SAE International™

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J2475

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Superseding J2475 JAN2000

Wheel End Assembly and Axle Spindle Interface Dimensions—Truck and Bus

1. Scope

This recommended practice contains dimensions and tolerances for spindles in the interface area. Interfacing components include axle spindle, bearing cones, bearing spacer, seal and wheel hub. This recommended practice is intended for axles commonly used on Class 7 and 8 commercial vehicles. Included are SAE axle configurations FF, FL, R, N and P. SAE configurations FC, K, L, U, and W are not included, but may be added in the future.

1.1 Purpose

The purpose of this recommended practice is to establish dimensional guidelines to promote a functional standardization of spindle dimensions for wheel end assemblies. Proper hub component dimensions can then be established.

1.2 Rationale

The objective of this document is to establish dimensional standardization within the interface areas of the axle spindle, bearing cones, bearing spacer, seal, and wheel hub. This dimensional standardization will assure no interference conditions exist for mating components.

This recommended practice will define and document the dimensions and tolerances necessary to maintain serviceability and interchangeability in the interface areas. The scope of the original document did not include the SAE FL type axle configuration. In addition, the figures of the original document did not fully define bearing spindle diameters or seal shoulder lengths or diameters. These features and axle configurations have been added and are now included in the scope.

There is a need within the industry for a recommended dimensional standard, since without it, improper mating of spacers, spindles and hub may occur.

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2. References

2.1 Related Publications

The following publications are provided for information purposes and are not a required part of this document.

SAE J1842—Axle End Standardization

3. Definitions

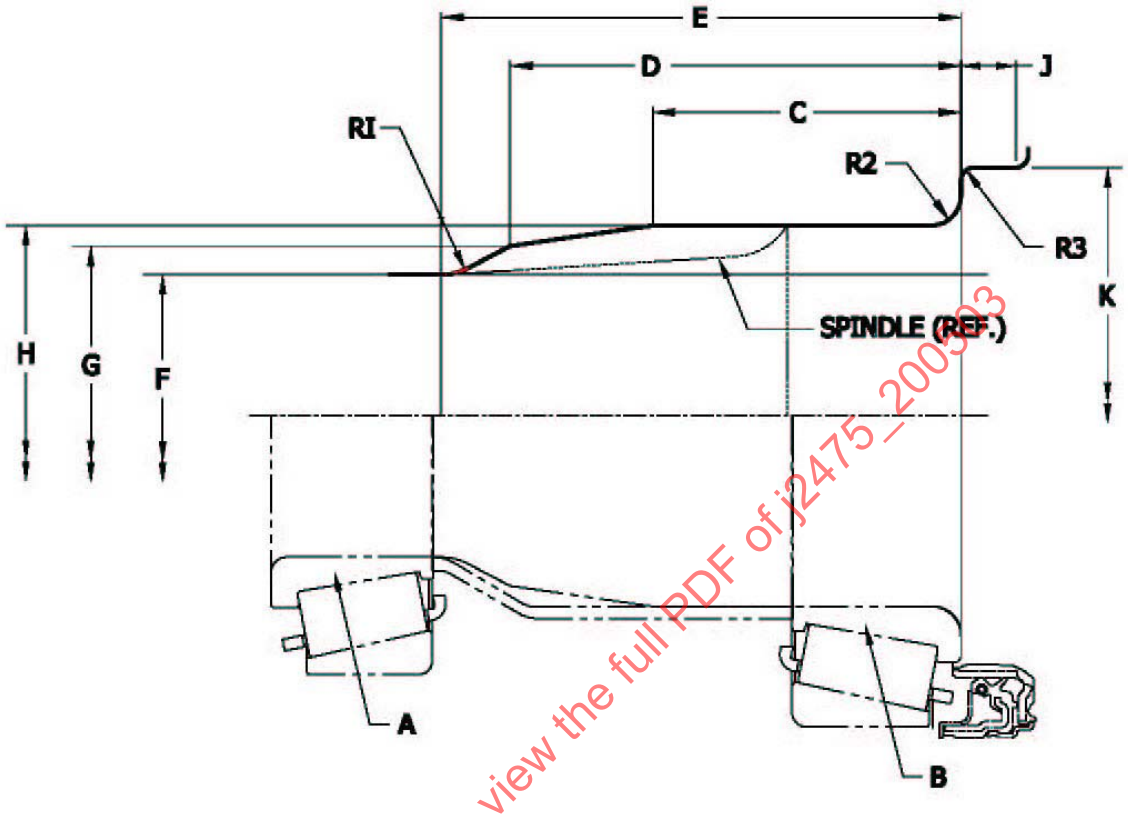
A list of basic nomenclature and definitions are shown in 3.1.

3.1 Feature Definition

A – Typical Outboard Bearing Cone (per ABMA)
B – Typical Inboard Bearing Cone (per ABMA)
C – Inboard Bearing Cone Spindle Length
D – Spindle Transition Length
E – Outboard Bearing Cone Spindle Starting Length
F – Outboard Bearing Spindle Diameter
G – Spindle Transition Diameter
H – Inboard Bearing Spindle Diameter
J – Seal Shoulder Length
K – Seal Shoulder Diameter
R_1 – Spindle Transition Fillet Radius
R_2 – Inboard Bearing Spindle Fillet Radius (per ABMA)
R_3 – Seal Shoulder Fillet Radius

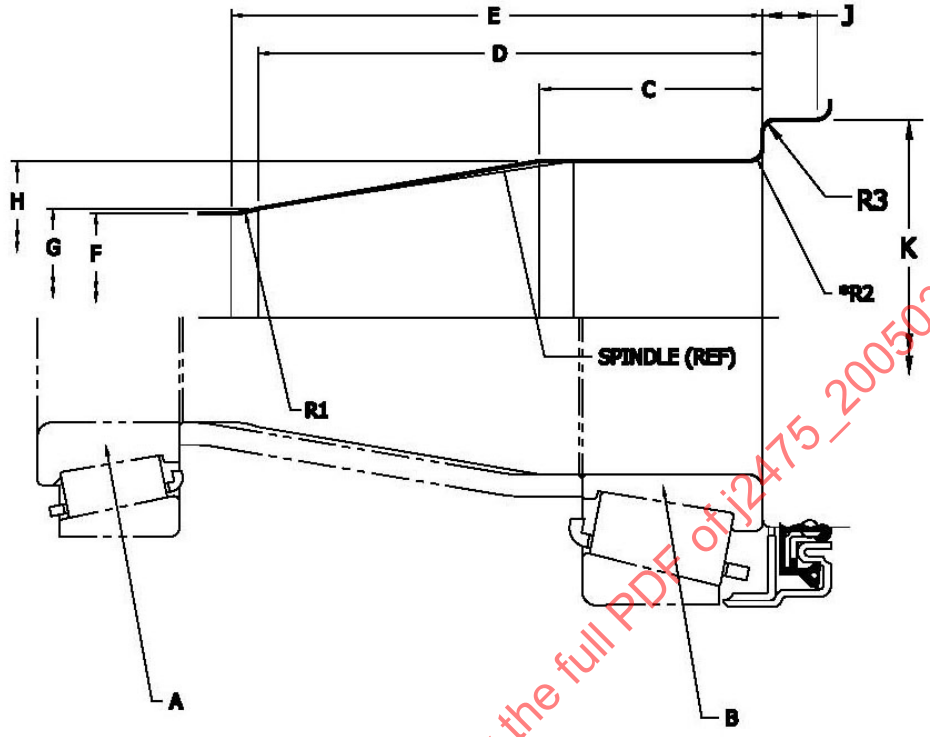
4. Procedure

A line of maximum material is established as shown in the figures with dimensions. All dimensions are in millimeters (inches).



SAE CONFIGURATION	A TYPICAL	B TYPICAL	C MAX	D MAX	E MAX	F MAX	G MAX	H MAX	J MIN	K NOM	R1 MAX	R2 MAX	R3 MAX
N	HM212049	HM218248	72.90 (2.870)	106.68 (4.200)	122.94 (4.840)	66.670 (2.6248)	80.26 (3.16)	89.982 (3.5418)	18.11 (0.713)	117.53 (4.627)	13.46 (0.530)	7.0 (0.280)	6.35 (0.250)
P	HM518445	HM518445	N/A N/A	153.42 (6.040)	N/A N/A	88.887 (3.4995)	N/A N/A	88.887 (3.4995)	15.75 (0.620)	107.95 (4.250)	N/A N/A	5.4 (0.250)	3.05 (0.120)

FIGURE 1—TRAILER



SAE CONFIGURATION	A TYPICAL	B TYPICAL	C MAX	D MAX	E MAX	F MAX	G MAX	H MAX	J MIN	K NOM	R1 MAX	*R2 MAX	R3 MAX
FF	3782	HM212049	45.72 (1.800)	112.52 (4.430)	118.36 (4.660)	44.445 (1.7498)	45.72 (1.800)	66.670 (2.6248)	13.09 (0.515)	88.90 (3.500)	15.75 (0.620)	3.5 (0.140)	3.05 (0.120)
FL	555-S	64461A	62.74 (2.470)	124.46 (4.900)	129.54 (5.100)	57.145 (2.2498)	59.94 (2.360)	76.195 (2.9998)	17.02 (0.670)	111.13 (4.375)	25.40 (1.000)	9.7 (0.380)	3.05 (0.120)

*R2 = 7.0 (.28) IF B TYPICAL IS HM212049X

FIGURE 2—NON-POWERED FRONT