

DATE 02/26/03

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LME10

HAZARDOUS

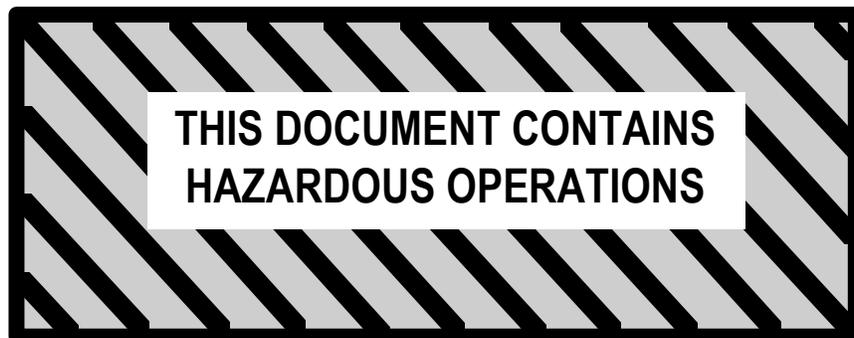
TEST PREPARATION SHEET

S3 ZENITH INBOARD PAS 2/AMS PASSIVE PAS FIT CHECK,
PRELOAD AND RELEASE MECHANISM EVALUATION

UF4.1

PREPARED BY: MARK L. MOORE
E228
93210867-5060

HARDWARE AFFECTED: FLIGHT



NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION

**JOHN F. KENNEDY
SPACE CENTER**

DATE 02/26/03

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S3 ZENITH INBOARD PAS 2/AMS PASSIVE PAS FIT
CHECK , PRELOAD AND RELEASE MECHANISM
EVALUATION

TYPE B - NON-CONFIGURATION CHANGE

APPROVED BY:

CONTRACTOR

NASA

SYSTEM ENGINEER

SAFETY ENGINEER

QUALITY ENGINEER

SAFETY ENGINEER

DATE

02/26/03

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	SEQ-STEP NO.		ORIG ENG:	
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HW/NO	PAGE	REASON FOR CHANGE	SSHIO:	
	SEQ-STEP NO.		SAFETY:	
		HAZARDOUS <input type="checkbox"/> TEMPORARY <input type="checkbox"/> RUN # _____	QE:	DATE

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SECTION I - INFORMATION

OBJECTIVES

This TPS shall perform a fit check, preload, and release mechanism evaluation of the as-built flight Alpha Magnetic Spectrometer (AMS) Passive Payload Attach System (PAS) using the as-built S3 Zenith Inboard Payload Attach System (PAS) Assembly. This work shall be accomplished at KSC within the Space Station Processing Facility (SSPF) clean room.

DESCRIPTION

Detailed work instructions are provided to perform a fit check, preload, and release mechanism evaluation of the AMS passive PAS (Drawing SEG39135815) with the AMS Unique Support Structure – 02 (USS-02) Simulator (Drawing SEG36144421-301) and the PAS Assembly (Drawing 1F70157).

1.1 REFERENCED INSTRUCTIONS

1.1.1 REQUIRED DOCUMENTS

<u>NUMBER</u>	<u>REV*</u>	<u>TITLE</u>
PGOC OMI E5533		HOISTING AND HANDLING
DPI M007		PROTECTION OF STATIC SENSITIVE ELECTRONIC PARTS AND EQUIPMENT
DPI M038-01		CLEANED MANNED SPACECRAFT HARDWARE, PRESERVATION AND PACKAGING OF
DPI D001-01		BOLT AND SCREW INSTALLATION
DPI HO19-0401		TYPE IV, MECHANICAL FASTENER SEALING
DPI K006-01		FINISHES, ORGANIC, APPLICATION
SSP30245		ELECTRICAL BOND CHECK

* REFERENCE MOST CURRENT REVISION

1.1.2 REQUIRED DRAWINGS

<u>NUMBER</u>	<u>REV</u>	<u>TITLE</u>
1F70157	F	PAYLOAD ATTACH SYSTEM ASSY - SEGMENT S3
1F70147	D	CAPTURE LATCH ASSY - UCC
1F70524	L	GUIDE VANE ASSY
SEG39135815-301	NC	AMS PASSIVE PAYLOAD ATTACH SYSTEM ASSY
SEG36144421-301	NC	AMS UNIQUE SUPPORT STRUCTURE –02 (USS-02) SIMULATOR

1.1.3 INFORMATION DOCUMENTS

<u>NUMBER</u>	<u>REV</u>	<u>TITLE</u>
NONE		

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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1.1.4 INFORMATION DRAWINGS

NUMBER	REV	TITLE
NONE		

1.2 COMPUTER SYSTEMS

PART NO.	NOMENCLATURE	QTY	SEQ TASK
NONE			

1.3 SPECIAL TOOLS, EQUIPMENT AND MATERIALS

F/N	PART NO.	REV.	NOMENCLATURE	QTY
N/A	SEG39135815	NC	ASSEMBLY – AMS PASSIVE PAS	1
N/A	SEG36144421-301	NC	USS-02 SIMULATOR	1
N/A	SEG36145105	NC	PAS HOIST ASSY	1

1.4 SUPPORT REQUIREMENTS

1.4.5 PHOTOGRAPHIC REQUIREMENTS

SUBJECT	TYPE CAMERA	FPS	FILM LOAD	TIMING	REMARKS
PAS/AMS PAS	STILL VIDEO				SUPPORT TO BE REFLECTED IN PICS

NOTE: AMS PERSONNEL WILL BRING THEIR OWN STILL AND VIDEO CAMERAS AS WELL.

1.4.6

DATA PROCESSING

DATA DESCRIPTION	INTERVAL FROM TO	SAMP RATE	OUTPUT FORM	DATA FORMAT/ GEN INSTRUCTION
NONE				

SECTION I - INFORMATION

SEQ/STEP CMD RESP DESCRIPTION VERIF.

- 1.5 PERSONNEL CERTIFICATION REQUIREMENTS
- 1.5.1 SKILL CERTIFICATIONS/LICENSE REQUIREMENTS

TECHNICIANS SHALL HAVE COMPLETED THE FOLLOWING COURSE:

CERT. NUMBER	SKILL
TC326 MDA	HOISTING AND HANDLING
Q5205LSK	CLEANROOM TRAINING
EG 200 KSC	ESD TRAINING

CRANE OPERATORS SHALL HAVE COMPLETED THE FOLLOWING COURSE:

CERT. NUMBER	SKILL
TG340 KSC	CRANE OPERATOR TRAINING

- 1.5.2 CONTROLLED AREA ACCESS

ESTABLISH CONTROLLED AREA AS DIRECTED BY THE TASK LEADER AND CLEAR AREA OF ALL NON-ESSENTIAL PERSONNEL. THE FOLLOWING PERSONNEL ARE AUTHORIZED IN THE CONTROLLED AREA.

	BOEING	NASA	LMSO		
ENGR	1	3	4		
TECH	4				
QUAL	1	1			
SAFETY	1	1			
QE	2				

TOTAL PERSONNEL = 18

SECTION I - INFORMATION

SEQ/STEP CMD RESP DESCRIPTION VERIF.

1.6 SAFETY REQUIREMENTS

1.6.1 SAFETY DOCUMENTS

NUMBER	TITLE
BP 3063	ISS KSC GROUND OPERATIONS SAFETY AND HEALTH PLAN
KHB 1700.7	STS PAYLOAD GROUND SAFETY HANDBOOK
KHB 1710.2	KSC SAFETY PRACTICES HANDBOOK (KSC)
BP 1009	EMERGENCY PREPAREDNESS PLAN
NASA-STD-8719.9	NASA SAFETY STANDARD FOR LIFTING DEVICES AND EQUIPMENT
SP 1.004	MISHAP REPORTING, INVESTIGATION AND ACTION

1.6.2 HAZARDS

1. THIS PROCEDURE UTILIZES POTENTIALLY HAZARDOUS MATERIALS. REFER TO APPENDEX S.
2. THIS PROCEDURE CONTAINS HAZARDOUS SEQUENCES DUE TO HOISTING/LIFTING OPERATIONS.

1.6.3 SPECIFIC REQUIREMENTS

1. SHOULD A HAZARDOUS CONDITION DEVELOP DURING THE TASK, THE TASK LEADER SHALL IMMEDIATELY INITIATE PROPER RECOVERY ACTION WHICH MAY INCLUDE ABORTING THE TASK. SEE APPENDIX Z.
2. ENGINEERING WILL REVIEW THE LESSONS LEARNED DATABASE WITHIN 14 WORKING DAYS PRIOR TO THIS OPERATION AND ENSURE THAT THERE ARE NO LESSONS LEARNED APPLICABLE TO THIS OPERATION OR THAT APPROPRIATE CONTROLS ARE IN PLACE.
3. MISHAP REPORTING WILL BE IN ACCORDANCE WITH SP 1.004. NOTIFY THE BOEING SAFETY OF ANY MISHAP OR CLOSE CALL AT 7-5440.
4. SOME FLIGHT HARDWARE CONTAINS ESD SENSITIVE HARDWARE. PROTECTION OF THIS HARDWARE SHALL CONSIST OF THE USAGE OF GROUNDING AND SHORTING DEVICES AND STATIC-FREE MATERIALS.
5. WEATHER NOTIFICATION AND ASSOCIATED INSTRUCTIONS WILL BE IN ACCORDANCE WITH KHB 1710.2, CHAPTER 2.
6. A PRE-TASK BRIEFING WILL BE HELD PRIOR TO THE FIRST HAZARDOUS STEP/SEQUENCE IN THE HAZARDOUS OPERATION. ALL PARTICIPANTS WILL BE INSTRUCTED ON THEIR SPECIFIC TASKS AND WARNED OF THE HAZARDS INVOLVED. FOLLOWING ANY CREW CHANGE, THE NEW PERSONNEL WILL BE INSTRUCTED ON THEIR SPECIFIC TASK AND WARNED OF THE HAZARDS INVOLVED.

SECTION I - INFORMATION

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
7.			<p>PRETASK/PRETEST BRIEFING CHECKLIST</p> <p>THIS PRETASK BRIEFING CHECKLIST IS INTENDED AS A LIST OF GUIDELINES ONLY, AND PARTS WHICH THE TASK LEADER DEEMS UNNECESSARY OR INAPPROPRIATE MAY BE OMITTED. NO BUYOFFS OR ANNOTATIONS ARE NECESSARY AT THE CALLING STEP TO INDICATE THAT THIS CHECKLIST WAS FOLLOWED. IT WILL BE USED FOR REFERENCE ONLY.</p> <p>A. WAD IDENTIFICATION (NUMBER, REVISION, TITLE), INCLUDING SUBTASKS</p> <p>B. DEVIATIONS ALREADY INCORPORATED</p> <p>C. PERSONNEL ASSIGNMENTS</p> <p>D. TASK OBJECTIVES</p> <p>E. CHARACTERISTICS OF SYSTEM (S) IN USE, POTENTIAL PROBLEMS</p> <p>F. EQUIPMENT AND SUPPORT STATUS, INCLUDING ANY FACILITY OUTAGES</p> <p>G. CONCURRENT ACTIVITIES</p> <p>H. SAFETY PROCEDURES, APPAREL</p> <p>I. HAZARDOUS COMMODITIES INVOLVED AND PROPER PROCEDURE FOR USE</p> <p>J. COMMUNICATION METHODS</p> <p>K. EMERGENCY PROCEDURES, INCLUDING ESCAPE ROUTES, MARSHALING AREA</p>	
8.			A SAFETY PROFESSIONAL WILL BE ON SITE TO PROVIDE A GO-TO-PROCEED WITH THE OPERATION AND BE IN ATTENDANCE FULL TIME DURING THE OPERATION.	
9.			IF THE 25-FOOT RADIUS CONTROLLED AREA IS NOT PRACTICAL DUE TO ADJACENT WALLS OR OTHER OBSTRUCTIONS, CHANGES TO THE CONTROLLED AREA WILL BE COORDINATED BY THE TASK LEADER AND MDS&DS SAFETY WITHOUT A DEVIATION, PROVIDED THERE IS NO INCREASE IN THE HAZARD TO PERSONNEL.	
10.			COMMUNICATIONS WILL BE MAINTAINED BETWEEN THE CRANE CONTROLLER AND TASK LEADER DURING ALL HOISTING OPERATIONS.	
11.			TAG LINES WILL BE USED DURING ALL HOISTING OPERATIONS WHERE THE LOAD MAY PROHIBIT HAND CONTROL CAPABILITY OR WHERE THE LOAD CONFIGURATIONS WOULD POSE A HAZARD TO THE HANDLER/RIGGER. TAG LINES ARE NOT ESSENTIAL FOR DUAL CRANE HOISTS.	
12.			<u>FULL TIME SAFETY MONITORING REQUIRED:</u> A SAFETY PROFESSIONAL WILL BE ON SITE TO PROVIDE A CONCURRENCE TO PROCEED AND BE IN ATTENDANCE FULL TIME DURING THE OPERATION.	

SECTION I - INFORMATION

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
13.			A LOAD SHALL NOT BE LIFTED/SUSPENDED OVER PERSONNEL. WORK THAT MUST BE PERFORMED UNDER SUSPENDED LOADS WILL BE ACCOMPLISHED ONLY AT THE DIRECTION OF THE TASK LEADER AS STATED IN THE NASA SUSPENDED LOAD OPERATION ANALYSIS/APPROVAL #_____.	
14.			THE TASK LEADER IS RESPONSIBLE TO KEEP THE CONTROLLED AREA CLEAR OF ALL NON-ESSENTIAL PERSONNEL.	
15.			ALL TOOLS USED IN, ON, ABOVE, OR IN CLOSE PROXIMITY OF ANY FLIGHT PAYLOAD ELEMENTS SHALL BE TETHERED AT ALL TIMES.	
16.			NOTIFY NASA SAFETY (LSSR) 24 HOURS PRIOR TO START OF LIFT PROCEDURE.	
17.			ANYONE CAN CALL A STOP TO THE OPERATION.	
18.			THE CONTROLLING DOCUMENT SHALL MANAGE THE SAFETY CONTROLS CONTAINED IN THE SUBTASK DOCUMENT.	

HOISTING

- 1) CONTROLLED AREAS WILL BE ESTABLISHED USING FLASHING BEACONS, WARNING SIGNS, AND / OR BARRIERS AS DIRECTED BY THE TASK LEADER OR SAFETY REPRESENTATIVE FOR PERSONNEL SAFETY. WHEN A LOAD IS SUSPENDED FROM THE BRIDGE CRANE HOOK, A PATH WILL BE CLEARED OF ALL PERSONNEL WHILE TRAVERSING THE LOAD. THE CLEARED AREA WILL CONSIST OF THE LOAD ENVELOPE BEING TRANSFERRED PLUS APPROX. 25 FT ON ALL SIDES. IF THE 25 FOOT RADIUS IS NOT PRACTICAL DUE TO ADJACENT WALLS OR OTHER OBSTRUCTIONS, CHANGES TO THE CONTROLLED AREA WILL BE COORDINATED BY THE TASK LEADER WITH BOEING SAFETY WITHOUT REQUIRING A PROCEDURE CHANGE, (HANDWRITE), PROVIDED THERE IS NO INCREASE IN THE HAZARD TO PERSONNEL.
- 2) COMMUNICATIONS AND VISUAL CONTACT WILL BE MAINTAINED BETWEEN CRANE CONTROLLER AND THE TASK LEADER OR HIS DESIGNEE DURING ALL HOISTING OPERATIONS.
- 3) ALL HOISTING EQUIPMENT REQUIRED FOR THIS PROCEDURE MUST HAVE CURRENT CERT. TAGS.
- 4) HOISTING EQUIPMENT AND LIFTING EYES ATTACH POINTS, ON EQUIPMENT TO BE HOISTED, WILL BE VISUALLY INSPECTED IN ITS OPERATING CONFIGURATION EACH DAY, JUST PRIOR TO USE, FOR OBVIOUS DEGRADATION.

SECTION I - INFORMATION

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
5)			ALL HOISTING OPERATIONS SHALL BEGIN WITH THE CRANE AS NEAR PERPENDICULAR AS IS VISUALLY DISCERNIBLE. THIS IS TO PROCLUDE SIDE LOADING, WHICH COULD CAUSE DAMAGE TO THE CRANE RESULTING IN FAILURE. CRANE FAILURE COULD RESULT IN HARDWARE DAMAGE AND/OR PERSONNEL INJURY.	
6)			TAG LINES WILL BE USED DURING ALL HOISTING OPERATIONS WHERE THE LOAD MAY EXCEED SHOULDER LEVEL AND CONTROL CAPABILITY OR THOSE LOAD CONFIGURATIONS THAT WOULD POSE A HAZARD TO THE HANDLER / RIGGER.	
7)			TAG LINE PERSONNEL WILL EXERCISE EXTREME CAUTION TO PRECLUDE INTRODUCING A SIDE LOAD INTO THE CRANE. SIDE LOADING MAY CAUSE FAILURE RESULTING IN THE LOAD FALLING.	
8)			BOEING SAFETY OR HIS DESIGNEE WILL BE PRESENT AT OR GIVE CONCURRENCE TO ANY HOISTING OPERATIONS.	
9)			PERSONNEL WILL NOT BE ALLOWED DIRECTLY UNDER A SUSPENDED LOAD EXCEPT AS SPECIFIED IN AN APPROVED SUSPENDED LOAD ANALYSIS/APPROVAL REPORT.	
10)			THE TASK LEADER IS RESPONSIBLE TO KEEP THE CONTROLLED AREA CLEAR OF ALL NONESSENTIAL PERSONNEL.	

1.7 SPECIAL INSTRUCTIONS

1.7.1 GENERAL

CLEANLINESS INSPECTION

- A. SURFACES SHALL BE FREE FROM VISIBLE CONTAMINATION SUCH AS PARTICLES, SCALE, CORROSION, DIRT, GREASE, OIL OR OTHER FOREIGN MATERIAL.
- B. MAGNIFICATION OR SIMILAR AIDS (EXCEPT FOR NORMALLY WORN EYEGASSES) SHALL NOT BE USED.
- C. SCALE FREE DISCOLORATION AND SPECIFIED ANODIZED SURFACE TREATMENT SHALL NOT BE CONSIDERED VISUAL CONTAMINATION.
- D. DISCREPANCIES FOUND WHICH CAN BE CLEANED AND REVERIFIED PRIOR TO END OF SHIFT DO NOT REQUIRE DOCUMENTATION PER SPP Q-01.

SECTION I - INFORMATION

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
1.			THE TASK LEADER HAS TOTAL RESPONSIBILITY FOR THE IMPLEMENTATION OF THIS WAD. ALL PERSONNEL PARTICIPATING IN THIS WAD ARE UNDER THE TASK LEADER'S OVERALL CONTROL AND DIRECTION. ANY OPERATIONAL PROBLEMS, CONCERNS OR CHANGES AFFECTING THE ACCOMPLISHMENT OF WAD TASKS OR OBJECTIVES MUST BE COORDINATED WITH THE TASK LEADER PRIOR TO IMPLEMENTATION, EXCEPT IN CASES OF EMERGENCY.	
2.			PORTABLE ACCESS EQUIPMENT MAY BE UTILIZED TO GAIN ACCESS WITHOUT SPECIFIC CALLOUT IN THIS WAD.	
3.			PRE-OPERATION SETUP INSTRUCTIONS MAY BE PERFORMED OUT OF SEQUENCE OR IN PARALLEL. THEY MUST BE COMPLETED PRIOR TO OR AT THE TIME IT IS CALLED OUT IN THE OPERATION INSTRUCTIONS.	
4.			PHOTOGRAPHS WILL BE TAKEN AT THE TASK LEADER'S DIRECTION.	
5.			NON-HAZARDOUS SEQUENCES OR STEPS MAY BE WORKED OUT OF SEQUENCE AT THE DIRECTION OF THE TASK LEADER. APPROPRIATE DOCUMENTATION OF THE OUT OF ORDER SEQUENCE OR STEPS SHALL BE ANNOTATED IN THE QA RECORD COPY BY QA.	
6.			TYPOGRAPHICAL ERRORS SUCH AS SPELLING, MIS-NUMBERED STEPS, CALL SIGN ERRORS AND OTHER NON-TECHNICAL CORRECTIONS CAN BE A REAL TIME PEN AND INK CORRECTION TO THE QA RECORD COPY. THE TASK LEADER WILL SPECIFY SUCH CORRECTIONS, AND THEY DO NOT REQUIRE A HANDWRITE.	
7.			RECORDED DATA NOT HAVING SPECIFICATIONS ARE CONSIDERED BASELINE DATA FOR ENGINEERING INFORMATION ONLY.	
8.			A CONSTRAINTS REVIEW IS NOT REQUIRED.	
9.			A TORQUE WRENCH ANALYZER WILL BE USED AT THE BEGINNING AND END OF SHIFT REQUIRING FLIGHT HARDWARE TORQUING.	

1.8 APPLICABLE TECHNICAL REQUIREMENTS

NONE

SECTION II - OPERATION SUPPORT SETUP INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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01-000 OPERATION SUPPORT SETUPS:

OPERATION SUPPORT SETUP 1:

ESTABLISH AREA CONTROLS AND BEGIN HAZARDOUS OPERATIONS

<p>WARNING</p> <p>THE FOLLOWING STEPS ARE HAZARDOUS DUE TO HOISTING/HANDLING OPERATIONS.</p>

NOTE

<p>THIS OSSU MAY BE PERFORMED AS DIRECTED BY A KICK-OFF STEP CONTAINED IN AN OPERATIONAL SEQUENCE.</p> <p>THIS OSSU MAY ALSO BE PERFORMED ON A CONTINGENCY BASIS TO RE-ESTABLISH CONTROL AREAS AND HAZARDOUS OPERATIONS WITH TL, BOEING SAFETY AND NASA SAFETY CONCURRENCE.</p>

NOTE

<p>THIS OSSU MAY BE PERFORMED MULTIPLE TIMES. ENTER STEP VERIFICATION BUYS IN MATRIX PROVIDED.</p>
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SECTION II - OPERATION SUPPORT SETUP INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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01-001 Record run number of OMI E5533 performing the lifting and positioning of the AMS PAS for planned fit check with the S3 PAS #2.

- 01-002 Verify:
1. Controlled area has been established
 2. All nonessential personnel are clear
 3. Safety walkdown, pretask briefing, and pre-test briefing have been performed
 4. All personnel briefed
 5. Certifications verified, and are ready to perform task(s)
 6. Lifting equipment has been inspected and verified certified for use
 7. Obtain Boeing/NASA Safety concurrence to proceed
 8. LSSR has received 24-hour notification prior to start of the procedure
 9. Boeing/NASA Safety representative giving concurrence

01-003 The following personnel are authorized within the controlled area:

	BOEING	NASA	LMSO		
ENGR	1	3	4		
TECH	4				
QUAL	1	1			
SAFETY	1	1			
QE	2				

TOTAL PERSONNEL = 18

01-004 If not previously performed, Center the Crane hook over the AMS PAS Assembly and attach lifting hardware to the (3 ea.) vertical hoist rings on the AMS PAS Assembly.

01-005 Verify that a ground jumper is installed between the AMS Test Fixture and the Crane.

SECTION II - OPERATION SUPPORT SETUP INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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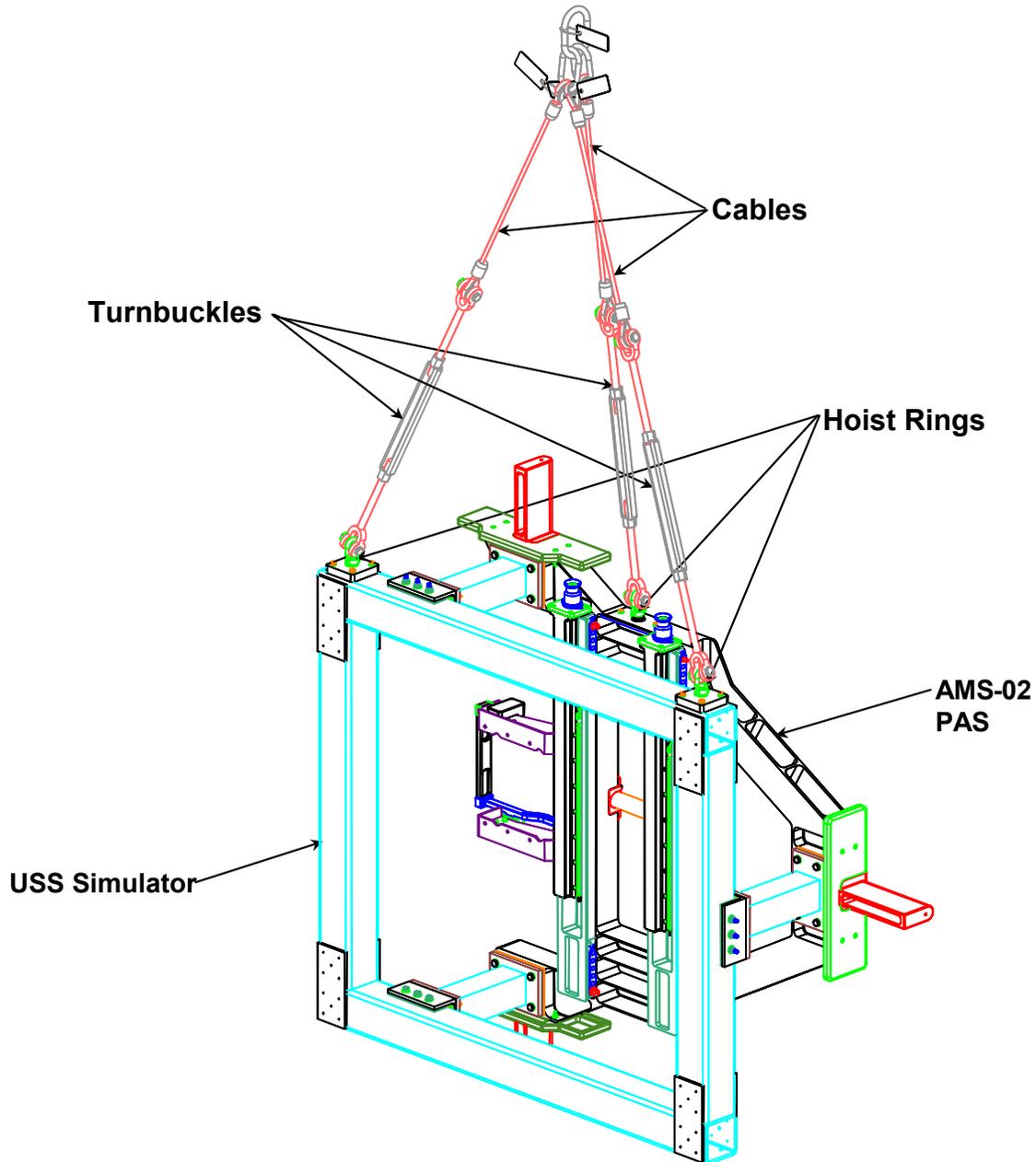


Figure 1: AMS PAS and USS-02 Simulator Lifting Configuration

SECTION II - OPERATION SUPPORT SETUP INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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OPERATION SUPPORT SETUP 2: SECURE FROM HAZARDOUS OPERATIONS

01-006 Secure from hazardous operations as follows:

Secure strain gage instrumentation leads, lift AMS PAS Assembly off/away from the S3 PAS #2 platform, and stage on roller dollies. Disconnect traveling ground wire and lifting hardware from AMS PAS Assembly.

NOTE

HAZARDOUS STEPS COMPLETE.

01-007 Verify Boeing/NASA Safety concurrence to open area for normal controlled work.

Buy-off Matrix for OSSU 2

Step	Run 1	Run 2	Run 3
		RUN NP _____	RUN NP _____
01-006	TQW: _____	TQW: _____	TQW: _____
01-007	_____ Boeing Safety _____ NASA Safety _____ QV: _____	_____ Boeing Safety _____ NASA Safety _____ QV: _____	_____ Boeing Safety _____ NASA Safety _____ QV: _____

01-008 Operation Support Setup 2 – complete.

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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02-000 S3 PAS#-2: AMS PASSIVE PAS ASSEMBLY FIT CHECK

CAUTION
THE UUT PAS ASSEMBLIES AND AMS PAS ASSEMBLY ARE FLIGHT CRITICAL ITEMS. EXTREME CAUTION IS TO BE EXERCISED IN TEST SETUP.

CAUTION
THE CAPTURE LATCH ASSEMBLY AND UMBILICAL MECHANISM ASSEMBLY CONTAIN ELECTRONIC COMPONENTS WHICH ARE STATIC SENSITIVE. PROTECT IN ACCORDANCE WITH DPI M007 TO PREVENT DAMAGE TO THE UUT.

NOTE
MAINTAIN CLEANLINESS OF THE S3 PAS #2 ASSY IN ACCORDANCE WITH 1F70157 DRAWING REQUIREMENTS AND STP0416-01.

02-001 **Record the following information in Appendix QA-1** and verify correct flight hardware and STE configuration.

- a. S3 PAS #2 Part Number, Serial Number and Revision Letter
- b. AMS Passive PAS Assembly Part Number, Serial Number and Revision Letter

TL: _____

02-002 Remove FN13, 56789R4-10NL8C6, PIP Pin from each GVA (3 places). Temporarily identify each PIP Pin to annotate which GVA it was removed from. Individually tag, bag and retain each PIP Pin for reinstallation. Manually depress each GVA gate (3 places) and verify unobstructed motion through range of switch. Reference dwg 1F70524, sht 1 and zn H4.

GVA #1 TQV: _____

GVA #2 TQV: _____

GVA #3 TQV: _____

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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<p>CAUTION</p> <p>DO NOT EXCEED 50 RPM AND OR 130 LB-IN TORQUE DURING CLA EVA OPERATION.</p> <p>DO NOT EXCEED 60 +/- 6 LB-IN TORQUE AFTER CONTACTING THE CLA MECHANICAL HARD STOP.</p>

02-003 Actuate the CLA EVA drive in a **clockwise direction to a torque of 60 +/- 6 in. lb.** against the closed hard stop to verify initial positioning. Little or no movement of the CLA EVA drive is anticipated.

Final torque: _____ in. lb.

Actual number of EVA drive turns: _____ (record "0" if no appreciable movement was observed)

Wrench Cal. No. _____ Due Date _____
(use same tool for entire sequence)

TQW: _____

02-004 Cycle the S3 PAS #2 CLA from the fully closed hard stop position to the open position by manually actuating the EVA Drive in a **counterclockwise direction 126.25 +/- 1 revolutions**. Initial latch position is a critical test measurement, pay particular attention to EVA drive turn count.

Record actual number of turns in Appendix QA-1.

TQW: _____

DATE 02/26/03

TPS NO.:
TRACK ID:

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LME10

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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02-005 Continue to cycle CLA EVA Drive counterclockwise to the fully open hard stop position at **60 +/- 6 in. lb.** Pay particular attention to EVA drive turn count.

Record the following in Appendix QA-1.

Final torque (in. lb.)

Actual number of EVA drive turns

TQW: _____

02-006 Cycle the PAS-2 CLA from the fully open hardstop stop position back to the initial start position by manually actuating the EVA Drive **clockwise the same number of turns recorded in step 02-005.** Initial latch position is a critical test measurement, pay particular attention to EVA drive turn count.

Record the following in Appendix QA-1.

Actual number of EVA drive turns

TQW: _____

<p style="text-align: center;">WARNING</p> <p>THE FOLLOWING STEPS ARE HAZARDOUS DUE TO HOISTING/HANDLING OPERATIONS.</p>

02-007 Perform Operation Support Setup 1, Establish Area Controls and Begin Hazardous Operations.

QV: _____

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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02-008 Position the AMS Passive PAS Assembly so that the Capture Bar is approximately aligned with the S3 PAS #2 Capture Latch as shown in Figure 2a. Final position shown in Figure 2b for information only.

TQW: _____

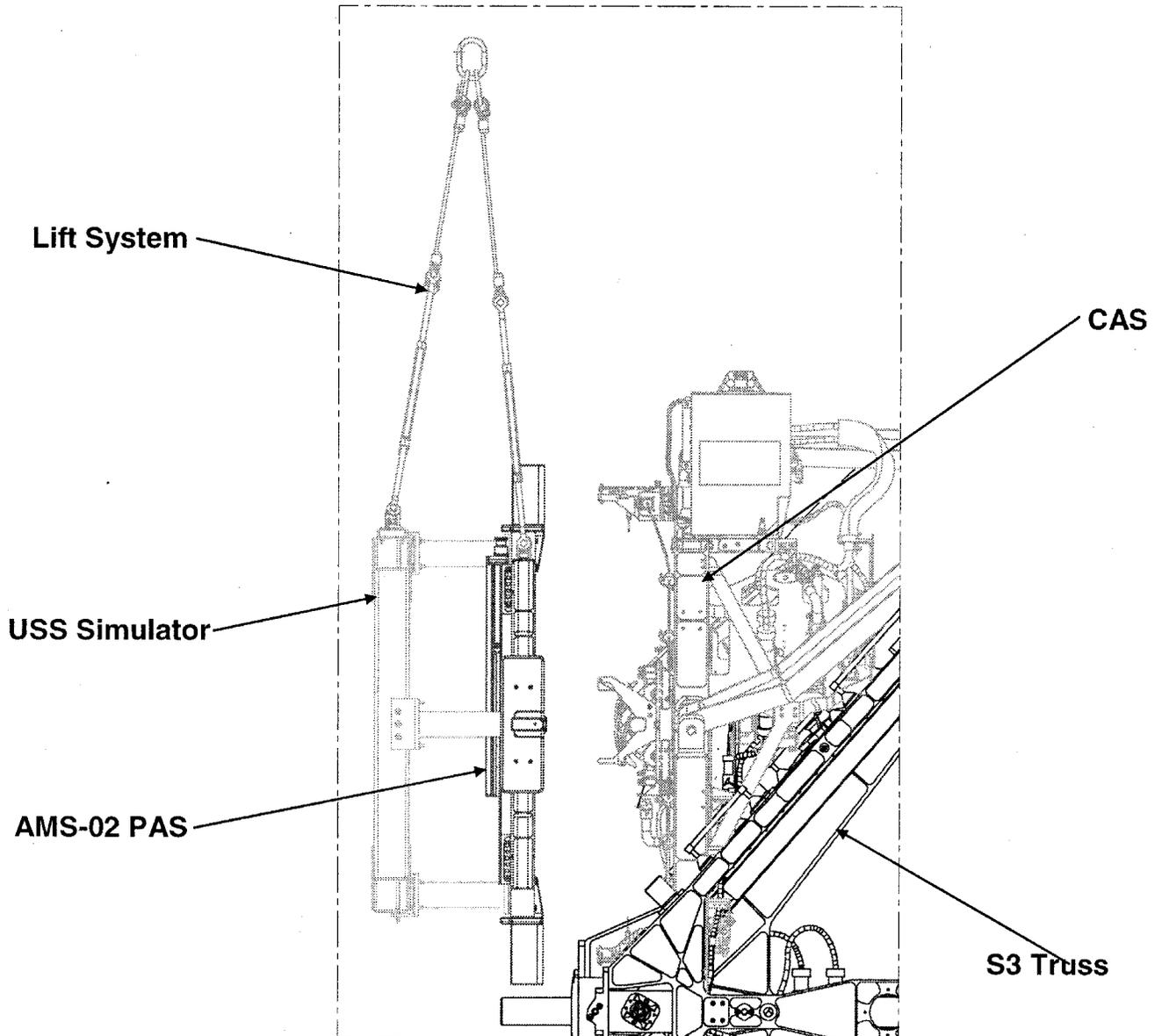


FIGURE 2A: INITIAL POSITIONING: AMS PASSIVE PAS ASSEMBLY/S3 PAS #2

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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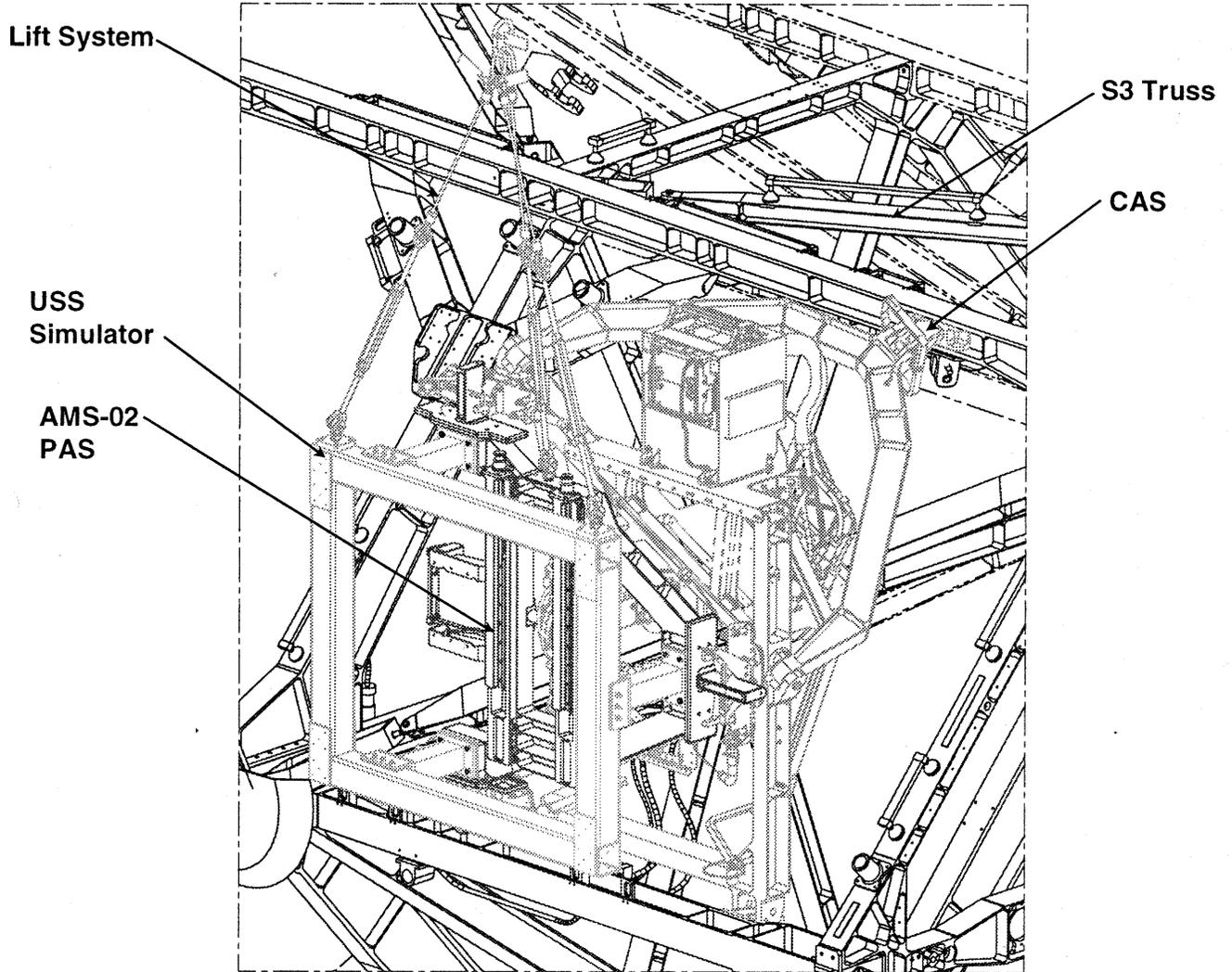


FIGURE 2B: FINAL POSITIONING: AMS PASSIVE PAS ASSEMBLY/S3 PAS #2

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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02-009 Move the AMS Passive PAS Assembly toward the S3 PAS #2 so that the AMS PAS Assembly Capture Bar breaks the CLA interface plane defined by the open CLA claws as shown in Figure 3 (dimension provided is for reference only):

TQV: _____

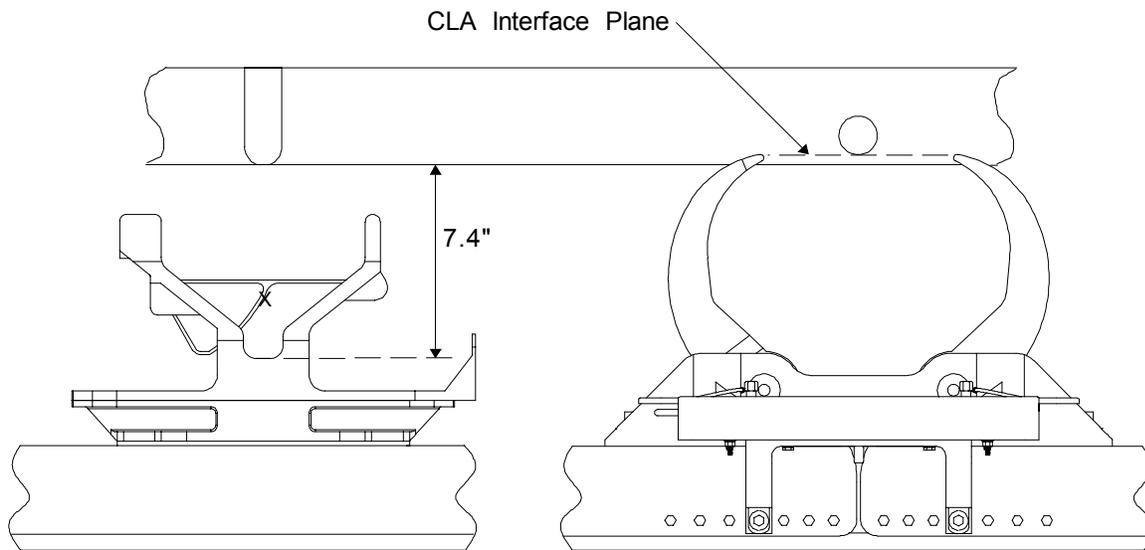


FIGURE 3: AMS PAS ASSEMBLY lowering (CLA interface plane)

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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02-010 Continue moving the AMS Passive PAS Assembly toward the S3 PAS #2 until the AMS PAS Assembly Guide Pins break the plane defined by the GVA as shown in Figure 4 (dimension provided is for reference only):

TQV: _____

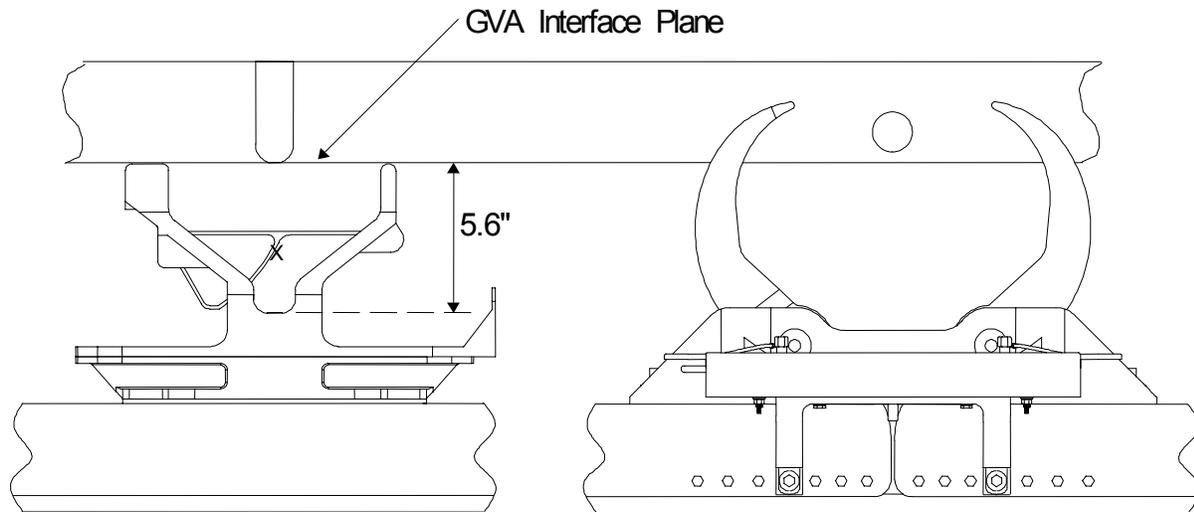


FIGURE 4: AMS PAS Assembly lowering (GVA interface plane)

02-011 Continue moving the AMS Passive PAS Assembly until all (3) AMS PAS Assembly Guide Pins contact the S3 PAS #2 GVA RTL Sensor Gates as shown in Figure 5 (dimension provided is for reference only):

TQV: _____

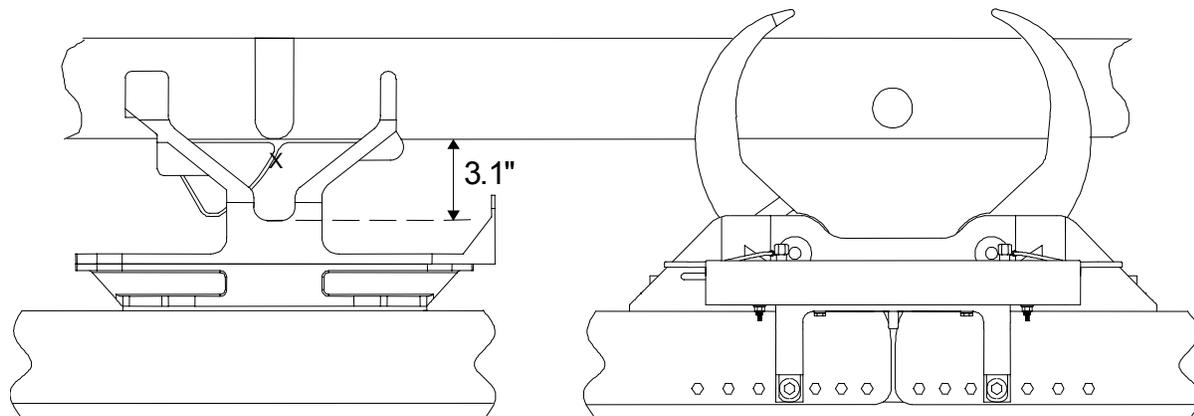


FIGURE 5: AMS PAS Assembly lowering (GVA RTL Sensor Gate engagement)

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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02-012 Visually inspect alignment. There shall be no obstructions between the AMS PAS Assembly and the S3 PAS #2 except for the GVA RTL Sensor Gates.

TQV: _____

02-013 Continue moving the AMS Passive PAS Assembly until the Guide Pins contact the S3 PAS #2 GVA Well Bottom as shown in Figure 6. Using a tie wrap, secure the (3 ea.) GVA RTL Sensor Gates in the fully depressed (engaged) position to prohibit continued contact with the AMS Passive PAS Assembly trunnion pins during final positioning and CLA preload verification.

TQV: _____

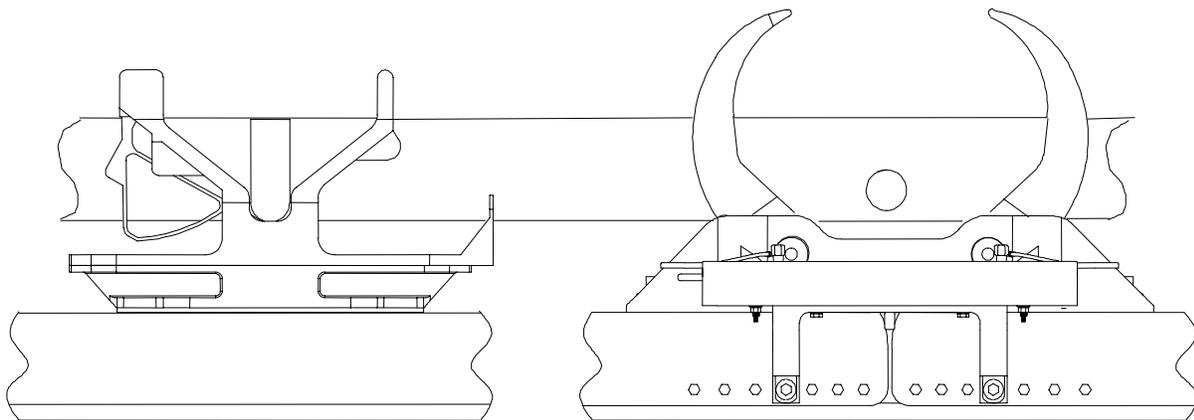


FIGURE 6: AMS PAS Assembly lowering (GVA Well Bottom and initial offload)

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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02-014			Visually inspect the S3 PAS #2 platform to verify physical integrity. Specifically, verify no damage, loose/broken/detached/bent components, and no unexpected interferences (i.e., wire harness, cable clamp, etc.) exist between the AMS PAS Assembly and S3 PAS #2.	
--------	--	--	--	--

TQW: _____

NOTE

IN THE FOLLOWING STEP, THE TL IS TO MONITOR THE LOAD CELL DATA TO ENSURE THAT FORCE OF NMT THAN 100 +/- 50 LBS. IS EXERTED AGAINST THE GVA WELL SIDEWALLS.

THIS WEIGHT MAY BE ADJUSTED AT TL DIRECTION IN ORDER TO "FLOAT" THE AMS ASSEMBLY DURING FIT CHECK ALIGNMENT.

02-015			Position the AMS Passive PAS Assembly in the -Y direction until Guide Pins #1 and #3 are physically constrained by their respective GVA Well Sides as shown in Figure 7.	
--------	--	--	--	--

TQW: _____

02-016			Adjust the AMS PAS Assembly in the +/- X direction as shown in Figure 7 below until the gaps are equal to within +/- .05 in.	
--------	--	--	--	--

TQW: _____

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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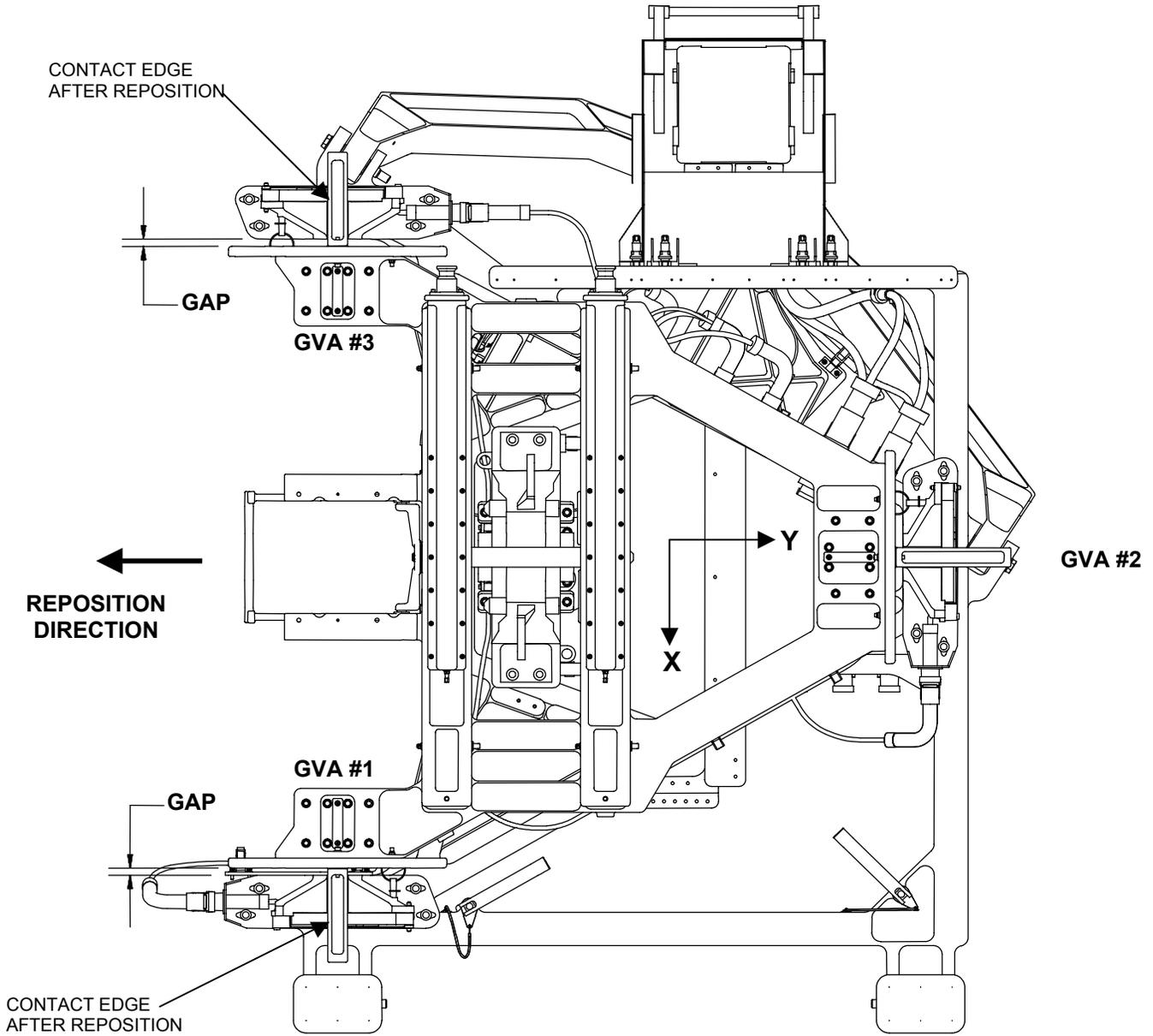


FIGURE 7: AMS PAS ASSEMBLY ALIGNMENT SET-UP

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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03-000 S3 PAS #2/AMS PASSIVE PAS: PRELOAD EVALUATION

CAUTION

THE CAPTURE LATCH ASSEMBLY AND UMBILICAL MECHANISM ASSEMBLY CONTAIN ELECTRONIC COMPONENTS WHICH ARE STATIC SENSITIVE. PROTECT IN ACCORDANCE WITH DPI M007 TO PREVENT DAMAGE TO THE UUT.

NOTE

MAINTAIN CLEANLINESS OF THE S3 PASSIVE PAS #2 IN ACCORDANCE WITH 1F70157 DRAWING REQUIREMENTS AND STP0416-01.

03-001 Verify that strain gage instrumentation and Data Acquisition System (DAS) is correctly configured and ready to support S3 Passive PAS #2 CLA/AMS PAS Assembly preload check.

Record DAS model number: _____

Cal. No. _____ Due Date _____

QV: _____

TL: _____

03-002 Reposition AMS Passive PAS Assembly. Locate guide pins to the approximate center of the S3 PAS #2 GVA's. Verify no contact exists between AMS PAS Assembly Guide Pins and GVA Well Sides. Verify that there is contact between the AMS PAS Assembly Guide Pin bottom and GVA Well (3 places). Adjust turnbuckles as shown in Figure 8 as required to achieve proper contact with GVA well bottom.

TQW: _____

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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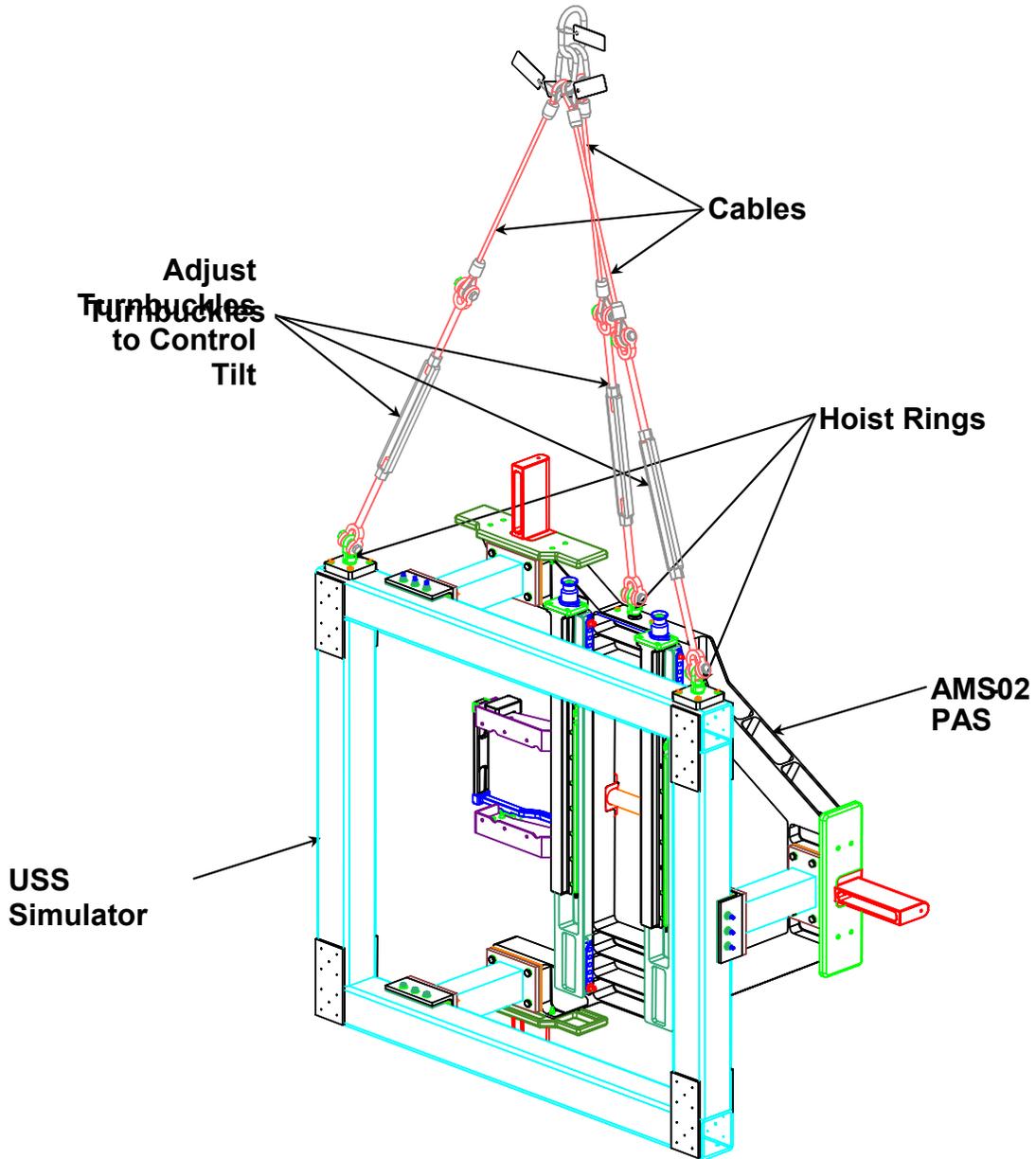


FIGURE 8: ADJUSTING ALIGNMENT WITH TURNBUCKLES

03-003 Record current load cell reading in **Appendix QA-3**.

QV: _____

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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CAUTION

DO NOT EXCEED 50 RPM AND /OR **130 LB-IN** TORQUE DURING CLA EVA DRIVE OPERATION.

DO NOT EXCEED **60 +/- 6 LB-IN** TORQUE AFTER CONTACTING THE CLA MECHANICAL HARD STOP.

DO NOT EXCEED **6430 LB** PRELOAD OR 3124 MICRO STRAIN AT ANY TIME DURING THE PRELOAD VERIFICATION.

NOTE

TL SHALL MONITOR LOAD CELL DATA THROUGHOUT INITIAL LOAD CYCLE AND ALL PRELOAD EVALUATION CYCLES

Initial Load Cycle (approximately 50% of final preload)

03-004 Cycle the S3 PAS #2 CLA from the open position to the closed position by manually actuating the EVA Drive in a **clockwise direction at TL direction (target = 73 +/- 1 turns) to achieve approx. 50% final preload**. Latch position is a critical test measurement, pay particular attention to EVA drive turn count. Using a dial torque wrench, monitor the maximum torque required to achieve final turn count position.

Torque wrench: Cal No. _____ Due Date _____
(use same tool for entire sequence)

Record the following information in Appendix QA-3.

Actual number of EVA drive turns
Maximum torque (in. lb.)
Strain Gage 1 – 5 data

TQWN: _____

03-005 Remove preload by manually actuating the CLA EVA Drive in a counterclockwise direction **the same number of turns +/- .5 applied in the previous** step to establish initial position prior to first real test cycle.

Record the following information in Appendix QA-3.

Actual number of EVA drive turns
Maximum torque (in. lb.)
Strain Gage 1 – 5 data

TQWN: _____

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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NOTE

THE INSTRUMENTATION ENGINEER SHALL EVALUATE THE REAL-TIME STRAIN GAGE DATA AND DETERMINE IF THE DATA ACQUISITION SYSTEM (DAS) NEEDS TO RE-ESTABLISH "ZERO" ON ANY/ALL OF THE (5 EA.) STRAIN GAGES PRIOR TO PERFORMANCE OF THE NEXT LOAD CYCLE.

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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CYCLE 1

03-006 Cycle the S3 PAS #2 CLA from the open position to the closed position by manually actuating the EVA Drive in a **clockwise direction 125.5 +/- 1 revolutions**. Latch position is a critical test measurement, pay particular attention to EVA drive turn count. Using a dial torque wrench, monitor the maximum torque required to achieve final turn count position.

Record the following information in Appendix QA-3.

Actual number of EVA drive turns

Maximum torque (in. lb.)

Strain Gage 1 - 5 data

TQWN: _____

03-007 Remove preload by manually actuating the CLA EVA Drive in a **counterclockwise direction until there is no physical contact between the AMS PAS Assembly Capture Bar and the CLA Claws**. Latch position is a critical test measurement, pay particular attention to EVA drive turn count. Using a dial torque wrench, monitor the maximum torque required to achieve final turn count position.

Record the following information in Appendix QA-3.

Actual number of EVA drive turns

Maximum torque (in. lb.)

Strain Gage 1 - 5 data

TQWN: _____

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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CYCLE 2

03-008 Cycle the S3 PAS #2 CLA from the open position to the closed position by manually actuating the EVA CLA Drive in a **clockwise direction the same number of revolutions +/- .5 recorded in Step 03-007**. Latch position is a critical test measurement, pay particular attention to EVA drive turn count. Using a dial torque wrench, monitor the maximum torque required to achieve final turn count position.

Record the following information in Appendix QA-3.

Actual number of EVA drive turns

Maximum torque (in. lb.)

Strain Gage 1 - 5 data

TQWN: _____

03-009 **Measure the approximate clearance between the BCS Target Assembly and the AMS Passive PAS aft bearing assembly. See figure 9.**

Target Clearance _____

TQWN: _____

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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03-010 Remove preload by manually actuating the AMS Passive PAS EVA Release Mechanisms. (CW). Reference Appendix A for detailed procedure.

Record the following information.

Actual number of AMS EVA release mechanism drive turns

Load Release Screw 1 _____

Load Release Screw 2 _____

Maximum torque (in. lb.) Load release Screw 1 _____

Maximum torque (in. lb.) Load release Screw 2 _____

Record the following information in Appendix QA-3.

Strain Gage 1 - 5 data

Measure and record the approximate gap between the S3 PAS #2 CLA and the AMS Capture Bar. See figure 10.

CLA Clearance _____

Measure and record the approximate gap between the AMS Aft Bearing assembly and the BCS target Assembly. See Figure 11

Bearing Clearance to BCS Target _____

TQWN: _____

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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UPPER INBOARD S3 PAS #2 COMMON
ATTACH SYSTEM

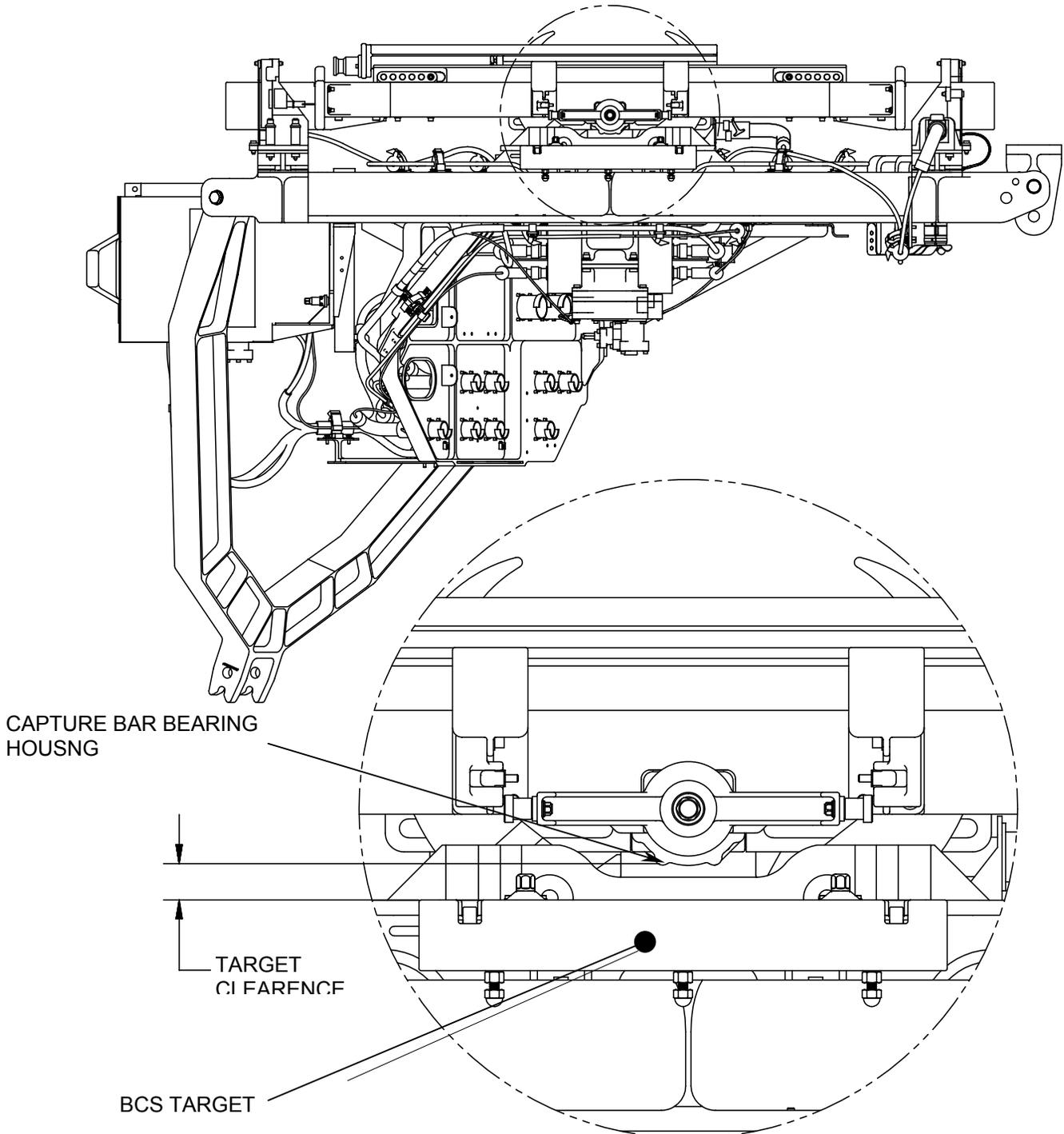


FIGURE 9: BCS TARGET TO CAPTURE BAR HOUSING CLEARANCE, STRESSED CONDITION

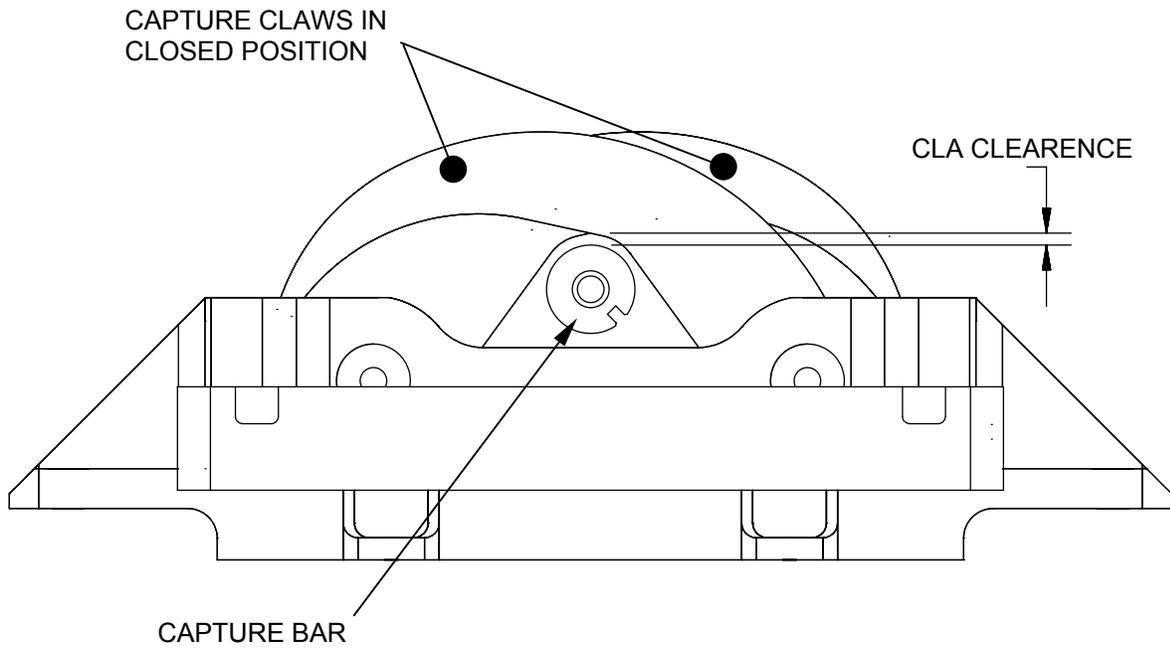


FIGURE 10: CLA / CAPTURE BAR CLEARANCE UPON LOAD REMOVAL

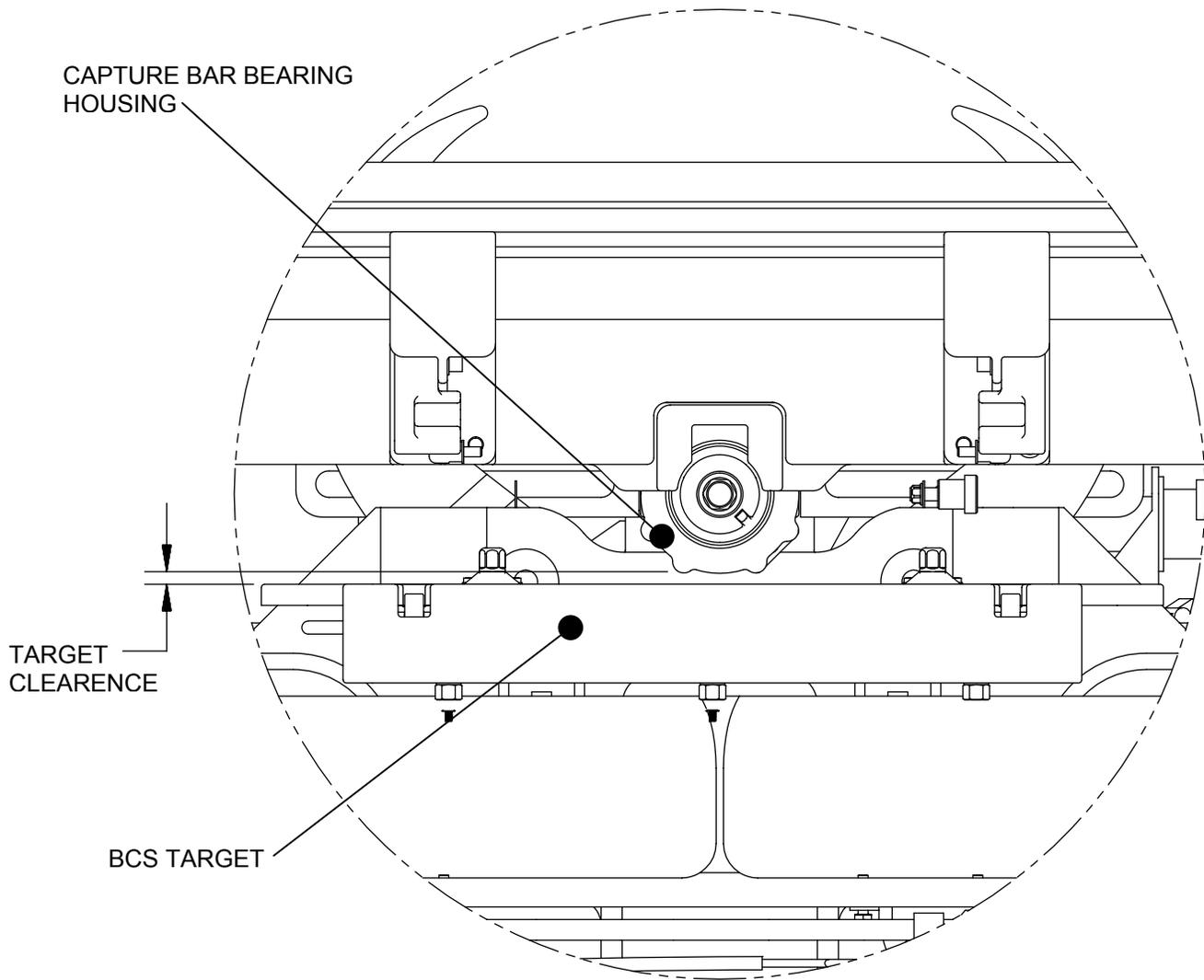


FIGURE 11: BEARING HOUSING TO BCS TARGET ASSEMBLY CLEARANCE, UNLOADED CONDITION

03-011 Demonstrate that the EVA unloadable Capture Bar on the AMS PAS Assembly is free of the CLA by pulling on the EVA release handle until the Capture Bar is free of the apex bearing assembly or until the strain gages or wires restrict further movement. See Figure 12 Record observations below.

Observations:

TQWN: _____

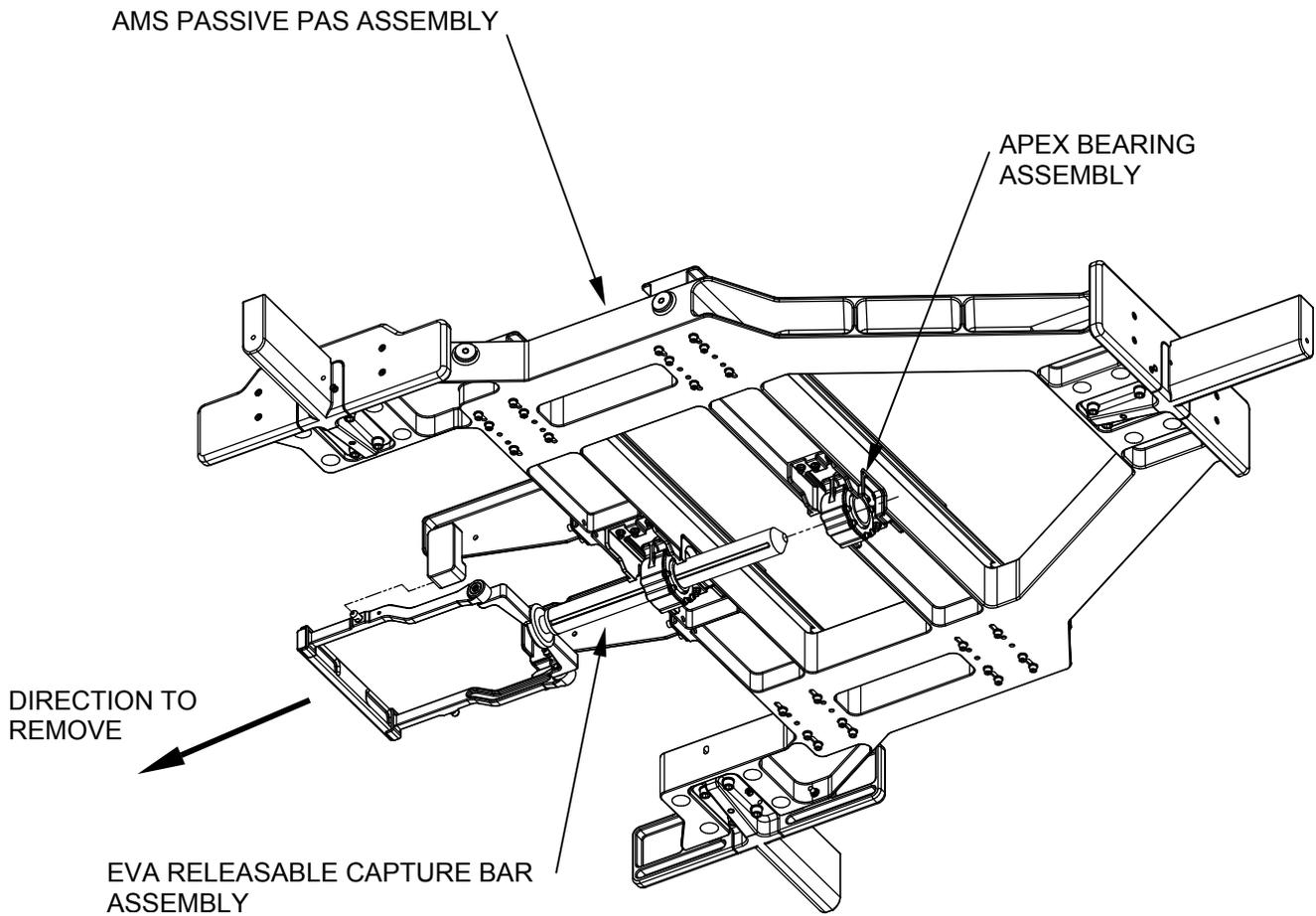


FIGURE 12: CAPTURE BAR REMOVAL

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03-012 Open the CLA manually by actuating the EVA Drive in a **counterclockwise direction the equivalent number of turns recorded in section 03-007 +/- .5 turns**. Latch position is a critical test measurement, pay particular attention to EVA drive turn count. Using a dial torque wrench, monitor the maximum torque required to achieve final turn count position.

Record the following information in Appendix QA-3.

Actual number of EVA drive turns

Maximum torque (in. lb.)

Strain Gage 1 - 5 data

TQWN: _____

03-013 **Reinstall the AMS Capture Bar in the apex bearing assembly and reset initial position as per Appendix B. Record observations below.**

Observations:

TQWN: _____

CYCLE 3

03-014 Cycle the S3 PAS #2 CLA from the open position to the closed position by manually actuating the EVA CLA Drive in a **clockwise direction until capture bar contact is made. Further turns are to be made in 5 turn increments until the same number of revolutions +/- .5 recorded in Step 03-012 is achieved.** Latch position is a critical test measurement, pay particular attention to EVA drive turn count. Using a dial torque wrench, monitor the maximum torque required to achieve final turn count position.

Record the following information in Appendix QA-3 at each set of 5 turns.

Actual number of EVA drive turns

Maximum torque (in. lb.)

Strain Gage 1 - 5 data

TQWN: _____

03-015 **Measure the approximate clearance between the BCS Target Assembly and the AMS Passive PAS aft bearing assembly. See figure 9.**

TARGET CLEARANCE _____

TQWN: _____

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
03-016			<p>Remove preload by manually actuating the AMS Passive PAS EVA Release Mechanisms. Reference Appendix A for detailed procedure.</p> <p>Record the following information.</p> <p>Actual number of AMS EVA release mechanism drive turns</p> <p>Load Release Screw 1 _____</p> <p>Load Release Screw 2 _____</p> <p>Maximum torque (in. lb.) Load release Screw 1 _____</p> <p>Maximum torque (in. lb.) Load release Screw 2 _____</p> <p>Record the following information in Appendix QA-3.</p> <p>Strain Gage 1 - 5 data</p>	TQWN: _____
03-017			<p>Measure and record the approximate gap between the S3 PAS #2 CLA and the AMS Capture Bar. See figure 10.</p> <p>CLA Clearance _____</p> <p>Measure and record the approximate gap between the AMS Aft Bearing assembly and the BCS target Assembly. See Figure 11</p> <p>Bearing Clearance to BCS Target _____</p>	TQWN: _____
03-018			<p>Remove the strain gages, wiring, tape, and any other material that would restrict movement of the capture bar through the bearing assemblies. Remove the EVA unloadable Capture Bar on the AMS PAS Assembly by pulling on the EVA release handle until axial translation is restricted. See Figure 12. Record observations below.</p> <p>Observations:</p>	TQWN: _____
03-019			<p>Move AMS PAS Assembly away from the S3 PAS. NOTE: Do not rotate AMS PAS Assembly until Lifting Plate Bolts have been reinstalled.</p>	TQW: _____

SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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03-020 **With the AMS Passive PAS removed from the S3 PAS # 2, reinstall the AMS Capture Bar in both bearing assemblies and reset initial position as per Appendix B.**

TQW: _____

03-021 Review the data obtained in sequence 03 and recorded in Appendix QA-3.
Record calculated preload for the following steps contained in this sequence:

Step Number	Description	Calculated Preload (lbs.)
03-004	Initial (50%) load	
03-005	Initial offload with CLA	
03-006	Cycle 1 – load	
03-007	Cycle 1 – offload with CLA	
03-008	Cycle 2 – load	
03-009	Cycle 2 – offload with AMS release mechanism	
03-014	Cycle 3 – load	
03-016	Cycle 3 – offload with AMS release mechanism	

TL: _____

03-022 This sequence is complete.

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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04-000 POST FIT CHECK AND PRELOAD VERIFICATION SECURING

04-001 Perform Operation Support Setup 2,
Secure from Hazardous Operations.

QV: _____

NOTE

HAZARDOUS STEPS COMPLETE.

04-002 All planned AMS PAS Assembly/S3 PAS #2 fit check and preload verification work is complete. Concurrence to proceed with final CLA and GVA securing.

TL: _____

04-003 Remove the tie wraps installed in step 02-013. Install FN13, 56789R4-10NL8C6, PIP Pin into each GVA (3 places). Fully insert the PIP Pin through the housing and sensor gate. Use PIP Pin previously identified for the GVA it was removed from in step 02-002. Reference dwg 1F70524, sht 1, and zn H4.

GVA #1 TQWN: _____

GVA #2 TQWN: _____

GVA #3 TQWN: _____

04-004 Perform post fit check/preload verification detailed visual inspection of the S3 PAS #2 Assembly. Specifically, evaluate the condition of the (3 ea.) GVA's and (1 ea.) CLA. Normal wear and tear (contact marks with no raised metal) are acceptable. Record observations below:

TQWN: _____

TL: _____

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SECTION III - OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
04-005			Actuate the CLA EVA drive in a clockwise direction to a torque of 60 +/- 6 in. lb. against the closed hard stop. Final torque: _____ in. lb. Wrench Cal. No. _____ Due Date _____	TQWN: _____
04-006			Secure Data Acquisition System test equipment and AMS PAS Assembly.	TL: _____
04-007			This sequence is complete.	

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APPENDIX A AMS-02 PASSIVE PAS ASSEMBY CAPTURE BAR RELEASE PROCEDURE

SEQ/STEP	CMD	RESP	DESCRIPTION
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SECTION V - POST OPERATION INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION
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05-000 POST OPERATION INSTRUCTION – PAPER REVIEW

05-001 VERIFY ALL NONCONFORMANCES DISCOVERED DURING THE PERFORMANCE OF THIS TPS HAVE BEEN RECORDED AND CLOSED.

NONCONFORMANCE NUMBER	PAGE / SEQUENCE AFFECTED	OPENED QA STAMP / DATE	CLOSED QA STAMP / DATE

DATE 02/26/03

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APPENDIX A AMS-02 PASSIVE PAS ASSEMBY CAPTURE BAR RELEASE PROCEDURE

SEQ/STEP	CMD	RESP	DESCRIPTION
		VERIF.	

05-002 VERIFY/RECORD ANY AND ALL FEC(S) USED IN THE PERFORMANCE OF THIS PROCEDURE, THE STEPS AFFECTED AND THE ASSOCIATED EO(S) RELEASED TO INCORPORATE THE FEC(S) INTO CONFIGURATION DRAWINGS.

FEC No.	STEPS AFFECTED	RELEASED EO(S)

NONE ISSUED (LEAVE TABLE BLANK)

TL: _____

BHB DESIGN LIAISON/BHB DELEGATE: _____

05-003 THIS SEQUENCE COMPLETE.

05-004 CLOSE THIS PROCEDURE

TL: _____

05-005 CM REVIEW COMPLETE

CM: _____

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APPENDIX A AMS-02 PASSIVE PAS ASSEMBLY CAPTURE BAR RELEASE PROCEDURE

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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SECTION VI - APPENDICES

APPENDIX A: AMS-02 PASSIVE PAS ASSEMBLY CAPTURE BAR RELEASE PROCEDURE

DO NOT USE POWER TOOLS FOR THIS PROCEDURE

1. Insert a 7/16 (6 point) internal hex drive into the EVA Extension Locking Mechanism, P/N SEG39136828. The EVA Extension Locking Mechanism is a part of the Load Release Screw 1 and 2. See Figure A-3. Depress the locking mechanism retractor a minimum of .375 inches or until bottomed out.
2. The Load Release Screws are turned in stages. Turn the Load Release Screw with the 7/16 internal hex drive **CLOCKWISE**. The amount of turns for Load Release Screw 1 and 2 shall be the same. Turn Load Release Screw 1 no more than 20 turns then alternate and turn Load Release Screw 2 no more than 20 turns. Alternate back and forth between the screws in increments not greater than 20 turns. Turn count for each screw is 81 +/- 1 turns for the required .71 inch stroke. Addition stroke of .08 inches can be obtained if required by advancing the Load Release Screw an additional 10 turns. Stop turning the Load Release Screws when there is a significant rise in the running torque. Running or break away torque shall not exceed 10 ft-lbs.
3. Pull on the capture bar axially until the retainer mechanism restricts further movement.

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APPENDIX A AMS-02 PASSIVE PAS ASSEMBLY CAPTURE BAR RELEASE PROCEDURE

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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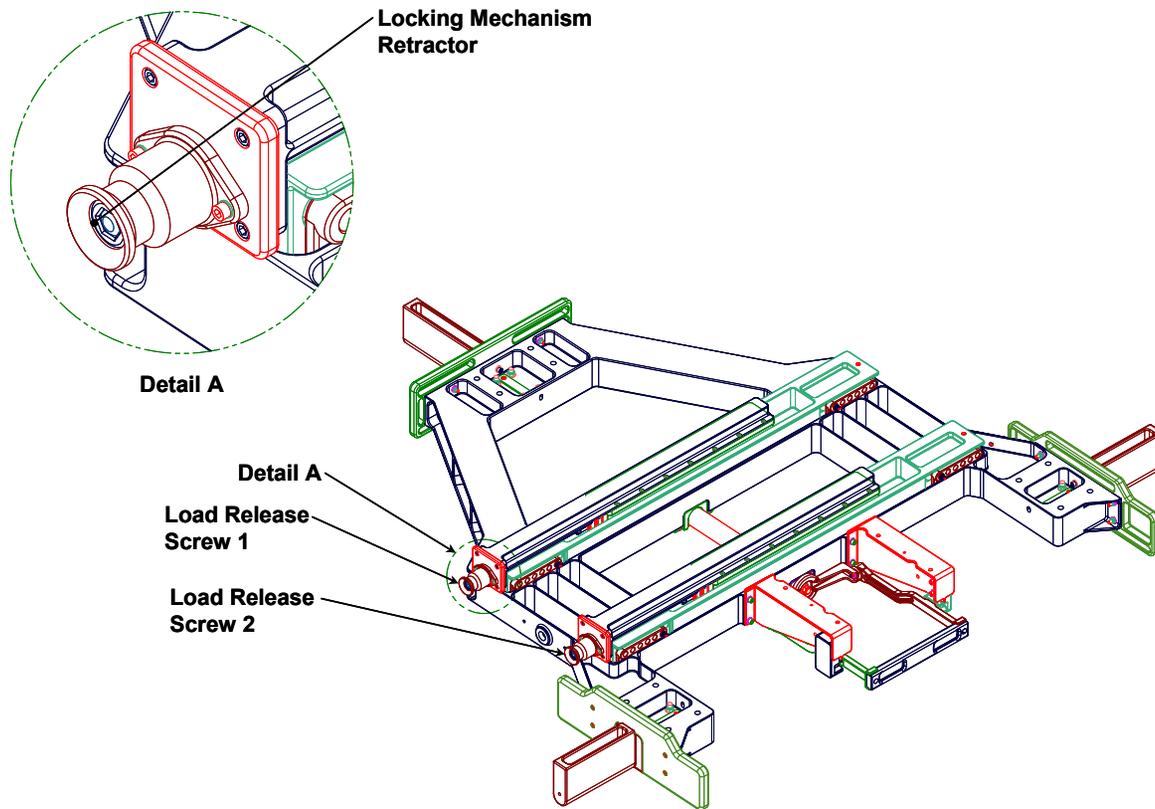


Figure A-3: Load Release Screw

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APPENDIX B AMS-02 PASSIVE PAS ASSEMBLY CAPTURE BAR INSTALLATION PROCEDURE

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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APPENDIX B: AMS-02 PASSIVE PAS ASSEMBLY CAPTURE BAR INSTALLATION PROCEDURE

DO NOT USE POWER TOOLS FOR THIS PROCEDURE

1. PRIOR TO TURNING THE LOAD RELEASE SCREWS, THE CAPTURE BAR SHALL BE FULLY MATED AND SUPPORTED BY BOTH BEARING ASSEMBLIES. THE CAPTURE BAR BASE, THE END WITH THE HANDLE, SHALL HAVE SURFACE CONTACT WITH THE AFT CAPTURE BAR RETAINER BRACKET. SEE FIGURE A-4.
2. INSERT A 7/16 (6 POINT) INTERNAL HEX DRIVE INTO THE EVA EXTENSION LOCKING MECHANISM, P/N SEG39136828. THE EVA EXTENSION LOCKING MECHANISM IS A PART OF THE LOAD RELEASE SCREW 1 AND 2. SEE FIGURE A-5. DEPRESS THE LOCKING MECHANISM RETRACTOR A MINIMUM OF .375 INCHES OR UNTIL BOTTOMED OUT.
3. The Load Release Screws are turned in stages. Turn the Load Release Screw with the 7/16 internal hex drive **COUNTER CLOCKWISE**. The amount of turns for Load Release Screw 1 and 2 shall be the same. Turn Load Release Screw 1 no more than 20 turns then alternate and turn Load Release Screw 2 no more than 20 turns. Alternate back and forth between the screws in increments not greater than 20 turns. Stop turning the Load Release Screws when there is a significant rise in the running/locking torque from both EVA nuts. **Estimated number of turns for each screw in 80 to 100 full revolutions. See Figure A-5. Running or break away torque shall not exceed 10 ft-lbs.**

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APPENDIX B AMS-02 PASSIVE PAS ASSEMBLY CAPTURE BAR INSTALLATION PROCEDURE

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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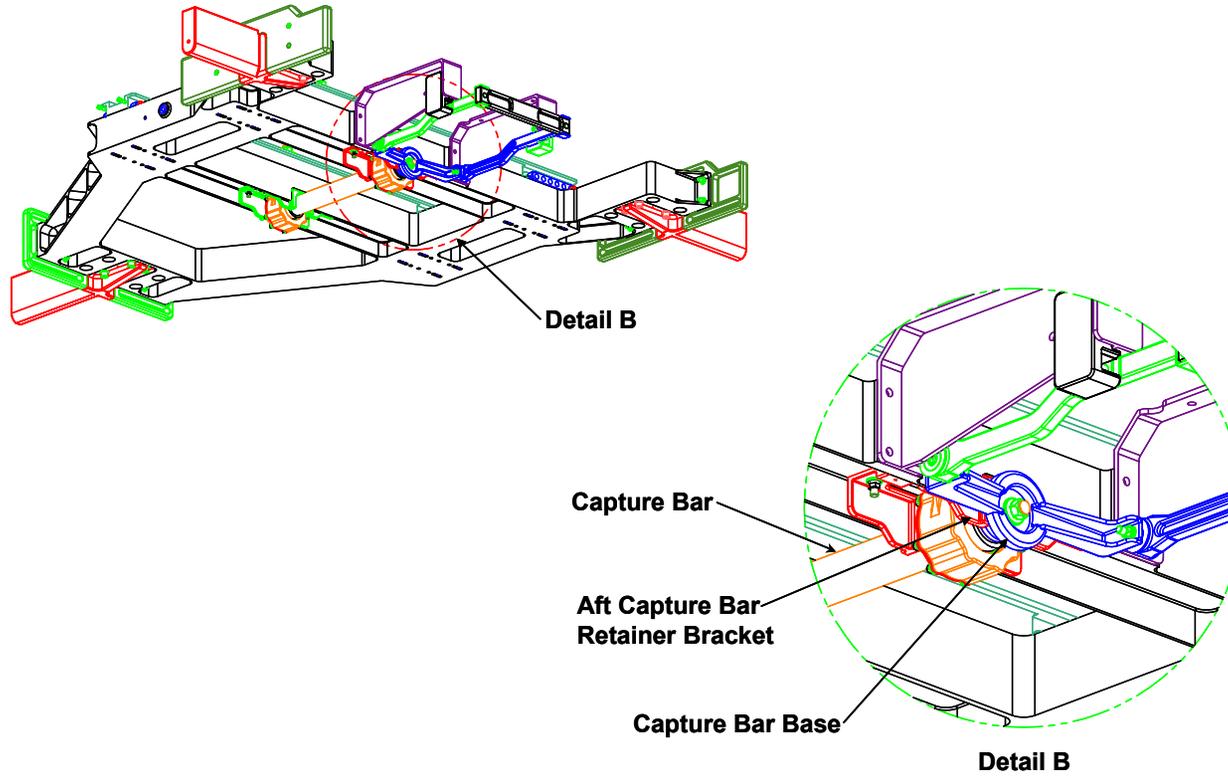


Figure A-4: Capture Bar Installation

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APPENDIX B AMS-02 PASSIVE PAS ASSEMBLY CAPTURE BAR INSTALLATION PROCEDURE

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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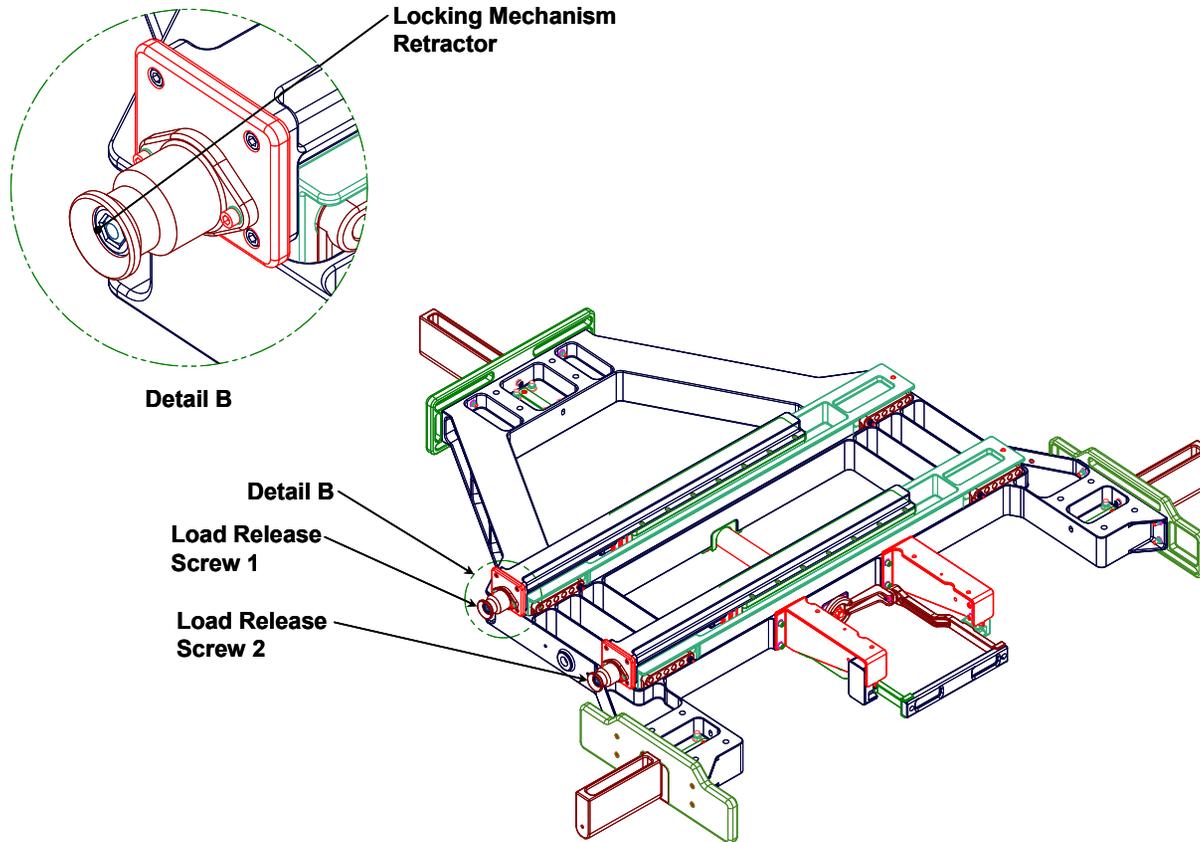
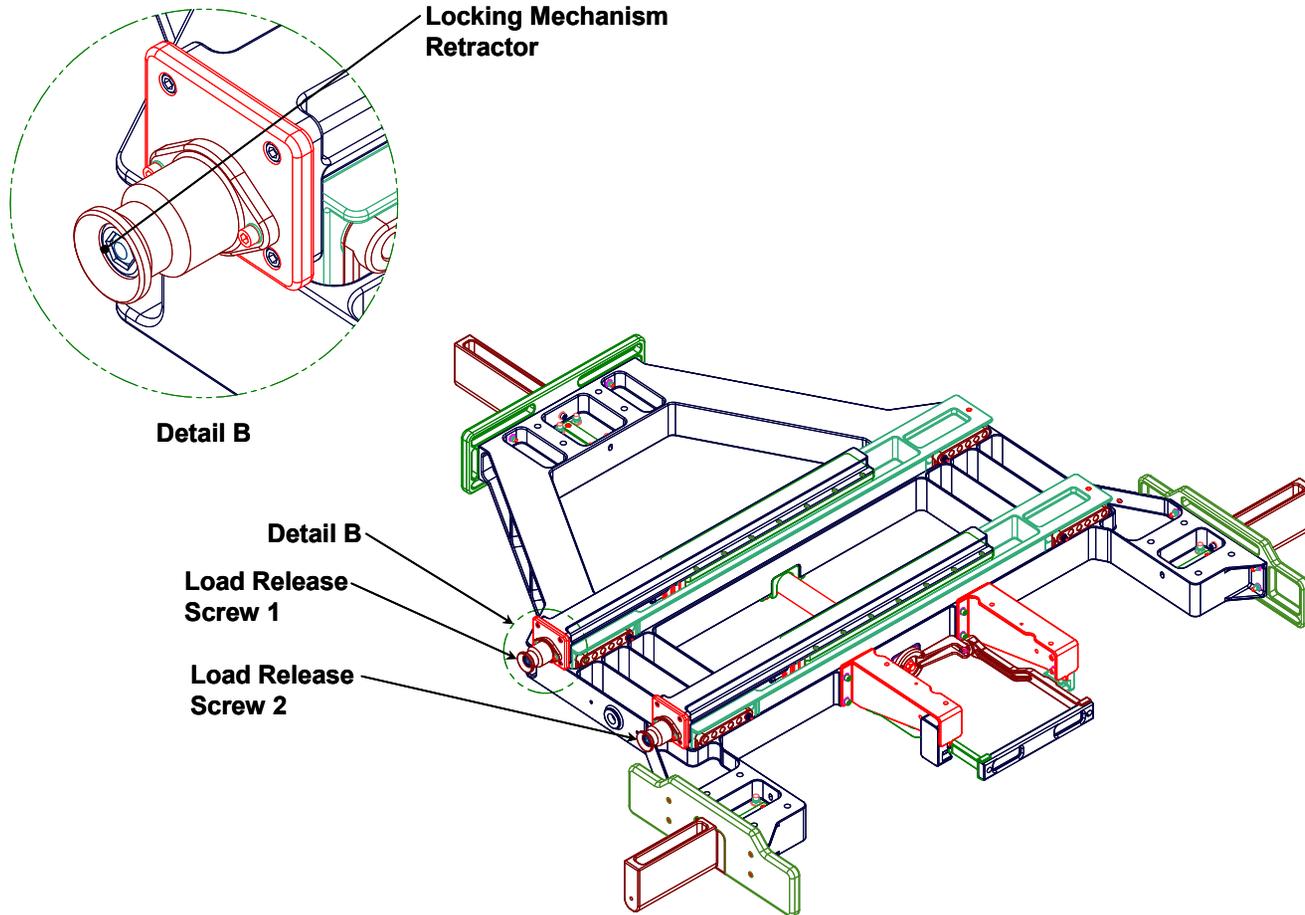


Figure A-5: Load Release Screw

- Engage the EVA Release Mechanism screw using a 7/16 internal hex socket. The EVA extension Locking Mechanism shall be depressed a minimum of .375. Proper engagement shall deflect the locking mechanism to the solid or "bottomed out" condition. Advance the EVA screw until the deflection gage reads zero. A noticeable and sharp increase in torque should be expected.



DATE 02/26/03

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APPENDIX QA-1: S3 PAS #2-1 INITIAL FIT CHECK DATA

02-001.a S3 PAS #2-1 P/N _____ S/N _____ Revision Letter _____

02-001.b AMS PAS ASSEMBLY P/N _____ S/N _____ Revision Letter _____
TL: _____

02-004 Actual number of EVA drive turns (ccw – open): _____ (Initial start position) QV: _____

02-005 Actual number of EVA drive turns to hard stop open _____, Final torque _____ in. lb (60 +/- 6) QV: _____

02-006 Actual number of EVA drive turns back to initial position _____ QV: _____

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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APPENDIX QA-3: S3 PAS #2-1 CLA PRELOAD VERIFICATION DATA

03-003 Current Load Cell reading _____ lbs.

INITIAL LOAD CYCLE (50% OF FINAL PRELOAD)

03-004 Actual number of CLA EVA Drive turns _____

Max actuation torque _____ in.lb.

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

QV: _____

03-005 Actual number of CLA EVA Drive turns _____

Max actuation torque _____ in.lb.

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

QV: _____

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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CYCLE 1

03-006 Actual number of CLA EVA Drive turns _____
 Max actuation torque _____ in.lb.

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

QV:_____

03-007 Actual number of CLA EVA Drive turns _____
 Max actuation torque _____ in.lb.

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

QV:_____

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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CYCLE 2

03-008 Actual number of CLA EVA Drive turns _____
 Max actuation torque _____ in.lb.

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

QV:_____

03-010 Actual number of CLA EVA Drive turns _____
 Max actuation torque _____ in.lb.

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

QV:_____

DATE

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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CYCLE 3

03-014 1. Number EVA Drive turns for capture bar contact _____

2. Record number of applied EVA drive turns, total turns (previous step + applied) and strain gage data. Mark all unused entries "N/A".

(1 x 5) Applied turns _____ Total turns _____ TQVN_____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(2 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(3 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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(4 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(5 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(6 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(7 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

DATE

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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(8 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(9 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(10 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(11 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

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SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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(12 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(13 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(14 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

(15 x 5) Applied turns _____ Total turns _____

Strain Gage Number	1	2	3	4	5
Data (micro-in./in.)					

APPENDIX Z - EMERGENCY INSTRUCTIONS

SEQ/STEP	CMD	RESP	DESCRIPTION	VERIF.
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EMERGENCY INSTRUCTIONS

NOTE

<p>IN THE EVENT OF AN EMERGENCY SITUATION DURING THE EXECUTION OF THIS PROCEDURE, REFER TO BP 1009, BOEING EMERGENCY PREPAREDNESS PLAN.</p>

EMERGENCY TELEPHONE NUMBERS

EMERGENCY SERVICE	PHONE EXTENSION
FIRE	911
Medical	911
KSC Security	911
Boeing Security	7-7664
Boeing Safety	7-5440
NASA Safety (industrial area)	7-6551

FIRE, TORNADO, FACILITY PROBLEMS (FIRE ALARMS, SPILLS, ETC.)

PERSONNEL WILL EVACUATE ALL LEVELS USING NEAREST STAIRWAYS. ALL PERSONNEL SHALL BE FAMILIAR WITH ALL EXITS FROM AREA IN WHICH THEY ARE WORKING.

FOLLOW TASK LEADER INSTRUCTIONS FOR SAFING THE OPERATION AND ADHERE TO LOCAL EMERGENCY INSTRUCTIONS AS DIRECTED.

EMERGENCY LIFE SUPPORT APPARATUS (ELSA) UNITS ARE AVAILABLE AT VARIOUS LOCATIONS IN THE FACILITY. THEY SHOULD BE USED ONLY IF PERSONNEL EXPOSURE TO TOXIC VAPORS IS IMMINENT.