



Harnesses

Product Training

June 9 2009



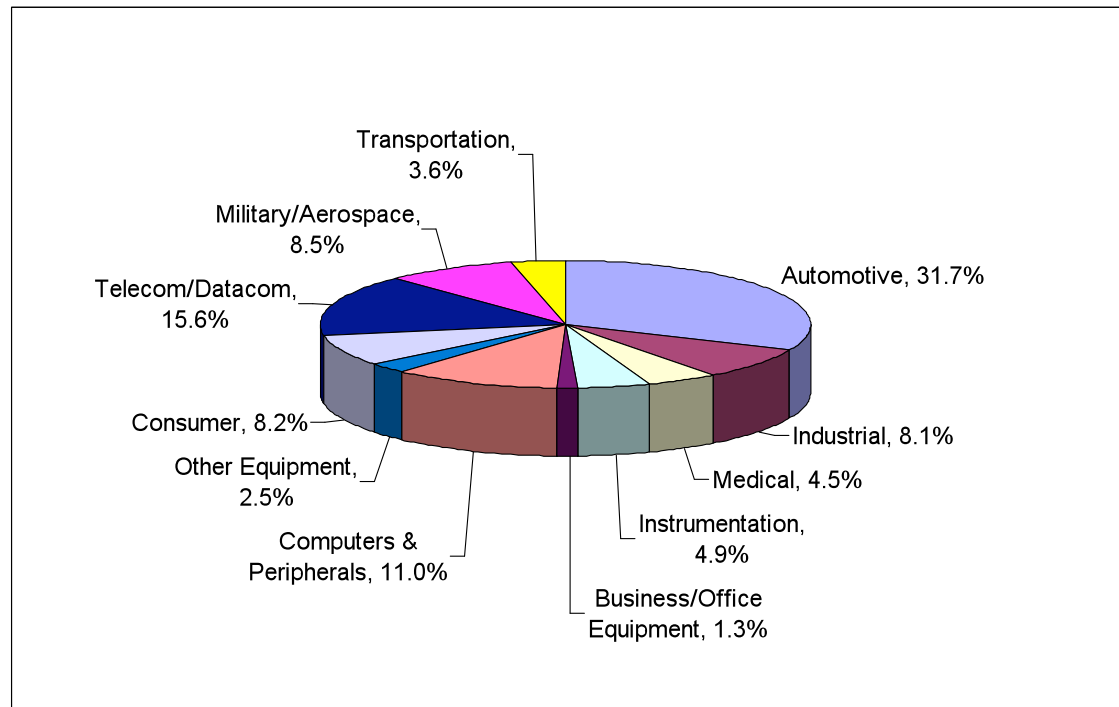
COOPER Interconnect



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- ▶ Where, why, how?
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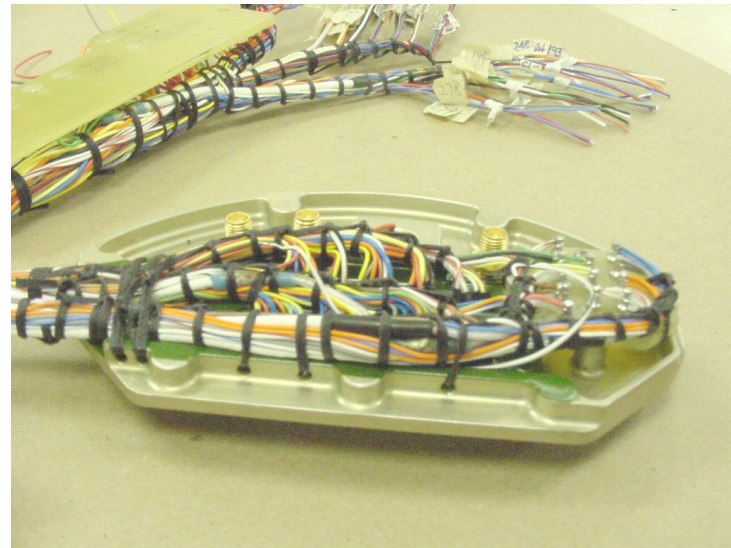
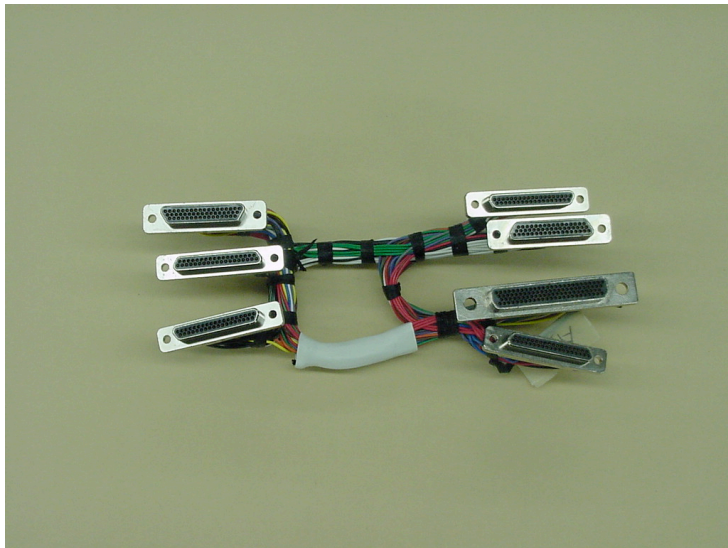
- **Wire harnesses in many configurations are used in nearly all markets which require internal wiring in cabinets, racks and equipment enclosures.**
- **Wiring harnesses are a sub-set of the overall subject of cable assemblies, which will be treated in a later presentation.**
- **We will address many types of wiring harnesses during this presentation and show several applications.**

Cable Assembly Type	Value \$ Million
Harness Assemblies	\$24,407.2
Round Jacket - Molded	\$3,916.6
Round Jacket - Mechanical	\$3,744.0
Round Hybrid	\$543.6
(FRC) Flat Ribbon	\$1,217.5
(FFC) Flat Parallel Bonded	\$638.7
(FEC, FPC, CIC) Assemblies	\$215.6
Semi-Rigid Coaxial	\$102.0
High-Speed Cables	\$467.7
Coaxial Cable Assemblies	\$495.2
External Power Cord Sets	\$1,157.2
Fiber Optic Cables	\$856.9
Modular Cord Assemblies	\$556.2
Special Applications - HC, Hydro	\$531.3
Other	\$52.2
Total 2008	\$38,902.0



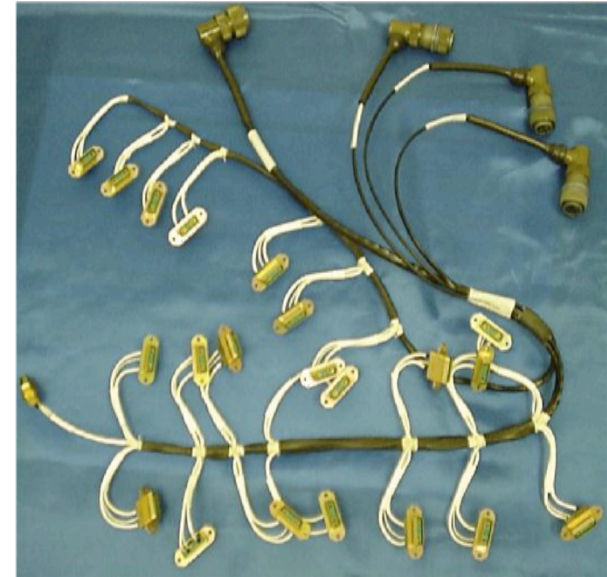
What is a harness?

- **A wiring harness is a collection of wires held together by lacing cord, tie wraps or other means.**
- **A wiring harness may include single wires, coaxial cables, shielded groupings, fiber optics, air tubing, etc.**
- **Wire ends may be terminated in connectors, terminals or left un-terminated.**



What is a harness?

- **A harness may have jacketed legs to protect from abrasion.**

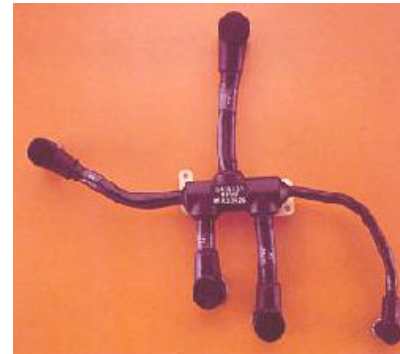


- **Harnesses may have several hundred wires and be very large.**

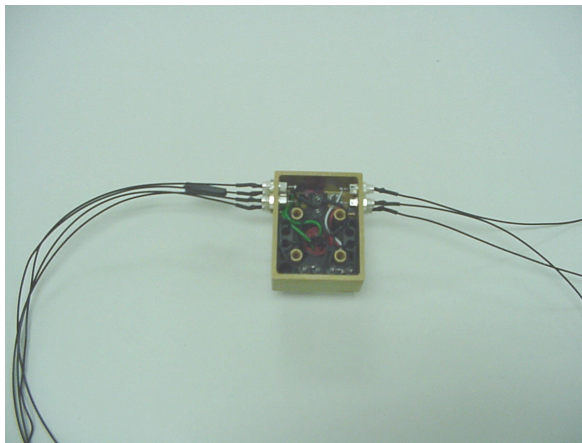


Types of Harnesses

- **Mil-Aero – usually small to medium volume and high complexity. Uses MIL-Spec wire and connectors.**



- **Industrial/commercial – usually large to very large volumes and low complexity. Uses COTS wire and connectors.**



Where, why and how?

- **Mil-spec and high-complexity harnesses are manufactured in Chelsea, MA.**

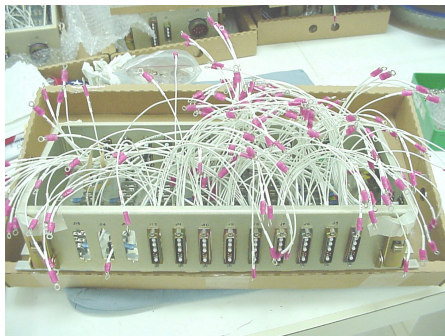


- **Commercial/Industrial harnesses are manufactured in Nogales, Mexico.**

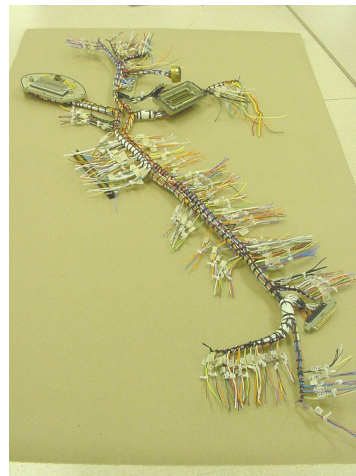


- **Harnesses are used internal to cabinetry, within racks, and between racks. They are also used in engines, missiles, aircraft, spacecraft and on board ships. In short, they are used nearly everywhere electrical power and signals must be transmitted.**

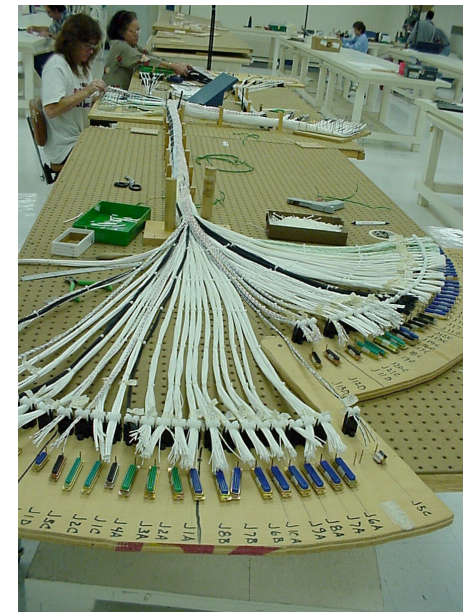
270VDC Distribution Box



Sparrow Missile



Tank training simulator



- **Harness competitors run the gamut from the small Ma & Pa shops to large companies like LaBarge, Midcon and Glenair.**
- **During initial investigation of opportunities, it is important to ascertain the competition – with knowledge of the competition we are better able to determine if we can be price competitive in the application.**

Selling position

- **Cooper interconnect has over 40 years experience in mil-aero harnesses and like experience in commercial, industrial harnesses.**
- **Engineering/design support is readily available for customer and sales support.**
- **The Chelsea facility is ISO registered and the Nogales facility has Boeing AS9000 certification.**
- **Across Cooper Interconnect, our highly trained, professional staff has hundreds of years of experience in harness design and manufacturing.**

- **New Cooper Interconnect Cable Capabilities brochure in development, available in June in electronic format.**
- **Cooper Interconnect PowerPoint presentation.**

- **Most, if not all of your customers use harnesses somewhere in their products. Don't just sell the connector, ask what it is attached to.**
- **When you visit customers – if you are able to get a plant tour, it is easy to spot harness applications in the factory, and begin a conversation about Cooper Interconnect's capabilities.**
- **Ask for drawings and an opportunity to quote, especially with customers that you know well.**
- **Be aware that many companies produce their harnesses in house and are looking to out-source these assemblies in order to better use their resources.**

 **Questions?**