SAE International™ SURFACE VEHICLE STANDARD

SAE J780 CAN-CELLED OCT2002

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Superseding J780 NOV2000

Engine Coolant Pump Seals

1. Scope—This SAE Standard outlines physical dimensions and nomenclature for the sizes of seals commonly used in engine coolant pumps of automotive type engines. Its purpose is to define a standard envelope to accommodate installation of various seal designs and to promote uniformity in seal nomenclature. (See Figures 1 to 5.)

2. References

2.1 Applicable Publication—For additional information on material combinations, drawing format, qualification and inspection, and quality control data, please refer to SAE J1245. Unless otherwise indicated, the latest revision of SAE publications shall apply.

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

SAE J1245—Guide to the Application and Use of Engine Coolant Pump Face Seals

3. Nomenclature for Figures 1 to 5

1. Cartridge
2. Bellows
3. Spring
4. Ferrule
5. Primary Seal Ring
6. Secondary Drive Seal
7. Mating Ring
8. Unitizer

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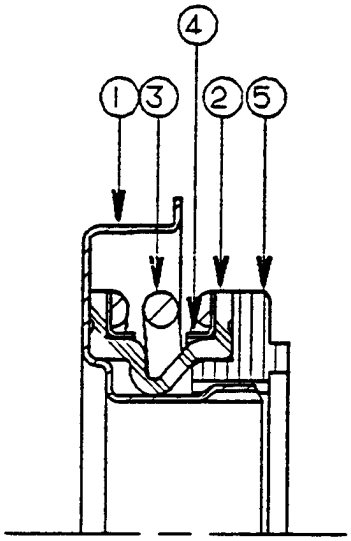

FIGURE 1—SPRING-LOADED

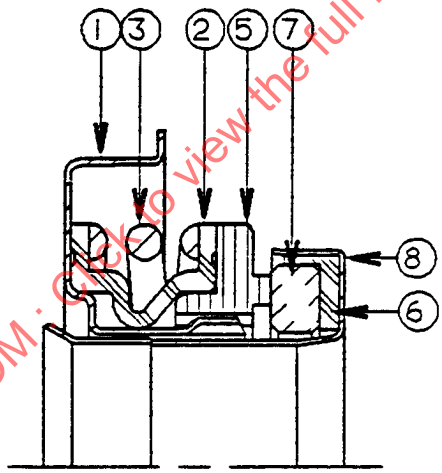

FIGURE 2—UNITIZED

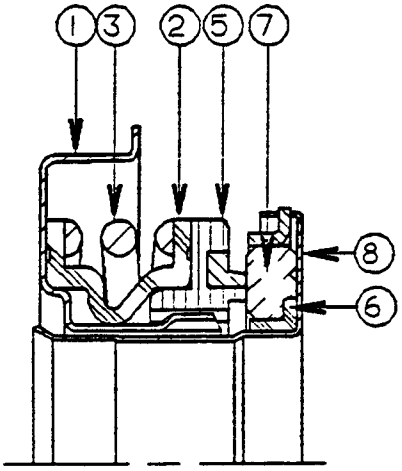

FIGURE 3—UNITIZED-POSITIVE DRIVE MATING RING

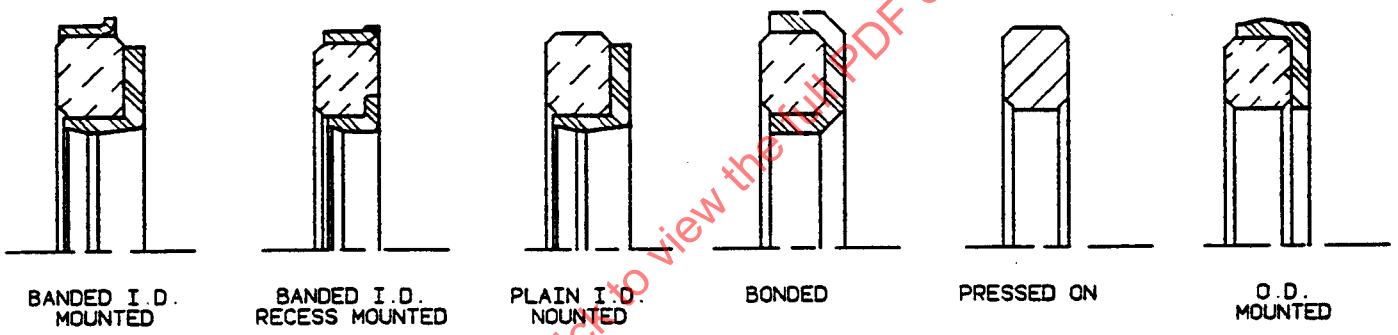

FIGURE 4—MATING RING TYPES

A[1] Boaring Bore	B Nominal Shaft Dia, mm	C Seal Housing Bore Dia, mm	D Seal Housing Bore Depth, mm	E Axial Clearance min, mm	F[1] Seal Bore Lead-in Chamfer	G[1] Pump Housing to Impeller or Mating Ring, mm	J[1] Lead-in Chamfer Bearing Shaft End
	10	28.55-28.60	9.14- 9.65	10.16	1.02x45°	1.57	3.18 mm x 30° Blended
	12	29.95-30.00	9.14- 9.65	10.16	1.02x45°	10.0	
	13	28.55-28.60	9.14- 9.65	10.41	1.02x45°	4.75	
	15	34.92-34.95	9.85-10.35	10.16	1.02x45°	12.5	
	16	34.14-34.21	6.30- 6.80	10.41	1.02x45°	12.5	
	16	36.43-36.47	9.14- 9.65	10.41	1.02x45°	5.97	
	16	36.43-36.47	9.14- 9.65	10.41	1.02x45°	6.73	
	16	38.05-38.10	9.14- 9.65	10.41	1.02x45°	6.73	
	16	38.74-38.79	9.14- 9.65	10.41	1.02x45°	6.73	
	16	39.32-39.37	9.14- 9.65	10.41	1.02x45°	6.73	
	16	39.92-39.96	6.30- 6.80	10.41	1.02x45°	12.5	
	19	38.05-38.10	9.14- 9.65	10.41	1.02x45°	6.73	
	19	38.56-38.61	9.14- 9.65	10.41	1.02x45°	12.5	
	19	39.98-40.03	9.14- 9.65	10.41	1.02x45°	6.73	
	25	41.20-41.25	9.65-10.16	11.18	1.52x45°	14.68	

[1] To be determined jointly by the pump manufacturer, bearing, and seal suppliers.

Roughness Average, Ra-m	
B max	C max
0.81	2.54

Concentricity between A & C (FIM)	0.05 mm max
Concentricity between B & C (FIM)	0.13 mm max
Squareness between B & H (FIM)	0.05 mm max
Squareness between B & Surface I (FIM)	0.13 mm max
Shaft End Play	0.13 mm max

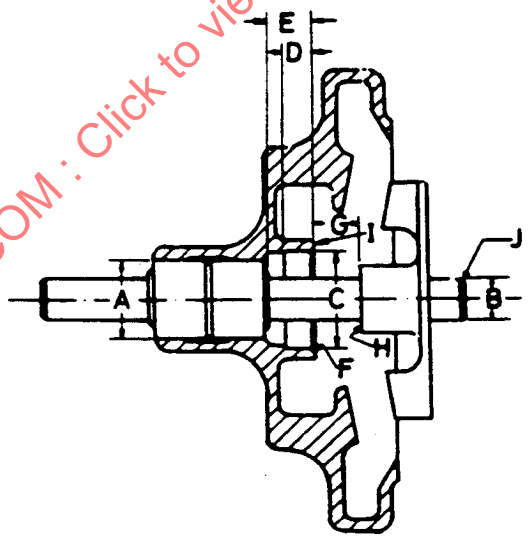

FIGURE 5—REFERENCE DIMENSIONS

PREPARED BY THE SAE MOTOR VEHICLE COUNCIL