

9 SAFETY INSPECTION AND TESTS AFTER REPAIR AND MAINTENANCE IN THE PRIMARY CIRCUIT

9.1 GENERAL DIRECTIONS

- Take care that the creepage distances and clearances have not been reduced.
- Before soldering, bend the wires through the holes of the solder leads, or wrap the wires around the leads in the form of an open U, or, maintain wiring rigidity by cable clamps or cable lacing.
- Replace all insulating guards and plates after performing all repairs.

9.2 SAFETY COMPONENTS

For safety reasons, components in the primary circuit may only be replaced by components indicated in the replaceable parts list.

9.3 CHECKING PROTECTIVE GROUND

The correct connection and condition is checked by visual control and by measuring the resistance between the protective ground connection at the plug and the cabinet/frame. The resistance shall not be more than 0.5 Ω , test current 25A. During measurement the line cable should be removed from line power. Resistance variations indicate a defect.

9.4 CHECKING INSULATION RESISTANCE

Measure the insulation resistance at $U = 500$ V dc between the line connections and the protective ground connections. For this purpose, set the mains switch to ON. The insulation resistance shall not be less than 2 M Ω .

NOTE: The insulation resistance of 2 M Ω is a minimum requirement at 40 °C and 95% relative humidity. Under normal conditions the insulation resistance should be much higher (10 ... 20 M Ω).

9.5 CHECKING LEAKAGE CURRENT

The leakage current shall be measured between each pole of the line power supply in turn, and all accessible conductive parts connected together (including the measuring ground terminal). The leakage current is not excessive if the measured currents from the mentioned parts is ≤ 0.5 mA rms (without filter capacitor) or ≤ 3.5 mA rms (with filter capacitor).

9.6 VOLTAGE TEST

The instrument shall withstand, without electrical breakdown, the application of a test voltage between the supply circuit and accessible conductive parts that are likely to become energized. The test potential shall be 1500 V rms or dc equivalent at supply-circuit frequency, applied for one second. The test shall be conducted when the instrument is fully assembled, and with the primary switch in the ON position.

During the test, both sides of the primary circuit of the instrument are connected together and to one terminal of the voltage test equipment; the other voltage test equipment terminal is connected to the accessible conductive parts.

