

§ 23.8

30 CFR Ch. I (7-1-02 Edition)

openings in the casings of such compartments shall be adequately protected. It is desirable that openings be as few as possible. All joints in the casings of an explosion-proof compartment shall be metal-to-metal so designed as to have a width of contact, measured along the shortest path from the inside to the outside of the compartment, of not less than 1 inch if the unoccupied volume (air space) in the compartment is more than 60 cubic inches. For unoccupied volume of 60 cubic inches or less, a $\frac{3}{8}$ -inch width of contact will be acceptable.

(c) All bolts and screw holes shall be "blind" or bottomed if the omission of a bolt or screw would otherwise leave an opening into the compartment. An adequate lock or seal shall be provided to prevent tampering and exposure of spark-producing parts by unauthorized persons.

(d) Battery cells shall be placed in an explosion-proof compartment or else in one that is locked or sealed, and the terminals and the connections thereto shall be so arranged and protected as to preclude meddling, tampering, or making other electrical connections with them.

(e) Manufacturers shall furnish adequate instructions for the installation and connection of telephones and signal devices in order that the safety of these devices and other circuits shall not be diminished by improper installation. MSHA reserves the right to require the attachment of wiring diagrams to the cases of telephones and signal devices.

(f) If electric light bulbs are used in signaling devices, they shall be either equipped with effective safety devices, such as are required for permissible electric mine lamps,¹ or enclosed in explosion-proof compartments.

(g) Line powered telephones and signaling devices or systems shall be equipped with standby power sources that have the capacity to enable the devices or systems to continue functioning in the event the line power fails or is cut off. Manufacturers shall furnish instructions for the proper maintenance of standby power sources.

¹ In this case, the requirements of the current schedule for mine lamps will apply.

NOTE: Paragraph (g) of this section is issued under the authority of Sec. 101 of the Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811). All other paragraphs in this section continue under the original authority.

[Sched. 9B, 4 FR 1555, Apr. 11, 1939, as amended at 47 FR 11370, Mar. 16, 1982]

§ 23.8 Inspection and tests.

(a) A thorough inspection of the telephone or signaling device will be made to determine its adequacy and permissibility. Tests may be made to check the electrical characteristics and constants of the various parts, and determine the adequacy of the insulation and other parts of features of the device.

(b) In addition, compartments of explosion-proof design will be tested while filled and surrounded with explosive mixtures containing varying percentages of Pittsburgh natural gas² and air, the mixture within the compartment being ignited by a spark plug or other suitable means. For some of the tests bituminous-coal dust will be introduced into the compartment in addition to the explosive mixtures, and the effects will be noted. A sufficient number of tests will be made under the foregoing conditions to determine the ability of the compartment to retain flame without bursting. Even though the surrounding mixtures are not ignited, the compartment will not be considered as having passed the tests, if flames are discharged from any joint or opening; if excessive pressures are developed or if serious distortion of the compartment walls take place.

§ 23.9 Special requirements for complete devices.

Telephones and signaling devices will be considered nonpermissible if used under any of the followings conditions:

(a) Without the approval plate, mentioned hereafter.

(b) With unprotected openings in any of the explosion-proof compartments. This condition refers to any openings in these compartments, but especially

² Investigation has shown that for test purposes Pittsburgh natural gas (containing a high percentage of methane) is a satisfactory substitute for pure methane.