Capacity Ratings – Scraper, Dumper Body and Trailer Body – SAE J741b

SAE Standard
Last Revised June 1975

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PREPRINT

CAPACITY RATINGS—SCRAPER, DUMPER BODY AND TRAILER BODY—SAE J741b

SAE Standard

Report of Construction and Industrial Machinery Technical Committee approved December 1948 and last revised June 1975.

Carrying or Hauling Scrapers

1. Capacities shall be rated on the basis of cubic yards (cubic metres). Standard ratings shall include both struck and heaped capacities.

2. Struck capacity of a scraper shall be the actual volume enclosed by the bowl and apron, struck off by a straight line passed along the top edge of the side plates or adjacent load-carrying mechanism or extensions thereof. Struck capacity shall be given to nearest 0.1 yd^3 (0.07 m^3).

3. When the top of the front apron, in the closed position, is below the top edge of the side plates, the capacity shall be limited, either by a plane from the top edge of the apron to the forward corners of the side plates, or by a plane at a slope of 1:1 extending from the top edge of the front apron to the plane formed by the top edge of the side sheets, whichever gives the smaller capacity.

4. To determine the 1:1 slope for the limiting plane, the scraper shall be set in its normal carrying position with the apron closed.

5. Top extensions of the ejector above the side plates shall not be included in the determination of struck capacity.

6. The volume occupied by apron arms, sheave frames, or other internal projections shall be disregarded in calculating the struck capacity.

7. Heaped capacity of a scraper shall be the sum of the struck capacity and the volume enclosed by the four planes at a 1:1 slope extending upward and inward from the top of the solid portion of the front apron, from the top of the solid portion of the ejector or rear plate, and from the top edges of the side plates. Small barred or screened openings in the apron may be ignored in determining the solid top line.

8. The scraper shall be set in the same carrying position as used for determining struck capacity.

9. For scrapers of less than 12 yd^3 (9.17 m^3) struck capacity, the heaped capacity shall be given to the nearest ½ yd^3 (0.38 m^3); for scrapers of 12 yd^3 (9.17 m^3) struck capacity and larger, the heaped capacity shall be given to the nearest 1.0 yd^3 (0.76 m^3).

10. If the top edge of the side plate (or extension thereof), front apron, or ejector is not a straight line, a mean line through its configuration shall be used to establish the base line of the plane enclosing the heaped capacity.

11. The possible interference of overhead structures, such as sheave guides and cables, with the heaped capacity shall be ignored.

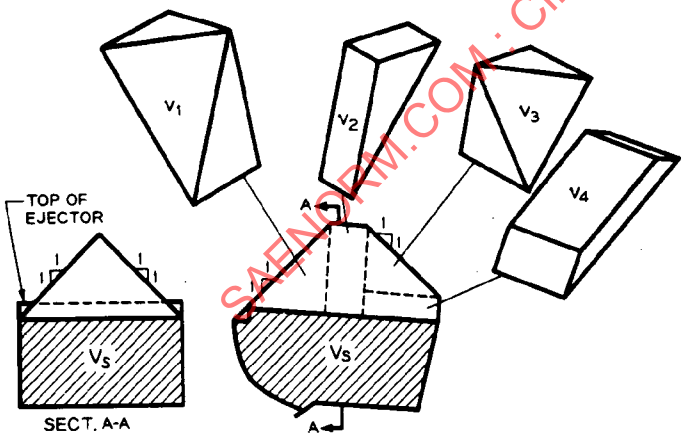

FIG. 1—TYPICAL SCRAPER VOLUME COMPUTATION

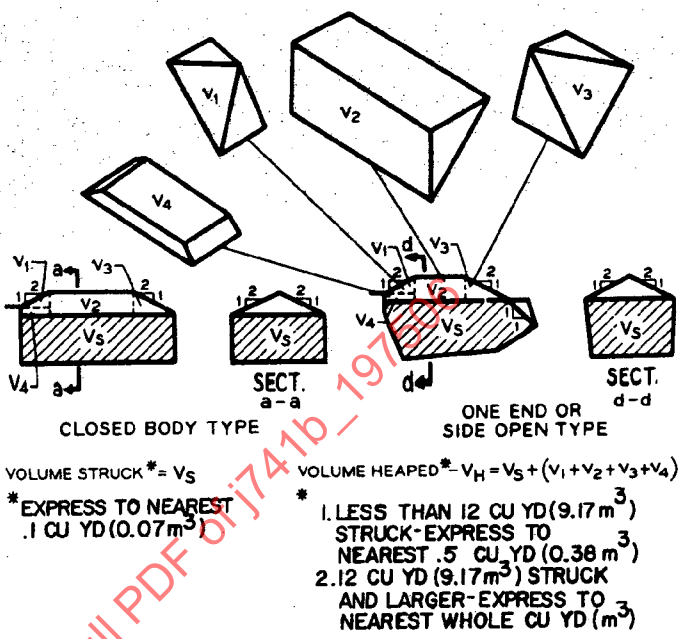

FIG. 2—TYPICAL TRUCK OR TRAILER VOLUME COMPUTATION

12. Both the struck and heaped capacities as defined are, with minor reservations, definitely measurable quantities providing a standard method of comparing the volume of scrapers.

Dumper and Trailer Bodies

1. Capacities shall be rated on the basis of cubic yards (cubic metres). Standard ratings shall include struck and heaped capacities.

2. Struck capacity of a dumper or trailer body shall be the actual volume enclosed by the body, struck off by a straight line passed along the top edge of the side plates. The struck capacity shall be given to the nearest 0.1 yd^3 (0.07 m^3).

3. For bodies with one end open, the capacity at such end shall be limited by a plane passing through the rearmost edge of the open end and top rear corners of the side plates or at a slope of 1:1 extending upward and inward from the rearmost edge of the open end, whichever gives the smaller capacity. Bodies with open sides are similar in configuration to bodies with open ends. However, they appear on the chassis at right angles to the longitudinal axis of the dumper or trailer. Volume computation can be made in the same manner as bodies with open ends.

4. Extension of end plates above the sides shall not be included in the struck capacity.

5. Heaped capacity of a dumper or trailer body shall be the sum of the struck capacity and the volume enclosed by the four planes at a slope of one vertical to two horizontal (2:1) extending upward and inward from the top edges of the side and end plates or load-carrying extensions thereof. For bodies with open ends or sides, the 2:1 slope for heaped capacity shall start from the top of the 1:1 slope which determines struck capacity.

6. For bodies of less than 12 yd^3 (9.17 m^3) struck capacity, the heaped capacity shall be given to the nearest ½ yd^3 (0.38 m^3); for bodies of 12 yd^3 (9.17 m^3) struck capacity and larger, the heaped capacity shall be given to the nearest whole cubic yard (cubic metre).

7. If the top edge of a side or end plate (or extension thereof) is not a straight line, a mean line through its configuration may be used to establish the base line of the plane enclosing the heaped capacity.

8. Both the struck and heaped capacities as defined are, with minor reservations, definitely measurable quantities providing a standard method of comparing the volume of dumper and trailer bodies.