

SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

SAE J257

REAF.
MAR85

Issued 1972-05
Reaffirmed 1985-03

Superseding J257 MAY72

BRAKE RATING HORSEPOWER REQUIREMENTS—COMMERCIAL VEHICLES

- 1. Introduction**—The performance requirements in this SAE Recommended practice represent the accumulation of the best information available from investigation of the service brake system performance of new motor vehicles designed for roadway use. It reflects the requirements not only of long mountain grades, but also the demands of heavy traffic condition which impose a relatively higher horsepower duty cycle on the lighter commercial vehicles that accelerate and decelerate more frequently and to higher speeds because of their substantially lower weight-to-horse-power ratio.
- 2. Purpose**—The purpose of this recommended practice is to establish a minimum brake rating horsepower (BRHP) level for commercial vehicles tested in accordance with SAE J880.
- 3. Scope**—The minimum performance values in this recommended practice are applicable to vehicles with brake systems having typical service pressure ranges 0-1800 psi (0-12.4 MPa) hydraulic or 0-120 psi (0-0.8 MPa) air only. SAE J880 not only provides for determining maximum brake rating horsepower capability, but also permits verification of any desired or arbitrary level such as the requirement established herein. The determining criteria for deciding brake rating horsepower capability are:
 - (a) Cold brake stopping ability.
 - (b) Fade as a result of horsepower absorption.
 - (c) Hot brake stopping ability following horsepower absorption.
 - (d) Brake system stability following horsepower absorption.
 - (e) Functional and structural integrity of brake system following test.
- 4. Requirements**
 - 4.1** When tested in accordance with SAE J880, the highest brake rating horsepower (BRHP) achieved per Table 4 of SAE J880 must be not less than $12 + (1.4 \text{ gvw}/1000)$ where: gvw = gross vehicle weight of the tested vehicle, lb (kg).
 - 4.2** Achievement of the BRHP requirement in paragraph 4.1 depends absolutely upon compliance with the requirements of each portion of paragraph 6.3 in SAE J880, namely: cold stop, minimum deceleration, hot stop, stability, and final inspection.
- 5.** Tables 2 and 4 from SAE J880 are shown for reference.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

SAE J257 Reaffirmed MAR85

TABLE 2—NUMBER OF SNUBS FOR RATING TEST

gvw				1	2	3
Min		Max				
lb	kg	lb	kg			
4850	2200	5230	2372	17	19	22
5231	2373	5700	2586	17	19	21
5701	2586	6200	2812	16	18	20
6201	2813	6820	3094	15	17	19
6821	3094	7580	3438	15	16	18
7581	3439	8500	3856	15	16	17
8501	3856	9700	4400	14	15	16
9701	4400	11 300	5126	13	14	15
11 301	5126	13 500	6124	12	14	14
13 501	6124	15 500	7031	11	12	13
15 501	7031	20 200	9163	10	11	12
20 201	9163	29 000	13 154	9	10	11
29 001	13 155	52 000	23 687	8	9	10

TABLE 4

Typical Tests	Rating Test Series				
	1	2	3	4	5
A	1	2	3 passed	4 passed	5 passed (use for rating)
B	1	2	3 passed	4 passed (use for rating)	5 did not pass
C	1	2	3 passed	4 did not pass	4 passed (use for rating)
D	1	2	3 passed (use for rating)	4 did not pass	4 did not pass
E	1	2	3 did not pass	4 did not pass	3 ^a passed (use for rating)

^a Indicates Formula Snub Rating, paragraph 7.1 of SAE J880.

PREPARED BY THE SAE BRAKE COMMITTEE AND AUTOMOTIVE SAFETY COMMITTEE