SURFACE VEHICLE RECOMMENDED PRACTICE

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(R) Disc Wheel Hub/Spoke Wheel and Axle Interface Dimensions - Truck and Bus

RATIONALE

The document was revised to document hub/axle configurations in common use that were previously omitted and to remove configurations no longer in common use.

1. SCOPE

This SAE Recommended Practice is intended for hubs and spoke wheels used on class 6, 7, and 8 truck/truck-tractor non-powered front axles, powered and non-powered rear axles and trailer axles, for which bearing setting is manually adjusted. Assemblies using spacers to control bearing preload and endplay may differ in geometry and bearing componentry.

1.1 Purpose

The purpose of this document is to establish dimensional guidelines to promote functional standardization of wheel hubs and spoke wheels in the areas of fasteners, bearing cup, seal bore and axle drive shaft interface or hubcap attachment. This document is not intended to exclude use of wheel hub designs, which do not meet the dimensional guidelines for use on defined axle configurations.

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2. REFERENCES

2.1 Related Publications

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

2.1.1 SAE Publications

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

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

SAE J923 Nomenclature and Terminology for Truck and Bus Drive Axles

SAE J1730 ABS Exciter Ring Location Standardization

SAE J2475 Wheelend Assembly and Axle Spindle Interface Dimensions – Truck and Bus Vehicles

2.1.2 ISO Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 4107 Commercial Vehicles, Wheel hub attachment dimensions (British Standard)

ISO 7575 Commercial Road Vehicles – Flat Attachment Wheel Fixing Nuts

2.1.3 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

ASME Y14.5-2009 Dimensioning and Tolerancing

3. DEFINITIONS

A listing of the basic nomenclature and definitions is shown as follows. All dimensions are in millimeters [inches]. A hub shall be defined as a disc wheel hub or the hub area of spoke wheels.

3.1 DEFINITIONS

Figures 1 to 6:

A = Outer Bearing Cup [per American Bearing Manufacturers Association]

B = Inner Bearing Cup [per American Bearing Manufacturers Association]

C = Bearing Cup Spacing

D = Inner Bearing Cup Shoulder to Drive Flange/Hub Cap Interface

E = Inner Seal Bore Diameter

F = Drive Flange Stud/Hub Cap Thread Diameter

G = Number of Drive Flange Studs/Hub Cap Holes

H = Bolt Circle Diameter [Drive Flange Stud/Hub Cap Bolt]

J = Inner Bearing Cup Shoulder to Inner Seal Bore

K = Inner Bearing Cup Shoulder to Inboard End

L = Drive Flange Stud Projected Standout

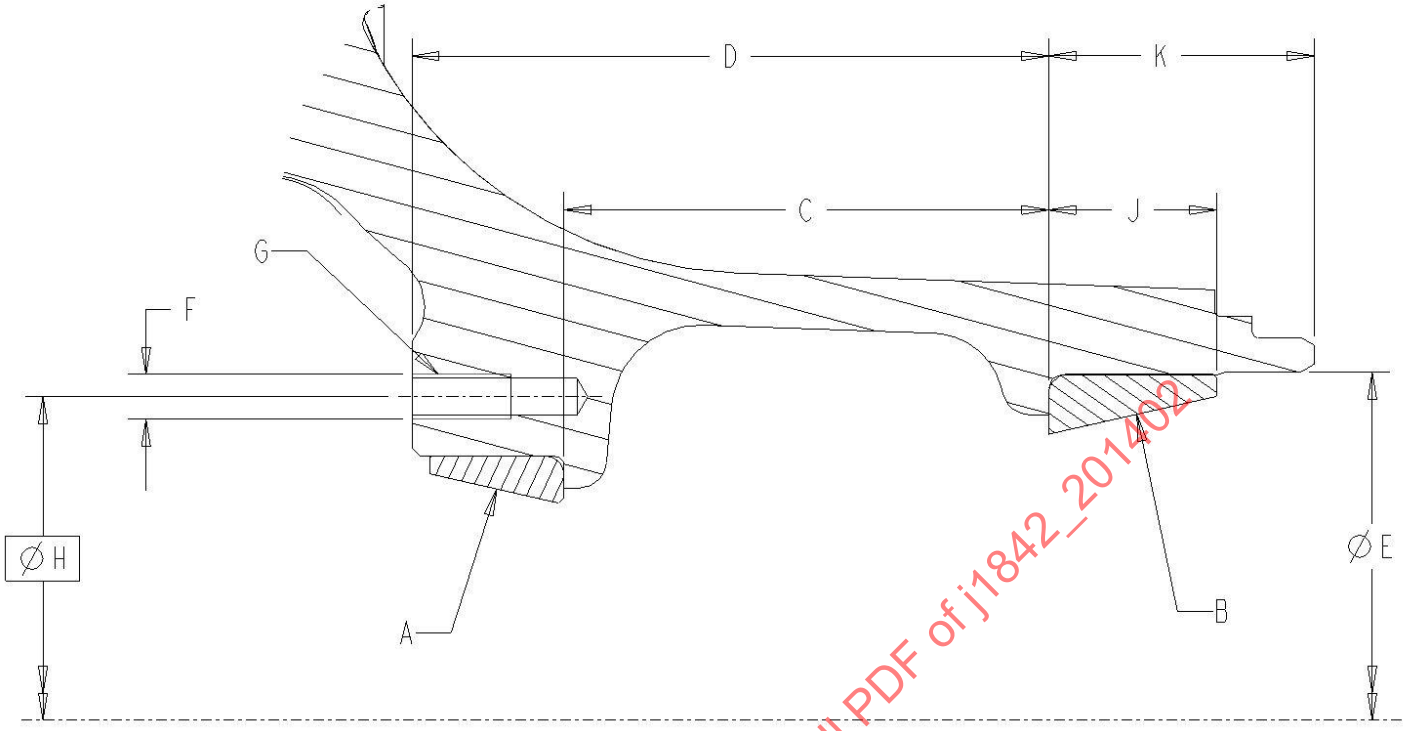
N = Drive Flange Stud Body Diameter

R = Drive Flange Thickness

S = Hole Diameter Drive Flange

T = Angle of Tapered Hole Drive Flange

Y = Drive Flange Interface

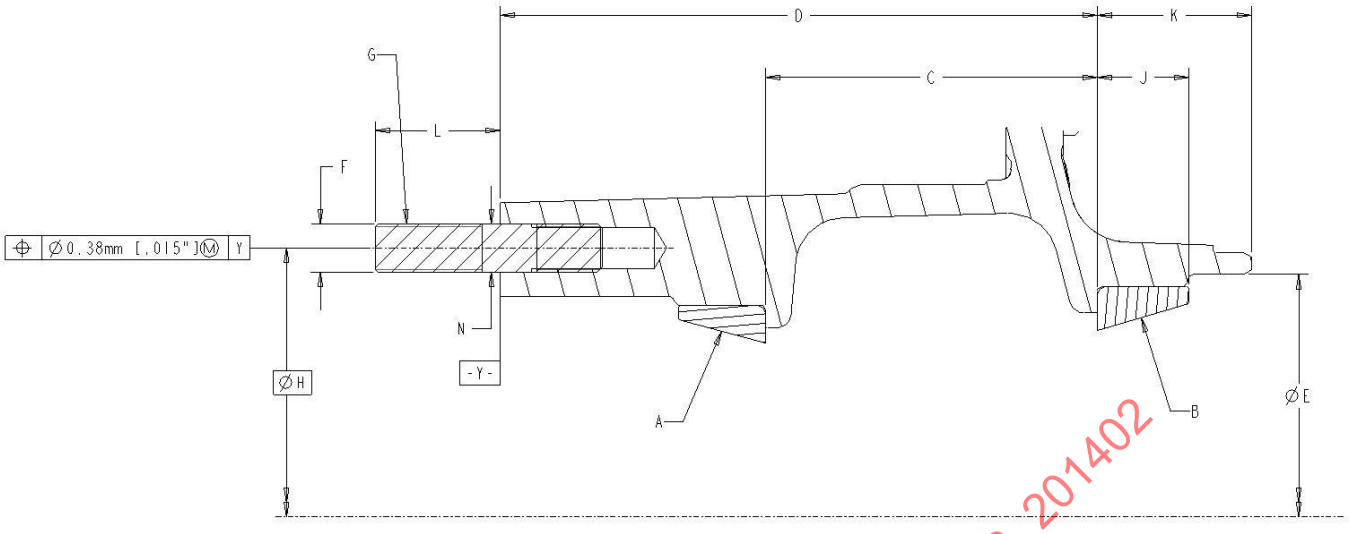


SAE Configuration	A	B	C	D	E[2]	F	G	H	J	K
I80	25820	JM207010	74.2 mm [2.92 in]	110.7 mm [4.36 in]	98.42 mm [3.875 in]	5/16-18	4	91.95 mm [3.62 in]	24.6 mm [0.97 in]	44.50 mm [1.75 in]
FC	3525	39520	81.8 mm [3.22 in]	116.8 mm [4.60 in]	115.32 mm [4.540 in]	5/16-18	6	114.30 mm [4.50 in]	23.9 mm [0.94 in]	38.90 mm [1.53 in]
FF	3720	HM212011	85.9 mm [3.38 in]	112.5 mm [4.43 in]	122.94 mm [4.840 in]	5/16-18	6	114.30 mm[1] [4.50 in]	29.2 mm [1.15 in]	46.50 mm [1.83 in]
FL	552A	6420	77.0 mm [3.03 in]	122.9 mm [4.84 in]	149.86 mm [5.900 in]	5/16-18	6	139.70 mm [5.50 in]	43.2 mm [1.70 in]	56.84 mm [2.24 in]

[1] 139.70 mm [5.50 in] is commonly used with "D" of 139.7 mm [5.50 in].

[2] Non ferrous hubs may require a different dimension due to differences in thermal expansion rates compared to ferrous hubs. .
All dimensions are nominal unless otherwise specified.

FIGURE 1 - NONPOWERED FRONT HUB/WHEEL



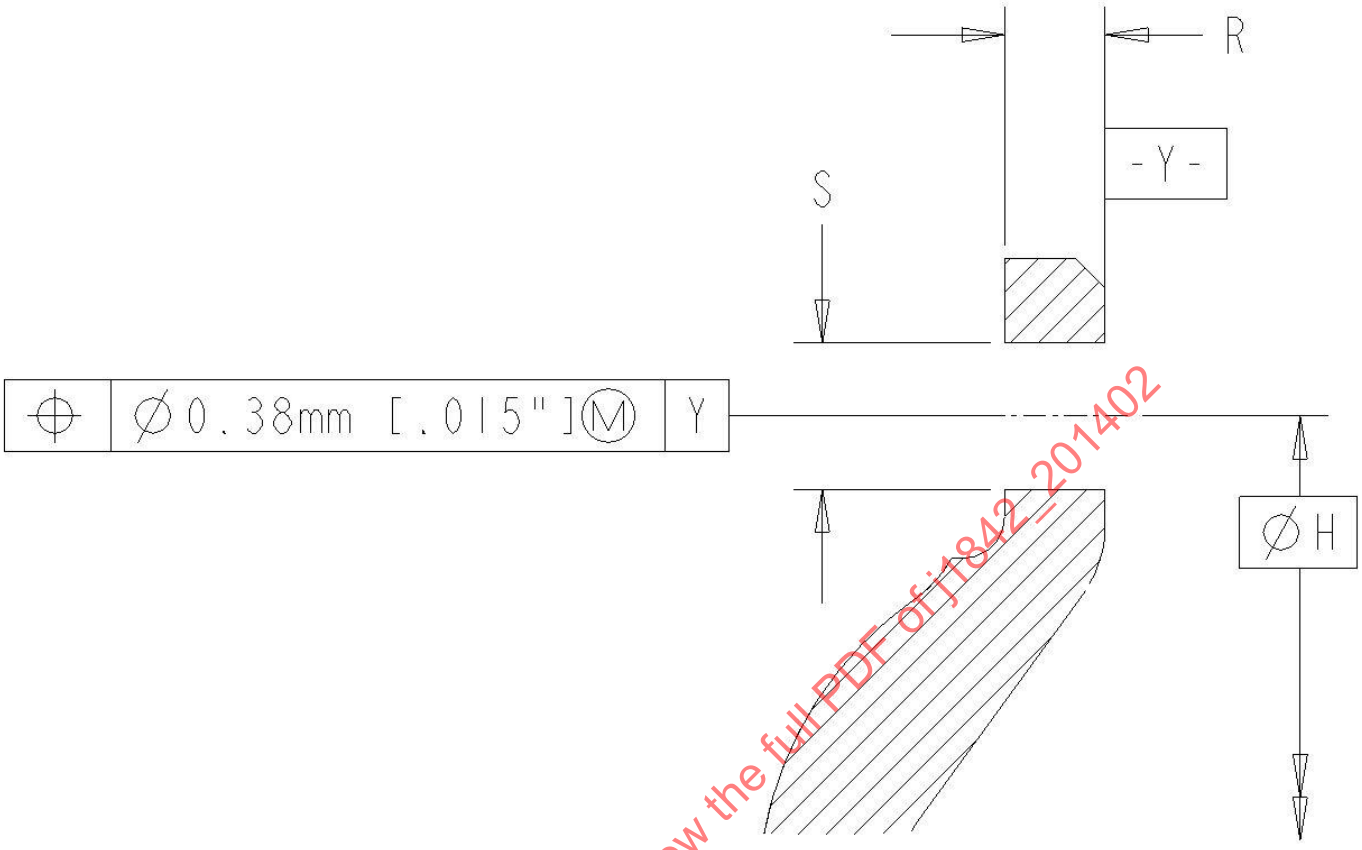
SAE Configuration	A	B	C	D	E[1]	F	G	H	J	K
L	39520	47620	117.4 mm [4.62 in]	185.7 mm [7.31 in]	144.53 mm [5.690 in]	1/2-20	12	133.35 mm [5.25 in]	36.6 mm [1.44 in]	58.7 mm [2.31 in]
LONG R 3/4-16 Drive Studs	572	592A	109.5 mm [4.31 in]	196.9 mm [7.75 in]	160.27 mm [6.310 in]	3/4-16	8	177.8 mm [7.00 in]	30.0 mm [1.18 in]	50.8 mm [2.00 in]
SHORT R 3/4-16 Drive Studs	572	592A	109.5 mm [4.31 in]	175.3 mm [6.90 in]	160.27 mm [6.310 in]	3/4-16	8	177.8 mm [7.00 in]	30.0 mm [1.18 in]	50.8 mm [2.00 in]
LONG R 5/8-18 Drive Studs	572	592A	109.5 mm [4.31 in]	196.9 mm [7.75 in]	160.27 mm [6.310 in]	5/8-18	8	177.8 mm [7.00 in]	30.0 mm [1.18 in]	50.8 mm [2.00 in]
SHORT R 5/8-18 Drive Studs	572	592A	109.5 mm [4.31 in]	175.3 mm [6.90 in]	160.27 mm [6.310 in]	5/8-18	8	177.8 mm [7.00 in]	30.0 mm [1.18 in]	50.8 mm [2.00 in]
U	742	772	138.2 mm [5.44 in]	220.2 mm [8.67 in]	184.15 mm [7.250 in]	5/8-18	8	177.8 mm [7.00 in]	38.1 mm [1.50 in]	61.2 mm [2.41 in]
W	6535	772	149.4 mm [5.88 in]	240.8 mm [9.48 in]	190.50 mm [7.500 in]	5/8-18	8	184.2 mm [7.25 in]	45.2 mm [1.78 in]	67.1 mm [2.64 in]

[1] Non ferrous hubs may require a different dimension due to differences in thermal expansion rates compared to ferrous hubs.

SAE Configuration	L Minimum	N Maximum
L	33.3 mm [1.31 in]	12.70 mm [0.500 in]
LONG R 3/4-16 Drive Studs	39.6 mm [1.56 in]	19.05 mm [0.750 in]
SHORT R 3/4-16 Drive Studs	39.6 mm [1.56 in]	19.05 mm [0.750 in]
LONG R 5/8-18 Drive Studs	38.10 mm [1.500 in]	15.88 mm [0.625 in]
SHORT R 5/8-18 Drive Studs	38.10 mm [1.500 in]	15.88 mm [0.625 in]
U	39.88 mm [1.570 in]	15.88 mm [0.625 in]
W	38.10 mm [1.500 in]	15.88 mm [0.625 in]

All dimensions are nominal unless otherwise specified.

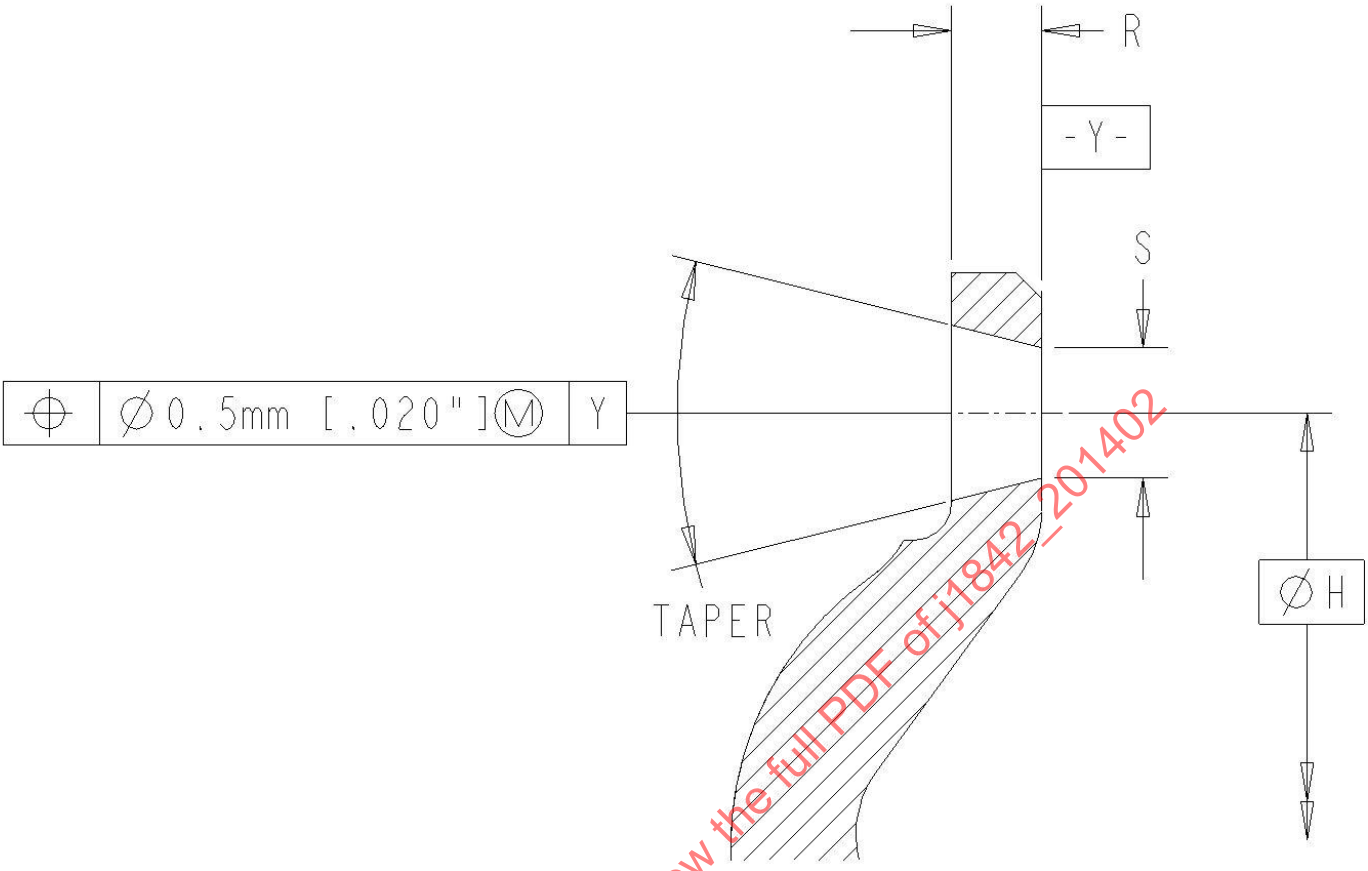
FIGURE 2 - POWERED REAR HUB/WHEEL



G*	H	N*	R Maximum	S Minimum
8	177.8 mm [7.000 in]	15.88 mm [0.625 in]	14.78 mm [0.582 in]	16.64 mm [0.655 in]
8	177.8 mm [7.000 in]	19.05 mm [0.750 in]	14.78 mm [0.582 in]	19.82 mm [0.780 in]
8	184.0 mm [7.244 in]	15.88 mm [0.625 in]	14.30 mm [0.563 in]	16.26 mm [0.640 in]
8	184.0 mm [7.244 in]	19.05 mm [0.750 in]	14.30 mm [0.563 in]	19.76 mm [0.778 in]

* From Figure 2.
All dimensions are nominal unless otherwise specified.

FIGURE 3 - POWERED REAR DRIVE FLANGE WITH STRAIGHT HOLES



G	H*	N*	R Maximum	S Minimum	T
12	133.35 mm [5.25 in]	12.7 mm [0.500 in]	10.82 mm [0.426 in]	14.68 mm [0.578 in]	28°
8	177.8 mm [7.000 in]	15.88 mm [0.625 in]	14.78 mm [0.582 in]	18.64 mm [0.734 in]	28°

* From Figure 2.
All dimensions are nominal unless otherwise specified.

FIGURE 4 - POWERED REAR DRIVE FLANGE WITH TAPERED HOLES