

	SURFACE VEHICLE STANDARD	SAE J548-2 MAR2013
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Spark Plug Installation Sockets		

RATIONALE

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1. **Scope**—This SAE Standard applies to spark plug installation sockets of the long length type which are to be used for installing spark plugs of the most commonly used sizes for the North American market.
2. **References**
 - 2.1 **Applicable Publications**—The following publications form a part of this specification to the extent specified herein.
 - 2.1.1 ANSI PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.
 - ANSI B 107.1—Socket Wrenches, Hand (in series)
 - ANSI/ASME B 107.5M—Socket Wrenches, Hand (in series)—Socket Wrenches, Hand (metric series)
3. The spark plug installation socket shall be of the long length type and the conventional single hexagon design. A replaceable oil- and heat-resisting retaining bushing or other equally suitable device shall be installed inside the socket to prevent damage to the spark plug insulator and for aligning and retaining the spark plug for easy installation and removal. This bushing should be pliable and compressible to minimize side loading to the spark plug insulator. The socket shall be similar to Figure 1 except for the following:
 - a. The retaining bushing is not shown.
 - b. The drive end may be reduced in diameter for marking purposes and, at the option of the manufacturer, a male hexagon drive may be provided on the drive end, in addition to the female drive specified herein. It is recommended the socket be provided with a 3/8 in female square drive. Unless otherwise specified, the socket should comply with the standards set forth in ANSI Standards B 107.1 and B 107.5M. The sockets shall conform to Table 1.

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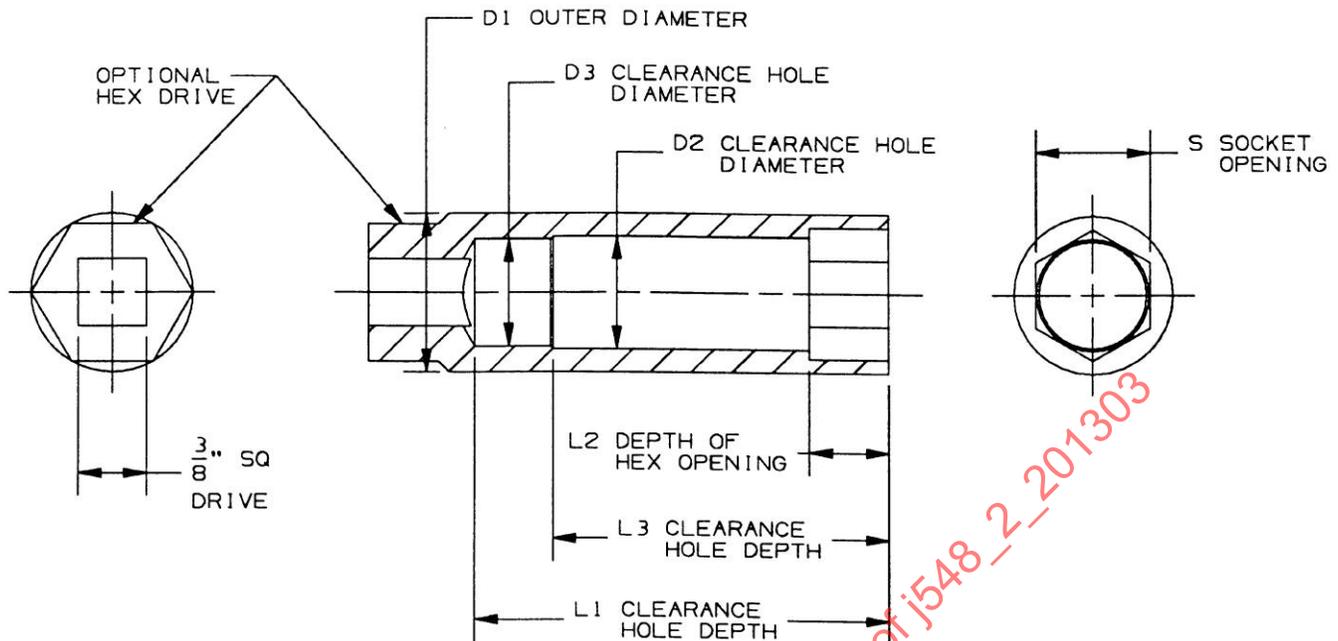


FIGURE 1—SPARK PLUG INSTALLATION DESIGN

TABLE 1—SOCKET DIMENSIONS
 Dimensions are mm (in)

Spark Plug Hex Size Across Flats	S Minimum Socket Opening ⁽¹⁾	S Maximum Socket Opening ⁽¹⁾	L ₁ Minimum Clearance Hole Depth ⁽²⁾	L ₂ Depth of Hex Opening	L ₃ Minimum Clearance Hole Depth ⁽²⁾	D ₁ Maximum Outer Diameter	D ₂ Minimum Clearance Hole Diameter ⁽²⁾ for L ₃	D ₃ Minimum Clearance Hole Diameter for L ₁
13.73 - 14.00 (0.541 - 0.551)	14.05 (0.553)	14.27 (0.562)	49.00 (1.929)	9.50 - 13.00 (0.374 - 0.512)	38.00 (1.496)	19.5 (0.768)	13.80 (0.543)	13.10 (0.516)
15.73 - 15.95 (0.619 - 0.628)	16.05 (0.632)	16.18 (0.637)	63.00 ⁽³⁾ (2.480)	9.50 - 13.00 (0.374 - 0.512)	47 (1.850)	22.00 (0.866)	15.90 (0.626)	15.2 (0.598)
18.80 - 19.00 (0.740 - 0.748)	19.06 (0.750)	19.36 (0.762)	56.00 (2.205)	9.50 - 13.00 (0.374 - 0.512)	NA	25.50 (1.004)	18.00 (0.744)	NA
20.40 - 20.80 (0.803 - 0.819)	20.86 (0.821)	21.16 (0.833)	67.00 (2.638)	9.50 - 13.00 (0.374 - 0.512)	NA	27.50 (1.083)	20.00 (0.811)	NA

1. These openings vary from standard wrench openings to (a) accommodate both ISO and SAE spark plug maximum hex sizes and to (b) improve the socket hex interface with the spark plug hex to reduce the probability of the socket being tipped and contacting the insulator, causing damage.
2. The proposed minimum clearance hole diameters and depths are based upon clearance to existing spark plug designs. This provides optimum fit conditions to prevent damage to the spark plug without subjecting socket manufacturers to undue restrictions.
3. A minimum clearance hole depth of 63.00 mm was obtained using maximum permissible spark plug standard dimensions. A survey of major North American spark plug suppliers revealed that a minimum clearance hole depth of 57.4 mm would provide sufficient clearance to accommodate all of the spark plug designs. To maximize clearance between the socket and other components, it is acceptable that the minimum clearance hole depth be 57.4 mm.