

ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

**IGNITION CABLE - HIGH TENSION - RESISTANCE CORE
(WIRE WOUND) ETHYLENE COPOLYMER JACKET AND EPDM
INSULATION (8 mm)**

ESE-M1L116-A

1. SCOPE

The material defined by this specification is a high grade heat, moisture and corona resistant ignition cable, with sufficient conductor resistance to suppress electrical components in the ignition system which could cause radio interference.

2. APPLICATION

This specification was released originally for material used for maximum performance in tractor and automotive type engines.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.1 CABLE CONSTRUCTION

3.1.1 Conductor

The finished conductor diameter shall be: 0.075 +/- 0.01 in
(1.91 +/- 0.25 mm)

The conductor shall consist of ECG 150 4/26 3.0S continuous filament fiber glass yarn which is covered with a magnetic layer of thermally stable type material. Over the magnetic layer, #43 AWG resistance alloy wire is spirally wound at 120 +/- 10 turns/in (472 +/- 39 turns/100 mm). The windings are then covered with a uniform coating of conductive fluorocarbon material and thermally cured. This coating is applied for the purpose of stripping. To prevent the uncoiling of the wire and assisting in the release of the insulation to meet manufacturing requirements and pass the following tests.

3.1.2 Conductor Insulation

The conductor shall be coated with a covering of EPDM rubber, placed concentrically within 0.010 in (0.25 mm) around the conductor. The diameter of the insulated conductor must not exceed 0.255 in (6.48 mm). The minimum diameter is limited only by the performance tests hereinafter required.

Date	Action	Revisions
2003 04 30	Revised	Para 3.0 inserted; Para 3.4, 3.5 & 4 deleted
1981 10 28	3.1.4	Revised CE3K-RD863100-E Supp 34
1981 03 30		Released CE3K-RD863100 E Supp #13

Printed copies are uncontrolled

3.1.3 Reinforcing Braid

The insulated conductor shall have a glass braid covering. This skeleton braid shall consist of fiber glass yarns per commercial designation ECG 150 1/0 Z 1.0 tpi (39 tpm), 2 ends natural, 16 heads, 14 +/- 1 picks/in (55 +/- 4 picks/100 mm), two over and two under.

3.1.4 Outer Jacket

Over the insulated conductor there shall be applied a protective coating of ethylene copolymer rubber, flame, heat, corona, water and oil resistant. The surface of the finished cable shall be smooth, even and free from any tackiness due to compounds used in assembly or where specified. A minimum wall thickness of 0.020 in (0.51 mm) must be maintained. Jacket color shall be as specified on the Engineering Drawing.

3.2 FINISHED CABLE

3.2.1 Diameter 0.305 - 0.325 in (7.75 - 8.26 mm)

3.2.2 Resistance 3,500 +/- 600 ohms/ft
(FLTM BB 101-11, Test I) (11,480 +/- 1,970 ohms/m)

3.2.3 Capacitance, max 50 pF/ft (164 pF/m)
(FLTM BB 101-11, Test II)

3.2.4 Tensile Strength No rupture or separation

Test Method: FLTM BB 101-11, Test III, except use 125 lb (56.7 kg) weight.

3.2.5 Corona Resistance No failure

Test Method: FLTM BB 101-11, Test IV, except Step 1 - 54 in (1372 mm) length, Step 2 - tape 16 in (406 mm) from end, Step 6 - 1.70 in (43.2 mm) sleeve, and Steps 8 and 9 - 20 kV source. At end of 5 h increase voltage to a minimum of 30 kV without cable failure. Test should be repeated if failure occurs at point where cable is secured to mandrel or outside the specified five turns.

3.2.6 High Potential No burning over the end
or rupture of insulation

Test Method: FLTM BB 101-11, Test V, except Step 1 - 30 in (762 mm) length, Step 7 - 9 in (229 mm) protrusion, and Step 10 - 25 kV AC. At end of 5 min increase voltage to a minimum of 32 kV without cable failure.

3.2.7 Heat Resistance No failure

Test Method: FLTM BB 101-11, Test VI, except Step 1 - 42 in (1067 mm) length, Step 2 - 190 +/- 2 °C, Step 3 - 1 in (25 mm) mandrel, Step 8 - 9 in (229 mm) protrusion, Step 9 - 20 kV AC, and Steps 10 and 11 - 25 kV.