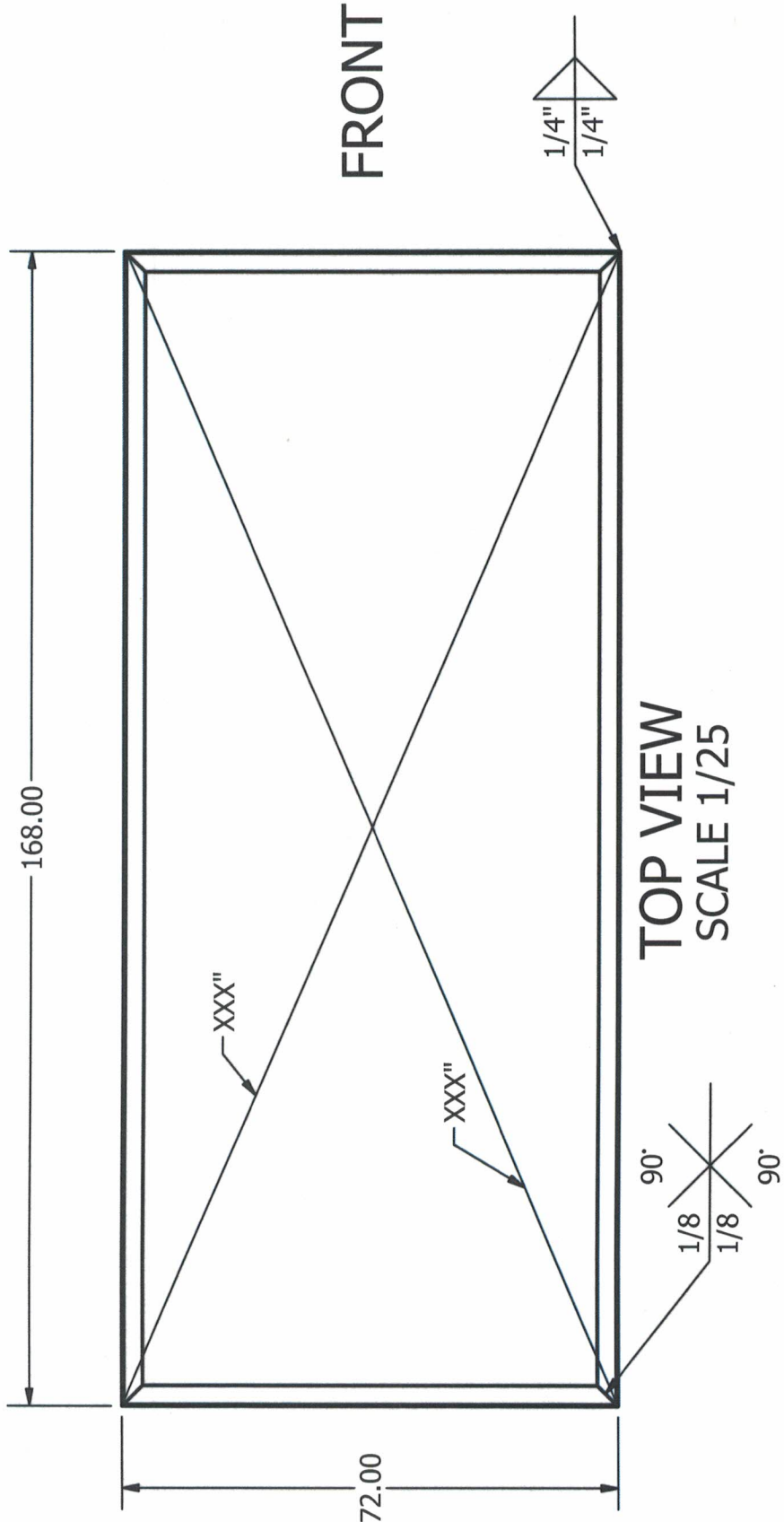
2

B

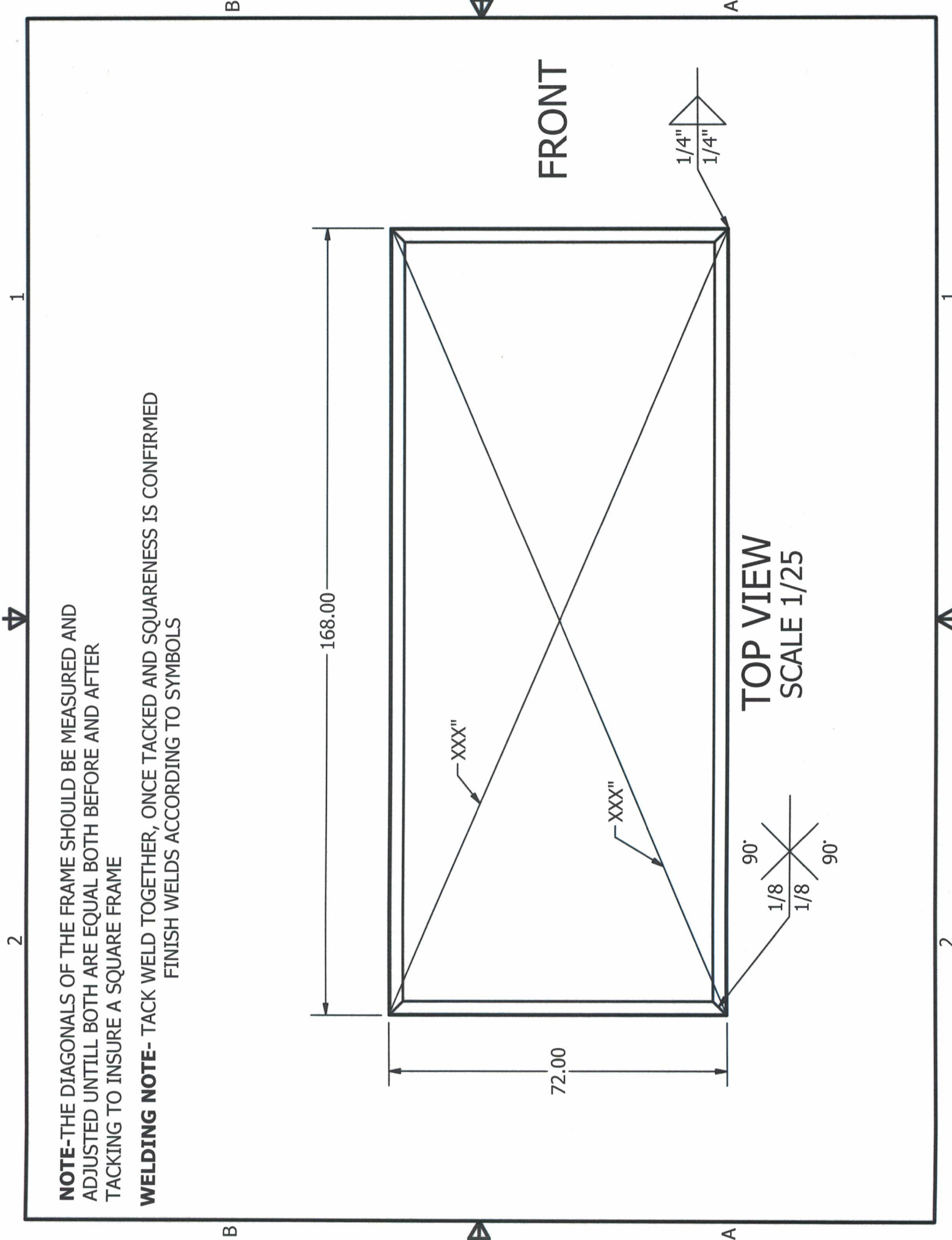
A

NOTE-THE DIAGONALS OF THE FRAME SHOULD BE MEASURED AND ADJUSTED UNTILL BOTH ARE EQUAL BOTH BEFORE AND AFTER TACKING TO INSURE A SQUARE FRAME

WELDING NOTE- TACK WELD TOGETHER, ONCE TACKED AND SQUARENESS IS CONFIRMED FINISH WELDS ACCORDING TO SYMBOLS



TOP VIEW
SCALE 1/25



1

2

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	18	side rail uprights	2"x2" 11 gauge square tubing 16" long cut square on both ends

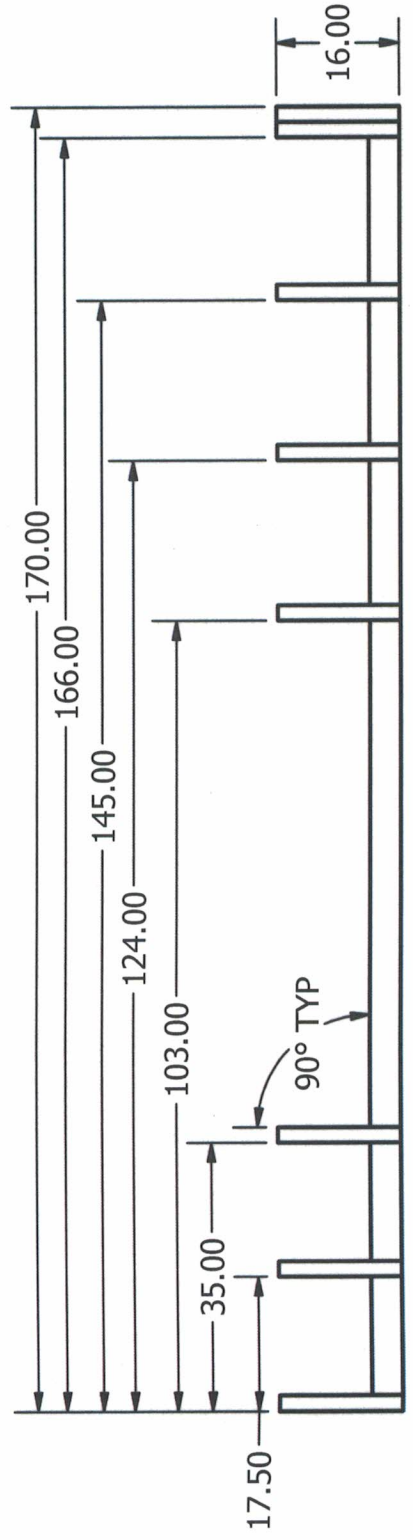
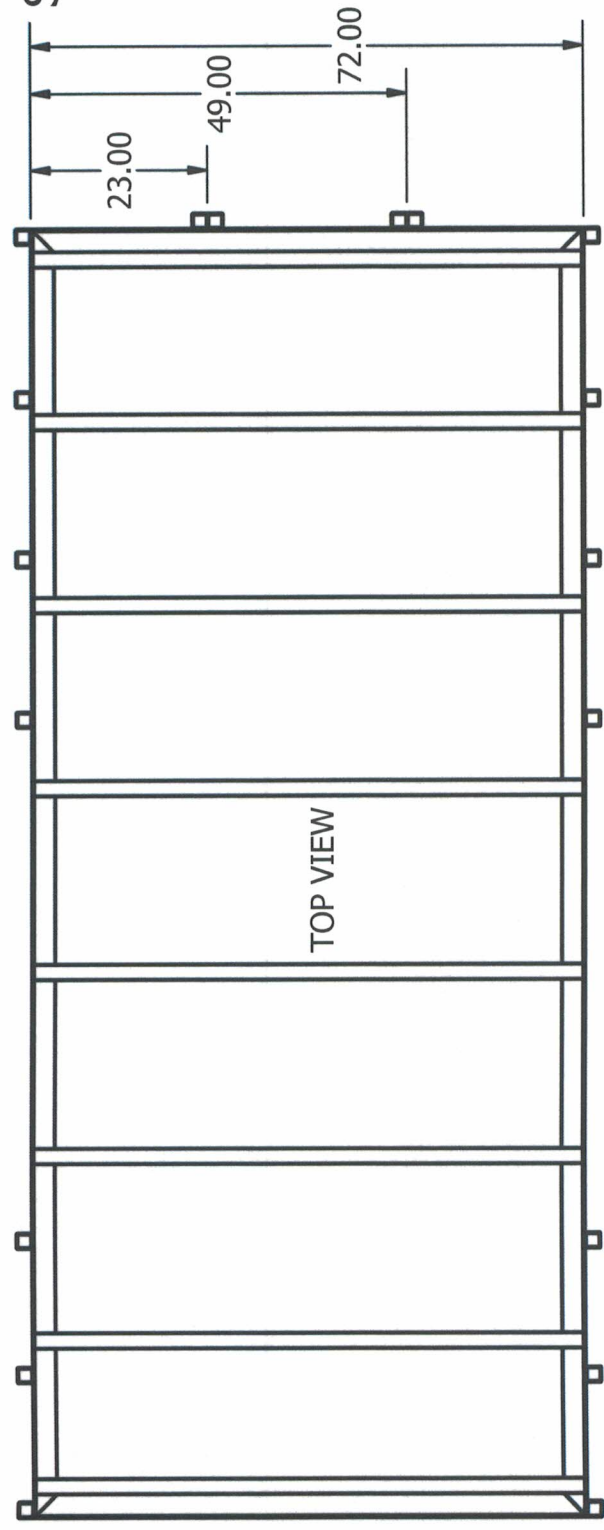
STEP THREE

RAIL UPRIGHTS

WELDING PROCEDURE
 ONLY TACK WELD TO PREVENT HEAT DISTORTION ONCE TACKED CONTINUE TO NEXT STEP

WELDING NOTE-ALL UPRIGHT WELDS ARE TO BE 1/4" FILLET WELDS

FRONT
 SCALE 1 / 25



B

A

A

2

1

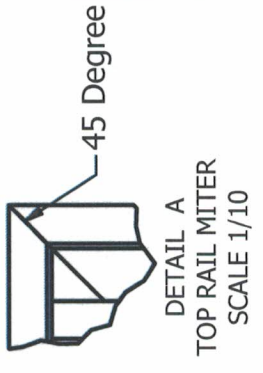
1

2

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	Side Rail	2"x2" 11 gauge square tubing 170" long cut 45 degrees on one end
2	1	Front Rail	2"x2" 11 gauge square tubing 76" long cut 45 degrees on both ends

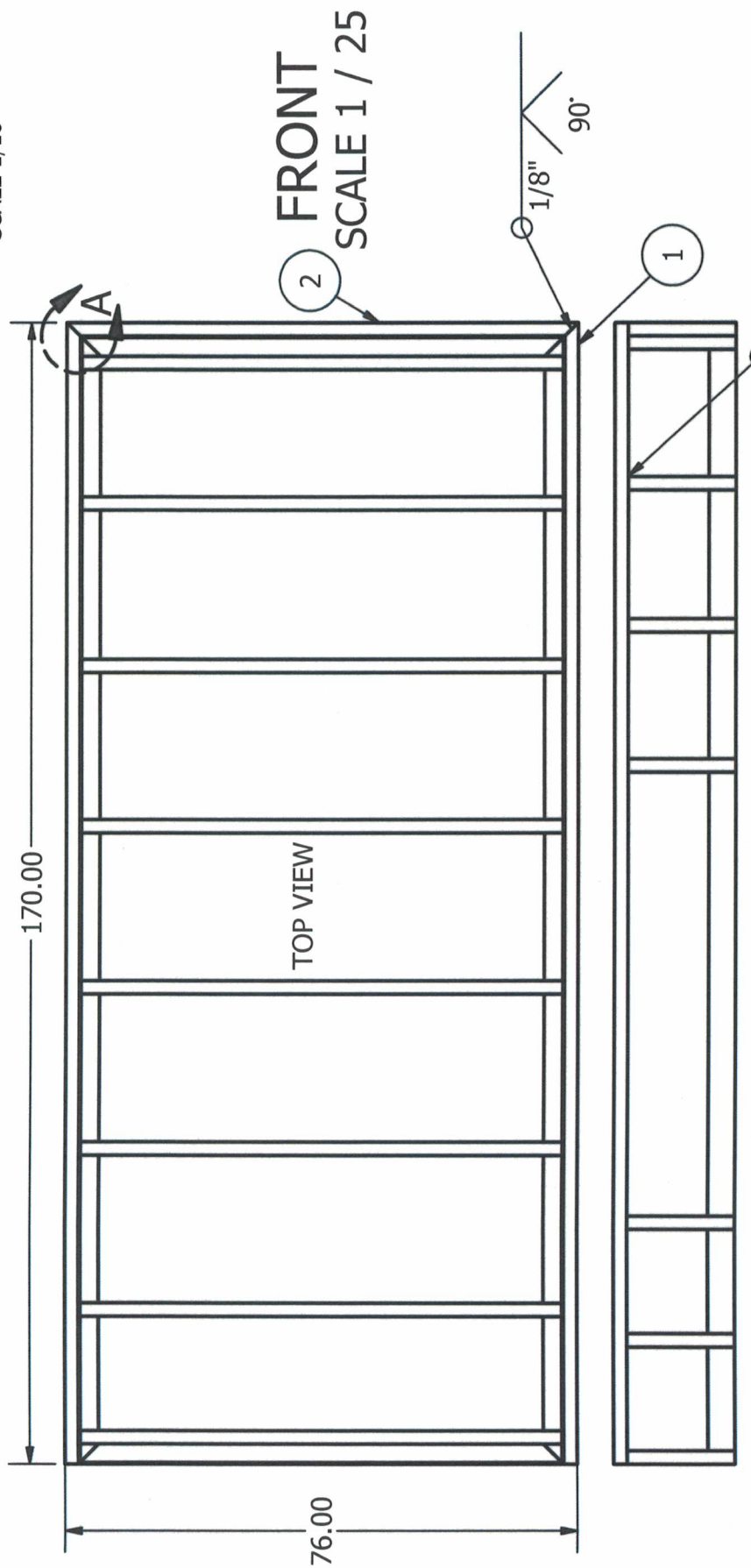
STEP FOUR

TOP RAIL



WELDING PROCEDURE

ONLY TACK WELD TOP RAIL, ONCE COMPLETED PROCEED TO COMPLETE ALL PREVIOUS WELDS ACCORDING TO WELD SYMBOLS IN STEPS THREE-FOUR IN AN ALTERNATING ORDER TO MINIMIZED HEAT DISTORTION



1

2

B

A

B

A

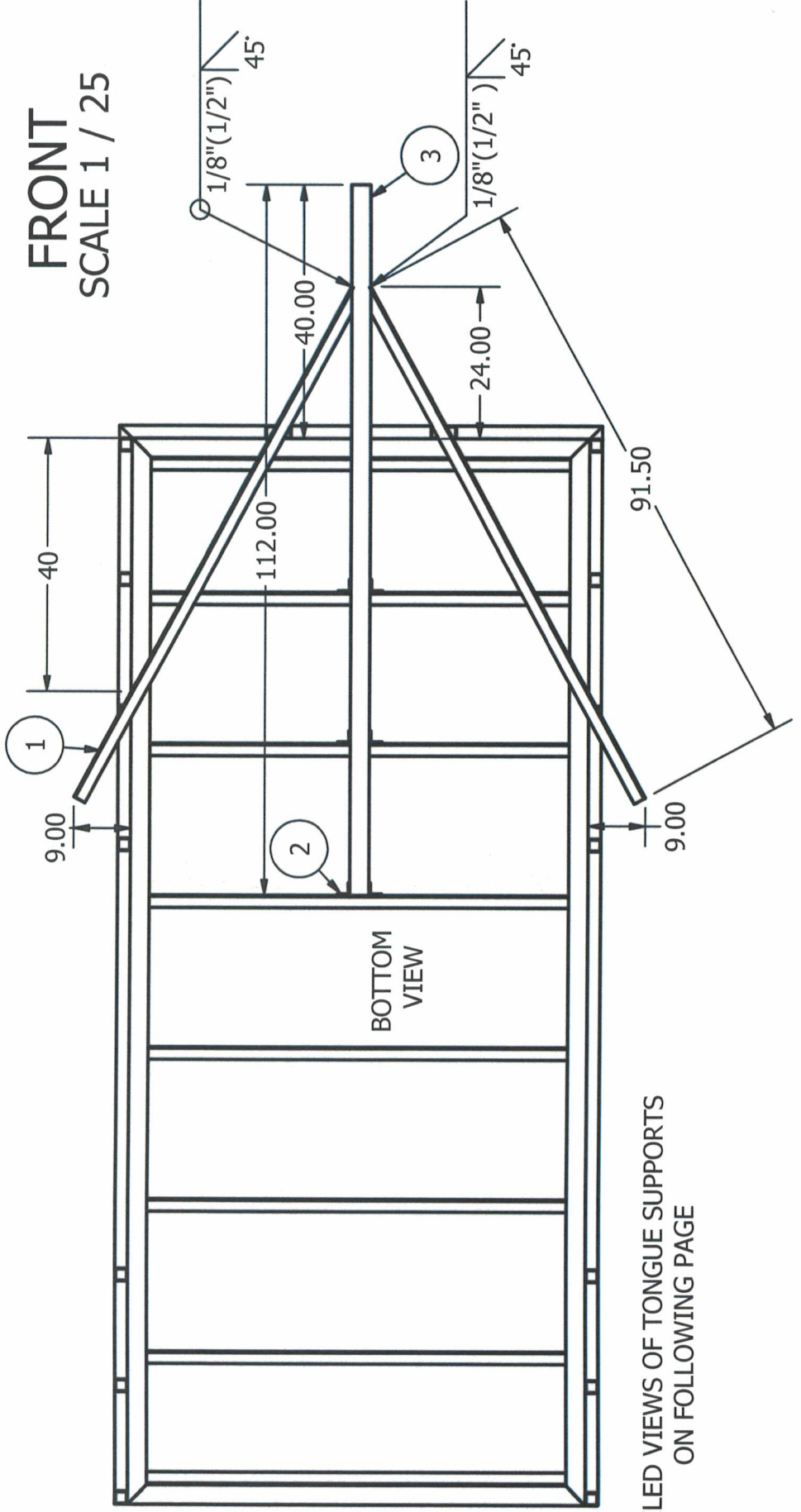
PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2		Tongue angle pieces
2	6		Tongue supports
3	1		3x3 tongue

STEP FIVE TONGUE

WELDING NOTE- ALL TONGUE WELDS ARE TO BE $\frac{1}{4}$ " FILLET WELDS ASIDE FROM THOSE WITH SYMBOLS

3"x3" TONGUE DOES NOT REST ON FRAME CROSSMEMBERS BUT IS SUSPENDED $\frac{1}{4}$ " BELOW THE CROSSMEMBERS BY THE 2"x2" ANGLE TONGUE SUPPORTS



FRONT
SCALE 1 / 25

BOTTOM
VIEW

DETAILED VIEWS OF TONGUE SUPPORTS
ON FOLLOWING PAGE

PARTS LIST

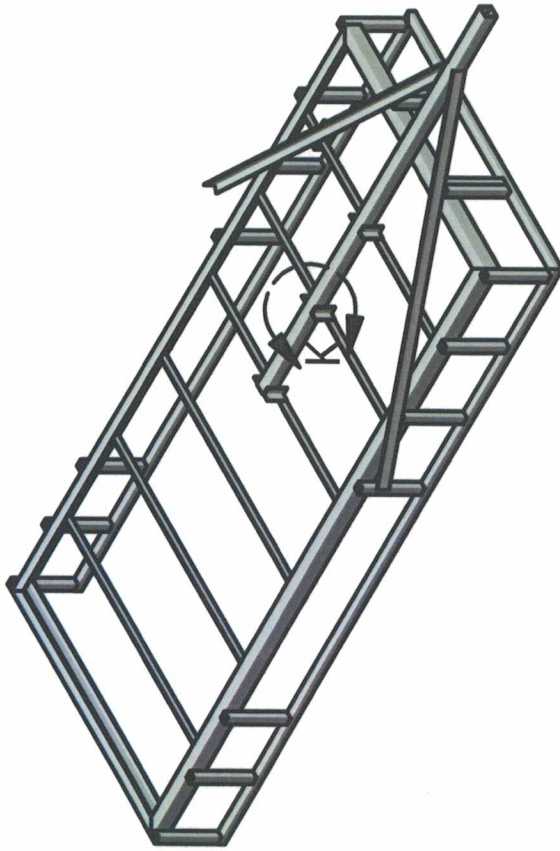
ITEM QTY	PART NUMBER	DESCRIPTION
1 2	Tongue angle pieces	1/4"x2"x3" angle 91 1/2" cut square and cut to fit against 3"x3" tubing on other end
2 6	Tongue supports	1/4"x2"x2" angle 5" long cut square
3 1	3x3 tongue	3"x3" 11 gauge square tubing 112" long cut square on both ends

STEP FIVE

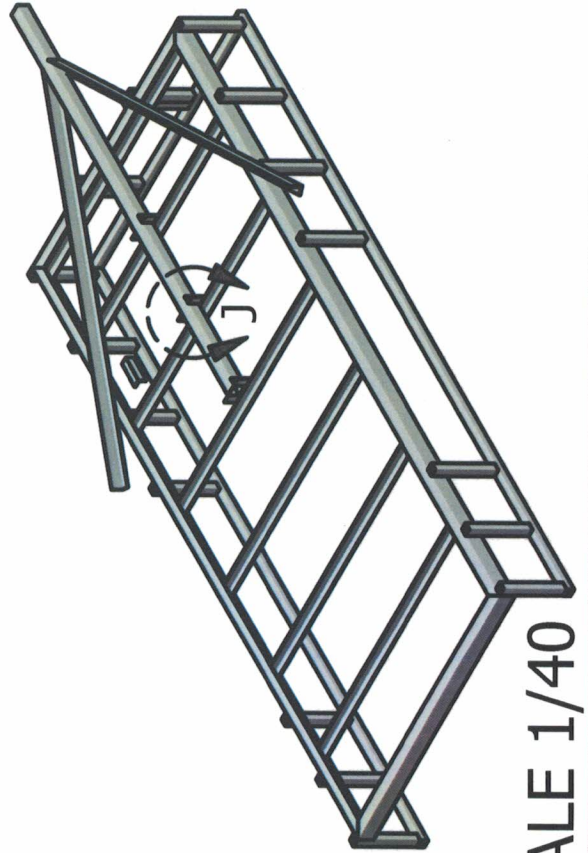
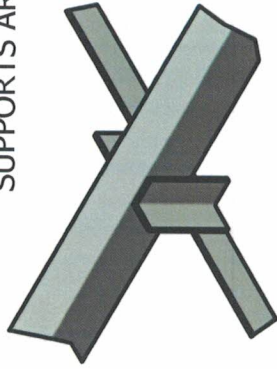
CONTINUED

WELDING NOTE-ALL WELDS ON THE TONGUE

SUPPORTS ARE TO BE 1/4" FILLET WELDS



DETAIL K
TONGUE SUPPORTS
FRONT VIEW
SCALE 1 / 10



DETAIL J
TONGUE SUPPORTS
REAR VIEW
SCALE 1/10



SCALE 1/40

1 2 1 2

STEP SIX

LEAF SPRING MOUNTS

PARTS LIST	
ITEM	QTY
1	2
2	4

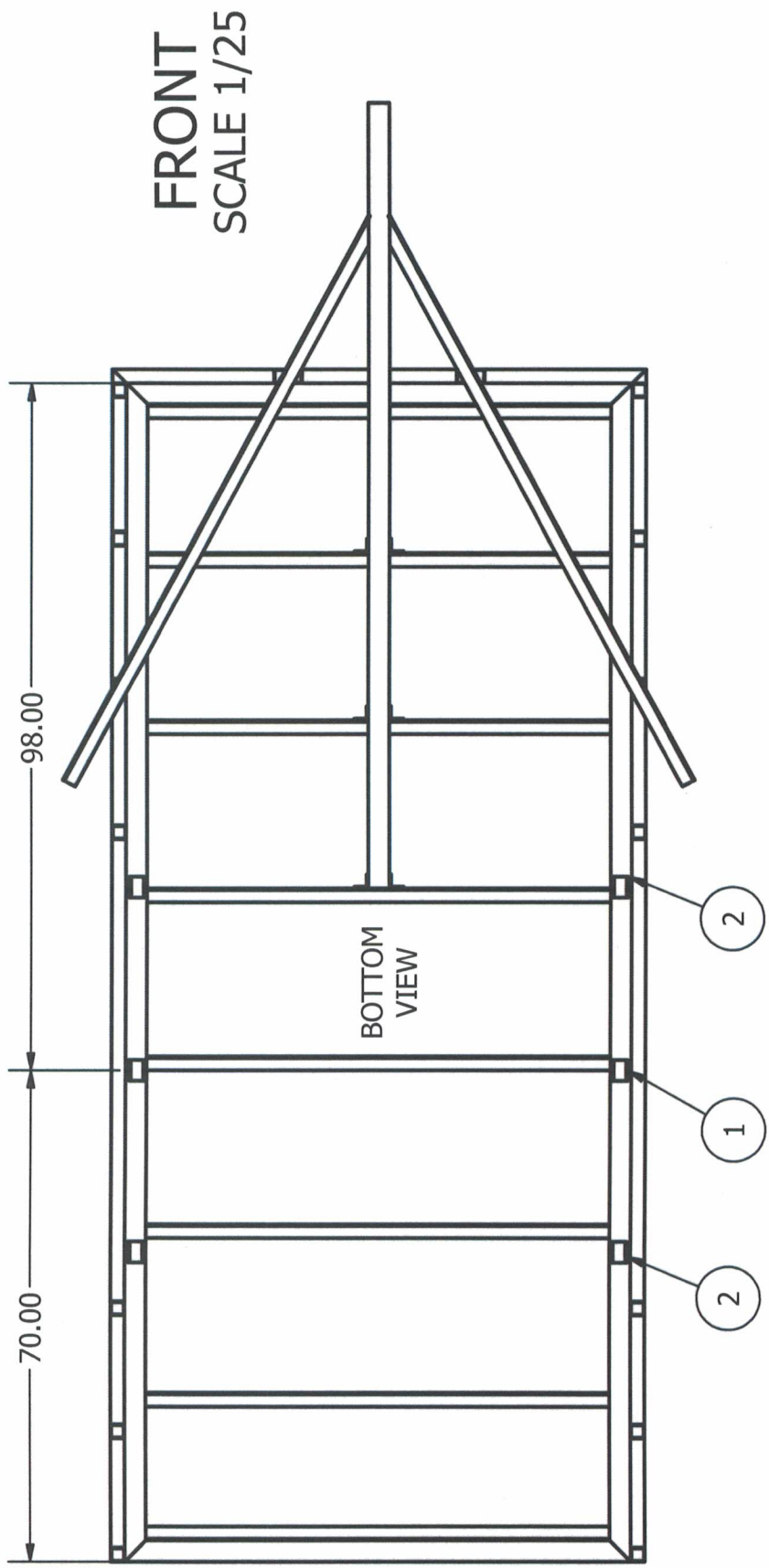
FRONT AND BACK LEAF SPRING BRACKET PLACEMENT

The front and back leaf spring placement depends on the style and type of axles and leaf springs used, for exact dimensions refer to instructions supplied with axle kit

WELDING PROCEDURE

Tack weld leaf spring brackets in place

WELDING NOTE- ALL WELDS ON LEAFSPRING BRACKETS ARE TO BE $\frac{1}{4}$ " FILLET WELDS



B A

B A

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	Fender mounts	1/4"x2"x2" angle 6 3/4" long cut square
2	2	Step angle	1/4"x2"x2" angle 6 3/4" long cut square
3	2	Step side	1/4"x3" flat plate 8 1/2" long cut to fit
4	1	Right step plate	1/4"x21"x9" diamond plate steel cut to fit top of right step
5	1	Left step plate	1/4"x21"x9" diamond plate steel cut to fit top of left step
6	2	Tail light mounts	1/4"x2"x2" angle 8 3/4" long cut square

STEP SEVEN

STEPS

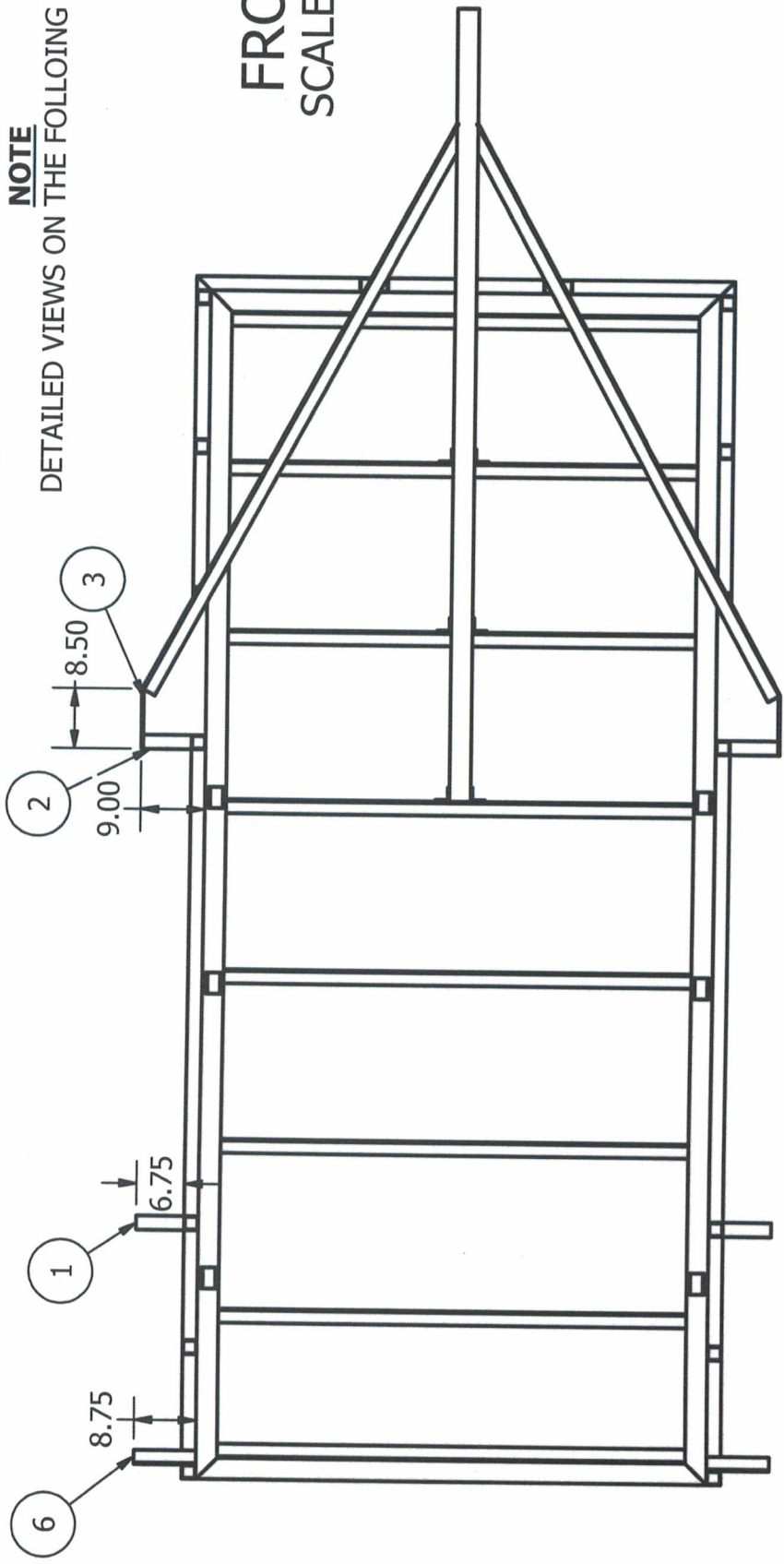
TAIL LIGHT MOUNTS

FENDER MOUNTS

NOTE

DETAILED VIEWS ON THE FOLLOING TWO PAGES

FRONT
SCALE 1/25



WELDING NOTE- THE STEP PLATE WELDS ARE 1/4" INTERMITTENT FILLET WELDS ON THE BOTOM SIDE OF EACH PLATE, ALL OTHER WELDS IN STEP SEVEN ARE 1/4" FILLET WELDS

STEP SEVEN

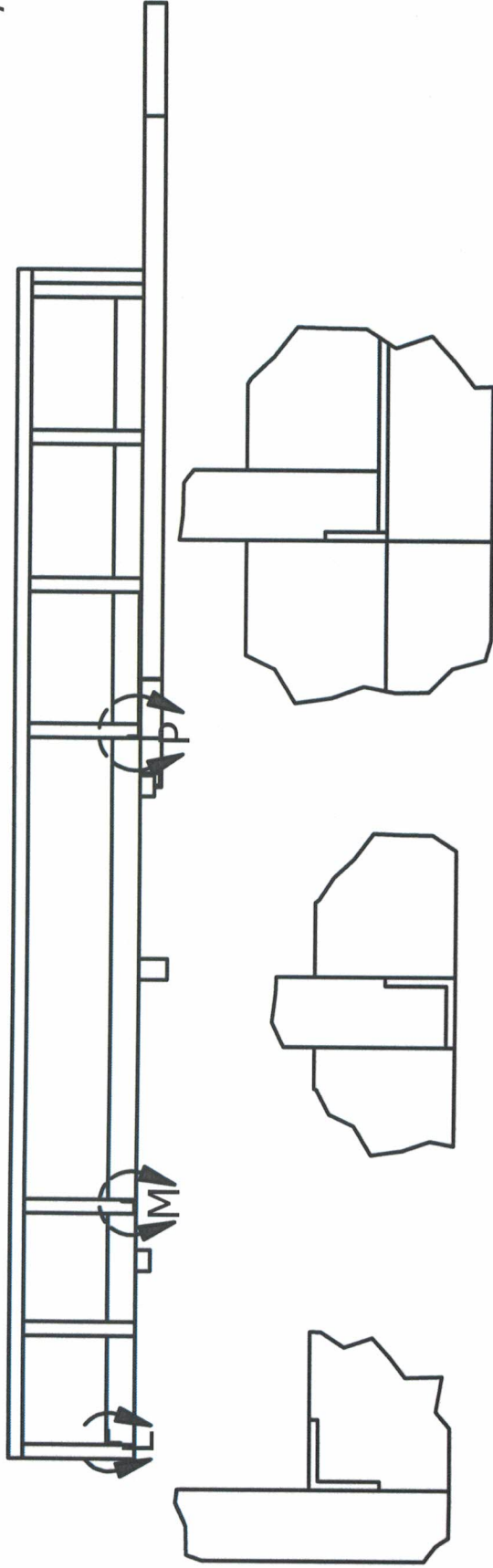
STEPS

CONTINUED

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	Fender mounts	1/4"x2"x2" angle 6 3/4" long cut square
2	2	Step angle	1/4"x2"x2" angle 6 3/4" long cut square
3	2	Step side	1/4"x3" flat plate 8 1/2" long cut to fit
4	1	Right step plate	1/4"x21"x9" diamond plate steel cut to fit top of right step
5	1	Left step plate	1/4"x21"x9" diamond plate steel cut to fit top of left step
6	2	Tail light mounts	1/4"x2"x2" angle 8 3/4" long cut square

FRONT
SCALE 1 / 25



DETAIL L Tail light mounts

DETAIL M Fender mounts

DETAIL P Step angle

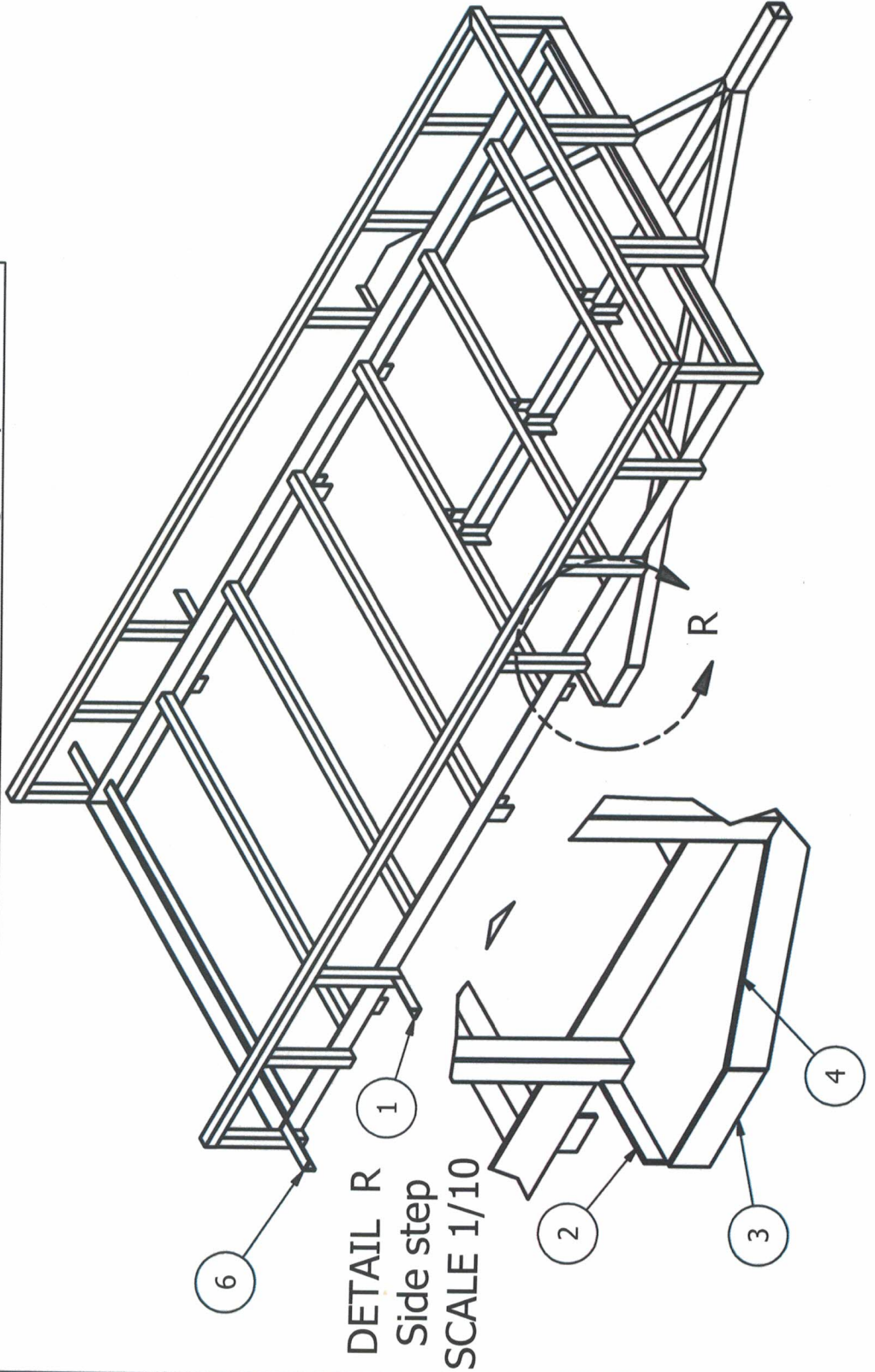
STEP SEVEN

STEPS

CONTINUED

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	Fender mounts	1/4"x2"x2" angle 6 3/4" long cut square
2	2	Step angle	1/4"x2"x2" angle 6 3/4" long cut square
3	2	Step side	1/4"x3" flat plate 8 1/2" long cut to fit
4	1	Right step plate	1/4"x21"x9" diamond plate steel cut to fit top of right step
5	1	Left step plate	1/4"x21"x9" diamond plate steel cut to fit top of left step
6	2	Tail light mounts	1/4"x2"x2" angle 8 3/4" long cut square



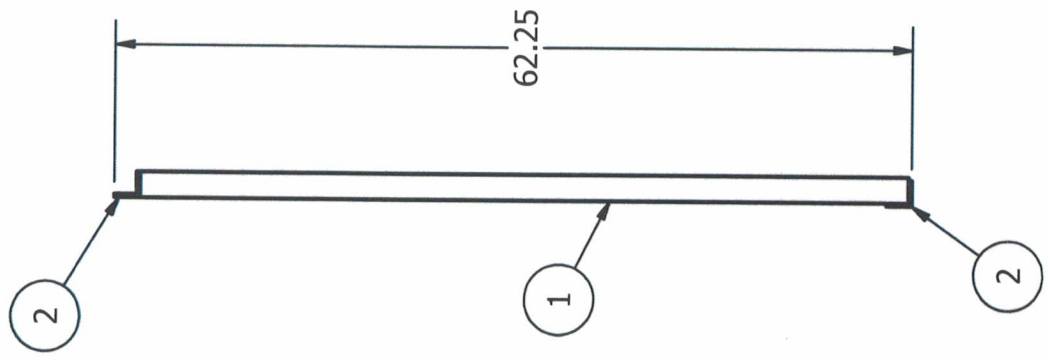
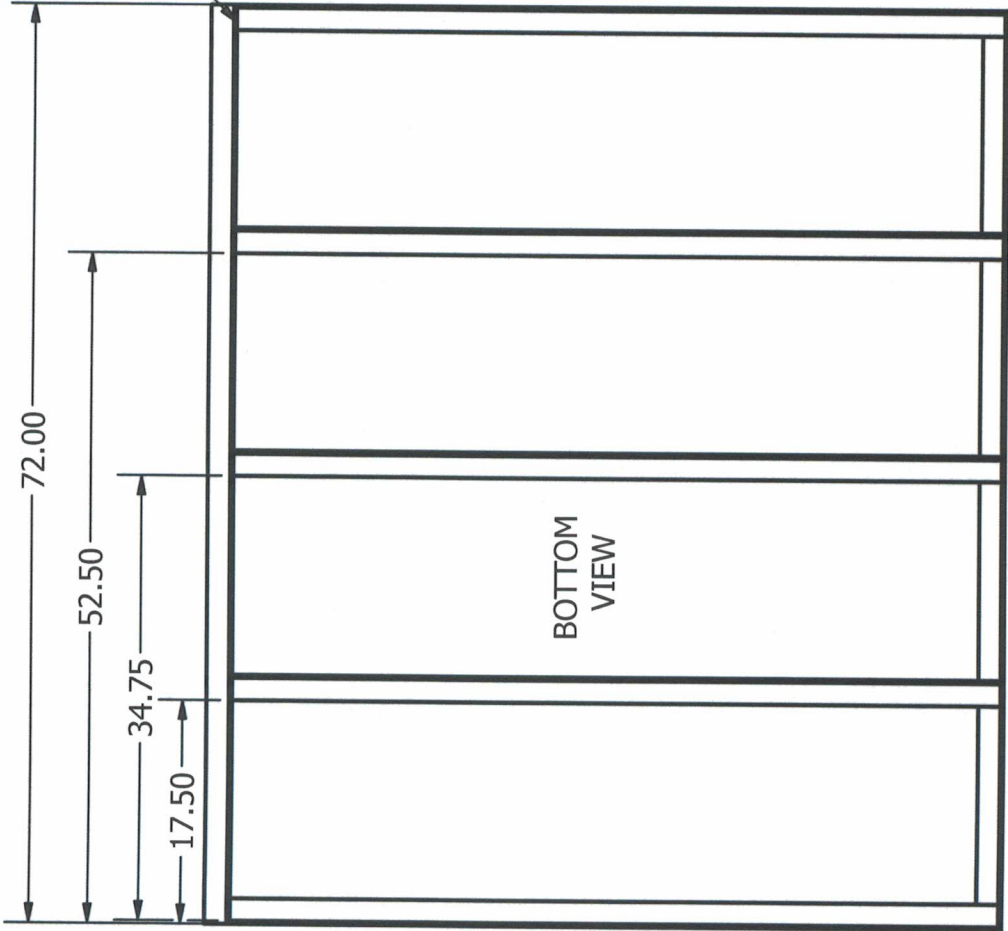
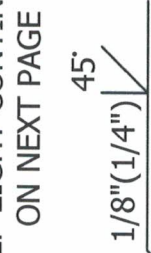
PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	5	2	1/4"x2"x2" angle 60" long cut square both ends
2	2	Top/bottom angle	1/4"x2"x2" angle 72" long cut square on both ends

WELDING NOTE- ALL WELDS NOT DEPICTED BY WELD SYMBOLS ARE TO BE 1/4" FILLET WELDS

NOTE

STEP EIGHT CONTINUES ON NEXT PAGE



RIGHT SIDE

TRAILER / HINDGE END

SCALE 1/15

1

2

1

2

4

B

A

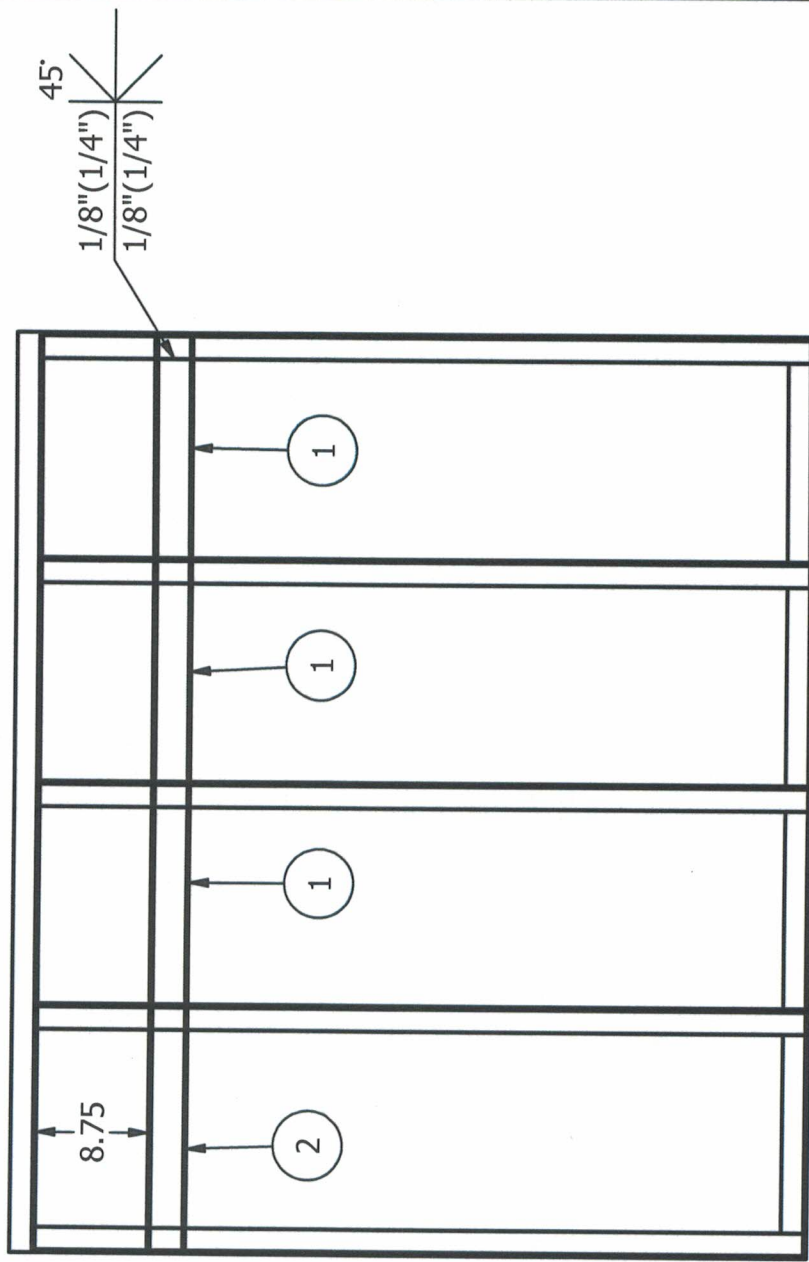
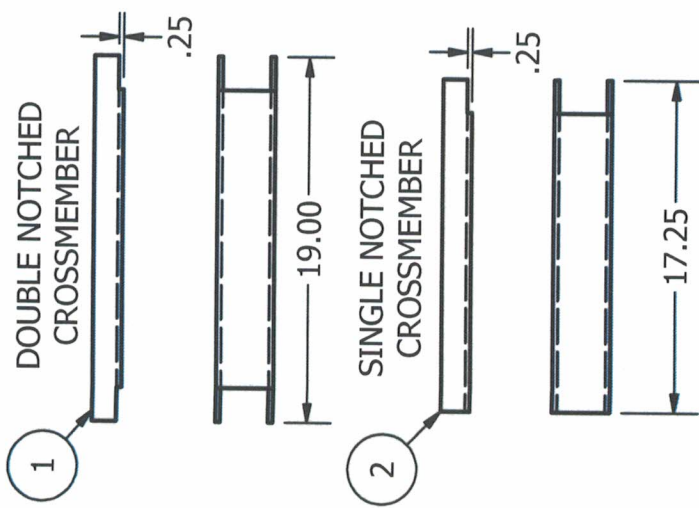
A

B

STEP EIGHT CONTINUED

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	3	3" standard c channel cut 17 1/4" long, notches depicted below
2	1	3" standard c channel cut 19" long, notched depicted below

WELDING NOTE- ALL WELDS NOT DEPICTED BY SYMBOLS ARE 1/4" FILLET WELDS



Bottom View

SCALE 1/15

1

STEP EIGHT

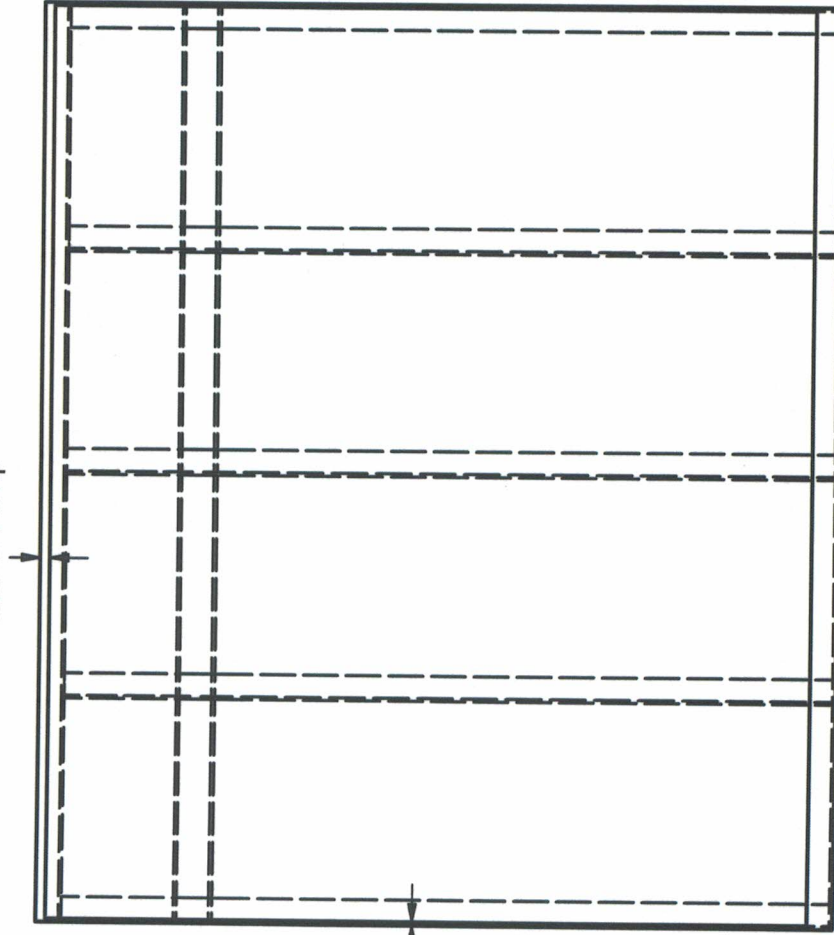
GATE SHEET METAL

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	expanded sheet metal	one sheet 71 1/2"x59 1/2"

WELDING NOTE- TO WELD ON THE EXPANDED SHEET METAL,

.75 offset from
end of ramp



.25 sheet metal
offset both sides

Top View

1

2

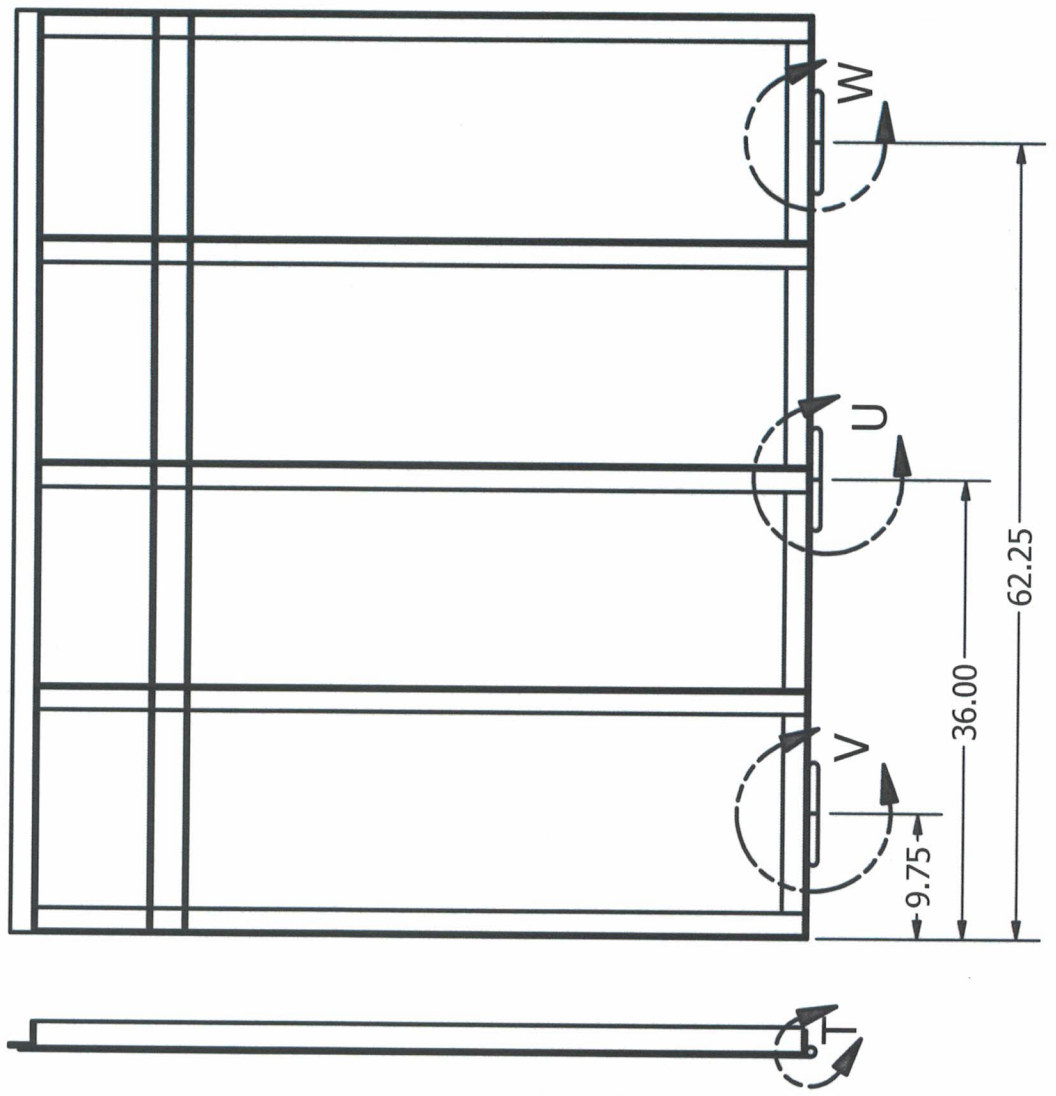
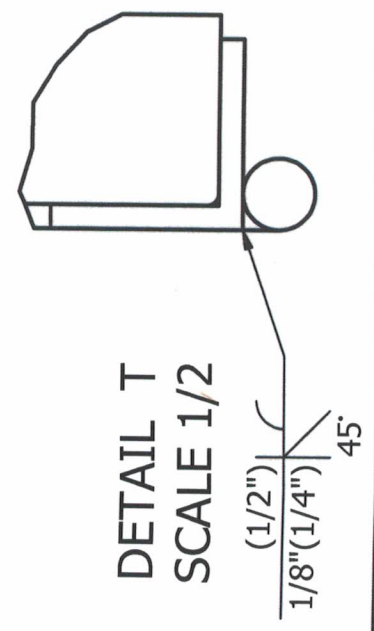
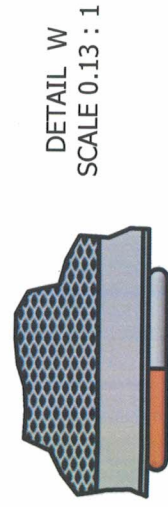
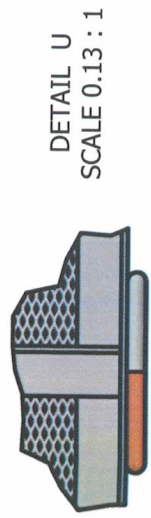
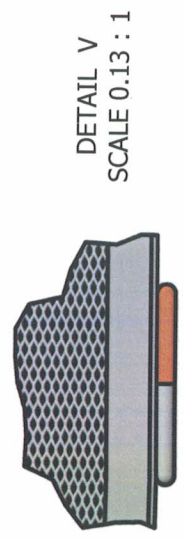
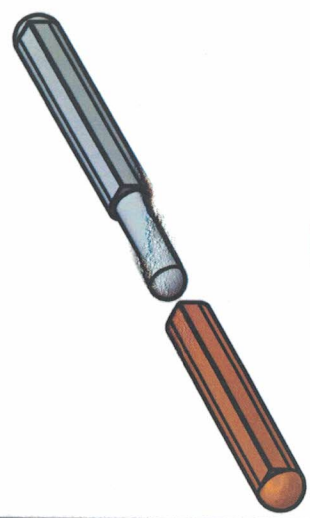
2 1

STEP EIGHT

GATE HINGES

PARTS LIST			DESCRIPTION
ITEM	QTY	PART NUMBER	
1	3	Hinges	Two piece hinges

WELDING NOTE-THE HALF OF THE HINGE IN THE DRAWINGS COLORED ORANGE IS THE HALF THAT GETS WELDED TO THE RAMP



2 1

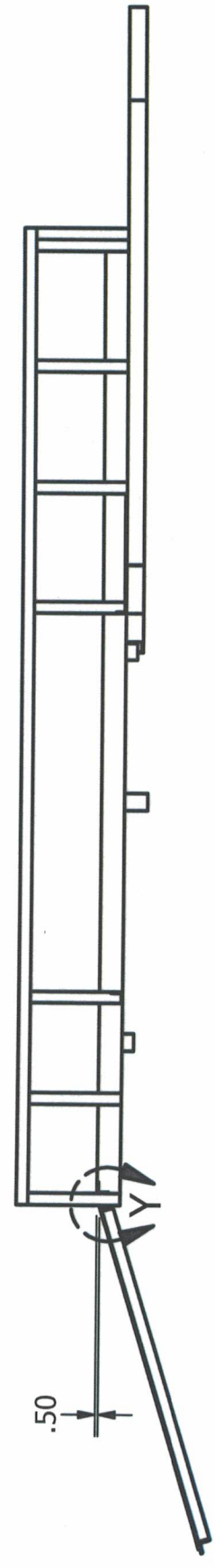
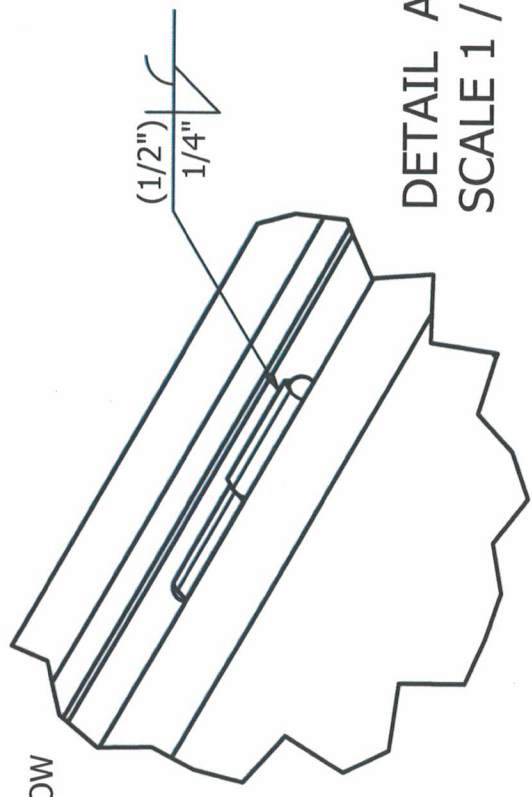
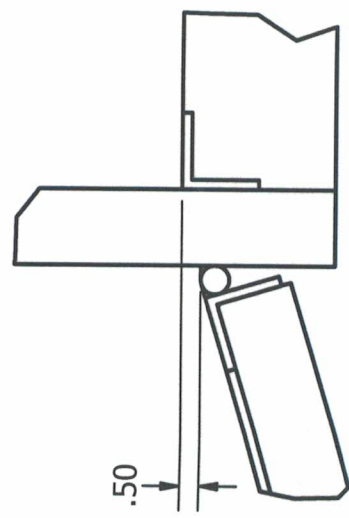
2 1

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	3	Hindges	Two piece hinges
2	1	Complete Ramp	Complete ramp

NOTE-THE HINGES ON THE RAMP ARE WELDED APPROXAMATELY $\frac{1}{2}$ " BELOW THE TOP OF THE FRAME

WELDING NOTE- WELD HINGES ACCORDING TO THE WELD SYMBOLS BELOW



STEP EIGHT

RAMP ATTACHMENT

B

A

2

1

2 1

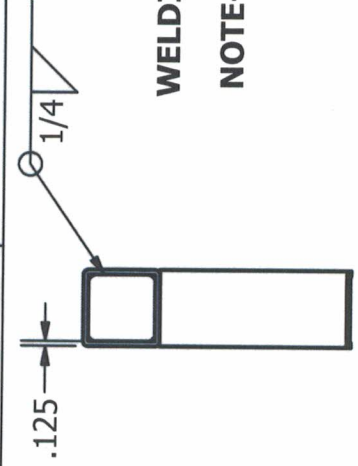
PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	6	gate latch	1/4"x2"x2" angle cut 1 1/2" long
2	2	tubing cap	1/4"x3" Flat bar cut to fit

STEP NINE

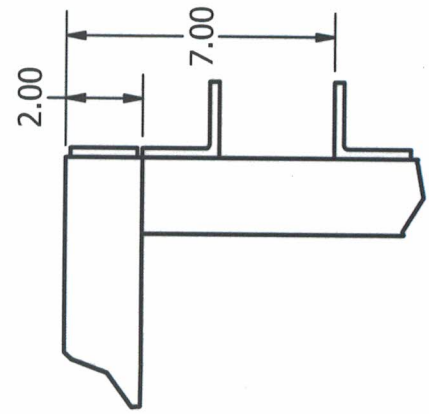
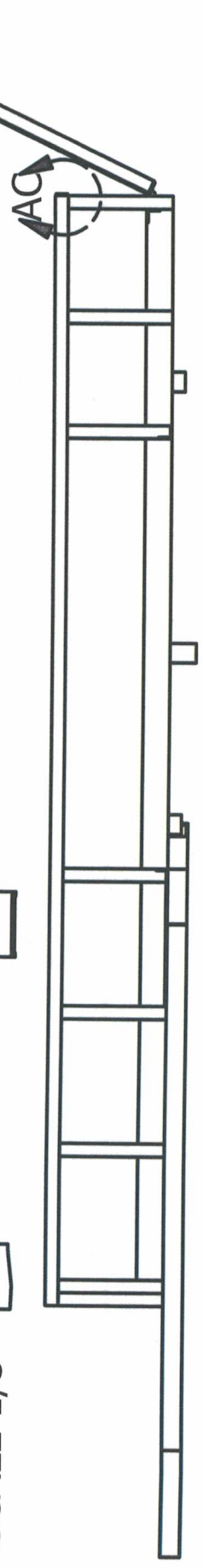
TUBING CAPS

GATE LATCHES

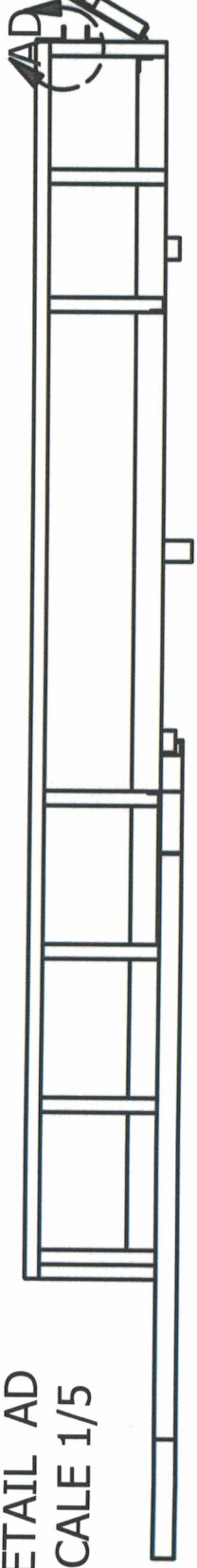
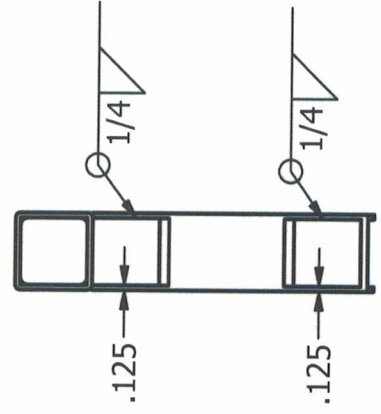


DETAIL AC
SCALE 1/5

WELDING NOTE- WELD ACCORDING TO SYMBOLS
NOTE- STEP NINE CONTINUES ON NEXT PAGE



DETAIL AD
SCALE 1/5



2 1

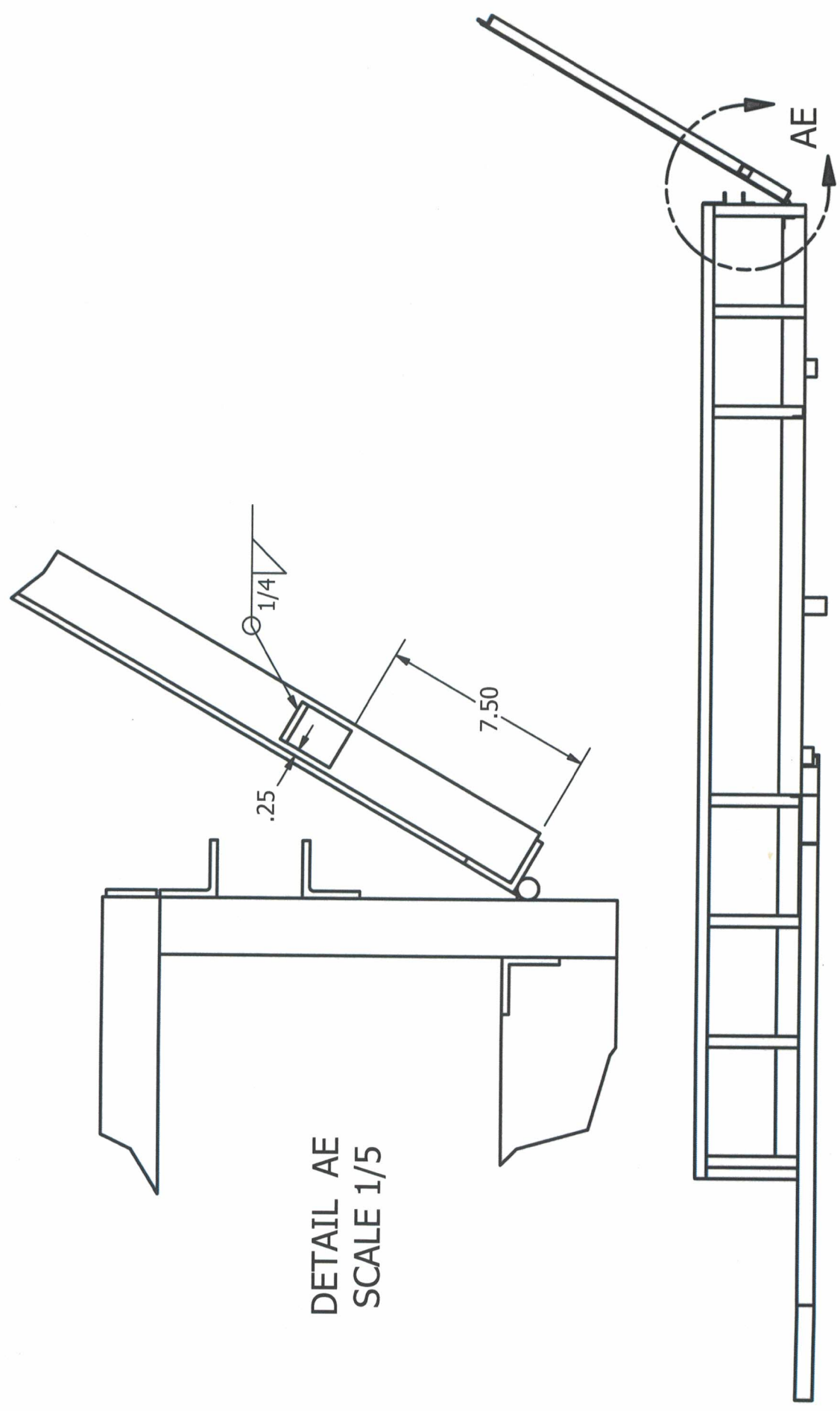
1

2

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	6	gate latch	1/4"x2"x2" angle cut 1 1/2" long
2	2	tubing cap	1/4"x3" Flat bar cut to fit

STEP NINE CONTINUED



DETAIL AE
SCALE 1/5

B

A

2

1

STEP TEN

RAIL POCKETS

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	14	1/4"x2"x4" steel tubing
		pockets

WELDING NOTE-All vertical welds on rail pockets are 1/4" fillet welds

