

# Fiber Optic Support for Shipboard Systems

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## Tools, Training & Termination Kits



# Contents

Introduction .....	1
Termination Kits .....	2
Consumable Kits .....	10
COTS Augmentation Package Kit .....	11
Cleaning & Inspection Kits .....	12
Measurement Quality Jumpers .....	13
Discrete Tools .....	15
Specialty Consumables .....	17
Testing .....	18
Training .....	20
Shipboard Connectors and Termini .....	21
About Amphenol & AFSI .....	Back cover



Since 1993, Amphenol Fiber Systems International (AFSI) has designed, developed and manufactured rugged fiber optic connectors and cable assemblies for myriad shipboard systems including: missile, UAV, acoustic, launch, and communications systems. These systems have been deployed on a wide variety of domestic and international marine platforms such as aircraft carriers, destroyers, landing craft, submarines, frigates and cruisers.

AFSI has developed a suite of support products specifically designed to assist in the installation, maintenance and repair of shipboard and pierside fiber optic networks. As a qualified manufacturer of M28876, M83522 and pierside connectors, AFSI is uniquely qualified to supply these support products to the U.S. military.

As the industry leader in harsh environment fiber optic interconnect solutions, AFSI supplies not only the components and assemblies, but also the training, tools and kits necessary to support and maintain these products.





# Navy Shipboard Fiber Optic Kit Heavy Duty Connector Multimode & Single Mode

**NSN: 5180-01-416-0567**  
**FKIT001**  
**M28876/M29504**



*M28876 (NAVSEA DWG 6872813)  
Termination Kit - FKIT001*

## About the FKIT001

AFSI supplies the highest quality tool kits for the field technician. The FKIT001 is designed and qualified to the specifications of NAVSEA DWG 6872813, ensuring it contains all of the tools and consumables necessary to assemble qualified M28876 cable assemblies. AFSI has enhanced this product with additional tools not found in competitor's kits, eliminating the need for multiple kits. This saves the customer money while ensuring it contains everything necessary to assemble qualified M28876 heavy duty 4, 8 and 31-channel connectors.

This kit is packaged with the AIT installer in mind. The rugged case is perfect for shipping or as checked baggage for the quick trip to a job site. The detachable wheel assembly makes this kit easy to transport to the job site or through the airport. AFSI has developed the FKIT048 MIL ST/SC upgrade module, which can be added to this basic kit to enhance its capabilities as needed.

<b>M28876 (NAVSEA DWG 6872813) Termination Kit, FKIT001 (KTBK2000)</b>	<b>AFSI Part Number</b>
Tester, FOLS	FSPP-138-00-002
Ruler	FSPP-139-00-001
Tweezers	FSPP-140-00-001
Strap Wrench, 3/8"	FSPP-143-00-001
Eye Loupe, 10x	FSPP-173-00-001
Container, Plastic, 1 Compartment	FSPP-176-00-001
Container, Plastic, 5 Compartments	FSPP-176-00-002
Curing Oven Cable Clips	FSPP-316-00-001
Template, M28876 Shell 13 & 15, Straight Backshell	FSST0023
Template, M28876 Shell 23, Straight Backshell	FSST0025
Template, M28876 Shell 13, 45° & 90° Backshell	FSST0044
Template, M28876 Shell 15, 45° & 90° Backshell	FSST0045
Template, M28876 Shell 23, 45° & 90° Backshell	FSST0046
Removal Tool, Terminus	FSTF0070
Insertion Tool, Terminus	FSTF0076
Insertion Tool, 90 degree	FSTF0077
Holding Fixture, 4-Ch & 8-Ch	FSTF0208
Conical Spring Tool, 8-Ch	FSTF0272
Conical, Spring Tool, 4-Ch	FSTF0276
Insertion/Removal Tool, Alignment Sleeve	FSTF0370
Conical Spring Tool, 31-Ch	FSTF0541
Holding Fixture, 31-Ch	FSTF0542
Fiber Optic Scribe	FSTP0009
Marking Pen	FSTP0065
Microstripper	FSPP-205-11-004
NAVSEA Curing Oven	FSTP0090
400x Microscope w/Universal Adapter	FSTP0447
Curing Oven Cable Stand & Ring	FSTP0600
Optic Pad	FS-TX811
Epoxy, Bi-pack, Mil-A-24792 MSDS	MSDS-EPOXY24792
Optic Pad MSDS	MSDS-OPTICPAD
Temperature Probe Curing Oven (Thermometer)	NONE
Polishing Plate, 6 x 6 x .25"	PPSP1106
Resilient Pad, 70 to 90 Durometer	PPSP2000

# FKIT001 M28876/M29504 Termination Kit

## FKIT001 Termination Kit Parts List (continued)

<b>M28876 (NAVSEA DWG 6872813) Termination Kit, FKIT001 (KTBK2000)</b>	<b>AFSI Part Number</b>
M28876 Field Termination Instructions: Plug & Receptacle	3-4.4-10
Texwipe 404 (100 per Bag)	CPSP0001
Piano Wire	CTMP1100
Epoxy, Mini Six Pack, 1 Gram Pack, Mil-A-24792	CTMP1202
Syringe w/Twist on Dispensing Needles, 3ml	CTMP1311
Cellophane Tape, 3/4"	CTMP1600
M28876 Kit Content	FKIT-001-99-002
Safety Mat	FSPP-009-00-001
AFSI Professional 1600 Series Crimper	FSPP-103-00-002
AFSI Professional 1600 Die Set MIL-T-29504/14 & 15	FSPP-104-00-004
Cable Jack Stripping Tool	FSPP-105-00-001
Stripper, OFCC, 18 AWG (0.0395)	FSPP-106-00-001
Safety Glasses	FSPP-107-00-001
Kevlar Shears	FSPP-108-00-001
Polishing Paper 5u Aluminum Oxide, Foam Backed	FSPP-109-00-001
Polishing Paper, 0.1u Diamond, Mylar Backed	FSPP-112-00-001
Carrying Case	FSPP-114-00-001
NAVSEA Approved Curing Block	FSPP-115-00-005
Polishing Paper, 1u Aluminum Oxide, Mylar Backed	FSPP-119-00-001
Torque Wrench, 3/8" Drive	FSPP-120-00-001
Backshell Wrench, C-Type	FSPP-120-00-002
Socket, Socket Wrench 1/4" Hex Adapter for 3/8" Drive	FSPP-120-00-003
Dual-Post, Torque Wrench Adapter, Shell Size 11	FSPP-121-00-001
Tri-Post, Torque Wrench Adapter, Shell Size 13	FSPP-121-00-002
Tri-Post, Torque Wrench Adapter, Shell Size 15	FSPP-121-00-003
O-Ring Installation Tool, Shell Size 11	FSPP-121-00-004
O-Ring Installation Tool, Shell Size 13	FSPP-121-00-005
O-Ring Installation Tool, Shell Size 15	FSPP-121-00-006
Dispenser, Solvent 4oz., Leak Proof	FSPP-123-00-001
Water Bottle, 4oz., Squeeze w/Cap	FSPP-123-00-002
Cure Adapter for 29504	FSPP-124-00-003
Fiber Debris Container/Dispenser	FSPP-129-00-001
400x Microscope 29504 Adapter	FSPP-131-00-002
29504 Polishing Puck	FSPP-132-00-001
Tool Pouch	FSPP-137-00-001

# Navy Shipboard Fiber Optic Kit Light Duty Connector COTS SC; Multimode & Single Mode NSN: 5180-01-416-0565 FKIT002 MIL ST/SC

## About the FKIT002

AFSI's FKIT002 is designed and qualified to the specifications of NAVSEA DWG 6872811, ensuring it contains all of the tools and consumables necessary to assemble qualified M83522/16 ST and the NAVSEA approved SC connectors.

This kit is packaged with the AIT installer in mind, the rugged case is perfect for shipping or as checked baggage for the quick trip to a job site. The detachable wheel assembly makes this kit easy to take on and off the job site or through the airport. AFSI has developed the FKIT-031 upgrade module for M28876 and M29504 termini assembly that can be added to this basic kit to enhance its capabilities.



FKIT002 (NAVSEA DWG 6872811) Termination Kit

## FKIT002 Termination Kit Parts List

MIL ST (NAVSEA DWG 6872811) (ST, SC) Termination Kit, FKIT002	AFSI Part Number
MIL ST & COTS ST Field Termination Procedure	3-4.4-5
Texwipe 404 (100 per bag)	CPSP0001
Piano Wire	CTMP1100
Epoxy, Mini Six Pack, 1 Gram Pack, MIL-A-24792	CTMP1202
Syringe w/Twist on Dispensing Needles, 3ml	CTMP1311
Cellophane Tape, 3/4"	CTMP1600
MIL ST KIT Content	FKIT-002-99-002
Safety Mat	FSPP-009-00-002
AFSI 1600 Crimp Tool	FSPP-103-00-003
AFSI 1600 Die Set, MIL-C-83522	FSPP-104-00-006
Cable Jack Stripping Tool	FSPP-105-00-001
Stripper, OFCC, 18 AWG (0.0395)	FSPP-106-00-001
Safety Glasses	FSPP-107-00-001
Kevlar Shear	FSPP-108-00-001
Polishing Paper, 5u Aluminum Oxide, Foam Backed	FSPP-109-00-001
Polishing Paper, 0.1u Diamond, Mylar Backed	FSPP-112-00-001
Carrying Case	FSPP-114-00-001
NAVSEA Approved Curing Block	FSPP-115-00-005
Polishing Puck for MIL-C-83522 SC Approved Connector	FSPP-117-00-001

# FKIT002 MIL ST/SC Termination Kit

## FKIT002 Termination Kit Parts List (continued)

<b>MIL ST (NAVSEA DWG 6872811) (ST, SC) Termination Kit, FKIT002</b>	<b>AFSI Part Number</b>
Crimp Tool, .195, .140 and .110 Circular Cavities, for Approved SC	FSPP-118-00-001
Polishing Paper, 1u Aluminum Oxide, Mylar Backed	FSPP-119-00-001
Dispenser Solvent, 4oz., Leak Proof	FSPP-123-00-001
Water Bottle, 4oz., Squeeze w/Cap	FSPP-123-00-002
Template, Cut length, NAVSEA Approved SC Connector	FSPP-125-00-001
Hybrid Adapter, MIL-C-83522 to NAVSEA Approved SC Connector	FSPP-126-00-001
Fiber Debris Container/Dispenser	FSPP-129-00-001
Tool Pouch	FSPP-137-00-001
Tester, FOLS	FSPP-138-00-002
Ruler	FSPP-139-00-001
Tweezers	FSPP-140-00-001
Eye Loupe, 10x	FSPP-173-00-001
Container, Plastic, 1 Compartment	FSPP-176-00-001
Container, Plastic, 5 Compartment	FSPP-176-00-002
Curing Oven Cable Clips	FSPP-316-00-001
Template, Cut Length FSI MIL ST	FSST0009
Mil-C-83522 Boot Ring Tool	FSTF0371
Cure Adapter, 2.5mm, SC	FSTF10035-1
Cure Adapter, 2.5mm, ST	FSTF10036-1
Fiber Optic Scribe	FSTP0009
Marking Pen	FSTP0065
Microstripper	FSFSP-205-11-004
NAVSEA Curving Oven	FSTP0090
400x Microscope w/Universal Adapter	FSTP0447
Curing Oven Cable Stand & Ring	FSTP0600
Optic Pad	FS-TX811
Epoxy, Bi-pack, Mil-A-24792 MSDS	MSDS-EPOXY24792
Optic Pad MSDS	MSDS-OPTICPAD
Temperature Probe Curing Oven (Thermometer)	NONE
Polishing Plate, 6 x 6 x .25"	PPSP1106
Resilient Pad, 70 to 90 Durometer	PPSP2000

**FKIT003**  
**Combined Mil ST/SC,**  
**M28876 & M29504**  
**Termination Kit**  
**NSN: 5180-01-416-0567 and**  
**5180-01-416-0565**



*FKIT003 (NAVSEA DWG 6872811 and 6872813) Termination Kit*

### About the FKIT003

AFSI provides the highest quality tool kits for the field technician. The FKIT003 is designed and qualified to the specifications of NAVSEA Drawing 6872813. AFSI has enhanced this product with additional tools not found in competitor's kits, eliminating the need for multiple kits. This saves the customer money while ensuring it contains everything necessary to assemble qualified M28876 heavy duty 4, 8 and 31 channel connectors as well as M83522/16 ST and the approved SC connectors. This kit is designed for the installer that wants all the tools for the job in one kit.

### FKIT003 Termination Kit Parts List

<b>M28876/MIL ST, SC Combo Kit, FKIT003</b>	<b>AFSI Part Number</b>
MIL ST & COTS ST Field Termination Procedures	3-4.4-5
M28876 4-Ch Field Termination Procedures	3-4.4-6
Texwipe 404 (100 per bag)	CPSP0001
Piano Wire	CTMP1100
Epoxy, Mini Six Pack, 1 Gram Pack, MIL-A-24792	CTMP1202
Syringe w/Twist on Dispensing Needles, 3ml	CTMP1311
Cellophane Tape, 3/4"	CTMP1600
M28876/MIL ST Kit Content	FKIT-003-99-002
Safety Mat	FSPP-009-00-001
AFSI Professional 1600 Series Crimper	FSPP-103-00-002
AFSI Die:, ST 1600 Die Set, MIL-C-83522	FSPP-104-00-006
AFSI Professional 1600 Die Set MIL-T-29504/14 & 15	FSPP-104-00-004
Cable Jack Stripping Tool	FSPP-105-00-001
Stripper, OFCC, 18 AWG (0.0395)	FSPP-106-00-001
Safety Glasses	FSPP-107-00-001
Kevlar Shears	FSPP-108-00-001
Polishing Paper, 5u Aluminum Oxide, Foam Backed	FSPP-109-00-001
Polishing Paper, 0.1u Diamond, Mylar Backed	FSPP-112-00-001
Carrying Case	FSPP-114-00-001
NAVSEA Approved Curing Block	FSPP-115-00-005
Polishing Puck for MIL-C-83522 & NAVSEA Approved SC Connector	FSPP-117-00-001
Crimp Tool, .195, .140 & .110 Circular Cavities for NAVSEA Approved SC Connector	FSPP-118-00-001
Polishing Paper, 1u Aluminum Oxide, Mylar Backed	FSPP-119-00-001
Torque Wrench, 3/8" Drive	FSPP-120-00-001
Backshell Wrench, C-Type	FSPP-120-00-002
Socket, Socket Wrench, 1/4" Hex Adapter for 3/8" Drive	FSPP-120-00-003
Dual-Post, Torque Wrench Adapter, Shell Size 11	FSPP-121-00-001
Tri-Post, Torque Wrench Adapter, Shell Size 13	FSPP-121-00-002
Tri-Post, Torque Wrench Adapter, Shell Size 15	FSPP-121-00-003
O-Ring Installation Tool, Shell Size 11	FSPP-121-00-004
O-Ring Installation Tool, Shell Size 13	FSPP-121-00-005
O-Ring Installation Tool, Shell Size 15	FSPP-121-00-006
Dispenser Solvent, 4oz., Leak Proof	FSPP-123-00-001
Water Bottle, 4oz., Squeeze w/Cap	FSPP-123-00-002



# FKIT003 Combined Mil ST/SC, M28876 & M29504 Termination Kit

## FKIT003 Termination Kit Parts List (continued)

M28876/MIL ST, SC Combo Kit, FKIT003	AFSI Part Number
Cure Adapter, 2.5mm, SC	FSTF10035-1
Cure Adapter, 2.5mm, ST	FSTF10036-1
Cure Adapter, 29504	FSPP-124-00-003
Template, Cut Length, NAVSEA Approved SC Connector	FSPP-125-00-001
Hybrid Adapter, MIL-C-83522 to NAVSEA Approved SC Connector	FSPP-126-00-001
Fiber Debris Container/Dispenser	FSPP-129-00-001
400x Microscope M29504/14 & 15 Adapter	FSPP-131-00-002
Tool Pouch	FSPP-137-00-001
Tester FOLS	FSPP-138-00-002
Ruler	FSPP-139-00-001
Tweezers	FSPP-140-00-001
Strap Wrench, 3/8"	FSPP-143-00-001
Eye Loupe, 10x	FSPP-173-00-001
Container, Plastic, 1 Compartment	FSPP-176-00-001
Container, Plastic, 5 Compartment	FSPP-176-00-002
Curing Oven Cable Clips	FSPP-316-00-001
Template, Cut Length, AFSI MIL ST	FSST0009
M28876 Template	FSST0023
Removal Tool, Terminus	FSTF0070
Insertion Tool, Terminus	FSTF0076
Insertion Tool, 90 Degree	FSTF0077
Holding Fixture, 4-Ch & 8-Ch	FSTF0208
Conical Spring Tool, 8-Ch	FSTF0272
Conical, Spring Tool, 4-Ch	FSTF0276
Insertion/Removal Tool, Alignment Sleeve	FSTF0370
Mil-C-83522 Boot Ring Tool	FSTF0371
Conical Spring Tool, 31-Ch	FSTF0541
Holding Fixture, 31-Ch	FSTF0542
29504 Polishing Puck	FSTF1397
Fiber Optic Scribe	FSTP0009
Marking Pen	FSTP0065
NAVSEA Curing Oven	FSTP0075
Microstripper	FSPP-205-11-004
400x Microscope w/Universal Adapter	FSTP0447
Curing Oven Cable Stand & Ring	FSTP0600
Optic Pad	FS-TX811
Polishing Plate, 6 x 6 x .25"	PPSP1106
Resilient Pad, 70 to 90 Durometer	PPSP2000





FKIT007

## About the FKIT007

AFSI supplies the FKIT007 for submarine applications. The kit was specifically designed in a small form factor to support fiber optic installation and maintenance in the tighter confines of submarines. The FKIT007 has similar capabilities as the FKIT003 (supports M28876, M83522 and NAVSEA approved SC connectors) but is housed in a more compact case.



## FKIT007 Termination Kit Parts List

NAVSEA SUB 7085185 Termination Kit - FKIT007	AFSI Part Number
M28876 Field Termination Procedure	3-4.4-10
SC Field Termination Procedure	3-4.4-18
ST Field Termination Procedure	3-4.4-5
Texwipe 404 (150 per bag)	CPSP0001
Piano Wire	CTMP1100
Epoxy, Mini Six Pack, 1 gram Pack MIL-A-24792	CTMP1202
Needle and Syringe (NAVSEA)	CTMP1310
Canned Air (NAVSEA)	CTMP1501
Cellophane Tape 3/4"	CTMP1600
Sub Kit Contents (Tools & Materials locations)	FKIT-007-99-002
Thank You Letter	FKIT-TYLETTER
Safety Mat	FSPP-009-00-001
Crimper Ideal	FSPP-103-00-001
Ideal Crimp Die: ST	FSPP-104-00-001
Crimper Die, M29504	FSPP-104-00-004
Cable Jack Stripping Tool	FSPP-105-00-001
Stripper, OFCC, 18 AWG (0.0395)	FSPP-106-00-001
Safety Glasses	FSPP-107-00-001
Kevlar Shears	FSPP-108-00-001
Polishing Paper 5u Aluminum Oxide Foam Backed	FSPP-109-00-001
Polishing Paper, 0.1u Diamond, Mylar Back	FSPP-112-00-001
Carrying Case, Submarine	FSPP-114-00-009
NAVSEA Approved Curing Block	FSPP-115-00-005
Polishing Paper 1u Aluminum Oxide Mylar Backed	FSPP-119-00-001
Torque Wrench, 3/8" Drive	FSPP-120-00-001
Polishing Puck for MIL-C-83522 and TIA-604-3	FSPP-117-00-001
Crimp Tool .195, .140, & .110 Circular Cavities, for Approved	FSPP-118-00-001
Polishing Paper 1u Aluminum Oxide Mylar Backed	FSPP-119-00-001
Torque Wrench, 3/8" Drive	FSPP-120-00-001
Backshell Wrench, C-Type	FSPP-120-00-002
Socket, Socket Wrench 1/4" Hex Adapter for 3/8" Drive	FSPP-120-00-003
Dual-Post, Torque Wrench Adapter, Shell Size 11	FSPP-121-00-001
Tri-Post, Torque Wrench Adapter, Shell Size 13	FSPP-121-00-002
Tri-Post, Torque Wrench Adapter, Shell Size 15	FSPP-121-00-003
O-Ring Installation Tool Shell Size 11	FSPP-121-00-004
O-Ring Installation Tool Shell Size 13	FSPP-121-00-005
O-Ring Installation Tool Shell Size 15	FSPP-121-00-006
O-Ring Installation Tool Shell Size 23	FSPP-121-00-007
Dispenser, Solvent 4 oz. Leak Proof	FSPP-123-00-001

# FKIT007 NAVSEA SUB 7085185 Termination Kit

## FKIT007 Termination Kit Parts List (continued)

NAVSEA SUB 7085185 Termination Kit FKIT007	AFSI Part Number
Water Bottle, 4oz. Squeeze, W/Cap	FSPP-123-00-002
Cure Adapter, 29504	FSPP-124-00-003
Template, Cut Length, TIA-604	FSPP-125-00-001
Hybrid Adapter, MIL-C-83522 to NAVSEA Approved SC	FSPP-126-00-001
Container, Plastic 1 Compartment	FSPP-127-00-001
Container, Plastic 5 Compartment	FSPP-127-00-002
Fiber Debris Container/Dispenser	FSPP-129-00-001
400x Microscope 29504 Adapter	FSPP-131-00-002
Tool Pouch	FSPP-137-00-001
Tester FOLS	FSPP-138-00-002
Ruler	FSPP-139-00-001
Tweezers	FSPP-140-00-001
Polishing Film, Ultrafine	FSPP-142-00-001
3/8 " Strap Wrench	FSPP-143-00-001
Eye Loupe	FSPP-173-00-001
Non-Thermal Stripper	FSPP-205-11-004
Cable Clips	FSPP-316-00-001
M28876 Template, Shell Size 13 and 15 Straight	FSST0023
M28876 Template, Shell Size 23 Straight	FSST0025
M28876 Template, Shell Size 13 45° and 90° Backshell	FSST0044
M28876 Template, Shell Size 15 45° and 90° Backshell	FSST0045
M28876 Template, Shell Size 23 45° and 90° Backshell	FSST0046
Template, Cut Length AFSI MIL ST	FSST10061
Removal Tool, Terminus	FSTF0070
Insertion Tool, Terminus	FSTF0076
Insertion Tool 90 Degree	FSTF0077
Holding Fixture 4-ch & 8-ch	FSTF0208
Conical Spring Tool 8-ch	FSTF0272
Conical, Spring Tool, 4-ch	FSTF0276
Insertion/Removal tool, alignment sleeve	FSTF0370
Mil-C-83522 Boot Ring Tool	FSTF0371
Conical Spring Tool 31-ch	FSTF0541
Holding Fixture 31-ch	FSTF0542
Cure Adapter, 2.5mm SC	FSTF10035-1
Cure Adapter, 2.5mm ST	FSTF10036-1
29504 Polishing Puck	FSTF1397
Fiber Optic Scribe	FSTP0009
Marking Pen	FSTP0065
NAVSEA Curing Oven	FSTP0090
400x Microscope w/ Universal Adapter	FSTP0447
Microclips	FSTP0550
Curing Oven Cable Stand & Ring	FSTP0600
Optic Pad	FS-TX811
Epoxy, Bi-pack, MIL-A-24792 MSDS	MSDS-EPOXY24792
Canned Air, MSDS	MSDS-ES1015
Optic Pad MSDS	MSDS-OPTICPAD
Temperature Probe Curing Oven (thermometer)	NONE
Polishing Plate 6x6x.25	PPSP1106
Resilient Pad, 70 to 90 Durometer	PPSP2000

# Fiber Optic Consumables Kits

## CKIT001

The CKIT001 contains enough expendable materials to perform approximately 200 epoxy style termini or connector terminations. This kit will restock all of the AFSI FKIT tool kit series products. It comes in a convenient carrying case that allows the technician to take it directly to the job site. This kit is ideal for job planners to specify into a work project because it facilitates the planning of the job requirements against the number of connectors each kit will build.



*AFSI CKIT001, Fiber Optic Consumables Kit*



## CKIT001 Parts List

Fiber Optic Consumables CKIT001	AFSI Part Number	Package Qty	Number of Packages
Texwipe 404	CPSP0001	150	1
Piano Wire	CTMP1100	1	1
Optic Pad	FS-TX811	1	50
Epoxy, Mini Six Pack, 1 gram Pack MIL-A-24792	CTMP1202	6	2
Syringe w/Twist on Dispensing Needles, 3ml	CTMP1311	10	1
Polishing Paper, 0.1u Diamond, Mylar Backed	FSPP-112-00-001	5	1
Polishing Paper, 5u Aluminum Oxide, Foam Backed	FSPP-109-00-001	50	1
Polishing Paper, 1u Aluminum Oxide, Mylar Backed	FSPP-119-00-001	50	1
Consumables Bag	FSPP-111-00-004	1	1

## CKIT002 Parts List (includes Single Mode Resilient Pad)

Fiber Optic Consumables Kit CKIT002	AFSI Part Number	Package Qty	Number of Packages
Texwipe 404	CPSP0001	150	1
Piano Wire	CTMP1100	1	1
Optic Pad	FS-TX811	1	50
Epoxy, Mini Six Pack, 1 gram Pack MIL-A-24792	CTMP1202	6	2
Syringe w/Twist on Dispensing Needles, 3ml	CTMP1311	10	1
Polishing Paper, 0.1u Diamond, Mylar Backed	FSPP-112-00-001	5	1
Polishing Paper, 5u Aluminum Oxide, Foam Backed	FSPP-109-00-001	50	1
Polishing Paper, 1u Aluminum Oxide, Mylar Backed	FSPP-119-00-001	50	1
Consumables Bag	FSPP-111-00-004	1	1
Resilient Pad, 70 to 90 Durometer	PPSP2000	1	1

# CAPKIT-001 COTS Augmentation Package Kit

## CAPKIT-001 (COTS Augmentation Package)

Many shipboard systems have utilized Non-MIL STD-2042 specifications in their requirements. In order to fully support these systems and the needs of the customer, AFSI has developed the Commercial Augmentation Package (CAP) Kit. This enables the end user to perform repairs to non-standard systems using 3M™ Hot Melt and UniCam® style connectors. It is not intended or designed for the user to use these connectors where MIL-STD-2042 requirements are specified or are applicable. This kit is ideal for shore based communication systems and other systems where quick termination and less extreme environments are required.

The CAPKIT-001 is specifically designed to integrate with and augment the FORCE001 Fiber Optic Repair Center. The CAP Kit provides the tools and accessories for typical LAN applications utilizing 3M™ Hot Melt style and UniCam® style connectors while providing the ruggedized case to meet harsh military environments. The CAPKIT-001 can be stocked for field use by ordering the CAP Supply Kit, CAPSK-01, to provide the warfighter with a full supply of the most commonly utilized COTS connectors for LAN applications.

When used in concert with AFSI's suite of tactical fiber optic kits, such as the FORCE001, the user can support both telecom/datacom LAN Applications and tactical networks



with one system. The CAP Kit allows the warfighter to integrate the tactical military style connector support provided by FORCE001 kit with the versatility and ease of the more common style COTS connectors utilized inside the TOC or FOB to integrate the LAN systems utilized by many communications and weapons systems.

CAPSK-01 Part Number	CAP Supply Kit: CAPSK-01 Description	Qty
TS-HSC-01	3M™ 8300 SC Single Mode Hot Melt Connectors	25
T3LC-02-2	Fiber Optic Connectors Ceramic Ferrule LC/SM	25
T3ULC-02	UniCam® LC Connectors, SM 8.3/125	25
T3-USC-02	UniCam® SC Connectors, SM 8.3/125	25
T3-USC-02	UniCam® ST Connectors, SM 8.3/125	25

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# JDA1100 Cleaning & Inspection Kit NSN#6080-01-556-3388



*The JDA1100 Cleaning & Inspection Kit*

## About the JDA1100 Cleaning & Inspection Kit

The JDA1100 Cleaning and Inspection Kit has been designed to allow the user to quickly inspect and identify the quality of a polished termini or identify a dirty or damaged termini. The inspection probe comes with a variety of tips for easy adaptation for direct termini inspection or inspection of a termini in a back-shell without having to disassemble the connector. The kit also includes the software necessary to plug the inspection probe into a laptop for greater image magnification or image storage as part of a post assembly inspection or failure analysis process. Inspection magnification ranges from 160X to 400X

## JDA1100 Cleaning & Inspection Kit Parts List

Description	AFSI Part Number	Qty
Fiber Optic Foam Cleaning Fluid	FSPP-650-00-001	1
Swabs, Foam Tip, 1.25mm	CPSP0006	50
Swabs, Foam Tip, 2.5mm	CPSP0007	50
Texwipe 404 (100 per bag)	CPSP0001	1
Case, Canvas	FSPP-111-00-002	1
Optical Pad, Alcohol	FS-TX811	50
MSDS Sheet, Optic Pad	MSDS-Optic Pad	1
Boroscope, Case and Tips	FSPP-151-00-00A	1



*The JDA1100 ViewConn*



# Measurement Quality Jumpers

## NAVSEA dwg 6877804



*Measurement Quality Jumpers (MQJs)*

AFSI supplies fiber optic Measurement Quality Jumpers (MQJs) certified by the United States Naval Surface Warfare Center, Dahlgren, VA as per NAVSEA dwg 6877804.

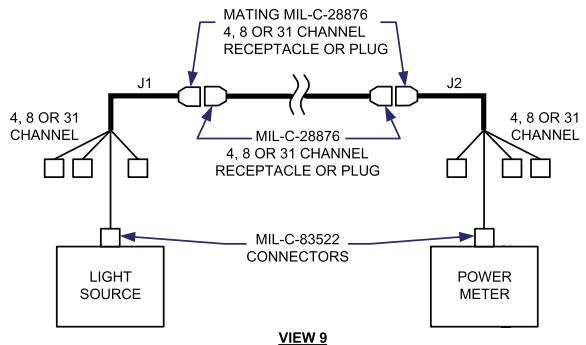
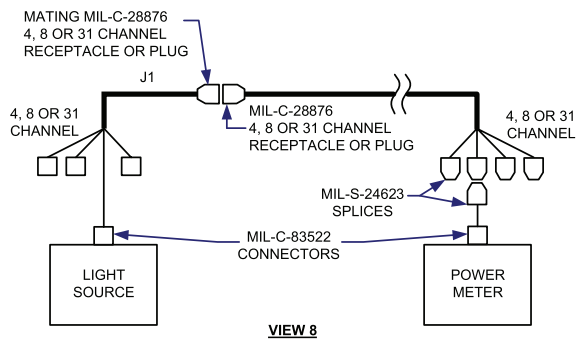
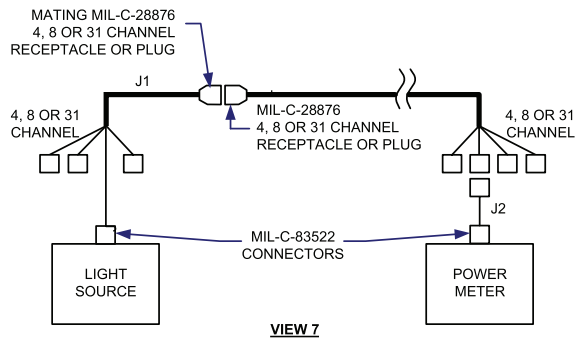
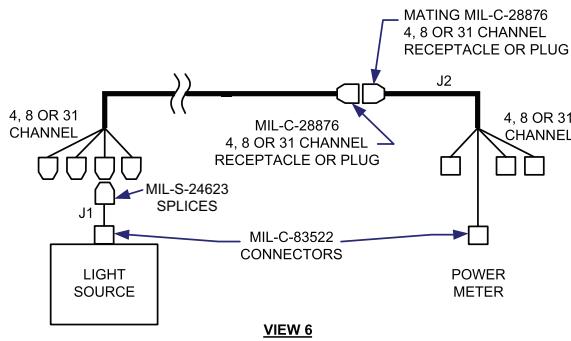
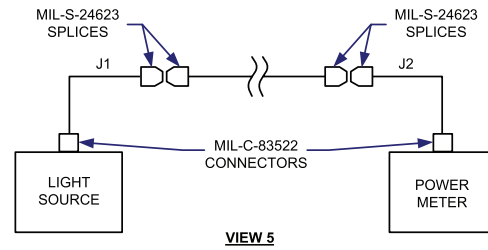
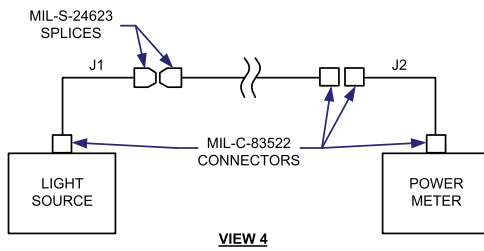
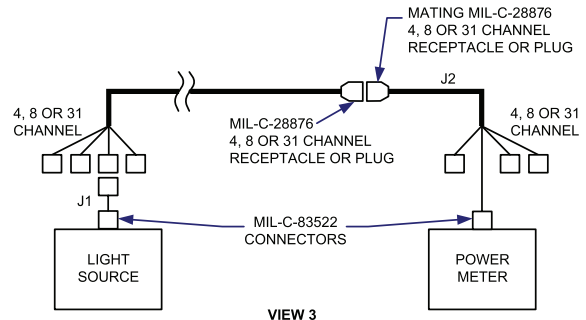
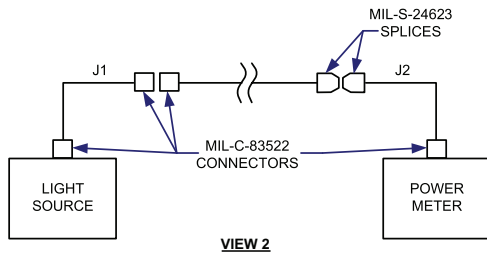
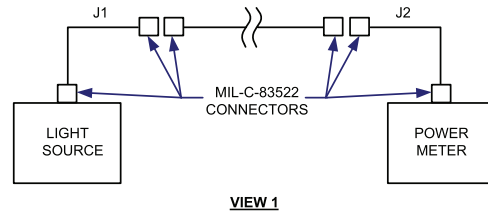
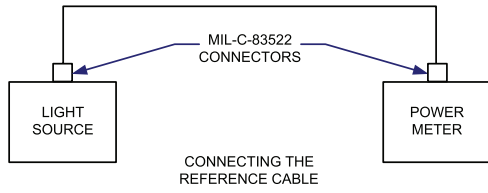
AFSI underwent the extensive and demanding qualification process with NAVSEA in order to better service our customers by ensuring that we can provide the best quality product at the best pricing and enable our customers to meet the stringent testing requirements of the United States Navy as outlined in MIL-STD-2042B (SH). Many hours of manufacture, testing and certification took place to ensure that AFSI MQJs meet the dependability, reliability and repeatability necessary to test fiber optic cable assemblies as per the MIL-STD.

Our MQJs have been specifically designed and tested to ensure that they interface and provide accurate and reliable measurements with all qualified M28876 products.

Government Designation	AFSI Designation	Status
6877804-1	6877804-1	Approved
6877804-3	6877804-3	Approved
6877804-4	6877804-4	Approved
6877804-5	6877804-5	Approved
6877804-7	6877804-7	Approved
6877804-8	6877804-8	Approved
6877804-9	6877804-9	Approved
6877804-10	6877804-10	Approved
6877804-12	6877804-12	Approved
6877804-13	6877804-13	Approved
6877804-1SME	6877804-1SME	Approved
6877804-3SME	6877804-3SME	Approved
6877804-4SME	6877804-4SME	Approved
6877804-5SME	6877804-5SME	Approved
6877804-7SME	6877804-7SME	Approved
6877804-8SME	6877804-8SME	Approved
6877804-9SME	6877804-9SME	Approved
6877804-10SME	6877804-10SME	Approved
6877804-12SME	6877804-12SME	Approved
6877804-13SME	6877804-13SME	Approved
6877804-S150	6877804-S150	Approved
6877804-S150M	6877804-S150M	Approved
6877804-STLC	6877804-STLC	Approved



# MIL-STD-2042 Testing Method Measurement Quality Jumpers NAVSEA dwg 6877804





# Discrete Tools

In addition to complete kits, AFSI offers discrete tools that the technician can purchase individually. This allows the customer to cost-effectively replace lost or damaged tools or easily expand or upgrade an existing kit. All tools have been qualified and NAVSEA approved.



FSTF1397  
M29504/14 & /15 Polishing Puck



FSTF0272  
Conical Spring Tool

Discrete Tools	AFSI Part
AFSI Professional 1600 Series Crimper	FSPP-103-00-002
AFSI Professional 1600 Die Set MIL-T-29504/14 & 15	FSPP-104-00-004
Cable Jack Stripping Tool	FSPP-105-00-001
Stripper, OFCC, 18 AWG (0.0395)	FSPP-106-00-001
Kevlar Shears	FSPP-108-00-001
NAVSEA Approved Curing Block	FSPP-115-00-005
Polishing Puck for MIL-C-83522	FSPP-117-00-001
Crimp Tool, .195, .140 & .110 Circular Cavities, for Approved SC	FSPP-118-00-001
Torque Wrench, 3/8" Drive	FSPP-120-00-001
Backshell Wrench, C-Type	FSPP-120-00-002
Socket, Socket Wrench 1/4" Hex Adapter for 3/8" Drive	FSPP-120-00-003
Dual-Post, Torque Wrench Adapter, Shell Size 11	FSPP-121-00-001
Tri-Post, Torque Wrench Adapter, Shell Size 13	FSPP-121-00-002
Tri-Post, Torque Wrench Adapter, Shell Size 15	FSPP-121-00-003
O-Ring Installation Tool, Shell Size 11	FSPP-121-00-004
O-Ring Installation Tool, Shell Size 13	FSPP-121-00-005
O-Ring Installation Tool, Shell Size 15	FSPP-121-00-006
Hybrid Adapter, MIL-C-83522 to NAVSEA Approved SC	FSPP-126-00-001
M29504/14 & /15 Polishing Puck	FSTF1397
Tool Pouch	FSPP-137-00-001
Tweezers	FSPP-140-00-001
Strap Wrench, 3/8"	FSPP-143-00-001
Cure Adapter, 2.5mm, SC	FSTF10035-1
Cure Adapter, 2.5mm, ST	FSTF10036-1
Removal Tool, Terminus	FSTF0070
Insertion Tool, Terminus	FSTF0076
Insertion Tool, 90 degree	FSTF0077



FSPP-117-00-001 MIL-C-83522  
Polishing Puck



FSPP-205-11-004  
Microstripper



FSPP-108-00-001  
Kevlar Shears

FSTF 0370 M28876  
Captivator Insertion/Extraction Tool



FSTF 0070 M28876  
Terminus Extraction Tool



FSTF0076 M28876 Terminus Insertion Tool



# Discrete Tools



FSPP-106-00-001  
OFCC Stripper



FSPP-120-00-001  
Torque Wrench



FSPP-103-00-002  
1600 Series Crimper



FSTF0541  
Conical Spring Tool, 31-Ch



FSPP-120-00-002  
Backshell Wrench, C-Type



FSTF0208 Holding Fixture

Discrete Tools (continued)	AFSI Part Number
Holding Fixture, 4-Ch & 8-Ch	FSTF0208
Conical Spring Tool, 8-Ch	FSTF0272
Conical, Spring Tool, 4-Ch	FSTF0276
Insertion/Removal Tool, Alignment Sleeve	FSTF0370
MIL-C-83522 Boot Ring Tool	FSTF0371
Conical Spring Tool, 31-Ch	FSTF0541
Holding Fixture, 31-Ch	FSTF0542
Fiber Optic Scribe	FSTP0009
Marking Pen	FSTP0065
Microstripper	FSPP-205-11-004
NAVSEA Curing Oven	FSTP0090
400x Microscope w/Universal Adapter	FSTP0447
Curing Oven Cable Stand & Ring	FSTP0600
AFSI MIL Crimper, ST, SC, 29504 Termini	FSPP-103-11-0A2
Curing Oven Cable Stand & Ring	FSTP0600
400X Microscope M29504/14 & /15 Adapter	FSPP-131-00-002
Tri-post, Torque Wrench Adapter, Shell Size 13	FSPP-121-00-002
Tri-post, Torque Wrench Adapter, Shell Size 15	FSPP-121-00-003
Cure Adapter, for NAVSEA Approved SC	FSPP-124-00-001
Cure Adapter, for MIL-C-83522	FSPP-124-00-002
Cure Adapter, for M29504 Termini	FSPP-124-00-003
Fiber Debris Container/Dispenser	FSPP-129-00-001

# Specialty Consumables

AFSI also offers discrete consumables which enables the technician to restock an existing termination kit or replenish a CKIT001.

Specialty Consumables	AFSI Part Number
Texwipe 404 (100 per Bag)	CPSP0001
Piano Wire	CTMP1100
Epoxy, Mini Six Pack, 1 Gram Pack, MIL-A-24792	CTMP1202
Syringe w/Twist on Dispensing Needles, 3ml	CTMP1311
Cellophane Tape, 3/4"	CTMP1600
Polishing Paper 5u Aluminum Oxide, Foam Backed	FSPP-109-00-001
Polishing Paper, 0.1u Diamond, Mylar Backed	FSPP-112-00-001
Polishing Paper, 1u Aluminum Oxide, Mylar Backed	FSPP-119-00-001
Template, Cut Length, NAVSEA Approved SC Connector	FSPP-125-00-001
Template, Cut Length, FSI MIL ST	FSST0009
Template, M28876 Shell 13 & 15, Straight Backshell	FSST0023
Template, M28876 Shell 23, Straight Backshell	FSST0025
Template, M28876 Shell 13, 45° & 90° Backshell	FSST0044
Template, M28876 Shell 15, 45° & 90° Backshell	FSST0045
Template, M28876 Shell 23, 45° & 90° Backshell	FSST0046
Optic Pad	FS-TX811



## Optical Sources and Power Meters

AFSI offers the 525N series which are bi-directional test sets that provide both insertion loss and back reflection measurements in a single unit. The 525N is a compact handheld instrument incorporating an Auto Test feature, optical power meter and return loss meter. It can be used to measure insertion loss in simplex or duplex test mode with the addition of a second unit. The two unit configuration significantly reduces overall test time. The

525N series are fitted with a Universal Connector Interface (UCI) permitting the unit to be used with compatible connectors.

AFSI also offers the FSPP-128, which is a NAVSEA approved optical source and power meter. The FSPP-128 supports the NAVSEA defined Coupled Power Ratio (CPR).



*AFSI's 525-30 Multimode Bi-directional Test Set*



*AFSI's FSPP-128 NAVSEA Approved Light Source & Power Meter*

Description	Part Number
Multimode Bi-directional Test Set (each)	525N-30
Single Mode Bi-directional Test Set (each)	525N-60
NAVSEA Approved Light Source & Power Meter	FSPP-128-00-003

# Testing

## Optical Time Domain Reflectometers

AFSI also offers the FSPP-180 series of Optical Time Domain Reflectometers for installation and maintenance of fiber optic networks. The FSPP-180 provides unmatched OTDR capabilities in a handheld package weighing less than 1kg (2 lbs). With a short dead zone and intermediate range specifications, the FSPP-180 is ideal for Tier 2 testing of pierside, shore-based or premises networks. Its bright, transreflective display makes it suitable for both indoor and outdoor operation. The unit has a built-in visual fault locator, a bare fiber adapter, an inspection probe with a measurement quality jumper launch cable, and is housed in a portable, rugged enclosure.



Description	Part Number
OTDR 850/1300nm MM, 1310/1550nm SM	FSPP-180-00-001
Navy OTDR 850/1300nm MM, 1310/1550nm SM	FSPP-180-00-01N

## Measurement Test Kits

The MTCK series are compact, stand-alone test kits for performing insertion loss test measurements on shipboard and pierside cable assemblies. The kit includes the optical source and power meter and supports both single mode and multimode fiber over a wide range of wavelengths (model dependent). The source/power meters incorporate a Snap-On Connector (SOC) interface, which allows the operator to easily apply any adapter to support any of the popular commercial connectors (LC, SC, ST, FC). The kit contents are housed in a portable, rugged case and includes cleaning material, a MIL-ST adapter and a measurement test cable.



Description	Part Number
AFSI Multimode MTC Test Kit	MTCK-001
AFSI Single Mode MTC Test Kit (1300/1550nm)	MTCK-002
AFSI MM/SM MTC Test Kit (850/1300/1550nm)	MTCK-003



# MIL-STD-2042B Shipboard Fiber Optic Training



AFSI's MIL-STD-2042B based shipboard training course is designed for persons involved in the installation, testing, troubleshooting or maintenance of shipboard fiber optic interconnect systems. Focusing on the M28876 and M83522, and SC connectors, this class is ideal for all those responsible for the maintenance and installation of shipboard fiber optic networks and is a must-attend course for those required to comply with MIL-STD-2042B.

## Class Outline

### Day One

- Class Introduction
- Evolution of Fiber Optics
- Fundamentals of Fiber Optics
- Transmission and Attenuation
- Fiber Optic Cables and Connectors
- MIL-STD Components and Topology
- Homework

### Day Two

- Homework Review
- Install Connectors on OFCC Demonstration ST-ST
- Install Connectors on OFCC (Hands-on)
- Basics of Optic Measurement Demonstration
- Basics of Optic Measurement (Hands-on)
- Install Connectors on OFCC Demonstration ST-SC
- Install Connectors on OFCC (Hands-on)
- Homework

### Day Three

- Homework Review
- Install Termini on OFCC Demonstration 29504/14/15
- Install Termini on OFCC M29504/14 (Hands-on)
- Heavy Duty Connector Assembly Demonstration M28876
- Heavy Duty Connector Assembly (Hands-on)
- Homework

### Day Four

- Homework Review
- Blown Optical Fiber
- Records and Reports
- Maintenance Concepts
- Fiber Optic Test Equipment (OTDR) Lesson
- Fiber Optic Test Equipment (OTDR) Lab
- Homework

### Day Five

- Homework Review
- Troubleshoot a Fiber Optic Link Demonstration
- Troubleshoot a Fiber Optic Link Practice
- Troubleshoot a Fiber Optic Link Graded
- MIL-STD-2042B Knowledge Test
- ETA Fiber Optic Installer (FOI) Test
- ETA Fiber Optic Technician (FOT) Test

## Certifications

Successful completion of the five-day course and test qualifies the student to receive a certification from AFSI on the M28876 connector. In addition to the AFSI certification, we are certified by the Electronics Technicians Associations (ETA) to offer the Fiber Optics Installer (FOI) and the Fiber Optics Technician (FOT) certifications for an additional cost.

## Training Locations

• **On-Site Training:** AFSI offers training at our location in Allen, Texas, according to your schedule.

• **Mobile Training:** AFSI provides mobile training at customer-specified locations for up to ten students. We can tailor our training for larger class sizes. Mobile training minimizes travel for the class and reduces your costs.

• **Train-the-Trainer (TTT):** For those customers that have internal training groups, AFSI offers Train-the-Trainer classes.

## Product Numbers

Product Name	Product Number
<b>MIL-STD-2042B Training</b>	
2042B AFSI On-Site	FT-M28-1-01-05
2042B Mobile Training	FT-M28-2-01-05
2042B Train-the-Trainer	FT-M28-3-01-10

# AFSI Shipboard Connectors and Termini

## M28876 Connectors



AFSI manufactures a complete line of circular fiber optic connectors designed and qualified to MIL-PRF-28876, Rev. E. These connectors are precision machined to stringent tolerances and designed to provide superior optical performance in extreme environmental conditions. The backshells feature the Quickloc™ captivation system developed by AFSI. Not only is it simple to install, it is also easy to remove the captivated aramid yarn of the cable and recapture without cutting back the cable. The Quickloc™ backshell also allows easy access to maintain or reconfigure termini without altering the captivated aramid fiber.

## MIL-PRF-64266 (NGCON) Style Connectors

MIL-PRF-64266 (NGCON) style fiber optic connectors are designed and manufactured using proven technology and features from existing D38999 and M28876 connector standards. These innovative connectors include genderless contacts and high-density packaging. This connector family includes features such as rear-release genderless contacts, wide temperature range and high-density packaging.



## M29504/14 & /15 Termini

M29504/14 & /15 termini from AFSI are qualified to MIL-PRF-29504B specifications. This series of fiber optic termini provide superior optical and mechanical performance and are compatible with M28876 and comparable military-style connectors. Unlike other M29504/14 & /15 designs, the AFSI design is precision engineered allowing the ferrule to press fit and bottom out within the terminus bodies. This strict tolerance management eliminates loose fit or epoxy construction and yields better overall performance under stressful environmental conditions. AFSI also offers APC version for those systems requiring low back reflection.

## FS12 Pierside 12-Channel Fiber Optic Connector

AFSI's FS12 fiber optic connector is for harsh environment pierside applications. This connector is available in either single mode or multimode and uses field-proven MIL-PRF-29504 termini. The 12-channel FS12 Pierside connector design provides flexibility for current and future Navy communication requirements both afloat and ashore.



## MIL-C-83522 Connectors



AFSI offers rugged military fiber optic ST connectors for deployable and fixed communication systems. These connectors meet the stringent requirements of MIL-C-83522. AFSI's connectors are designed to provide the best possible optical performance in applications with severe environmental conditions. The M83522 connector features a higher spring force than commercial ST connectors, allowing it to meet the shock and vibration requirements of MIL-C-83522. Stainless steel construction provides excellent mechanical strength and superior corrosion resistance. The boot is attached either by compression ring or by a threaded adapter.

## 109 Series Connectors

AFSI's line of 109 Series hermaphroditic connectors are used in pierside applications when 4 fiber optic channels are required. The 109 Series plugs can function as either a plug or a receptacle to fit any system design. With these hermaphroditic connectors, cable assemblies can be daisy-chained to provide the required distance for any deployment condition.





# About AFSI

Amphenol Fiber Systems International (AFSI) designs, manufactures, markets and supports rugged, reliable, and innovative fiber optic interconnect solutions that withstand the harsh environments of military, oil & gas, mining and broadcast applications. With more than a decade of experience, AFSI has emerged as a global leader in fiber optic interconnect components and systems, including Termini, M28876, MIL-ST, TFOCA and the AFSI designed and patented TFOCA-II® connector. Today, millions of AFSI fiber optic connectors are in use in more than 34 countries. When there is a need for superior, cost-effective fiber optic systems and products capable of withstanding demanding operating environments, you can rely on AFSI for superior engineering, top-quality products and expert technical support. For more information about AFSI, visit [www.fibersystems.com](http://www.fibersystems.com).

# About Amphenol

Amphenol Corporation is one of the world's leading producers of electronic and fiber optic connectors, cable and interconnect systems. Amphenol products are engineered and manufactured in the Americas, Europe and Asia and sold by a worldwide sales and marketing organization. The primary end markets for the company's products are communication systems for the converging technologies of voice, video and data communications, industrial, automotive, military and aerospace applications. For more information about Amphenol, visit [www.amphenol.com](http://www.amphenol.com).



Amphenol Fiber Systems International (AFSI)  
is an authorized agent for  
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