

1/14th Scale 1980 Atlas Van Lines O Sport Hydro

Originally drawn as a 1/16th scale 22" X 11" hull, this boat performed well with 7 cells, a 15 turn brushed motor and X432 propeller. It was converted to 8 cell brushless power and gained a LOT of speed. So much so, that I decided it would be a better, more stable boat in 1/14th scale (24" X 12"). The center of lift has been moved aft to keep it from blowing over. The propeller angle of attack is lower and now adjustable, using a wire drive shaft. All else is pretty much the same as the original hull shown in the Dec. 2001 RCBM construction article. It could also be set up for Limited Sport Hydro racing with 12 cells and a Speed 700 motor. I think a 26" (13th scale) or 28" (12th scale) hull would be better suited for the added weight. But, you could race the 24" boat in either class.

Wood Needed:

4 – 3/32" X 6" X 36" firm balsa (framework and sheeting)
1 – 1/16" X 6" X 12" birch plywood (transom and doubler)
1 – 3/16" square X 24" firm balsa (sponson base braces)
1 – 1/4" square X 48" firm balsa (deck strips)
1 – 1/4" X 1/2" X 48" firm balsa (sump standoffs nose blocks)
assorted 1/16" & 1/8" balsa (fins, wing and hatch cover)
1/4" indoor plywood (temp. former and cradle)

Preparation:

Attach the part templates to the wood with a glue stick. Cut the parts out with the outlines showing then finish sand to the center of the lines. Copy the markings from the templates to the wood. Make a building board from a solid 2X8, or 1" piece of plywood or dense particle board. Sand the top smooth and flat. Saw, plane or sand the sides parallel and perpendicular to the top, to a final size of 6.0" (-1/32") X 24".

The deck and sponson bottoms would benefit from having 1/64" birch plywood laminated to the outside. This will add toughness to the boat, but only increase the weight by a couple of ounces. Do this with wing sheeting contact cement before assembly. Be sure to make a right, and left part of each.

Tunnel Assembly

- 1) Copy the tunnel assembly pattern to the building board.
- 2) Tack glue (one small drop) the sump strip and control plate to the board.
- 3) Glue the 1/4" balsa standoffs to the sump. These hang half way off the outside edges with the "DN" side on the sump sheet (down).
- 4) Tack glue the plywood temporary formers to the building board with 3/32" balsa spacers underneath the "DN" side so the tops are level with the standoffs.
- 5) Position the tunnel strips on the curve of the formers and standoffs. The back edges should contact the building board evenly and flat, along with the sump strip and control plate. The outside edges should be 6.0" wide.
- 6) Glue these to the top of the standoffs and control plate (not to the building board) just tack glue them to the temporary formers.

- 7) Glue the ¼" X ½" balsa nose block (or ½" aircraft leading edge) to the front edge of the tunnel.
- 8) The open area of the curve of the sump will be sheeted with cross-grain balsa after the hull is off the building board.

Frame

- 1) Glue 3/16" X 10" square balsa strips along the straight bottom sponson edge of each stringer (one right and one left).
- 2) Glue the transom doubler to the transom.
- 3) With the tunnel still on the building board, assemble the stringers, bulkhead C and the transom without glue.
- 4) Check that the stringers are level with each other and that the bulkhead and transom top edges match up with the top of the stringers.
- 5) When this looks good tack glue bulkhead C first, then the transom to the stringers.
- 6) Recheck the alignment then add the rest of the bulkheads.
- 7) Glue all the joints except the base of bulkheads B, C & D (the centers of these will be removed later).
- 8) Bevel the base of the rear non-trip panels to match the stringers and glue these between the transom and bulkhead C.
- 9) Glue the ¼" balsa deck strips to the cutouts in the tops of the bulkheads from front to back. Keep this curve smooth, it will determine the top profile of the deck.
- 10) Carefully remove the frame from the building board by slipping a long thin knife blade under the bottom to break the tack glue spots loose.
- 11) Check that the boat is straight by laying it on a flat surface. See if the bottom edges of bulkhead C and the corners of the transom all touch. If there is much more than 1/16" gap counter twist the frame while heating with a hair dryer until it is level.
- 12) Add cross-grain 3/32" balsa to the front curve of the sump.
- 13) Bend the sponson bottom sheets to match the curve of the bulkheads (use steam) then glue in place.
- 14) Bevel the outside edges to follow the bulkhead profile.
- 15) Add the sponson sides using the same process. Work slowly while curving and fitting these parts. The closer they are to the profile of the support structure, the better. This helps keep the hull straight and the profile of the nose smooth.
- 16) Glue the 1/16" ply doubler to the back of the right sponson. Also add 1/16" ply scrap to the inside to strengthen the turn fin mount.

Decking

Sand the top edges of the framework to a smooth profile. Trim the top of all the side panels to a smooth curve when viewed from both the top and the sides. The correct position of the deck is with the inside edges 3.62" apart. Make sure all decking will meet with support structure before starting to glue. This is the tricky part. When using contact cement, once you touch the parts together, they are STUCK. Be sure you have it right before putting them together. Keep the hull on the building board for this.

- 1) Put wing skin contact cement on top of the bulkheads, stringers and sides.
- 2) Add contact cement to the bottom of the deck (one right, one left). Let this set up per manufactures instructions.
- 3) Line up the deck to the center of the deck strip at bulkhead C. Carefully touch the deck down.
- 4) Lay the deck down evenly along bulkhead C to the outside of the hull. Then pull it down to meet the rest of the open structure.
- 5) Add CA to all the outside seams of the deck.
- 6) Fill any gaps on the inside between the deck, bulkheads, bottom, and main stringers with thick CA so water won't find it's way past the exposed areas into the sealed off sections.
- 7) Trim the deck outside edges flush with the side panels.
- 8) Cut the front deck center piece to fit and glue in place. (The rear center section will go on after the antenna and rudder push rod installation).
- 9) Cut the centers out of bulkheads B, C and D where shown.
- 10) Take the temporary plywood formers off the tunnel bays.
- 11) Plane or sand a 7/32" X 45° bevel on the inside of the sponsons.
- 12) Add 1/64" ply to the ride pads if the sponson bottoms are not laminated.
- 13) Bevel the sides of the sump as shown, inside and out.

Sand all over with 220 grit. I use 1" or 2" squares of 1/4" balsa with sandpaper glued on one side for this. Apply a thin coating of CA to the corners to harden the edges and sand smooth. The basic hull structure is done, it should weigh 6 – 7 oz.

Cowling, Cockpit, & Deck Cover

Make a removable hatch cover by sectioning, and sanding 1/8" balsa to the deck profile. Trim the edges to fit into this area without gaps or binding. Sand the top so the curve matches the deck.

Mark the side and top profiles of the cockpit cowling on a block of foam. Use a band saw to rough cut to shape. Get the final shape by sanding until the piece is smooth starting with 150 then 220 and finally 400 grit paper. Foam will gouge easily so be careful towards the end. This will be painted like the rest of the hull but don't use regular CA or resin. Krylon paint may attack blue foam. Test other materials on a piece of scrap before endangering good parts. Spackling paste, thinned with water makes a good filler for this. Some like to toughen the foam with glass cloth and thinned epoxy (test with a scrap of foam before trying resin). The tail fins and wing can be made from 1/8" balsa covered with iron-on film or painted.

Drive Train

The power system shown is an 8cell brushless motor and 1/16" wire drive. Other motors and drive-lines could be used. It is important to locate the propeller .62" below and 1.56" behind the bottom of the transom. The thrust angle should be 4° to start with. Shown is a "through the floor" motor mount. Use the method and hardware that works best for you.

Turn Fin & Rudder

The turn fin can be cut from .09" aluminum angle, or use one made for a small nitro boat. Anchor this to the back face of the right sponson with a couple of #4 wood screws. If the turn fin is knocked off, it should separate at the mount. It shouldn't rip the back of the sponson off.

Install the rudder (I use an Octura OC4WRM) 1¾" – 2" to the left of the centerline and the hinge 1" behind the transom. As with the turn fin, don't mount it so strongly that hitting something will result in the back of the boat coming off. Drill holes through the transom and bulkhead F for the push rod sleeve to line up with the rudder and servo arm locations. I seal the push rod to sleeve gap with type A auto lube.

Finish:

There are many ways to cover wood for use in the water. Epoxy mixed 50:50 with alcohol works well. I have seen a very light weight application of ½ oz. glass cloth and resin used. Prime if needed and sand smooth with 320 grit before painting. Brush paint underneath the deck and in the corners inside the hull where the outside paint won't reach. This will water proof the inside wood.

Krylon acrylic is a popular electric model boat paint. Spray this on top of Krylon sanding sealer. Finish this with a coat of Krylon Crystal Clear after the trim is on. Don't mix paint types without first testing on scrap parts.

The approximate "Atlas" logo and U-number, in 14th scale are (all red):

- (2) "Atlas Van Lines" (Verdana bold @ 7/8")
- (2) "Atlas Van Lines" (Verdana bold @ 3/8")
- (1) "U-1" (Times New Roman bold @ 1-1/8")

Bill Fulmer at: <http://www.grafix@customcutgrafix.com/> can cut this in adhesive backed vinyl. Order two sets to be safe.

Running

This boat handles like most pickle-fork hydros. Punch the throttle hard from a standstill, so it won't dig the nose under (a right turn helps). Once on top of the water you can back off and keep it on a very stable plane at quarter throttle. Full power will give you insane straight line acceleration. Top speed, is smooth with very little spray.

The boat will stay flat and maintain good speed through a turn. Reduce power then add rudder, get back on the throttle and play with the balance. The boat will turn very quickly if you use a light touch. It will even turn left, at speed, if you don't push too hard.

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