SURFACE VEHICLE STANDARD

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Engine Flywheel Housing and Mating Transmission Housing Flanges

RATIONALE

This technical report is being stabilized because it covers technology, products, or processes which are mature and not likely to change in the foreseeable future.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Automatic Transmission and Transaxle Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. SCOPE

This SAE Standard specifies the major dimensions and tolerances for Engine Flywheel Housings and the Mating Transmission Housing Flanges. It also locates the crankshaft flange face or the transmission pilot bore (or pilot bearing bore) stop face in relation to housing SAE flange face.

This document is not intended to cover the design of the flywheel housing face mating with the engine crankcase rear face or the design of housing walls and ribs. Housing strength analysis and the selection of housing materials are also excluded.

This document applies to any internal combustion engine which can utilize SAE No. 6 through SAE No. 00 size flywheel housing for mounting a transmission.

1.1 Purpose

This document is intended to achieve standardization in the design of "Engine Flywheel Housings" and the "Mating Transmission Housing" flanges to assure compatibility.

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 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 J542 Starting Motor Mountings

SAE J543 Starting Motor Pinions and Ring Gears

SAE J615 Engine Mountings

SAE J616 Engine Foot Mountings (Front and Rear)

SAE J621 Industrial Power Take-Offs with Driving Ring-Type Overcenter Clutches

SAE J1033 Procedure for Measuring Bore and Face Runout of Flywheels, Flywheel Housings, and Flywheel Housing Adapters

SAE J1172 Engine Flywheel Housings with Sealed Flanges

2.1.2 ANSI AND ISO Publications

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

ANSI B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)

ANSI Y14.5 Dimensioning and Tolerancing

ISO 7648 Flywheel housings for reciprocating internal combustion engines

ISO 7649 Road vehicles - Clutch housings for reciprocating internal combustion engines

3. DIMENSIONS AND TOLERANCES

Dimensions and tolerances shown are millimeter (inch). Geometric symbols used conform to ANSI Y14.5.

4. ENGINE FLYWHEEL HOUSINGS

Figures and tables listed as follows furnish the dimensions and the hole patterns for dry type engine flywheel housing:

Figure 1 - Flywheel Housing Dimension and Hole Pattern (for 8, 12, 16, and 24 bolt hole patterns).

Figure 2 - Flywheel Housing Flange Dimensions

Figure 3 - Depth of Pilot Bore (Dimensions E)

Table 1 and 2 - Flywheel Housing Dimension

For dimensions of "Engine Flywheels Housing with Sealed Flanges" (wet type housing), see SAE J1172.

When designing the "Engine Flywheel Housing," refer to SAE J542, SAE J543, SAE J615, SAE J616, SAE J1033, SAE J1172, ISO 7648, and ISO 7649.

5. MATING TRANSMISSION HOUSING FLANGES

Only the "SAE" flange area of the mating dry type transmission housing is covered by this document.

The nominal male pilot diameter of the mating transmission housing flange shall be the same as the nominal diameter "A" of the flywheel housing, Figure 1.

For mating transmission housing flange dimensions, tolerances, hole sizes, and runout requirements, see Figure 4 and Table 1, Table 2, and Table 3.

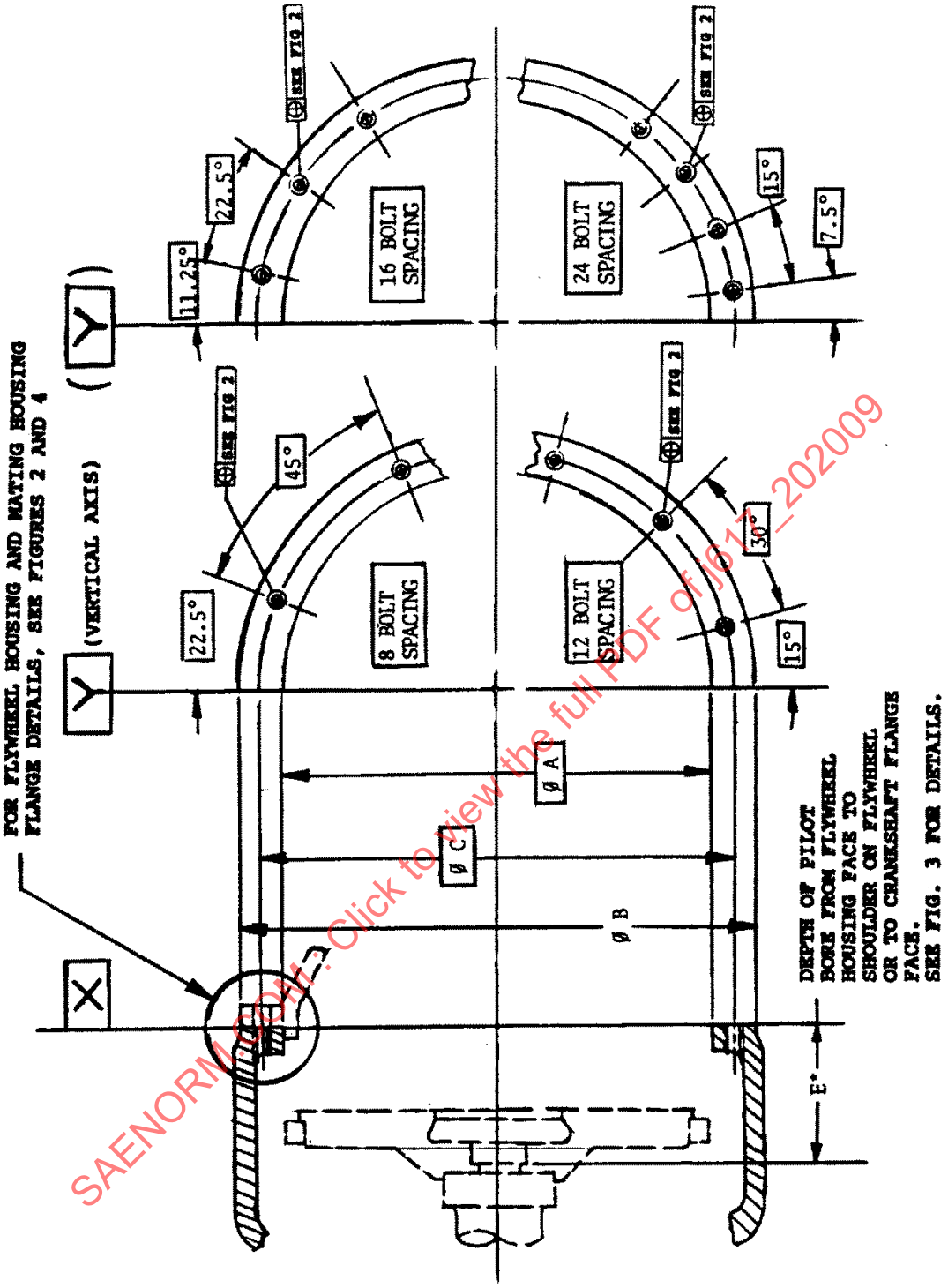
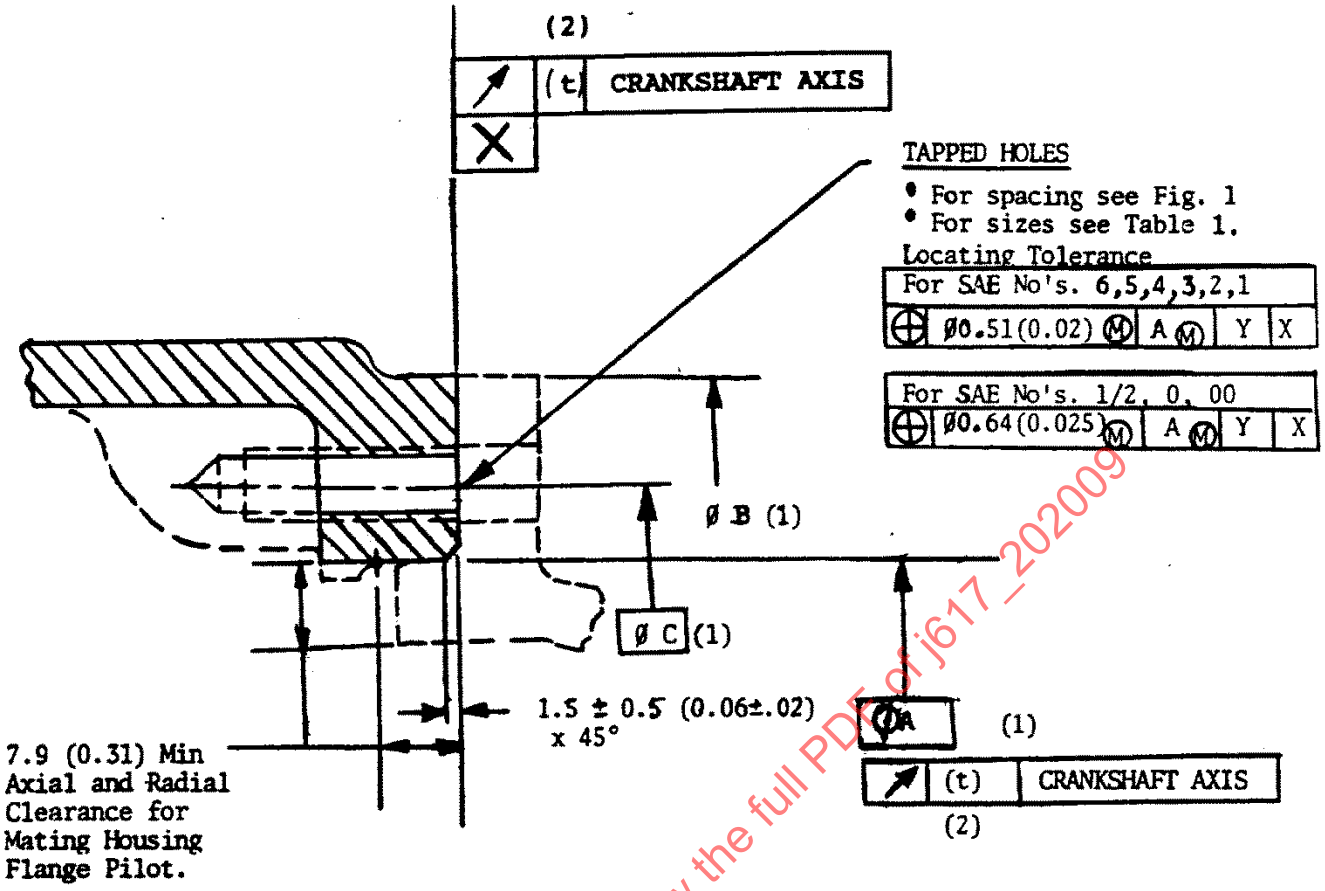
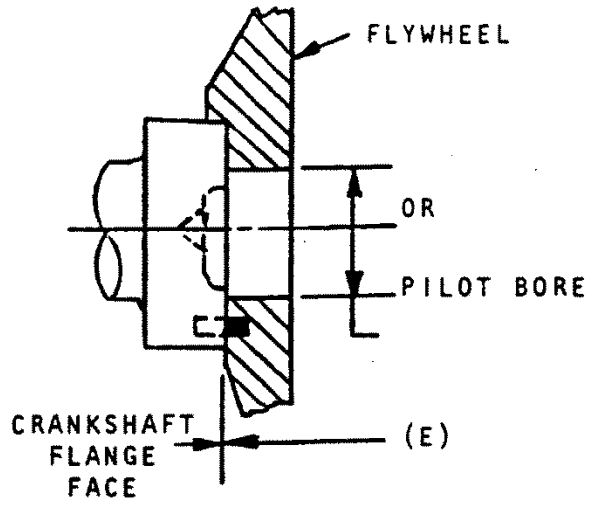


FIGURE 1 - FLYWHEEL HOUSING DIMENSIONS AND HOLE PATTERN, MM (IN)

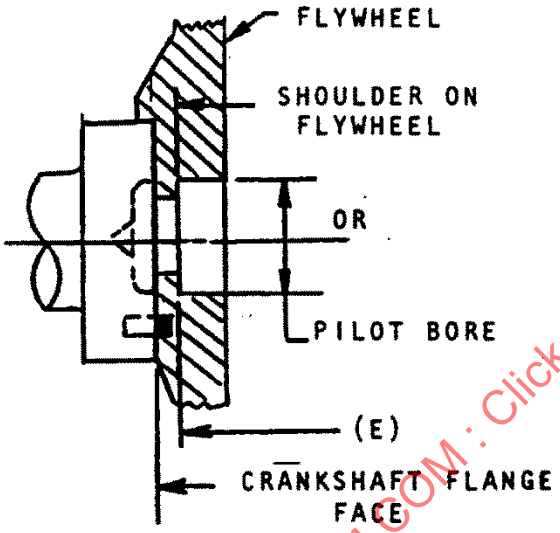


NOTES: 1. For A, B, and C Diameter Values See Table 1.
2. For (t) Runout Tolerance Values See Table 1.

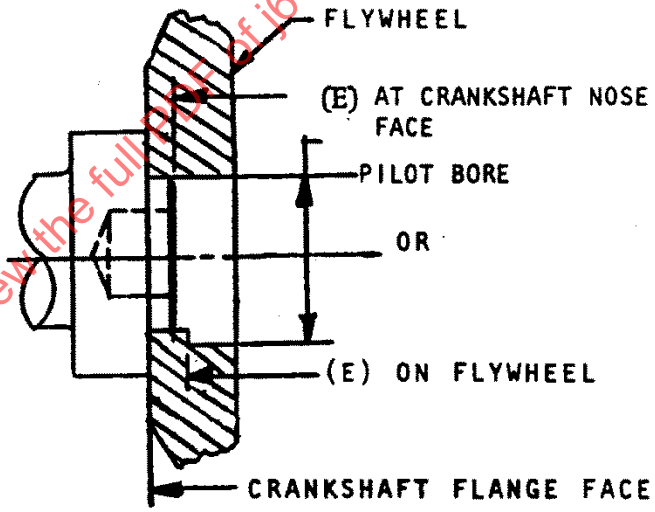
FIGURE 2 - FLYWHEEL HOUSING FLANGE DIMENSIONS, MM (IN)



[1] 3A—When Pilot Bore Stop Face is Located at Crankshaft Flange Face



[1] 3B—When Pilot Bore Shoulder is located on the Flywheel

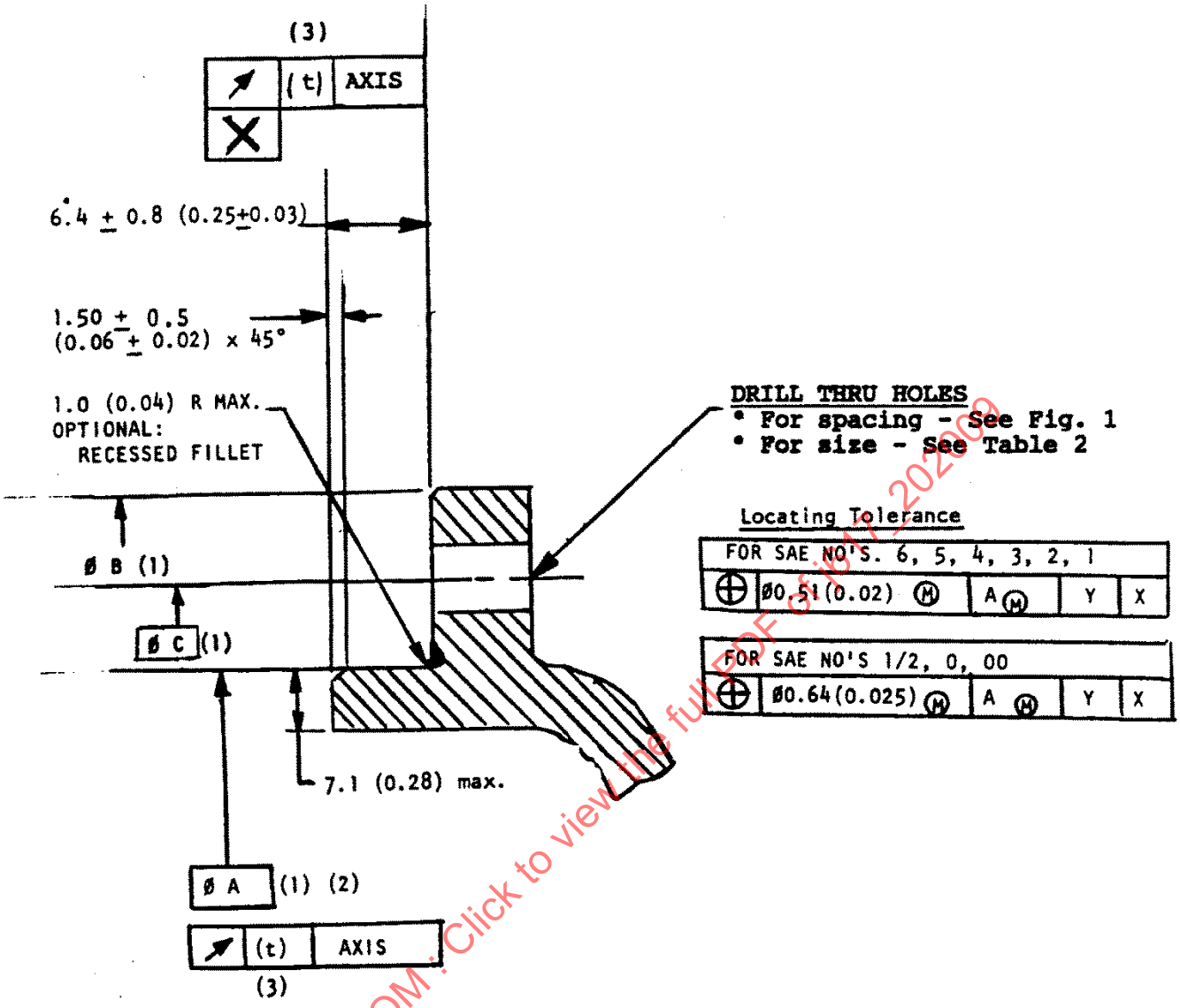


[1] 3C—When Pilot Bore Stop Face is Located at Crankshaft Nose Face or on the Flywheel

NOTES—[1] Figures 3A and 3B are for Flywheels Piloted From Crankshaft Flange Outside Diameter (Upper Half) or Piloted Using Dowel Pins (Lower Half)

[2] Figure 3C is for Flywheels Piloted From Crankshaft Nose

FIGURE 3 - DEPTH OF PILOT BORE (DIMENSION "E" - REFERENCE FIGURE 1) FOR VARIOUS CRANKSHAFT - FLYWHEEL MOUNTING SYSTEMS



NOTES—1. For A, B, and C Diameter Values, See Table 1.
2. For Diameter "A" Tolerance Values—See Table 2.
3. For (t) Runout Tolerance Values, See Table 2.

FIGURE 4 - MATING TRANSMISSION HOUSING FLANGE DIMENSIONS, MM (IN)