



AEROSPACE INFORMATION REPORT

AIR 797A

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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HOSE CHARACTERISTICS AND SELECTION CHART

1. SCOPE

1.1 This report lists military and industry specifications and standards which are used in aerospace systems and for ground servicing equipment. The characteristic limitations of the hose which are of major importance to designers and the sizes in which the hoses are standard are shown. Revisions and amendments which are current for these specifications and standards are not listed.

1.2 Listing Documents - Attention is called to the following documents which list specifications and standards and are used as a basis for this report.

1.2.1 Military Standards - The Department of Defense, Index of Specifications and Standards; prepared by Commanding Officer U.S. Naval Supply Depot, N.S.D. 103, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120. This document is published semiannually, with monthly cumulative supplements.

1.2.2 Society of Automotive Engineers, Inc. Standards - SAE Aerospace Standards, Recommended Practices, Information Reports (AS, ARP, AIR) Index. This document is published annually by the Society of Automotive Engineers, Inc., 485 Lexington Avenue, New York, N. Y. 10017.

2. SPECIFICATIONS AND STANDARDS

2.1 Miscellaneous Documents

MIL-H-6002	Marking; Standard Hose, Aircraft
MS33620	Chart, Hose Selection
ANA Bulletin No. 438	Age Controls for Synthetic Rubber Parts
ARP 600	Torque Determination, Method of
ARP 603	Impulse Test Equipment for Hydraulic System Components
ARP 605	Routine Inspection and Test Procedure for Refueling Hoses
ARP 611	Tetrafluoroethylene Hose Assembly Cleaning Methods

2.2 Military Specifications and Standards

PREPARED BY COMMITTEE G-3,
AEROSPACE FITTINGS & HOSE ASSEMBLIES

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ASSEMBLY DRAWING or SPECIFICATION	HOSE SPECIFICATION	END FITTING DRAWING or SPECIFICATION	USAGE MEDIA	TEMP. RANGE	SIZES	PRESSURE			IMPULSE LIFE	BEND RADIUS	REMARKS
						WORKING	PROOF	BURST			
AN 6270 Hose Assembly - Detachable Swivel Fitting, Low Pressure	MIL-H-5593 Hose, Aircraft, Low Pressure, Flexible	MS-27404 MIL-A-38726	Gas Water Alcohol Oil	-65 F to +160 F	-2 -3 -4 -6 -8 -10	Not Stated	1,000 800 500 500 300 300	2,000 1,700 1,250 1,750 700	No Life Test	Not Stated	
MIL-H-8790 Hose Assemblies, Rubber Hydraulic High Pressure (3,000 PSI) MS-28759 MS-28762	MIL-H-8788 Hose	MIL-F-8789 MS-28760 MS-28780 MS-28781 MS-28761	Hydraulic	-65 F to +160 F	-4 -5 -6 -8 -10 -12 -16	3,000 3,000 3,000 3,000 3,000 3,000	8,000 7,000 7,000 14,000 14,000 12,000 12,000 6,000 5,000	16,000 14,000 14,000 9,000 7,000 7,000 7,000 7,000 10,000 45,000 (2)	100,000 (1) 100,000 100,000 100,000 25,000- 50,000- 35,000 10,000	3 3-3/8 5 5-3/4 6-1/2 7-3/4 9-5/8	No gas test (1) -4 to -12, peaks 150 % working pressure bent (2) No impulse peaks, straight
MIL-H-8795 Hose Assemblies Rubber, Hydraulic Fuel and Oil Resistant MS-28741	MIL-H-8794	MIL-A-5070	Hydraulic Fuel Oil	- 65 F to + 160 F	-3 -4 -5 -6 -8 -10 -12 -16 -20 -24 -32 -40 -48	3,000 3,000 3,000 2,000 2,000 1,750 1,500 800 600 500 350 300 (1) 200 (1) 200	6,000 6,000 5,000 4,500 4,000 3,500 3,000 1,600 2,500 1,000 700 1,400 300 300	12,000 12,000 10,000 9,000 8,000 7,000 6,000 3,200 2,500 2,000 1,400 1,400 1,800	200,000 (2) 200,000 200,000 200,000 200,000 200,000 200,000 200,000 100,000 (3) 100,000 100,000 No Impulse	3 3 3-3/8 4 4-4/8 5-1/2 6-1/2 7-3/8 9 11 13-1/4 24 33	No gas test (1) The pressure based on fuel, all others based on hydraulic (2) -3 to -16, 125 % peak, bent (3) -20 to -32, 100 % peak pressure straight
MIL-H-2559 Hose Assembly Tetrafluoroethylene, High Temperature, Medium Pressure	MIL-H-2559 MIL-H-27267	MIL-H-26579 MS-27053 thru' MS-27060 MS-27381 thru' MS-27385	Fuel Lube Oil Water-Alcohol Chemical Fluid Hydraulic Pneumatic	-65 F to +450 F (1)	-3/-4 -4 -6 -8 -10 -12 -16Z -20Z -24Z	1,500 1,500 1,500 1,500 1,500 1,500 1,250 1,000	3,000 3,000 3,000 3,000 3,000 3,000 2,500 2,000 2,000	12,000 (2) 12,000 10,000 9,000 8,000 7,000 5,000 5,000 4,000	100,000 (3 and 4) 100,000 100,000 100,000 100,000 100,000 100,000 (5) 100,000 (6) 100,000	2 2 2 4 4-5/8 5-1/2 6-1/2 7-3/8 11 14	Conductivity Tests (1) 400 F for hydraulic and pneumatic usage (2) Room temp. values 450 F are lower (3) 125 % peak at 400°F Bent (4) -3/-4 not for hyd use (5) -16Z and larger, straight (6) -20Z and -24Z, 100 % peaks
MIL-H-26499 Hose Assembly, Metal, Flexible Breathing Oxygen	MIL-H-26499	MIL-H-26499	Oxygen	- 65 F to unlimited max.	-4	3,500	7,000	14,000	50,000 (1)	4	(1) 100 % peaks
MIL-H-26626 Hose Assembly, Tetrafluoroethylene,	MIL-H-26626	MIL-H-26626	Oxygen	- 297 F to + 260 F	-5 -6 -8	500	1,000	2,200	Vibration Test	6 8 9-1/4	100 % peak pressure
MIL-H-26633 Hose Assembly Polytetrafluoroethylene Oxygen	MIL-H-26633	MS-287 60 Type	Oxygen	- 65 F to + 160 F	-5 end -4 hose	3,000	6,000	12,000	2000 (Amb.)	3-1/4	100 % peak pressure
MIL-H-38360 Hose Assembly, TFE High Temperature Hydraulic and Pneumatic	MIL-H-38360	MIL-H-38360	Hydraulic Pneumatic	- 65 F to + 400 F	-4 -6 -8 -10 -12 -16	3,000	6,000	16,000 14,000 14,000 12,000 12,000	250,000	3 5 5-3/4 6-1/2 7-3/4 9-5/8	150 % peak pressure bent
MIL-H-38390 Hose Assembly, Tetrafluoroethylene, Pneumatic High Pressure	MIL-H-38390	MS-287 60 Type	Pneumatic (Ground support Equipment)	- 65 F to + 160 F	-4 -6 -8 -10 -12	4,000	8,000	16,000	2000 (Amb.)	3-1/4 5-1/4 6 6-3/4 8	100 % peak pressure

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ASSEMBLY DRAWING OR SPECIFICATION	HOSE SPECIFICATION	END FITTING DRAWING OR SPECIFICATION	USAGE MEDIA	TEMP. RANGE	SIZES	PRESSURE			IMPULSE LIFE	BEND RADIUS	REMARKS
						WORKING	PROOF	BURST			
MIL-H-26666 Hose Assembly Pneumatic High Pressure Polyethylene	MIL-H-26666	MS-28750 Type	Pneumatic (Ground Support Equipment)	- 65 F to + 160 F	-4 -6 -8 -10 -12	4,000 4,000 4,000 4,000 4,000	8,000 8,000 8,000 8,000 8,000	16,000 16,000 16,000 16,000 16,000	1000 (Amb.) 1000 (160°F)	3-1/4 5-1/4 6 6-3/4 8	100 % peak pressure
MIL-H-27267 Hose, Tetrafluoroethylene, High Temperature, Medium Pressure	MIL-H-27267	MIL-F-27272 MS-27053 thru' MS-27060 MS-27381 thru' MS-27385	Fuel Lube Water-Alcohol Chemical Hydraulic Pneumatic	- 65 F to + 450 F (1)	-4 -5 -6 -8 -10 -12 -16Z -20Z -24Z	1,500 1,500 1,500 1,500 1,500 1,250 1,250 1,000	3,000 3,000 3,000 3,000 3,000 2,500 2,500 2,000	12,000 (2) 10,000 9,000 8,000 7,000 5,000 5,000 4,000	100,000 (3) 100,000 100,000 100,000 100,000 100,000 (4) 100,000 (5) 100,000	2 2 4 4-5/8 5-1/2 6-1/2 7-3/8 11	Conductivity Tests (1) 400° F for hydraulic and pneumatic usage (2) Room temp. values, 450°F are lower, (3) 125 % peak at 406°F bent (4) 16Z and larger straight (5) -20Z and -24Z, 100% peaks
MIL-H-27462 Hose Assembly Pneumatic, High Pressure (8500 PSI)	MIL-H-27462	MIL-H-27462 (Pipe Threads)	Pneumatic (Ground Support Equipment)	- 65 F to + 160 F	-4 -6 -8	8,500 8,500 8,500	17,000 17,000 17,000	34,000 34,000 34,000	No Life Test	6 7 10	

2.3 S. A. E. SPECIFICATIONS AND STANDARDS

ARP 601 Hose Assemblies Flexible Metal, Aeronautical, Low Pressure	ARP-601	AS1011ta 1016	Fuels Lubricants Coolants Hot Gas	Type I - 400 F Type II - 600 F Type III - 800 F Type IV - 1200 F	-3 -4 -5 -6 -8 -10 -12 -16 -20 -24 -32	1,500 (1) 1,300 1,100 900 800 700 550 500 400 300 265 200	2,250 1,950 1,650 1,350 1,200 1,050 825 650 600 450 400 300	11,500 3,900 3,300 2,700 2,400 2,100 1,650 1,200 900 800 600	No Impulse 50,000 press. cycles to 50% working	1.5 1.75 2.125 2.375 2.75 3.0 3.75 4.375 6.0 7.5 10.0	(1) Room temp. values high temp. reduced per curve in ARP.
ARP 602 Hose Assemblies Flexible Metal Aeronautical, Medium Pressure	ARP-602	AS1011 to 1016	Fuels Lubricants Coolants Hot Gas	Type I - 400 F Type II - 600 F Type III - 800 F Type IV - 1200 F	-3 -4 -5 -6 -8 -10 -12 -16 -20 -24 -32	3,000 (1) 2,600 2,200 1,800 1,600 1,400 1,100 800 600 500 400	4,500 3,900 3,300 2,700 2,400 2,100 1,650 1,200 900 800 600	9,000 7,800 6,600 5,400 4,800 4,200 3,300 2,400 1,800 1,600 1,200	No Impulse 50,000 press. Cycles to 50 % working	3.062 3.125 3.500 4.120 5.0 5.750 6.875 7.875 9.500 11.750 14.250	(1) Room temp. values, high temp. reduced per curve in ARP
ARP-604 Hose Assemblies Aircraft and Missiles, High Temperature, High Pressure (250,000 cycles)	ARP-604	ARP-604	Hydraulics Lubricants Pneumatics	-65° F to +400° F	-4 -6 -8 -10 -12 -16	3,000 3,000 3,000 3,000 3,000 3,000	6,000 6,000 6,000 6,000 6,000 6,000	16,000 (1) 14,000 14,000 12,000 12,000 12,000 12,000	250,000 (2) 250,000 250,000 250,000 250,000 250,000	3 5 5-3/4 6-1/2 7-3/4 9-5/8	(1) Room temp. values 400° F or lower. (2) 150 % peaks Carbon Steel wire Allowed
ARP-610 Synthetic or natural Rubber Lined Pneumatic Hose Assemblies Aircraft	ARP-610	ARP-610	Pneumatic (Class I - Oil Resistant) (Class II - non-oil Resistant)	-65 F to +225 F	-4 -6 -8 -10 -12 -16	3,000 3,000 3,000 3,000 3,000 3,000	6,000 6,000 6,000 6,000 6,000 6,000	12,000 12,000 12,000 12,000 12,000 12,000	No Impulse Flexing Life Test (25,000 cycles)	3 5 5.75 6.5 7.75 9.625	