

RATIONALE

ESTABLISH AS1946 PART SPECIFICATIONS FOR FLARED FITTINGS.

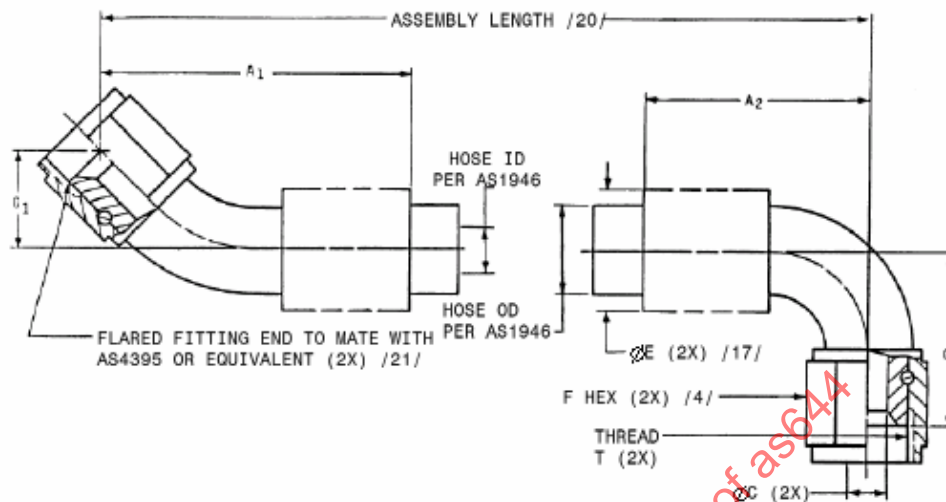


FIGURE 1 - HOSE ASSEMBLY

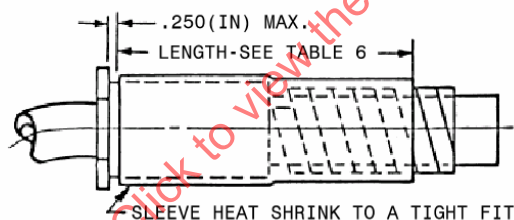


FIGURE 2 - ABRASION SLEEVE ATTACHMENT /7/ /8/

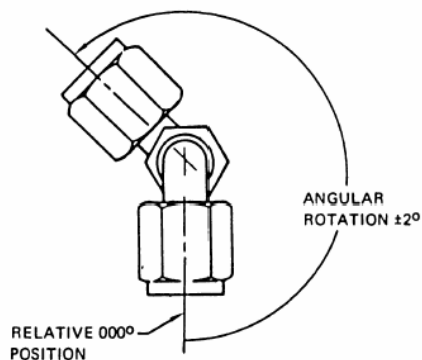
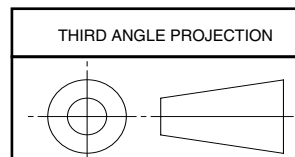


FIGURE 3 - FITTING ANGULAR ORIENTATION /26/



CUSTODIAN: SAE G-3/G-3D

PROCUREMENT SPECIFICATION: /15/ AS1946

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD
HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE,
METAL BRAID, MEDIUM PRESSURE, FLARED,
45° TO 90°

AS644
SHEET 1 OF 7

TABLE 1 - DIMENSIONS

HOSE ASSEMBLY NO. & SIZE /24/ /24/	HOSE SIZE (REF)	FITTING TYPE /25/ /25/	FITTING MATL /5/ /5/	THREAD T PER AS8879 (REF)	HOSE ID MIN (REF)	A1 MAX	A2 MAX	C MIN BALL DIA /16/ /16/	E MAX WITHOUT SLEEVEING /17/ /17/	F HEX (REF)	G 1 MIN	G1 MAX	G2 MIN	G2 MAX
AS644D (-03)	.188	-	-	-	-	-	-	-	-	-	-	-	-	-
AS644D (-03)	.188	S	CRES	.3750-24UNJF-3B	.110	1.63	1.56	.068	.49	.500	.263	.388	.510	.680
			AL	.3750-24UNJF-3B	.110	1.63	1.56	.068	.49	.500	.263	.388	.510	.680
			TI	.3750-24UNJF-3B	.110	1.63	1.56	.068	.49	.500	.263	.388	.510	.680
AS644D (-03)	.188	E	CRES	.4375-20UNJF-3B	.110	1.92	1.56	.068	.49	.562	.302	.427	.510	.635
			AL	.4375-20UNJF-3B	.110	1.92	1.56	.068	.49	.562	.302	.427	.510	.635
			TI	.4375-20UNJF-3B	.110	1.92	1.56	.068	.49	.562	.302	.427	.510	.635
AS644E (-04)	.250	R	CRES	.3750-24UNJF-3B	.173	1.92	1.56	.068	.55	.500	.302	.427	.510	.685
			AL	.3750-24UNJF-3B	.173	1.92	1.56	.068	.55	.500	.302	.427	.510	.685
			TI	.3750-24UNJF-3B	.173	1.92	1.56	.068	.55	.500	.302	.427	.510	.685
AS644E (-04)	.250	S	CRES	.4375-20UNJF-3B	.173	1.92	1.56	.112	.55	.562	.302	.427	.560	.685
			AL	.4375-20UNJF-3B	.173	1.92	1.56	.112	.55	.562	.302	.427	.560	.685
			TI	.4375-20UNJF-3B	.173	1.92	1.56	.112	.55	.562	.302	.427	.560	.685
AS644E (-04)	.250	E	CRES	.5000-20UNJF-3B	.173	1.94	1.62	.112	.55	.625	.314	.445	.560	.840
			AL	.5000-20UNJF-3B	.173	1.94	1.62	.112	.55	.625	.314	.445	.560	.840
			TI	.5000-20UNJF-3B	.173	1.94	1.62	.112	.55	.625	.314	.445	.560	.840
AS644F (-05)	.313	R	CRES	.4375-20UNJF-3B	.235	1.94	1.62	.112	.63	.562	.314	.445	.560	.840
			AL	.4375-20UNJF-3B	.235	1.94	1.62	.112	.63	.562	.314	.445	.560	.840
			TI	.4375-20UNJF-3B	.235	1.94	1.62	.112	.63	.562	.314	.445	.560	.840
AS644F (-05)	.313	S	CRES	.5000-20UNJF-3B	.235	1.94	1.62	.164	.63	.625	.314	.445	.635	.840
			AL	.5000-20UNJF-3B	.235	1.94	1.62	.164	.63	.625	.314	.445	.635	.840
			TI	.5000-20UNJF-3B	.235	1.94	1.62	.164	.63	.625	.314	.445	.635	.840
AS644F (-05)	.313	E	CRES	.5625-18UNJF-3B	.235	2.11	1.81	.164	.63	.688	.369	.494	.635	.885
			AL	.5625-18UNJF-3B	.235	2.11	1.81	.164	.63	.688	.369	.494	.635	.885
			TI	.5625-18UNJF-3B	.235	2.11	1.81	.164	.63	.688	.369	.494	.635	.885
AS644G (-06)	.375	R	CRES	.5000-20UNJF-3B	.298	2.11	1.81	.164	.70	.625	.369	.494	.635	.885
			AL	.5000-20UNJF-3B	.298	2.11	1.81	.164	.70	.625	.369	.494	.635	.885
			TI	.5000-20UNJF-3B	.298	2.11	1.81	.164	.70	.625	.369	.494	.635	.885
AS644G (-06)	.375	S	CRES	.5625-18UNJF-3B	.298	2.11	1.81	.218	.70	.688	.369	.494	.700	.885
			AL	.5625-18UNJF-3B	.298	2.11	1.81	.218	.70	.688	.369	.494	.700	.885
			TI	.5625-18UNJF-3B	.298	2.11	1.81	.218	.70	.688	.369	.494	.700	.885
AS644G (-06)	.375	E	CRES	.7500-16UNJF-3B	.298	2.36	1.99	.218	.70	.875	.445	.632	.700	1.060
			AL	.7500-16UNJF-3B	.298	2.36	1.99	.218	.70	.875	.445	.632	.700	1.060
			TI	.7500-16UNJF-3B	.298	2.36	1.99	.218	.70	.875	.445	.632	.700	1.060
AS644H (-08)	.500	R	CRES	.5625-18UNJF-3B	.391	2.36	1.99	.218	.83	.688	.445	.632	.700	1.060
			AL	.5625-18UNJF-3B	.391	2.36	1.99	.218	.83	.688	.445	.632	.700	1.060
			TI	.5625-18UNJF-3B	.391	2.36	1.99	.218	.83	.688	.445	.632	.700	1.060
AS644H (-08)	.500	S	CRES	.7500-16UNJF-3B	.391	2.36	1.99	.289	.83	.875	.445	.632	.810	1.060
			AL	.7500-16UNJF-3B	.391	2.36	1.99	.289	.83	.875	.445	.632	.810	1.060
			TI	.7500-16UNJF-3B	.391	2.36	1.99	.289	.83	.875	.445	.632	.810	1.060
AS644H (-08)	.500	E	CRES	.8750-14UNJF-3B	.391	2.73	2.38	.289	.83	1.000	.501	.688	.810	1.341
			AL	.8750-14UNJF-3B	.391	2.73	2.38	.289	.83	1.000	.501	.688	.810	1.341
			TI	.8750-14UNJF-3B	.391	2.73	2.38	.289	.83	1.000	.501	.688	.810	1.341
AS644J (-10)	.625	R	CRES	.7500-16UNJF-3B	.485	2.73	2.38	.289	.97	.875	.501	.688	.810	1.341
			AL	.7500-16UNJF-3B	.485	2.73	2.38	.289	.97	.875	.501	.688	.810	1.341
			TI	.7500-16UNJF-3B	.485	2.73	2.38	.289	.97	.875	.501	.688	.810	1.341
AS644J (-10)	.625	S	CRES	.8750-14UNJF-3B	.485	2.73	2.38	.366	.97	1.000	.501	.688	1.091	1.341
			AL	.8750-14UNJF-3B	.485	2.73	2.38	.366	.97	1.000	.501	.688	1.091	1.341
			TI	.8750-14UNJF-3B	.485	2.73	2.38	.366	.97	1.000	.501	.688	1.091	1.341
AS644J (-10)	.625	E	CRES	1.0625-12UNJ-3B	.485	3.15	2.99	.366	.97	1.250	.588	.775	1.091	1.591
			AL	1.0625-12UNJ-3B	.485	3.15	2.99	.366	.97	1.250	.588	.775	1.091	1.591
			TI	1.0625-12UNJ-3B	.485	3.15	2.99	.366	.97	1.250	.588	.775	1.091	1.591

AS644

HOSE ASSEMBLY NO. & SIZE /24/ /25/	HOSE SIZE (REF)	FITTING TYPE /25/	FITTING MATL /5/	THREAD T PER AS8879 (REF)	HOSE ID MIN (REF)	A1 MAX	A2 MAX	C MIN BALL DIA /16/	E MAX WITHOUT SLEEVING /17/	F HEX (REF)	G 1 MIN	G1 MAX	G2 MIN	G2 MAX
AS644K (-12)	.750	R	CRES	.8750-14UNJF-3B	.615	3.15	2.99	.366	1.17	1.000	.588	.775	1.091	1.591
			AL	.8750-14UNJF-3B	.615	3.15	2.99	.366	1.17	1.000	.588	.775	1.091	1.591
			TI	.8750-14UNJF-3B	.615	3.15	2.99	.366	1.17	1.000	.588	.775	1.091	1.591
AS644K (-12)	.750	S	CRES	1.0625-12UNJ-3B	.615	3.15	2.99	.466	1.17	1.250	.588	.775	1.341	1.591
			AL	1.0625-12UNJ-3B	.615	3.15	2.99	.466	1.17	1.250	.588	.775	1.341	1.591
			TI	1.0625-12UNJ-3B	.615	3.15	2.99	.466	1.17	1.250	.588	.775	1.341	1.591
AS644K (-12)	.750	E	CRES	1.3125-12UNJ-3B	.615	3.44	3.24	.466	1.17	1.500	.609	.857	1.341	1.715
			AL	1.3125-12UNJ-3B	.615	3.44	3.24	.466	1.17	1.500	.609	.857	1.341	1.715
			TI	1.3125-12UNJ-3B	.615	3.44	3.24	.466	1.17	1.500	.609	.857	1.341	1.715
AS644M (-16)	1.000	R	CRES	1.0625-12UNJ-3B	.851	3.44	3.24	.466	1.52	1.250	.609	.857	1.341	1.715
			AL	1.0625-12UNJ-3B	.851	3.44	3.24	.466	1.52	1.250	.609	.857	1.341	1.715
			TI	1.0625-12UNJ-3B	.851	3.44	3.24	.466	1.52	1.250	.609	.857	1.341	1.715
AS644M (-16)	1.000	S	CRES	1.3125-12UNJ-3B	.851	3.44	3.24	.661	1.52	1.500	.609	.857	1.465	1.715
			AL	1.3125-12UNJ-3B	.851	3.44	3.24	.661	1.52	1.500	.609	.857	1.465	1.715
			TI	1.3125-12UNJ-3B	.851	3.44	3.24	.661	1.52	1.500	.609	.857	1.465	1.715
AS644M (-16)	1.000	E	CRES	1.6250-12UNJ-3B	.851	3.97	3.68	.661	1.52	1.812	.697	1.017	1.465	2.122
			AL	1.6250-12UNJ-3B	.851	3.97	3.68	.661	1.52	1.812	.697	1.017	1.465	2.122
			TI	1.6250-12UNJ-3B	.851	3.97	3.68	.661	1.52	1.812	.697	1.017	1.465	2.122
AS644N (-20)	1.250	R	CRES	1.3125-12UNJ-3B	1.101	3.97	3.68	.661	2.00	1.500	.697	1.017	1.465	2.122
			AL	1.3125-12UNJ-3B	1.101	3.97	3.68	.661	2.00	1.500	.697	1.017	1.465	2.122
			TI	1.3125-12UNJ-3B	1.101	3.97	3.68	.661	2.00	1.500	.697	1.017	1.465	2.122
AS644N (-20)	1.250	S	CRES	1.6250-12UNJ-3B	1.101	3.97	3.68	.850	2.00	1.812	.697	1.017	1.747	2.122
			AL	1.6250-12UNJ-3B	1.101	3.97	3.68	.850	2.00	1.812	.697	1.017	1.747	2.122
			TI	1.6250-12UNJ-3B	1.101	3.97	3.68	.850	2.00	1.812	.697	1.017	1.747	2.122
AS644N (-20)	1.250	E	CRES	1.8750-12UNJ-3B	1.101	4.34	4.17	.850	2.00	2.125	.785	1.127	1.747	2.372
			AL	1.8750-12UNJ-3B	1.101	4.34	4.17	.850	2.00	2.125	.785	1.127	1.747	2.372
			TI	1.8750-12UNJ-3B	1.101	4.34	4.17	.850	2.00	2.125	.785	1.127	1.747	2.372
AS644P (-24)	1.500	R	CRES	1.6250-12UNJ-3B	1.344	4.34	4.17	.850	2.28	1.812	.785	1.127	1.747	2.372
			AL	1.6250-12UNJ-3B	1.344	4.34	4.17	.850	2.28	1.812	.785	1.127	1.747	2.372
			TI	1.6250-12UNJ-3B	1.344	4.34	4.17	.850	2.28	1.812	.785	1.127	1.747	2.372
AS644P (-24)	1.500	S	CRES	1.8750-12UNJ-3B	1.344	4.34	4.17	1.063	2.28	2.125	.785	1.127	1.997	2.372
			AL	1.8750-12UNJ-3B	1.344	4.34	4.17	1.063	2.28	2.125	.785	1.127	1.997	2.372
			TI	1.8750-12UNJ-3B	1.344	4.34	4.17	1.063	2.28	2.125	.785	1.127	1.997	2.372
AS644P (-24)	1.500	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 2 - TOLERANCES

HOSE ASSEMBLY LENGTH	TOLERANCE
UNDER 18 IN	±.125
18 TO 36 IN EXCLUSIVE	±.250
36 TO 50 IN EXCLUSIVE	±.500
50 IN AND OVER	±1%

TABLE 3 - HOSE AND SLEEVE CODES

HOSE OR SLEEVE CODE	SLEEVE MATERIAL	TEMP. LIMIT °F
-	(-) INDICATES HOSE ONLY, NO SLEEVE (AS1946)	450
A	ABRASION SLEEVE TUBULAR (PTFE - AS1291 - CODE B) /7/	450
B	ABRASION SLEEVE COIL (NYLON AS1294) /8/	275
C	FIRE SLEEVE (AS1072 SIL-FG) (15 MIN) /9/ /10/ /14/	450
E	ABRASION SLEEVE SHRINK-ON (FEP) /12/	350
F	ABRASION SLEEVE SHRINK-ON (POLYOLEFIN AS1073 - CODE B) /12/	275
G	FIRE SLEEVE (AS1072 SIL-FG) (5 MIN) /9/ /10/ /13/	450
H	FIRE SLEEVE INTEGRAL SILICONE (AS1723) (15 MIN) /14/	450
J	FIRE SLEEVE INTEGRAL SILICONE (5 MIN) /13/	450
K	INTEGRAL ABRASION SLEEVE (BRAIDED) POLYESTER /11/	300
L	ABRASION SLEEVE COIL (PTFE - AS1293) /8/	450

TABLE 4 - HOSE AND OUTSIDE SLEEVE DIAMETERS

HOSE OR SLEEVE CODE	TOLERANCE	HOSE SIZE /6/ .188	HOSE SIZE /6/ .250	HOSE SIZE /6/ .313	HOSE SIZE /6/ .375	HOSE SIZE /6/ .500	HOSE SIZE /6/ .625	HOSE SIZE /6/ .750	HOSE SIZE /6/ 1.000	HOSE SIZE /6/ 1.250	HOSE SIZE /6/ 1.500
-	MAX	.285	.347	.417	.500	.614	.799	.906	1.140	1.390	1.707
	MIN	.234	.304	.367	.430	.546	.641	.766	1.078	1.328	1.637
A	MAX	.390	.473	.524	.620	.715	.818	.955	1.295	1.550	1.841
	MIN	.320	.393	.454	.515	.645	.748	.870	1.210	1.450	1.771
B	MAX	.339	.409	.472	.535	.669	.767	.896	1.224	1.474	1.807
	MIN	.260	.330	.393	.456	.590	.681	.810	1.122	1.372	1.681
C	MAX	.692	.692	.780	.840	.970	1.090	1.220	1.590	1.900	2.190
	MIN	.487	.533	.598	.658	.778	.891	1.016	1.288	1.578	1.887
E	MAX	.301	.375	.438	.507	.635	.749	.887	1.288	1.460	1.777
	MIN	.248	.320	.383	.452	.578	.679	.811	1.146	1.358	1.667
F	MAX	.341	.411	.474	.547	.663	.769	.904	1.244	1.482	1.823
	MIN	.278	.348	.411	.484	.600	.699	.834	1.158	1.396	1.729
G	MAX	.692	.692	.780	.840	.970	1.090	1.220	1.590	1.900	2.190
	MIN	.487	.533	.598	.658	.778	.891	1.016	1.288	1.578	1.887
H	MAX	.641	.641	.704	.766	.891	1.016	1.141	1.454	1.704	2.016
	MIN	.537	.594	.657	.719	.844	.949	1.074	1.394	1.649	1.957
J	MAX	.641	.641	.704	.766	.891	1.016	1.141	1.454	1.704	2.016
	MIN	.450	.550	.595	.670	.775	.875	.995	1.310	1.508	1.815
K	MAX	.378	.430	.499	.559	.665	.772	.887	1.210	1.460	1.782
	MIN	.320	.390	.450	.510	.625	.726	.841	1.148	1.398	1.712
L	MAX	.375	.445	.508	.571	.687	.789	.914	1.242	1.492	1.809
	MIN	.267	.333	.407	.470	.586	.681	.828	1.138	1.388	1.697

TABLE 5 - HOSE WEIGHT MAX - ALL OTHERS REF

HOSE OR SLEEVE CODE OR FITTING	FITTING TYPE /25/	UNITS	HOSE SIZE .188	HOSE SIZE .250	HOSE SIZE .313	HOSE SIZE .375	HOSE SIZE .500	HOSE SIZE .625	HOSE SIZE .750	HOSE SIZE 1.000	HOSE SIZE 1.250	HOSE SIZE 1.500
-		LB/IN	.005	.007	.008	.010	.012	.016	.020	.045	.058	.074
A		LB/IN	.003	.004	.004	.006	.007	.008	.010	.014	.020	.045
B		LB/IN	.001	.001	.002	.002	.003	.004	.004	.005	.006	.009
C		LB/IN	.009	.009	.011	.012	.017	.018	.028	.030	.040	.047
E		LB/IN	.001	.002	.002	.002	.003	.004	.006	.007	.007	.008
F		LB/IN	.002	.002	.002	.002	.003	.003	.005	.006	.006	.007
G		LB/IN	.009	.009	.011	.012	.017	.018	.028	.030	.040	.047
H		LB/IN	.016	.018	.020	.023	.030	.037	.045	.085	.107	.132
J		LB/IN	.016	.017	.018	.021	.027	.035	.042	.079	.100	.123
K		LB/IN	.006	.008	.009	.011	.015	.018	.023	.050	.063	.081
L		LB/IN	.003	.004	.004	.005	.008	.009	.011	.018	.022	.028
FIRESLEEVE CLAMP		LB/EA	.015	.016	.018	.019	.021	.023	.025	.029	.033	.037
FITTING END												
A/D - CRES	R, S, E	LB/EA	.040	.055	.075	.085	.155	.235	.330	.535	.995	1.370
B/E - AL	R, S, E	LB/EA	---	.019	.026	.029	.053	.080	.112	.182	.338	.466
C/F - TI	R, S, E	LB/EA	.024	.033	.045	.051	.093	.141	.198	.321	.597	.822

TABLE 6 - SLEEVE LENGTH

HOSE SIZE	LENGTH
.188, .250, .313, .375	2.00 ± .25
.500, .625	2.50 ± .25
.750, 1.000	3.00 ± .25
1.250, 1.500	4.00 ± .25

NOTES:

1. CONSTRUCTION AND PERFORMANCE: AS1946, FITTINGS SHALL BE PERMANENTLY ATTACHED TO THE HOSE.
2. OPERATING CHARACTERISTICS: SEE AS1946.
3. MATERIALS:
 - a. HOSE AND FITTINGS - PER AS1946 /5/
 - b. SLEEVES - SEE APPLICABLE STANDARDS, TABLE 3
- /4/ STANDARD COUPLING NUTS SHALL BE IN ACCORDANCE WITH AN818, AS1790, OR AS4370 (AS1791 WIRE AS APPLICABLE) AND MATE WITH AS4395 OR AS5309 FITTING ENDS. NONSTANDARD COUPLING NUTS MAY BE USED, PROVIDED THEY ARE FUNCTIONALLY EQUIVALENT, AND PROVIDED THEY CANNOT BE REMOVED FROM THE FITTING. NUTS SHALL MEET THE TORQUE TEST REQUIREMENTS PER AS1946.