Aluminum River Sled

Bill of Materials

Frame and Transom
Aluminum, structural channel 6061 T6
4"x 2-1/4"x .190 x 25', 3 pieces

Bottom
Aluminum flat sheet 5052 H32
.125 x 72"x 216", 1 piece with six corrugations

Sides
Aluminum flat sheet 5052 H32
.090 x 48"x 192", 1 piece with two corrugations
(Note: Split 48"piece in two, 24" to the side)

Bow and Stern
Aluminum flat sheet 5086 H32
.1875x60"x96", 1 piece

Deck Top for Bow Section
Aluminum tread plate 6061 T6
.125x48"x96", 1 piece

Gunnel Top Closure
Aluminum structural pipe 6061 T6 Schedule 40
1.25"x20", 2 pieces = 40'

Anti-Skid Chine Closure
Aluminum structural equal angle 6061 T6
l"x l"x l/8"x 25', 2 pieces = 50'

Construction Notes

As indicated in the list of material, the project started with two sheets of ribbed aluminum. The ribs were pressed in by a local boiler maker. The ribs were applied to the sheet of aluminum to aid in the structural rigidity. This made the boat lighter by eliminating excess structural support.

The first sheet, 6'x 18', was cut down with the use of a carbide bladed circular saw to 68"x 192". Secondly, with the use of a batten and tape measure, the proper radius needed to insure correct angular curvature and alignment to the bottom of the boat was found. This was achieved by slicing a radius of 2.75" center to center at the bow, arcing to 0" at 52". Also taken into consideration was the alignment of the side and bow plate in relation to the rake of the bow.

One frame section was tacked on 69" from the bow to stop the remaining section of the aluminum sheet from curving. A series of pulleys, clamps, and weights were used to pull the bow up and together, and the bow was tacked in place.

All frames (1-3) were constructed of 2.25"x 4" channel. Channel was tapered to .25" on top of gunnel. After constructing the frames, they were tack welded into place. The other two frames were welded into place at equal lengths from first frame to the stern.

The transom was modified specifically for the specifications of the motor which in this case was a] 15 H.P. Johnson outboard with adapter to be jet-propelled. A template was used to place the transom at the correct angle, measuring from the bow plate to the stern on the starboard side then likewise on the port side, to achieve the correct balance. To further support the transom, two 8"x 8"x 3/16" pieces of aluminum were tack welded under the 2"x 4" aluminum channel (which ran perpendicular to the ribs of the bottom of the boat).

The sides were cut with a die grinder to fit the curvature of the bottom and bow of the boat. After tacking the sides to the frame and the transom, with the aid of a hand winch and clamps the starboard and port sides were butted with the bow and bottom of the boat. This was then tacked into place. The sides were trimmed to fit an overall height of 22.5".

The two 20" lengths of pipe were cut down to 15Tl-l/2"and were curved to fit the gunnel. The excess was used to construct the bow gunnel.

The fuel tank was mounted as far forward as possible under the bow deck but can be easily removed if needing repairs. The tank was assembled with a V-bottom design so a drain plug could be installed in lower V area. The suction line was designed to leave approximately 2" of fuel remaining in the bottom of the sump area. The tank was also vented. There are two baffles within the tank. Fuel tank location and design was optional due to owner's requirements.

Deck top for bow section was supported by deck beams constructed from excess channel. The crown was produced by raising the center of the aft bulkhead of the forward compartment to 1.5" and arcing to the edges of the bow.

The ends of the pressed ribs were sliced with a die grinder to achieve a radius of .5" center to center at the ends, arcing to 0" at 2.5" inward. A shot filled hammer and a drift were used to close the radius. After this was completed all but #2 and #5 stern corrugations (which were left open to provide for thermos type drain plugs in lower transom) were welded.

l"x 1" angle aluminum was used for the chine, which extends along the bottom edge from the stern to the bow on the starboard and port sides.