



OPERATION REFURB



Mission-Critical Fiber Optic Sustainment Solutions



OPERATION REFURB:

STRATEGY AND PHASES

The Importance of Communications for the Ground Tactical Warfighter

Reliable communications are the backbone of operational effectiveness for US Forces. They provide command and control, ensuring leaders can direct forces, synchronize maneuvers, and adapt strategies in real time. Communications enable situational awareness by linking warfighters to intelligence, surveillance, and reconnaissance data, giving units the clarity needed to make informed decisions. They also connect ground forces with supporting air and naval assets, creating seamless coordination across domains.

The Role of Connectivity

Connectivity extends the power of communications by linking every level of the force—from individual soldiers to command centers across the globe. With secure and resilient networks, connectivity ensures that data, voice, and video flow without interruption, even in contested environments. It enables rapid sharing of mission-critical information, supports joint and coalition interoperability, and guarantees access to logistics, medical support, and reinforcements when needed. In modern warfare, connectivity is not just a support function—it is a decisive factor that sustains tempo, coordination, and battlefield advantage.

PHASES

1

OPERATION PINPOINT

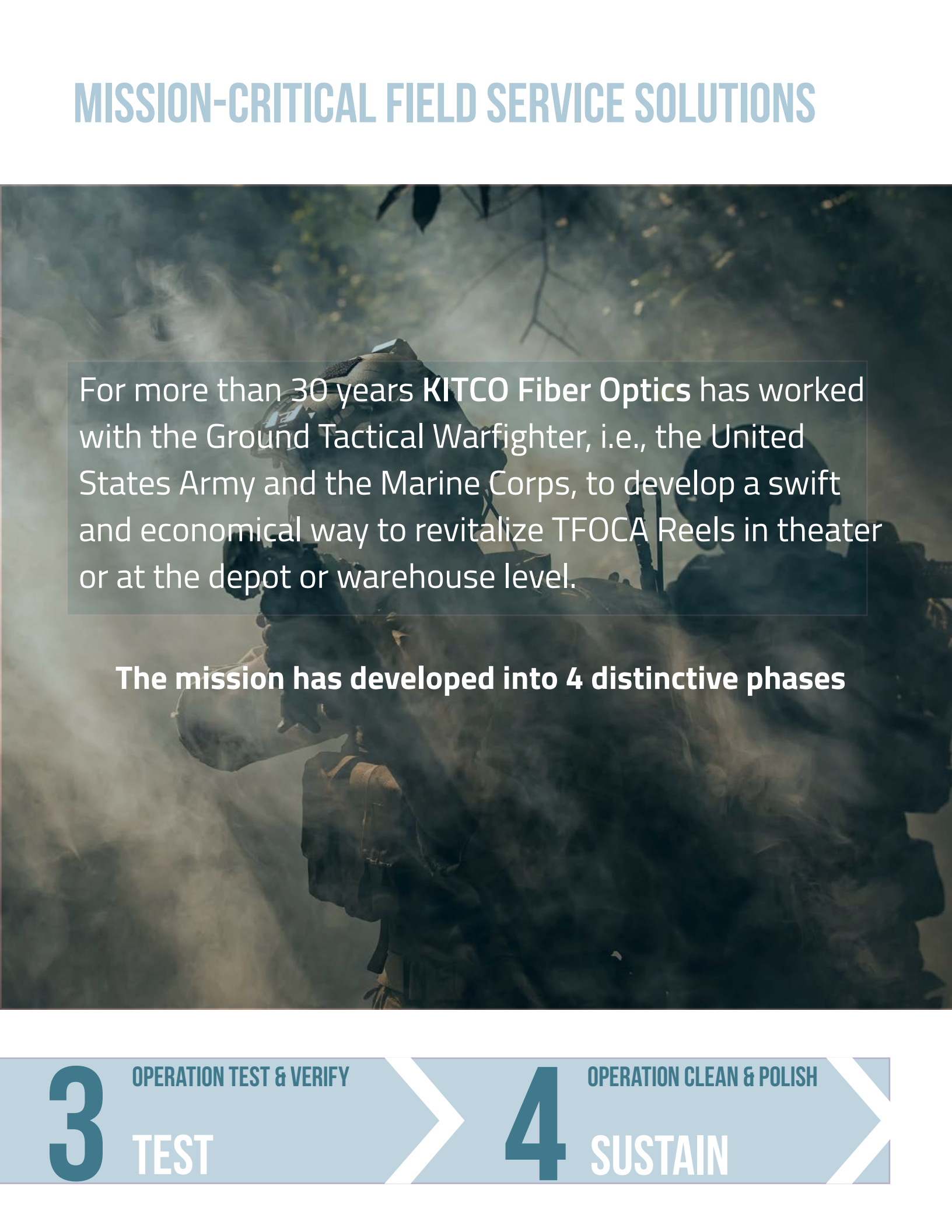
FIND

2

OPERATION PIGTAIL

FIX

MISSION-CRITICAL FIELD SERVICE SOLUTIONS



For more than 30 years **KITCO Fiber Optics** has worked with the Ground Tactical Warfighter, i.e., the United States Army and the Marine Corps, to develop a swift and economical way to revitalize TFOCA Reels in theater or at the depot or warehouse level.

The mission has developed into 4 distinctive phases

3

OPERATION TEST & VERIFY

TEST

4

OPERATION CLEAN & POLISH

SUSTAIN

PHASE 1: OPERATION PINPOINT

OPTICAL TIME DOMAIN REFLECTOMETER KIT

PART # 0831-8245

NSN # 5180-01-574-5887



0831-8245 OTDR Kit

TFOCA connector inspection using
microscope probe adapter



LED Light Source
850/1300



Laser Light Source
1310/1550



Quad Power Meter
850/1300/1310/1550

The primary objective of Operation Refurb was to develop a ruggedized, military-grade OTDR (Optical Time Domain Reflectometer) kit capable of identifying fiber breaks, excessive bends within a fiber reel, and measuring insertion loss at each connector end-face. This objective was successfully achieved. The #0831-8245 Ground Tactical OTDR Test Platform includes all required high-quality launch cables and precision reference cables needed to perform these diagnostics accurately and reliably in demanding field environments.



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OTDR KIT 0831-8245

Since 1994, KITCO has assisted the DoW (Department of War) in developing a full line of MQJs (Measurement Quality Jumpers) to assure consistency in fiber testing in all Military applications. These Measurement Quality Cables were specified by NWSC Dahlgren for the US Navy, and they are now the gold standard for the entire Department of War.

- All necessary equipment is included in the kit to find breaks in TFOCA reels of fiber deployed by the United States Army, as well as single fiber interface cables to use with the equipment.
- The kit also contains a Light Source / Power Meter in order evaluate insertion loss.
- All types of HQLCs and HQRCs, both single mode and multimode, are included in the kit.
- Inspection microscope with all necessary probe adapters, including an adapter for TFOCA connectors, are included in the kit. There is no need to disassemble the TFOCA connector.
- Cleaning sticks, wipes, and special clean “clickers” are included to assure that the Warfighter keeps each end-face clean after inspection.



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PHASE 2: OPERATION PIGTAIL

QUAD EL FUSION SPLICE KIT

PART # 0831-1119

NSN # TBD



0831-1119 Quad EL Kit



TFOCA reel with JPS-400 Splice



Quad EL Fusion Splicer

In most instances, if a reel of TFOCA becomes incapacitated in any way, the Warfighter must either replace the entire reel, mechanically splice the fiber for temporary repair, or use a fusion splicer to perform an in-line splice for temporary repair. KITCO has developed the Quad EL Fusion Splice Kit that will splice and, by using our JPS-400 Permanent Splice Enclosure, permanently repair an entire reel, in theater or at the depot level, restoring communications in less than an hour! The Quad EL Fusion Splicer will strip, cleave, fuse, and protect all four fibers simultaneously! The pull strength (tensile load) is well over 1000 pounds, and the enclosure itself meets all the MIL-DTL-83526 connector specs for corrosion, etc...



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QUAD EL FUSION SPLICE KIT - GROUND TACTICAL

- The Quad EL Fusion Splice Kit has the ability to fusion splice four fibers simultaneously.
- The Quad EL will **strip, cleave, fuse, and protect** all four fibers of any combination of single mode and/or multimode configurations, saving many man-hours of labor.
- A stripping tool specifically designed to remove the tough outer jacket of the MIL-PRF-85046/18 cable is included in the kit.
- All necessary cleaning supplies are also included in the kit with a handy "Kit Key" that makes it simple to re-order all materials.
- V-Groove notches on either side of the ruggedized, military grade transit case hold the fiber cable in place to allow the Warfighter to align the fibers directly beneath the electrodes for accurate, hands-free fusion.



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VISUAL CLEANING & INSPECTION

Due to the harsh environments often experienced by the Warfighter, keeping the fiber end-faces clean is difficult, but an absolute must. Cleaning & Inspection Kits have been used for many years. However, they have been designed by companies unfamiliar with TFOCA and Ground Tactical environments.

KITCO helped write the MIL-STD-2042(C) that is enforced today to specify the techniques the Warfighter should use for Cleaning & Inspection of any fiber end-face.

KITCO recently invented a FiberSure Double Barreled Polishing Tool that incorporates a Polishing Solution that allows for a more thorough cleaning. In our research and development of this tool, KITCO discovered that there are two different methods for using fiber optic inspection gear.

Most inspection scopes come with the software pass/fail criteria set at the manufacturer's level, that is, all four areas of the end-face must be pristine: the core (A), cladding glass (B), epoxy (C), and the ferrule area (D). The O Level, or Field Service, states that the ferrule area can have unlimited scratches - the only area that needs to be pristine is the core (A) area, which is where the end-faces make contact for transmission. If the Ground Tactical Warfighter utilizes this new tool & solution, many more reels of TFOCA may be placed back in action! If the connector is beyond repair, in other words, If the FiberSure Polishing tool and procedure does not get out scratches in the core, then a Pigtail can be spliced onto the reel to restore communications.



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PHASE 3: OPERATION TEST & VERIFY

LIGHT SOURCE/POWER METER KIT

PART # 0831-2000

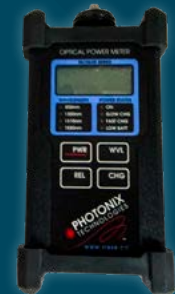
NSN # 6070-01-734-1566



LED Light Source
850/1300



Laser Light Source
1310/1550



Quad Power Meter
850/1300/1310/1550

KITCO has also upgraded the Ground Tactical Light Source (LS)/Power Meter (PM) Kit. We have placed in the #0831-1000 Cargo Pouch in the LS/PM Kit, with all necessary cleaning materials, including the FiberSure Polishing Tool and Polishing Solution.

The LS/PM kit includes two light sources, one LED, and one LASER, and a Quad Power Meter that reads 850, 1300, 1310, and 1550 wavelengths. This kit also contains all of the MQJ quality reference cables and adapters: two four-channel to ST reference cables one meter in length, and two ST-to-ST reference cables one meter in length, to zero out the LS/PM set-up. The LS/PM Kit will verify the insertion loss (quality of the signal across the end-faces as they touch).



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PHASE 4: OPERATION CLEAN & POLISH

VISUAL CLEANING & POLISHING KIT

PART # 0831-1000

NSN # 6070-01-734-1554



Visual Cleaning & Inspection Demo for KITCO Fiber Optics' # 0831-1000



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