SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

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(R) WINDSHIELD DEFROSTING SYSTEMS PERFORMANCE REQUIREMENTS—TRUCKS, BUSES, AND MULTIPURPOSE VEHICLES

1. ***Scope***—This SAE Recommended Practice presents minimum defrosting system performance requirements for trucks, buses, and multipurpose vehicles when tested according to SAE J381.

   It is the intent that this document will be reviewed and revised to reflect technological progress in vehicle defroster systems.

2. ***References***

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J381—Windshield Defrosting Systems Test Procedure—Trucks, Buses, and Multipurpose Vehicles
SAE J826—Devices for Use in Defining and Measuring Vehicle Seating Accommodation
SAE J941—Motor Vehicle Drivers Eye Locations

2.1.2 FMVSS PUBLICATION—Available from The Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

FMVSS 111

2.2 Definitions

2.2.1 DAYLIGHT OPENING (DLO)—The term "daylight opening" (DLO) refers to the maximum opening of any glass aperture which is unobstructed by moldings, masking, or framing.

2.2.2 Other uniform terminology for the windshield defroster system may be found in Section 2 of SAE J381.

3. ***General Purpose Requirements***—The windshield area to be defrosted was developed to be compatible with vision requirements necessary to operate trucks, buses, and multipurpose vehicles. The area is based on SAE J941 and SAE J826, with certain modifications to accommodate the wide variety of conditions encountered in these vehicles. For the purpose of this document, the head turn consideration in SAE J941 will not be used.

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3.1 **Area to be Defrosted**—The windshield area that shall be defrosted is described by the use of Area A and C in Table 1 specific areas identified in Table 1 as areas A and C. Each area has been established using the angles of Table 2 applied as shown in Figure 1.

TABLE 1—MINIMUM PERCENT OF WINDSHIELD TO BE DEFROSTED

	Area A	Area C
One Piece	80	99
Multipiece	65	84

TABLE 2—WIPED AREA VIEWING REQUIREMENT

Classification	F Dimension mm	F Dimension in	Area	Center Angle Up, deg	Center Angle Down, deg	Center Angle Left, deg.	Center Angle Right, deg.
Truck, CBE and CAE (1)	0-1020	0-40	A	10	5	18	56
			C	5	1	10	15
	1020-1270	40-50	A	8	7	18	56
			C	3	3	10	15
	1270-Up	50-Up	A	6	9	18	56
			C	1	5	10	15
Buses, CBE—School and Commercial (2)	1270-1520	50-60	A	7.5	22	22	62
			C	1	16	22	15
Buses, Forward Control School and Commercial	1270-1520	50-60	A	7	14	18	65
			C	1	11	18	25
Forward Control or Multipurpose	All	All	A	9	7	18	56
			C	2	2	10	15
Light-Duty Utility Vehicle (1)	All	All	A	7	5	16	49
			C	4	2	8	13
Van, Multistop (1)	Open	Open	A	7	12	18	58
			C	1	6	10	15
Trucks, COE	1020-Up	40-Up	A	6	9	18	56
			C	1	5	10	15

NOTES—See SAE J687 for nomenclature. Angles are minimum.
(1) Specifications also cover passenger carrying derivatives.
(2) Geometric center of eyellipse located 457 mm (18 in) from centerline of vehicle.

Side View—The upper and lower boundary of the area is established by the intersection of two planes, which are seen as lines in the side view tangent to the upper and lower edges of the eyellipse, with the windshield glazing surface. The planes are fixed by angles above and below the XX line.

Plan View—The left and right boundary of the area is established by the intersection of two vertical planes tangent to the left and right edges of the eyellipse with the windshield glazing surface. The planes are fixed by angles to the left and right of the XX line.

The areas used in determining the percentage of defrosted area are those areas on the exterior glazing surface which are not within 25 mm (1 in) of the edge of the daylight opening (pillars, division bar, header, etc.). The percentage is the ratio of defrosted area within the defined area to the defined area.

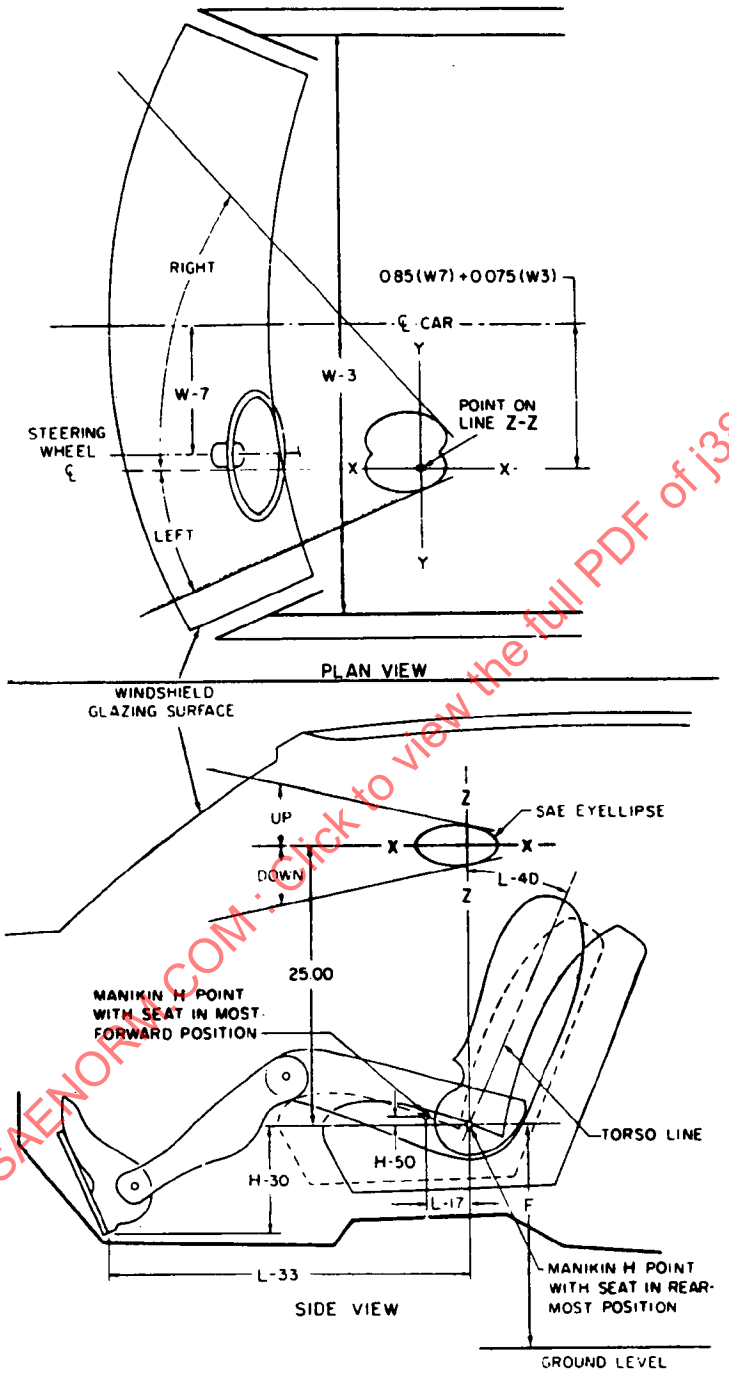

FIGURE 1—EYELLIPSE TEMPLATE LOCATION

The left- and right-hand side window area that shall be defrosted is defined as 70% of that glass surface forward of line Y-Y. The defined 70% area must permit full visibility of the minimum size rear vision device specified by FMVSS 111.

Figure 2 illustrates all of the areas on a typical windshield.

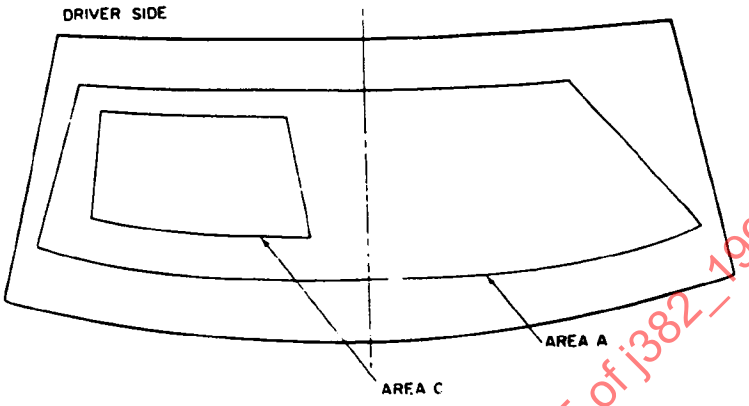

FIGURE 2—TYPICAL LOCATIONS OF AREAS A AND C
AS VIEWED FROM INSIDE VEHICLE

3.2 Defrosting Time—The defroster test shall be conducted in accordance with the procedure established in SAE J381. After 30 min, the defroster areas must meet the minimum requirements shown in Table 1.

4. Notes

4.1 Marginal Indicia—The (R) is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.

PREPARED BY THE SAE TRUCK AND BUS DEFROSTING, DEFOGGING, AND WINDSHIELD WIPER SUBCOMMITTEE OF THE SAE TRUCK AND BUS CAB OCCUPANT AND ENVIRONMENT COMMITTEE