FEDERAL SUPPLY CLASS
4720

RATIONALE

THIS DOCUMENT HAS BEEN REAFFIRMED TO COMPLY WITH THE SAE 5-YEAR REVIEW POLICY.

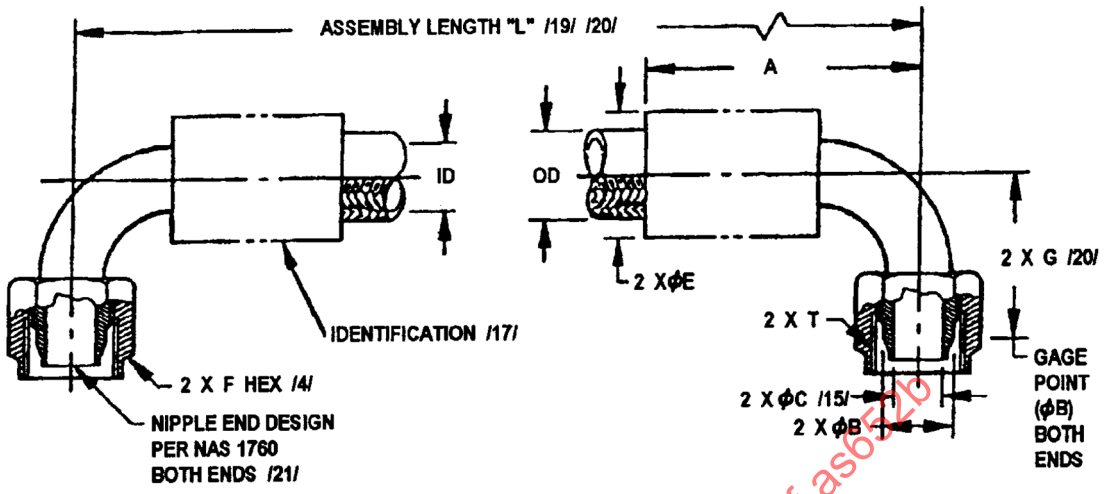


FIGURE 1 - HOSE ASSEMBLY

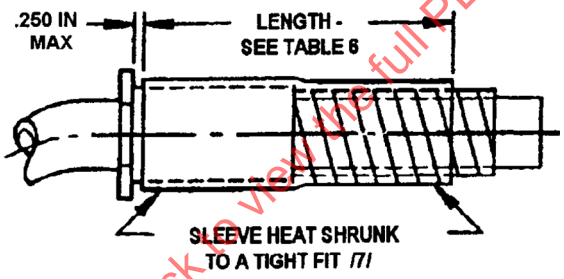


FIGURE 2 - ABRASION SLEEVE ATTACHMENT

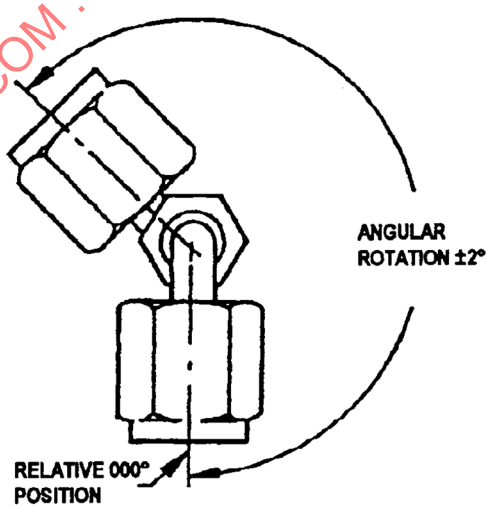
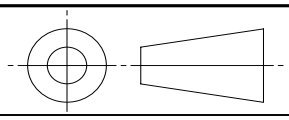


FIGURE 3 - FITTING ANGULAR POSITION /26/

THIRD ANGLE PROJECTION



ISSUED 1992-06 REVISED 2003-09 REAFFIRMED 2007-07

CUSTODIAN: SAE G-3/G-3D

PROCUREMENT SPECIFICATION: /14/ AS1946

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE, METAL BRAID, MEDIUM PRESSURE, FLARELESS, 90° TO 90°

AS652

REV. B

TABLE 1 - DIMENSIONS

Hose Assembly No. & Size /24/	Hose Size (ref)	Fitting Matl /24/ /25/	Thread T per AS8879 (ref)	Hose ID Min (ref)	A Max	B Gage Basic	C Dia Min /15/	Min Ball Dia /15/	E Max Without Sleeving /16/	F Hex (ref)	G Min	G Max
AS652D (-03)	.188	CRES	.3750-24UNJF-3B	.110	1.340	.2340	.080	.068	.49	.500	.612	.761
		AL	.3750-24UNJF-3B	.110	1.340	.2340	.080	.068	.49	.500	.612	.761
		TI	.3750-24UNJF-3B	.110	1.340	.2340	.080	.068	.49	.500	.612	.761
AS652E (-04)	.250	CRES	.4375-20UNJF-3B	.173	1.410	.2930	.132	.112	.55	.562	.624	.768
		AL	.4375-20UNJF-3B	.173	1.410	.2930	.132	.112	.55	.562	.624	.768
		TI	.4375-20UNJF-3B	.173	1.410	.2930	.132	.112	.55	.562	.624	.768
AS652F (-05)	.313	CRES	.5000-20UNJF-3B	.235	1.580	.3500	.193	.164	.63	.625	.730	.917
		AL	.5000-20UNJF-3B	.235	1.580	.3500	.193	.164	.63	.625	.730	.917
		TI	.5000-20UNJF-3B	.235	1.580	.3500	.193	.164	.63	.625	.730	.917
AS652G (-06)	.375	CRES	.5625-18UNJF-3B	.298	1.700	.4120	.256	.218	.70	.688	.794	1.023
		AL	.5625-18UNJF-3B	.298	1.700	.4120	.256	.218	.70	.688	.794	1.023
		TI	.5625-18UNJF-3B	.298	1.700	.4120	.256	.218	.70	.688	.794	1.023
AS652H (-08)	.500	CRES	.7500-16UNJF-3B	.391	1.960	.5600	.340	.289	.83	.875	.912	1.218
		AL	.7500-16UNJF-3B	.391	1.960	.5600	.340	.289	.83	.875	.912	1.218
		TI	.7500-16UNJF-3B	.391	1.960	.5600	.340	.289	.83	.875	.912	2.906
AS652J (-10)	.625	CRES	.8750-14UNJF-3B	.485	2.370	.6730	.430	.366	.97	1.000	1.100	1.529
		AL	.8750-14UNJF-3B	.485	2.370	.6730	.430	.366	.97	1.000	1.100	1.529
		TI	.8750-14UNJF-3B	.485	3.623	.6730	.430	.366	.97	1.000	2.780	2.906
AS652K (-12)	.750	CRES	1.0625-12UNJ-3B	.615	2.650	.8100	.548	.466	1.17	1.250	1.400	1.772
		AL	1.0625-12UNJ-3B	.615	2.650	.8100	.548	.466	1.17	1.250	1.400	1.772
		TI	1.0625-12UNJ-3B	.615	4.260	.8100	.548	.466	1.17	1.250	3.020	3.283
AS652M (-16)	1.000	CRES	1.3125-12UNJ-3B	.851	3.340	1.0620	.778	.661	1.52	1.500	1.541	1.859
		AL	1.3125-12UNJ-3B	.851	3.340	1.0620	.778	.661	1.52	1.500	1.541	1.859
		TI	1.3125-12UNJ-3B	.851	5.290	1.0620	.778	.661	1.52	1.500	3.820	4.067
AS652N (-20)	1.250	CRES	1.6250-12UNJ-3B	1.101	3.670	1.3160	1.000	.850	2.00	2.000	1.900	2.091
		AL	1.6250-12UNJ-3B	1.101	4.400	1.3160	1.000	.850	2.00	2.000	3.400	3.641
		TI	1.6250-12UNJ-3B	1.101	5.650	1.3160	1.000	.850	2.00	2.000	4.665	4.891
AS652P (-24)	1.500	CRES	1.8750-12UNJ-3B	1.344	4.190	1.5650	1.250	1.063	2.28	2.125	2.285	2.644
		AL	1.8750-12UNJ-3B	1.344	5.170	1.5650	1.250	1.063	2.28	2.125	4.050	4.292
		TI	1.8750-12UNJ-3B	1.344	6.670	1.5650	1.250	1.063	2.28	2.125	5.550	5.792

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 (AS639)	450
A	ABRASION SLEEVE TUBULAR (PTFE - AS1291 - CODE B) /6/	450
B	ABRASION SLEEVE COIL (NYLON AS1294) /7/	275
C	FIRE SLEEVE (AS1072 SIL-FG) (15 min) /8/ /9/ /13/	450
E	ABRASION SLEEVE SHRINK-ON (FEP) /11/	350
F	ABRASION SLEEVE SHRINK-ON (POLYOLEFIN AS1073 - CODE B) /11/	275
G	FIRE SLEEVE (AS1072 SIL-FG) (5 min) /8/ /9/ /12/	450
H	FIRE SLEEVE INTEGRAL SILICONE (AS1723) (15 min) /13/	450
J	FIRE SLEEVE INTEGRAL SILICONE (5 min) /12/	450
K	INTEGRAL ABRASION SLEEVE (BRAIDED) POLYESTER /10/	300
L	ABRASION SLEEVE COIL (PTFE - AS1293) /7/	450

TABLE 4 - HOSE AND SLEEVE OUTSIDE DIAMETERS

HOSE OR SLEEVE CODE	TOLERANCE	HOSE SIZE /5/ .188	HOSE SIZE /5/ .250	HOSE SIZE /5/ .313	HOSE SIZE /5/ .375	HOSE SIZE /5/ .500	HOSE SIZE /5/ .625	HOSE SIZE /5/ .750	HOSE SIZE /5/ 1.000	HOSE SIZE /5/ 1.250	HOSE SIZE /5/ 1.500
-	MAX	.285	.343	.406	.469	.585	.687	.812	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	.533	.533	.598	.658	.778	.908	1.038	1.288	1.658	1.898
E	MAX	.301	.375	.438	.507	.635	.749	.887	1.288	1.440	1.761
	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	.533	.533	.598	.658	.778	.908	1.038	1.288	1.658	1.898
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	.537	.594	.657	.719	.844	.949	1.074	1.394	1.649	1.957
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	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	.037
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	.037
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 90° /25/ A/D - CRES	LB/EA	.053	.065	.080	.099	.231	.328	.425	.659	1.419	1.854
B/E - ALUM	LB/EA	---	---	---	.055	.080	.110	.165	.290	.485	.685
C/F - TI	LB/EA	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

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 /25/

   b. SLEEVES - SEE APPLICABLE STANDARDS, TABLE 3

/4/ STANDARD COUPLING NUTS SHALL BE IN ACCORDANCE WITH AS21921, AS1790 OR AS4370 AND MATE WITH AS33514, AS4377 OR AS4375 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.

/5/ DIAMETERS ARE LISTED FOR CLAMP SELECTION. TUBULAR SLEEVES MAY NOT BE A PERFECT ROUND AND SHALL BE MEASURED WITH A DIAMETER MEASUREMENT TAPE.

/6/ THE INSTALLED TUBULAR ABRASION SLEEVES AXIAL MOVEMENT ON THE HOSE SHALL NOT EXCEED .05 IN. ENDS OF THE TUBULAR SLEEVE SHALL BE TERMINATED WITH A LENGTH OF AMS-DTL-23053/11 (FEP) CLASS 1 OR 2, COLOR CLEAR, PER TABLE 6 AND FIGURE 2.

/7/ COIL ABRASION SLEEVES, WHEN ASSEMBLED ON A STRAIGHT HOSE, SHALL HAVE AN AVERAGE GAP BETWEEN COILS NOT EXCEEDING .05 in. DISPLACEMENT OF THE COILS OF THE SLEEVE, CAUSING A GREATER GAP, SHALL NOT BE CAUSE FOR REJECTION IF THE COILS CAN BE REPOSITIONED TO MEET THE GAP REQUIREMENTS. ENDS OF THE COIL SLEEVE SHALL BE TERMINATED WITH A LENGTH OF HEAT SHRINKABLE SLEEVING IN ACCORDANCE WITH TABLE 6 AND FIGURE 2. CODE "B" (NYLON COIL) ABRASION SLEEVES SHALL BE TERMINATED WITH AMS-DTL-23053/5 CLASS 1 OR 3, COLOR BLACK. CODE "L" (COIL ABRASION) SLEEVES SHALL BE TERMINATED WITH AMS-DTL-23053/12, CLASS 1, COLOR TRANSPARENT, PTFE. (OPTIONAL BOTH SLEEVES AMS-DTL-23053/11 (FEP) CLASS 1 OR 2, COLOR CLEAR).

/8/ THE TABLE 4 SLEEVE DIAMETERS FOR AS1072 SLEEVES APPLY WHEN THE SLEEVE IS COMPRESSED, OR CLAMPED, TO CONTACT THE HOSE. IN THIS CASE, A WRINKLE MAY OCCUR OVER APPROXIMATELY 10% OF THE SLEEVE CIRCUMFERENCE.

/9/ THE CUT ENDS OF THE FIRE SLEEVE SHALL BE SEALED USING RTV SILICONE RUBBER PRIOR TO INSTALLATION, TO PREVENT WICKING OF FLUIDS. THE FIRE SLEEVE ENDS SHALL BE SECURED TO THE HOSE ASSEMBLY END FITTINGS WITH CORROSION RESISTANT STEEL BANDS. AFTER INSTALLATION, CRACKS OR VOIDS IN THE FIRE SLEEVE, WHICH EXPOSE THE FIBERGLASS, SHALL BE COATED WITH SILICONE RUBBER.

/10/ INTEGRAL ABRASION SLEEVE SHALL FORM AN INTEGRAL, PERMANENT PART OF THE HOSE AND SHALL TERMINATE A MAXIMUM OF .250 FROM THE END OF THE COLLAR.

/11/ FEP AND POLYOLEFIN SHRINK ABRASION SLEEVES SHALL BE SHRUNK TO A SNUG FIT OVER THE HOSE AND END FITTING COLLARS. SLEEVE SHALL COVER A MINIMUM OF ONE HALF THE COLLAR.

/12/ ADD "AS1055 TYPE IIb CLASS A-S/P" OR “AS150 TYPE VIIbA” TO IDENTIFICATION MARKING TO SHOW LEVEL OF COMPLIANCE, "FIRE RESISTANT (5 min), WITH AS1055 OR AS150"

/13/ ADD "AS1055 TYPE IIb CLASS B-S/P" TO IDENTIFICATION MARKING TO SHOW LEVEL OF COMPLIANCE, "FIRE PROOF (15 min), WITH AS1055" /14/ THIS HOSE ASSEMBLY SHALL BE QUALIFIED IN ACCORDANCE WITH PROCUREMENT SPECIFICATION AS1946. USERS OF THIS STANDARD SHALL PROCURE THIS PRODUCT FROM ACCREDITED MANUFACTURER(S), OR THEIR ACCREDITED DISTRIBUTOR(S), AS LISTED IN THE PERFORMANCE REVIEW INSTITUTE (PRI) QUALIFIED PRODUCTS LIST PRI-QPL-AS1946 FOR THIS STANDARD.

/15/ A TRUE CIRCULAR CROSS SECTION IS NOT REQUIRED THROUGH THE FITTING ID. HOWEVER, THE APPLICABLE MINIMUM BALL DIAMETER LISTED IN TABLE 1 MUST BE CAPABLE OF PASSING THROUGH THE HOSE ASSEMBLY.

/16/ DISTANCE ACROSS CORNERS OF THE HEX MAY EXCEED THIS DIMENSION.

/17/ MARKING: MARKING SHALL BE PER AS1946 ON A STAINLESS STEEL BAND NOT OVER 1.0 in WIDE OR ON THE COLLAR. THE CHARACTERS SHALL BE A MINIMUM OF .0625 in HIGH. THE BAND SHALL BE SO DESIGNED AS TO REMAIN TIGHT ON THE HOSE TO PREVENT RELATIVE MOVEMENT AND RESULTANT CHAFING. IT SHALL BE OF SUFFICIENT STRENGTH TO PREVENT REMOVAL BY HAND. HOSE ASSEMBLY DATE AND "PT" SYMBOL SHALL BE PERMANENTLY MARKED ON THE BAND OR ON AN END FITTING OR A FIRE SLEEVE CLAMP. IDENTIFICATION BANDS MAY BE APPLIED TO HOSE OR OVER END FITTING AND SHALL BE COVERED WITH A CLEAR HEAT SHRINK SLEEVE PER AMS-DTL-23053/11. PERMANENT MARKING MAY BE APPLIED TO THE HOSE FITTING.

18. SURFACE TEXTURE: SYMBOLS PER ASME Y14.36M: REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, MACHINED SURFACES TO BE 125µin Ra.

/19/ HOSE ASSEMBLY LENGTH FOR AS652, CENTER LINE TO CENTER LINE, AND ELBOW DROP LENGTHS, GAGE POINT TO GAGE POINT, ARE FUNCTIONALLY EQUIVALENT TO MS8006 STYLE F OR N.