

(R) AUTOMOTIVE HYDRAULIC BRAKE SYSTEM—METRIC BANJO BOLT CONNECTIONS

Foreword—This Document has not changed other than to put it into the new SAE Technical Standards Board Format.

1. **Scope**—This standard documents dimensional metric specifications for hydraulic brake system threaded ports and banjo bolts for the interconnection of major components in automotive hydraulic brake systems. Banjo blocks are not covered by this standard.

The purpose of this document is to recommend preferred metrically dimensioned components (including alternative choices). Some applications may require sizes or forms other than those shown herein, and this document does not preclude such other details when they are required.

2. **References**

- 2.1 **Applicable Publications**—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

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

SAE J512 OCT80—Automotive Tube Fittings

SAE J1290 MAR85—Automotive Brake System—Metric Tube Connections

3. **Threaded Ports (Banjo Bolts)**—Threaded ports for banjo bolts should be dimensioned as shown in Figure 1 and Table 1.

4. **Banjo Bolts**—Banjo bolts should be dimensioned as shown in Figure 2 and Table 2.

NOTE—This standard supersedes SAE J1258 (Cancelled 1980). Tubing, end flares, threaded ports for tube nuts, and male tube nuts are covered by SAE Recommended Practice J1290 MAR85.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-8512 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER; (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS <http://www.sae.org>

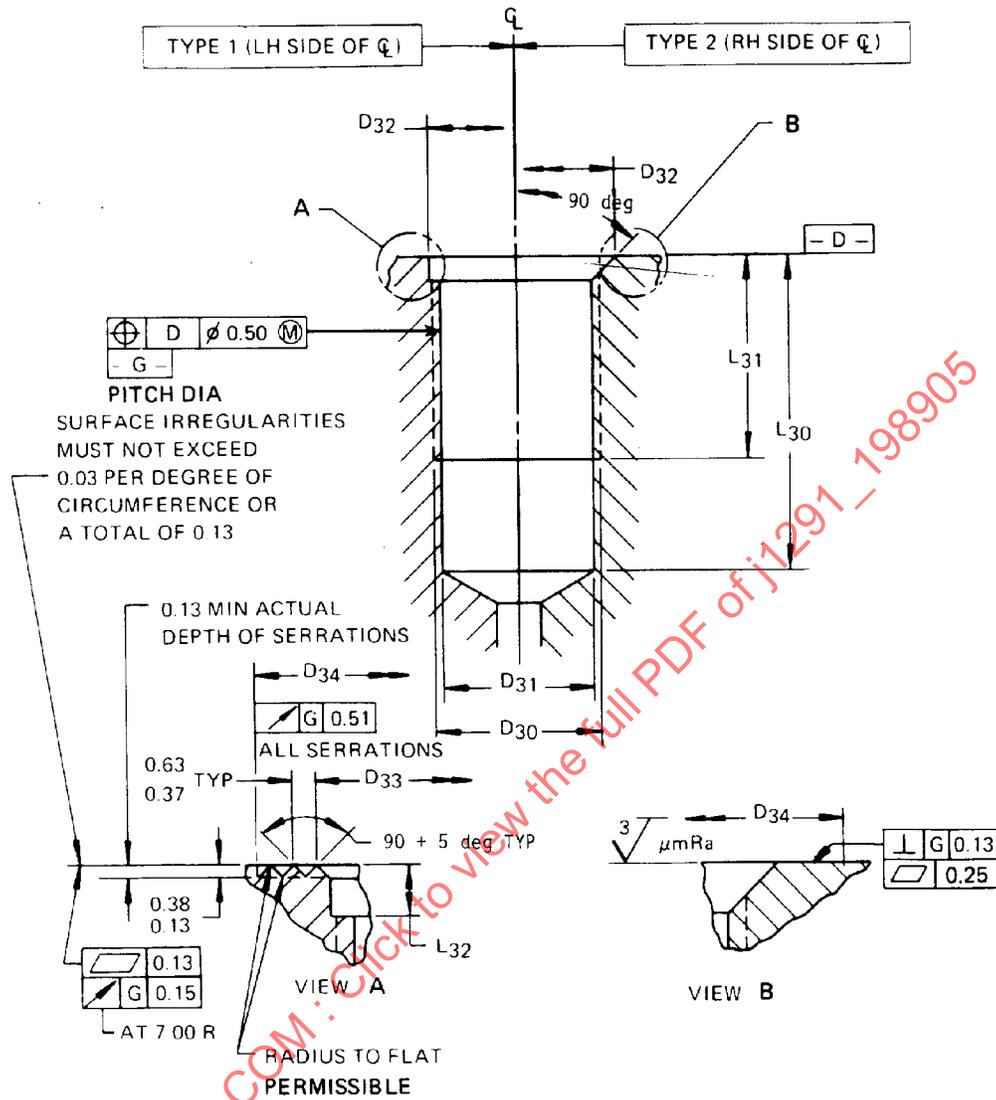


FIGURE 1—THREADED PORTS FOR BANJO BOLTS (mm)

TABLE 1—DIMENSIONS AND TOLERANCES FOR THREADED PORTS FOR BANJO BOLTS (mm)

D ₃₀ Thread 6H		Pitch	Minor				D ₃₁ +0.0 -0.3	D ₃₂ +0.0 -0.2		D ₃₃ +0.0 -0.5	D ₃₄ +0.0 -0.5		L ₃₀ +0.0 -1.0	L ₃₁ min	L ₃₂ +0.0 -1.0
Preference			max	min	max	min		Type 1	Type 2		Type 1	Type 2			
M10	1	1.0	9.500	9.350	9.153	8.917	8.50	10.25	11.6	11.25	18.25	48.3	18.5	12.5	1.80
	2	1.5	9.206	9.026	8.676	8.376	8.70	10.25	11.6	11.25	18.25	48.3	18.5	12.5	1.80
M11	1	1.0	10.500	10.350	10.153	9.917	9.40	11.25	12.7	12.25	19.25	48.3	18.5	12.5	1.80
	2	1.5	10.206	10.026	9.676	9.376	9.70	11.25	12.7	12.25	19.25	48.3	18.5	12.5	1.80
M12	1	1.0	11.510	11.350	11.153	10.917	10.30	12.25	13.8	13.25	20.25	48.3	18.5	12.5	1.80
	2	1.5	11.216	11.026	10.676	10.376	10.70	12.25	13.8	13.25	20.25	48.3	18.5	12.5	1.80

SAE J1291 Revised MAY89

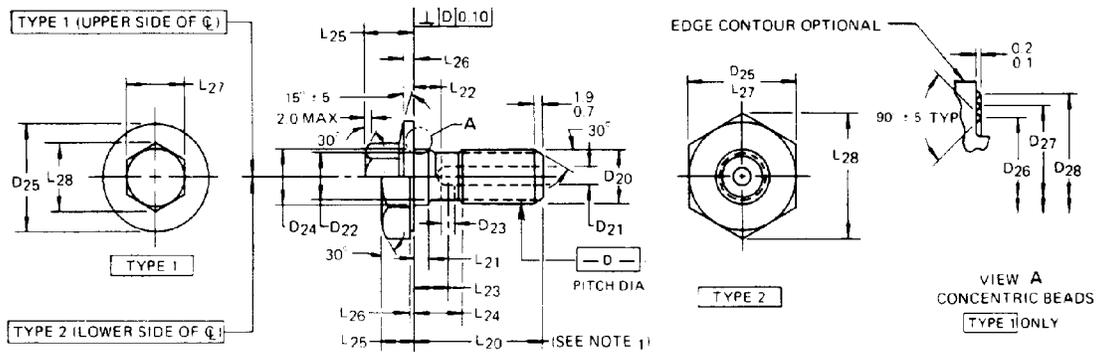


FIGURE 2—BANJO BOLTS (mm)

TABLE 2—DIMENSIONS AND TOLERANCES FOR BANJO BOLTS (mm)

D ₂₀ Thread 6g		Pitch φ			D ₂₅								L ₂₅		L ₂₆		L ₂₇		L ₂₈							
Preference 1	2	Pitch	min	max	D ₂₁	D ₂₂	D ₂₃	D ₂₄	Type 1	Type 2	D ₂₆	D ₂₇	D ₂₈	L ₂₀	L ₂₁	L ₂₂	L ₂₃	L ₂₄	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2		
					+0.0 -0.3	+0.0 -0.1	+0.0 -0.3	+0.0 -0.1	+0.0 -1.0	+0.0 -0.5	+0.0 -0.5	+0.0 -0.5	+0.0 -0.8	+0.0 -0.6	+0.0 -1.0	+0.0 -0.6	+0.0 -1.1	+0.0 -0.5	min	+0.0 -0.3	+0.0 -0.3	+0.0 -0.3	+0.0 -0.6	+0.0 -0.6		
M10	1	1.0	9.212	9.324	3.4	8.99	2.6	10.0	18.0	L ₂₇	13.0	14.3	15.6	See Note	3.0	4.0	6.5	8.6	9.6	6.6	1.5	0.6	11.0	15.0	12.7	17.3
		1.5	8.862	8.994	3.4	8.99	2.6	10.0	18.0		13.0	14.3	15.6		3.0	4.0	6.5	8.6	9.6	6.6	1.5	0.6	11.0	15.0	12.7	17.3
	M11	1.0	10.21	10.32	3.4	9.99	2.6	11.0	19.0		14.0	15.3	16.6		3.0	4.0	6.5	8.6	10.6	7.2	1.8	0.6	12.0	16.0	13.9	18.5
		1.5	9.862	9.994	3.4	9.99	2.6	11.0	19.0		14.0	15.3	16.6		3.0	4.0	6.5	8.6	10.6	7.2	1.8	0.6	12.0	16.0	13.9	18.5
M12	1	1.0	11.20	11.32	3.4	10.99	2.6	12.0	20.0	15.0	16.3	17.6	3.0	4.0	6.5	8.6	11.6	7.8	2.0	0.6	13.0	17.0	15.0	19.6		
		1.5	10.85	10.99	3.4	10.99	2.6	12.0	20.0	15.0	16.3	17.6	3.0	4.0	6.5	8.6	11.6	7.8	2.0	0.6	13.0	17.0	15.0	19.6		

Dimension dependent on thickness of banjo block, which is not covered by this standard. Pitch diameters shown above apply to plain (unplated or uncoated) bolts. Basic pitch diameters (minimum pitch diameters for internal threads in Table 1) shall apply to plated or coated bolts after plating or coating. For information relative to materials, finishes, and workmanship, refer to SAE J512 OCT80. For thread sizes, refer to DIN 13. For hex sizes, refer to DIN 176.

5. Notes

5.1 **Marginal Indicia**—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE HYDRAULIC BRAKE SYSTEMS ACTUATING COMPONENTS STANDARDS