

Factory Tour



Design & Engineering



Every Island Packet begins here, in the mind and on the drawing board of Naval Architect Bob Johnson. Bob and the IP Design Department continue to bring together the traditional virtues of superior seakeeping and classic good looks with the performance attributes of the modern Full Foil Keel® and contemporary underbodies. This tour through Island Packet's state of the art manufacturing facility will give you a "behind the scenes" look at one of the most respected yacht builders in the world.



Tooling

The finalized drawings for the hull, deck, headliner, structural floor grid and a host of smaller components are taken from design and engineering to the tooling department. The tooling department then begins the transformation from paper to plug. Plugs are handmade, life-size “sculptures” from which the final molds are made. The molds, which allow Island Packet to build multiple fiberglass parts for years to come, are made from multiple layers of fiberglass and resin encased by a framework of wood and steel. Large casters are fitted and the molds are transported to the lamination facility.



Gel Coat



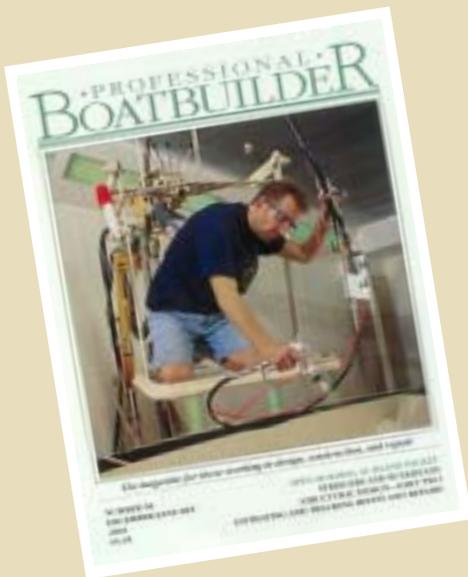
The lamination process begins in a room dedicated to gel coat application. Before the gel coat is sprayed into the mold, a releasing agent is applied to ensure a clean separation of the finished part. The molding process seems a little backwards as the gel coat -- the outer coating -- is actually applied *before* the fiberglass and resin layers.

Gel coat, much like your skin, is designed to protect the structural layers beneath. There are two important things to point out with regard to Island Packet's gel coat. First is the application process. One of the main ways to ensure the longevity of gel coat is to apply it in the desired thickness. Years of experience and research at Island Packet (much of it done in their own lab) have determined the optimum thickness, which can be achieved by using low pressure, airless-assist application equipment. This system greatly reduces airborne emissions, and its greatest benefit is a high level of quality control.

Using this specialized equipment naturally presents the challenge of having to be close to the entire surface of the large molds. This desired proximity is achieved through the use of a robot arm, carefully controlled by an application specialist (seen here on the cover of Professional Boatbuilder Magazine - December 2001).

Island Packet has invested not only in superior application equipment but also in the gel coats themselves. Two unique formulations made specifically for Island Packet are used. Durashield™, used throughout the deck, interior, and the topsides of the hull, is formulated to be vastly superior for both gloss retention and resistance to fading and crazing.

Island Packet's second proprietary gel coat formulation, PolyClad®2, is part of a two-part system for protection against osmotic blisters. PolyClad® gel coat, combined with a layer of fiberglass and vinylester resin (used in the skin coat of the hull) provides superior protection against osmotic blistering. Island Packet is so confident in this gel coat system that they offer a 10 year limited warranty against the occurrence of osmotic blistering. It should also be noted here that in 1988 IPY became the first US sailboat builder to offer a 10 year warranty against osmotic blistering and remains one of the few in the industry to offer this level of coverage.



Lamination

After the gel coat has had sufficient time to harden, large sheets of fiberglass are placed into the mold. Teams of laminators apply each layer in one day's time. Using a unique pressure fed roller application system developed exclusively for Island Packet, resin and catalyst are applied in carefully controlled quantities onto the fiberglass sheets. At this stage it is critical to thoroughly saturate the glass layers with the resin and catalyst mixture. The triaxial knitted fiberglass used in Island Packet's hulls and decks is quite dense and is used for its high strength and impact resistance. Small 'squeegees' are used to ensure proper saturation. Lastly, specially designed metal rollers are used to work out even the smallest air voids.



Applying the glass and resin layers by hand allows for a great deal of quality control. More importantly, it allows the use of high modulus fabrics, which provide high glass-to-resin ratios and superior impact resistance.



Another important part of Island Packet's lamination process is the application of Polycore®. Polycore is a glass microsphere and resin mixture that is used as coring material. Unlike balsa or plywood coring materials, Polycore is inorganic and impenetrable by water, eliminating rot. Also, because its chemical composition is identical to the under and overlying fiberglass layers, there is excellent "chemical" adhesion, greatly reducing the chance for delamination to occur. (While balsa coring is often used because of its inherent light weight, once it has absorbed enough resin to laminate properly with its surrounding glass layers, its weight is very close to that of Polycore).



Once mixed, the Polycore has a frosting-like consistency, allowing it to be sprayed onto all of the horizontal surfaces of the decks, headliners and structural floor grids. Within an hour the Polycore becomes a solid, extremely durable, lightweight core. It is then covered with additional layers of fiberglass and resin. Polycore's unique durability enables Island Packet to offer a 10 year limited warranty against delamination and deck core degradation - an industry first and exclusive. Polycore also plays a significant part in the high retained value of the yachts.



The completed fiberglass components are then released from the molds, placed on steel cradles, inspected, and transported to the assembly buildings.

Ballast



The assembly process begins with the addition of ballast to the keel. One of the advantages of an integrally molded full keel is that a significant portion of the ballast can be placed very low, along the length of the keel, much like a long, encapsulated “bulb” at its base.

First, the open space of the keel area is filled with ballast. Depending on the Island Packet model, ballast material is either lead, iron or a combination of the two. After the ballast components have been carefully weighed and placed into the keel, gallons of catalyzed resin are poured evenly over the ballast. Due to its low viscosity the resin quickly reaches the bottom of the keel to lock in the lower pieces. The remainder of the ballast is then encapsulated in mortar. Special vibrating probes are used to ensure the absence of air voids, much like the way structural members for bridges and buildings are made. This simple and effective process has proven itself for decades in thousands of yachts.

When the ballast has been covered completely with the mortar and it has been given sufficient time to cure, it is sealed in with multiple layers of triaxial knitted fiberglass and resin forming a double bottom along the length of the keel.



Tankage

Various tanks used in Island Packets are made of heavy gauge welded marine aluminum (the same alloy used in aluminum ship building) and are placed snugly into a resin coated, marine plywood framework fiberglassed to the hull. Depending on the model, other tanks are made of fiberglass and installed in the same manner. Low and central tankage placement provides improved stability with minimum effect on trim. Placing the tankage for fuel, water and waste in the lowest area of the yacht also allows for large fluid capacities combined with exceptional amounts of storage throughout the rest of the yacht.



Chainplates

Chainplates are secured in place at this stage as well. The three inverted V's seen below each consist of approximately one thousand glass strands thoroughly saturated with catalyzed resin. Each bundle of strands is wrapped over a stainless steel bar that is welded to all three chainplates. The strands are then splayed out and bonded to the hull. This allows the load on the chainplates to be very evenly distributed throughout a large portion of the hull sides. Also adding to the integrity of the chainplates are 6" wide, L-shaped, stainless steel brackets welded directly beneath each plate and interlocking with the integral hull flange. This "belt and suspenders" method (also used for the backstays) provides for exceptional strength.



Rudder Installation



The solid stainless steel rudder post is supported at three locations: at the deck just beneath the helmseat, at the hull through a packing gland bearing, and at the heel strap.

Here, a solid foundation for the uppermost rudder bearing is being formed. A wooden frame is used to make a solid, reinforced resin casting around the beefy, bronze rudder bearing. The casting is then sealed with multiple layers of fiberglass and resin.

Structural Floor Grid



Island Packets gain significant strength from the structural floor grid. The grid is molded with knitted fiberglass and resin and further reinforced with Polycore and multiple marine plywood stringers. Here the structural floor grid is being lowered into the hull. It will then be thoroughly bonded in place using strips of knitted fiberglass and resin. This unit is designed and constructed to be an integral component of the hull when bonding is complete. In addition to adding structural integrity, the structural floor grid is the foundation on which the interior is constructed.



Wood Mill

Virtually all components for the interior are built in Island Packet's state of the art 25,000 square foot (2,300 square meters), multilevel wood mill. Highly skilled craftsmen carefully select and match wood pieces, which are then cut and assembled into units ready for installation into the hull and floor grid. The final product has all the qualities of fine furniture.



Over a period of days, long "jigs" are used to bend the tongue and grooved teak strips that make the toe rails. This time-tested technique ensures durability and beauty.



Interior Assembly

After the structural floor grid has been bonded to the hull, the "set up" crew climbs aboard. This is a diverse group consisting of trim carpenters, electricians, and mechanics.



Engine Installation

Mechanics install the Yanmar® engines, connect and install all the fuel and exhaust lines, align the prop shaft, and perform a host of related tasks.



Trim Carpentry

Trim carpenters carefully fit and securely fasten in place bulkheads, cabinetry, countertops, and the like. Although the wood components are made weeks before in the mill, precise fitting and joinery work is essential during this important stage of construction.



Electrical Systems

Island Packet's electrical systems, repeatedly singled out in *Boat of The Year* award reviews for their meticulous installations, become part of the yacht at this stage. These include the addition of numbered, color-coded, pre-tinned wiring, AC and DC electrical panels, lighting systems, batteries, battery chargers, and electrical outlets.



Stock Room

The thousands of parts needed to produce each Island Packet are received, stored, and distributed from this centrally located building. Microwaves, battery chargers, mirrors, thru-hulls, wiring, s/s fasteners, etc., each have their place. The Purchasing Department tracks this vast assortment of materials, assuring timely availability and maintaining strict cost control.



To ensure production efficiency, the stockroom assembles and distributes individual "kits" containing all the components that a craftsperson will need for a specific stage of construction. The team of stockroom employees is also occupied inspecting and checking in deliveries of new parts as well as packaging up parts orders for dealers and owners.



Deck Assembly

In a separate area dedicated to deck assembly, the deck prep crew installs opening stainless steel ports, handrails, and aluminum hatches. Winches, blocks, mainsheet travelers, and genoa tracks are all mounted to the deck via drilled and tapped aluminum backing plates built into the laminate.



Decking



When the interior nears completion, the deck / headliner unit is moved into place for installation. The process begins with the precise fitting of the headliner to the tops of the structural bulkheads. Even though the deck and headliner are made from fixed molds, the decking crew goes through the painstaking process of custom fitting this unit by lowering it, marking the bulkheads, raising it, and trimming the bulkheads. This process is repeated until a precise fit is achieved.



When the deck has been fitted to the bulkheads, the inward turning, integral hull flange (proven to be exceptionally strong and effective in preventing hull-deck joint leaks) is prepared for the fastening of the deck. First, holes are drilled every six inches through the deck and hull flange. It is then fitted with a watertight rubber gasket material and then coated with copious quantities of 3M® 5200 urethane sealant. The deck is then lowered down, 1/4" diameter s/s bolts are placed through the holes, and washers and locknuts are fastened from underneath to permanently attach the deck to the hull.



The teak toe rails, which are hand formed in our mill, are then fastened and sealed with 3M® 5200 sealant and stainless steel screws. Stanchions, cleats, rails, and genoa tracks are all mounted to the toerail and thru-bolted to aluminum backing plates.



Even as the decking crew is completing their duties, the detail crew is already onboard to begin cleaning and applying the finishing touches. Over a period of weeks every inch of each Island Packet is thoroughly inspected; finishes are added to wood surfaces, the smallest particles of construction debris are removed, and excess sealant is cleaned away with the most delicate tools and discriminating eyes. Each and every Island Packet ships "Show Ready".

Detail & Quality Control



Ready for Transport

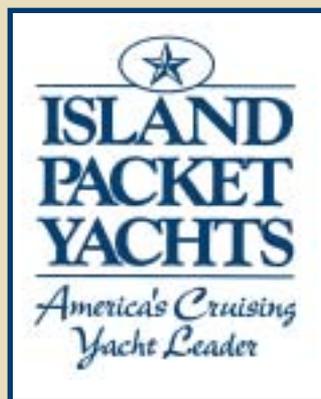
After months of hard work the yacht is now ready for delivery to the dealership. Specially equipped trucks haul the finished Island Packets throughout the United States and to ships for transport to the United Kingdom and Europe.



Island Packet Yachts



Factory Tour



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