



Traction Motor Power Connector

BACKGROUND

AC/DC traction motors provide locomotive power to electrical multiple units (EMU's). "Shoes" make contact with the electrically charged third rail on the subway tract. Two traction motors per EMU draw power from the propulsion unit via the AC/DC converter and use it to drive the EMU. EMU's designed for overhead wires draw this power from the catenary system.

PROBLEM

Interconnects used in this application are subjected to a very severe and harsh environment. Road debris and salt corrosion, all contribute to the failure of the interconnect system. Wheel repair or maintenance will require disconnect of the system. Having a connectorized solution simplifies the maintenance and repair of the traction motor unit.

AIO SOLUTION

AIO has two solutions for traction motors, a GT plate assembly with three overmolded cables and the unique RADSOK Y solution. The plate assembly has three 4/0 cables bolted to a .250 inch thick stainless steel plate. The RADSOK in the single contact receptacle will accommodate 300 amps per circuit. Plugs are overmolded to 4/0 cables. A series of neoprene cleats dampen the rail vibration and attached the three cables to the plate. Each plate assembly kit is provided with all the components necessary to repair this particular wiring on each traction motor.

The second solution offered by Amphenol is called the "Amphenol Y" Connector. This connector is a unique packaging solution consisting of a molded base plate, a copper "connector", and a molded top cover. When attached to the traction motor, this unit creates a safe, reliable, and efficient means of conducting high amperage current from the third rail or catenary to the propulsion controller. Each "leg" of this assembly can safely accommodate up to 1000 amps through the 18mm RADSOK contacts.

Each of these solutions will replace the current design of crimped on lug terminals bolted to the traction motor frame. The lug terminals can vibrate loose, become elongated, or otherwise fail. Failure of these terminals results in the rail vehicle stopping on the track.