

RATIONALE

AIR2000E has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

1.1 List of Metric Standards:

The purpose of this aerospace information report is to provide a listing of national and international metric standards for use in aerospace fluid systems with their equivalent SAE inch, International ISO, and European AECMA standards.

1.2 Organization:

Metric Aerospace Fluid System Standards are being prepared and coordinated for acceptance in TC 20 by the Subcommittee 10 of TC 20. The United States Subcommittee Advisory Group (U.S. SCAG) of this subcommittee functions in compliance with the Charter for the U.S. Technical Advisory Group for ISO/TC 20 (SAE Organization and Operating Guide) and the American National Standards Institute's (ANSI) "Operating Procedure for the International Activities of the American National Standards Institute."

Depending on the subject matter, the work in the U.S. SCAG will be coordinated with the following industry organizations:

AIA/NASC	National Aerospace Standards Committee
SAE AE-5	Aerospace Fuel, Oil and Oxidizer Systems
SAE AC-9	Aircraft Environmental Systems
SAE A-6	Aerospace Fluid Power, Actuation, and Control Technologies
SAE A-10	Aircraft Oxygen Equipment
SAE G-3	Aerospace Couplings, Fittings, Hose & Tubing Assemblies Committee
SAE G-4	Elastic Seals
SAE E-25	General Standards for Aerospace Propulsion Systems
SAE AMS	Aerospace Materials Division
NFPA	National Fluid Power Association
RMA	Rubber Manufacturers Association

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## 2. REFERENCES:

### 2.1 Definitions:

- 2.1.1 APPROVED TC 20 DOCUMENTS: Coordinated and approved by the TC 20 U.S. Technical Advisory Group and the SAE Aerospace Council.
- 2.1.2 APPROVED TC 131 DOCUMENTS: International standards developed by TC 131 which have been accepted for aerospace use by the TC 20 U.S. TAG. Any future revisions of such documents require TC 20/SC 10 U.S. SCAG concurrence for aerospace acceptance.

## 3. APPROVED METRIC FLUID SYSTEM STANDARDS:

### 3.1 TC 20 Documents:

#### 3.1.1 Approved TC 20 Documents:

ISO 11	Aircraft - Ground pressure testing connections for pressure cabins
ISO 12	Aerospace - Pipelines - Identification
ISO 45	Aircraft - Pressure refueling connections
ISO 102	Aircraft - Gravity filling orifices
ISO 443	Marking of aircraft gas cylinders
ISO 450	Aircraft - Connection for water of drinkable quality
ISO 451	pressure re-oiling connections
ISO 485	Aircraft - Water-methanol pressure connections
ISO 1023	Aircraft - High pressure air charging valves
ISO 1034	Aircraft - Ground air-conditioning connections
ISO 1465	Aircraft - Liquid oxygen replenishment couplings - Mating dimensions
ISO 2026	Aircraft - Connections for starting engines by air
ISO 2563	Aircraft ducting and piping - Profile dimensions for flanges of V-band couplings
ISO 2685	Aircraft - Environmental conditions and test procedures for airborne equipment - Resistance to fire in designated fire zones
ISO 2964	Aerospace - Tubing - Outside diameters and thicknesses - Threaded type
ISO 3161	Aerospace - UNJ threads, with controlled root radius, for aerospace - Inch series
ISO 3174	Aircraft - Connections for checking hydraulic systems by ground appliances - Threaded type
ISO 3323	Aircraft - Hydraulic components - Marking to indicate fluid for which component is approved
ISO 4153	Aircraft - Pressure fuel dispensing system - Test procedure and limit value for shut-off surge pressure
ISO 5855/1	MJ threads - Part 1: General requirements
ISO 5855/3	MJ threads - Part 3: Limit dimensions for fittings for fluid systems
ISO 5859	Aerospace - Graphic symbols for schematic drawings of hydraulic and pneumatic systems and components
ISO 5884	Aerospace - Fluid systems and components - Methods for system sampling and measuring the solid particle contamination of hydraulic fluids

## 3.1.1 (Continued):

ISO 5887	Aircraft - Joints for connecting crew member's regulator masks to oxygen sources
ISO 6771	Aerospace - Fluid systems and components - Pressure and temperature classifications
ISO 6772	Aerospace - Fluid systems - Impulse testing of hydraulic hose, tubing, and fitting assemblies
ISO 6773	Aerospace - Fluid systems - Thermal shock testing of piping and fittings
ISO 7137	Aircraft - Environmental conditions and test procedures for airborne equipment
ISO 7169	Aerospace fluid systems - Separable tube fittings for 24 degree cone - General specification
ISO 7257	Aircraft - Hydraulic tubing joints and fittings - Rotary flexure test
ISO 7258	Polytetrafluoroethylene (PTFE) tubing for aerospace applications - Methods for the determination of the density and relative density
ISO 7313	Aircraft - High temperature convoluted hose assemblies in polytetrafluoroethylene (PTFE)
ISO 7314	Aerospace - Fluid systems - Hose assembly, metal
ISO 7315	Aerospace - "P" clamps (loop clamps) for fluid systems - Envelope dimensions
ISO/DP 7317	Aerospace fluid systems - 24 degree cone fitting - Part standards
ISO 7319	Aerospace - Fluid systems - Interface of 24 degree cone metric couplings
ISO 7320	Aerospace - Couplings, threaded and sealed, for fluid systems - Dimensions
ISO 7661	Aerospace - Fluid systems - Clamp blocks for tube lines having axial alignment - Design standard and qualification testing - Metric series
ISO 8177	Aerospace - Omega clamps (saddle clamps) for fluid systems - Dimensions
ISO 8278	Aerospace - Hydraulic, pressure compensated, variable pumps - General requirements
ISO 8479	Aerospace - "Q" clamps (centre-mounted clamps) for fluid tubing systems - Dimensions
ISO 8574	Aerospace - Hydraulic system tubing - Qualification tests
ISO 8575	Aerospace - Fluid systems - Hydraulic system tubing
ISO 8625-1	Aerospace - Fluid systems - Vocabulary - Part 1: General terms and definitions relating to pressure - Bilingual edition
ISO 8625-2	Aerospace - Fluid systems - Vocabulary - Part 2: General terms and definitions relating to flow - Bilingual edition
ISO 8625-3	Aerospace - Fluid systems - Vocabulary - Part 3: General terms and definitions relating to temperature Bilingual edition
ISO 8775	Aerospace - Gaseous oxygen replenishment connection in fluid systems (new type) - Dimensions (Inch series)
ISO/DIS 8829-1	Aerospace - Test methods for polytetrafluoroethylene (PTFE) innertube hose assemblies - Part 1: Metallic (stainless steel) braid
ISO/CD 8829-2	Aerospace - Test methods for polytetrafluoroethylene (PTFE) innertube hose assemblies - Part 2: Non-metallic braid
ISO 8913	Aerospace - Lightweight polytetrafluoroethylene (PTFE) hose assemblies, classification 204°C/21 000 kPa - Procurement specification

## 3.1.1 (Continued):

ISO 9206	Aerospace - Constant displacement hydraulic motors - General specification
ISO 9528	Aerospace - Standard-weight polytetrafluoroethylene (PTFE) hose assemblies, classification 204°C/21 000 kPa - Procurement specification
ISO 9538	Aerospace - Hydraulic tubing joints and fittings - Planar flexure test
ISO 9634	Aerospace - Fluid systems - Dimensions of plastic cap and plugs
ISO 9662	Aircraft equipment - Environmental and operating conditions for airborne equipment - Humidity, temperature and pressure tests
ISO 9938	Aerospace - Polytetrafluoroethylene (PTFE) hose assemblies, classification 204°C/28 000 kPa - Procurement specification
ISO 9939	Aerospace - Pressure re-oiling connection (new type)
ISO 10502	Aerospace - Hose assemblies for polytetrafluoroethylene (PTFE) for use up to 232°C and 10 500 kPa - Procurement specification
ISO 10583	Aerospace - Fluid systems - Test method for tube/fitting assemblies
ISO 11217	Aerospace - Hydraulic system fluid contamination
ISO 11218	Aerospace - Cleanliness classification for hydraulic fluids (Draft endorsement of SAE AS4059 Rev. A)

## 3.2 TC 131 Documents:

## 3.2.1 Approved TC 131 Documents:

ISO 2942	Hydraulic Fluid Power - Filter Elements Determination of Fabrication Integrity
ISO 3601/1	Fluid Systems - Sealing Devices - O-Rings - Part 1: Inside Diameters, Cross Sections, Tolerances and Size Identification Code
ISO 3601/3	Fluid Systems - Sealing Devices - O-Rings - Part 3: Quality Acceptance Criteria
DIS 3968.2	Filters - Evaluation of Pressure Drop vs Flow Characteristics
ISO 4412/1	Test Code for the Determination of Airborne Noise Levels - Part 1: Pumps
ISO 4412/11	Test Code for the Determination of Airborne Noise Levels - Part 2: Motors
DIS 6075/1	Mineral Oils - Characteristics Standard Tests

## 3.3 Approved European Standards - AECMA prEN:

prEN 2245	Pipeline for liquids and gases - Definition - Aerospace Series
prEN 2253	Flexible hose assemblies in elastomers - Type 1 - Technical specification - Aerospace Series
prEN 2656	Aerospace Series - Pipe couplings up to 56 000 kPa - Fitting end, welded, geometrical configuration
prEN 2671	Aerospace series - Design and construction of pipelines for fluids in liquid or gaseous condition outline and terms

## 3.3 (Continued):

prEN 2672	Aerospace series - Design and construction of pipelines for fluids in liquid or gaseous condition - Design of rigid lines
prEN 2673	Aerospace series - Design and construction of pipelines for fluids in liquid or gaseous condition, rigid lines - Manufacture
prEN 2900	Aerospace series - Clamps - Technical specification
prEN 2901	Aerospace series - Clamps, loop ("P" type) with rubber cushioning in corrosion resistant steel - Dimensions - Masses
prEN 2902	Aerospace series - clamps - Loop ("P" type) with rubber cushioning in aluminum alloy - Dimensions - Masses
prEN 2903	Aerospace series - Clamps - Worm drive - Dimensions - Masses
prEN 2904	Aerospace series - Clamps - Saddle in aluminum alloy - Dimensions - Masses
prEN 3243	Aerospace series - Pipe coupling 8°30' in titanium alloy - Ferrule, welded, with dynamic beam seal end
prEN 3244	Aerospace series - Pipe coupling 8°30' in titanium alloy - Union, double ended
prEN 3245	Aerospace series - Pipe coupling 8°30' in titanium alloy - Unions, reducer
prEN 3246	Aerospace series - Pipe coupling 8°30' in titanium alloy - Unions, bulkhead
prEN 3247	Aerospace series - Pipe coupling 8°30' in titanium alloy - Unions, bulkhead, welded
prEN 3248	Aerospace series - Pipe coupling 8°30' in titanium alloy - Adaptors, reduced pipe end with locking ring
prEN 3264	Aerospace series - Pipe coupling 8°30' in titanium alloy - Swivel nuts
prEN 3266	Aerospace series - Pipe coupling 8°30' in titanium alloy - Bulkhead nuts
prEN 3267	Aerospace series - Washer, bulkhead in titanium alloy
prEN 3268	Aerospace series - Pipe coupling 8°30' in titanium alloy - Pressure plugs
prEN 3269	Aerospace series - Pipe coupling 8°30' in titanium alloy - Blind ferrule with dynamic beam seal end
prEN 3270	Aerospace series - Pipe coupling 8°30' in titanium alloy - Blanking plugs with locking ring
prEN 3272	Aerospace series - Pipe coupling 8°30' - Dynamic beam seal end for nipple, welded - Geometric configuration
prEN 3273	Aerospace series - Pipe coupling 8°30' - Dynamic beam seal end for elbows, tees, and crosses - Geometric configuration
prEN 3274	Aerospace series - Pipe coupling 8°30' - Thread end - Geometric configuration
prEN 3275	Aerospace series - Pipe coupling 8°30' - Dynamic beam seal up to 28 000 kPa - Metric series - Technical specification
prEN 3561	Aerospace series - Pipe coupling 8°30' in titanium alloy - Ferrules with dynamic beam seal end, welded and reduced at pipe end
prEN 3566	Aerospace series - Pipe coupling 8°30' in titanium alloy - Adapters with locking ring
prEN 3572	Aerospace series - PTFE flexible hose assembly with convoluted inner tube of a nominal pressure up to 6800 kPa and 8°30' fitting in titanium - Product standard
prEN 3576	Aerospace series - PTFE flexible hose assembly of a nominal pressure equal to 10 500 kPa with 8°30' fitting in titanium - Product standard

## 3.3 (Continued):

prEN 3580	Aerospace series - Standard-weight PTFE flexible hose assembly of a nominal pressure equal to 21 000 kPa with 8°30' fitting in titanium - Product standard
prEN 3584	Aerospace series - Lightweight PTFE flexible hose assembly of a nominal pressure equal to 21 000 kPa with 8°30' fitting in titanium - Product standard
prEN 3588	Aerospace series - Lightweight PTFE flexible hose assembly of a nominal pressure equal to 28 000 kPa with 8°30' fitting in titanium - Product standard
prEN 3630	Aerospace series - Fluid fittings, flanged, straight - Sealing by O-ring for 0.8 mm thick tubes
prEN 3631	Aerospace series - Fluid fittings, flanged, 90° elbowed - Sealing by O-ring for 0.8 mm thick tubes
prEN 3633	Aerospace series - Installation hole for fluid fittings, flanged
prEN 3634	Aerospace series - Fluid fittings, flanged - Assembly recommendations
prEN 3635	Aerospace series - Weld lip - Geometrical configuration
prEN 3658	Aerospace series - Tube bend radii, for engine application - Design standard
prEN 3663	Aerospace series - Pipe coupling - O-rings in acrylonitrile-butadiene elastomer (NBR) 75 IRHD, Temperature range: -55°C to 135°C
prEN 3688	Aerospace series - T-ring fillers in titanium alloy for welding pipes - 14 000 kPa nominal pressure
prEN 3689	Aerospace series - T-ring fillers in titanium alloy for welding pipes - 28 000 kPa nominal pressure
prEN 3690	Aerospace series - Pipe coupling 8°30' in titanium alloy - Unions, bulkhead, long
prEN 3691	Aerospace series - Pipe coupling 8°30' in titanium alloy - Unions, bulkhead, long, welded
prEN 3717	Aerospace series - Tubes - Selection for engines fluid systems
prEN 3718	Aerospace series - Test method for metallic materials - Ultrasonic inspection of tubes
prEN 3788	Aerospace series - Pipe coupling 8°30' - Protective caps
prEN 3789	Aerospace series - Pipe coupling 8°30' - Protective plugs with external threads
prEN 3790	Aerospace series - Pipe coupling 8°30' - Protective caps with internal threads
prEN 3851	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Swivel nuts, straight
prEN 3852	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Straight unions, welded, threaded
prEN 3853	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Straight unions, threaded
prEN 3854	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Ferrules, welded
prEN 3855	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Caps
prEN 3856	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Swivel nuts for thrust wire
prEN 3857	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Elbows, 90°, welded

## 3.3 (Continued):

prEN 3858	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy TI-P64001 - Thrust wire in steel
prEN 3867	Aerospace series - Pipe couplings, loose flanges and seals - Flange in titanium alloy TI-P64001
prEN 3868	Aerospace series - Pipe couplings, loose flanges and seals - flange connectors, welded, in titanium alloy TI-P64001
prEN 3869	Aerospace series - Pipe couplings, loose flanges and seals - Seals in fluorocarbon rubber and armature in aluminum alloy
prEN 4017	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°
prEN 4018	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, swivel nut
prEN 4019	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, welded
prEN 4020	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, swivel nut, welded
prEN 4021	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, bulkhead
prEN 4022	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, bulkhead, welded
prEN 4023	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 45°
prEN 4024	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 45°, swivel nut, welded
prEN 4025	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 45°, bulkhead
prEN 4026	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees
prEN 4027	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, branch with swivel nut
prEN 4028	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, swivel nut on run
prEN 4029	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, bulkhead branch
prEN 4030	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, bulkhead run
prEN 4031	Aerospace series - Pipe coupling 8°30' in titanium alloy - Nuts for welded union
prEN 4032	Aerospace series - Pipe coupling 8°30' in titanium alloy - Thrust wire
prEN 4051	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy - Port connection
TR 4052	Aerospace series - Pipe couplings, 60°, spherical, in titanium alloy - Assembly recommendations
TR 4053	Aerospace series - Pipe couplings, loose flanges and seals in titanium alloy - Assembly recommendations
prEN 4182	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tee, reduced
prEN 4183	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, double welded
prEN 4184	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 45°, double welded
prEN 4185	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, bulkhead long
prEN 4186	Aerospace series - Pipe coupling 8°30' in titanium alloy - Cross unions
prEN 4187	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, bulkhead long

### 3.3 (Continued):

prEN 4188	Aerospace series - Pipe coupling 8°30' in titanium alloy - Elbows 90°, bulkhead long, welded
prEN 4189	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, bulkhead branch, long
prEN 4190	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, with swivel nut on run
prEN 4191	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, bulkhead branch, long
prEN 4192	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, bulkhead branch
prEN 4193	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, bulkhead long
prEN 4194	Aerospace series - Pipe coupling 8°30' in titanium alloy - Tees, reduced, bulkhead

### 4. FLUID SYSTEM STANDARDS, LISTING:

See Table 1 - MA Standards

See Table 2 - ISO Standards

See Table 3 - AECMA Standards

### 5. NOTES:

#### 5.1 MA and AECMA Standards, Functional Interchangeability:

Tables containing columns for MA standards alongside AECMA standards indicate functional interchangeability. Standards have the same dimensions and machining requirements and are machined from equivalent U.S. and/or European materials.

#### 5.2 No Metric Standard Planned:

Table 1 also lists ISO standards for fluid systems where development of a metric SAE standard is unnecessary, or where other than SAE metric standards exist.

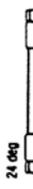
#### 5.3 The change bar (Δ) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document.

#### 5.4 Key Words:

Fluid systems standards, metric standards, national standards, international standards

PREPARED UNDER THE JURISDICTION OF  
SAE COMMITTEE G-3, AEROSPACE COUPLINGS, FITTINGS, HOSE & TUBING ASSEMBLIES

TABLE 1 - Fluid System Standards, Metric

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
PS		MA614	HOSE ASSEMBLIES, PTFE, WIRE REINFORCED, 204°C, 28 000 kPa, HYDRAULIC, METRIC	1994-01		AS614	ISO 9938	
PS		MA620	HOSE ASSEMBLIES, CONVOLUTED PTFE, METALLIC REINFORCED, HIGH TEMPERATURE, MEDIUM PRESSURE, AIRCRAFT, METRIC	1998-03		AS620	ISO 7313	
DS		MAP1201	TOLERANCES, HEXAGON BAR, MACHINED FLAT AND FORGED WRENCHING FLAT SIZES FOR FLUID FITTINGS, METRIC	1992-09				
PS		MA1339	HOSE ASSEMBLY, TETRAFLUOROETHYLENE, 400°F, 3000 PSI, HYDRAULIC, LIGHTWEIGHT, METRIC	1998-06		AS1339	ISO 8913	
DS		MA1370	SCREW THREADS - MJ PROFILE, METRIC	1995-05			ISO 5855	
DS		MA1508	UNDERCUTS FOR STRAIGHT SCREW THREADS, METRIC	1996-05				
DS		MA1566A	GAGING PRACTICE AND GAGE REQUIREMENTS FOR MJ METRIC SCREW THREADS	1992-07			ISO 5855	
HP		MA1633	HOSE ASSEMBLY, CONVOLUTED PTFE, METALLIC REINFORCED, FLARELESS, STR. TO STR., METRIC	1998-03		AS1633		
HP		MA1634	HOSE ASSEMBLY, CONVOLUTED PTFE, METALLIC REINFORCED, FLARELESS, STR. TO 45°, METRIC	1998-03		AS1634		
HP		MA1635	HOSE ASSEMBLY, CONVOLUTED PTFE, METALLIC REINFORCED, FLARELESS, STR. TO 90°, METRIC	1998-03		AS1635		
HP		MA1636	HOSE ASSEMBLY, CONVOLUTED PTFE, METALLIC REINFORCED, FLARELESS, 45° TO 45°, METRIC	1998-03		AS1636		
HP		MA1637	HOSE ASSEMBLY, CONVOLUTED PTFE, METALLIC REINFORCED, FLARELESS, 45° TO 90°, METRIC	1998-03		AS1637		
HP		MA1638	HOSE ASSEMBLY, CONVOLUTED PTFE, METALLIC REINFORCED, FLARELESS, 90° TO 90°, METRIC	1998-03		AS1638		

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
		MA1806	SPRING CLIPS AND CUSHION SELECTION FOR METAL TUBE SUPPORT, METRIC	1990-11				
PS		MA1975	HOSE ASSEMBLIES, PTFE, ARAMID REINFORCED, 1350C, 28 000/21 000 kPa, STANDARD DUTY, HYDRAULIC, AIRCRAFT SYSTEMS, METRIC	1994-05	AS1975			
S		MA2001B	AEROSPACE FLUID SYSTEMS AND COMPONENTS PRESSURE AND TEMPERATURE CLASSIFICATIONS, METRIC		AS2001	ISO 6771		
SP		MA2002A	IMPULSE TESTING OF HYDRAULIC HOSE, TUBING AND FITTING ASSEMBLIES, METRIC		ARP603	ISO 6772		
SP		MA2003	ROTARY FLEXURE TESTING OF HYDRAULIC CONNECTIONS, TUBING JOINTS AND FITTINGS, METRIC		ARP1185	ISO 7257		
SP		MA2004A	THERMAL SHOCK TESTING OF FLUID SYSTEMS PIPING AND FITTINGS, METRIC			ISO 6773		
PS		MA2005B	TUBE FITTINGS, AEROSPACE FLUID SYSTEMS, SEPARABLE, GENERAL REQUIREMENT FOR, METRIC		AS18280	ISO 7169		
SP		MA2006	HYDRAULIC TUBING QUALIFICATION TEST REQUIREMENTS, METRIC		MIL-H-5440	ISO 8574		
DS		MA2008	TUBE BEND RADII, METRIC		AS33611			prEN 3658
DS		MA2010	PACKING, PREFORMED O-RING SEAL, STANDARD SIZES AND SIZE CODES, METRIC			ISO 3601/1		
DS		MA2012B	PORT CONNECTION DESIGN STANDARD, METRIC		AS5202 MS33649	ISO 7320		
DS		MA2014A	FITTING END, FLARELESS, DESIGN STANDARD, METRIC		NAS1760	ISO 9627		
DS		MA2023A	ALTERNATE DIMENSIONS, CENTER BODY SECTION, SHAPE FLUID FITTING, DESIGN STANDARD, METRIC	1996-08				

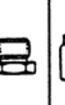
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TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (inch)	ISO	AECMA
DS		MA2024	FLANGE PROFILES, V-COUPLING, DESIGN STANDARD, METRIC	1995-03			ISO 2563	
FP		MA2025A	UNION, FLARELESS TUBE, METRIC			AS5230 AS 21902	ISO 7317	
FP		MA2026B	FITTING, ELBOW, 90°, THIN WALL, FLARELESS, METRIC			AS1004 AS 21904	ISO 7317	
FP		MA2027B	FITTING, TEE, THIN WALL, FLARELESS, METRIC			AS005 AS 21905	ISO 7317	
FP		MA2028B	FITTING, CROSS, THIN WALL, FLARELESS, METRIC			AS1006 AS 21906	ISO 7317	
FP		MA2029B	FITTING, ELBOW, 45°, THIN WALL, BULKHEAD, FLARELESS, METRIC			AS1010 AS 21907	ISO 7317	
FP		MA2030B	FITTING, ELBOW, 90°, THIN WALL, BULKHEAD, FLARELESS, METRIC			AS1008 AS 21908	ISO 7317	
FP		MA2031B	FITTING, TEE, THIN WALL, BULKHEAD ON RUN, FLARELESS, METRIC			AS1003 AS 21912	ISO 7317	
FP		MA2032B	FITTING, TEE, THIN WALL, BULKHEAD AND BOSS ON RUN, FLARELESS, METRIC			AS1002 AS 21911	ISO 7317	
FP		MA2033B	FITTING, TEE, THIN WALL, BULKHEAD ON RUN, BOSS ON SIDE, FLARELESS, METRIC			AS1001 AS 21910	ISO 7317	
FP		MA2034B	FITTING, TEE, THIN WALL, BULKHEAD ON SIDE, FLARELESS, METRIC			AS1009 AS 21909	ISO 7317	
FP		MA2035A	PLUG, FLARELESS TUBE, METRIC			AS5231 AS 21913	ISO 7317	
FP		MA2036A	CAP ASSEMBLY, PRESSURE SEAL, FLARELESS TUBE, METRIC			AS5233 AS 21914	ISO 7317	

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
FP		MA2037A	BUSHING, SCREW THREAD EXPANDER, FLARELESS TUBE, METRIC			AS5232 AS21915		
FP		MA2038A	UNION, REDUCER, FLARELESS TUBE, METRIC			AS5230 AS 21902		
FP		MA2039A	PLUG, PORT - MJ THREAD, O-RING SEAL, AMS 5640, METRIC			AS5170 MS9902		
FP		MA2040B	NUT, FLARELESS, METRIC			AS5234 AS21921		
FP		MA2041A	SLEEVE, COUPLING, FLARELESS, METRIC			AS5235 AS21922		
FP		MA2042A	FITTING, ADAPTER, PORT CONNECTION TO FLARELESS, METRIC			AS931		
FP		MA2043A	UNION, BULKHEAD, FLARELESS TUBE, METRIC			AS1007 AS21924		
FP		MA2046A	ADAPTER, FLARELESS, METRIC TO INCH					
FP		MA2047C	NUT, RETAINED, FLARELESS, METRIC			AS1790 AS4370		
FP		MA2048A	ELBOW, THIN WALL, 45°, SWIVEL NUT, FLARELESS, METRIC			AS4137		
FP		MA2049A	TEE, THIN WALL, SWIVEL NUT ON RUN, FLARELESS, METRIC			AS4139		
FP		MA2050A	ELBOW, THIN WALL, 90°, SWIVEL NUT, FLARELESS, METRIC			AS4138		
FP		MA2051A	TEE, THIN WALL, SWIVEL NUT ON SIDE, FLARELESS, METRIC			AS4140		

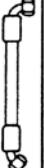
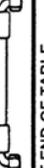
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TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
FP		MA2052	ADAPTER, FLARELESS, METRIC TO INCH					
FP		MA2058A	UNION, REDUCER / EXPANDER BULKHEAD, FLARELESS TUBE, METRIC					
FP		MA2060A	FITTING, WELDED, HYDRAULIC, TITANIUM AND CORROSION RESISTANT, 20 000 kPa, METRIC			AS1576		
DS		MA2061A	FITTING END, WELDED, INTEGRAL OFFSET WELD, LIP, DESIGN STANDARD, METRIC	1984-07	1997-01	AS1579		
FP		MA2062A	RING, WELD, 21 000 kPa, CORROSION RESISTANT, METRIC	1984-07	1997-01	AS1893		
DS		MA2063A	TUBE END, WELD, DESIGN STANDARD, METRIC	1984-07	1997-01			prEN 3635
FP		MA2064A	FITTING, SLEEVE, FLARELESS, ACORN TO INTEGRAL WELD RING, 21 000 kPa, METRIC	1984-07	1997-01	AS1581		
FP		MA2065B	FITTING, ADAPTER, EXTERNAL THREAD, FLARELESS TO INTEGRAL WELD RING, 21 000 kPa, METRIC	1984-07	1997-01	AS1582		
FP		MA2066A	FITTING, REDUCER, INTEGRAL WELD RING, 21 000 kPa, METRIC	1984-07	1997-01	AS1585		
FP		MA2069A	FITTING, ELBOW, 90°, INTEGRAL WELD RING, 21 000 kPa, METRIC	1984-07	1997-01	AS1584		
FP		MA2070A	FITTING, TEE, INTEGRAL WELD RING, 21 000 kPa, METRIC		1997-01			
FP		MA2071A	FITTING, CROSS, INTEGRAL WELD RING, 21 000 kPa, METRIC		1997-01			
DS		MA2076	FITTING END, ACORN, SHORT FLARELESS, DESIGN STANDARD, METRIC	1992-10		AS4458		

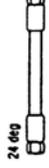
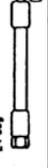
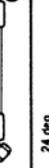
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TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS	
				ORIG.	REV.	U.S. (Inch)	ISO
PR		MA2078A	TEST METHODS, HOSE ASSEMBLIES, POLYTETRAFLUOROETHYLENE (PTFE), METRIC	1986-01	1992-07	AS2078	ISO 8829
HP		MA2080	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, 60° CONE, STR. TO STR., LIGHTWEIGHT, METRIC	1989-01			
HP		MA2081	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, 60° CONE, STR. TO 45° LIGHTWEIGHT, METRIC	1989-01			
HP		MA2082	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, 60° CONE, STR. TO 90° LIGHTWEIGHT, METRIC	1989-01			
HP		MA2083	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, 60° CONE, 45° TO 45° LIGHTWEIGHT, METRIC	1989-01			
HP		MA2084	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, 60° CONE, 45° TO 90° LIGHTWEIGHT, METRIC	1989-01			
HP		MA2085	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, 60° CONE, 90° TO 90° LIGHTWEIGHT, METRIC	1989-01			
HP		MA2086	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, FLARELESS, STR. TO STR., METRIC	1986-01		AS115	
HP		MA2087	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, FLARELESS, STR. TO 45° METRIC	1986-01		AS116	
HP		MA2088	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, FLARELESS, STR. TO 90° METRIC	1986-01		AS117	
HP		MA2089	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, FLARELESS, 45° TO 45° METRIC	1986-01		AS118	
HP		MA2090	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, FLARELESS, 45° TO 90° METRIC	1986-01		AS119	
HP		MA2091	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE CRES REINFORCED, 204°C, 21 000 kPa, FLARELESS, 90° TO 90° METRIC	1986-01		AS120	

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE ( * )	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
DS		MA2093	FITTING END, DIMENSIONS, FLUID SYSTEMS PORT CONNECTION, METRIC	1988-02				
PR		MA2094	TEST METHODS FOR TUBE - FITTING ASSEMBLIES, METRIC	1995-12		AS2094	ISO 10583	
DS		MA2095B	FITTING END, 24° CONE, DESIGN STANDARD, METRIC		1997-10	AS4375 AS33514	ISO 7319	
DS		MA2096B	FITTING END, 24° CONE, BULKHEAD, DESIGN STANDARD, METRIC		1997-10	AS4377 MS33515	ISO 7321	
PS		MA2100	HOSE ASSEMBLIES, METAL, MEDIUM PRESSURE, HIGH TEMPERATURE, METRIC	1989-10		AS1424	ISO 7314	
HP		MA2101	HOSE ASSEMBLY, METAL, MEDIUM PRESSURE, FLARELESS, WELDED, STR. TO STR. FITTING ENDS, METRIC	198-10		AS136		
HP		MA2102	HOSE ASSEMBLY, METAL, MEDIUM PRESSURE, FLARELESS, WELDED, STR. TO 45° FITTING ENDS, METRIC	1989-10		AS137		
HP		MA2103	HOSE ASSEMBLY, METAL, MEDIUM PRESSURE, FLARELESS, WELDED, STR. TO 90° FITTING ENDS, METRIC	1989-10		AS138		
HP		MA2104	HOSE ASSEMBLY, METAL, MEDIUM PRESSURE, FLARELESS, WELDED, 45° TO 45° FITTING ENDS, METRIC	1989-10		AS139		
HP		MA2105	HOSE ASSEMBLY, METAL, MEDIUM PRESSURE, FLARELESS, WELDED, 45° TO 90° FITTING ENDS, METRIC	1989-10		AS140		
HP		MA2106A	HOSE ASSEMBLY, METAL, MEDIUM PRESSURE, FLARELESS, WELDED, 90° TO 90° FITTING ENDS, METRIC	1989-10	1991-05	AS141		
DS		MA2110A	PORT, RING LOCKED, DESIGN STANDARD, DIMENSIONS FOR, METRIC		1988-02	AS1300		
FP		MA2111B	FITTING ASSEMBLY, ADAPTOR, RING LOCKED PORT CONNECTION TO 8°30' BEAM SEAL, 28,000 kPa, METRIC		1988-02	AS1986		

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
FP		MA2112B	ADAPTER ASSEMBLY - PORT CONNECTION, RING LOCKED TO 24° FLARELESS TUBE END, METRIC		1994-01	AS1299		
FP		MA2113B	ADAPTER ASSEMBLY - PORT CONNECTION, RING LOCKED TO 60° FLARELESS TUBE END, METRIC		1994-01			
PR		MA2114A	ADAPTOR, PORT CONNECTION, RING LOCKED, INSTALLATION AND REMOVAL OF		1988-02	AS1301		
FP		MA2115	UNION, FLARELESS TUBE OR BOSS	1988-05		AS931	ISO 7317	
FP		MA2116	UNION, REDUCER, FLARELESS TUBE OR BOSS	1988-05		AS932	ISO 7317	
FP		MA2117B	WIRE, RETAINER, SWIVEL, METRIC		1996-04	AS1791		
FP		MA2118B	NUT, BULKHEAD, FITTING, METRIC		1997-09	AN924	ISO 7321	
FP		MA2119A	FITTING ASSEMBLY, REDUCER, RING LOCKED PORT CONNECTION TO 8°30' BEAM SEAL, 28 000 kPa, METRIC		1994-07	AS4383		
PS		MA2126	HOSE ASSEMBLY, PTFE, UP TO 232°F, AND 10 500 kPa, PROCUREMENT SPECIFICATION, METRIC	1990-06		AS1946 MILH25579	ISO 10502	

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
PS		MA2150	CLAMPS, LOOP OR P STYLE, SINGLE POINT MOUNT, MULTIPLE SHAPES, PROCUREMENT SPECIFICATION, METRIC	1993-02		MIL-C-85052	ISO 7315	
CP		MA2150/1	CLAMP, LOOP STYLE, CUSHIONED, WITH WEDGE, HYDROCARBON FLUID RESISTANT, METRIC	1991-04		MS85052/1	ISO 7315	
CP		MA2150/2	CLAMP, LOOP STYLE, CUSHIONED, WITH WEDGE, PHOSPHATE ESTER FLUID RESISTANT, METRIC	1991-04		MS85052/2	ISO 7315	
CP		MA2150/3	CLAMP, LOOP STYLE, CUSHIONED, WITH WEDGE, HIGH TEMPERATURE, METRIC	1991-04		MS85052/3	ISO 7315	
CP		MA2150/4	CLAMP SUPPORT, LOOP CLAMP, METRIC	1991-04		MS85052/4		
CP		MA2150/5	CLAMP, LOOP STYLE, WITH INSERT, HYDROCARBON FLUID RESISTANT, METRIC	1991-04		MS85052/5		
CP		MA2150/6	CLAMP, LOOP STYLE, WITH INSERT, PHOSPHATE ESTER FLUID RESISTANT, METRIC	1991-04		MS85052/6		
CP		MA2150/7	CLAMP, LOOP STYLE, WITH INSERT, HIGH TEMPERATURE, METRIC	1991-04		MS85052/7		
PS		MA2151	CLAMP ASSEMBLIES, SADDLE OR OMEGA STYLE, TWO POINT MOUNT, MULTIPLE SHAPES, PROCUREMENT SPECIFICATION, METRIC	1994-03		MIL-DTL-85449	ISO 8177	
CP		MA2151/1	CLAMP, SADDLE TYPE, CUSHIONED, HYDROCARBON FLUID RESISTANT, METRIC	1991-04		MS85449/1	ISO 8177	
CP		MA2151/2	CLAMP, SADDLE TYPE, CUSHIONED, PHOSPHATE ESTER FLUID RESISTANT, METRIC	1991-04		MS85449/2	ISO 8177	
CP		MA2151/3	CLAMP, SADDLE TYPE, CUSHIONED, HIGH TEMPERATURE, METRIC	1991-04		MS85449/3	ISO 8177	
CP		MA2151/4	CLAMP, SADDLE TYPE, CUSHIONED, PTFE, METRIC	1991-04		MS85449/4	ISO 8177	

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
CP		MA2152/1	CLAMP, CENTER MOUNT, BARE METAL, ALUMINUM, METRIC	1991-04		AS7351		
CP		MA2152/2	CLAMP, CENTER MOUNT, BARE METAL, STAINLESS STEEL, METRIC	1991-04				
CP		MA2153/1	CLAMP, LOOP TYPE, BARE METAL, ALUMINUM, METRIC	1991-04		MS21103		
CP		MA2153/2	CLAMP, LOOP TYPE, BARE METAL, STAINLESS STEEL, METRIC	1991-04				
CP		MA2154/1	CLAMP, RECTANGULAR, 2 PIECE, CUSHIONED, WITH WEDGES, HYDROCARBON FLUID RESISTANT, METRIC	1991-04		NAS1677		
CP		MA2154/2	CLAMP, RECTANGULAR, 2 PIECE, CUSHIONED, WITH WEDGES, PHOSPHATE ESTER FLUID RESISTANT, METRIC	1991-04		NAS1677		
CP		MA2154/3	CLAMP, RECTANGULAR, 2 PIECE, CUSHIONED, WITH WEDGES, HIGH TEMPERATURE, METRIC	1991-04		NAS1677		
CP		MA2155/1	CLAMP, RECTANGULAR LOOP, CUSHIONED, WITH WEDGE, HYDROCARBON FLUID RESISTANT, ALUMINUM, METRIC	1991-04		NAS1712		
CP		MA2155/2	CLAMP, RECTANGULAR LOOP, CUSHIONED, WITH WEDGE, HYDROCARBON FLUID RESISTANT, STAINLESS STEEL, METRIC	1991-04		NAS1712		
CP		MA2155/3	CLAMP, RECTANGULAR LOOP, CUSHIONED, WITH WEDGE, PHOSPHATE ESTER FLUID RESISTANT, ALUMINUM, METRIC	1991-04		NAS1712		
CP		MA2155/4	CLAMP, RECTANGULAR LOOP, CUSHIONED, WITH WEDGE, PHOSPHATE ESTER FLUID RESISTANT, STAINLESS STEEL, METRIC	1991-04		NAS1712		
CP		MA2155/5	CLAMP, RECTANGULAR LOOP, CUSHIONED, WITH WEDGE, HIGH TEMPERATURE, STAINLESS STEEL, METRIC	1991-04		NAS1712		

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TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
CP		MA2156/1	CLAMP, CENTER MOUNT, CUSHIONED, HYDROCARBON FLUID RESISTANT, METRIC	1991-04		NAS1713	ISO 8479	
CP		MA2156/2	CLAMP, CENTER MOUNT, CUSHIONED, PHOSPHATE ESTER FLUID RESISTANT, METRIC	1991-04		NAS1713	ISO 8479	
CP		MA2156/3	CLAMP, CENTER MOUNT, CUSHIONED, HIGH TEMPERATURE, METRIC	1991-04		NAS1713	ISO 8479	
FP		MA2157	CROSS, BULKHEAD, FLARELESS TUBE, METRIC	1988-04				
FP		MA2158	CROSS, SWIVEL, FLARELESS TUBE, METRIC	1988-04				

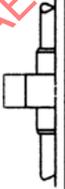
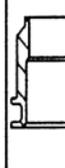
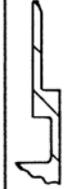
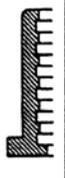
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TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
HP		MA2170	HOSE ASSEMBLY, PTFE, CRES REINFORCED, 204°C, 21 000 kPa, LIGHTWEIGHT, 8°30' BEAM SEAL, STR. TO STR., METRIC	1990-10		AS1909		prEN 3584
HP		MA2171	HOSE ASSEMBLY, PTFE, CRES REINFORCED, 204°C, 21 000 kPa, LIGHTWEIGHT, 8°30' BEAM SEAL, STR. TO 45° METRIC	1990-10		AS1910		prEN 3584
HP		MA2172	HOSE ASSEMBLY, PTFE, CRES REINFORCED, 204°C, 21 000 kPa, LIGHTWEIGHT, 8°30' BEAM SEAL, STR. TO 90° METRIC	1990-10		AS1911		prEN 3584
HP		MA2176A	HOSE ASSEMBLY, PTFE, CRES REINFORCED, 232°C, 10 500 kPa, 8°30' BEAM SEAL, STR. TO STR., METRIC	1991-02	1996-03	AS4006		prEN 3576
HP		MA2177A	HOSE ASSEMBLY, PTFE, CRES REINFORCED, 232°C, 10 500 kPa, 8°30' BEAM SEAL, STR. TO 45°, METRIC	1991-02	1996-03	AS4007		prEN 3576
HP		MA2178A	HOSE ASSEMBLY, PTFE, CRES REINFORCED, 232°C, 10 500 kPa, 8°30' BEAM SEAL, STR. TO 90°, METRIC	1991-02	1996-03	AS4008		prEN 3576

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
PS		MA2241	COUPLING ASSEMBLY, THREADLESS, FLEXIBLE, FIXED CAVITY, SELF-BONDING, METRIC	1993-11		AS1565		
DS		MA2242	ASSEMBLED COUPLING, THREADLESS, FLEXIBLE, FIXED CAVITY, SELF-BONDING, ENVELOPE DIMENSIONS, METRIC	1993-11		AS1565		
FP		MA2243	FERRULE, SWAGED, THREADLESS COUPLING, FLEXIBLE, FIXED CAVITY, SELF-BONDING, METRIC	1993-11		AS1652		
DS		MA2244	FERRULE, END, THREADLESS COUPLING, FLEXIBLE, FIXED CAVITY, SELF-BONDING, DESIGN STANDARD, METRIC	1993-11		AS1653		
FP		MA2245	FERRULE, BUTT WELD, THREADLESS COUPLING, FLEXIBLE, FIXED CAVITY, SELF-BONDING, METRIC	1993-11		AS1654		
DS		MA2246	SLEEVE END, THREADLESS COUPLING, FLEXIBLE, FIXED CAVITY, SELF-BONDING, DESIGN STANDARD, METRIC	1993-11		AS1655		
PS		MA2250	COUPLING, FUEL, FLEXIBLE, VARIABLE CAVITY, THREADED TYPE WITH FERRULES, METRIC	1992-03		AS1710		
DS		MA2251A	COUPLING, FLEXIBLE, VARIABLE CAVITY, THREADED FERRULE TYPE TUBE ENDS, ENV. DIMENSIONS, DESIGN STANDARD, METRIC		1994-01	AS1711		
FP		MA2256A	FERRULE, COUPLING, FLEXIBLE, VARIABLE CAVITY, THREADED, FERRULE TUBE END, METRIC		1994-01	AS1716		
PR		MAP2261	FLUID COUPLINGS FOR SPACECRAFT SERVICING, PREPARATION OF SPECIFICATION FOR, METRIC	1993-06				
FP		MA2262	FERRULE, SLEEVE, BUTT WELD, THREADLESS COUPLING, FLEXIBLE, FIXED CAVITY, SELF-BONDING, METRIC	1993-11				
FP		MA2263	FERRULE, SLEEVE, SWAGED, THREADLESS COUPLING, FLEXIBLE, FIXED CAVITY, SELF-BONDING, METRIC	1993-11				

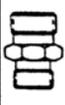
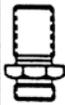
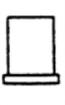
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TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
DS		MA2271	FITTING END, DYNAMIC BEAM SEAL, SLIP-ON NUT, DESIGN STANDARD, METRIC	1995-01		AS4269		prEN 3271
DS		MA2273	FITTING END, DYNAMIC BEAM SEAL, EXTERNAL THREAD, DESIGN STANDARD, METRIC	1995-01		AS4207		prEN 3274
DS		MA2274	FITTING END DYNAMIC BEAM SEAL, BULKHEAD, EXTERNAL THREAD, DESIGN STANDARD, METRIC	1995-01		AS4208		
FP		MA2276	NUT, DYNAMIC BEAM SEAL, SLIP-ON, METRIC	1995-01				prEN 3264
FP		MA2284	FITTING, TEE, DYNAMIC BEAM SEAL, METRIC	1996-08		AS4210		prEN 4026
FP		MA2289	FITTING, ELBOW, 45°, DYNAMIC BEAM SEAL, METRIC	1996-08				prEN 4023
FP		MA2292	FITTING, ELBOW, 45°, BULKHEAD, DYNAMIC BEAM SEAL, METRIC	1996-08		AS4220		prEN 4025
FP		MA2294	FITTING, ELBOW, 90°, DYNAMIC BEAM SEAL, METRIC	1996-08		AS5002		prEN 4017
FP		MA2298	FITTING, ELBOW, 90°, BULKHEAD, DYNAMIC BEAM SEAL, METRIC	1996-08		AS4221		prEN 4021

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
FP		MA2300	FITTING, ADAPTER, EXTERNAL THREAD, DYNAMIC BEAM SEAL TO INTEGRAL WELD RING, METRIC	1996-10				prEN3242
FP		MA2301	FITTING, ADAPTER, SLIP ON NUT, DYNAMIC BEAM SEAL TO WELD, METRIC	1996-10				prEN3243
FP		MA2303	FITTING, UNION, DYNAMIC BEAM SEAL, METRIC	1996-08		AS4222		prEN3244
FP		MA2304	FITTING, UNION, REDUCER, DYNAMIC BEAM SEAL, METRIC	1996-08		AS4212		prEN3245
FP		MA2305	FITTING, UNION, BULKHEAD, DYNAMIC BEAM SEAL, METRIC	1996-08		AS4223		prEN3246
FP		MA2306	FITTING, ADAPTER, BULKHEAD, EXTERNAL THREAD, DYNAMIC BEAM SEAL TO INTEGRAL WELD RING, METRIC	1996-10		AS4229		prEN3247
DS		MA2307A	FITTING END, INTEGRAL CENTERED WELD LIP, DESIGN STANDARD, METRIC	1996-10	1997-01	AS4697		prEN2656
FP		MA2515	RING, BACK-UP, PORT CONNECTION, AMS 3660, METRIC	1986-09				
FP		MA2520	NUT, HEX, BACK-UP RING, PORT FITTING CONNECTOR, AMS 5639, MJ THREAD, METRIC	1986-09				
FP		MA2521	NUT, HEX, PORT FITTING CONNECTOR, AMS 5639, MJ THREAD, METRIC	1986-09				
FP		MA2532	ADAPTER, PORT TO TUBE, 60° CONE COUPLING, AMS 5639, MJ THREAD, METRIC	1987-04				

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (inch)	ISO	AECMA
CP		MA3296	CUSHION - TUBE CLAMP SUPPORT, PTFE, METRIC	1990-11				
SS		MA3352	PACKING, PREFORMED - O-RING SEAL, AMS 7276, METRIC	1987-03	1995-05	AS3209		
PS		MA3399	CLAMP - TUBE SUPPORT, SPRING CLIPS AND PTFE CUSHION, PROCUREMENT SPECIFICATION FOR, METRIC	1990-08				
SS		MA3434	PACKING, PREFORMED - O-RING SEAL, AMS 7273, METRIC	1987-07	1995-05			
SS		MA3442	PACKING, PREFORMED - O-RING SEAL, AMS 7267, METRIC	1987-03	1995-05			
SS		MA3445	PACKING, PREFORMED - O-RING SEAL, FLUOROCARBON (MIL-R-83485, TYPE I), METRIC	1988-09	1993-06			
PS		MA4095	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 135°C, 34 500 kPa, HYDRAULIC AND PNEUMATIC, METRIC	1996-11				
PS		MA4098	HOSE ASSEMBLY, PTFE, HEAVY DUTY, METALLIC REINFORCED, 204°C, 35 000 kPa, HYDRAULIC AND PNEUMATIC, METRIC	1995-10		AS4098		
FP		MA4248	CAP ASSEMBLY, PROTECTIVE CLOSURE, DYNAMIC BEAM SEAL FITTING, LOW PRESSURE	1989-07				
DS		MAP4296	DRAWING INTERPRETATIONS, STANDARD MACHINING PRACTICE, TUBE FITTINGS AND CONNECTORS, FLUID SYSTEMS, METRIC	1993-06		ARP4296		
FP		MA4510	FITTINGS, WELD, FLUID CONNECTION, 35 000 kPa, METRIC	1996-11		AS4510		
FP		MA4510/1	FITTINGS, WELD TO 24° CONE FLARELESS, FLUID CONNECTION, METRIC	1996-11		AS4510/1		

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS		
				ORIG.	REV.	U.S. (Inch)	ISO	AECMA
HP		MA4568	HOSE ASSEMBLY, PTFE, ARAMID REINFORCED, STANDARD DUTY, 21 000/28 000 kPa, 135°C, TI	1994-05		AS4568		
HP		MA4569	FITTINGS, FLARELESS, STR. TO STR., METRIC, HOSE ASSEMBLY, PTFE, ARAMID REINFORCED, STANDARD DUTY, 21 000/28 000 kPa, 135°C, TI	1994-05		AS4569		
HP		MA4570	FITTINGS, FLARELESS, STR. TO 45° METRIC, HOSE ASSEMBLY, PTFE, ARAMID REINFORCED, STANDARD DUTY, 21 000/28 000 kPa, 135°C, TI	1994-05		AS4570		
HP		MA4571	FITTINGS, FLARELESS, STR. TO 90° METRIC, HOSE ASSEMBLY, PTFE, ARAMID REINFORCED, STANDARD DUTY, 21 000/28 000 kPa, 135°C, TI	1994-05		AS4571		
HP		MA4572	FITTINGS, FLARELESS, 45° TO 90° METRIC, HOSE ASSEMBLY, PTFE, ARAMID REINFORCED, STANDARD DUTY, 21 000/28 000 kPa, 135°C, TI	1994-05		AS1472		
HP		MA4573	FITTINGS, FLARELESS, 45° TO 45° METRIC, HOSE ASSEMBLY, PTFE, ARAMID REINFORCED, STANDARD DUTY, 21 000/28 000 kPa, 135°C, TI	1994-05		AS4573		
PS		MA4623	FITTINGS, FLARELESS, 90° TO 90° METRIC, HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, HEAVY DUTY, 21 000 kPa, 136°C, AIRCRAFT HYDRAULIC SYSTEMS, METRIC	1994-05		AS4623		
HP		MA4624	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, HEAVY DUTY, 21 000 kPa, 135°C, FLARELESS, FITTINGS, STR. TO STR., METRIC	1994-05		AS4624		
HP		MA4625	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, HEAVY DUTY, 21 000 kPa, 136°C, FLARELESS, FITTINGS, STR. TO 45° METRIC	1994-05		AS4625		
HP		MA4626	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, HEAVY DUTY, 21 000 kPa, 135°C, FLARELESS, FITTINGS, STR. TO 90° METRIC	1994-05		AS4626		
HP		MA4627	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, HEAVY DUTY, 21 000 kPa, 135°C, FLARELESS, FITTINGS, 45° TO 45° METRIC	1994-05		AS4627		
HP		MA4628	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, HEAVY DUTY, 21 000 kPa, 135°C, FLARELESS, FITTINGS, 45° TO 90° METRIC	1994-05		AS4628		
HP		MA4629	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, HEAVY DUTY, 21 000 kPa, 135°C, FLARELESS, FITTINGS, 90° TO 90° METRIC	1994-05		AS4629		

\*SEE LEGEND AT END OF TABLE

TABLE 1 (Continued)

CODE ( * )	SYMBOL	DOCUMENT NO.	TITLE	ISSUE DATES		REFERENCE DOCUMENTS	
				ORIG.	REV.	U.S. (Inch)	ISO
HP		MA5066	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 21 000 kPa, 135°C, BEAM SEAL, STR. TO STR., METRIC	1996-11			AECMA
HP		MA5067	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 21 000 kPa, 135°C, BEAM SEAL, STR. TO 45° METRIC	1996-11			
HP		MA5068	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 21 000 kPa, 135°C, BEAM SEAL, STR. TO 90° METRIC	1996-11			
HP		MA5069	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 21 000 kPa, 135°C, BEAM SEAL, 45° TO 45° METRIC	1996-11			
HP		MA5070	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 21 000 kPa, 135°C, BEAM SEAL, 45° TO 90° METRIC	1996-11			
HP		MA5071	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 21 000 kPa, 135°C, BEAM SEAL, 90° TO 90° METRIC	1996-11			
HP		MA5073	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 34 500 kPa, 135°C, BEAM SEAL, STR. TO STR., METRIC	1996-11			
HP		MA5074	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 34 500 kPa, 135°C, BEAM SEAL, STR. TO 45° METRIC	1996-11			
HP		MA5075	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 34 500 kPa, 135°C, BEAM SEAL, STR. TO 90° METRIC	1996-11			
HP		MA5076	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 34 500 kPa, 135°C, BEAM SEAL, 45° TO 45° METRIC	1996-11			
HP		MA5077	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 34 500 kPa, 135°C, BEAM SEAL, 45° TO 90° METRIC	1996-11			
HP		MA5078	HOSE ASSEMBLY, PTFE, PARA-ARAMID REINFORCED, 34 500 kPa, 135°C, BEAM SEAL, 90° TO 90° METRIC	1996-11			

\*SEE LEGEND AT END OF TABLE

( \* ) LEGEND:

- DS - DESIGN STANDARD
- FP - FITTING PART STANDARD
- HP - HOSE ASSEMBLY PART STANDARD
- PS - PROCUREMENT SPECIFICATION
- SS - SEAL PART STANDARD

- PR - PROCESS STANDARD
- S - SYSTEM, GENERAL
- SP - STANDARD PRACTICE
- CP - CLAMP PART STANDARD

TABLE 2 - Fluid System Standards, ISO

CODE ( * )	SYMBOL	DOCUMENT NO.	TITLE	CURRENT ISSUE DATE		REFERENCE DOCUMENTS	
				U.S. (Metric)	U.S. (Inch)	AECMA	AECMA
DS		ISO 11	Aircraft - Ground pressure testing connections for pressure cabins	1987-02			
PR		ISO 12	Aerospace - Pipelines - Identification	1987-05			
DS		ISO 45	Aircraft - Pressure refueling connections	1990-12			
DS		ISO 102	Aircraft - Gravity filling orifices	1990-07			
PR		ISO 443	Marking of aircraft gas cylinders	1965-07			
DS		ISO 450	Aircraft - Connection for water of drinkable quality	1976-06			
DS		ISO 451	Pressure re-oiling connections	1976-06			
DS		ISO 485	Aircraft - Water-methanol pressure connections	1973-02			
DS		ISO 1023	Aircraft - High pressure air charging valves	1974-07			
DS		ISO 1034	Aircraft - Ground air-conditioning connections	1973-06			
DS		ISO 1465	Aircraft - Liquid oxygen replenishment couplings - Mating dimensions	1989-09			
DS		ISO 2026	Aircraft - Connections for starting engines by air	1974-11			
DS		ISO 2563	Aircraft ducting and piping - Profile dimensions for flanges of V-band couplings	1974-11	MA2024		

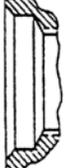
\*SEE LEGEND AT END OF TABLE

TABLE 2 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	CURRENT ISSUE DATE	REFERENCE DOCUMENTS		
					U.S. (Metric)	U.S. (Inch)	AECMA
PR		ISO 2685	Aircraft - Environmental conditions and test procedures for airborne equipment - Resistance to fire in designated fire zones	1982-07		AS1055	
DS		ISO 2964	Aerospace - Tubing - Outside diameters and thicknesses - Threaded type	1985-04			
DS		ISO 3161	Aerospace - UNJ threads with controlled root radius for aerospace - Inch series	1996-02		AS8879	
DS		ISO 3174	Aircraft - Connections for checking hydraulic systems by ground appliances - Threaded type	1994-12			
PR		ISO 3323	Aircraft - Hydraulic components - Marking to indicate fluid for which component is approved	1987-07			
PR		ISO 4153	Aircraft - Pressure fuel dispensing system - Test procedure and limit value for shut-off surge pressures	1981-11			
DS		ISO 5855/1	MJ threads - Part 1: General requirements	1988-12	MA1566		
DS		ISO 5855/3	MJ threads - Part 3: Limit dimensions for fittings for fluid systems	1988-12	MA1566		
PR		ISO 5859	Aerospace - Graphic symbols for schematic drawings of hydraulic and pneumatic systems and components	1991-08			
PR		ISO 5884	Aerospace - Fluid systems and components - Methods for system sampling and measuring of solid particle contamination of hydraulic fluids	1987-08			
DS		ISO 5887	Aircraft - Joints for connecting crew member's regulator masks to oxygen sources	1981-09			
S		ISO 6771	Aerospace - Fluid systems and components - Pressure and temperature classifications	1987-09	MA2001	AS2001	
PR		ISO 6772	Aerospace - Fluid systems - Impulse testing of hydraulic hose, tubing, and fitting assemblies	1988-10	MA2002	ARP603	

\*SEE LEGEND AT END OF TABLE

TABLE 2 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	CURRENT ISSUE DATE	REFERENCE DOCUMENTS	
					U.S.(Metric)	U.S. (Inch)
PR		ISO 6773	Aerospace - Fluid systems - Thermal shock testing of piping and fittings	1994-10	MA2004	
PR		ISO 7137	Aircraft - Environmental conditions and test procedures for airborne equipment	1995-06		
PR		ISO 7169	Aerospace fluid systems - Separable tube fittings - Rotary flexure test	1993-05	MA2005	AS18280
PR		ISO 7257	Aircraft - Hydraulic tubing joints and fittings - Rotary flexure test	1983-07	MA2003	ARP1185
PR		ISO 7258	Polytetrafluoroethylene (PTFE) tubing for aerospace applications - Methods for the determination of the density and relative density	1984-06		
PS		ISO 7313	Aircraft - High temperature convoluted hose assemblies in polytetrafluoroethylene (PTFE)	1984-03	MA620	AS620
PS		ISO 7314	Aerospace - Fluid systems - Hose assembly, metal	1994-10	MA2100	AS1424
DS		ISO 7315	Aerospace - "P" clamps (loop clamps) for fluid systems - Envelope dimensions	1988-02	MA2150	NAS 1715 MIL-C-85052
DS		ISO 7319	Aerospace - Fluid systems - Interface of 24° cone metric couplings	1992-12	MA2095	AS4375 AS33514
DS		ISO 7320	Aerospace - Coupling, threaded and sealed, for fluid systems - Dimensions	1992-12	MA2012	AS5202 MS33649
PS		ISO 7661	Aerospace - Fluid systems - Clamp blocks for tube lines having axial alignment - Design standard and qualification testing - Metric series	1984-12		
DS		ISO 8177	Aerospace - Omega clamps (saddle clamps) for fluid systems - Dimensions	1986-12	MA2151	NAS1716 MIL-DTL-85449

\*SEE LEGEND AT END OF TABLE

TABLE 2 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	CURRENT ISSUE DATE	REFERENCE DOCUMENTS	
					U.S. (Metric)	U.S. (Inch)
PS		ISO 8278	Aerospace - Hydraulic, pressure compensated, variable pumps - General requirements	1986-11		
DS		ISO 8479	Aerospace - "Q" clamps (centre-mounted clamps) for fluid tubing systems - Dimensions	1986-12	MA2156	NAS1713
PR		ISO 8574	Aerospace - Hydraulic system tubing - Qualification tests	1990-12	MA2006	MIL-H-5440
DS		ISO 8575	Aerospace - Fluid systems - Hydraulic system tubing	1990-11		
S		ISO 8625-1	Aerospace - Fluid systems - Vocabulary - Part 1: General terms and definitions relating to pressure - Bilingual edition	1993-01		
S		ISO 8625-2	Aerospace - Fluid systems - Vocabulary - Part 2: General terms and definitions relating to flow - Bilingual edition	1991-05		
S		ISO 8625-3	Aerospace - Fluid systems - Vocabulary - Part 3: General terms and definitions relating to temperature - Bilingual edition	1991-05		
DS		ISO 8775	Aerospace - Gaseous oxygen replenishment connection in fluid systems (new type) - Dimensions (Inch series)	1988-02		
PR		ISO 8829	Aerospace - Test methods for polytetrafluoroethylene (PTFE) innertube hose assemblies	1990-02	MA2078	AS2078
PS		ISO 8913	Aerospace - Lightweight polytetrafluoroethylene (PTFE) hose assemblies, classification 204°C / 21 000 kPa - Procurement specification	1994-12	MA1339	AS1339
PS		ISO 9206	Aerospace - Constant displacement hydraulic motors - General specification	1990-02		
PS		ISO 9528	Aerospace - Standard-weight polytetrafluoroethylene (PTFE) hose assemblies, classification 204°C / 21 000 kPa - Procurement specification	1997-12		

\*SEE LEGEND AT END OF TABLE

TABLE 2 (Continued)

CODE (*)	SYMBOL	DOCUMENT NO.	TITLE	CURRENT ISSUE DATE	REFERENCE DOCUMENTS		
					U.S.(Metric)	U.S. (Inch)	AECMA
PR		ISO 9538	Aerospace - Hydraulic tubing joints and fittings - Planar flexure test	1996-02			
DS		ISO 9634	Aerospace - Fluid systems - Dimensions of plastic cap and plugs	1994-10			
PR		ISO 9662	Aircraft equipment - Environmental and operating conditions for airborne equipment - Humidity, temperature and pressure tests	1994-02			
PS		ISO 9938	Aerospace - Polytetrafluoroethylene (PTFE) hose assemblies, classification 204°C / 28 000 kPa - Procurement specification	1994-12	MA614	AS614	
DS		ISO 9939	Aerospace - Pressure re-oiling connection (new type)	1994-01			
PS		ISO 10502	Aerospace - Hose assemblies for polytetrafluoroethylene (PTFE) for use up to 232°C and 10 500 kPa - Procurement specification	1992-07	MA2126	AS1946 MILH25579	
PR		ISO 10583	Aerospace - Fluid systems - Test method for tube / fitting assemblies	1993-05	MA2094	AS2094	
S		ISO 11217	Aerospace - Hydraulic system fluid contamination	1993-05			
S		ISO 11218	Aerospace - Cleanliness classification for hydraulic fluids (Draft endorsement of SAE AS4059 Rev. A)	1993-05			

\*SEE LEGEND AT END OF TABLE

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