

FITTINGS, CATALOG OF FLARED, FLARELESS, PIPE THREADED, PORT, HOSE, AND OTHER TYPE TUBE STANDARD CONNECTORS.

**REAFFIRMED CURRENTLY
BEING REVISED**

SEP 1988

SAE Technical Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user." SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

1.0 SCOPE

THIS AEROSPACE INFORMATION REPORT (AIR) IS WRITTEN AS AN AID FOR LOCATING AND IDENTIFYING VARIOUS FITTING DESIGNS AND CONFIGURATIONS THAT ARE DESIGNATED AS STANDARD PARTS.

1.1 TYPES AND STYLES: TUBE FITTINGS LISTED HEREIN INCLUDE, BUT ARE NOT RESTRICTED TO, TYPES AND STYLES COVERED BY PROCUREMENT SPECIFICATIONS NOTED BELOW.

2.0 REFERENCES

2.1 MILITARY PROCUREMENT SPECIFICATIONS:

- MIL-F-5509 FITTINGS, FLARED TUBE, FLUID CONNECTION
- MIL-F-6001 FITTINGS, AIRCRAFT, SOLDER TYPE, TUBE
- MIL-F-18280 FITTINGS, FLARELESS TUBE, FLUID CONNECTION
- MIL-F-18866 FITTINGS, HYDRAULIC TUBE FLARED, 37 DEGREE AND FLARELESS, STEEL

2.2 JOHN F. KENNEDY SPACE CENTER

- KSC-F-124 FITTINGS (PRESSURE CONNECTIONS) FLARED TUBE

2.3 NATIONAL AEROSPACE PROCUREMENT STANDARDS

- NAS597 FITTINGS, RIGID TUBE CONNECTOR, FLARED TUBE

2.4 SAE PROCUREMENT PUBLICATION

- AS1576 FITTINGS, WELDED, HYDRAULIC, TITANIUM AND CRES, 3000 PSI.
- MA2050 FITTINGS, WELDED, HYDRAULIC, TITANIUM AND CRES, 20000 KPa, METRIC

3.0 DESCRIPTION AND CONFIGURATION HEADINGS: PART NUMBERS ARE CROSS-INDEXED BY THE FOLLOWING HEADINGS AS APPLICABLE.

A. TYPE CONNECTION

1. FLARED
2. FLARED-TO-PORT (O RING SEAL)
3. FLARED-TO-FLARELESS
4. FLARED-TO-HOSE (BUMP STYLE)
5. FLARED-TO-PIPE THREAD
6. FLARED-TO-WELD
7. FLARELESS
8. FLARELESS-TO-PORT (O RING SEAL)
9. FLARELESS-TO-PIPE THREAD
10. FLARELESS-TO-WELD
11. PIPE THREAD
12. PIPE-TO-HOSE (BUMP STYLE)
13. FLANGE
14. HOSE (BUMP STYLE)
15. SOLDER
16. STRAIGHT THREAD
17. UNIVERSAL FITTING
18. WELD

B. CONFIGURATION

1. ADAPTER
2. BOLT
3. BUSHING
4. CAP
5. CLUSTER FITTING
6. COLLAR
7. COUPLING
8. CROSS
9. ELBOW
10. FLANGE
11. LOCKNUT
12. MISCELLANEOUS
13. NIPPLE
14. NUT, COUPLING
15. PLUG
16. RING
17. SCREW
18. SLEEVE
19. TEE
20. UNION
21. VALVE
22. WIRE

4.0 USAGE OF CATALOG CHART: PART NUMBERS MAY BE LOCATED BY SELECTING THE REQUIRED CONNECTION AND CONFIGURATION IN 3.0A. AND 3.0B, RESPECTIVELY. SELECT POSSIBLE CANDIDATES FROM VARIOUS PART NUMBERS SHOWN IN THE COLUMN.

EXAMPLE: A STRAIGHT FLARELESS CONNECTOR IS REQUIRED TO BE ASSEMBLED TO A VALVE HOUSING INCORPORATING AN MS33649 PORT. THE REQUIREMENT FITS THE DESCRIPTION FOR A FLARELESS-TO-PORT ADAPTER (A.8, B.1). POSSIBLE CANDIDATES INCLUDE MS51843, MS51893, AND AS1299. OTHER CHOICES MAY INCLUDE (A.3, B.1) MS21900, MS24405 OR (A.7, B.19) MS21902.

5.0 NUMERICAL INDEX: TABLE III INCLUDES A NUMERICAL LISTING OF ALL PART NUMBERS INCLUDED IN TABLES I AND II.

TABLE I

A. TYPE CONNECTION

1. FLARED

B. CONFIGURATION

ADAPTER	BOLT	BUSHING	CAP	CLUSTER FITTING	COUPLING	CROSS	ELBOW	FLANGE	NUT, COUPLING	PLUG	SLEEVE	TEE	UNION
MS19323 Male-to-Female Reducer	AN774 Universal Fitting	AN894, MS24398 Screw Thread Expander	AN929, KC150, Assy	MS21953 One Way	NAS591, Aluminum Lightwt.	AN827, MS24403	AN821, MS24401, MS1503, 90°	MS20760 Fixed	AN817, Long	AN806, MS24401, MS1518, MS13692, KC130 w/Seal Ring	MS20819, MS51533 KC143	AN804, MS24390 BHD on Run	AN815, MS24392, MS51519
MS51534, NAS1564, Male-to-Female Reducer	AN775, MS24387, Fluid Passage	KC115 w/Seal Ring, Screw Thread Expander	MS9313 MS9314, Assy	MS21954, 90° Two Way	NAS594, Cres, Lightwt.	AS1036, Reducer	KC118, 90° w/Seal Ring	MS20761, 45° Elbow, Swivel	AN818, Short	AS13692, KC130 w/Seal Ring	AN824, MS24402, MS1510, KC123 w/Seal Ring	AN824, MS24402, MS1510, KC123 w/Seal Ring	KC126 w/Seal Ring AN919, MS24399, Reducer
KC106 Male-to-Female Reducer w/Seal Ring	MS21949, Cluster Fitting, Single Port	MS9315, Screw Thread Expander	MS9315, Assy, w/Silver Plated Nut	MS21955, 180° Two Way	AS1367, AS1367, KC117 w/Seal Ring	AN833, MS24394, MS1507, 90° BHD & Univ.	MS20762, 90° Elbow, Swivel	MS9198 Cres	MS9197, Cres	MS9198 Cres	AN834, MS24393, MS51520, BHD and Universal	AN834, MS24393, MS51515, BHD on Side	AN832, MS24393, MS51520, BHD and Universal
MS27584 1/4 in Pneumatic Svcce, US Gnd Eqtpt to RAF Acft	MS21950, Cluster Fitting, Single Port	KC164 w/Seal Ring, Screw Thread Reducer	MS1532 Nut	MS21949, MS21950, Bolt, Single Port	MS21951, Bolt, Double Port	AN837, MS24396, MS51509, 45° BHD & Univ.	MS51531	MS27073, Swivel Conn.	NAS593, NAS596, Rigid Tube Conn.	KC127 BHD on Side, w/Seal Ring	KC124 w/Seal Ring, BHD and Universal	AS1033, BHD on Run, Reducer	MS51501, Small Hex
MS27587 Engine Oil Svcce, US Gnd Eqtpt to RAF Acft	MS21951, Cluster Fitting, Double Port	MS21937, Nut, Retainer	MS21937, Nut, Retainer	MS21937, Nut, Retainer	MS21937, Nut, Retainer	KC128 45° BHD & Univ. w/Seal Ring	AS1028 w/Lockwire Holes	AS1035, Reducer	AS1028 w/Lockwire Holes	AS1035, Reducer	MS51502, Long, Small Hex	AS1035, Reducer	MS51502, Long, Small Hex
MS27588 Nitrogen Svcce, US Gnd Eqtpt to RAF Acft	MS21951, Cluster Fitting, Double Port	MS21937, Nut, Retainer	MS21937, Nut, Retainer	MS21937, Nut, Retainer	MS21937, Nut, Retainer	AS1034, 90° Reducer	AS1790, Swivel, Lightwt.	AS1792 Lightwt.	AS1790, Swivel, Lightwt.	AS1039, BHD ON Side, Reducer	MS9769, Reducer	AS1037, Reducer	AS1037, Reducer
MS27590 3/8 in Hydr Svcce US Gnd Eqtpt to RAF Acft	MS27591 1/4 in Hydr Svcce us Eqtpt to RAF Acft	MS27591 1/4 in Hydr Svcce us Eqtpt to RAF Acft	MS27591 1/4 in Hydr Svcce us Eqtpt to RAF Acft	MS27591 1/4 in Hydr Svcce us Eqtpt to RAF Acft	MS27591 1/4 in Hydr Svcce us Eqtpt to RAF Acft	AS1040, 45° BHD Reducer	AS1366, KC113 90° BHD w/Seal Ring	AS1365, KC114 Run w/Seal Ring	AS1366, KC114 Run w/Seal Ring	AS1365, KC114 Run w/Seal Ring	KC144 Reducer BHD, w/Seal Ring	KC144 Reducer BHD, w/Seal Ring	KC144 Reducer BHD, w/Seal Ring

1. FLARED (continued)

ADAPTER	BOLT	BUSHING	CAP	CLUSTER FITTING	COUPLING	CROSS	ELBOW	FLANGE	NUT, COUPLING	PLUG	SLEEVE	TEE	UNION
MS27607 Body, Nitrogen and Pneumatic US Gnd Eqpt to RAF Acft							KC131 90° w/Seal Ring, Swivel Nut					MS51523, Swivel Nut on Run KC107 w/Seal Ring, Swivel Nut on Run MS51524, Swivel Nut on Side KC109 w/Seal Ring, Swivel Nut on Side	

MISCELLANEOUS:

ADAPTER (SPECIAL)		RING	WIRE
MS27585 Water-Menthol Svce, US Gnd Eqpt to RAF Acft	MS27588 Nitrogen Svce, US Gnd Eqpt to RAF Acft	NAS592 Alum. AS1097 KC103 Seal Ring	MS27074 Swivel Nut AS1791 Swivel Nut
MS27586 Deminerlized Water Svce, US Gnd Eqpt to RAF Acft	MS27589 Oxygen Svce, US Gnd Eqpt to RAF Acft	MS27607 Body, Nitrogen and Pneumatic Svce, US Gnd Eqpt to RAF Acft	
MS27587 Engine Oil Svce, US Gnd Eqpt to RAF Acft	MS27590 3/8 Inch Hydr Svce, US Gnd Eqpt to RAF Acft	MS27608 9/16 Inch Pneumatic Svce, US Gnd Eqpt to RAF Acft	
	MS27591 1/4 inch Hydr Svce, US Gnd Eqpt to RAF Acft		
	MS27592 Nipple Svce, US Gnd Eqpt to RAF Acft		
	MS27593 Nut Svce, US Gnd Eqpt to RAF Acft		

SAENORM.COM: Click to view the full PDF of air310

2. FLARED-TO-PORT (O RING SEAL)		3. FLARED-TO-FLARELESS		4. FLARED-TO-HOSE (BUMP STYLE)		5. FLARED-TO-PIPE THREAD		6. FLARED-TO-WELD	
ADAPTER	BUSHING	ELBOW	TEE	ADAPTER	ELBOW	ADAPTER	ELBOW	TEE	ADAPTER
AN894, MS24398, Female Boss	AN894, MS24398, Screw Thread Expander	MS51527, 90° Straight Thread	MS51529, Male Boss on Side	MS21900 MS24405, MS21923, Flareless BHD	MS24651, 90° Flareless BHD	AN807, BHD	MS20822, MS51504, 90°, Male Pipe	MS20825, MS51512, Male Pipe on Side	MS39322, Female Swivel Nut-to- Weld Socket
MS24487, MS39324, MS51525, Straight Thread	KC115, w/Seal Ring, Screw Thread Expander	MS9195, MS51528, 45° Straight Thread	MS51530, Male Boss on Run	MS24652, 90° Flared BHD	MS51503, Female Pipe Thread	MS51503, Female Pipe Thread	MS20823, MS51508, 45°, Male Pipe	KC122 w/Seal Ring Male Pipe on Side	
KC133 w/Seal Ring, Reducer, Straight Thread	KC164 w/Seal Ring, Screw Thread Expander	KC129 45° Ring, Straight Thread	(Reducer) BHD on Run, Boss on Side	MS24654, 45° Flareless BHD	KC116 w/Seal Ring Male Pipe Thread	KC116 w/Seal Ring Male Pipe Thread	MS51506, 90°, Female Pipe	MS20826, MS51511, Male Pipe on Run	
MS51526, Long, Straight Thread	MS9194 90° Straight Thread Expander	MS9194 90° Straight Thread	Boss on Run, Boss on Run					KC121 w/Seal Ring Male Pipe on Run	
KC112 w/Seal Ring, Straight Thread	KC108, 90° Ring, w/Seal Ring, Straight Thread	KC108, 90° Ring, w/Seal Ring, Straight Thread	KC119, w/Seal Ring, BHD on Run, Boss on Side					MS51513, Female Pipe on Side	
KC134 w/Seal Ring, BHD to Straight Thread			MS24388, BHD on Run, Boss on Side					MS51514, Female Pipe on Run	
KC135 w/Seal Ring Expander, Straight Thread			KC120, w/Seal Ring, BHD on Run, Boss on Side						
			MS24389, BHD on Run, Boss on Run						
			MS9196, Universal on Side						
			KC110, w/Seal Ring, Universal on Run						

www.cadenorm.com : Click to view the full PDF

7. FLARELESS

ADAPTER	BOLT	CAP	CLUSTER FITTING	CROSS	ELBOW	NUT, COUPLING	PLUG	SLEEVE	TEE	UNION	WIRE
NAS1565, Tube, Reducer	MS21938, MS21939, Cluster Fitting Single Port	MS21914, Assy	MS21942, One Way	MS21906, MS51894, AS1006, (Reducer)	MS21904, MS51820, AS1004, (Reducer)	MS21921, AS1041, (w/Lockwire HoLe)	MS21913	MS21918	MS21905, MS51811, AS1005 (Reducer)	MS21902	MS27074, Swivel Nut
NAS1566, Reducer Assy, Male-to-Female.	MS21940, MS21941, Cluster Fitting Double Port	MS1890, Assy AS1000, Assy	MS21943, Two Way, 90° MS21944, Two Way, 180° MS21945, Three Way	MS21907, 45°, BHD MS21924, 90°, Long MS21926, 90°, Univ. Low Profile	MS21907, 45°, BHD MS21924, 90°, Long MS21926, 90°, Univ. Low Profile	MS27073, Swivel AS1790, Swivel Lightwt.	MS51891	MS51825	MS21909, AS1009 (Reducer) BHD on Side MS21912, AS1003 (Reducer) BHD on Run MS51853, Swivel on Side MS51854, Male Swivel on Run NAS1763, Male Swivel on Run, Reducer NAS1764, Male Swivel on Side, Reducer	MS51812, BHD MS51814, Small Hex MS51895, Reducer AS1007, BHD, Reducer	AS1791, Swivel Nut
			MS21938, MS21939, Bolt Single Port MS21940, MS21941, Bolt Double Port MS21937, Nut, Retainer		AS1008, 90°, BHD, Reducer AS1010, 45°, BHD, Reducer MS16267, MS51852, 90° Swivel Nut NAS1761, 45° NAS1762, 90° Reducer, Swivel Nut						

SAENORM.COM: Click to view the full PDF of air310

10. FLARELESS-TO-WELD	
ADAPTER	
AS1582	

9. FLARELESS-TO-PIPE THREAD		
ADAPTER	ELBOW	TEE
MS51816, Female Pipe Thread	MS51813, 90° Female Pipe Thread	MS51818, AS893, Male Pipe on Side
MS51819, AS896, Male Pipe Thread	MS51815, 90° Male Pipe Thread	MS51821, Female Pipe on Side
	MS51817, 45° Male Pipe Thread	MS51822, Female Pipe on Run
	AS895, 45° Reducer, Male Pipe Thread	MS51824, AS894, Male Pipe on Run
		AS897, 90° Male Pipe Thread

8. FLARELESS-TO-PORT (O RING SEAL)			
ADAPTER	BUSHING	ELBOW	TEE
MS51843 Male Boss	MS21915, Screw Thread Expander	MS51839 90° Universal	MS21910, AS1001, (Reducer) BHD on Run, Internal Boss on Side
MS51893, Long Male Boss	MS51842, 45° Universal		MS21911, AS1002 (Reducer) BHD on Run, Internal Boss on Run
AS1299, Ring Lock			MS51841, Universal on Side
			MS51892, Universal on Run

11. PIPE THREAD						
BUSHING	COUPLING	CROSS	ELBOW	NIPPLE	PLUG	TEE
AN912	AN910	AN918, Female Pipe Thread	AN914, 90° AN915, 45° Male and Female Pipe Thread	AN911	MS27769, C'Sink Hex Head AN933, Hex Head MS20913, Square Head	AN917, Female Pipe Thread

12. PIPE-TO-HOSE (BUMP STYLE)		
ADAPTER	ELBOW	
MS24522, Low Pressure AN7023, Connector, Vacuum Hose	MS24518, 45° MS24519, 90°	

13. FLANGE	
FLANGE	
MS20756, Swivel, Retaining	

14. HOSE (BUMP STYLE)					
COLLAR	ELBOW	FLANGE	TEE	UNION	
AN876	AN846, 45° BHD AN848, 90° BHD MS20758 Flange Swivel, 45° MS20759 Flange 90°	AN801, Straight AN802, 45° AN803, 90° MS20757, Straight MS20758, 45° MS20759, 90°	MS24521	MS24520, Mender, Low Pressure	

15. SOLDER				
ADAPTER	COUPLING	ELBOW	NUT, COUPLING	TEE
AN780 AN785 AN800	AN785	AN791, 45°	AN805	AN795

SAENORM.COM Click to view the full PDF of air370

16. STRAIGHT THREAD

ADAPTER	BUSHING	CLUSTER FITTING	COUPLING	CROSS	ELBOW	FLANGE	LOCKNUT	PLUG	TEE	VALVE
MS27612, Hydraulic Bleeder	AN893, MS24397, Screw Thread Expander	MS21946, One Way	MS9016, Screw Thread, Plain	AN937, Female Boss	AN939, 90° Female Boss	AN871, Female Boss, Weld	AN924, MS51860, MS51888, AN6289, Boss	AN814, MS24391, MS9015	AN938	AN6204, MS27611, Bleeder
MS27585 Methanol Svec, US Gnd Eqpt RAF Acft	MS9016 Screw Thread, Plain	MS21958, Two Way, 180°	NAS424, Female Boss	AN941, 45° Female Boss	AN941, 45° Female Boss		MS9099, Boss, Aluminum	MS9405, Silver Plate, Metal Gasket		
MS27586 Demineralized Water Svec, U.S. Gnd Eqpt to RAF Acft	MS21959, Two Way, 90°	MS21960, Three Way					MS9100, Boss, Cres	MS9953, Aluminum		
							MS9200, Boss, Aluminum	MS9954, Aluminum w/Lockwire Holes		
							MS9201, Boss, Cres			
							MS9553, Boss, Cres			
							MS21264, w/Lockwire Holes			
							NAS1410, Boss			
							AS1027, w/Lockwire Holes			

SAENORM.COM : Click to view the full PDF of air310

17. UNIVERSAL FITTING	
BOLT	TEE
NAS551	AN779
NAS552, 90° NAS553, 75° NAS554, 45°	

18. WELD			
ELBOW	SLEEVE	TEE	UNION
AS1584, 90° 3000 PSI, Hydraulic	AS1581, Flareless 3000 PSI Hydraulic	AS1583, 3000 PSI Hydraulic	AS1585 Reducer, Hydraulic

SAENORM.COM : Click to view the full PDF of air370

TABLE II
B. CONFIGURATION (Metric)

A. TYPE CONNECTION	ADAPTER	BUSHING	CAP ASSEMBLY	CROSS	ELBOW	COUPLING	PLUG	RING	SLEEVE	TEE	UNION
7. Flareless	MA2046, Metric to Inch	MA2036, Screw Thread Expander	MA2035, Pressure Seal	MA2028, Reduced Body	MA2026, 90°, Reduced Body MA2029, 45°, BHD, Reduced Body MA2030, 90°, BHD, Reduced Body MA2044, 90°, High Profile, BHD	MA2072, Olive, Female MA2073, Olive, Male MA2040, Sleeve Coupling MA2047, Wire-on	MA2034	MA2074, Olive	MA2041, Coupling	MA2027, Reduced Body MA2031, BHD on Side, Reduced Body MA2049, Swivel Nut on Run, Reduced Body MA2051, Swivel Nut on Side MA2054, BHD on Run, Reduced Body	MA2025 MA2037, Reducer MA2043, BHD Univ. MA2058, BHD Reducer MA2068
8. Flareless-to-Port	MA2068				MA2045, 90°, Low Profile, BHD MA2048, 45°, Swivel Nut MA2050, 90° Swivel Nut					MA2032, Boss on Side, Reduced Body MA2033, BHD & Boss on Run, Reduced Body MA2053, BHD on Run, Boss on Side, Reduced Body MA2056, Boss on Run, Reduced Body	
10. Flareless-to-Weld	MA2065, Hyd.								MA2067, Olive, Hyd. MA2064, Male Flareless		MA2065 Hyd.
18. Weld				MA2071, Hyd.	MA2069, 90°, Hyd.			MA2062 Hyd.		MA2070 Hydraulic	MA2066 Reducer

TABLE III
NUMERICAL INDEX

A N		A S		K C		M A (Metric)		M S.		N A S	
Drawing No.	Configuration Heading	Drawing No.	Configuration Heading	Drawing No.	Configuration Heading	Drawing No.	Configuration Heading	Drawing No.	Configuration Heading	Drawing No.	Configuration Heading
AN774	A.1, B.2	AS893	A.9, B.19	KC103	A.1, B.16	MA2025	A.7, B.20	MS9015	A.16, B.15	NAS424	A.16, B.7
AN775	A.1, B.2	AS894	A.9, B.19	KC106	A.1, B.1	MA2026	A.7, B.9	MS9016	A.16, B.3	NAS551	A.17, B.2
AN779	A.17, B.19	AS895	A.9, B.3	KC107	A.1, B.18	MA2027	A.7, B.19	MS9017	A.16, B.7	NAS552	A.17, B.9
AN780	A.15, B.1	AS896	A.9, B.1	KC108	A.2, B.9	MA2028	A.7, B.8	MS9099	A.16, B.11	NAS553	A.17, B.9
AN783	A.2, B.19	AS897	A.9, B.3	KC109	A.1, B.19	MA2029	A.7, B.9	MS9100	A.16, B.11	NAS554	A.17, B.9
AN784	A.2, B.19	AS1000	A.7, B.4	KC110	A.2, B.19	MA2030	A.7, B.9	MS9194	A.2, B.9	NAS591	A.1, B.7
AN785	A.15, B.7	AS1001	A.8, B.19	KC112	A.2, B.1	MA2031	A.7, B.19	MS9195	A.2, B.9	NAS592	A.1, B.16
AN791	A.15, B.9	AS1002	A.8, B.19	KC114	A.1, B.18	MA2032	A.8, B.19	MS9196	A.2, B.9	NAS593	A.1, B.14
AN795	A.13, B.19	AS1003	A.7, B.19	KC115	A.1, B.3	MA2033	A.8, B.19	MS9197	A.1, B.14	NAS594	A.1, B.7
AN801	A.14, B.10	AS1004	A.7, B.9	KC116	A.5, B.1	MA2034	A.7, B.15	MS9198	A.1, B.14	NAS596	A.1, B.7
AN802	A.14, B.10	AS1005	A.7, B.19	KC117	A.1, B.8	MA2035	A.7, B.4	MS9199	A.1, B.14	NAS598	A.1, B.7
AN803	A.14, B.10	AS1006	A.7, B.8	KC118	A.1, B.9	MA2036	A.7, B.3	MS9200	A.16, B.11	NAS652	A.1, B.7
AN804	A.1, B.18	AS1007	A.7, B.20	KC119	A.2, B.19	MA2037	A.7, B.2	MS9201	A.16, B.11	NAS1410	A.16, B.11
AN805	A.15, B.14	AS1008	A.7, B.9	KC120	A.2, B.19	MA2040	A.7, B.14	MS9313	A.1, B.4	NAS1564	A.1, B.1
AN806	A.1, B.14	AS1009	A.7, B.19	KC121	A.5, B.19	MA2041	A.7, B.18	MS9314	A.1, B.4	NAS1565	A.7, B.1
AN807	A.4, B.1	AS1010	A.7, B.9	KC122	A.5, B.19	MA2043	A.7, B.20	MS9315	A.1, B.4	NAS1566	A.7, B.1
AN814	A.16, B.15	AS1027	A.16, B.11	KC123	A.1, B.19	MA2044	A.7, B.9	MS9405	A.16, B.15	NAS1761	A.7, B.9
AN815	A.1, B.20	AS1028	A.1, B.14	KC124	A.1, B.20	MA2045	A.7, B.9	MS9553	A.16, B.11	NAS1762	A.7, B.9
AN816	A.5, B.1	AS1033	A.1, B.19	KC125	A.1, B.20	MA2046	A.7, B.1	MS9769	A.1, B.19	NAS1763	A.7, B.19
AN817	A.1, B.14	AS1034	A.1, B.9	KC126	A.1, B.20	MA2047	A.7, B.14	MS9953	A.16, B.15	NAS1764	A.7, B.19
AN818	A.1, B.14	AS1035	A.1, B.18	KC127	A.1, B.19	MA2048	A.7, B.19	MS9954	A.16, B.15		
AN821	A.1, B.9	AS1036	A.1, B.8	KC128	A.1, B.9	MA2049	A.7, B.19	MS16267	A.7, B.9		
AN824	A.1, B.18	AS1037	A.1, B.20	KC129	A.2, B.9	MA2050	A.7, B.9	MS20756	A.13, B.10		
AN827	A.1, B.8	AS1038	A.1, B.9	KC130	A.1, B.15	MA2051	A.7, B.19	MS20757	A.14, B.18		
AN832	A.1, B.20	AS1039	A.1, B.19	KC131	A.1, B.9	MA2053	A.8, B.19	MS20758	A.14, B.9		
AN833	A.1, B.9	AS1040	A.1, B.9	KC132	A.1, B.9	MA2054	A.7, B.19				
AN834	A.1, B.19	AS1041	A.7, B.14	KC133	A.2, B.1	MA2056	A.8, B.19	MS20759	A.14, B.9		
AN837	A.1, B.9			KC134	A.2, B.1						
AN838	A.4, B.9			KC135,	A.2, B.1						
AN839	A.4, B.9										
AN841	A.4, B.1										
AN846	A.14, B.9			KC142	A.2, B.3			MS20760	A.1, B.10		
AN848	A.14, B.9			KC142	A.1, B.14			MS20761	A.1, B.10		
AN871	A.16, B.10			KC143	A.1, B.14			MS20762	A.1, B.10		
AN876	A.14, B.6			KC144	A.1, B.17			MS20819	A.1, B.17		
AN893	A.16, B.3			KC150	A.1, B.20			MS20822	A.5, B.9		
AN894	A.16, B.3			KC150	A.1, B.4			MS20823	A.5, B.9		
				KC164	A.1, B.3			MS20825	A.5, B.19		
					A.1, B.3			MS20826	A.5, B.19		
					A.2, B.3			MS20913	A.11, B.15		
								MS21264	A.16, B.11		
								MS21900	A.3, B.1		
AN910	A.11, B.7							MS21902	A.7, B.20		
AN911	A.11, B.13							MS21904	A.7, B.9		
AN912	A.11, B.3							MS21905	A.7, B.9		
AN914	A.11, B.9							MS21906	A.7, B.8		
AN915	A.11, B.9							MS21907	A.7, B.9		
AN916	A.11, B.9							MS21909	A.7, B.19		
AN917	A.11, B.19							MS21910	A.8, B.19		
AN918	A.11, B.8							MS21911	A.8, B.19		

Continued...