



SURFACE VEHICLE RECOMMENDED PRACTICE

J1671

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Outboard Mounted Brake Drum/Disc Wheel Hub Interface Dimensions - Truck and Bus

RATIONALE

This document is currently under a five year review. The object of this document is to establish dimensional standardization within the interference areas of outboard mounted brake drums and hubs for disc wheels. Inch dimension tables have been added to this document where metric mounting system tables are referenced. In Tables 1 and 3 a maximum "E" dimension has been added. All other design parameters remain unchanged except for conversion to English dimensions and rounding. Figures 1 and 3 have been revised to show the wheel backup diameter "G" as a reference dimension per SAE J694. Other changes were general formatting.

1. SCOPE

This recommended practice contains dimensions and tolerances for outboard mounted brake drums and disc wheel hubs in the interface areas. This recommended practice is intended for outboard mounted brake drums and disc wheel hubs commonly used on class 7 and 8 commercial vehicles. Included are SAE J694 mounting systems II, III, IV, XIV, and X. Special and less common applications are not covered.

1.1 Purpose

This recommended practice defines and documents the dimensions and tolerances necessary to maintain interchangeability in the interface areas. Components of different mounting systems with common bolt patterns could be mixed together and cause service problems. Therefore, it is important to note that each mounting system should be treated individually and their components not be intermixed.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publication

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J694 Disc Wheel/Hub or Drum Interface Dimensions - Truck and Bus

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2.2 Related Publication

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publication

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J393 Nomenclature - Wheels, Hubs and Rims for Commercial Vehicles

3. DEFINITIONS

A listing of basic nomenclature and definitions are shown below. Metric mounting systems shown in Figures 1 and 2 are given in millimeters (mm). Inch mounting systems shown in Figures 3 and 4 are given in inches.

3.1 FEATURE DEFINITION

- A Drum Center Hole Diameter
- B Inside Drum Face Diameter (Flat)
- C Inside Clearance Diameter
- D Wheel Bolt or Stud Hole Diameter
- E Drum Center Hole Chamfer
- F Drum Thickness
- G Wheel Backup Diameter (for reference only SAE J694)
- H Drum Pilot Diameter of Hub
- J Hub Flange Face Diameter (Flat)
- K Hub Flange Outside Diameter
- L Drum Pilot Length on Hub
- M Drum Seat Length on Hub
- N Hub/Drum Pilot Fillet Radius on Hub

4. MOUNTING SYSTEM

The combination of hub/drum interface characteristics that identify uniqueness. These characteristics are: number of bolt holes, bolt circle diameter, and fastener type/size. Unique mounting systems are defined by the Roman numerals in applicable tables throughout the document. Within a given mounting system, the brake drums are interchangeable only by use of the appropriate hubs with appropriate dimensions.

5. SCALLOPED HUBS

In an attempt to reduce wheel end package weight, some hub manufacturers have adopted the practice of creating scallops in the mounting flange of the hub. The term "scallop" refers to the removal of material from the drum backup diameter that results in an interrupted support face. In some applications, the use of scalloped hubs has led to the development of cyclical fatigue cracks in disc wheels. It is recommended that scalloped hubs not be used when the disc wheel is mounted directly to the mounting face of the hub. Use of scalloped hubs with outboard mounted brake drums is generally deemed acceptable. Wheel manufacturers should be consulted for each particular application.

6. NOTES

6.1 Marginal Indicia

A change bar (|) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

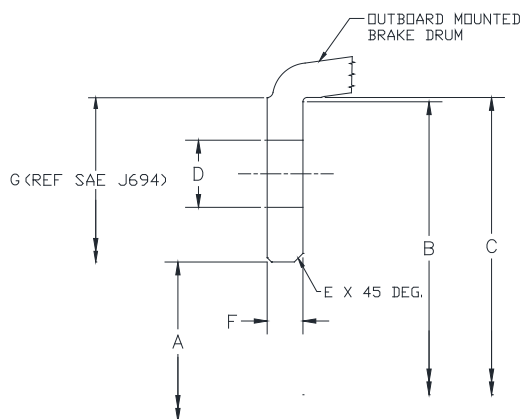


FIGURE 1

TABLE 1A (FIGURE 1) - DRUM INTERFACE DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS

MOUNTING SYSTEMS (Metric - Hub Piloted)				BRAKE DRUM DIMENSIONS					
Mounting System (SAE J694)	Bolt Circle Diameter	No. of Studs or Bolts	Stud or Bolt Diameter	A	B	C	D	E	F
				Drum Center Hole Diameter	Minimum Inside Drum Face Diameter	Minimum Inside Clearance Diameter	Min. Drum Bolt or Stud Hole Diameter	Drum Center Hole Chamfer	Minimum Drum Thickness
II	275	8	20	228.62 228.52	319.8	324.4	21.5	2.30 3.56	6.1
III	285.75	10	22	223.08 222.98	330.5	336	23.5	2.30 3.56	6.1
IV	335	10	22	285.85 285.75	369.3	375.9	23.5	2.30 3.56	6.1
XIV	275	8	20	228.62 228.52	330.5	336	23.5	2.30 3.56	6.1

TABLE 1B (FIGURE 1) - DRUM INTERFACE DIMENSIONS
ALL DIMENSIONS ARE IN INCHES

MOUNTING SYSTEMS (Metric - Hub Piloted)				BRAKE DRUM DIMENSIONS					
Mounting System (SAE J694)	Bolt Circle Diameter	No. of Studs or Bolts	Stud or Bolt Diameter	A	B	C	D	E	F
				Drum Center Hole Diameter	Minimum Inside Drum Face Diameter	Minimum Inside Clearance Diameter	Min. Drum Bolt or Stud Hole Diameter	Drum Center Hole Chamfer	Minimum Drum Thickness
II	10.827	8	0.787	9.001 8.997	12.591	12.772	0.846	0.090 0.140	0.240
III	11.25	10	0.866	8.783 8.779	13.012	13.228	0.925	0.090 0.140	0.240
IV	13.189	10	0.866	11.254 11.250	14.539	14.799	0.925	0.090 0.140	0.240
XIV	10.827	8	0.787	9.001 8.997	13.012	13.228	0.925	0.090 0.140	0.240

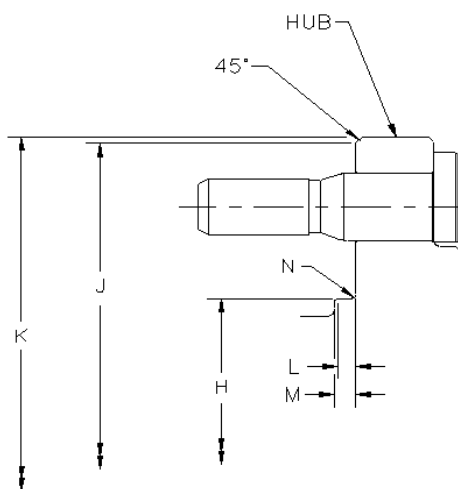


FIGURE 2

TABLE 2A (FIGURE 2) - HUB INTERFACE DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS

MOUNTING SYSTEMS (Metric - Hub Piloted)				HUB DIMENSIONS					
Mounting System (SAE J694)	Bolt Circle Diameter	No. of Studs or Bolts	Stud or Bolt Diameter	H	J	K	L	M	N
				Drum Pilot Diameter	Maximum Flange Face Diameter	Maximum HUB Flange Diameter	Minimum Drum Pilot Length	Maximum Drum Seat Length	Maximum Drum Pilot Fillet Radius
II	275	8	20	228.49 228.39	319	324	4.1	6.1	2.3
III	285.75	10	22	222.96 222.86	330	334	4.1	6.1	2.3
IV	335	10	22	285.73 285.63	368	373.9	4.1	6.1	2.3
XIV	275	8	20	228.49 228.39	330	334	4.1	6.1	2.3

TABLE 2B (FIGURE 2) - HUB INTERFACE DIMENSIONS
ALL DIMENSIONS ARE IN INCHES

MOUNTING SYSTEMS (Metric - Hub Piloted)				HUB DIMENSIONS					
Mounting System (SAE J694)	Bolt Circle Diameter	No. of Studs or Bolts	Stud or Bolt Diameter	H	J	K	L	M	N
				Drum Pilot Diameter	Maximum Flange Face Diameter	Maximum HUB Flange Diameter	Minimum Drum Pilot Length	Maximum Drum Seat Length	Maximum Drum Pilot Fillet Radius
II	10.827	8	0.787	8.996 8.992	12.559	12.756	0.161	0.240	0.090
III	11.25	10	0.866	8.778 8.774	12.992	13.150	0.161	0.240	0.090
IV	13.189	10	0.866	11.249 11.245	14.488	14.720	0.161	0.240	0.090
XIV	10.827	8	0.787	8.996 8.992	12.992	13.150	0.161	0.240	0.090