

BUREAU OF EXPLOSIVES

SPECIFICATIONS FOR STANDARD TRACK TORPEDOES

CONSTRUCTION

1. The torpedo must be so constructed that it will not explode, puncture or break due to normal handling.

2. The torpedo must be provided with one of the following attachments to permit it being readily and securely fastened to the rail, and of such design that it will not be pushed from the rail by the wheel of an engine or car, or by snow. All metal parts of the torpedo, except soft aluminum or lead, less than ten one-thousandths (0.010) inch in thickness, must be below the level of the explosive composition when the torpedo is placed in its normal position on the rail.

(a) A pure lead or soft aluminum strap five-sixteenths ($\frac{5}{16}$) inch wide, not less than seven and one-quarter ($7\frac{1}{4}$) inches long and four one-hundredths (0.04) inch thick (+ or -0.004).

(b) A steel spring clip, not less than nine thirty-seconds ($\frac{9}{32}$) inch wide, six and one-quarter ($6\frac{1}{4}$) inches long, and not lighter than twenty-four (24) gauge (0.025) inch.

(c) A brass wire clip, not less than eight one-hundredths (0.08) inch in diameter and not less than seven (7) inches long.

3. The bottom surface of each torpedo must be sanded or supplied with other efficient adherent water resistant abrasive.

4. Each torpedo must have marked upon it the word "DANGER" in letters not less than three-eighths ($\frac{3}{8}$) inch high.

5. The torpedo must be so constructed that it will function normally after it has been immersed in water at a temperature of 70° F. to a depth of three inches for at least one hour.

COMPOSITION

6. The composition and construction of the torpedoes must be such that they will not explode en masse if a completed container of 24 or more torpedoes is placed in a hot wood fire. "En masse" shall mean simultaneous explosion of half or more of the torpedoes in the container.

7. The completed torpedo must withstand incubation at a temperature of 212° F. for twenty-four (24) continuous hours without explosion or ignition.

8. Any abrasive material used in the torpedo composition must be sufficiently fine to pass through a No. 16 screen of the standard screen series.

9. The composition must be of such nature and of such quantity that it will not injure the rail or wheel of any normal railroad equipment when such rail or equipment is used to function the torpedo in the usual manner.

PERFORMANCE

10. The torpedo, when exploded normally on a rail, shall not project fragments that will cut or puncture (8) ounce denim cloth completely covering a wood frame six (6) feet high and seven (7) feet wide. For this test, the wood frame shall be placed upright on the ground level, parallel to the rail on which the torpedo is placed and at a distance of three (3) feet therefrom: The longitudinal center of the base of the frame should be exactly opposite the torpedo.

11. A torpedo, when placed in a normal position on a rail, shall function when struck with a 25 pound steel ball (or a 25 pound steel weight with a curved striking surface having a radius of 3 inches) dropped not more than twice from a height of 16 inches or less. It shall not function when the striker is dropped once from a height of less than 8 inches.

12. The torpedo when exploded shall cause a decibel count measured by an approved sound level meter* of not less than 105 at a distance of twenty (20) feet from the torpedo under test. The quality of sound must be such that it may be plainly distinguished above a background noise of a locomotive operating under full load.

*General Radio Company's Sound Level Meter (Type 759-B) or other equally accurate sound meter.

GENERAL TEST REQUIREMENTS

13. Not less than 10 torpedoes shall be used in making each of the examinations or tests as outlined in paragraphs 5, 7, 8, 9, 10, 11, and 12.