

## Bolt and Shear Pin Calculation

AMS02 Structural Fastener List 28. May 2004  
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Connection	Bolt	Nominal Thread / Size	Length	Qty.	Washer	Qty.	Insert / Nut	Qty.	Locking	Torque (in-lbs)
<b>1 TRD Octagon</b>										
1.1 Upper Cover to Octagon	Socket Head	5/16-24 UNF	44.5 mm	56	(*1) outer diam. 15mm	56	(*2)		56 thread lock	195/225
1.2 Upper Brackets to Upper Cover (C-Profiles)	Socket Head	1/4-28 UNF	31.8 mm	56		56	(*2)		56 thread lock	110/130
1.3 Upper Br. Shear Pin to Upper Cover	(*3)	diam. 8mm	13 mm	8						-
1.4 Lower Cover to Octagon	Socket Head	8-36 UNF	25.4 mm	40		40	(*2)		40 thread lock	29/34
1.5 Valve Boxes to Octagon	Socket Head	M3	TBD	64		64			thread lock	8,5/10
1.6 Support Grid Shear Pin to Octagon	(*4)	diam. 2mm	TBD	48						-
<b>2 TRD Support: M-Structure</b>										
2.1 Upper-Brackets to M-Structure	Socket Head	1/4-28 UNF	25.4 mm	40			(*2)		40 thread lock	110/130
2.2 Upper Br. Shear Pin to M-Structure	(*3)	diam. 8mm	17 mm	8						-
2.3 M-Structure to Corner Brackets	Socket Head	5/16-24 UNF	25.4 mm	32			(*2)		32 thread lock	195/225
2.4 M-Structure Shear Pin to Corner Br.	(*3)	diam. 20mm	40mm	8						-
2.5 Diagonal Strut (Space Qualified Product) to M-Structure	Socket Head	10-32 UNF	TBD	32		32	(*2)		32 thread lock	38/45
2.6 TAS Box Mounting Plate to M-Str.	Socket Head	10-32 UNF	TBD	4		4			thread lock	38/45
2.7 TAS Boxes to TAS Box Mounting Pl.	Socket Head	M3	TBD	20		20			thread lock	8,5/10

Options:

- (\*1)= need to be machined down
- (\*2)= space approved helicoil from Boellhoff Germany (screwlock)
- (\*3)= Mat. Ti6Al4V
- (\*4)= Mat. V4A (1.4401 DIN 267)

## Plot 48: Structural Fastener List

Connection	Bolt	Nominal Thread / Size	MS
<b>1 TRD Octagon</b>			
1.1 Upper Cover to Octagon	Socket Head	5/16-24 UNF	0.83
1.2 Upper Brackets to Upper Cover (C-Profiles)	Socket Head	1/4-28 UNF	0.65
1.3 Upper Br. Shear Pin to Upper Cover		diam. 8mm	0.30
1.4 Lower Cover to Octagon	Socket Head	8-36 UNF	1.02
1.5 Valve Boxes to Octagon	Socket Head	M3	0.64
1.6 Support Grid Shear Pin to Octagon		diam. 2mm	1.34
<b>2 TRD Support: M-Structure</b>			
2.1 Upper-Brackets to M-Structure	Socket Head	1/4-28 UNF	0.44
2.2 Upper Br. Shear Pin to M-Structure		diam. 8mm	0.67
2.3 M-Structure to Corner Brackets	Socket Head	5/16-24 UNF	0.76
2.4 M-Structure Shear Pin to Corner Br.		diam. 20mm	0.63
2.5 Diagonal Strut to M-Structure	Socket Head	10-32 UNF	1.28
2.6 TAS Box Mounting Plate to M-Structure	Socket Head	10-32 UNF	1.40
2.7 TAS Boxes to TAS Box Mounting Plate	Socket Head	M3	0.65

## Plot 49: Structural Fastener MS List