

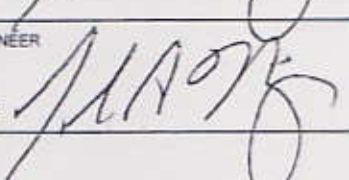



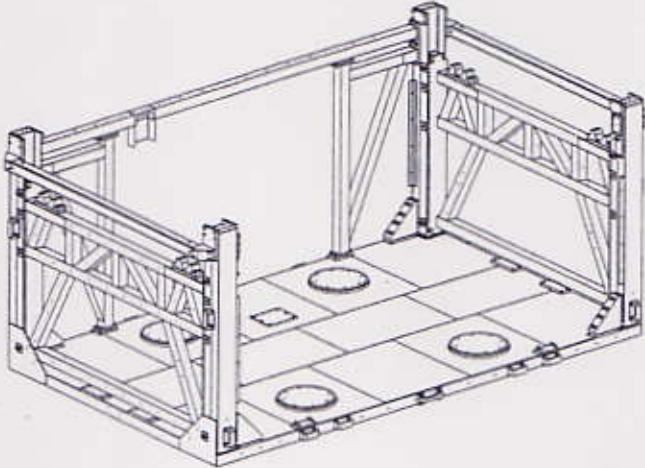
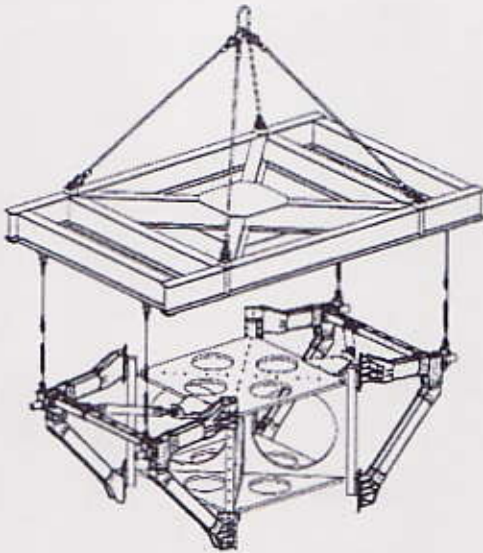
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1. PROJECT CODE		2. JPIC CODE		TASK PERFORMANCE SHEET				
SA-AMS		AMS		NASA - LYNDON B. JOHNSON SPACE CENTER				
3. TYPE	A	CONFIGURATION CHANGE		<input checked="" type="checkbox"/>	4. TPS NO. <u>2A0720058</u>		5. PAGE 1 OF 9	
		PERMANENT	<input checked="" type="checkbox"/>	TEMPORARY	<input type="checkbox"/>	6. MOD SHEET(S) NUMBER(S)	7. ORG. EA	
	B	NONCONFIGURATION CHANGE		<input type="checkbox"/>		8. SYSTEM AMS	9. NEED DATE 2-4-07	
10. PART NAME Upper USS-02/Payload Shipping				11. PART NO./DRAWING NO. SEG38116929		12. SERIAL/LOT NO. N/A	13. TIME/CYCLE/SHELF LIFE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
14. APPLICABLE DOCUMENTS N/A				15. CONTRACT NO./JOB NO. NNJ05HI05C		16. HAZ. TEST <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	17. ENG. EVAL. <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
18. SHORT TITLE OF TPS Install the Upper USS-02 and Assembly Fixture into PSS							19. ADP UPDATE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
20. OPER SEQ. NO.		21. OPERATIONS (Print, Type, or Write Legibly)				 3-8-07	VERIFICATION	
							22. TECH	23. QADV
<p>WARNING</p> <p>THIS PROCEDURE AUTHORIZES LIFTING OPERATIONS. ALL SAFETY REGULATIONS AND PROCEDURES SHALL BE FOLLOWED</p> <p>Abstract: This procedure governs the process of installation of the USS-02 into the Primary Support Stand (PSS) as a sub sequential process after removing the USS-02 from the Rotation Stand Assembly (RAS) and begins the procedure with the USS-02 in the "Ready to be Lifted" configuration with the Primary Lifting Sling assembly. The Primary Support Stand (PSS) is configured with a side removed to facilitate installation.</p>								
1.		Open this TPS.					2/12/07	
		Note: The Jacobs Project Engineer on site reserves the authority to reorder steps to accommodate the logistics of moving around this large hardware.						
2.		Note TPS handoff. Record the TPS Number and hand off date <u>2A0720057</u> .					3-15-07	
3.		Move the PSS to an ideal location of the cleanroom. Use CERN provided low profile air pads as required.					1/14/07	
24. ORIGINATOR John Heilig 				DATE 3-8-07		25. FINAL ACCEPTANCE STAMP AND DATE		
APPROVALS (Printed or Typed and Signed)								
26. PROJECT ENGINEER John Heilig 		DATE 3-8-07		27. QUALITY ENGINEER Steve Caldwell 		DATE 3-8-07		
28.				<div style="border: 2px solid black; padding: 5px; display: inline-block;"> <p>ORIGINAL</p> </div>				
30.				31. Return to Bldg. <u>10</u>				
Rm. <u>114</u> QARC								

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6. MOD NO.

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION	
		22. TECH	23. QA/DV
4.	Verify that the Longitudinal Tie-bar assembly, SEG38117007-701, the Diagonal Brace Assembly Short, SEG38117016-701, the bolts, SDG38117090-801, and the washers, NAS1587-8C, are removed from one side of the PSS SEG38116929-309.	1/14/07	
5.	Verify that the Pedestal Assemblies A (2), B (1), and C (1), and bolts SDG38117090-801, and the washers NAS1587-8C, are removed from the assembly. Reference configuration: SEG38116929-301. See in Figure 1.	1/14/07	
			
Figure 1. Primary Support Stand			
6.	Verify the USS-02 Assembly SEG39135726-303 is in the "ready to lift status" with the Primary Lifting Sling SEG38117112-305.	1/15/07	
			
Figure 2. USS-02 in Primary Lifting Fixture.			

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7.

Slowly lift the Upper USS-02 into the PSS, as show in Figure 3. First material contact should be the Sill Trunnion Pins (4) SDG39135732-001 to the Trunnion Block Bottom Assemblies SEG38117060-301. Assembly shall be fully seated and resting in the PSS per SEG38116929 before fully unloading the Lifting Fixture. See Figure 3

NOTE: Lift and maneuver the USS to a height sufficient to clear the corner columns of the PSS and to provide safe clearance for the USS to be lowered vertically into the PSS.

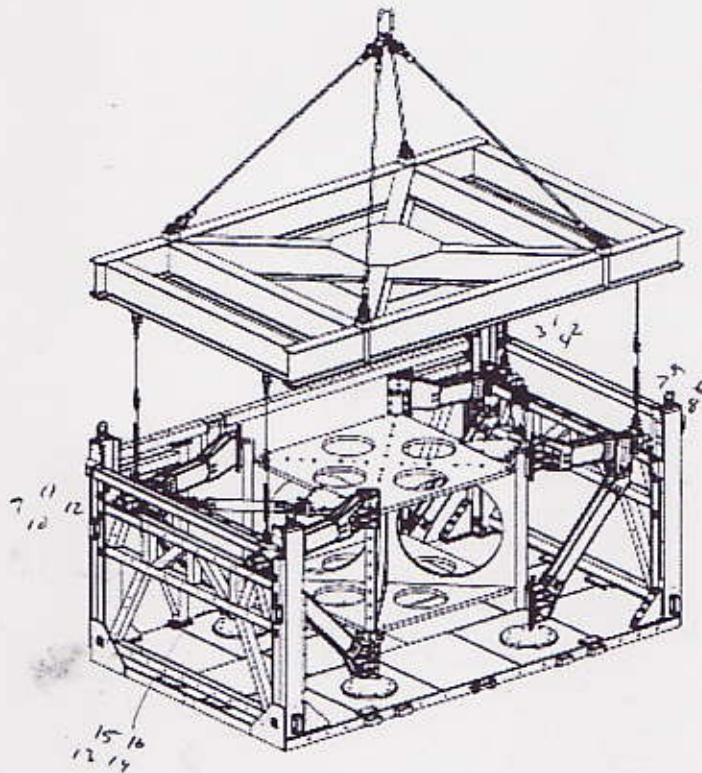


Figure 3 Installing the USS-02 into the PSS

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22. TECH 23. QA/DV

8. Install the Trunnion Top cover Assemblies SEG38117061-301, the Trunnion Block Bushings halves SDG38117012-001, the four (4) Bolts NAS1958C20H, and four (4) washers, NAS1587-8C per SEG38117010. **Do not torque fasteners at this time.**

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3-15-07

9. Install the Sill Trunnion Retainers (4) SDG38117023-001 into the Sill Trunnions Per SEG38116929. **Caution: Careful visual inspection of the Trunnion and the Retainers for debris prior to installation is warranted.**

3-15-07

10. Torque four (4) bolts, NAS1958C20H, for each of the four (4) Trunnion Block Assemblies, P/N SEG38117010-301. Torque the bolts per SEG38117000. 75-79 16 ft

3-15-07

Torque wrench M# 213884 and due date 06/6/07 Record the final torque:

Bolt #	Final Torque
1.	76.2
2.	76.2
3.	75.5
4.	77.9
5.	76.1
6.	75.8
7.	75.5
8.	76.1
9.	75.5
10.	75.5
11.	76.4
12.	76.7
13.	78.7
14.	75.2
15.	76.5
16.	75.9

see
fig
3 for
locat-

11. Reinstall the lock-wire on the four (4) NAS1958C20H bolts, for each of the four (4) Trunnion Block Assemblies, P/N SEG38117010-301.

Lock Wire Lott # 117167

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3-16-07

12. Install the Longitudinal Tie-bar assembly, SEG38117007-701, the Diagonal Brace Assembly Short, SEG38117016-701, using the (32)bolts, SDG38117090-801, and the (32) washers, NAS1587-8C, into the PSS per SEG38117000-309. Torque Fasteners to SEG38117000. (Ref: Running Torque shall be 16-220 In Lbs. Locking torque shall be 75-79 Ft-Lbs) Apply Grease, Braycote 601EF to the threads of each bolt prior to installation. Record Lot# 86440 Exp. Date 3/29/26.

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3-8-07

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(Print, Type, or Write Legibly)

VERIFICATION

22. TECH 23. QADV

12.1 Record Torque Values for Diagonal Brace Assemblies.

Left Diagonal Brace

Right Diagonal Brace

Running Torque	Locking Torque	Running Torque	Locking Torque
Bolt 1 <u>2</u>	<u>77.3</u>	Bolt 1 <u>2 NM</u>	<u>77.6</u>
Bolt 2 <u>2</u>	<u>77.3</u>	Bolt 2 <u>2.25 NM</u>	<u>76.9</u>
Bolt 3 <u>3</u>	<u>78.4</u>	Bolt 3 <u>2 NM</u>	<u>76.8</u>
Bolt 4 <u>2</u>	<u>78.5</u>	Bolt 4 <u>2 NM</u>	<u>77.2</u>
Bolt 5 <u>2.5</u>	<u>77.1</u>	Bolt 5 <u>2.25 NM</u>	<u>77.5</u>
Bolt 6 <u>2.5</u>	<u>77.3</u>	Bolt 6 <u>2 NM</u>	<u>78.0</u>
Bolt 7 <u>2.5</u>	<u>79.8</u>	Bolt 7 <u>2 NM</u>	<u>77.2</u>
Bolt 8 <u>2</u>	<u>79.2</u>	Bolt 8 <u>2 NM</u>	<u>77.4</u>
Bolt 9 <u>2</u>	<u>80.0</u>	Bolt 9 <u>2 NM</u>	<u>79.5</u>
Bolt 10 <u>3</u>	<u>78.1</u>	Bolt 10 <u>2 NM</u>	<u>77.7</u>
Bolt 11 <u>2</u>	<u>77.9</u>	Bolt 11 <u>2.25 NM</u>	<u>77.9</u>
Bolt 12 <u>2.5</u>	<u>78.9</u>	Bolt 12 <u>2.25 NM</u>	<u>76.5</u>

Record M# 213882 Cal Due Date 06/26/07

12.2 Record Torque values for Longitudinal Tie-bar assembly.

Left

Right

Running Torque	Locking Torque	Running Torque	Locking Torque
Bolt 1 <u>2</u>	<u>78.4</u>	Bolt 1 <u>2.5</u>	<u>79.5</u>
Bolt 2 <u>2</u>	<u>77.3</u>	Bolt 2 <u>2.5</u>	<u>77.5</u>
Bolt 3 <u>2.5</u>	<u>80.5</u>	Bolt 3 <u>2.0</u>	<u>77.2</u>
Bolt 4 <u>2</u>	<u>79.5</u>	Bolt 4 <u>2.5</u>	<u>79.2</u>

Record M# 213884 Cal Due Date 06/26/07

13. Remove and store the PLF SEG38117112-305 and U-Hook Assemblies SEG38117120-301.

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3-15-07

3-15-07

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<p>14.</p>		<p>Re-install the Pedestal Assemblies A (2), B (1), and C (1), the 1/2 Pedestal Shim Stock SDG38117053-805, using the bolts SDG38117090-801, and the washers NAS1587-8C, per SEG38116929-301. Record the Torque Values for each of the 8 bolts that mount the Pedestal Assemblies to the PSS. Torque Fasteners to SEG38116929. (Ref: Running Torque shall be 16-220 In Lbs. Locking torque shall be 75-79 Ft-Lbs) Apply Grease, Braycote 601EF to the threads of each bolt prior to installation. Record Lot# <u>86440</u> Exp. Date <u>3/29/2016</u></p>		<p>3-8-07 MIP 14</p>																																																																																																	
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<p>14.</p>		<p>Pedestal A 1 (2)</p> <table border="1"> <tr> <td>Bolt 1</td> <td>Running Torque</td> <td>18.5 NM</td> </tr> <tr> <td>Bolt 2</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 3</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 4</td> <td>Running Torque</td> <td>2.5 NM</td> </tr> <tr> <td>Bolt 5</td> <td>Running Torque</td> <td>2.5 NM</td> </tr> <tr> <td>Bolt 6</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 7</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 8</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 1</td> <td>Locking Torque</td> <td>77</td> </tr> <tr> <td>Bolt 2</td> <td>Locking Torque</td> <td>81.5</td> </tr> <tr> <td>Bolt 3</td> <td>Locking Torque</td> <td>77.7</td> </tr> <tr> <td>Bolt 4</td> <td>Locking Torque</td> <td>91.5</td> </tr> <tr> <td>Bolt 5</td> <td>Locking Torque</td> <td>77.6</td> </tr> <tr> <td>Bolt 6</td> <td>Locking Torque</td> <td>77.0</td> </tr> <tr> <td>Bolt 7</td> <td>Locking Torque</td> <td>78.1</td> </tr> <tr> <td>Bolt 8</td> <td>Locking Torque</td> <td>80.1</td> </tr> </table>		Bolt 1	Running Torque	18.5 NM	Bolt 2	Running Torque	3 NM	Bolt 3	Running Torque	3 NM	Bolt 4	Running Torque	2.5 NM	Bolt 5	Running Torque	2.5 NM	Bolt 6	Running Torque	3 NM	Bolt 7	Running Torque	3 NM	Bolt 8	Running Torque	3 NM	Bolt 1	Locking Torque	77	Bolt 2	Locking Torque	81.5	Bolt 3	Locking Torque	77.7	Bolt 4	Locking Torque	91.5	Bolt 5	Locking Torque	77.6	Bolt 6	Locking Torque	77.0	Bolt 7	Locking Torque	78.1	Bolt 8	Locking Torque	80.1	<p>Pedestal A2 (4)</p> <table border="1"> <tr> <td>Bolt 1</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 2</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 3</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 4</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 5</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 6</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 7</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 8</td> <td>Running Torque</td> <td>3 NM</td> </tr> <tr> <td>Bolt 1</td> <td>Locking Torque</td> <td>78.7</td> </tr> <tr> <td>Bolt 2</td> <td>Locking Torque</td> <td>77.2</td> </tr> <tr> <td>Bolt 3</td> <td>Locking Torque</td> <td>77.8</td> </tr> <tr> <td>Bolt 4</td> <td>Locking Torque</td> <td>77.9</td> </tr> <tr> <td>Bolt 5</td> <td>Locking Torque</td> <td>77.2</td> </tr> <tr> <td>Bolt 6</td> <td>Locking Torque</td> <td>79.0</td> </tr> <tr> <td>Bolt 7</td> <td>Locking Torque</td> <td>77.7</td> </tr> <tr> <td>Bolt 8</td> <td>Locking Torque</td> <td>77.9</td> </tr> </table>		Bolt 1	Running Torque	3 NM	Bolt 2	Running Torque	3 NM	Bolt 3	Running Torque	3 NM	Bolt 4	Running Torque	3 NM	Bolt 5	Running Torque	3 NM	Bolt 6	Running Torque	3 NM	Bolt 7	Running Torque	3 NM	Bolt 8	Running Torque	3 NM	Bolt 1	Locking Torque	78.7	Bolt 2	Locking Torque	77.2	Bolt 3	Locking Torque	77.8	Bolt 4	Locking Torque	77.9	Bolt 5	Locking Torque	77.2	Bolt 6	Locking Torque	79.0	Bolt 7	Locking Torque	77.7	Bolt 8	Locking Torque	77.9
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Bolt 7	Running Torque	2.75 NM																																																																																																			
Bolt 8	Running Torque	2.5 NM																																																																																																			
Bolt 1	Locking Torque	76.7																																																																																																			
Bolt 2	Locking Torque	76.1																																																																																																			
Bolt 3	Locking Torque	76.5																																																																																																			
Bolt 4	Locking Torque	77.7																																																																																																			
Bolt 5	Locking Torque	75.8																																																																																																			
Bolt 6	Locking Torque	78.8																																																																																																			
Bolt 7	Locking Torque	77.4																																																																																																			
Bolt 8	Locking Torque	76.2																																																																																																			
Bolt 1	Running Torque	3 NM																																																																																																			
Bolt 2	Running Torque	3 NM																																																																																																			
Bolt 3	Running Torque	2.5 NM																																																																																																			
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Bolt 1	Locking Torque	78.4																																																																																																			
Bolt 2	Locking Torque	78.6																																																																																																			
Bolt 3	Locking Torque	79.5																																																																																																			
Bolt 4	Locking Torque	78.2																																																																																																			
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Bolt 8	Locking Torque	79.5																																																																																																			
<p>5 Page 6 of 9</p>		<p>4. TPS NO.</p>		<p>6. MOD NO.</p>																																																																																																	
<p>TASK PERFORMANCE SHEET</p>		<p>CONTINUATION PAGE</p>		<p>NASA - LYNDON B. JOHNSON SPACE CENTER</p>																																																																																																	

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4. TPS NO.

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH 23. QA/DV

Record M# 213881 Cal Due Date 06/26/07

15.

Install the Bolts and Washers to the USS assembly per SEG38117000-307 using (6)NAS1958C25, (12) NAS1587-8C, and (6) NAS1291C8M for each of the four pedestal joints. Torque fasteners and record values below. (Ref: Torque shall be 75-79 ft-lbs above running torque. Running torque shall be 18-150 inch lbs). Apply Grease, Braycote 601EF to the threads of each bolt prior to installation. Record Lot# 86440 Exp. Date 3/29/26

3-15-07

MIP
1-8-07

USS to Pedestal A1 Joint

USS to Pedestal A2 Joint (4)

Running Torque	Locking Torque	Running Torque	Locking Torque
Bolt 1 <u>2</u>	<u>77.5</u>	Bolt 1 <u>2</u>	<u>76.8</u>
Bolt 2 <u> </u>	<u>79.7</u>	Bolt 2 <u> </u>	<u>78.2</u>
Bolt 3 <u> </u>	<u>78.5</u>	Bolt 3 <u> </u>	<u>78.2</u>
Bolt 4 <u> </u>	<u>78.6</u>	Bolt 4 <u> </u>	<u>76.5</u>
Bolt 5 <u> </u>	<u>77.4</u>	Bolt 5 <u> </u>	<u>77.6</u>
Bolt 6 <u> </u>	<u>79.7</u>	Bolt 6 <u> </u>	<u>78.4</u>

-702

-703

USS to Pedestal B Joint

USS to Pedestal C Joint

Running Torque	Locking Torque	Running Torque	Locking Torque
Bolt 1 <u>2</u>	<u>78.3</u>	Bolt 1 <u>2</u>	<u>79.4</u>
Bolt 2 <u> </u>	<u>77.6</u>	Bolt 2 <u> </u>	<u>77.7</u>
Bolt 3 <u> </u>	<u>77.3</u>	Bolt 3 <u> </u>	<u>76.8</u>
Bolt 4 <u> </u>	<u>78.7</u>	Bolt 4 <u> </u>	<u>78.0</u>
Bolt 5 <u> </u>	<u>76.8</u>	Bolt 5 <u> </u>	<u>70.0</u>
Bolt 6 <u> </u>	<u>79.2</u>	Bolt 6 <u> </u>	<u>78.7</u>

Record M# 213884 Cal Due Date 6/26/07

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4. TPS NO.

6. MOD NO.

20. OPER
SEQ. NO.

21. OPERATIONS
(Print, Type, or Write Legibly)

VERIFICATION

22. TECH 23. QADV

16.

Install four (4) Intermediate Support Fixtures (ISF) P/N SEG38117092-301 between the Upper and Lower VC Interface Joints of the Upper USS-02 by installing eight (8) NAS1008-10A bolts and sixteen (16) NAS1587-8C washers (2 per bolt) per assembly. Install one (1) ISF Shim, Altered Item Drawing P/N SDG38117223-801 per ISF on the lower interface. Peel shim as necessary to fill the gap between the upper and lower interfaces. Apply Grease, Braycote 601EF to the threads of each bolt prior to installation.

Ray B ~~✓~~
3-14-07

Record Lot# 101038 Exp. Date 10/20/2026

Torque the bolts to 629.7-740.8 IN-LBS.

Record the actual final torque:

Bolt#	Final Torque	Bolt#	Final Torque
Bolt 1	<u>689 B</u>	Bolt 2	<u>681 B</u>
Bolt 3	<u>692 T</u>	Bolt 4	<u>681 T</u>
Bolt 5	<u>692 B</u>	Bolt 6	<u>686 T</u>
Bolt 7	<u>681 B</u>	Bolt 8	<u>697 T</u>
Bolt 9	<u>665 B</u>	Bolt 10	<u>679 B</u>
Bolt 11	<u>686 B</u>	Bolt 12	<u>688 T</u>
Bolt 13	<u>681 B</u>	Bolt 14	<u>685 T</u>
Bolt 15	<u>670 B</u>	Bolt 16	<u>683 T</u>
17	<u>679 B</u>	18	<u>692 B</u>
19	<u>719 B</u>	20	<u>684 T</u>
21	<u>677 B</u>	22	<u>697 T</u>
23	<u>682 B</u>	24	<u>683 T</u>
25	<u>681 B</u>	26	<u>686 B</u>
27	<u>688 B</u>	28	<u>686 T</u>
29	<u>688 B</u>	30	<u>687 T</u>
31	<u>688 B</u>	32	<u>689 T</u>

Torque wrench M#: 213884 and due date 06/26/07

MIP
3-8-07

TASK PERFORMANCE SHEET
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4. TPS NO.

6. MOD NO.

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION											
		22. TECH	23. QA/DV										
17.	Remove the Diagonal Strut Assemblies P/N SEG39135741-301 where it attaches to the Assembly Fixture VC Simulator P/N SEG38116960-303 and the USS02 Assembly by removing one (2) Cotter Pin P/N MS24665-306; one (2) Washer, Flat P/N NAS1149E1632R; one (2) Washer, CSK, P/N NAS1587-16C; one (2) Nut, Self Locking, P/N NAS1805-16; and one (2) Pin, Clevis, VC, Diagonal Bracket P/N SDG39135744-003 per Diagonal Strut. NOTE: Retain the parts removed in this step as they will be reinstalled in a later step.		H 3.19.07										
18.	Reconfigure the Multi-Purpose Lifting Fixture (MPLF) to the SEG38117125-313 VC Hoist 45 Degree Configuration. NOTE: Support the MPLF on jack stands while reconfiguring the drop slings.		H 3.19.07										
19.	Suspend the MPLF above the Assembly Fixture and install the swivel hoist rings to the inserts on the top of the Vertical Member Assembly (A component of the Assembly Fixture/ VC Simulator SEG38116960-303).		H 3.19.07										
MIP 3-8-07 20.	Torque the four (4) swivel hoist rings to level printed on swivel hoist rings +/-5%. Record the actual torque: <table border="1"> <thead> <tr> <th>Ring#</th> <th>Final Torque</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td><u>60.0</u></td> </tr> <tr> <td>2.</td> <td><u>62.4</u></td> </tr> <tr> <td>3.</td> <td><u>60.1</u></td> </tr> <tr> <td>4.</td> <td><u>60.2</u></td> </tr> </tbody> </table>	Ring#	Final Torque	1.	<u>60.0</u>	2.	<u>62.4</u>	3.	<u>60.1</u>	4.	<u>60.2</u>		H 3.19.07
Ring#	Final Torque												
1.	<u>60.0</u>												
2.	<u>62.4</u>												
3.	<u>60.1</u>												
4.	<u>60.2</u>												
21.	Apply tension to the Assembly Fixture/ VC Simulator SEG38116960-303 by lifting the MPLF assembly. Tension should be limited to reducing slack in the down slings only.		H 3.19.07										
22.	Reference drawing SFG38116959 Section J-J for this step. For each Vertical Member Assembly remove the eight (8) shear bolts SEG38115892-809, SEG38115892-811 , washers eight (8) NAS1149E0816R; and sixteen (16) NAS1587-8C, and two (2) Alignment Tools SDG38116997-001. Bag and Tag the removed fasteners as they will be reinstalled at a later time. Remove the shims SDG391355754-801, and SDG39135754-801. Bag and Tag the shims.		H 3.19.07										
23.	Lift and Remove the AF / VC Simulator from the Upper USS-02 Assembly and place it to the side. NOTE: Retain the parts removed in this step as they will be reinstalled in a later step.		H 3.19.07										
24.	Close this TPS.		H 3.19.07										