

# 3M COLDSHRINK QS III INLINE SHIELD BREAK SPLICING KIT 95-AC644-1(SB)/C

WITH COLDSHRINK JACKETING TUBE SUITABLE FOR  
300 TO 630 mm<sup>2</sup> POLYMERIC SINGLE CORE CABLES  
52 kV ACC. TO IEC 60840

## SELECTION CHART

KIT No.	DIAMETER OVER CABLE JACKET MAX. (mm)	DIAMETER OVER INSULATION [E] (mm)	CROSS SECTION (mm <sup>2</sup> )	DIAMETER OVER CONNECTOR (mm)*	CONNECTOR LENGTH MAX. (mm)
95-AC644-1(SB)/C (5468A)	80	31.5 - 54.0	300 - 630	22.1 - 54.0	210

### \* IMPORTANT CONNECTOR INFORMATION

FOR CONNECTORS BELOW 27.2mm. IN DIAMETER AN ADAPTOR TUBE  
MUST BE INSTALLED OVER THE CENTRE OF THE CONNECTOR.

### IMPORTANT NOTICE

CROSS SECTIONAL AREA IS STATED AS A GUIDE ONLY. PLEASE SELECT  
THE KIT BASED UPON THE PRIMARY INSULATION DIAMETER OF THE CABLE,  
ALSO TAKING INTO ACCOUNT THE CHOSEN CONNECTOR DIMENSIONS.

5	LATEST REQUIREMENT	MJE	01.04.19
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3M CENTRE, CAIN ROAD, BRACKNELL  
BERKS. RG12 8HT, ENGLAND

ALL STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN  
ARE BASED ON TESTS WE BELIEVE TO BE RELIABLE. HOWEVER, SINCE THE CONDITIONS  
OF USE AND THE APPLICATION ARE BEYOND OUR CONTROL, THE PURCHASER  
IS RESPONSIBLE FOR THE PERFORMANCE OF THE JOINTS AND TERMINATIONS  
MADE IN CONNECTION WITH THE USE OF DATA OR SUGGESTIONS STATED HEREIN.

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Cad File: XE-0091-3128-7

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SPLICING KIT 95-AC644-1(SB)/C WITH  
COLDSHRINK JACKETING TUBE SUITABLE FOR  
300 - 630mm<sup>2</sup> POLYMERIC SINGLE CORE CABLE  
52 kV TO IEC 60840-INSTALLATION INSTRUCTIONS**

**3M** ELECTRICAL PRODUCTS

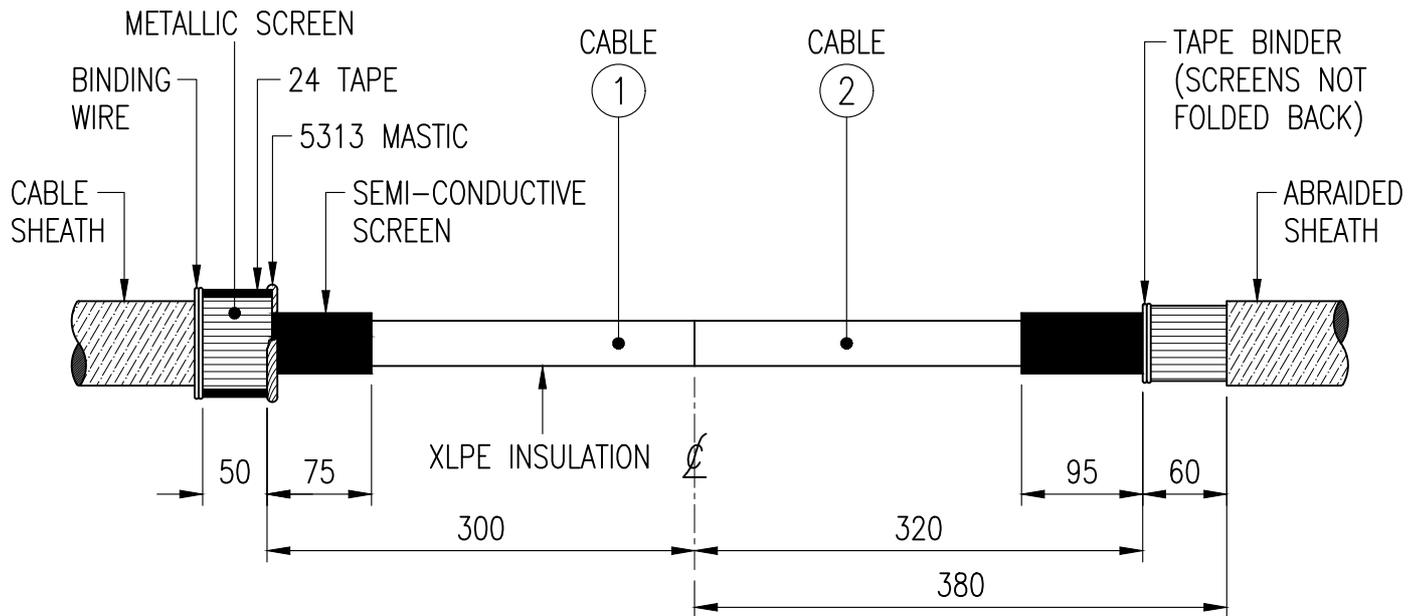
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SHEET  
1 OF 9

A4

FIG.1



PREPARATION OF POLYMERIC CABLE ①

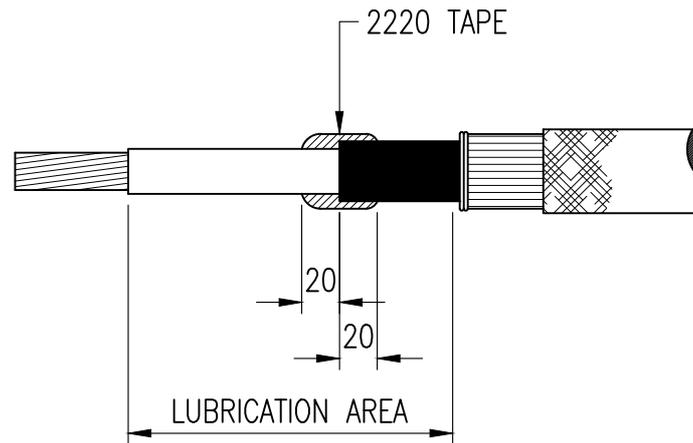
- 1.1 CUT THE CORE LENGTH, DIMENSIONS ARE TO THE "CENTRE OF JOINT". WHERE SPLIT OR BLOCKED CONNECTORS ARE TO BE USED THE DIMENSIONS OF THE BLOCK IN THE CONNECTOR MUST BE TAKEN INTO ACCOUNT.
- 1.2 REMOVE THE OUTER SHEATH AS PER DIMENSION IN FIG.1. AND ABRABE CABLE SHEATH FOR 100mm BEYOND THIS POINT.
- 1.3 APPLY 2 LAYERS OF 5313 MASTIC 5mm ON TO CABLE SHEATH.
- 1.4 APPLY 2 LAYERS OF SCOTCH 24 TAPE ON TO CABLE SHEATH FROM THE 5313 MASTIC TO A POINT 50mm FROM SHEATH OFF POSITION.
- 1.5 FOLD THE SCREEN WIRES BACK ON TO THE CABLE SHEATH AND SECURE WITH A BINDING WIRE AS FIG.1 AND CUT OFF EXCESS SCREEN WIRES.
- 1.6 APPLY ANOTHER LAYER OF 5313 MASTIC OVER FIRST LAYER SANDWICHING THE SCREEN WIRES AND OVERTAPE THIS WITH STRETCHED PVC TAPE.
- 1.7 REMOVE SEMI-CON SCREEN AS PER DIMENSION IN FIG.1.
- 1.8 REMOVE XLPE INSULATION TO CONNECTOR DEPTH PLUS 5mm.

PREPARATION OF POLYMERIC CABLE ②

- 1b.1 CUT THE CORE LENGTH, DIMENSIONS ARE TO THE "CENTRE OF JOINT". WHERE SPLIT OR BLOCKED CONNECTORS ARE TO BE USED THE DIMENSIONS OF THE BLOCK IN THE CONNECTOR MUST BE TAKEN INTO ACCOUNT.
- 1b.2 REMOVE THE OUTER SHEATH AS PER DIMENSION IN FIG.1. AND ABRABE CABLE SHEATH FOR 100mm BEYOND THIS POINT.
- 1b.3 CUT THE SCREEN WIRES TO LENGTH AND APPLY A TAPE BINDER DOWN ON TO SEMI-CON SCREEN. (DO NOT BEND SCREEN WIRES BACK AT THIS POINT).
- 1b.4 REMOVE SEMI-CON SCREEN AS PER DIMENSION IN FIG.1.
- 1b.5 REMOVE XLPE INSULATION TO CONNECTOR DEPTH PLUS 5mm.

PREPARATION OF POLYMERIC CABLE ②

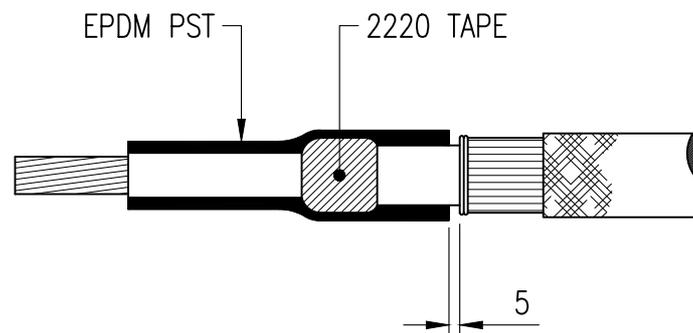
FIG.2



- 2.1 APPLY TWO HALF LAPPED LAYERS OF 2220 TAPE, UNDER LIGHT TENSION, COMMENCING 20mm ON THE SEMI-CON LAYER UP ON TO 20mm OF THE PRIMARY INSULATION AND BACK AGAIN. ENSURE A SMOOTH PROFILE AND EDGES.
- 2.2 APPLY P55/1 LUBRICANT OVER THE END OF THE SEMI-CON SCREEN, 2220 TAPE AND THE PRIMARY INSULATION AREA USING THE GLOVE PROVIDED.

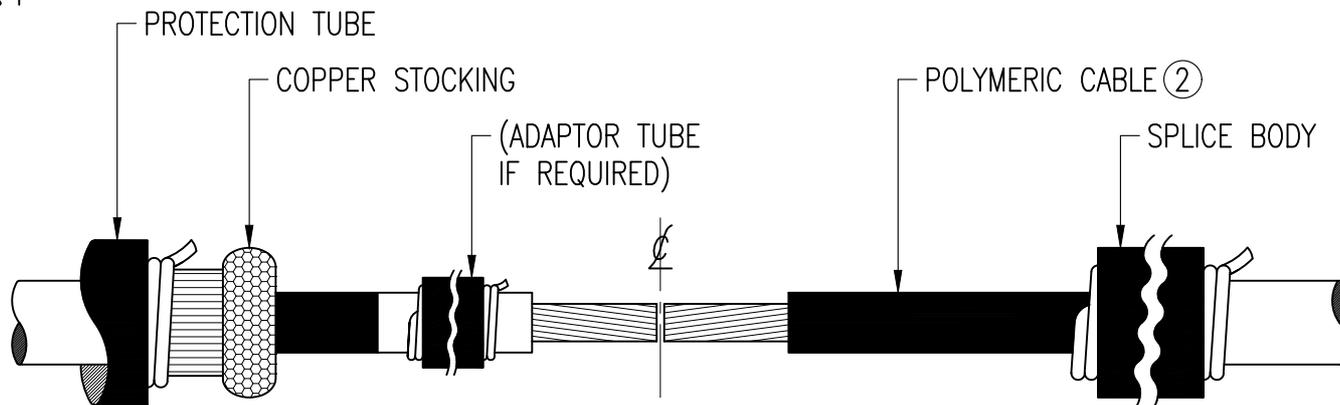
PREPARATION OF POLYMERIC CABLE ②

FIG.3



- 3.1 SHRINK THE EPDM PST ON TO CABLE ②, COMMENCING 5mm FROM THE TEMPORARY TAPE BINDER.
- 3.2 CUT THE EPDM PST TO LENGTH IN FRONT OF THE PRIMARY INSULATION TAKING CARE NOT TO DAMAGE THE PRIMARY INSULATION.

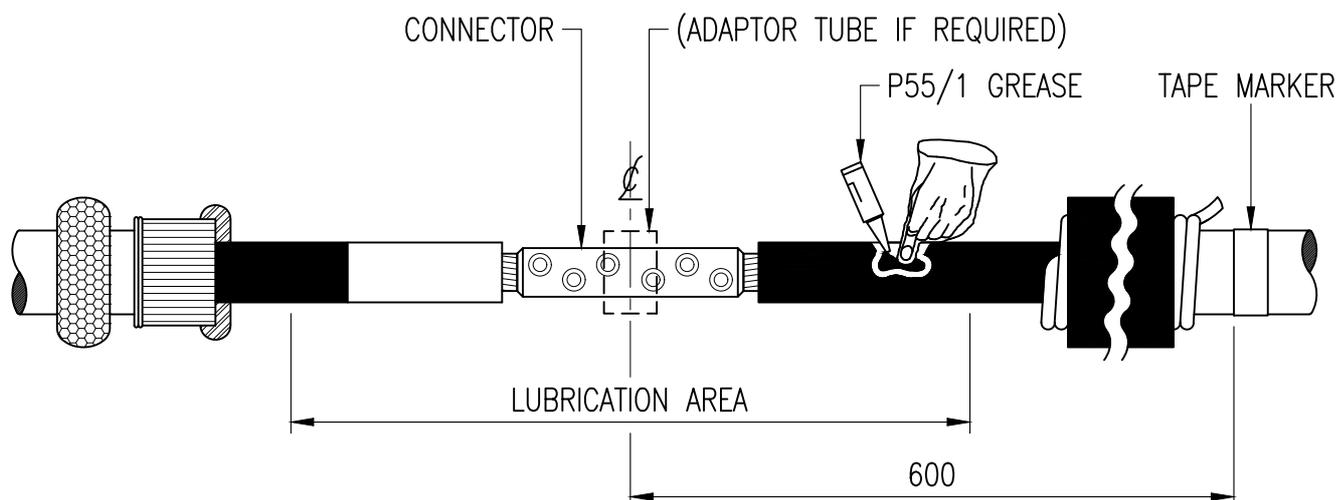
FIG.4



4.1 SLIDE THE PROTECTION TUBE, COPPER STOCKING AND THE SPLICE BODY ON TO THE CABLE ENDS. PARK THE SPLICE BODY ON CABLE ② WITH THE PULL CORD OF THE SUPPORT CORE AT THE END OF THE BODY FURTHEST FROM THE CENTRE OF THE JOINT.

NOTE: FOR CONNECTORS BELOW 27.2mm. IN DIAMETER, PARK ADAPTOR TUBE ON CORE AT THIS POINT.

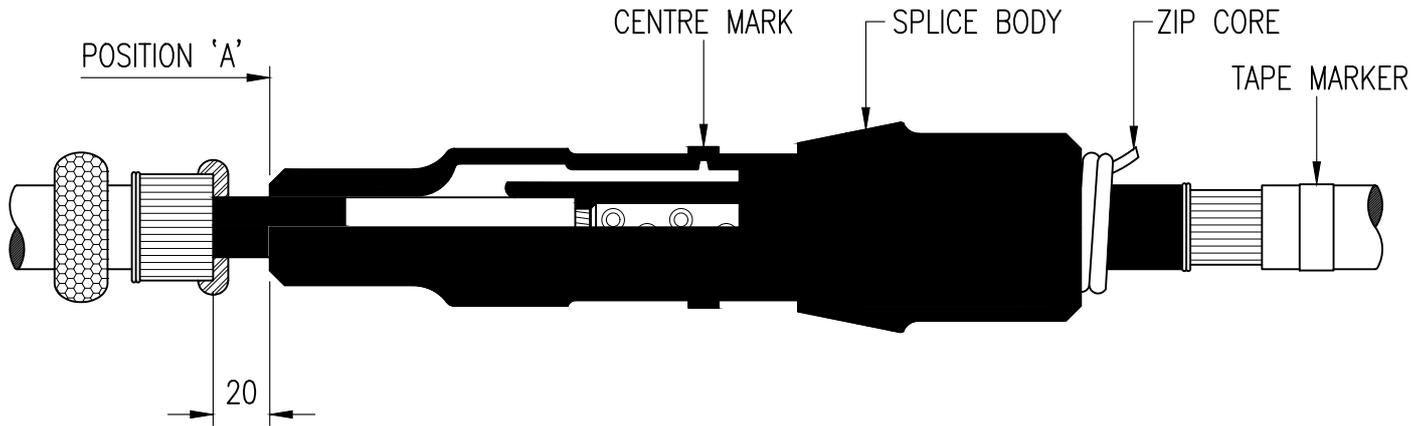
FIG.5



- 5.1 INSTALL THE CONNECTOR ACCORDING TO MANUFACTURER'S INSTRUCTIONS. REMOVE THE EXCESS GREASE, THEN DEBURR, SMOOTH AND CLEAN THE CONNECTOR.
- 5.2 COVER THE CONNECTOR WITH THE ALUMINIUM TAPE PADS, OVER EACH SHEARBOLT, ENSURING WRINKLE FREE, APPLY A TAPE MARKER TO CABLE JACKET 600mm FROM CENTRE OF THE CONNECTOR.
- 5.3 ENSURE THE MINIMUM DIAMETER OVER THE CONNECTOR. IF NECESSARY OVERWRAP THE CONNECTOR WITH SCOTCH 13 TAPE UP TO THE GIVEN DIAMETER.
- 5.4 APPLY A LIBERAL AMOUNT OF P55/1 LUBRICANT ON THE CABLE INSULATION, MAKING CERTAIN TO FILL IN EDGE OF THE CABLE SEMI-CONDUCTIVE LAYERS USING THE PLASTIC GLOVE PROVIDED.

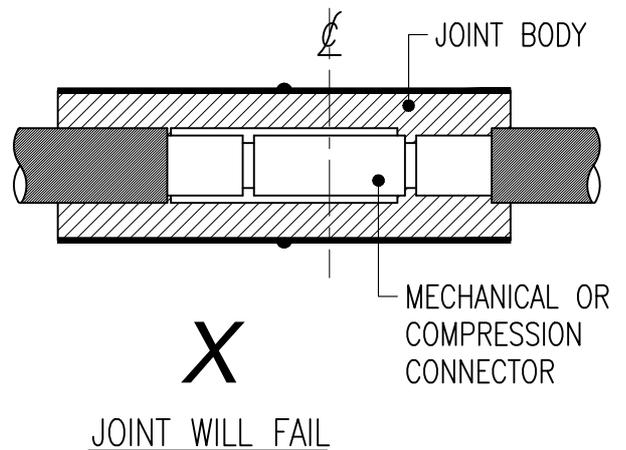
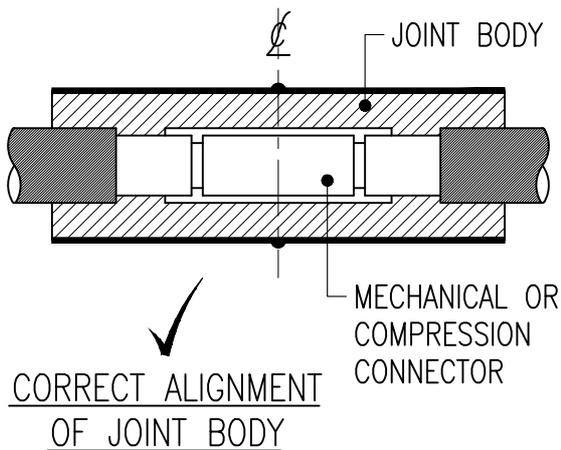
NOTE: FOR CONNECTORS BELOW 27.2mm. IN DIAMETER, INSTALL ADAPTOR TUBE OVER THE CENTRE OF THE CONNECTOR AT THIS POINT.

FIG.6



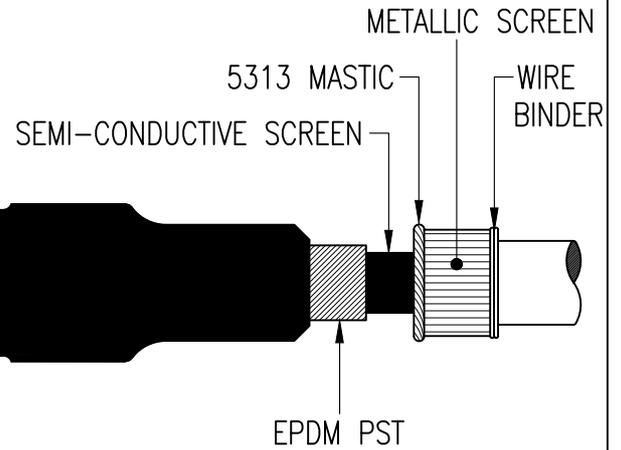
- 6.1 POSITION THE SPLICE BODY OVER THE CONNECTOR AREA.
- 6.2 USING POSITION 'A' AS A STARTING POINT, SHRINK THE BODY ON TO THE CORE BY UNWINDING THE SPIRAL. ONCE THE BODY HAS BEEN SHRUNK PAST ITS CENTRE MARK, AND BEFORE IT HAS BEEN SHRUNK FULLY ACROSS THE CONNECTOR, ENSURE THE BODY IS IN POSITION USING THE PVC TAPE AND CENTRE MARK. IF NOT CORRECTLY POSITIONED MAKE CORRECTION BY DISPLACEMENT.
- 6.3 REMOVE THE TAPE MARKER.

**\*\* PLEASE NOTE THE SYMMETRICAL POSITION OF THE JOINT BODY IS CRITICAL \*\***



PREPARATION OF POLYMERIC CABLE ②

FIG.7



- 7.1 REMOVE THE TEMPORARY TAPE BINDER.
- 7.2 APPLY 2 LAYERS OF 5313 MASTIC ON TO THE CABLE SHEATH.
- 7.3 APPLY 2 LAYERS OF SCOTCH 24 TAPE ON TO THE CABLE SHEATH FROM THE 5313 MASTIC TO A POINT 50mm FROM SHEATH OFF POSITION.
- 7.4 FOLD THE WIRE SCREENS BACK TO THE CABLE SHEATH AND SECURE WITH A BINDING WIRE AS FIG.7 AND CUT OFF EXCESS SCREEN WIRES.
- 7.5 APPLY ANOTHER LAYER OF 5313 MASTIC OVER THE FIRST LAYER SANDWICHING THE SCREEN WIRES AND OVERTAPE THIS WITH STRETCHED PVC TAPE.

PREPARATION OF POLYMERIC CABLE ②

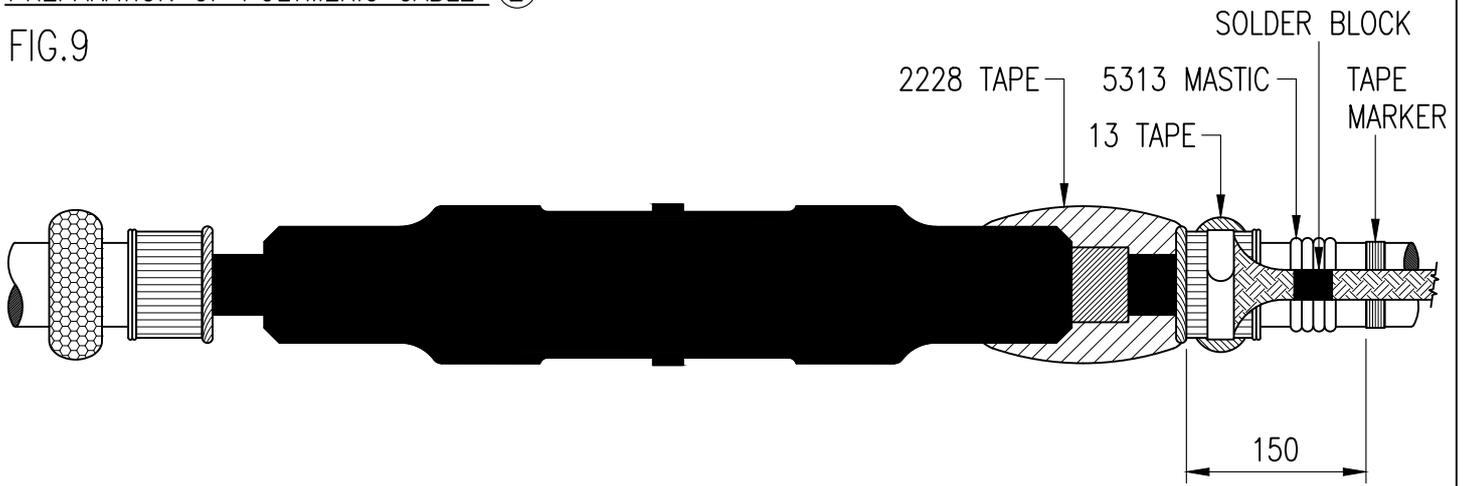
FIG.8



- 8.1 USING ONE COMPLETE ROLL OF 2228 TAPE, APPLIED WITH HIGH TENSION, FILL THE GAP BETWEEN THE END OF THE COPPER WIRE SCREEN UP 50mm ON TO THE SPLICE BODY.
- 8.2 ATTACH 95mm<sup>2</sup> WATER BLOCKED BRAID TO COPPER WIRE SCREEN USING THE CONSTANT FORCE SPRING.

PREPARATION OF POLYMERIC CABLE ②

FIG.9



- 9.1 DIRECTLY BELOW THE SOLDER BLOCK OF THE 95mm<sup>2</sup> BRAID INSTALL ONE 50mm WIDE LAYER OF 5313 MASTIC, LAY BRAID INTO MASTIC AND INSTALL A SECOND 50mm WIDE LAYER OVER THE TOP OF THE FIRST LAYER.
- 9.2 OVERWRAP THE CONSTANT FORCE SPRING WITH TWO HIGHLY STRETCHED LAYERS OF SCOTCH 13 TAPE, APPLIED IN THE SAME DIRECTION AS THE SPRINGS.
- 9.3 PLACE A TEMPORARY PVC TAPE MARKER AT A DISTANCE OF 150mm FROM WHERE THE SCREEN WIRES ARE BENT BACK.

PREPARATION OF POLYMERIC CABLE ②

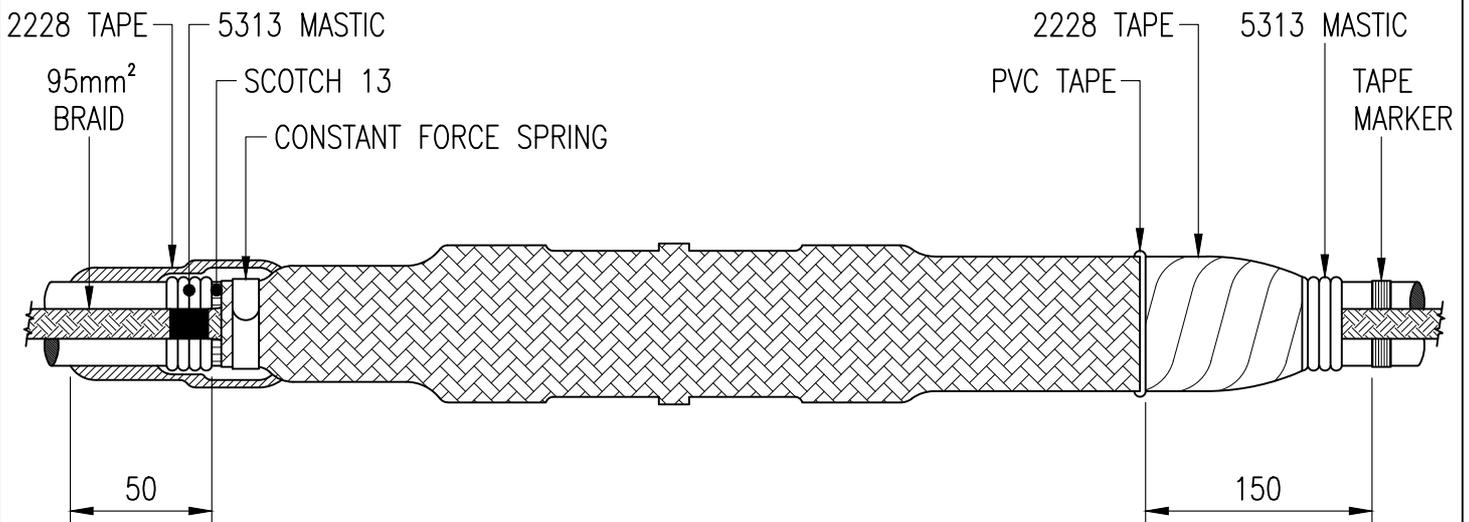
FIG.10



- 10.1 USING ONE COMPLETE ROLL OF 2228 TAPE, APPLIED WITH HIGH TENSION, COVER THE AREA OF THE SCREEN WIRE, CONSTANT FORCE SPRING AND 5313 TAPE AND UP ON TO THE PREVIOUSLY APPLIED 2228 TAPE.

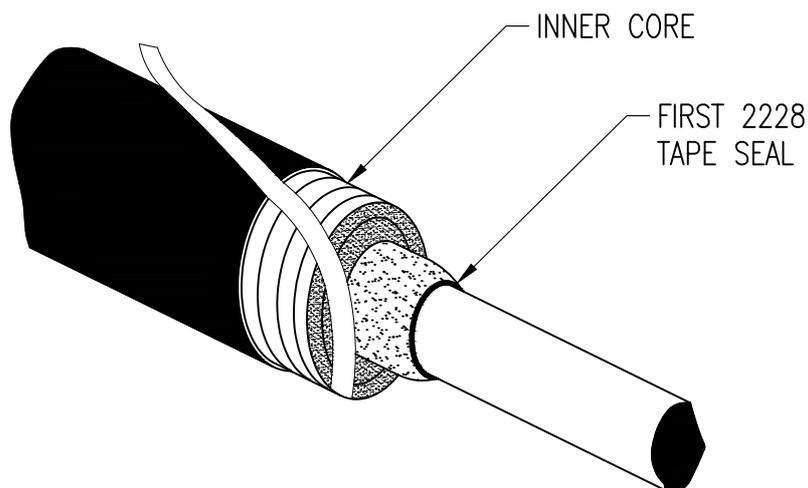
PREPARATION OF POLYMERIC CABLE ①

FIG.11



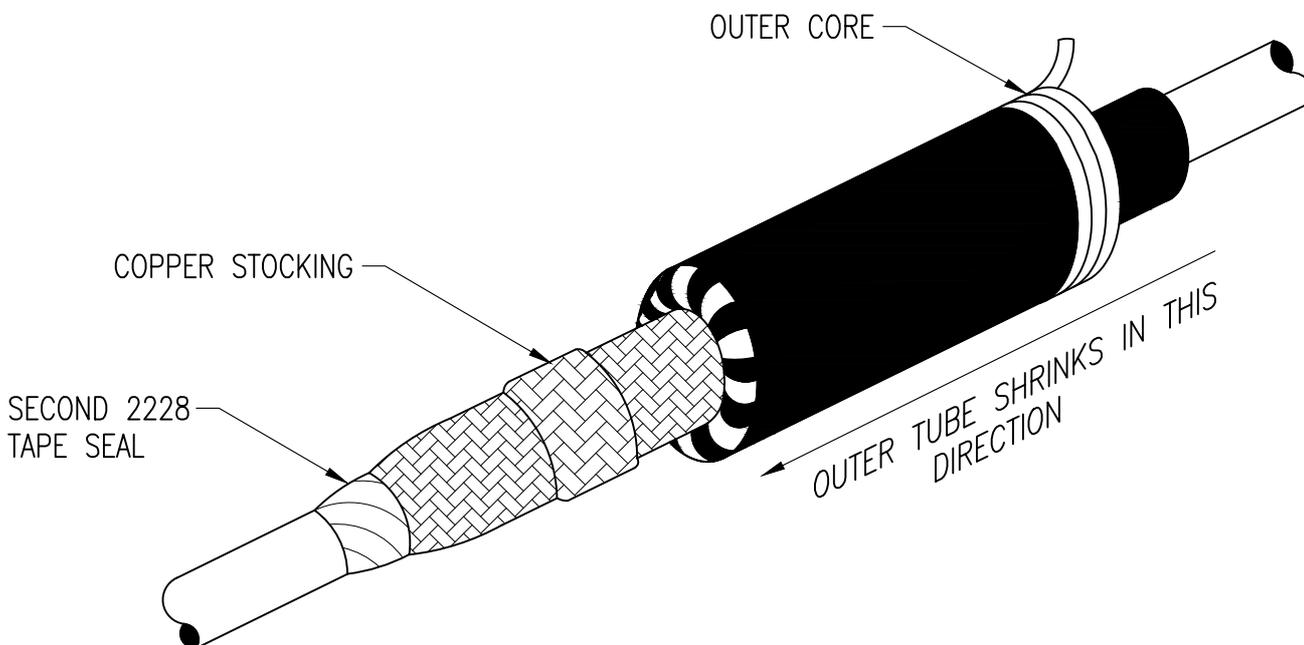
- 11.1 CLEAN THE CABLE JACKET FOR APPROXIMATELY 150mm.
- 11.2 CENTRE THE COPPER STOCKING OVER THE SPLICE AND FIX IT BY MEANS OF A CONSTANT FORCE SPRING ON THE METALLIC SCREEN, ALSO INSTALL 1 x 95mm<sup>2</sup> WATER BLOCKED EARTH BRAID UNDER THE SPRING. CUT OFF THE REMAINING WIRES OF THE STOCKING.
- 11.3 OVERWRAP THE CONSTANT FORCE SPRING WITH TWO HIGHLY STRETCHED LAYERS OF SCOTCH 13 TAPE, APPLIED IN THE SAME DIRECTION AS THE SPRINGS.
- 11.4 DIRECTLY BELOW THE SOLDER BLOCK ON THE 95mm<sup>2</sup> BRAID INSTALL ONE 50mm WIDE LAYER OF 5313 MASTIC, LAY BRAID INTO MASTIC AND INSTALL A SECOND 50mm WIDE LAYER OVER THE TOP OF THE FIRST LAYER.
- 11.5 STARTING 50mm ON TO THE CABLE SHEATH, BEYOND THE 5313 MASTIC, WRAP 2228 TAPE FROM CABLE SHEATH UP ON TO THE COPPER STOCKING AT THIS END OF THE JOINT. ENSURE A MINIMUM DIAMETER OF 40mm OVER THE 2228 TAPE.
- 11.6 AT A POINT 150mm FROM THE TEMPORARY TAPE MARKER, ON POLYMERIC CABLE ②, FOLD THE COPPER WIRE SCREEN BACK ON ITSELF, ENSURING A SMOOTH PROFILE, AND SECURE IN PLACE WITH PVC TAPE. TRIM ANY EXCESS STOCKING.

FIG.12



12.1 BEGIN TO INSTALL THE OUTER PROTECTION COLD SHRINK TUBE BY COMPLETELY COVERING THE FIRST 2228 TAPE AND SLOWLY PULLING AND UNWINDING THE INNER CORE COUNTERCLOCKWISE TOWARD THE SPLICE BODY. THE OUTER CORE SHOULD REMAIN RELATIVELY STATIONARY WHILE UNWINDING THE INNER CORE. IF THE OUTER CORE BEGINS TO MOVE TOWARDS THE FIRST 2228 TAPE SEAL, GENTLY PULL THE OUTER CORE AND PROTECTION TUBE TOWARDS THE SECOND 2228 TAPE AND CONTINUE UNWINDING THE INNER CORE.

FIG.13



13.1 CONTINUE TO INSTALL THE COLD SHRINK TUBE OVER THE SECOND 2228 TAPE SEAL ON THE OTHER SIDE OF THE JOINT BY SLOWLY PULLING AND UNWINDING THE OUTER CORE COUNTER CLOCKWISE. THIS PORTION OF THE COLD SHRINK TUBE INSTALLS DIFFERENTLY THAN TYPICAL COLD SHRINK PRODUCTS IN THAT AS THE TUBE SHRINKS, THE END ROLLS UNDER. THE TUBE MIGHT NEED A SLIGHT PUSH TO GET OVER THE SECOND 2228 TAPE SEAL.