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SURFACE VEHICLE STANDARD

SAE J1467

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Superseding J1467 DEC88

An American National Standard

(R) CLIP FASTENER FITTING

***Foreword*—**This Document has also changed to comply with the new SAE Technical Standards Board format.

***1. Scope*—**This SAE Standard covers material and dimensional requirements of steel clip fastener fittings. These fittings are intended for use in hydraulic systems on industrial equipment primarily in mining applications.

2. References

2.1 Applicable Publication—The following publication forms a part of this specification to the extent specified herein.

2.1.1 ASTM PUBLICATION—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 117—Method of Salt Spray (Fog) Testing

***3. Size Designation*—**Fitting sizes are designated by the corresponding nominal inside diameter of hose. See Table 1.

TABLE 1—NOMINAL SIZE DESIGNATIONS

Nominal SAE Dash Size	Nominal Hose I.D. mm
–4	6.35
–6	9.52
–8	12.70
–12	19.05
–16	25.40
–20	31.75
–24	38.10
–32	50.80

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4. Material and Manufacture

4.1 Material

4.1.1 MALE AND FEMALE—The material used in the manufacture of the male and female components shall be steel such as AISI 12L14, 1137, 1141, or other free cutting steels having a minimum yield strength of 193 MPa and a minimum tensile strength of 345 MPa. Figure 1 and Figure 2.

4.1.2 O-RING—The standard clip fastener O-ring shall be manufactured from an elastomeric material that is compatible with the fluid being conveyed. Suitable materials include nitrile (NBR) rubber or viton having a minimum Shore 'A' hardness of 80 durometer. Figure 3.

4.1.3 BACK-UP RING—The clip fastener back-up ring shall be manufactured from a material that is compatible with the fluid being conveyed. Suitable materials include acetal homopolymers, polyamide, or Teflon (PTFE). Figure 3.

4.1.4 STAPLES—The clip fastener staple (clip) shall be manufactured from corrosion-resistant steel or spring steel. Contour and details of staple are optional with manufacturer providing that interchangeability of the male and female is not affected. Figure 4.

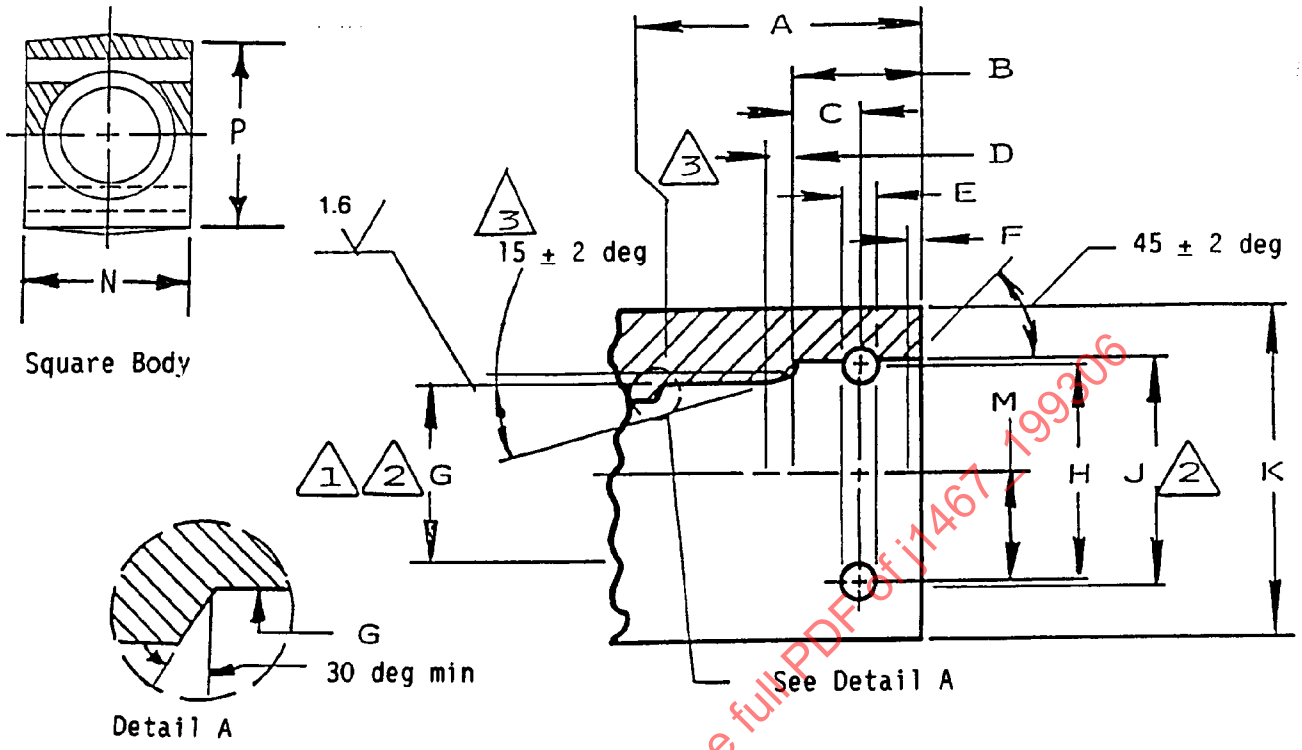
4.2 Finish—The external surfaces and threads of all carbon steel parts shall be plated or coated with a suitable material that passes a 72 h salt spray test in accordance with ASTM B 117. Any appearance of red rust during the 72 h salt spray test shall be considered failure, except for the following:

a. All internal fluid passages.
b. Edges such as hex points, serrations, and crests of threads where there may be mechanical deformation of the plating or coating typical of mass-produced parts or shipping effects.
c. Areas where there is mechanical deformation of the plating or coating caused by crimping, flaring, bending, and other post-plate metal forming operations.
d. Areas where the parts are suspended or affixed in the test chamber where condensate can accumulate.

NOTE—Cadmium plating is not preferred due to environmental reasons. Parts manufactured to this document after January 1, 1977, shall not be cadmium plated. Internal fluid passages shall be protected from corrosion during storage. Changes in plating may affect assembly torques and require requalification, when applicable.

4.3 Workmanship—Workmanship shall conform to the best commercial practice to produce high-quality fittings. Fittings must be free from visual contaminants, all hanging burrs, loose scale, and slivers which might be dislodged in usage, and any other defects that might affect the function of the parts.

4.4 Construction—Fittings may be made by forging, cold heading, or machined from bar stock. Carbon steel fittings fabricated from multiple components may be bonded together by copper brazing, silver brazing, welding, or other suitable processes.



Nominal SAE Dash Size	A min mm	B ±0.5 mm	C	D ±0.10 mm	E mm	F max mm	G ±0.025 mm	H mm	J ±0.08 mm	K dia mm	M ±0.13 mm	N ±0.5 mm	P ±0.5 mm
-4	27.43	15.5	7.7 7.0	2.0	6.15 5.89	1.1	10.03	13.3 12.8	15.16	27.2 23.0	6.50	21.0	22.3
-6	27.43	15.5	7.7 7.0	2.0	6.15 5.89	1.1	14.02	18.3 17.8	20.17	32.0 30.0	9.02	26.0	30.0
-8	27.43	15.5	7.7 7.0	2.0	6.15 5.89	1.1	18.03	22.3 21.8	24.16	36.6 34.9	11.0	30.0	35.0
-12	27.43	15.5	7.7 7.0	2.0	6.15 5.89	1.1	24.03	27.3 26.8	29.16	45.2 41.0	13.51	35.0	41.0
-16	32.51	20.5	9.7 9.0	2.0	8.69 8.30	1.1	31.01	36.3 35.7	39.12	55.1 52.4	18.0	48.0	53.0
-20	32.51	20.5	9.7 9.0	2.0	8.69 8.30	1.1	38.02	43.4 42.8	46.15	65.3 60.0	21.50	55.0	60.0
-24	34.54	20.5	11.7 11.0	2.0	9.19 8.30	1.1	47.02	52.4 51.6	55.22	73.0 70.0	26.0	--	--
-32	34.54	20.5	11.7 11.0	2.0	9.19 8.30	1.1	56.00	61.4 60.6	64.21	82.6 80.0	30.50	--	--

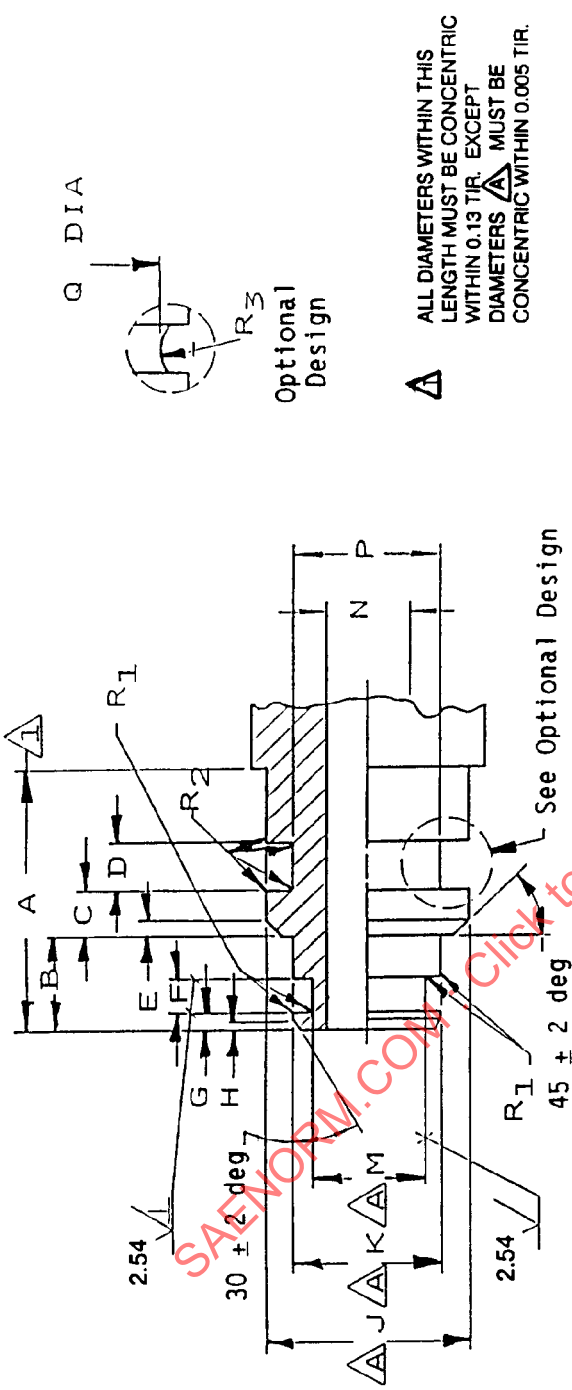
4 The female body can be manufactured as a swivel type where the design and method of attachment shall be optional with the manufacturer (see Figure 5).

3 Optional Design: $1.5^{1.0}$ x 30° ± 2°

2 These diameters must be concentric within 0.05 TIR.

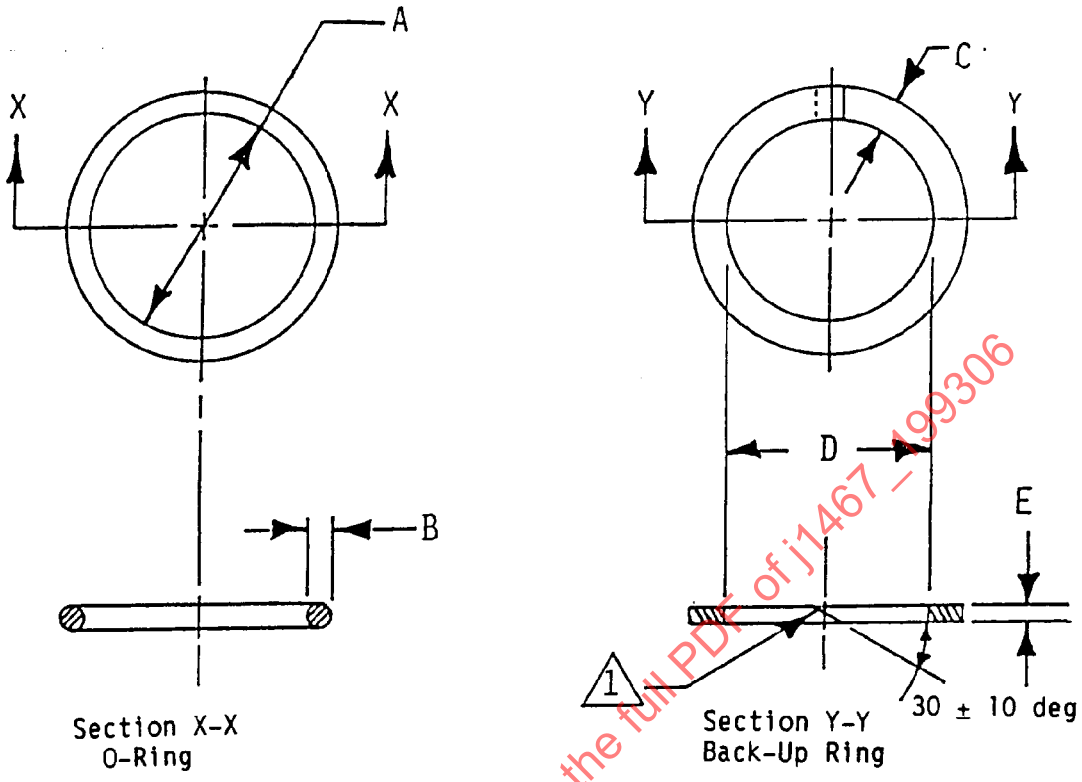
1 "G" diameter to run to the full depth of "A" dimension.

FIGURE 1—FEMALE CLIP FASTENER BODY



Nominal SAE Dash Size	A min mm	B mm	C ±0.1 mm	D ±0.1 mm	E ±0.2 mm	F ±0.010 mm	G mm	H ±0.25 mm	J ±0.08 mm	K +0.05 -0.08 mm	M mm	N mm	P ±0.1 mm	Q ±0.1 mm	R_1 max mm	R_2 max mm	R_3 ref mm
-4	27.74	11.25 10.74	4.9	5.1	1.5	3.1	3.1 2.6	1.0	14.90	9.90	6.86 6.73	4.7 2.8	8.40	7.42	0.5	0.7	3.4
-6	27.74	11.25 10.74	4.9	5.1	1.5	3.1	3.1 2.6	1.0	19.90	13.90	10.85 10.72	8.2 6.6	13.40	12.40	0.5	0.7	3.4
-8	27.74	11.25 10.74	4.9	5.1	1.5	3.6	3.1 2.6	1.0	23.90	17.90	14.05 13.92	11.4 9.7	17.40	16.40	0.5	0.7	3.4
-12	27.74	11.25 10.74	4.9	5.1	1.5	3.6	3.1 2.6	1.0	28.90	23.90	20.04 19.91	17.0 15.4	22.40	21.39	0.5	0.7	3.4
-16	32.90	11.25 10.74	5.9	7.1	1.5	3.6	3.1 2.6	1.0	38.80	30.90	27.05 26.92	23.0 19.8	29.90	28.78	0.5	0.7	5.3
-20	32.90	11.25 10.74	5.9	7.1	1.5	3.6	3.1 2.6	1.0	45.90	37.90	34.04 33.91	30.0 24.8	36.90	35.79	0.5	0.7	5.3
-24	36.30	13.28 12.78	7.9	7.1	1.5	5.1	3.1 2.6	1.0	54.90	46.90	42.00 41.90	35.8 30.0	45.90	44.78	0.6	0.7	5.3
-32	36.30	13.28 12.78	7.9	7.1	1.5	5.1	3.1 2.6	1.0	63.90	55.90	51.00 50.90	45.0 40.0	54.90	53.77	0.6	0.7	5.3

FIGURE 2—MALE CLIP FASTENER BODY



Nominal SAE Dash Size	A Dia mm	B Dia mm	C mm	D Dia mm	E mm
-4	6.16 5.84	2.08 1.92	1.65 1.55	6.96 6.86	.90 .70
-6	10.20 9.80	2.08 1.92	1.65 1.55	10.95 10.85	.90 .70
-8	13.25 12.75	2.59 2.41	2.06 1.96	14.15 14.05	.90 .70
-12	19.40 18.60	2.59 2.41	2.06 1.96	20.14 20.04	.90 .70
-16	25.40 24.60	2.59 2.41	2.06 1.96	27.15 27.05	.90 .70
-20	33.40 32.60	2.59 2.41	2.06 1.96	34.14 34.04	.90 .70
-24	40.50 39.50	3.10 2.90	2.57 2.46	42.11 42.01	1.85 1.40
-32	50.50 49.50	3.10 2.90	2.57 2.46	51.10 51.00	1.85 1.40

2 All surfaces must be smooth and free from irregularities.

1 Cut must be clean and sharp.

FIGURE 3—O-RING SEAL AND BACK-UP RING

Nominal SAE Dash Size	Cross Section Type Square L Length mm	Cross Section Type Round D Diameter mm
-4	4.07 3.93	4.78 4.72
-6	4.07 3.93	4.78 4.72
-8	4.07 3.93	4.78 4.72
-12	4.07 3.93	4.78 4.72
-16	6.08 5.92	6.40 6.35
-20	6.08 5.92	6.40 6.35
-24	6.08 5.92	6.40 6.35
-32	6.08 5.92	6.40 6.35

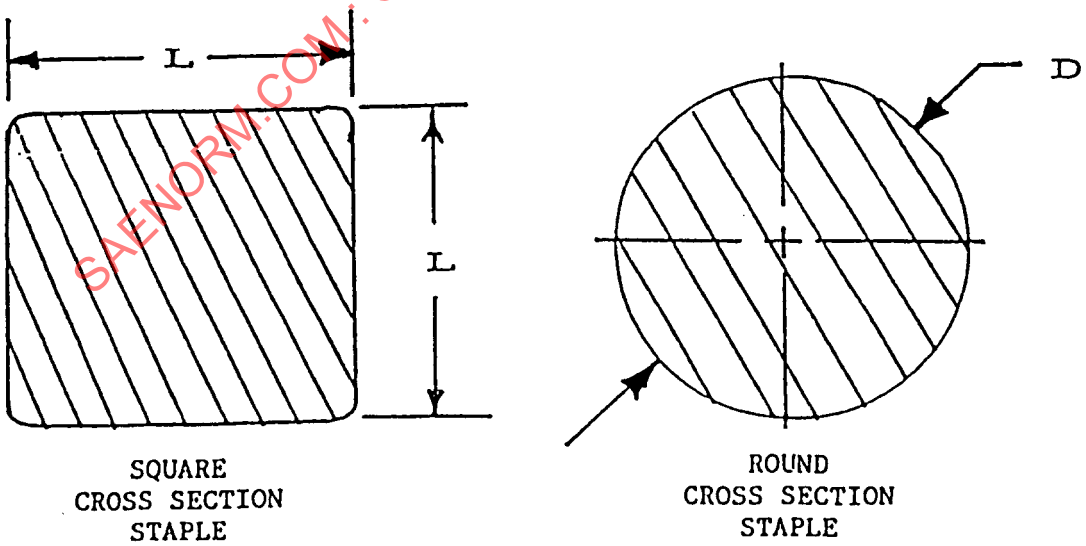


FIGURE 4—STAPLE CROSS SECTIONS

4.5 Dimensions—The dimensions for the components shown in Figure 5 shall be in accordance with Figures 1 through 4.

NOTE—The alternate methods of fabricating the female may be used providing the envelope dimensions are not affected to the extent that interchangeability becomes a problem. See Figure 5.

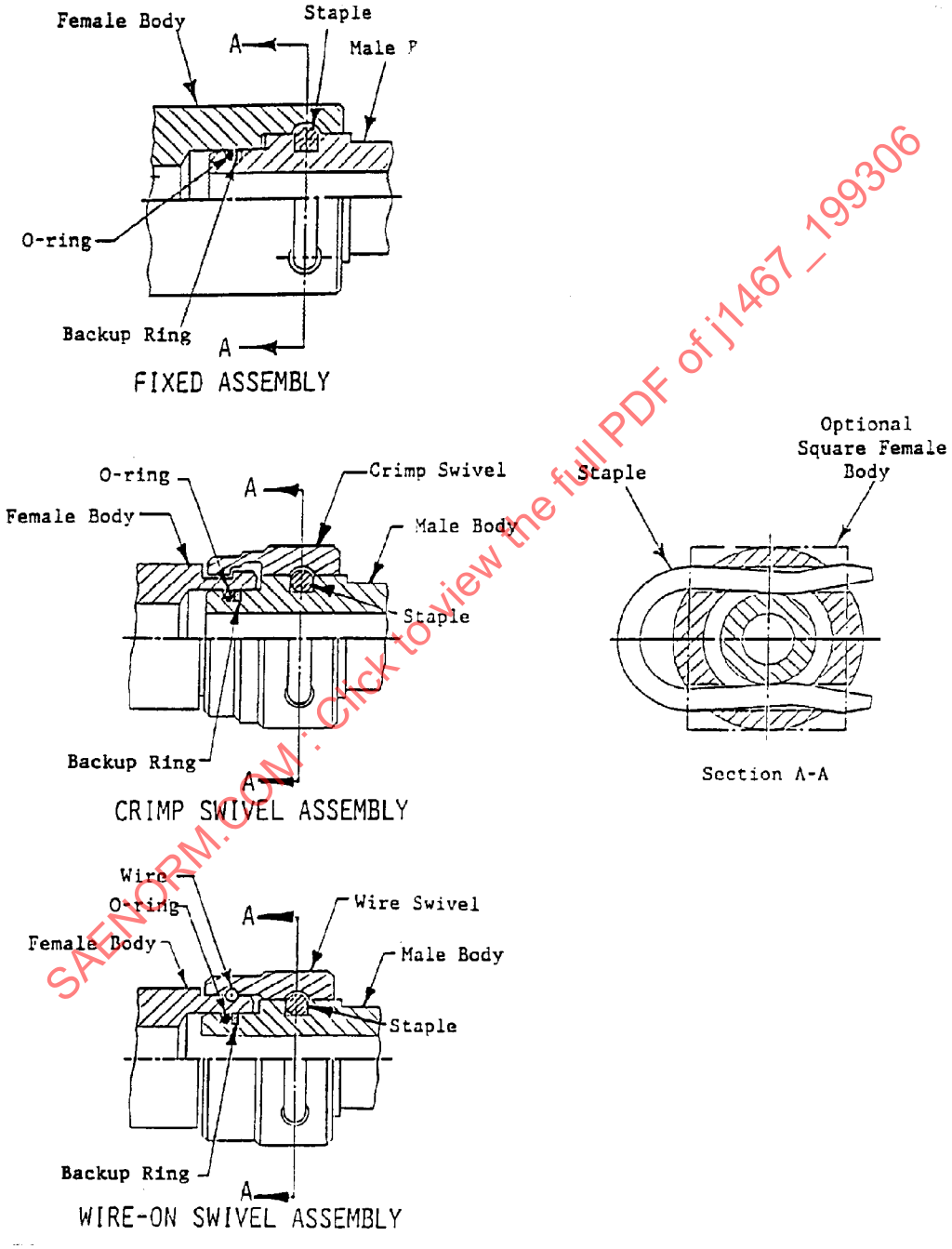


FIGURE 5—TYPICAL ASSEMBLIES OF SWIVEL AND FIXED CONNECTIONS