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CASCADE GENERAL PUT TO THE TEST IN GENERATOR REPLACEMENT

Cascade General lived up to its reputation as the leading shipyard for cruise ship work with the emergency replacement of a faulty generator on P&O's Sea Princess. The 857' ship, built by Fincantieri in 1998, was in dry dock at the Portland Shipyard for just nine days in September before continuing south to San Francisco to embark passengers for a cruise to Florida.

This challenging project demanded a high level of coordination and cooperation from numerous shipyard specialists. The effort began on the exterior with the rigging crew building a 20' loading platform on the drydock floor. At the same time, work proceeded inside the engine room to clear an exit path for the 47-ton (GEC Alstom) generator. One welding team was opening a 15' X 15' access in the side shell while another was cutting a similar opening in the aft engine room bulkhead.

Two of the ship's four propulsion transformers, each weighing 20 tons, were disconnected and moved aside, catwalks lifted, and all wiring and piping blocking the exit route labeled and cut. The generator was fitted with a temporary shaft-support bracket, jacked up and rolled aft on a pair of girders set up as temporary rails. It was then lifted and turned onto a second set of rails running abeam, skidded out of the ship and transported by drydock crane and trailer to an assembly bay.

With only 6mm of clearance between the generators 20-ton rotor and 27-ton stator, they were carefully separated using an overhead crane and a high-capacity tri-lifter. The rotor was immediately inserted into a new stator housing under the supervision of the manufacturers' representatives. The re-built 14040 kVA, 6,600volt unit was returned to the ship in less than 24 hours.

By the fifth day, the generator was back in the engine room, allowing the bulkhead to be closed up. The 2,100 volt transformers were then skidded into position and secured to their bases. Once these three components were safely back inside the hull, the final part of the puzzle, the hull insert, was welded into place, ultrasonically tested, inspected and approved by RINA.

Work to re-assemble the engine room continued around the clock for the next four days, utilizing the diverse abilities of Cascade General's engineering/technical staff. Much of the progress depended on the experience and skill of the company's tradesmen, but the task of shaft alignment has been re-defined by the recent development of laser-sighting devices that offer incredible accuracy when used properly. The Sea Princess' generator and one of the four V-16 Sulzer engines were aligned to 1/10,000" (the thickness of a human hair) using the computerized Fixturlaser system, which reduces stress on the bearings to the absolute minimum.

During the drydocking, Cascade General also overhauled the bow thrusters, sea valves, seachests and strainers, prepared and coated the underwater and surface areas and the topside white. The rudder and propeller shafts were inspected, ballast tanks surveyed, all 16 lifeboats serviced and the davits re-certified. Three fiberglass swimming-pool expansion tanks were also replaced and the ship's waste-heat steam system repaired.

After 35 years at sea, Captain David Christie was making his first visit to the Portland Shipyard/Cascade General. "Other P&O captains had told me I'd be impressed by the service here, but I still wasn't prepared for such a very pleasant experience," he observed. "This is a great yard, as good if not better than anywhere else I've been. They are very aware of the needs of cruise ship operations and have some extraordinary people on their management team," he continued. "The yard itself is clean, the people efficient, and they never say no to a request. It's been a great success."

The Sea Princess departed the Portland Shipyard after nine days with the repaired generator completely installed. Minor finish work continued en route to San Francisco, where the fourth engine was re-started, on schedule, and full power restored. "This is the second cruise ship in three years to experience this type of electrical problem (on the West Coast)," observed Cascade General executive vice-president Suren Menon. "Both of them were repaired here in Portland. I think that record speaks for itself." Immediately following the Sea Princess, the Nieu Amsterdam arrived at the

Portland Shipyard for a complete refit and re-flagging for service in the Hawaiian Islands for its new owner, United States Lines, a subsidiary of American Classic Voyages Co.

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Cascade General owns and operates Portland Shipyard, the largest and most complete ship repair and industrial facility on the West Coast of the United States. We provide full-service repairs and conversions for tankers, cruise ships, bulk carriers, container ships, government vessels, tugs, barges and workboats. Cascade General's Portland facility includes a 60-acre (24.2 ha) yard, 550,000 square feet (51,096 square meters) of craft shops, more than 7,600 ft. (2,326 meters) of full-service repair berths, and three floating dry docks – including Dry Dock 4, the largest in the Americas. Cascade General also provides emergency topside repairs at any location on the U.S. West Coast and operates Voyage Repair Stations at Port Angeles, Washington and Astoria, Oregon.