

### Pendolino: A New Angle on Rail Transport

First developed and manufactured by Fiat, but taken over by Alstom in 2002, Pendolino is an Italian tilting train system used throughout Europe and in China. The tilt technology is contained in the bogie (swivel truck). When going into curves, sensors on the leading car



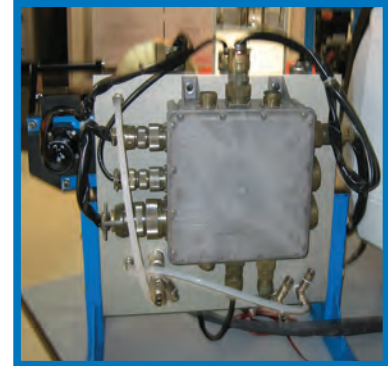
*Pendolino (from the Italian Pendolo) is an Italian family of tilting trains manufactured by Fiat Ferroviaria*

determine the carriage box tilt (up to 8°) needed to compensate for the lateral acceleration. This information is passed along to navigational devices in the following railway cars, which then use hydraulic cylinders to tilt the carriage box accordingly. In an S-curve, this sensitive system even allows the front of the train to tilt to one side, while the rear cars are still swerving to the other.

Tilting a massive train at high speed causes significant centrifugal and centripetal forces under the cars. Traditional interconnects failed under the stress. Glenair was brought in to develop flexible, durable, high-reliability cabling and interconnects that would stand up to the stresses, heat, and other harsh conditions found on Pendolino train systems.

### Like Hercule Poirot, Glenair Solves Another One on the Orient Express

Glenair application engineers, every bit the intellectual match for retired Belgian detective Hercule Poirot, were asked to solve not a crime, but a serious problem involving an emergency braking system upgrade on the Orient Express. A complicated interplay of hydraulics, pneumatics and mechanics, the braking system solution had to fit within very limited space, and the train is, of course, a much-revered and valuable historical artifact.



The case was solved with Glenair ITS reverse bayonet connector cables and flange mount receptacles. Plugs with cable clamp backshells mated to receptacles mounted on existing metal junction boxes along with a specially-designed, corrosion-free and EMI/RFI-protected Glenair Composite Junction Box, factory wired to an internal termination block.

### Riding the Rails: Glenair Tackles Trackside Interconnect Problems

Not only are Glenair Series ITS and ITS-RG connectors great for undercar applications where up-splash and rail bed debris subject interconnect



## Glenair Series ITS and Series ITS-RG MIL-DTL-5015 Type Reverse Bayonet Connectors Application Examples



Series ITS  
and ITS-RG

Intro

systems to significant hazards, they're also terrific for trackside applications. The Milan Metro required interconnect systems that would protect wire media from weather and sun exposure. Signaling boxes, like most trackside applications, are critical to railway safety. They call for no fail solutions with maximum durability. Glenair delivered a turnkey solution.



Glenair application engineers also designed a ruggedized interconnect cable solution for Milan Metro incorporating a high-performance electrical harness using a low fire hazard neoprene cable jacket and a flame retardant

polyurethane material overmolded and sealed at all transition points—from Glenair feed-throughs to Glenair Series ITS connectors.

In a related application, Glenair designed a customized LED technology lighting system to simulate exactly the electrical performance of standard light bulbs. This development allowed use of signaling equipment already installed on site with the upgraded reliability and low power-usage of LED's. The technology was packaged in IP67-rated waterproof Composite Junction Boxes that meet MIL-S-901D and MIL-STD-167 standards for shock and vibration, along with EMI/RFI/HIRF and lightning strike performance specifications.

## Glenair is Moving Out with A Broad Range of EMI and Environmental Interconnect Solutions

Glenair Series ITS MIL-DTL-5015 type (VG95234 Qualified) connectors can be ordered with a wide variety of standard backshell styles for strain-relief, environmental protection and EMI reduction in multiple angles and profiles. In addition, Glenair is producing new "best-of-breed" backshell and accessory products for these Glenair MIL-DTL-5015 type reverse bayonet connectors that take full advantage of our innovative design, shielding and termination technologies, including BAND-IT® banding solutions.

Count on Glenair to develop labor-saving backshell solutions that address weight reduction needs, environmental requirements and overall package size. For example, we have developed the industry's simplest shield termination systems, using conical, crimp, lockring and lampbase thread ring technology combined with self-locking rotatable couplings and integrated shield socks in standard to ultra low profiles, Glenair has a solution for every interconnect challenge.



*Military vehicles are perfectly suited for ruggedized power and signal interconnections using Glenair Series ITS and ITS-RG reverse bayonet connectors.*