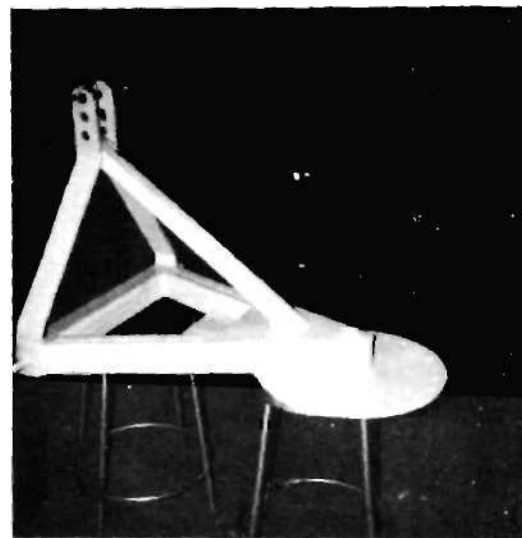


# All Purpose Plow

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## The Blade

Roll 2 pieces of  $\frac{1}{2}$ " cold rolled steel 43" x 21" lengthwise to a curve, 18 $\frac{1}{2}$ " high and  $\frac{1}{4}$ " deep. Weld the two pieces of the blade lengthwise together producing a blade 86" long.

Now make supports for the blade for strength. Take 6 pieces of  $\frac{1}{4}$ " cold roll steel 16 $\frac{1}{2}$  x 4 $\frac{1}{4}$ " and scribe the outside curve of the blade on the metal lengthwise from corner to corner. This leaves six pieces of metal with an arc cut on one side and the other side still having two square corners. These corners are to be rounded to a radius of 1" before welding them to the blade. Place one support 2" away from each edge of the outside of the blade and space the other four supports 15%" apart. Place the supports on the outside arc or curve of the blade with the curve you cut in the plate downward on the blade and centered on the blade so as not to touch the edges of the blade. Intermittent welds are used to keep warpage at a minimum. These supports are to be called C supports later on in the instructions.

For final support five pieces of  $\frac{1}{2}$ " x 15%" x 2" angle iron are placed between and at the very edge of the C

supports. These pieces are welded between the five equally spaced C supports in the very center of the blade.

Two pieces of angle iron  $\frac{1}{2}$ " x 86" x 2" are welded lengthwise to the top and bottom edges of the blade. The angle iron must be notched out where the C supports hit it. This is done by grinding a groove in the angle iron to the distance necessary for the angle iron to rest on the edge of the blade with no interference from the C supports.

Cut ten pieces of angle iron  $\frac{1}{2}$ " x 15%" x 2" and center them between the angle iron at the edges of the blade and the angle iron in the center of the blade for support and secure with intermittent welds.

For the final bracing of the blade, cut six pieces of  $\frac{1}{2}$ " x 2" x  $\frac{1}{2}$ " angle iron and place them equally spaced between the C braces and the very side edges of the blade.

After all the supports have been put into place make the edge of the blade stronger so it won't erode. Take bar stock 87" x 4" long and connect it to the very bottom of the blade so that an inch extends beyond the edge of the

blade. Space the stock so that bolts will hold it to the blade without interfering with the supports. Using a  $\frac{1}{8}$ " drill, drill six holes in the place marked so that it penetrates both the stock and the blade. Tightly connect the blade with half inch bolts.

To make the pieces which connect the blade with the mounting bracket, take two disks 18" in diameter and clamp them together one directly over the other. From the center of the disks take a compass and scribe a circle with a diameter of 18". Divide this scribe circle into 24 equally spaced parts. Center punch the 24 equally spaced markings on the scribed circle. Using a  $W$  drill drill a hole every place you center punch on a scribe circle making sure the drill goes through both plates.

Before unclamping the two disks drill a  $\frac{1}{4}$ " hole through the center point. Unclamp the two disks. Take a scribe and set it for a radius of  $\frac{1}{2}$ ". From a center of a disk scribe the circle. With an oxy-acetylene torch cut the scribed hole out of the plate. The other plate will be used in making the mounting bracket. Take a pin  $1\frac{1}{2}$ " x 5" x  $1\frac{1}{2}$ " and a pipe  $1\frac{1}{2}$ " x 3" x  $1\frac{1}{2}$ " which slides freely over the pin. Put the pipe aside with the other disk for later use. Using the disk with the cut hole in the center place the pin in it, making sure it is flush to the surface of the disk on one end.

Make sure the pin is perpendicular to the surface of the disk. Reverse weld the pin to the disk.

Take a piece of cold rolled steel  $1\frac{1}{2}$ " x 6" x 8" and cut a 6" radius on one of the ends.

Now take a scribe and draw an arc with the same radius as the disk on the opposite side of the previous arc cut on that piece. Weld the plate just made to the disk with the pin in it. Place the blade of the plow so that it is perpendicular to the floor. Take the disk and place it on the top edge of the blade so that the center of the blade is directly beneath the center of the disk. Make sure the plate is facing the back of the plow where the bracing is. Have the disk parallel to the floor so it is  $90^\circ$  to the blade. Now weld the disk to the blade.

Put angle iron braces from the plate attached to the disk to the braces on the back of the blade.

### CONSTRUCTION OF MOUNTING BRACKET

Take one piece of  $1\frac{1}{2}$ " tubing 3" x 3" x 27" and two pieces of  $1\frac{1}{2}$ " tubing 3" x 3" x 31", on the longer pieces cut two ends with 25 degree angles and two ends with 65 degree angles. Weld the two pieces so that the two 25 degree faces are welded facing each other. The two ends with  $65^\circ$  cuts get welded to the smaller piece of tubing.

On the two pieces of cold rolled steel  $1\frac{1}{2}$ " x 23" x  $2\frac{1}{2}$ " mark off from one end three lines each two inches apart. In the center of these lines drill three  $\frac{1}{4}$ " holes in each piece of stock. After the holes have been drilled bend the

stock. From the edge of the bar where the measurements for the holes were taken, mark off a line  $8\frac{1}{2}$ " on both bars and bend a  $45^\circ$  angle on both bars. On the  $8\frac{1}{2}$ " line make a  $45^\circ$  bend on both bars. Now they are ready to be welded to the triangle.

Measure and cut out a tapered piece.

Weld the side opposite the holes to the outside face of the smaller piece of square tubing in the triangle. Refer to blueprint for more detail.

Take a piece of  $1\frac{1}{2}$ " cold rolled steel  $14\frac{1}{2}$ " x  $14\frac{1}{2}$ ". After the plate is constructed weld it over the connection of the two  $77^\circ$  faces of the triangle.

For extra strength a piece of square tubing  $2\frac{1}{2}$ " x 2" x  $2\frac{1}{2}$ " is welded between the cold roll bars and the surface of the plate just constructed. The tubing is fit between the bars as close to the  $45^\circ$  bend as possible and 2" away from the edge of the plate. The angle on the tubing is  $45^\circ$  to the plate and  $45^\circ$  between the bars. The tubing is welded securely to both the bar and the plate.

Bring out the pipe and disk set aside before while constructing the blade. Using a scribe, scratch the diameter of the pipe from the center point that was drilled out in the middle of the disk. Cut this hole out. Weld the pipe to the disk so one end is flush to the disk on one side. Make sure it is perpendicular to the surface of the disk. This must fit over the pin on the other disk.

On the center line of the plate mark a line from the tip of the triangle 9" in. Using a scribe scratch a circle the same diameter of the pipe which slid over the pin on the blade. With an oxyacetylene torch cut the hole through the plate and the tubing so the pipe will fit through it. Weld the pipe in the hole securely to the triangle. Also weld the disk to the bottom pieces of the triangle. Make sure you check the blueprint before welding so everything is properly fitted.

On the two sides of the square tubing, where the bar stock is welded, there must be holes drilled. The holes are  $\frac{1}{2}$ " in diameter. On the bar stock draw a 4" square, find the center of the square and center punch it. Using a  $1\frac{1}{2}$ " drill, drill one hole on each side of the tubing. Mark the face of the smallest square pieces of tubing that is opposite the disk. This is shown on the blueprint with two holes in it. The holes are 2" x 2" and are 1" from all three sides. Cut out by a torch. This is so the alloy pins which go through the holes in the side can be tightened down to the mounting bracket.

Connect the mounting bracket and the blade together by slipping the pin on the blade into the pipe on the mounting bracket. To secure them together slip the bolts through the holes in the disks and tighten the nuts. To change the blade to a desired angle remove the bolts and rotate the blade until the angle desired, then replace the bolts and nuts.

QTY	STOCK BILL	L	W	MAT.	P.C.
2	ANGLE 1x1"	25"	2	3/16"	A
2	ANGLE 1x1"	19"	2	"	B
2	ANGLE 1x1"	10"	2	"	C
2	ANGLE 1x1"	8"	2	"	D
2	ANGLE 1x1"	12"	2	"	E
12	ANGLE 1x1"	15 3/4"	2	"	F
1	ANGLE 1x1"	2 1/2"	2	"	G
2	PLOW BLADE	49"	2 1/4"	3/8"	H
2	REINFORCING BLADE	87"	4"	3/8"	I
2	SQUARE TUBING 3x3"	37"	3"	1/8"	J
1	SQUARE TUBING 3x3"	27"	3"	3/16"	K
6	REAR SUPPORTS	16 1/2"	4 1/2"	3/16"	L
2	ADJUSTABLE PLATES	18"	18"	3/8"	M
2	TRACTOR ATTACHMENT	23"	2 1/2"	"	N
1	SWIVEL PIN	5"	1 1/2"	1 1/2"	O
1	SUPPORT PLATE	14 1/4"	14 1/4"	3/16"	P
2	ALLOY PINS	5"	3/4"	3/4"	Q
1	EXTENDED ARM	6"	8"	3/8"	R
1	SUPPORT ARM 2"x24"	23 1/4"	2 1/4"	1/8"	S
2	ANGLE 1x1"	86"	2	3/16"	T

