

Once everything is in place, the railcars need to be cleaned using a six-step process:

- Two-step roof (Apply chemical wash, then rinse.)
- Two-step sides and undercarriage.
- Simultaneously commence wastewater recovery.
- Graffiti removal—May require manual scrubbing.
- Apply degreaser (if necessary)
- Rinse entire unit, top down, including undercarriage and wheels.
- Repeat. Again and again and again!

In the past, many rail companies did much of this type of work internally. Today, the majority of companies are outsourcing this part of their regular maintenance procedures and, in doing so, opening a huge window of

opportunity to the power washing industry. If there was ever a time to “take the train,” this is it!

The PWNA provides a two-day workshop on train cleaning. For more information, visit www.pwna.org. cr

Rail-Related Cleaning Opportunities

Boxcars

- Pressure wash exteriors.
- Dry sweep/steam interiors.

Tankers

- Exterior pressure washing and graffiti removal.
- Grain Hoppers
- Manual removal of debris accumulated

on end decks and pressure washing.

Locomotives

- Exterior pressure washing with special attention to engine compartment.

Additional Services

- Stenciling numbers and repairing hatches.

conjet equipment used in repair of italian viaduct



The multi-span reinforced concrete viaduct at Torano, about 100 km east of the Italian capital, Rome, is a major structure on the main E80/A24/A25 Autostrada crossing central Italy. The Viadotto Fiume Salto was opened in the late 1960s, but the use of de-icing salts during winter months has since caused considerable calcium chloride damage to the structure, forcing the Italian Highways Authority and the Autostrada di Parchi's owner Toto S.p.a. to carry out extensive repairs. The renovation, funded by revenue from tolls, is expected to cost around €5M and is focusing on the piers and main joints in the concrete deck using the high pressure water jetting technique of hydrodemolition to remove the calcium chloride infected concrete.

Specialist hydrodemolition contractor C.P.L. 2000 S.r.l., in joint venture with Edil C.R.R. and Global Klima S.r.l. and working for Toto, is using a Conjet robot hydrodemolition machine and powerpack. “This is a major bridge repair project and hydrodemolition... is the only method of removing the damaged concrete,” says C.P.L. 2000 S.r.l president Angelino

Rinaldi. “Using breakers would have taken so much longer and also caused damage to the good concrete left behind. Hydrodemolition... also has the advantage of producing a very rough surface, which gives a good bond for the new concrete to key onto.”

The main focus of the hydrodemolition repair is on the octagonal shaped piers and their crossheads where the de-icing salt has leaked down from the deck above. The robot is connected to a powerpack delivering clean, fresh water at a pressure of about 1300 bar and flow of 200 l/min and is removing concrete generally to a depth of 30–130 mm.

To complete the concrete restoration the repaired structure will be finished off with a final coating of protective paint to prevent possible future attack from de-icing salt. The repairs started in June 2007 with the hydrodemolition following on three months later in September. The project shut down during the winter months from December to March and restarted in spring of 2008 and finished on schedule at the end of November 2008. cr

