

CHAP 4 AIRFRAME SP 421 A L SHEET 1 OF 6	SERVICING PROCEDURE F53 T55	BAC F53 & T55 (SA) 5A3A Section 1 2nd Edition
Piping System - Installation Details (Rigid/Flexible Pipes) - Excluding Beaded Fuel Pipes using FRS Connectors.	AFSC 43151 42152	TIME EST
Safety and Servicing Notes are to be complied with throughout the work detailed on this card.		
SPECIAL TOOLS AND EQUIPMENT Nil.		ASSOCIATED PROCEDURES
NOTE: This Servicing Procedure details the installation, clearances and fitting standards which must be used when reworking rigid and flexible pipes, or when reconnecting pipelines after component replacements.		
<u>43151/42152</u>		
<p>1. GENERAL INFORMATION</p> <p>A. When handling or installing flexible hoses under no circumstances shall the minimum bend radii as stated in the hose specification be reduced or the hose subjected to any unnecessary flexing which may cause permanent deformation of the internal structure of the hose.</p> <p>Any hose pre-formed by the manufacturer to prevent kinking must not be straightened or reshaped under any circumstances.</p> <p>B. If leaks occur after pressure testing of any system pipeline and if the correct torque figure has been applied, further torque-tightening is prohibited and the assembly must be rejected.</p> <p>C. <u>ALL SYSTEM PIPELINES MUST BE ASSEMBLED TO THE AIRCRAFT WITHOUT BEING STRAINED.</u></p> <p>D. <u>WHERE NO CLEARANCE IS STATED A NOMINAL CLEARANCE FIGURE SHOULD BE 0.5 in. (OR GREATER IS POSSIBLE).</u></p> <p>E. <u>HIGH TEMPERATURE PIPE-CLIPS MUST BE USED IN SITUATIONS WHERE HEAT WOULD DAMAGE THE RUBBER CUSHION TYPE.</u></p> <p>F. <u>NO REFERENCE IS MADE TO THE FOLLOWING IN THIS SERVICING PROCEDURE.</u></p> <p>(i) <u>PIPE MANIPULATION</u> (a) Beading. (b) Bending. (c) Flaring. (d) Ovality. (e) Pressure Testing. (f) Cleaning. (g) Storage.</p> <p>(ii) <u>SPECIAL CONDITIONS APPLYING TO BEADED FUEL PIPES USING FRS CONNECTORS.</u></p>		
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2. CLEARANCE AT FAIRLEAD POSITIONS

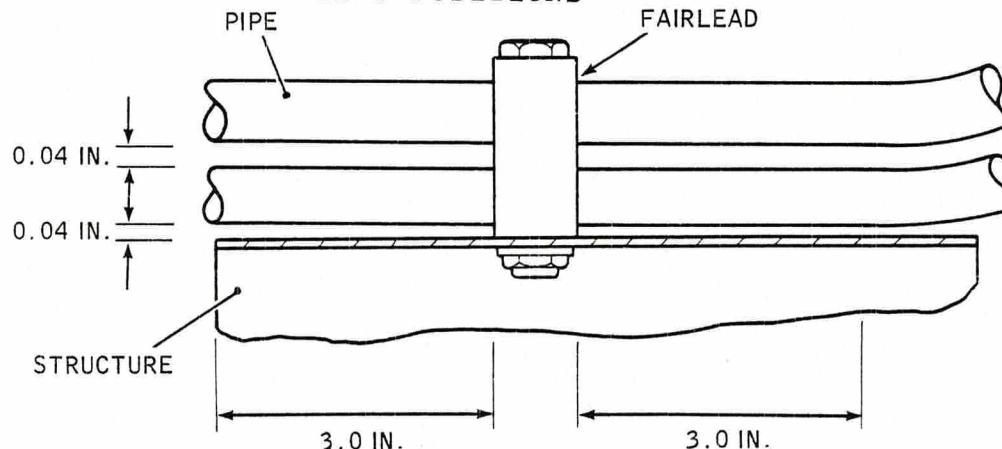


FIGURE 1.

NOTE: A CLEARANCE OF PIPES FROM ADJACENT PIPES, UNITS, ALIEN STRUCTURE ETC. MAY BE A MINIMUM OF 0.04 IN. AT A DISTANCE OF 3.0 IN. EITHER SIDE OF FAIRLEADS, CLEATS OR BULKHEAD FITTINGS. THIS NOTE DOES NOT APPLY TO PIPES SUPPORTED BY P-CLIPS.

3. CLEARANCES AT P-CLIP POSITIONS

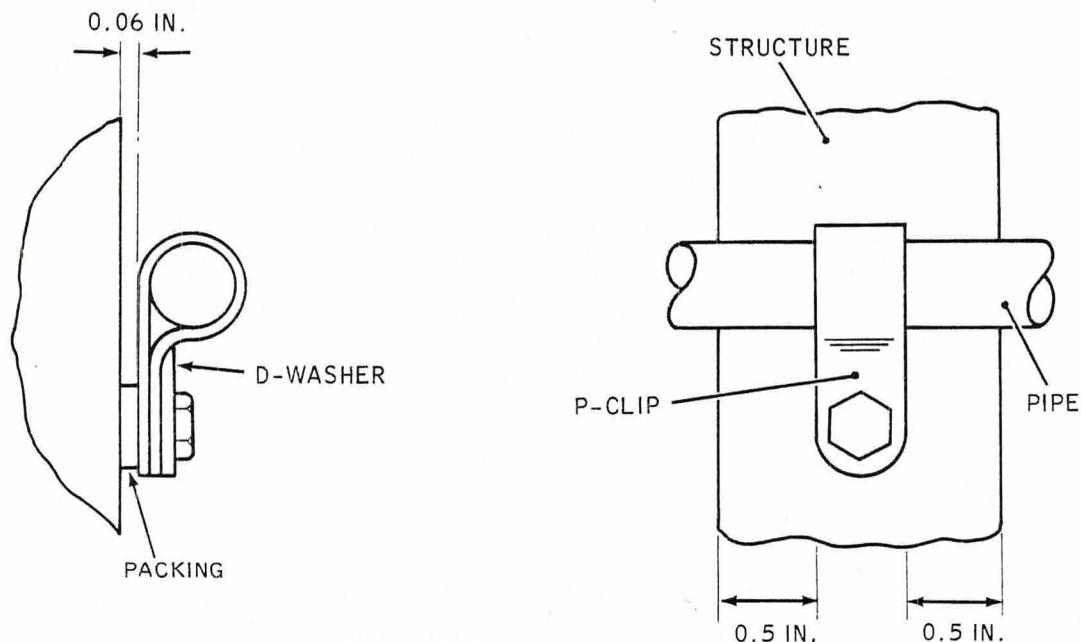


FIGURE 2

NOTE: ALL PIPE CLIPS ARE STIFFENED BY THE ADDITION OF A D-WASHER. THE CLEARANCE PERMISSIBLE BETWEEN PIPE AND STRUCTURE IS A MINIMUM OF 0.06 IN. FOR A DISTANCE OF 0.50 IN. ON EITHER SIDE OF THE P-CLIP. THIS 0.06 IN. CLEARANCE IS PERMISSIBLE ONLY WHEN THE P-CLIP IS ATTACHED DIRECT TO THE STRUCTURE OR SEPARATED FROM IT BY A PACKING PIECE UP TO 0.10 IN. THICK.

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4. CLEARANCE ASSOCIATED WITH HEXAGONAL PIPE UNION NUTS

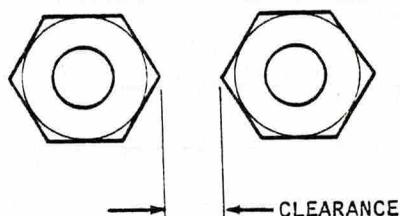


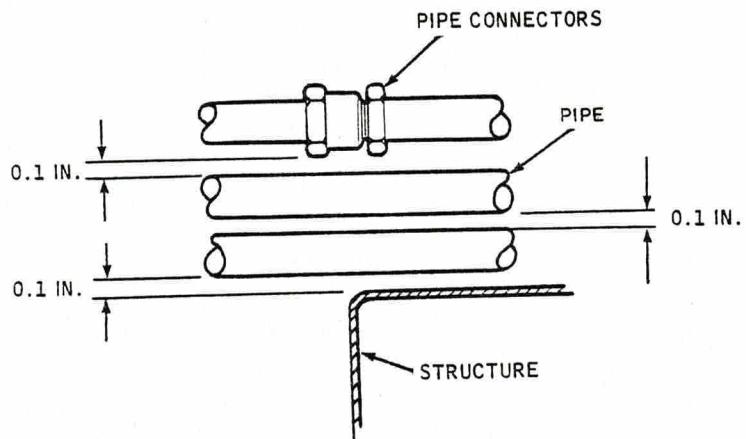
FIGURE 3

NOTE: PARTICULAR CARE IN THE CASE OF HEXAGONAL COMPONENTS MUST BE TAKEN THAT CLEARANCES ARE MEASURED ACROSS THE CORNERS AND NOT ACROSS FLATS.

CLEARANCE DIMENSIONS ARE AS IN :-

- (a) Sheet 2. Item 2. Figure 1.
- (b) Sheet 2. Item 3. Figure 2.
- (c) Sheet 3. Item 5. Figure 4.

5. CLEARANCE FOR PIPES AND CONNECTORS



NOTE: ALL PIPES AND PIPE CONNECTORS TO BE AT LEAST 0.10 IN. CLEAR OF ADJACENT PIPES, PIPE CONNECTORS, ALIEN STRUCTURE ETC.

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SERVICING PROCEDURE INSPECTION STAGES DO NOT EXCLUDE ADDITIONAL INSPECTION STAGES
INCORPORATED AS NECESSARY IN MAINTENANCE CERTIFICATION DOCUMENTS

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6. CLEARANCE BETWEEN PIPES AND MOVING COMPONENTS

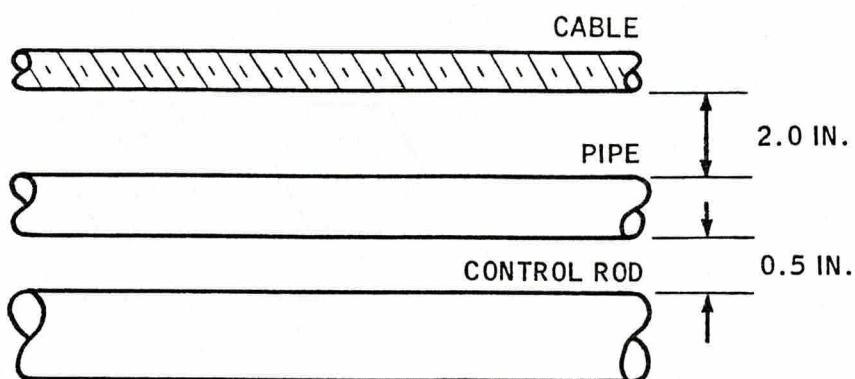


FIGURE 5

NOTE: ALL PIPES TO BE A MINIMUM OF 2.0 INS. CLEAR OF CONTROL CABLES AND OTHER FLEXIBLE MOVING PARTS. AND 0.50 IN. MINIMUM CLEAR OF RIGID CONTROLS TUBES AND OTHER RIGID MOVING PARTS.

7. SUPPORT SPACING FOR SMALL BORE PIPES

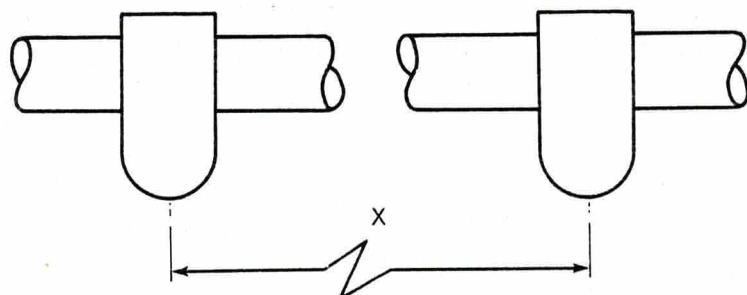


FIGURE 6

OUTSIDE DIAMETER OF TUBE	SPACING DIMN. 'X' INCHES	
	ALUMINIUM ALLOY	TUNGUM & STEEL
3/16	12.0	14.0
1/4	13.5	16.0
5/16	15.0	18.0
3/8	16.5	20.0
1/2	19.0	23.0
5/8	22.0	25.5
3/4	24.0	27.5
1.0	26.5	30.0

NOTE: WHERE PIPES SUPPORT FITTINGS SUCH AS COUPLINGS, TEES ETC. THE SPACINGS SHOULD BE REDUCED BY APPROXIMATELY 20%.

Continued

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8. TORQUE LOADING

OUTSIDE DIAMETER OF PIPE	TORQUE LB/IN \pm 10 PER CENT	ANGULAR MOVEMENT
3/16	40	
1/4	100	2 Spanner flats
3/8	135	
1/2	175	
5/8	195	
3/4	230	
7/8	280	1½ Spanner flats
1.0	330	
1¼	455	
1½	780	

NOTE: Before torque-tightening, threads must be lubricated with clean system fluid.

The torque loading figures in the table are for stainless steel pipe assemblies fitted with either steel or aluminium alloy AGS flared end fittings.

All figures for tightening of the sleeve relative to pipe are only applicable after finger tightness has been achieved, care must be taken to ensure that the flare is in correct alignment with, and held against the cone of the mating coupling whilst tightening by hand.

The angular movement corresponds approximately to the specified torque and may be applied where couplings are inaccessible for torque spanners.

SEALING FACE AT FLARED END OF PIPE MUST SEAT FULLY WITH
FACE OF THE CONE OF THE MATING COUPLING, IF NOT,
DISMANTLE FOR RECTIFICATION OR REPLACE WITH A NEW
ASSEMBLY.

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9. DAMAGE TO PIPELINES INSTALLATION

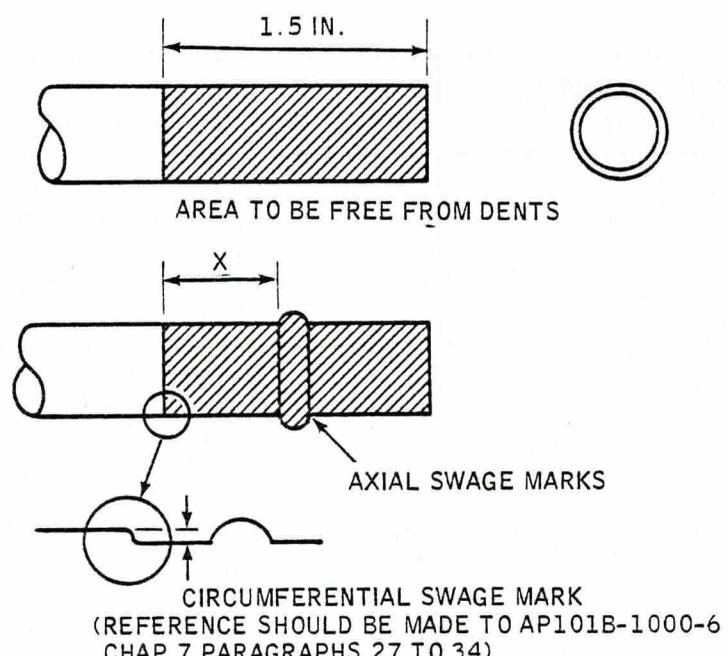


FIGURE 7

NOTES: (A) 1. CRACKED FAIRLEADS, PIPES, CLIPS OR SUPPORT CLEATS MUST BE AUTOMATICALLY REJECTED.

2. CRACKED FRAMES MUST BE REPAIRED TO A STANDARD VOL.6 REPAIR OR TO A B.A.C. S.R.O. TYPE DRAWING.

3. RESTRICTION TEST

ANY DEFORMATION IN A PIPE SHALL NOT RESTRICT THE PASSAGE OF A STEEL BALL HAVING A DIAMETER OF 90% OF THE NOMINAL INSIDE DIAMETER OF THAT PIPE.

4. DENTS

ANY DENT IN A PIPE SHALL BE FREE FROM NICKS AND SCORES.

5. GRADE 1 PIPES

ANY HIGH PRESSURE PIPE USED ON HYDRAULIC SYSTEMS.

6. GRADE 2 PIPES

ALL RETURN PIPES AND SYSTEMS OTHER THAN HIGH PRESSURE HYDRAULIC SYSTEMS.

(B) GRADE 2 PIPES ONLY

DENTS AS PER PARA (A) 3 and 4 ARE ACCEPTABLE UP TO 1.50 INS. LIMIT SHOWN ABOVE.

(C) GRADE 2 PIPES ONLY BEADED

DENTS AS PER PARA (A) 3 AND 4 ARE ACCEPTABLE UP TO X LIMIT SHOWN.

AXIAL GAUGE MARKS DUE TO SPLIT DIES ARE NOT ACCEPTABLE CIRCUMFERENTIAL SWAGE MARKS ARE ACCEPTABLE IF JUST DETECTABLE BY FEEL UP TO DIMENSION X.

DIMENSION X FOR FUEL PIPES ONLY 0.50 IN.

DIMENSION X FOR OTHER THAN FUEL PIPES 0.20 IN.

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