

(R) WOODRUFF KEYS

1. Scope

2. References—There are no referenced publications specified herein.

3. Material—Keys are to be carbon steel or alloy heat treated steel as specified. Carbon steel keys are to be 0.30 carbon minimum, with hardness of Rockwell B 90 minimum. Alloy steel keys are to be SAE 2330 or 8630 steel, heat treated to a hardness of 40-50 RC; or other alloy steels having equal physical properties at the same hardness. Alloy heat treated keys are to be marked with depressions on the top to distinguish them from carbon steel keys.

4. Dimensions—Dimensions are to be as given in Tables 1A, 1B, and 2 and Figures 1, 2, and 3.

4.1 Width A (Shown in Illustrations Accompanying Tables)—Values shown were set with the maximum key slot width as that figure which will receive a key with the greatest amount of looseness consistent with assuring the key's sticking in the slot. Minimum key slot width is that figure permitting the largest shaft distortion acceptable when assembling maximum key in minimum key slot.

4.2 Dimensions A, B, C, and E—These dimensions are to be taken at the side intersection.

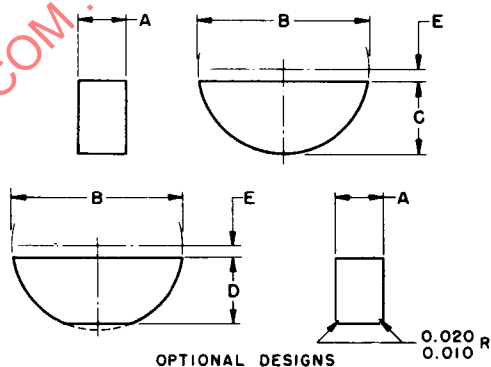


FIGURE 1—

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SAE J502 Revised SEP72

TABLE 1A—KEY DIMENSIONS

Part No.	SAE Nominal Size	Width, A +0.001 -0.000	Dia, B +0.000 -0.010	Heights C +0.000 -0.006	Heights D +0.000 -0.006	Heights E Nominal	Key Area at Shear Line	Approximate Weight, Lb per 1000
201	1/16 x 1/4	0.0625	0.250	0.109	—	1/64	0.0145	0.6
206	1/16 x 5/16	0.0625	0.312	0.140	—	1/64	0.0184	0.7
207	3/32 x 5/16	0.0938	0.312	0.140	—	1/64	0.0264	0.9
211	1/16 x 3/8	0.0625	0.375	0.172	—	1/64	0.0225	0.9
212	3/32 x 3/8	0.0938	0.375	0.172	—	1/64	0.0328	1.3
213	1/8 x 3/8	0.1250	0.375	0.172	—	1/64	0.0420	1.5
1	1/16 x 1/2	0.0625	0.500	0.203	0.194	3/64	0.0296	1.3
2	3/32 x 1/2	0.0938	0.500	0.203	0.194	3/64	0.0434	1.9
3	1/8 x 1/2	0.1250	0.500	0.203	0.194	3/64	0.0512	2.5
4	3/32 x 5/8	0.0938	0.625	0.250	0.240	1/16	0.0523	3.0
5	1/8 x 5/8	0.1250	0.625	0.250	0.240	1/16	0.0716	3.9
6	5/32 x 5/8	0.1563	0.625	0.250	0.240	1/16	0.0871	4.9
61	3/16 x 5/8	0.1875	0.625	0.250	0.240	1/16	0.0105	5.8
7	1/8 x 3/4	0.1250	0.750	0.313	0.303	1/16	0.0884	6.1
8	5/32 x 3/4	0.1563	0.750	0.313	0.303	1/16	0.1086	7.5
9	3/16 x 3/4	0.1875	0.750	0.313	0.303	1/16	0.1279	9.0
91	1/4 x 3/4	0.2500	0.750	0.313	0.303	1/16	0.1623	12.0
10	5/32 x 7/8	0.1563	0.875	0.375	0.365	1/16	0.1294	11.0
11	3/16 x 7/8	0.1875	0.875	0.375	0.365	1/16	0.1531	13.0
12	7/32 x 7/8	0.2188	0.875	0.375	0.365	1/16	0.1813	14.9
A	1/4 x 7/8	0.2500	0.875	0.375	0.365	1/16	0.1976	17.0
13	3/16 x 1	0.1875	1.000	0.438	0.428	1/16	0.1781	17.0
14	7/32 x 1	0.2188	1.000	0.438	0.428	1/16	0.2100	20.1
15	1/4 x 1	0.2500	1.000	0.438	0.428	1/16	0.2320	23.0
B	5/16 x 1	0.3125	1.000	0.438	0.428	1/16	0.2811	29.0
16	3/16 x 1-1/8	0.1875	1.125	0.484	0.475	5/64	0.2007	22.0
17	7/32 x 1-1/8	0.2188	1.125	0.484	0.475	5/64	0.2320	25.0
18	1/4 x 1-1/8	0.2500	1.125	0.484	0.475	5/64	0.2622	29.0
C	5/16 x 1-1/8	0.3125	1.125	0.484	0.475	5/64	0.3193	36.0
19	3/16 x 1-1/4	0.1875	1.250	0.547	0.537	5/64	0.2284	27.1
20	7/32 x 1-1/4	0.2188	1.250	0.547	0.537	5/64	0.2608	31.8
21	1/4 x 1-1/4	0.2500	1.250	0.547	0.537	5/64	0.2955	36.0
D	5/16 x 1-1/4	0.3125	1.250	0.547	0.537	5/64	0.3621	45.0
E	3/8 x 1-1/4	0.3750	1.250	0.547	0.537	5/64	0.4243	54.0
22	1/4 x 1-3/8	0.2500	1.375	0.594	0.584	3/32	0.3259	43.0
23	5/16 x 1-3/8	0.3125	1.375	0.594	0.584	3/32	0.4003	54.0
F	3/8 x 1-3/8	0.3750	1.375	0.594	0.584	3/32	0.4705	65.0
24	1/4 x 1-1/2	0.2500	1.500	0.641	0.631	7/64	0.3562	50.0
25	5/16 x 1-1/2	0.3125	1.500	0.641	0.631	7/64	0.4384	63.0
G	3/8 x 1-1/2	0.3750	1.500	0.641	0.631	7/64	0.5166	75.0

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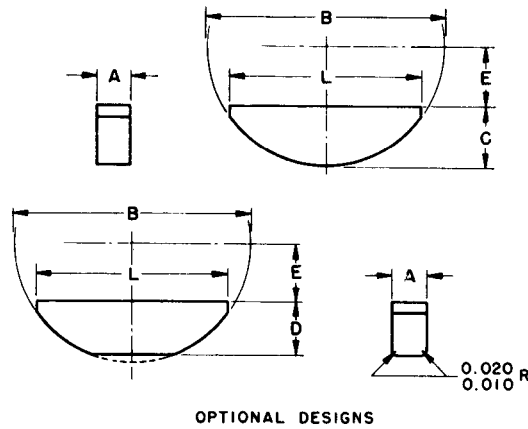


FIGURE 2—

TABLE 1B—KEY DIMENSIONS

Part No.	SAE Nominal Size	Width, A +0.001 -0.000	Dia, B +0.000 -0.010	Heights C +0.000 -0.005	Heights D +0.000 -0.006	Heights E Nominal	Length, L +0.000 -0.010	Key Area at Shear Line	Approximate Weight, Lb per 1000
126	3/16 x 2-1/8	0.1875	2.125	0.406	0.396	21/32	1.380	0.2578	23.4
127	1/4 x 2-1/8	0.2500	2.125	0.406	0.396	21/32	1.380	0.3437	31.2
128	5/16 x 2-1/8	0.3125	2.125	0.406	0.396	21/32	1.380	0.4296	39.3
129	3/8 x 2-1/8	0.3750	2.125	0.406	0.396	21/32	1.380	0.4833	47.2
26	3/16 x 2-1/8	0.1875	2.125	0.531	0.521	17/32	1.723	0.3222	36.3
27	1/4 x 2-1/8	0.2500	2.125	0.531	0.521	17/32	1.723	0.4178	48.2
28	5/16 x 2-1/8	0.3125	2.125	0.531	0.521	17/32	1.723	0.5062	60.1
29	3/8 x 2-1/8	0.3750	2.125	0.531	0.521	17/32	1.723	0.5868	72.3
Rx	1/4 x 2-3/4	0.2500	2.750	0.594	0.584	25/32	2.000	0.5000	64.8
Sx	5/16 x 2-3/4	0.3125	2.750	0.594	0.584	25/32	2.000	0.6286	80.8
Tx	3/8 x 2-3/4	0.3750	2.750	0.594	0.584	25/32	2.000	0.6943	96.6
Ux	7/16 x 2-3/4	0.4375	2.750	0.594	0.584	25/32	2.000	0.8253	112.9
Vx	1/2 x 2-3/4	0.5000	2.750	0.594	0.584	25/32	2.000	0.9094	129.3
R	1/4 x 2-3/4	0.2500	2.750	0.750	0.740	5/8	2.317	0.5718	91.6
S	5/16 x 2-3/4	0.3125	2.750	0.750	0.740	5/8	2.317	0.7071	114.2
T	3/8 x 2-3/4	0.3750	2.750	0.750	0.740	5/8	2.317	0.8319	136.6
U	7/16 x 2-3/4	0.4375	2.750	0.750	0.740	5/8	2.317	0.9499	159.2
V	1/2 x 2-3/4	0.5000	2.750	0.750	0.740	5/8	2.317	1.0606	191.8
30	3/8 x 3-1/2	0.3750	3.500	0.938	0.927	13/16	2.880	1.0781	216.0
31	7/16 x 3-1/2	0.4375	3.500	0.938	0.927	13/16	2.880	1.2371	252.0
32	1/2 x 3-1/2	0.5000	3.500	0.938	0.927	13/16	2.880	1.3905	288.0
33	9/16 x 3-1/2	0.5625	3.500	0.938	0.927	13/16	2.880	1.5368	325.0
34	5/8 x 3-1/2	0.6250	3.500	0.938	0.927	13/16	2.880	1.6755	359.0
35	11/16 x 3-1/2	0.6875	3.500	0.938	0.927	13/16	2.880	1.8062	399.0
36	3/4 x 3-1/2	0.7500	3.500	0.938	0.927	13/16	2.880	1.9281	435.0

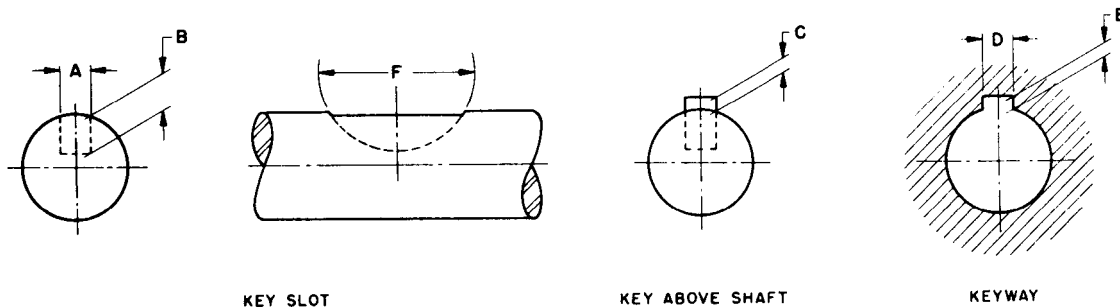


FIGURE 3—

TABLE 2—KEY SLOT AND KEYWAY DIMENSIONS

Part No.	SAE Nominal Size	Key Slot Width, A Min	Key Slot Width, A Max	Key Slot Depth, B +0.005 -0.000	Key Slot Dia, F Min	Key Slot Dia, F Max	Key above Shaft Height, C ±0.005	Key-way Width, D +0.002 -0.000	Key-way Depth, E +0.005 -0.000	Mfrs Part No.	SAE Nominal Size	Key Slot Width, A Min	Key Slot Width, A Max	Key Slot Depth, B +0.005 -0.000	Key Slot Dia, F Min	Key Slot Dia, F Max	Key above Shaft Height, C ±0.005	Key way Width, D +0.002 -0.000	Key way Depth, E +0.005 -0.000
201	1/16 x 1/4	0.0615	0.0630	0.0728	0.250	0.268	0.0312	0.0635	0.0372	E	3/8 x 1-1/4	0.3735	0.3755	0.3545	1.250	1.273	0.1875	0.3760	0.1935
206	1/16 x 5/16	0.0615	0.0630	0.1038	0.312	0.330	0.0312	0.0635	0.0372	22	1/4 x 1-3/8	0.2487	0.2505	0.4640	1.375	1.398	0.1250	0.2510	0.1310
207	3/32 x 5/16	0.0928	0.0943	0.0882	0.312	0.330	0.0469	0.0948	0.0529	23	5/16 x 1-3/8	0.3111	0.3130	0.4328	1.375	1.398	0.1562	0.3135	0.1622
211	1/16 x 3/8	0.0615	0.0630	0.1358	0.375	0.393	0.0312	0.0635	0.0372										
212	3/32 x 3/8	0.0928	0.0943	0.1202	0.375	0.393	0.0469	0.0948	0.0529	F	3/8 x 1-3/8	0.3735	0.3755	0.4015	1.375	1.398	0.1875	0.3760	0.1935
213	1/8 x 3/8	0.1240	0.1255	0.1045	0.375	0.393	0.0625	0.1260	0.0685	24	1/4 x 1-1/2	0.2487	0.2505	0.5110	1.500	1.523	0.1250	0.2510	0.1310
										25	5/16 x 1-1/2	0.3111	0.3130	0.4798	1.500	1.523	0.1562	0.3135	0.1622
1	1/16 x 1/2	0.0615	0.0630	0.1668	0.500	0.518	0.0312	0.0635	0.0372	G	3/8 x 1-1/2	0.3735	0.3755	0.4485	1.500	1.523	0.1875	0.3760	0.1935
2	3/32 x 1/2	0.0928	0.0943	0.1511	0.500	0.518	0.0469	0.0948	0.0529										
3	1/8 x 1/2	0.1240	0.1255	0.1355	0.500	0.518	0.0625	0.1260	0.0685	126	3/16 x 2-1/8	0.1863	0.1880	0.3073	2.125	2.160	0.0937	0.1885	0.0997
4	3/32 x 5/8	0.0928	0.0943	0.1981	0.625	0.643	0.0469	0.0948	0.0529	127	1/4 x 2-1/8	0.2487	0.2505	0.2760	2.125	2.160	0.1250	0.2510	0.1310
5	1/8 x 5/8	0.1240	0.1255	0.1825	0.625	0.643	0.0625	0.1260	0.0685	128	5/16 x 2-1/8	0.3111	0.3130	0.2448	2.125	2.160	0.1562	0.3135	0.1622
6	5/32 x 5/8	0.1553	0.1568	0.1669	0.625	0.643	0.0781	0.1573	0.0841	129	3/8 x 2-1/8	0.3735	0.3755	0.2135	2.125	2.160	0.1875	0.3760	0.1935
61	3/16 x 5/8	0.1863	0.1880	0.1513	0.625	0.643	0.0937	0.1885	0.0997	26	3/16 x 2-1/8	0.1863	0.1880	0.4323	2.125	2.160	0.0937	0.1885	0.0997
7	1/8 x 3/4	0.1240	0.1255	0.2455	0.750	0.768	0.0625	0.1260	0.0685	27	1/4 x 2-1/8	0.2487	0.2505	0.4010	2.125	2.160	0.1250	0.2510	0.1310
8	5/32 x 3/4	0.1553	0.1568	0.2299	0.750	0.768	0.0781	0.1573	0.0841	28	5/16 x 2-1/8	0.3111	0.3130	0.3698	2.125	2.160	0.1562	0.3135	0.1622
9	3/16 x 3/4	0.1863	0.1880	0.2143	0.750	0.768	0.0937	0.1885	0.0997	29	3/8 x 2-1/8	0.3735	0.3755	0.3385	2.125	2.160	0.1875	0.3760	0.1935
91	1/4 x 3/4	0.2487	0.2505	0.1830	0.750	0.768	0.1250	0.2510	0.1310										
10	5/32 x 7/8	0.1553	0.1568	0.2919	0.875	0.895	0.0781	0.1573	0.0841	Rx	1/4 x 2-3/4	0.2487	0.2505	0.4640	2.750	2.785	0.1250	0.2510	0.1310
										Sx	5/16 x 2-3/4	0.3111	0.3130	0.4328	2.750	2.785	0.1562	0.3135	0.1622
11	3/16 x 7/8	0.1863	0.1880	0.2763	0.875	0.895	0.0937	0.1885	0.0997	Tx	3/8 x 2-3/4	0.3735	0.3755	0.4015	2.750	2.785	0.1875	0.3760	0.1935
12	7/32 x 7/8	0.2175	0.2193	0.2607	0.875	0.895	0.1093	0.2198	0.1153	Ux	7/16 x 2-3/4	0.4360	0.4380	0.3703	2.750	2.785	0.2187	0.4385	0.2247
A	1/4 x 7/8	0.2487	0.2505	0.2450	0.875	0.895	0.1250	0.2510	0.1310	Vx	1/2 x 2-3/4	0.4985	0.5005	0.3390	2.750	2.785	0.2500	0.5010	0.2560
13	3/16 x 1	0.1863	0.1880	0.3393	1.000	1.020	0.0937	0.1885	0.0997										
14	7/32 x 1	0.2175	0.2193	0.3237	1.000	1.020	0.1093	0.2198	0.1153	R	1/4 x 2-3/4	0.2487	0.2505	0.6200	2.750	2.785	0.1250	0.2510	0.1310
15	1/4 x 1	0.2487	0.2505	0.3080	1.000	1.020	0.1250	0.2510	0.1310	S	5/16 x 2-3/4	0.3111	0.3130	0.5888	2.750	2.785	0.1562	0.3135	0.1622
										T	3/8 x 2-3/4	0.3735	0.3755	0.5575	2.750	2.785	0.1875	0.3760	0.1935
B	5/16 x 1	0.3111	0.3130	0.2768	1.000	1.020	0.1562	0.3135	0.1622	U	7/16 x 2-3/4	0.4360	0.4380	0.5263	2.750	2.785	0.2187	0.4385	0.2247
16	3/16 x 1-1/8	0.1863	0.1880	0.3853	1.125	1.145	0.0937	0.1885	0.0997	V	1/2 x 2-3/4	0.4985	0.5005	0.4950	2.750	2.785	0.2500	0.5010	0.2560
17	7/32 x 1-1/8	0.2175	0.2193	0.3697	1.125	1.145	0.1093	0.2198	0.1153										
18	1/4 x 1-1/8	0.2487	0.2505	0.3540	1.125	1.145	0.1250	0.2510	0.1310	30	3/8 x 3-1/2	0.3735	0.3755	0.7455	3.500	3.535	0.1875	0.3760	0.1935
C	5/16 x 1-1/8	0.3111	0.3130	0.3228	1.125	1.145	0.1562	0.3135	0.1622	31	7/16 x 3-1/2	0.4360	0.4380	0.7143	3.500	3.535	0.2187	0.4385	0.2247
19	3/16 x 1-1/4	0.1863	0.1880	0.4483	1.250	1.273	0.0937	0.1885	0.0997	32	1/2 x 3-1/2	0.4985	0.5005	0.6830	3.500	3.535	0.2500	0.5010	0.2560
										33	9/16 x 3-1/2	0.5610	0.5630	0.6518	3.500	3.535	0.2812	0.5635	0.2872
20	7/32 x 1-1/4	0.2175	0.2193	0.4327	1.250	1.273	0.1093	0.2198	0.1153	34	5/8 x 3-1/2	0.6235	0.6255	0.6205	3.500	3.535	0.3125	0.6260	0.3185
21	1/4 x 1-1/4	0.2487	0.2505	0.4170	1.250	1.273	0.1250	0.2510	0.1310	35	11/16 x 3-1/2	0.6860	0.6880	0.5893	3.500	3.535	0.3437	0.6885	0.3497
D	5/16 x 1-1/4	0.3111	0.3130	0.3858	1.250	1.273	0.1562	0.3135	0.1622	36	3/4 x 3-1/2	0.7485	0.7505	0.5580	3.500	3.535	0.3750	0.7510	0.3810