

Do you need to make
the connection?

Amphenol

The Inter-Connection

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The Amphenol ImpactSplice

Simple Cost Effective Fibre Optic Cable Splicing for the Battlefield Environment

The increase use of fibre optic interconnection cable on current and future tactical battlefield deployable systems and internal vehicle applications presents the end user with a major maintenance and repair challenge.

The average soldier is not necessarily aware that the cable connecting his tactical laptop and the distribution hub contains optic fibre not copper wire, in fact there have been cases where a repair has been attempted with a soldering iron!!

As a large amount of the Bowman LAS units (VIDS) and the vehicle to vehicle interconnection (VEDS) is fibre it is essential that the end user has a practical cost effective ILS and repair / maintenance policy

Amphenol's objective was to develop a simple fibre optic cable joining system, requiring a low skill level with a minimum of tooling and no external power source or heat supply.

The conventional method of terminating fibre is by epoxying the glass fibre into a ceramic ferrule which is inserted into an alignment sleeve which enables the fibre to be accurately aligned achieving the minimum light loss. This procedure entails a reasonably high skill level, external power supplies and is impracticable in a tactical environment.

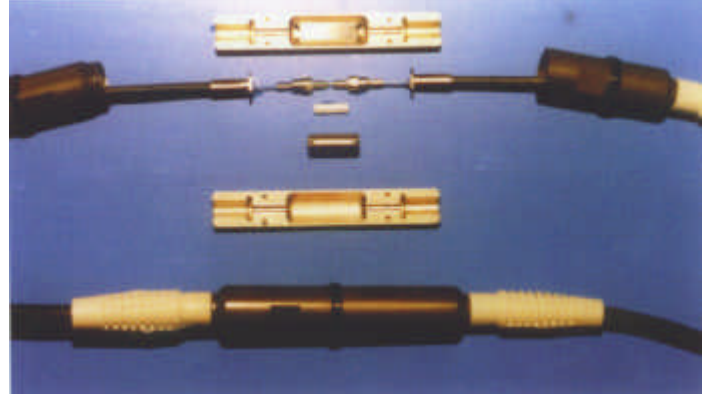
Amphenol Corporation have developed a technology that replaces the ceramic ferrule and epoxy with a metal termini that is attached to the fibre by the use of an impact tool that effectively impacts the termini gripping the fibre. This process is achieved by impacting the termini tip with a simple to operate hand tool, hence the products name "The Amphenol Impact Splice". With the terminis impacted on to the fibre using the auto cleave tool and polishing machine the procedure is complete. The terminis are aligned with a conventional alignment sleeve.

The remainder of the impact splice development consisted of packaging the terminis for the various battlefield environments. Exterior to the vehicle it must survive Main Battle Tank tracks, mud, heat, cold, and the spliced cable being used as a washing line and for towing Land Rovers!! Inside the vehicle space weight and fluid contamination are a consideration.

The majority of cable damage occurs close to the connector. The complexity of conventional fibre optic connector retermination procedure precludes this operation being carried out in the field. Amphenol recommend that connector replacement is achieved by splicing a preterminated connector with a cable "pig tail" to the existing cable.

From the initial product, (a simplex battlefield splice currently in service with the Canadian army) the range has been expanded to include splices for

duplex and quad fibre cable, the latest additions are for hybrid (fibre and copper cable) and a lightweight low profile version.)



Simplex impact splice components



Impact and crimp tooling