(5) There shall be no water inside the blasting unit enclosure, except for the battery compartment.

§ 7.68 Firing line terminals test.

(a) Test procedures. (1) The contact resistance through each firing line terminal shall be determined.

(2) A 10-pound pull shall be applied to a No. 18 gauge wire that has been connected to each firing line terminal according to the manufacturer’s instructions.

(b) Acceptable performance. (1) The contact resistance shall not be greater than 1 ohm.

(2) The No. 18 gauge wire shall not become disconnected from either firing line terminal.

§ 7.69 Approval marking.

Each approved blasting unit shall be identified as permissible by a legible and permanent marking securely attached, stamped, or molded to the outside of the unit. This marking shall include the following:

(a) The assigned MSHA approval number.

(b) The maximum blasting circuit resistance.

(c) A warning that the unit’s components must not be disassembled or removed.

(d) The replacement battery types if the unit has replaceable batteries.

(e) A warning placed next to the charging connector that the battery only be charged in a fresh air location if rechargeable batteries are used.

(f) A warning that the unit is compatible only with detonators that will—

(1) Fire when an average of 1.5 amperes is applied for 5 milliseconds;

(2) Not misfire when up to an average 100 amperes is applied for 10 milliseconds; and

(3) Not fire when a current of 250 milliamperes or less is applied.

§ 7.70 Post-approval product audit.

Upon request by MSHA, but not more than once a year except for cause, the approval holder shall make an approved blasting unit available for audit at no cost to MSHA.

§ 7.71 Approval checklist.

Each blasting unit bearing an MSHA approval marking shall be accompanied by a description of what is necessary to maintain the blasting unit as approved.

[54 FR 48210, Nov. 21, 1989, as amended at 60 FR 33723, June 29, 1995]

§ 7.72 New technology.

MSHA may approve a blasting unit that incorporates technology for which the requirements of this subpart are not applicable if the Agency determines that the blasting unit is as safe as those which meet the requirements of this subpart.

Subpart E—Diesel Engines Intended for Use in Underground Coal Mines

SOURCE: 61 FR 55504, Oct. 25, 1996, unless otherwise noted.

§ 7.81 Purpose and effective date.

Subpart A general provisions of this part apply to this subpart E. Subpart E establishes the specific engine performance and exhaust emission requirements for MSHA approval of diesel engines for use in areas of underground coal mines where permissible electric equipment is required and areas where non-permissible electric equipment is allowed. It is effective November 25, 1996.

§ 7.82 Definitions.

In addition to subpart A definitions of this part apply to this subpart E. Subpart E establishes the specific engine performance and exhaust emission requirements for MSHA approval of diesel engines for use in areas of underground coal mines where permissible electric equipment is required and areas where non-permissible electric equipment is allowed. It is effective November 25, 1996.

Brake Power. The observed power measured at the crankshaft or its equivalent when the engine is equipped only with standard auxiliaries necessary for its operation on the test bed.

Category A engines. Diesel engines intended for use in areas of underground coal mines where permissible electric equipment is required.

Category B engines. Diesel engines intended for use in areas of underground coal mines where non-permissible electric equipment is allowed.
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§ 7.83 Application requirements.

(a) An application for approval of a diesel engine shall contain sufficient information to document compliance with the technical requirements of this subpart and specify whether the application is for a category A engine or category B engine.

(b) The application shall include the following engine specifications—

1. Model number;
2. Number of cylinders, cylinder bore diameter, piston stroke, engine displacement;
3. Maximum recommended air inlet restriction and exhaust backpressure;
4. Rated speed(s), rated horsepower(s) at rated speed(s), maximum torque speed, maximum rated torque, high idle, minimum permitted engine speed at full load, low idle;
5. Fuel consumption at rated horsepower(s) and at the maximum rated torque;
6. Fuel injection timing; and
7. Performance specifications of turbocharger, if applicable.

(c) The application shall include dimensional drawings (including tolerances) of the following components specifying all details affecting the technical requirements of this subpart. Composite drawings specifying the required construction details may be submitted instead of individual drawings of the following components—

1. Cylinder head;
2. Piston;
3. Inlet valve;
4. Exhaust valve;
5. Cam shaft—profile;
6. Fuel cam shaft, if applicable;
7. Injector body;
8. Injector nozzle;
9. Injection fuel pump;
10. Governor;
11. Turbocharger, if applicable;
12. Aftercooler, if applicable;
13. Valve guide;

§ 7.83 Application requirements.

(a) An application for approval of a diesel engine shall contain sufficient information to document compliance with the technical requirements of this subpart and specify whether the application is for a category A engine or category B engine.

(b) The application shall include the following engine specifications—

1. Model number;
2. Number of cylinders, cylinder bore diameter, piston stroke, engine displacement;
3. Maximum recommended air inlet restriction and exhaust backpressure;
4. Rated speed(s), rated horsepower(s) at rated speed(s), maximum torque speed, maximum rated torque, high idle, minimum permitted engine speed at full load, low idle;
5. Fuel consumption at rated horsepower(s) and at the maximum rated torque;
6. Fuel injection timing; and
7. Performance specifications of turbocharger, if applicable.

(c) The application shall include dimensional drawings (including tolerances) of the following components specifying all details affecting the technical requirements of this subpart. Composite drawings specifying the required construction details may be submitted instead of individual drawings of the following components—

1. Cylinder head;
2. Piston;
3. Inlet valve;
4. Exhaust valve;
5. Cam shaft—profile;
6. Fuel cam shaft, if applicable;
7. Injector body;
8. Injector nozzle;
9. Injection fuel pump;
10. Governor;
11. Turbocharger, if applicable;
12. Aftercooler, if applicable;
13. Valve guide;

§ 7.83 Application requirements.

(a) An application for approval of a diesel engine shall contain sufficient information to document compliance with the technical requirements of this subpart and specify whether the application is for a category A engine or category B engine.

(b) The application shall include the following engine specifications—

1. Model number;
2. Number of cylinders, cylinder bore diameter, piston stroke, engine displacement;
3. Maximum recommended air inlet restriction and exhaust backpressure;
4. Rated speed(s), rated horsepower(s) at rated speed(s), maximum torque speed, maximum rated torque, high idle, minimum permitted engine speed at full load, low idle;
5. Fuel consumption at rated horsepower(s) and at the maximum rated torque;
6. Fuel injection timing; and
7. Performance specifications of turbocharger, if applicable.

(c) The application shall include dimensional drawings (including tolerances) of the following components specifying all details affecting the technical requirements of this subpart. Composite drawings specifying the required construction details may be submitted instead of individual drawings of the following components—

1. Cylinder head;
2. Piston;
3. Inlet valve;
4. Exhaust valve;
5. Cam shaft—profile;
6. Fuel cam shaft, if applicable;
7. Injector body;
8. Injector nozzle;
9. Injection fuel pump;
10. Governor;
11. Turbocharger, if applicable;
12. Aftercooler, if applicable;
13. Valve guide;