

	SURFACE VEHICLE STANDARD	
	SAE	J744 FEB2013
	Issued Revised	1952-01 2013-02
Superseding J744 JUN1996		
Hydraulic Pump and Motor Mounting and Drive Dimensions		

RATIONALE

This SAE Standard is revised to clarify dimensions on Taper Shaft to help improve mounting of Hydraulic Pump and Motor.

1. SCOPE

This SAE Standard applies to hydraulic pumps and motors used on off-road self-propelled work machines as described in SAE J1116.

1.1 Purpose

To provide a progression of standard mounting flanges and shafts that are dimensionally compatible.

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 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 J390	Dual Dimensioning Engineering Drawings
SAE J1116	Categories of Off-Road Self-Propelled Work Machines
SAE TSB 003	Rules for SAE Use of SI (Metric) Units

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http://www.sae.org/technical/standards/J744_201302**

2.2 ANSI 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 Screw Threads

ANSI B92.1-1996 Involute Splines and Inspection

3. UNITS

3.1 The International System of Units (SI) is used herein in accordance with Reference 7.1.

3.2 Customary U.S. units are given for information purposes, and these appear in parentheses next to their SI counterpart.

4. IDENTIFICATION CODE

4.1 Flange identification codes are found in Table 1.

4.1.1 The number preceding the dash (—) is an approximation, in millimeters, of the mounting flange pilot diameter.

4.1.2 The number following the dash (—) states the number of mounting holes in the flange.

TABLE 1 - DIMENSIONS OF 2 AND 4 BOLT PUMP AND MOTOR MOUNTING FLANGES

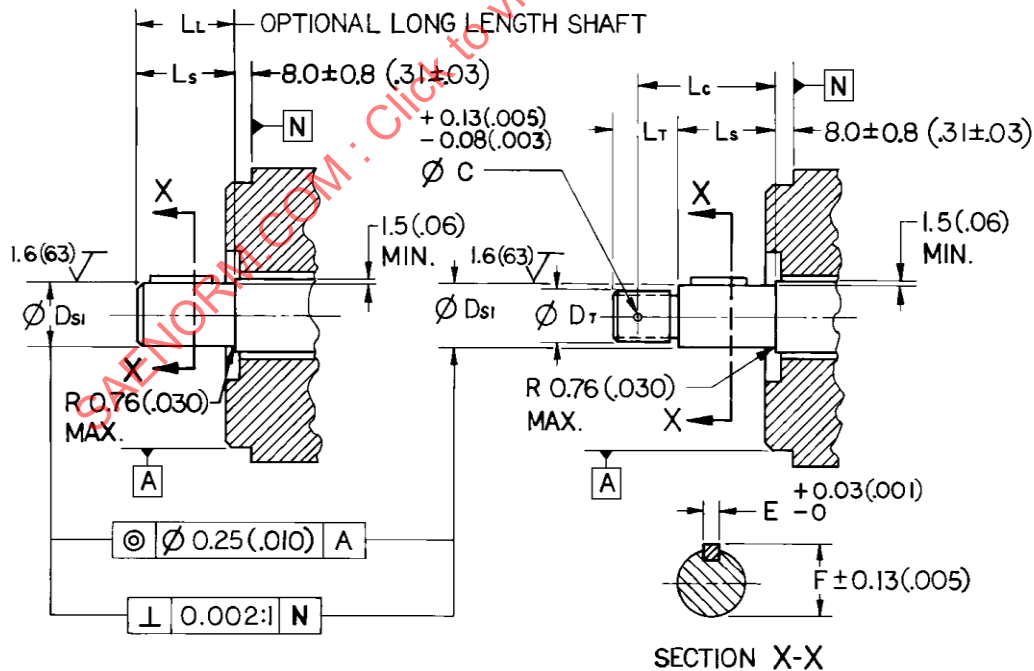
Identifi- cation Code	Pilot Dimen- sions A Noted	Pilot Dimen- sions W Noted	Pilot Dimen- sions X Min	Pilot Dimen- sions Y Max	2 Bolt Type B Cast Dim.	2 Bolt Type J	2 Bolt Type K	2 Bolt Type M Noted	2 Bolt Type P ₁ Cast Dim.	4 Bolt Type S	4 Bolt Type R Noted	4 Bolt Type P ₂ Cast Dim.
50— ⁽¹⁾	50.80	6.4	—	0.8	64	14	82.6	10.3	10	—	—	—
(A—A)	(2.000)	(0.250)	—	(0.03)	(2.50)	(0.56)	(3.250)	(0.406)	(0.38)	—	—	—
82— ⁽¹⁾	82.55	6.4	—	0.8	95	18	106.4	11.1	12	—	—	—
(A)	(3.250)	(0.250)	—	(0.03)	(3.75)	(0.72)	(4.188)	(0.438)	(0.47)	—	—	—
101— ⁽¹⁾	101.60	9.7	51	1.5	120	25	146.0	14.3	14	89.8	14.3	14
(B)	(4.000)	(0.380)	(2.00)	(0.06)	(4.75)	(0.99)	(5.750)	(0.562)	(0.56)	(3.536)	(0.562)	(0.56)
127— ⁽¹⁾	127.00	12.7	64	1.5	148	31	181.0	17.5	16	114.5	14.3	16
(C)	(5.000)	(0.500)	(2.50)	(0.06)	(5.81)	(1.22)	(7.125)	(0.688)	(0.62)	(4.508)	(0.562)	(0.62)
152— ⁽¹⁾	152.40	12.7	70	1.5	200	40	228.6	20.6	19	161.6	20.6	19
(D)	(6.000)	(0.500)	(2.75)	(0.06)	(7.88)	(1.55)	(9.000)	(0.812)	(0.75)	(6.364)	(0.812)	(0.75)
165— ⁽¹⁾	165.10	15.9	70	2.3	270	55	317.5	27.0	25	224.5	20.6	19
(E)	(6.500)	(0.625)	(2.75)	(0.09)	(10.62)	(2.15)	(12.500)	(1.062)	(1.00)	(8.839)	(0.812)	(0.75)
177— ⁽¹⁾	177.80	15.9	70	2.3	300	60	350.0	27.0	25	247.5	27.0	25
(F)	(7.000)	(0.625)	(2.75)	(0.09)	(11.75)	(2.37)	(13.781)	(1.062)	(1.00)	(9.745)	(1.062)	(1.00)

1. —2 2 Bolt, —4 4 Bolt Flange

TABLE 2 - DIMENSIONS OF STRAIGHT SHAFTS - WITHOUT AND WITH THREAD

Identi- fication Code	Straight Shaft D _{S1} Max	Straight Shaft D _{S1} Min	Straight Shaft L _S	Straight Shaft F Noted	No Thread —1 E Noted	No Thread —1 L _L Optional	With Thread —2 D _T ANSI B1.1	With Thread —2 C Noted	With Thread —2 L _C	With Thread —2 L _T
13— ⁽¹⁾	12.70	12.67	19	14.07	3.18	—	3/8—24	2.4	29	14.25
(A—A)	(0.500)	(0.499)	(0.750)	(0.554)	(0.125)	—	UNF 2A	(0.094)	(1.125)	(0.562)
16— ⁽¹⁾	15.88	15.85	24	17.60	3.97	51	1/2—20	3.2	34	18.25
(A)	(0.625)	(0.624)	(0.938)	(0.693)	(0.1563)	(2.00)	UNF 2A	(0.125)	(1.344)	(0.719)
19— ⁽¹⁾	19.05	19.02	24	21.10	4.78	51	1/2—20	3.2	34	18.25
	(0.750)	(0.749)	(0.938)	(0.831)	(0.188)	(2.00)	UNF 2A	(0.125)	(1.344)	(0.719)
22— ⁽¹⁾	22.22	22.20	33	24.90	6.35	63	5/8—18	4.0	48	23.00
(B)	(0.875)	(0.874)	(1.312)	(0.982)	(0.250)	(2.50)	UNF 2A	(0.156)	(1.875)	(0.906)
25— ⁽¹⁾	25.40	25.35	38	28.10	6.35	70	3/4—16	4.0	52	27.00
(B—B)	(1.000)	(0.998)	(1.500)	(1.106)	(0.250)	(2.75)	UNF 2A	(0.156)	(2.062)	(1.062)
32— ⁽¹⁾	31.75	31.70	48	35.20	7.94	76	1—12	4.0	67	31.00
(C)	(1.250)	(1.248)	(1.875)	(1.386)	(0.3125)	(3.00)	UNF 2A	(0.156)	(2.625)	(1.219)
38— ⁽¹⁾	38.10	38.05	54	42.27	9.52	83	1-1/8—12	4.0	73	34.90
(C—C)	(1.500)	(1.498)	(2.125)	(1.664)	(0.375)	(3.25)	UNF 2A	(0.156)	(2.875)	(1.375)
44— ⁽¹⁾	44.45	44.40	67	49.30	11.11	92	1-1/4—12	4.0	89	39.70
(D & E)	(1.750)	(1.748)	(2.625)	(1.941)	(0.4375)	(3.62)	UNF 2A	(0.156)	(3.500)	(1.562)

1. —1 without thread, —2 with thread



Unspecified tolerances:

mm diam. - 1 place ± 0.5 ; 2 place ± 0.25
 (inch dim. - 2 place ± 0.02 ; 3 place ± 0.010)
 micrometer (micro inch)

Dimensions in mm (in)

FIGURE 2 - DIMENSIONS OF STRAIGHT SHAFTS - WITHOUT AND WITH THREAD

TABLE 3 - DIMENSIONS OF TAPER SHAFT ENDS WITH THREAD—3

Identification Code	D _{S3}	D _T ANSI B1.1	D _G Gauge Diameter	C Noted	L _{CT}	L _{ST}	L _T	L _G Gauge Length	E Noted	Z Max	Z Min
13—3	12.70	5/16—32	12.00	2.0	25	17.48	12.70	11.88	3.18	1.63	1.37
(A—A)	(0.500)	UNF 2A	(0.472)	(0.078)	(0.984)	(0.688)	(0.500)	(0.468)	(0.125)	(0.064)	(0.054)
16—3	15.88	1/2—20	15.00	3.2	28	17.48	18.26	10.44	3.97	2.13	1.88
(A)	(0.625)	UNF 2A	(0.591)	(0.125)	(1.094)	(0.688)	(0.719)	(0.412)	(0.1563)	(0.084)	(0.074)
19—3	19.05	1/2—20	18.00	3.2	34	23.83	18.26	15.43	4.78	2.54	2.29
	(0.750)	UNF 2A	(0.709)	(0.125)	(1.344)	(0.938)	(0.719)	(0.607)	(0.188)	(0.100)	(0.090)
22—3	22.22	5/8—18	20.00	4.0	43	28.58	23.01	10.82	6.35	3.33	3.07
(B)	(0.875)	UNF 2A	(0.787)	(0.156)	(1.688)	(1.125)	(0.906)	(0.424)	(0.250)	(0.131)	(0.121)
25—3	25.40	3/4—16	23.00	4.0	49	34.92	26.97	15.72	6.35	3.33	3.07
(B—B)	(1.00)	UNF 2A	(0.906)	(0.156)	(1.938)	(1.375)	(1.062)	(0.619)	(0.250)	(0.131)	(0.121)
32—3	31.75	1—12	30.00	4.0	49	34.92	30.96	20.92	7.94	4.11	3.86
(C)	(1.25)	UNF 2A	(1.181)	(0.156)	(1.938)	(1.375)	(1.219)	(0.824)	(0.3125)	(0.162)	(0.152)
38—3	38.10	1-1/8—12	35.00	4.0	62	47.62	34.92	22.82	9.52	4.93	4.67
(C—C)	(1.50)	UNF 2A	(1.378)	(0.156)	(2.438)	(1.875)	(1.375)	(0.899)	(0.375)	(0.194)	(0.184)
44—3	44.45	1-1/4—12	41.00	4.0	71	53.98	39.67	26.38	11.11	5.72	5.46
(D & E)	(1.75)	UNF 2A	(1.614)	(0.156)	(2.812)	(2.125)	(1.562)	(1.038)	(0.4375)	(0.225)	(0.215)
50—3	50.80	1-1/4—12	46.00	4.0	90	73.02	39.67	34.62	12.70	6.50	6.25
(F)	(2.00)	UNF 2A	(1.811)	(0.156)	(3.562)	(2.875)	(1.562)	(1.363)	(0.500)	(0.256)	(0.246)

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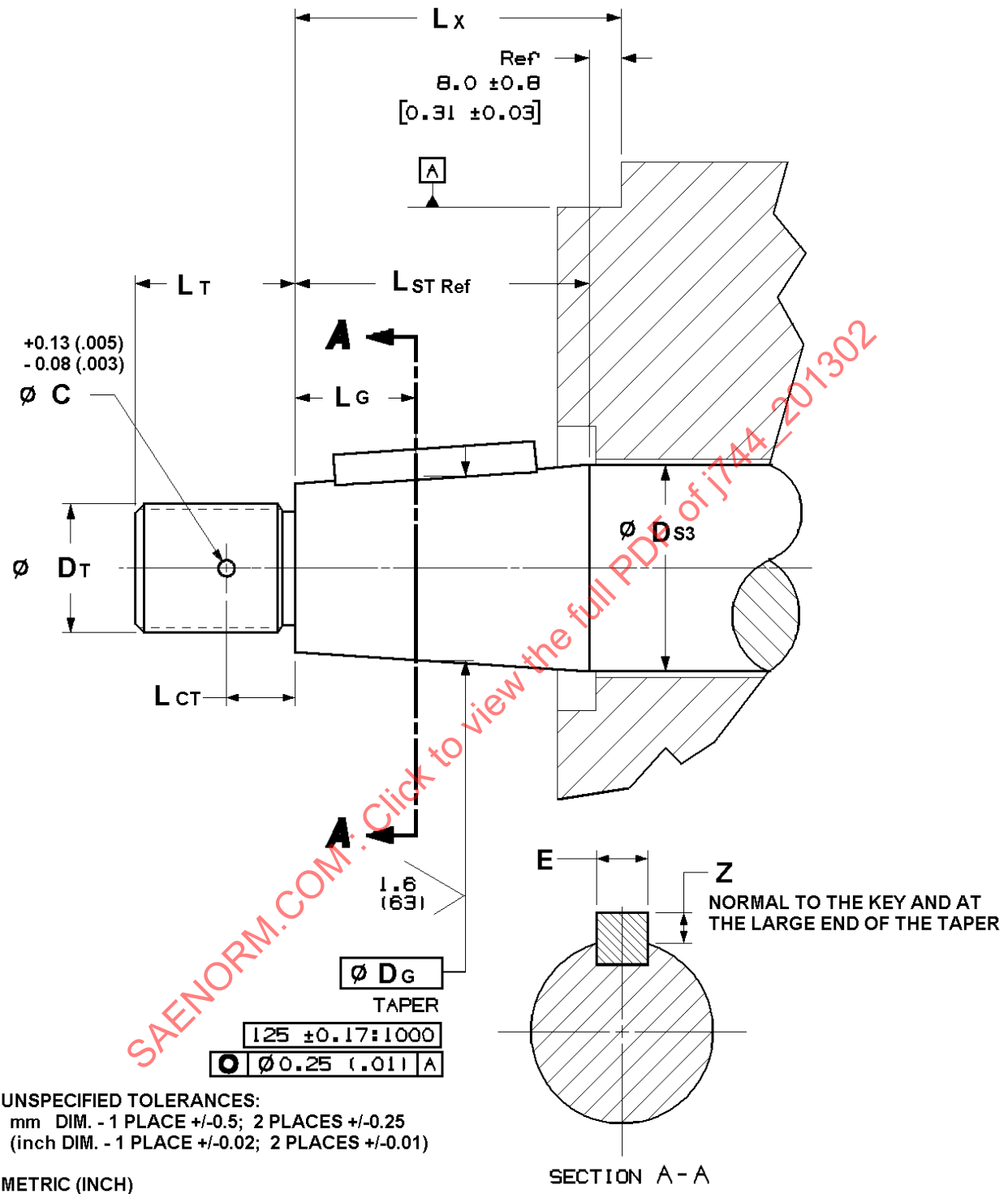


FIGURE 3 - DIMENSIONS OF TAPER SHAFT ENDS WITH THREAD - 3