

# Historical Sireg

## Costa Concordia at Giglio Island (Italy): The Refloating of a Cruise Ship

*A review on world Historical Buildings and Great Civil Monuments  
strengthened by Sireg solutions*



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## Costa Concordia: the Refloating of a Cruise Ship

After the 2012 shipwreck, the **Costa Concordia** lay aground off Giglio Island.

**Sireg Geotech** supplied high-pressure pipes used in the ship's refloating operations.



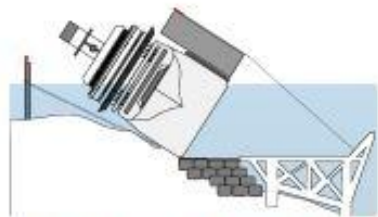
On January 13, 2012, the Costa Concordia cruise vessel shipwrecked just off the coast of Giglio Island in relatively shallow water. In the accident, caused by the collision of the ship with the rocks of the island, 32 people lost their life and many others were injured. The vessel was strongly tilted on one side and then grounded on the rocky step of the low facing seabed, on the shoreline of Giglio Island (Tuscany - Italy). A refloating project was implemented to ease proper dismantling operations.

### The refloating project steps

1. Vessel stabilization
2. Underwater support and portside sponsons
3. & 4. During parbuckling the vessel was positioned on the support systems. Then it was equipped with sponsons on the starboard side too.
5. Refloating stage



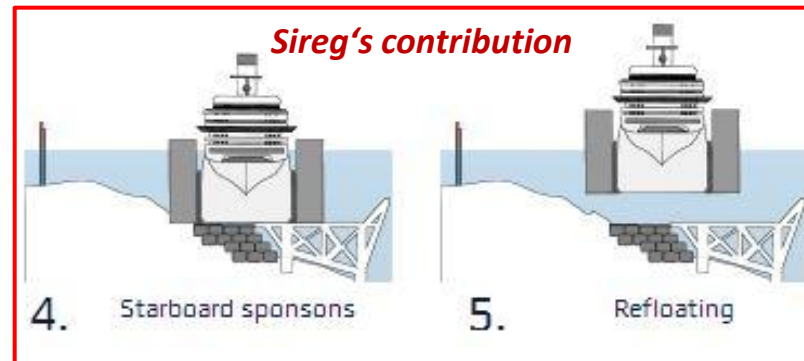
1. Holdback system and stabilization



2. Underwater support and portside sponsons



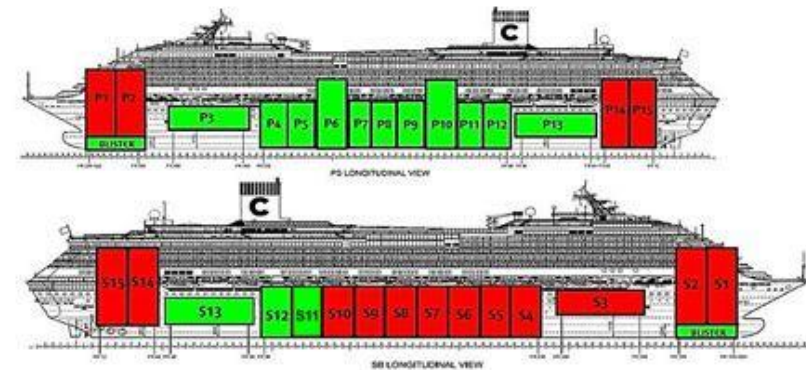
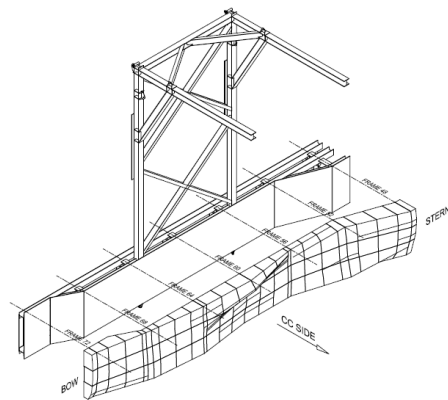
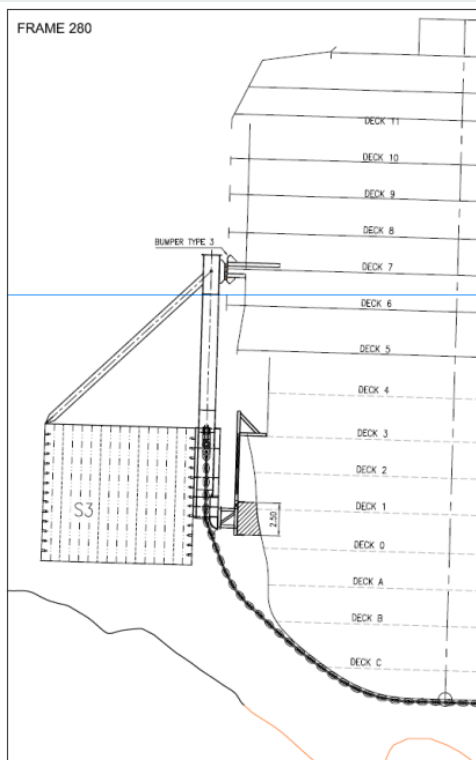
3. The Parbuckling



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Scheme of the bumper and of the sponson for the refloating phase



Scheme of the bumper and of the bags injected with PU resin

Courtesy of: Basf Italy



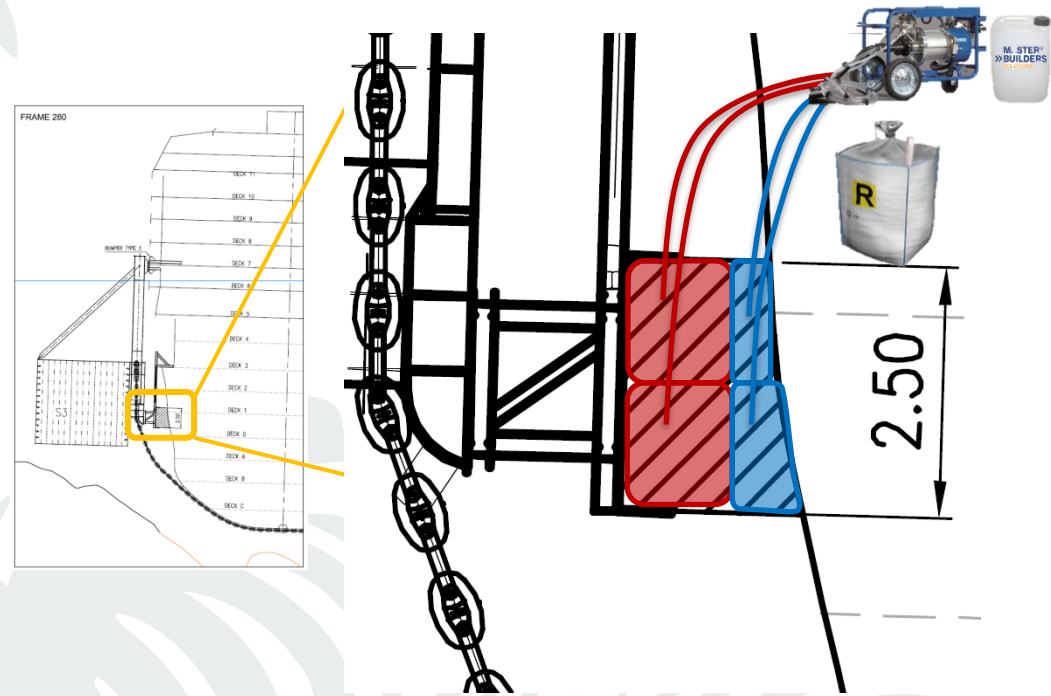
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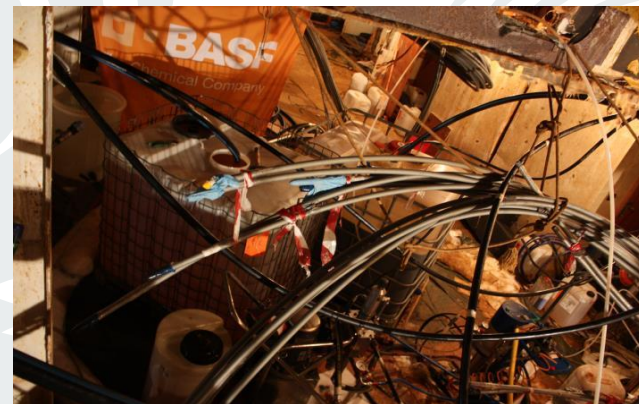
During project phases 3 and 4, Sireg Geotech was selected to supply its high-pressure TP pipes.

These **high-strength injection hoses** were installed on each sponson, on both sides of the vessel.

Two-component polyurethane resins were then injected through the pipes to create, inside each sponson, a series of artificial buoyancy bags.



Courtesy of  
Basf Italy



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Selected intervention techniques by the designers included::

- **High-capacity anchor installation and tensioning:** to stabilize the vessel and maintain its position during the refloating operations.
- **Large sponson-mounted bags on both sides of the ship:** providing additional buoyancy.
- **Refloating assisted by pumps and side bags:** with significant volumes of polyurethane resin injected to create artificial buoyancy, facilitating the ship's flotation and restoring its proper navigation attitude.



*Sireg Geotech high pressure pipes are installed to drive PU resins inside the bags*



Refloated Costa Concordia cruise ship during its final travel to Genova port for the dismantling operations



gettyimages  
Jacopo Raulè