

**§ 77.901 Protection of low- and medium-voltage three-phase circuits.**

(a) Low- and medium-voltage circuits supplying power to portable or mobile three-phase alternating equipment shall contain:

(1) Either a direct or derived neutral grounded through a suitable resistor at the power source;

(2) A grounding circuit originating at the grounded side of the grounding resistor which extends along with the power conductors and serves as a grounding conductor for the frames of all the electric equipment supplied power from the circuit.

(b) Grounding resistors, where required, shall be of an ohmic value which limits the ground fault current to no more than 25 amperes. Such grounding resistors shall be rated for maximum fault current continuously and provide insulation from ground for a voltage equal to the phase-to-phase voltage of the system.

(c) Low- and medium-voltage circuits supplying power to three-phase alternating current stationary electric equipment shall comply with the National Electric Code.

**§ 77.901-1 Grounding resistor; continuous current rating.**

The ground fault current rating of grounding resistors shall meet the "extended time rating" set forth in American Institute of Electrical Engineers Standard No. 32.

**§ 77.902 Low- and medium-voltage ground check monitor circuits.**

On and after September 30, 1971, three-phase low- and medium-voltage resistance grounded systems to portable and mobile equipment shall include a fail safe ground check circuit or other no less effective device approved by the Secretary to monitor continuously the grounding circuit to assure continuity. The fail safe ground check circuit shall cause the circuit breaker to open when either the ground or pilot check wire is broken. Cable couplers shall be constructed to cause the ground check continuity conductor to break first and the ground conductor last when being uncoupled when pilot check circuits are used.

**§ 77.902-1 Fail safe ground check circuits; maximum voltage.**

The maximum voltage used for ground check circuits under § 77.902 shall not exceed 40 volts.

**§ 77.902-2 Approved ground check systems not employing pilot check wires.**

Ground check systems not employing pilot check wires shall be approved by the Secretary only after it has been determined that the system includes a fail safe design causing the circuit breaker to open when ground continuity is broken.

**§ 77.902-3 Attachment of ground conductors and ground check wires to equipment frames; use of separate connections.**

In grounding the frames of stationary, portable, or mobile equipment receiving power from resistance grounded systems, separate connections shall be used.

**§ 77.903 Disconnecting devices.**

Disconnecting devices shall be installed in circuits supplying power to portable or mobile equipment and shall provide visual evidence that the power is disconnected.

**§ 77.904 Identification of circuit breakers.**

Circuit breakers shall be labeled to show which circuits they control unless identification can be made readily by location.

**§ 77.905 Connection of single-phase loads.**

Single-phase loads shall be connected phase-to-phase in resistance grounded systems.

**§ 77.906 Trailing cables supplying power to low-voltage mobile equipment; ground wires and ground check wires.**

On and after September 30, 1971, all trailing cables supplying power to portable or mobile equipment from low-voltage three-phase resistance grounded power systems shall contain one or more ground conductors having a cross-sectional area of not less than one-half the power conductor. Such