

Engineering Standard

SAES-T-632

31 July, 2004

Communications Cable Splicing

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Saudi Aramco DeskTop Standards

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1 Scope

This standard prescribes mandatory compliance governing Communication Cable Splicing, and it is recognized as the engineering criteria to be applied to Saudi Aramco Communication System installation.

2 Conflicts and Deviations

Any deviations, providing less than the mandatory requirements of this standard require written waiver approval as per Saudi Aramco Engineering Procedure [SAEP-302](#).

3 References

The selection of material and equipment, and the design, construction, maintenance, and repair of equipment and facilities covered by this standard shall comply with the latest edition of the references listed below, unless otherwise noted.

3.1 Saudi Aramco References

Saudi Aramco Engineering Procedures

[SAEP-103](#)

Metric Units of Weights and Measures

[SAEP-302](#)

Instructions for Obtaining a Waiver of a Mandatory Saudi Aramco Engineering Requirement

Saudi Aramco Engineering Standards

[SAES-B-064](#)

Onshore and Nearshore Pipeline Safety Industry Codes and Standards

[SAES-B-068](#)

Electrical Area Classification

3.2 Industry Codes and Standards

American Petroleum Institute

API RP 500

Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities

General Telephone and Electronics

GTE 632 Series

Cable Splicing

National Fire Protection Association

NFPA 70

National Electric Code

4 Design

The General Telephone & Electronics Practice (GTE) Series 632 on "Cable Splicing" is hereby recognized as Saudi Aramco Engineering Standard SAES-T-632. The following specifications refer to the General Telephone and Electronics Practice (GTE) Series 632, which is part of this standard.

4.1 General

- This standard deals with the joining of multi-pair communications cable, (and associated work), in unclassified areas.
- For installations within electrically classified (hazardous) areas or Onshore and Nearshore Pipeline, as defined by [SAES-B-068](#) and [SAES-B-064](#), the American Petroleum Institutes practices API RP 500, A, B&C, and the NFPA 70, National Electrical Code (NEC), the appropriate section of the NEC should be referenced for additional considerations.
- Reference in this standard to any particular manufacturer by name in connection with any product is only intended for the purpose of example or description (i.e., type, specification, and quality of that product). Items actually purchased may be of any manufacture that meets Saudi Aramco's technical requirements.
- The adopted GTE Practices are reproduced in verbatim. Therefore, English (US) units of measurement are utilized in these reproduced sections with no attempt at metrication. Refer to [SAEP-103](#) for metrication information.
- All GTE practices utilized within this specification are reproduced with the written permission of GTE.

4.2 Cancelled GTE 632 Sections

The following GTE 632 sections are not adopted by Saudi Aramco; hence, they are not part of this standard:

GTE 632-020-104

GTE 632-020-109 (Addendum)

GTE 632-020-110

GTE 632-020-111

GTE 632-100-203

GTE 632-100-204

GTE 632-100-205

GTE 632-100-207

GTE 632-100-211

GTE 632-102-200

GTE 632-103-200

GTE 632-610-209

GTE 632-610-210

GTE 632-610-214

GTE 632-850-201

GTE 632-855-200

5 Specifications

The text in each paragraph below is an addition, exception, modification, or deletion to GTE 632 Series as noted. Paragraph numbers not appearing in GTE 632 Series are new paragraphs to be inserted in numerical order.

632-020-100

Issue 3, May 1981

Cable Splicing, Color Coding and Unit Arrangement - Paper Insulated Conductors

Commentary Note:

This section is for information purposes.

Exception:

Paragraphs 7.04, 7.05 and 7.17; change all appearances of the word "toll" to trunk.

632-020-101 (Addendum)

Issue 1, June 1964

Cable Splicing, Color Coding and Unit Arrangement-Plastic (Polyethylene) Insulated Conductors

Exception:

Paragraph 1.01; delete the last sentence.

632-020-101

Issue 1, February 1963

Cable Splicing, Color Coding and Unit Arrangement - Plastic (Polyethylene) Insulated Conductors

Exceptions:

- Paragraph 1.01; delete the letters "CU", in the first sentence; add an asterisk at the beginning of the second sentence, (referencing Exceptions).*
-

- *While the statement concerning even count PIC is generally true, it must be kept in mind that Odd-count PIC cable was manufactured for a lengthy period and as a consequence may still be encountered in some outside communications plant.*
- *Paragraph 3.01; delete reference to "GSP", in last sentence; insert, in its place, SAES-T-632.*
- *Paragraph 3.02; delete, in the last sentence, reference to "GSP", insert, in its place, SAES-T-632.*

632-020-102

Issue 1, April 1964

Cable Splicing - General; Color Random, Bunch, and Bunch Random Splicing; Paper Insulated Exchange Cable - 19 Gauge and Smaller

Commentary Note:

This section is for information purposes.

Exception:

None.

632-020-103

Issue 2, December 1992

Identification Labels and Tags, OSP Cable and Equipment Cabinets, Labeling and Installation Requirements

Commentary Note:

Only those tags shown with SAMS stock Nos. are standard for use within Saudi Aramco now.

Exception:

None.

632-020-106

Issue 4, May, 1982

Cable Splicing - Sealing Cable Ends, Neoprene Cable Caps

Commentary Note:

This section deals only with non-heat-shrinkable cable Caps. The Caps available through SAMS (18-535-550, 18-535-554, 18-535-558 and 18-535-562) are of the heat-shrinkable type.

Exception:

None.

632-020-107

Issue 4, January 1983

Sealing Cable Ends - Plastic Cable Cups

Exception:

Paragraphs 2.03 and 3.01, Figures 2,3,4,5 and 6; the information contained in these paragraphs and Figures are not applicable to Saudi Aramco.

632-020-108

Issue 1, January 1965

Description and Use, Tag Boards for Cable Splicing

Exception:

None.

632-020-109

Issue 3, April 1991

Installation, Cable Splicing - Use of Desiccant

Exception:

None.

632-020-200

Issue 1, April 1963

Cable Splicing General - Preparation of Lead Sheath Openings

Exception:

None.

632-100-201

Issue 2, April 1976

Cable Splicing - Stalpeth Sheath, Preparation of Cable Ends

Commentary Note:

This section is for information purposes.

Exception:

None.

632-100-202

Issue 4, January 1974

Cable Splicing - Splicing Polyethylene Conductors Using UB, UR, UG, ULG and UY Connectors

Exceptions:

- *Paragraph 1.01:*

- *Only that information covering connectors available as stock items from SAMS (e.g., UG, 18-021-953; UR, 18-021-950 and UY, 18-021-805) is applicable to Saudi Aramco.*
- *Information regarding other 3M connector types is to be used for information purposes only.*
- *Deleted the word "toll" from the first sentence.*
- *Paragraph 1.02:*
 - *Delete the last sentence.*
 - *For information concerning the non-SAMS stock E-9 splicing tool, refer to 3M-product literature: the reference is for information only.*
- *Paragraph 3.01:*
 - *Delete words "of GTE".*
- *Paragraph 5.01:*
 - *Delete the reference to GTE practice "Section 075-160-103, in its place insert a reference to "3M Product Literature".*
 - *Figure 5; the illustration showing connector use in a Ready-Access (RA) type terminal is not applicable to Saudi Aramco.*

632-100-206

Issue 2, April 1969

Cable Splicing, General - Arrangement of Polyethylene Sleeves - Paper Insulated Cable

Commentary Note:

This section is for information purposes.

Exception:

None.

632-100-208

Issue 2, April 1969

Cable Splicing - General, Sleeving Dead Conductors - Paper Insulated Cable

Commentary Note:

This section is for information purposes.

Exception:

None.

632-100-209

Issue 3, April 1967

Identifying and Splicing Defective Conductors - Cable Splicing - General

Commentary Note:

This Section deals with factory defects in cable.

Exception:

- *Paragraphs 2.01 through 2.08:*
 - *These paragraphs are to be used only for information purposes.*
 - *Delete the references to "GSP" in paragraph 2.08.*

632-100-210

Issue 2, February 1969

Cable Splicing - General - Bonding Across Sheath Openings

Exceptions:

- *This Section Covers Temporary Bonding Only:*
- *Paragraph 2.04; delete the words "of General System Practices".*

632-100-212

Issue 2, October 1991

Lead Sheath - Cable Splicing Removal

Exception:

None.

632-100-213

Issue 3, February 1969

Cable Splicing A-MP VS-3 Connector Method

Exceptions:

- *Paragraph 1.02; in the last sentence, delete the words "General System"; insert the word "the".*
- *Table 1; the 60945-4 connector is available from SAMS, (stock number 18-022-012); the 60947-4 connector is not stocked in SAMS.*
- *Section 3; the splicing kit described in this section is the AMP MA-12 Applicator which is not one of the Applicators stocked in SAMS, (the applicator kits in SAMS are the MA-6, SN 35-059-121; the MA-10, 35-059-131; and the VS-3 hand applicator, 35-537-167) however, most of information is applicable to the machines that are stocked in SAMS: For specific instructions refer to the manufacturers handbook included with each applicator kit, and see other 632 section practices.*

632-100-214 (Addendum)

Issue 2, August 1978

Cable Splicing - American Pamcor Splicing Kit MA-6B - Installation

Exception:

Paragraph 1.03; delete last sentence.

632-100-214

Issue 1, February 1969

Cable Splicing - American Pamcor Splicing Kit MA-63 - Installation

Exceptions:

- *Paragraph 4.01; the first sentence, delete " 632-100 series of General System Practices" and replace it with "SAES-T-632".*
- *Paragraph 12.02; change the word "the", in the second sentence, to "a".*
- *Paragraph 12.03; delete the reference, in the last sentence, to "Paragraph 12.02", and insert the words local instructions in place of the deleted words.*

632-100-215

Issue 2, June 1972

American PAMCOR Cable Splicing Kits MA-8A and MA-8B - Installation

Commentary Note:

This section is for information purposes.

Exception:

None.

632-100-216 (Addendum)

Issue 1, August 1978

Cable Splicing - Tool Holder Assembly Used with VS-3A-MP Connector - Installation

Exception:

None.

632-100-216

Issue 2, December 1975

Cable Splicing - Tool Holder Assembly Used with VS-3A-MP Connector - Installation

Commentary Note:

The information in this section dealing with the Tool Holder is to be used only for informational purposes.

Exceptions:

- *Paragraph 1.02; delete reference to the No. 60947-3 (red) connector: delete the words "of GTE practices", in last sentence.*

- *Paragraph 1.03; delete the reference to No. 61292-2 (yellow) connectors, in first sentence: delete the words "yellow and" & "red and", in the last sentence.*
- *Paragraph 1.04; delete the words "of GTE Practices", in last sentence.*
- *Paragraph 4.01; this paragraph is included for informational purposes only.*
- *Paragraph 5.01; delete the words "of GTE Practices".*
- *Paragraph 9.01; the product WD-40 is technically equivalent to the AMP lubricant referred to in the text.*
- *Paragraph 9.03; the repair kit is available from the manufacturer.*

632-100-217

Issue 3, June 1991

Cable Splicing - 3 M Modular Splicing System

Commentary Note:

This section is for information purposes.

Exception:

None.

632-100-218 (Addendum)

Issue 1, August 1982

Cable Splicing - FPA Alpeth Sheath, Filled and Unfilled - Preparation of Cable Ends

Exceptions:

- *Paragraph 1.04*
 - *Replace the words "GTE AE Practices", with SAES-T-632 standard.*
 - *Delete words "of GTE".*
- *Paragraph 1.05*
 - *Delete words "of GTE".*

632-100-218

Issue 2, October 1977

Cable Splicing - FPA Alpeth Sheath, Filled and Unfilled - Preparation of Cable Ends

Commentary Note:

The references to the Taca Model "T" Cable Stripper or the Jones Cable Stripper are information only.

Exceptions:

- *Paragraph 3.02; delete the reference to Section 075-490-101.*
- *Paragraph 3.06; delete the reference to Section 075-490-100.*
- *Paragraphs 3.13 through 3.16; A filled-core-cable cleaning kit is available from SAMS (18-021-275).*
- *The procedures outlined in Paragraphs 3.13 are for information purposes, only.*
- *Paragraph 6.02; delete the words "of GTE Practices".*

632-100-219 (Addendum)

Issue 2, August 1978

MA-10 Cable Splicing Kit

Commentary Note:

The 552439-2 connector is available from SAMS 818-022-009.

Exception:

The 552043-3 and 552440-2 are nonstandard connectors.

632-100-219

Issue 1, April 1976

MA-10 Cable Splicing Kit

Exceptions:

- *Paragraph 3.01; the unfilled 552041-3 connector is available from SAMS (SN 18-022-006) along with the filled 552439-2 connector, (SN 18-022-009); the 552043-3 and 552440-2 connectors are not stocked in SAMS and are consequently non-standard.*
- *Paragraph 4.01; delete the reference to "GTE", and in its place insert the word "the".*
- *Paragraph 5.01; delete the reference to "Section 081-401-200, and insert, in its place, a reference to manufacturers instructions.*

632-100-220

Issue 1, March 1977

MA-6R Cable Splicing Kit

Commentary Note:

This section is for information purposes.

Exception:

None.

632-100-220 (Addendum)

Issue 1, August 1978

MA-6R Cable Splicing Kit

Exception:

None.

632-100-300

Issue 3, December 1991

Cable Rearrangement Work Order Procedures Cut Control

Commentary Note:

This section is for information purposes.

Exception:

None.

632-100-301

Issue 1, August 1968

Cable Transfers "B" Cable Clip Maintenance

Exception:

None.

632-200-300

Issue 1, May 1965

Maintenance - Torch Method of Repairing Lead Sheath Aerial Cable

Commentary Note:

This section is for information purposes.

Exception:

None.

632-200-301

Issue 1, June 1965

Maintenance - Repairing Lead Sheath Aerial Cables

Commentary Note:

This section is for information purposes.

Exception:

None.

632-610-211

Issue 2, March 1983

Cable Splicing - Kit, End Seal By-Pass, (Rezolin) Type 9660 - Installation

Commentary Note:

This section is for information purposes.

Exception:

None.

632-610-212 (Addendum) Issue 1, January 1984
Housing Terminal, Types 218, 224-A, 238, and 262 - Splicing and Terminating

Exception:

None.

632-610-212 Issue 2, November 1982
Housing Terminal, Types 218, 224-A, 238, and 262 - Splicing and Terminating

Commentary Note:

This section is for information purposes.

Exception:

None.

632-610-213 Issue 1, July 1973
Housing, Terminal Types D-1E, D-2E and D-3E - Splicing and Terminating

Commentary Note:

This section is for information purposes.

Exception:

None.

632-610-213 (Addendum) Issue 2, August 1979
Housing, Terminal Types D-1E, D-2E and D-3E - Splicing and Terminating

Commentary Note:

This section is for information purposes.

Exception:

None.

632-610-215 (Addendum) Issue 2, August 1979

Terminal Housing (Utility Products) Types GHC-4 and GHC-6 - Splicing and Terminating

Exception:

None.

632-610-215

Issue 2, April 1975

Terminal Housing (Utility Products) Types GHC-4 and GHC-6 Splicing and Terminating

Commentary Note:

This practice can also be applied to the GHC-8 type closure.

Exception:

None.

632-610-216

Issue 1, January 1975

Terminal Housing - Cross-Connect (Indiana Steel and Wire) Model XC-7, Terminating Cables

Commentary Note:

This section is for information purposes.

Exception:

None.

632-610-216 (Addendum)

Issue 2, August 1979

Terminal Housing - Cross-Connect (Indiana Steel and Wire) Model XC-7 - Terminating Cables

Exception:

None.

632-610-217

Issue 3, August 1981

MS² (3M Co.) Cross-Connect Terminal Housing, Types 4080, 4082, 4084 HD, and 4086D - Cable Termination

Commentary Note:

This section is for information purposes.

Exception:

None.

632-611-200

Issue 5, May 1992

Cable Splicing - Screened Cable

Exception:

None.

632-750-201

Issue 2, October 1969

Cable Splicing - Load Coils and Cases - Installation

Exceptions:

- *Paragraph 1.04; delete the reference to "GSP", in the second sentence.*
- *Paragraph 4.01; delete the reference to "GSP", in the second sentence.*
- *Paragraph 4.01; delete the reference to "GSP" in the first sentence.*

632-610-221

Issue 1, November 1982

Buried Cable Terminal Housing, Description, and Installation

Commentary Note:

This section is for information purposes.

Exception:

- *Paragraph 1.02:*
 - *Replace the words " GTE AE Practices", with SAES-T-632 standard.*
 - *Delete words "of GTE".*

632-610-315

Issue 4, April 1982

Buried Cable and Wire Splicing, Buried Splices-Cable Splice Kit - Description and Use

Commentary Note:

This section is for information purposes.

Exception:

- *Paragraph 1.03*
 - *Replace the words " GTE AE Practices", with SAES-T-632 standard.*
 - *Delete words "of GTE".*
-

632-624-100

Issue 1, September 1992

FSM-20CS Fusion Splicer-Description and Operation

Commentary Note:

This section is for information purposes.

Exception:

None.

632-751-200

Issue 1, May 1965

Installation - Capacitors, Building-Out

Exceptions:

- *Paragraph 2.05; delete the reference to "GSP":*
- *Paragraph 3.01; delete the words "either cotton sleeves or B" from the first sentence:*
- *Paragraph 3.04; in the last sentence, insert, after the word "sleeve", the words "or splice case".*
- *Paragraph 3.05; delete the reference to "B" connectors: delete the references to "GSP" in two places.*
- *Paragraph 6.01, item 2; delete the reference to "GSP" in the last sentence.*

632-850-100

Issue 2, August 1968

Connectors - American Pancor (AMP) .375P and F Type: JERROLD .412, and .750 Aluminum Cable - RF Systems, Description

Commentary Note:

This section is for information purposes.

Exception:

None.

632-850-202

Issue 2, October 1970

Connector, Coaxial Cable: JERROLD Fittings .412, .500 and .750 - RF Systems - Installation Instructions

Commentary Note:

This section is for information purposes.

Exception:

None.

632-850-203

Issue 2, September 1968

American Pancor (AMP) Disc Coaxial Connector - RF Systems - Installation

Commentary Note:

This section is for information purposes.

Exception:

None.

632-850-204

Issue 2, August 1968

JERROLD VSF and F Connectors - Aluminum Sheath Cable - RF Systems -
Installation

Commentary Note:

This section is for information purposes.

Exception:

None.

632-855-205

Issue 1, August 1968

Cable Splicing - Flexible Shielded Video Pairs - Installation

Commentary Note:

This section is for information purposes.

Exception:

None.

Revision Summary

31 July, 2004

Revised the "Next Planned Update". Reaffirmed the contents of the document, and reissued with minor changes.