

**CHAPTER**

**47**

**INERT GAS  
SYSTEM**

**CHAPTER 47  
INERT GAS SYSTEM**

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47-220-00-01	SYS		7	Oct 15/2015				
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A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

## 47-EFFECTIVE PAGES

AIRLINE CARD NO		TITLE <b>NGS DRAIN - FLUID ACCUMULATION</b>			BOEING CARD NO. <b>47-200-00-02</b>
DATE	TASK <b>VISUAL CHECK</b>				RELATED CARD
TAIL NUMBER	WORK AREA <b>AC DIST BAY</b>	VERSION <b>1.1</b>	THRESHOLD <b>6500 FH</b>	REPEAT <b>6500 FH</b>	APPLICABILITY
STATION	SKILL <b>AIRPL</b>				AIRPLANE <b>ALL</b> ENGINE <b>ALL</b> <b>NOTE</b>
		ACCESS <b>192CL</b>			ZONE <b>131</b>

Visual check fluid accumulation in the nitrogen generation system (NGS) tubing through the drain cap.

**AIRPLANE NOTE:** If Nitrogen Generation System is installed.

**A. References**

Reference	Title
AMM 12-33-01-600-802	Cold Weather Maintenance Procedure (P/B 301)
AMM 47-21-00-700-804	NEADS - Air Pressure Leak Check (P/B 601)

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
STD-195	Container - 1 Quart (1 l), Oil/Fuel Resistant

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	NGS DRAIN - FLUID ACCUMULATION  D633A109-AKS 47-200-00-02	Page 1 of 2 Feb 15/2015
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DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-200-00-02</b>	
<b>TASK 47-21-00-700-802</b>  <b>1. Drain Cap - Fuel Leak Check</b>  <b>A. Prepare for the Procedure</b>  SUBTASK 47-21-00-010-003 (1) Open this access panel: <u>Number</u> <u>Name/Location</u> 192BL      ECS Ram Air Inlet Mixing Duct Panel - Forward  SUBTASK 47-21-00-660-001 (2) If the ambient temperature is less than 32°F (0°C), do this task: Cold Weather Maintenance Procedure, AMM TASK 12-33-01-600-802.  <b>B. Drain the Fluid from the NEADS Line</b>  SUBTASK 47-21-00-941-001 (1) Go to the drain cap for the NEA distribution sytem. <u>NOTE:</u> The drain cap is found below the air separation module (ASM).  SUBTASK 47-21-00-941-002 (2) Put the 1 quart (1 l) oil/fuel resistant container, STD-195, below the drain cap.  SUBTASK 47-21-00-010-004 (3) Remove the drain cap connected to the tee.  SUBTASK 47-21-00-616-002 (4) Collect the fluid from the NEADS line.  SUBTASK 47-21-00-790-011 (5) If there is no fluid in the container, the NEA distribution system is satisfactory.  SUBTASK 47-21-00-790-012 (6) If there was fluid in the NEADS line, do this task: NEADS - Air Pressure Leak Check, AMM TASK 47-21-00-700-804.  <b>C. Put the Airplane Back to the Usual Condition</b>  SUBTASK 47-21-00-430-001 (1) Attach the drain cap to the tee.  SUBTASK 47-21-00-410-001 (2) Close this access panel: <u>Number</u> <u>Name/Location</u> 192BL      ECS Ram Air Inlet Mixing Duct Panel - Forward  <p style="text-align: center;">————— <b>END OF TASK</b> —————</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NGS DRAIN - FLUID ACCUMULATION</b>  <b>D633A109-AKS</b> <b>47-200-00-02</b>		
			<b>Page 2 of 2</b> <b>Feb 15/2015</b>		

AIRLINE CARD NO.		TITLE <b>CENTER TANK CROSS VENT CHECK VALVE</b>			BOEING CARD NO. <b>47-210-00-01</b>
DATE	TASK <b>OPERATIONAL</b>				RELATED CARD
TAIL NUMBER	WORK AREA <b>RIGHT WING TIP</b>	VERSION <b>1.1</b>	THRESHOLD <b>13000 FH</b>	REPEAT <b>13000 FH</b>	APPLICABILITY
STATION	SKILL <b>AIRPL</b>				AIRPLANE <b>ALL</b> ENGINE <b>ALL</b> <b>NOTE</b>
		ACCESS <b>633AB</b>			ZONE <b>633</b>

Operationally check center tank Vent Cross Flow Check Valve.

**SPECIAL NOTE:** AWL task (47-AWL-06) interval for this task is 13000 FH. See MPD Section 9.

**AIRPLANE NOTE:** If Nitrogen Generation System is installed.

#### A. References

Reference	Title
AMM 28-11-11-000-802	Surge Tank Access Door Removal (P/B 401)
AMM 28-11-11-400-802	Surge Tank Access Door - Installation (P/B 401)
AMM 47-00-00-910-802	Airworthiness Limitation Precautions (P/B 201)
AMM 47-21-05-000-801	Cross Vent Check Valve Removal (P/B 401)
AMM 47-21-05-420-801	Cross Vent Check Valve Installation (P/B 401)



#### B. Tools/Equipment

**NOTE:** When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

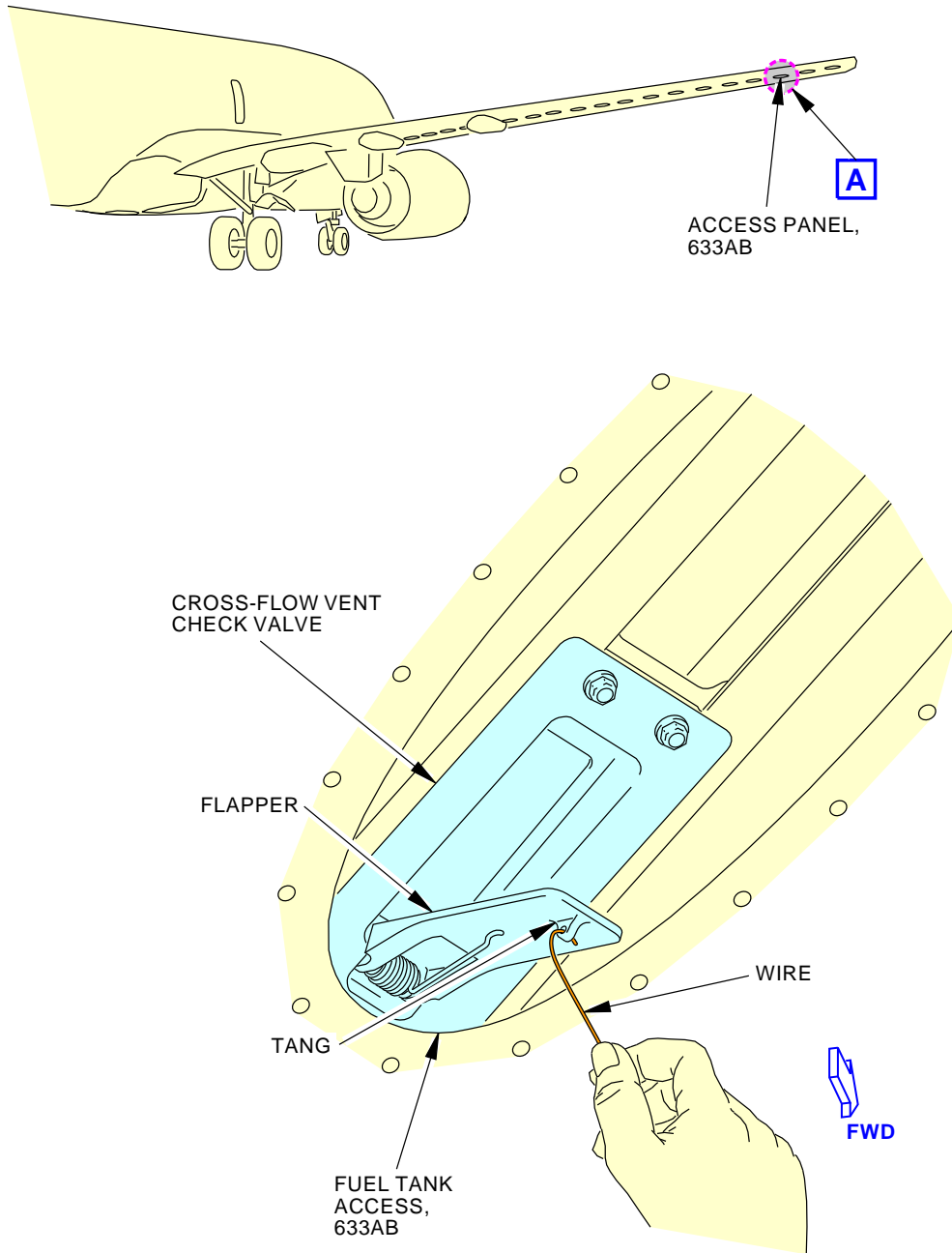
Reference	Description
STD-1153	Wire - Stiff, Single Strand, 16 Gauge

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>CENTER TANK CROSS VENT CHECK VALVE</b>  <b>D633A109-AKS</b> <b>47-210-00-01</b>	<b>Page 1 of 4</b> <b>Jun 15/2015</b>
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DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. 47-210-00-01	
<b>TASK 47-00-00-710-801</b>				MECH	INSP
<b>1. Cross Vent Check Valve - Operational Test</b> (Figure 1)					
<b>A. General</b>					
(1) This task has one or more steps which are a means to satisfy Airworthiness Limitation Instruction (ALI) requirements. An ALI note will follow the step to which it applies. Any step or sub-step that precedes or follows an ALI identified step is not subject to the ALI requirement. <u>NOTE:</u> This is applicable to Airworthiness Limitation 47-AWL-06.					
(2) The cross vent check valve opens during overfuel conditions to relieve fuel tank pressure. The valve is normally closed to prevent ambient air from entering the center tank during the descent phase of flight.					
<b>B. Prepare for the Test</b>					
<u><b>WARNING:</b></u> CAREFULLY DO ALL OF THE SAFETY PROCEDURES TO PREPARE TO GO INTO THE FUEL TANK. IF YOU DO NOT OBEY THE SAFETY PROCEDURES, YOU CAN CAUSE AN EXPLOSION. AN EXPLOSION WILL CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.					
<u><b>WARNING:</b></u> DO NOT BREATHE THE AIR FROM THE FUEL TANK UNTIL YOU MAKE IT SAFE. THE NITROGEN GENERATION SYSTEM DECREASES THE OXYGEN IN THE AIR. IF YOU BREATHE AIR THAT DOES NOT HAVE SUFFICIENT OXYGEN, DANGEROUS HEALTH CONDITIONS CAN QUICKLY OCCUR. DANGEROUS HEALTH CONDITIONS INCLUDE NAUSEA, UNCONSCIOUSNESS, AND CONVULSIONS. IF THE OXYGEN LEVEL OF THE AIR THAT YOU BREATHE IS VERY LOW, IT CAN KILL YOU.					
SUBTASK 47-00-00-010-008					
(1) Do this task to open this access door: Surge Tank Access Door Removal, AMM TASK 28-11-11-000-802					
<u><b>Number</b></u> <u><b>Name/Location</b></u> 633AB      Surge Tank Access Door - Wing Station 655					
SUBTASK 47-00-00-010-009					
(2) Go to the cross vent check valve location. <u>NOTE:</u> The cross vent check valve is in the right surge tank attached to the number 12 vent stringer.					
<b>C. Cross Vent Check Valve Operational Test</b>					
SUBTASK 47-00-00-710-001					
(1) Make a hook from a piece of 16 gauge wire, STD-1153, or equivalent.					
(a) Insert the hook into the hole in the tang on the lower side of the flapper valve. <u>NOTE:</u> Do not scratch or mar the surface of the valve flapper.					
EFFECTIVITY AKS ALL		SOURCE MSG3	<b>CENTER TANK CROSS VENT CHECK VALVE</b>  D633A109-AKS 47-210-00-01		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-210-00-01</b>					
<p> <b>47-AWL-06: ALI</b></p> <p>(b) Gently pull on the wire until the flapper opens.</p> <p><u>NOTE:</u> ALI - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 47-00-00-910-802, for important information on airworthiness limitation instructions (ALIs).</p> <p><u>NOTE:</u> This is applicable to Airworthiness Limitation 47-AWL-06.</p> <p> <b>47-AWL-06: ALI</b></p> <p>(c) Release the wire to let the flapper close.</p> <p><u>NOTE:</u> The flapper should seat in the valve body.</p> <p><u>NOTE:</u> ALI - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 47-00-00-910-802, for important information on airworthiness limitation instructions (ALIs).</p> <p><u>NOTE:</u> This is applicable to Airworthiness Limitation 47-AWL-06.</p> <ol style="list-style-type: none"> <li>1) If the cross vent check valve does not open or seat correctly, do these tasks:               <ol style="list-style-type: none"> <li>a) Cross Vent Check Valve Removal, AMM TASK 47-21-05-000-801.</li> <li>b) Cross Vent Check Valve Installation, AMM TASK 47-21-05-420-801.</li> </ol> </li> <li>2) If the cross vent check valve operation is satisfactory, remove the wire from the tang on the valve.</li> <li>3) Make sure that the surface of the cross vent check valve has not been scratched or marred.</li> </ol> <p><b>D. Put the Airplane Back to Its Usual Condition</b></p> <p><small>SUBTASK 47-00-00-410-006</small></p> <p>(1) Do this task: Surge Tank Access Door - Installation, AMM TASK 28-11-11-400-802.</p> <p>(a) Close this access panel:</p> <table border="0"> <tr> <td><u><b>Number</b></u></td> <td><u><b>Name/Location</b></u></td> </tr> <tr> <td>633AB</td> <td>Surge Tank Access Door - Wing Station 655</td> </tr> </table> <p style="text-align: center;"><b>————— END OF TASK —————</b></p>				<u><b>Number</b></u>	<u><b>Name/Location</b></u>	633AB	Surge Tank Access Door - Wing Station 655	MECH	INSP
				<u><b>Number</b></u>	<u><b>Name/Location</b></u>				
633AB	Surge Tank Access Door - Wing Station 655								
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>CENTER TANK CROSS VENT CHECK VALVE</b>  <b>D633A109-AKS</b> <b>47-210-00-01</b>						

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-210-00-01</b>
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**A**

**Cross Vent Check Valve - Test  
Figure 1**

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EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>CENTER TANK CROSS VENT CHECK VALVE</b>  <b>D633A109-AKS</b> <b>47-210-00-01</b>	<b>Page 4 of 4</b> <b>Oct 15/2015</b>
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AIRLINE CARD NO.		TITLE <b>NEA DISTRIBUTION LINES INSPECTION</b>			BOEING CARD NO. <b>47-220-00-01</b>
DATE	TASK <b>INSPECTION - DETAILED</b>				RELATED CARD
TAIL NUMBER	WORK AREA <b>AC DIST BAY</b>	VERSION <b>1.1</b>	THRESHOLD <b>6500 FH</b>	REPEAT <b>6500 FH</b>	APPLICABILITY AIRPLANE <b>ALL</b> ENGINE <b>ALL</b> <b>NOTE</b>
STATION	SKILL <b>AIRPL</b>				
		ACCESS <b>192BL 192CL 192DR</b>			ZONE <b>131</b>

Inspect (detailed) the nitrogen enriched air (NEA) distribution lines from the air separation module (ASM) to the fuel tank rear spar for damage and leaks.

**SPECIAL NOTE:** AWL task (47-AWL-07) interval for this task is 6500 FH. See MPD Section 9.

**AIRPLANE NOTE:** If Nitrogen Generation System is installed.

#### A. References

Reference	Title
AMM 21-00-00-800-803	Supply Conditioned Air with a Cooling Pack (P/B 201)
AMM 21-00-00-800-804	Remove Conditioned Air Supplied by a Cooling Pack (P/B 201)
AMM 28-22-15-700-801	Engine and APU Fuel Feed, Shroud, Fuel Vent Line and Couplings, and NEADS Lines (if installed) Dent Criteria - Inspection/Check (P/B 601)
AMM 36-00-00-860-801	Supply Pressure to the Pneumatic System (Selection) (P/B 201)
AMM 36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
AMM 47-00-00-010-801	Nitrogen Generation System (NGS) Precautions (P/B 201)
AMM 47-00-00-800-801	Ground Operation of the Nitrogen Generation System (P/B 201)
AMM 47-00-00-910-802	Airworthiness Limitation Precautions (P/B 201)
AMM 47-21-00-700-802	Drain Cap - Fuel Leak Check (P/B 601)
AMM 47-32-01 P/B 401	NGS SHUTOFF VALVE - REMOVAL/INSTALLATION
AMM 49-11-00-860-802	APU Usual Shutdown (P/B 201)
AMM 71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)




#### B. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50135	Leak Detector - Liquid, Non-Corrosive Soap Compound	MIL-PRF-25567

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>NEA DISTRIBUTION LINES INSPECTION</b>  <b>D633A109-AKS</b> <b>47-220-00-01</b>	<b>Page 1 of 7</b> <b>Jun 15/2015</b>
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DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-220-00-01</b>	
<b>TASK 47-00-00-790-802</b>				MECH	INSP
<b>1. Leak Check of the Nitrogen-Enriched Air Distribution System (NEADS) Lines</b> (Figure 1)					
<b>A. General</b>					
(1) This task has one or more steps which are a means to satisfy Airworthiness Limitation Instruction (ALI) requirements. An ALI note will follow the step to which it applies. Any step or sub-step that precedes or follows an ALI identified step is not subject to the ALI requirement. <u>NOTE:</u> This is applicable to Airworthiness Limitation 47-AWL-07.					
(2) This task inspects the NEADS lines between the ASM and the flame arrestor at the rear spar for damage and does a check for leaks in the NEADS lines between the ASM and the flame arrestor at the rear spar.					
<b>B. Prepare for the Leak Check</b>					
SUBTASK 47-00-00-860-024					
<b><u>WARNING:</u></b> DO NOT TOUCH THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM WHEN THEY ARE HOT. WHEN THE COMPONENTS ARE HOT, THEY CAN CAUSE INJURIES TO PERSONNEL.					
<b><u>WARNING:</u></b> DO NOT DISCONNECT THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM, OR DUCTS WHEN THE SYSTEM IS PRESSURIZED. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.					
(1) Obey the Nitrogen Generation System (NGS) precautions (AMM TASK 47-00-00-010-801).					
SUBTASK 47-00-00-790-014					
(2) Do this task: Drain Cap - Fuel Leak Check, AMM TASK 47-21-00-700-802.					
SUBTASK 47-00-00-860-018					
(3) Pressurize the pneumatic system (AMM TASK 36-00-00-860-801).					
(a) Make sure that these switches on the P5-10 panel are in the positions shown:					
<b>SWITCH</b>		<b>POSITION</b>			
APU Bleed		ON (if APU is running) if not, OFF			
Left Pack		HIGH			
Right Pack		OFF			
ENG 1 Bleed		ON (if engine is running) if not, OFF			
ENG 2 Bleed		ON (if engine is running) if not, OFF			
Cabin Temp		AUTO			
ISLN Valve		OPEN			
L RECIRC FAN		AUTO			
R RECIRC FAN		AUTO			
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>		<b>NEA DISTRIBUTION LINES INSPECTION</b>  <b>D633A109-AKS</b> <b>47-220-00-01</b>	
				<b>Page 2 of 7</b> <b>Feb 15/2015</b>	

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-220-00-01</b>	
<p><b>SUBTASK 47-00-00-860-019</b></p> <p>(4) Supply conditioned air (AMM TASK 21-00-00-800-803).</p> <p><b>SUBTASK 47-00-00-780-004</b></p> <p>(5) Do a check of the manifold duct pressure.</p> <p>(a) Look at the dual duct pressure gage on the P5 panel.</p> <p>(b) Make sure that the L and R duct pressure is 15 psig (103 kPa) or more.</p> <p><b>SUBTASK 47-00-00-740-086</b></p> <p>(6) Push the MENU button on the BITE display unit (BDU).</p> <p><b>SUBTASK 47-00-00-740-087</b></p> <p>(7) Push the up or down arrows until the BDU shows the GROUND TESTS? function.</p> <p><b>SUBTASK 47-00-00-740-088</b></p> <p>(8) Push the YES button on the BDU.</p> <p><b>SUBTASK 47-00-00-740-089</b></p> <p>(9) Push the up or down arrows on the BDU until this function shows:</p> <p>(a) NGS PERF HI FLOW?</p> <p><u>NOTE:</u> Use this function to do a leak check between the ASM and the flame arrestor at the left wing rear spar. Do not use the NGS PERF HI FLOW? function if the ambient temperature is above 118°F (48°C). On the ground, the NGS can get too hot when you pressurize the NGS in the high flow mode.</p> <p><b>SUBTASK 47-00-00-740-090</b></p> <p>(10) Push the YES button to start the test.</p> <p><b>SUBTASK 47-00-00-780-005</b></p> <p>(11) Make sure that the NGS shutoff valve goes from the CLOSED position to the OPEN position.</p> <p><u>NOTE:</u> The NGS shutoff valve opens and pressurizes the NGS.</p> <p>(a) Make sure the display on the BDU shows these messages:</p> <p>1) GSE O2 SNS: XX.X% (or GSE O2 SNS: WARM during warmup mode)</p> <p><u>NOTE:</u> xx.x is the O2% reading from the Oxygen Sensor.</p> <p>2) P: YY PSIA</p> <p><u>NOTE:</u> YY = current pressure</p> <p>3) T: SZZZ F</p> <p><u>NOTE:</u> ZZZ = current temperature</p> <p>S = negative sign for negative values of temperature</p> <p><b>C. NEADS Lines Leak Check</b></p> <p><b>SUBTASK 47-00-00-790-015</b></p> <p>(1) Do an inspection of the NEADS lines from the ASM to the flame arrestor at the fuel tank rear spar for damage and leaks (AMM TASK 28-22-15-700-801).</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NEA DISTRIBUTION LINES INSPECTION</b>  <b>D633A109-AKS</b> <b>47-220-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-220-00-01</b>	
<p> <b>47-AWL-07: ALI</b></p> <p>(a) Make sure there are no loose clamps for the NEADS couplings, drain line connections or joints.</p> <p><u>NOTE:</u> ALI - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 47-00-00-910-802, for important information on airworthiness limitation instructions (ALIs).</p> <p><u>NOTE:</u> This is applicable to Airworthiness Limitation 47-AWL-07.</p> <p> <b>47-AWL-07: ALI</b></p> <p>(b) Make sure there are no disconnections for the NEADS couplings, drain line connections or joints.</p> <p><u>NOTE:</u> ALI - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 47-00-00-910-802, for important information on airworthiness limitation instructions (ALIs).</p> <p><u>NOTE:</u> This is applicable to Airworthiness Limitation 47-AWL-07.</p> <p> <b>47-AWL-07: ALI</b></p> <p>(c) Make sure there are no damaged tubes from the ASM to the fuel tank rear spar.</p> <p><u>NOTE:</u> ALI - Refer to the task: Airworthiness Limitation Precautions, AMM TASK 47-00-00-910-802, for important information on airworthiness limitation instructions (ALIs).</p> <p><u>NOTE:</u> This is applicable to Airworthiness Limitation 47-AWL-07.</p> <p><b>SUBTASK 47-00-00-790-016</b></p> <p>(2) Do these steps to do a check for leaks in the NEADS lines between the ASM and the flame arrestor at the rear spar.</p> <p>(a) Apply a small quantity of leak detector, G50135, to the applicable coupling or drain line connection.</p> <p>(b) Examine the NEADS coupling or connection for a leak.</p> <p>(c) No air leaks are permitted.</p> <p>(d) Use a clean cotton wiper, G00034, to remove the leak detector, G50135.</p> <p><b>SUBTASK 47-00-00-790-017</b></p> <p><b><u>WARNING:</u></b> DO NOT DISCONNECT THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM, OR DUCTS WHEN THE SYSTEM IS PRESSURIZED. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.</p> <p><b><u>WARNING:</u></b> WHEN YOU DO A TEST OF THE SYSTEM, MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW IN THE AREA. USE LIFE SUPPORT EQUIPMENT IF YOU THINK THAT THERE IS A HIGH NITROGEN CONCENTRATION. LOW OXYGEN LEVELS IN THE AIR ARE DANGEROUS TO PERSONNEL.</p> <p><b><u>CAUTION:</u></b> TO STOP THE GROUND TEST, PUSH THE MENU BUTTON THEN THE NO BUTTON ON THE BDU. IF THE SHUTOFF VALVE STAYS OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.</p> <p>(3) If you find a leak, do these steps:</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NEA DISTRIBUTION LINES INSPECTION</b>  <b>D633A109-AKS</b> <b>47-220-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-220-00-01</b>	
<p>(a) Push the MENU button, then the NO button, on the BDU.</p> <p>(b) Do the steps in this task to depressurize the ECS air supply system: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.</p> <p>(c) Examine the manual locking arm on the NGS shutoff valve.</p> <p>1) Make sure that the NGS shutoff valve goes from the OPEN position to the CLOSED position.</p> <p>2) Replace the NGS shutoff valve if the valve fails to close (AMM PAGEBLOCK 47-32-01/401).</p> <p>(d) Examine the component to find the cause of the leak(s).</p> <p>(e) Repair the problems that you find.</p> <p>(f) Make sure that the components are aligned.</p> <p>(g) Tighten the connections.</p> <p><b>SUBTASK 47-00-00-790-018</b></p> <p>(4) Do the steps in this task to pressurize the pneumatic system: Ground Operation of the Nitrogen Generation System, AMM TASK 47-00-00-800-801.</p> <p>(a) Do the leak check again to make sure that you repaired the problem.</p> <p><b>SUBTASK 47-00-00-740-091</b></p> <p><b>CAUTION:</b> TO STOP THE GROUND TEST, MAKE SURE YOU PRESS THE MENU BUTTON ON THE NITROGEN GENERATION SYSTEM BDU. IF YOU DO NOT PRESS THE MENU BUTTON, THEN THE NGS SHUTOFF VALVE WILL REMAIN IN THE INCORRECT OPEN POSITION.</p> <p>(5) To stop the test, push the MENU button, then the NO button, on the BDU.</p> <p><b>SUBTASK 47-00-00-790-019</b></p> <p>(6) Examine the manual locking arm on the NGS shutoff valve.</p> <p>(a) Make sure that the valve goes from the OPEN position to the CLOSED position.</p> <p><b>D. Depressurize the Pneumatic System</b></p> <p><b>SUBTASK 47-00-00-860-020</b></p> <p>(1) To remove the conditioned air supply, do this task: Remove Conditioned Air Supplied by a Cooling Pack, AMM TASK 21-00-00-800-804.</p> <p><b>SUBTASK 47-00-00-860-021</b></p> <p>(2) Do the steps in this task to depressurize the ECS air supply system: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.</p> <p><b>SUBTASK 47-00-00-780-006</b></p> <p>(3) Do a check of the pneumatic duct pressure:</p> <p>(a) Look at the dual duct pressure gage on the air conditioning panel, P5-10.</p> <p>(b) Make sure that the L and R duct pressures are 0 psig (0 kPa).</p> <p><b>SUBTASK 47-00-00-860-022</b></p> <p>(4) To stop the APU, do this task: APU Usual Shutdown, AMM TASK 49-11-00-860-802, if it is necessary.</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NEA DISTRIBUTION LINES INSPECTION</b>  <b>D633A109-AKS</b> <b>47-220-00-01</b>		

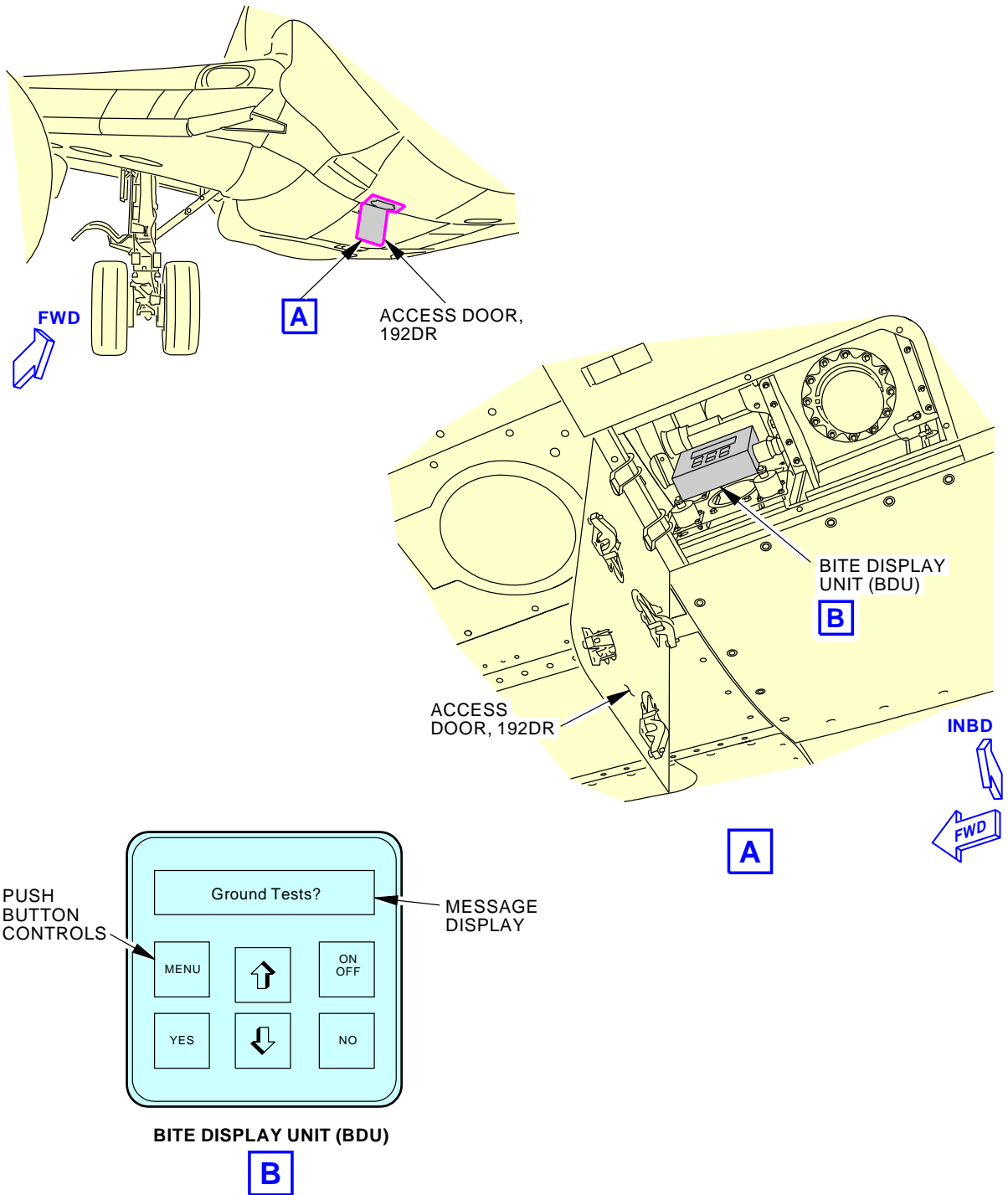
# AKS



## 737-600/700/800/900 TASK CARDS

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-220-00-01</b>									
<p><b>SUBTASK 47-00-00-860-023</b></p> <p>(5) To stop the engines, do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00, if it is necessary.</p> <p><b>E. Put the Airplane Back to Its Usual Condition</b></p> <p><b>SUBTASK 47-00-00-410-008</b></p> <p>(1) Close these access panels, if applicable:</p> <table><thead><tr><th><u>Number</u></th><th><u>Name/Location</u></th></tr></thead><tbody><tr><td>192BL</td><td>ECS Ram Air Inlet Mixing Duct Panel - Forward</td></tr><tr><td>192CL</td><td>ECS Access Door</td></tr><tr><td>192DR</td><td>ECS High Pressure Access Door</td></tr></tbody></table> <p style="text-align: center;">———— <b>END OF TASK</b> ————</p>				<u>Number</u>	<u>Name/Location</u>	192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward	192CL	ECS Access Door	192DR	ECS High Pressure Access Door	MECH	INSP
				<u>Number</u>	<u>Name/Location</u>								
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward												
192CL	ECS Access Door												
192DR	ECS High Pressure Access Door												
<b>EFFECTIVITY</b> <b>AKS ALL</b>		<b>SOURCE</b> <b>MSG3</b>	<b>NEA DISTRIBUTION LINES INSPECTION</b>										
			<b>D633A109-AKS</b> <b>47-220-00-01</b>										
			<b>Page 6 of 7</b> <b>Feb 15/2015</b>										

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-220-00-01</b>
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**NGS - BITE Display Unit (BDU)**  
**Figure 1**

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>NEA DISTRIBUTION LINES INSPECTION</b>  <b>D633A109-AKS</b> <b>47-220-00-01</b>
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Page 7 of 7  
Oct 15/2015

AIRLINE CARD NO.		TITLE <b>OZONE CONVERTER</b>			BOEING CARD NO. <b>47-300-00-01</b>
DATE	TASK <b>RESTORE</b>				RELATED CARD
TAIL NUMBER	WORK AREA <b>AC DIST BAY</b>	VERSION <b>1.1</b>	THRESHOLD <b>12000 FH</b>	REPEAT <b>12000 FH</b>	APPLICABILITY AIRPLANE <b>ALL</b> ENGINE <b>ALL</b> <b>NOTE</b>
STATION	SKILL <b>AIRPL</b>				
		ACCESS <b>192CL</b>			ZONE <b>131 212</b>

Restore the ozone converter (off-aircraft).

**AIRPLANE NOTE:** If Nitrogen Generation System is installed.

#### A. References

Reference	Title
AMM 20-30-80-910-801	General Cleaning of Metal (Series 80) (P/B 201)
AMM 36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
AMM 47-00-00-790-801	Leak Check of the Nitrogen Generation System (P/B 601)
SWPM 20-20-00	Electrical Bonding Processes

#### B. Consumable Materials

Reference	Description	Specification
D00062	Lubricant - Pneumatic System	SAE AMS-G-4343 (NATO G-392)
D00504	Grease - Petrolatum	VV-P-236
D50063	Grease - Perfluoropolyether, fuel and oxygen resistant - Krytox 240AC	MIL-PRF- 27617 Type III

#### C. Tools/Equipment

**NOTE:** When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: C15292 (MODEL T477W) Supplier: 01014 Part #: M1 Supplier: 3AD17 Opt Part #: M1B Supplier: 3AD17

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>OZONE CONVERTER</b>  <b>D633A109-AKS</b> <b>47-300-00-01</b>	<b>Page 1 of 7</b> <b>Feb 15/2016</b>
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DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-300-00-01</b>																	
<b>TASK 47-32-02-000-801</b> <b>1. <u>Ozone Converter Removal</u></b> (Figure 1)  <b>A. Prepare for the Removal</b>  SUBTASK 47-32-02-864-001 (1) Do this task to remove pressure from the pneumatic system: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806. (a) Make sure that the dual duct pressure gage shows 0.50 psig (3.45 kPa) or less in the left and right ducts.  SUBTASK 47-32-02-860-001 (2) Put the L PACK and R PACK selector switches, found on the P5-10 air conditioning panel, to the OFF position. (a) Put DO-NOT-OPERATE tags on the L PACK and R PACK selector switches.  SUBTASK 47-32-02-865-001 (3) Open these circuit breakers and install safety tags:  <b>CAPT Electrical System Panel, P18-3</b> <table border="1"> <thead> <tr> <th><u>Row</u></th> <th><u>Col</u></th> <th><u>Number</u></th> <th><u>Name</u></th> </tr> </thead> <tbody> <tr> <td>D</td> <td>17</td> <td>C01657</td> <td>NITROGEN GENERATION CONTROL</td> </tr> <tr> <td>E</td> <td>15</td> <td>C01680</td> <td>NGS ALT PWR</td> </tr> </tbody> </table> SUBTASK 47-32-02-010-001 (4) Open this access panel: <table border="1"> <thead> <tr> <th><u>Number</u></th> <th><u>Name/Location</u></th> </tr> </thead> <tbody> <tr> <td>192CL</td> <td>ECS Access Door</td> </tr> </tbody> </table>				<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>	D	17	C01657	NITROGEN GENERATION CONTROL	E	15	C01680	NGS ALT PWR	<u>Number</u>	<u>Name/Location</u>	192CL	ECS Access Door	MECH	INSP
				<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>														
D	17	C01657	NITROGEN GENERATION CONTROL																		
E	15	C01680	NGS ALT PWR																		
<u>Number</u>	<u>Name/Location</u>																				
192CL	ECS Access Door																				
<b>B. Remove the Ozone Converter</b>  SUBTASK 47-32-02-020-002  <b><u>WARNING:</u></b> DO NOT TOUCH THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM WHEN THEY ARE HOT. WHEN THE COMPONENTS ARE HOT, THEY CAN CAUSE INJURIES TO PERSONNEL.  <b><u>WARNING:</u></b> DO NOT DISCONNECT THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM, OR DUCTS WHEN THE SYSTEM IS PRESSURIZED. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.  <b><u>CAUTION:</u></b> MAKE SURE THAT THE MAINTENANCE AREA IS FREE OF CONTAMINATION FROM SKYDROL, LUBRICANTS, SOLVENTS, FUEL, FUMES, EXHAUST, OR DUST. DO NOT LET SOLVENTS, LUBRICANTS, OTHER FLUIDS, OR THEIR FUMES GO INTO THE FLOW PATH TO OR FROM THE ASM. CONTAMINATION WILL CAUSE DAMAGE TO THE FIBERS IN THE AIR SEPARATION MODULE AND DECREASE THEIR LIFE.  (1) Obey the nitrogen generation system precautions.																					
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>OZONE CONVERTER</b>  <b>D633A109-AKS</b> <b>47-300-00-01</b>																		

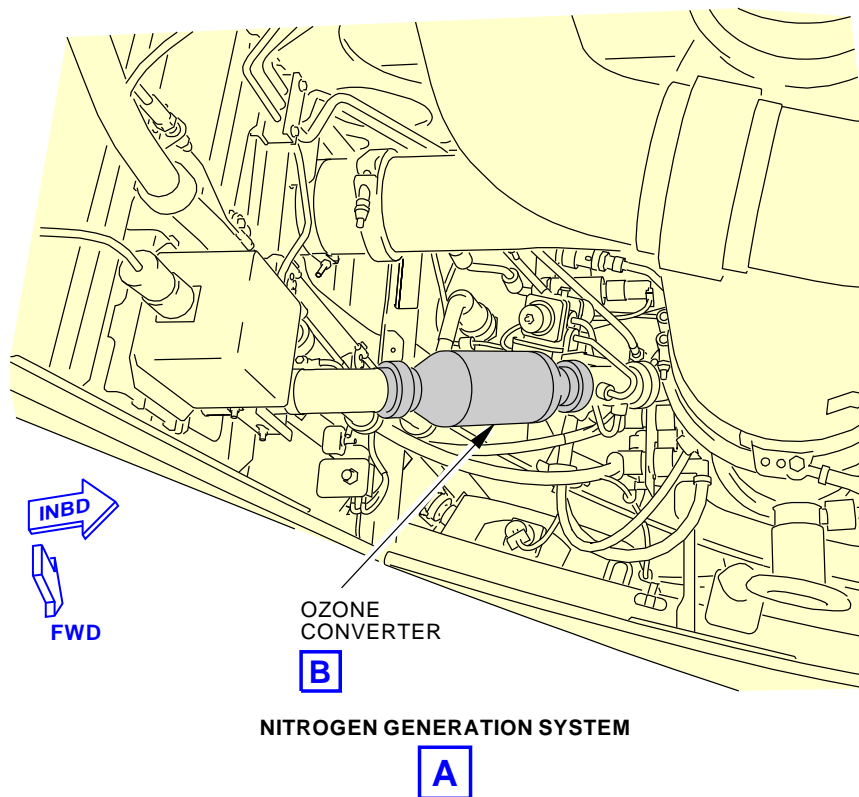
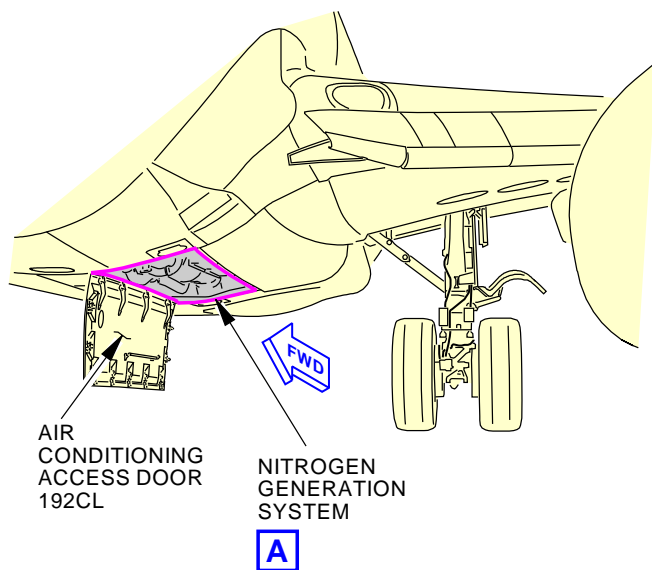
**737-600/700/800/900  
TASK CARDS**

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-300-00-01</b>	
<p><b>SUBTASK 47-32-02-010-002</b></p> <p>(2) Go to the ozone converter [5] location.</p> <p><u>NOTE</u>: The ozone converter [5] is in the left Air Conditioning bay between the NGS shutoff valve [2] and the left 41 beam.</p> <p><b>SUBTASK 47-32-02-020-001</b></p> <p>(3) Do these tasks to disconnect the ozone converter [5]:</p> <ul style="list-style-type: none"> <li>(a) Disconnect the first coupling [4] between the ozone converter [5] and the NGS shutoff valve [2].</li> <li>(b) Hold the ozone converter [5] in its position.</li> <li>(c) Disconnect the second coupling [4] between the ozone converter [5] and the air duct [6], inboard of the 41 beam.</li> <li>(d) Remove the ozone converter [5].               <ul style="list-style-type: none"> <li>1) Keep the seals [3].</li> </ul> </li> </ul> <p><b>SUBTASK 47-32-02-913-001</b></p> <p>(4) Put protective covers on the air duct [6] and the NGS shutoff valve [2] to keep out unwanted material.</p> <p style="text-align: center;">———— <b>END OF TASK</b> ————</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>OZONE CONVERTER</b>  <b>D633A109-AKS</b> <b>47-300-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-300-00-01</b>	
<b>TASK 47-32-02-400-801</b>				MECH	INSP
<b>2. <u>Ozone Converter Installation</u></b> (Figure 1)					
<b>A. Expendables/Parts</b>					
<b>AMM Item</b>	<b>Description</b>	<b>AIPC Reference</b>	<b>AIPC Effectivity</b>		
5	Ozone converter	47-32-02-01-005	AKS ALL		
<b>B. Install the Ozone Converter</b>					
SUBTASK 47-32-02-010-003 (1) Go to the ozone converter [5] location in the left air conditioning bay.					
SUBTASK 47-32-02-030-001 (2) Remove the protective covers from the NGS shutoff valve [2] and the air duct [6].					
SUBTASK 47-32-02-100-001 (3) Make sure that the ozone converter [5], air duct [6], NGS shutoff valve [2], seals [3], and couplings [4] are clean, free from grease and unwanted material.					
SUBTASK 47-32-02-110-001 (4) To clean the components, do this task: General Cleaning of Metal (Series 80), AMM TASK 20-30-80-910-801.					
SUBTASK 47-32-02-110-002 (5) Prepare these components for an electrical faying surface bond (SWPM 20-20-00): <ul style="list-style-type: none"> <li>(a) Mating surfaces of the ozone converter [5].</li> <li>(b) Mating surface of the NGS shutoff valve [2].</li> <li>(c) Mating surface of the couplings [4].</li> </ul>					
SUBTASK 47-32-02-390-001 <b><u>WARNING:</u></b> KRYTOX 240AC IS AN AGENT THAT IS POISONOUS AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN KRYTOX 240AC IS USED. <ul style="list-style-type: none"> <li>• DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.</li> <li>• CLOSE THE CONTAINER WHEN NOT USED.</li> <li>• DO NOT GET KRYTOX 240AC IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.</li> <li>• DO NOT BREATHE THE GAS.</li> <li>• DO NOT EAT KRYTOX 240AC.</li> </ul>					
(6) Apply a thin layer of Krytox 240AC perfluoropolyether grease, D50063, grease, D00504, or lubricant, D00062, on the seals [3].					
SUBTASK 47-32-02-430-001 (7) Install the seals [3] in the cavity of the ozone converter [5] on both sides.					
SUBTASK 47-32-02-420-001 (8) Do these steps to install the ozone converter [5]:					
<b>EFFECTIVITY AKS ALL</b>		<b>SOURCE MSG3</b>	<b>OZONE CONVERTER</b>  <b>D633A109-AKS 47-300-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-300-00-01</b>																	
<p>(a) Put one coupling [4] on each end of the ozone converter [5].</p> <p>(b) Put the ozone converter [5] in its position</p> <p>(c) Connect, but do not tighten, the coupling [4] to the ozone converter [5] and the NGS shutoff valve [2].</p> <p>(d) Connect, but do not tighten, the coupling [4] on the ozone converter [5] and the air duct [6].</p> <p>(e) Make sure the ozone converter [5] is aligned with the NGS shutoff valve [2] and the air duct [6].</p> <p>(f) Tighten the two couplings [4] to 62.5 ± 7.5 in-lb (7.1 ± 0.9 N·m).</p> <p><b>SUBTASK 47-32-02-765-001</b></p> <p>(9) Use the intrinsically safe approved bonding meter, COM-1550, to measure the resistance between the 41 beam and the ozone converter [5] (SWPM 20-20-00).</p> <p>(a) Make sure the resistance is 0.010 ohm (10 milliohms) or less.</p> <p><b>C. Operational Test of the Ozone Converter</b></p> <p><b>SUBTASK 47-32-02-710-001</b></p> <p>(1) Remove the safety tags and close these circuit breakers:</p> <p><b>CAPT Electrical System Panel, P18-3</b></p> <table border="1"> <thead> <tr> <th>Row</th> <th>Col</th> <th>Number</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>17</td> <td>C01657</td> <td>NITROGEN GENERATION CONTROL</td> </tr> <tr> <td>E</td> <td>15</td> <td>C01680</td> <td>NGS ALT PWR</td> </tr> </tbody> </table> <p><b>SUBTASK 47-32-02-860-002</b></p> <p>(2) Remove the DO-NOT-OPERATE tags from the L PACK and R PACK selector switches, on the P5-10 air conditioning panel.</p> <p>(a) Put the L PACK and R PACK selector switches to the AUTO position.</p> <p><b>SUBTASK 47-32-02-790-001</b></p> <p>(3) Do this task: Leak Check of the Nitrogen Generation System, AMM TASK 47-00-00-790-801.</p> <p>(a) Repair the leaks that you find.</p> <p><b>D. Put the Airplane Back to the Usual Condition</b></p> <p><b>SUBTASK 47-32-02-410-001</b></p> <p>(1) Close this access panel:</p> <table border="1"> <thead> <tr> <th>Number</th> <th>Name/Location</th> </tr> </thead> <tbody> <tr> <td>192CL</td> <td>ECS Access Door</td> </tr> </tbody> </table> <p style="text-align: center;"><b>————— END OF TASK —————</b></p>				Row	Col	Number	Name	D	17	C01657	NITROGEN GENERATION CONTROL	E	15	C01680	NGS ALT PWR	Number	Name/Location	192CL	ECS Access Door	MECH	INSP
				Row	Col	Number	Name														
D	17	C01657	NITROGEN GENERATION CONTROL																		
E	15	C01680	NGS ALT PWR																		
Number	Name/Location																				
192CL	ECS Access Door																				
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>OZONE CONVERTER</b>  <b>D633A109-AKS</b> <b>47-300-00-01</b>																		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. 47-300-00-01
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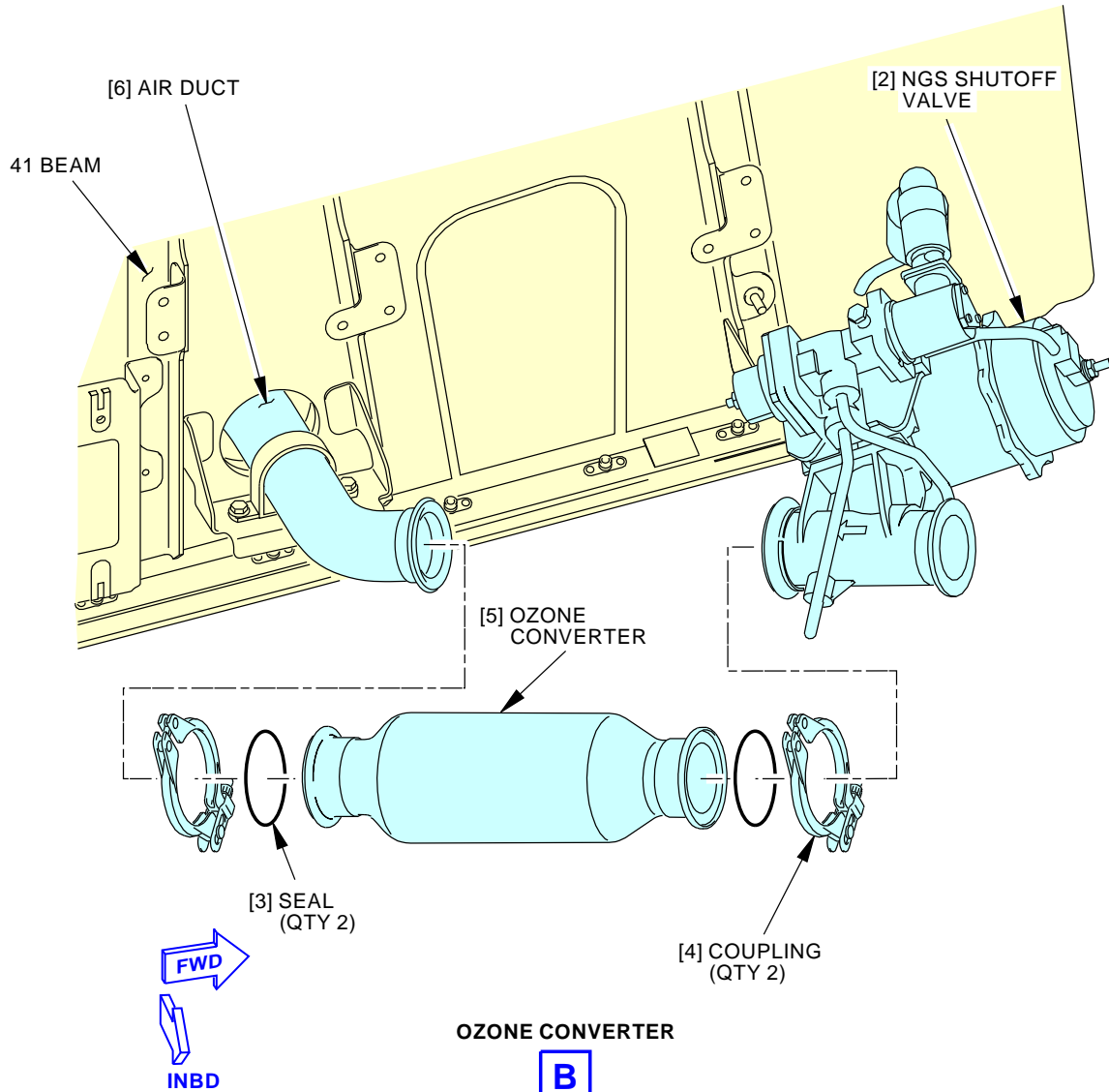


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**Ozone Converter**  
**Figure 1 (Sheet 1 of 2)**

EFFECTIVITY AKS ALL	SOURCE MSG3	OZONE CONVERTER  D633A109-AKS 47-300-00-01	Page 6 of 7 Oct 15/2015
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DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. 47-300-00-01
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**Ozone Converter**  
**Figure 1 (Sheet 2 of 2)**

J74216 S0000177526\_V7

EFFECTIVITY AKS ALL	SOURCE MSG3	OZONE CONVERTER  D633A109-AKS 47-300-00-01	Page 7 of 7 Oct 15/2015
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AIRLINE CARD NO		TITLE <b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>			BOEING CARD NO. <b>47-310-00-01</b>
DATE	TASK <b>CLEAN</b>				RELATED CARD
TAIL NUMBER	WORK AREA <b>AC DIST BAY</b>	VERSION <b>1.1</b>	THRESHOLD <b>12000 FH</b>	REPEAT <b>12000 FH</b>	APPLICABILITY
STATION	SKILL <b>AIRPL</b>				AIRPLANE <b>ALL</b> ENGINE <b>ALL</b> <b>NOTE</b>
		ACCESS <b>192BL</b>			ZONE <b>131 212</b>

Clean the nitrogen generation system heat exchanger (off aircraft).

**AIRPLANE NOTE:** If Nitrogen Generation System is installed.

#### A. References

Reference	Title
AMM 20-30-80-910-801	General Cleaning of Metal (Series 80) (P/B 201)
AMM 21-51-24-000-801	Ram Air Ducts Removal (P/B 401)
AMM 21-51-24-400-801	Ram Air Ducts Installation (P/B 401)
AMM 36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
AMM 47-00-00-790-801	Leak Check of the Nitrogen Generation System (P/B 601)
SWPM 20-20-00	Electrical Bonding Processes

#### B. Consumable Materials

Reference	Description	Specification
C00852	Compound - Antiseize, Molybdenum Disulfide-Petrolatum	MIL-PRF-83483
D50063	Grease - Perfluoropolyether, fuel and oxygen resistant - Krytox 240AC	MIL-PRF- 27617 Type III

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: C15292 (MODEL T477W) Supplier: 01014 Part #: M1 Supplier: 3AD17 Opt Part #: M1B Supplier: 3AD17

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>
		<b>D633A109-AKS</b> <b>47-310-00-01</b>

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>																	
<b>TASK 47-32-03-000-801</b> <b>1. Heat Exchanger Removal</b> (Figure 1)  <b>A. Prepare for the Removal</b>  SUBTASK 47-32-03-864-001 (1) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806. (a) Make sure that the dual duct pressure gage shows 0.50 psig (3.45 kPa) or less in the L and R pneumatic ducts.  SUBTASK 47-32-03-860-001 (2) Put the L PACK and R PACK selector switches, on the P5-10 air conditioning panel, to the OFF position. (a) Put DO-NOT-OPERATE tags on the L PACK and R PACK selector switches.  SUBTASK 47-32-03-865-002 (3) Open these circuit breakers and install safety tags:  <b>CAPT Electrical System Panel, P18-3</b> <table border="1"> <thead> <tr> <th>Row</th> <th>Col</th> <th>Number</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>17</td> <td>C01657</td> <td>NITROGEN GENERATION CONTROL</td> </tr> <tr> <td>E</td> <td>15</td> <td>C01680</td> <td>NGS ALT PWR</td> </tr> </tbody> </table> SUBTASK 47-32-03-010-001 (4) Open this access panel: <table border="1"> <thead> <tr> <th>Number</th> <th>Name/Location</th> </tr> </thead> <tbody> <tr> <td>192BL</td> <td>ECS Ram Air Inlet Mixing Duct Panel - Forward</td> </tr> </tbody> </table> SUBTASK 47-32-03-010-003 <b>WARNING:</b> DO NOT TOUCH THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM WHEN THEY ARE HOT. WHEN THE COMPONENTS ARE HOT, THEY CAN CAUSE INJURIES TO PERSONNEL.  <b>WARNING:</b> DO NOT DISCONNECT THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM, OR DUCTS WHEN THE SYSTEM IS PRESSURIZED. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.  <b>CAUTION:</b> MAKE SURE THAT THE MAINTENANCE AREA IS FREE OF CONTAMINATION FROM SKYDROL, LUBRICANTS, SOLVENTS, FUEL, FUMES, EXHAUST, OR DUST. DO NOT LET SOLVENTS, LUBRICANTS, OTHER FLUIDS, OR THEIR FUMES GO INTO THE FLOW PATH TO OR FROM THE ASM. CONTAMINATION WILL CAUSE DAMAGE TO THE FIBERS IN THE AIR SEPARATION MODULE AND DECREASE THEIR LIFE.  (5) Obey the nitrogen generation system precautions.  SUBTASK 47-32-03-020-004 (6) Do these steps to remove clamp [1] (View B):				Row	Col	Number	Name	D	17	C01657	NITROGEN GENERATION CONTROL	E	15	C01680	NGS ALT PWR	Number	Name/Location	192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward	MECH	INSP
				Row	Col	Number	Name														
D	17	C01657	NITROGEN GENERATION CONTROL																		
E	15	C01680	NGS ALT PWR																		
Number	Name/Location																				
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward																				
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>																		



DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>	
<p>(a) Remove the nut [6], washers [8] and bolt [3] from the clamp [1].</p> <p>(b) Remove the clamp [1] from the tube [2].</p> <p><b>SUBTASK 47-32-03-020-005</b></p> <p>(7) Do these steps to disconnect the bonding jumpers [4] from tube [2]:</p> <p>(a) Remove the nut [6], washers [5] and bolt [3] to disconnect the bonding jumpers [4].</p> <p><b>SUBTASK 47-32-03-020-003</b></p> <p>(8) Do these steps to remove the tube [2] that is under the heat exchanger [11] (View B):</p> <p>(a) Loosen the nut on the tube [2] from the tee [7].</p> <p>(b) Loosen the nut on the other end of the tube [2] from the airplane structure.</p> <p>(c) Remove the tube [2].</p> <p><b>SUBTASK 47-32-03-030-001</b></p> <p>(9) Loosen the hose clamp [14] that connects the heat exchanger [11] to the flex hose [15] (View C).</p> <p><b>NOTE:</b> The hose clamp [14] is above the ram air inlet duct on the forward end of the heat exchanger [11]. If you can not see the hose clamp [14], you can feel it with your hand.</p> <p><b>SUBTASK 47-32-03-010-002</b></p> <p>(10) Do this task to get access to the heat exchanger [11]: Ram Air Ducts Removal, AMM TASK 21-51-24-000-801.</p> <p><b>NOTE:</b> When you remove the ram air duct, the flex hose [15] will stay attached to the ram air inlet duct. You must pull the flex hose [15] off the ram air inlet duct.</p> <p><b>B. Remove the Heat Exchanger</b></p> <p><b>SUBTASK 47-32-03-030-002</b></p> <p>(1) Remove the coupling [10] between the bleed air inlet duct and the heat exchanger [11].</p> <p>(a) Keep the coupling [10] for the installation.</p> <p>(b) Discard the two o-rings [9].</p> <p><b>SUBTASK 47-32-03-030-003</b></p> <p>(2) Remove the coupling [10] between the bleed air outlet duct and the heat exchanger [11].</p> <p>(a) Keep the coupling [10] for the installation.</p> <p>(b) Discard the two o-rings [9].</p> <p><b>SUBTASK 47-32-03-030-004</b></p> <p>(3) Remove the coupling [13] between the ram air valve and the heat exchanger [11].</p> <p>(a) Keep the coupling [13] and seal [12] for the installation.</p> <p><b>SUBTASK 47-32-03-030-005</b></p> <p>(4) Remove the flex hose [15] between the ram air inlet duct and the heat exchanger [11].</p> <p>(a) Keep the two flex hoses [15] and hose clamp [14] for installation.</p> <p><b>SUBTASK 47-32-03-030-006</b></p> <p>(5) Do these steps to disconnect the attached brackets (View D, View F).</p> <p>(a) Remove the bolt [16], washer [17], two bushings [18], washer [19], and nut [20].</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>	
<p>(b) Keep the fasteners for the installation.</p> <p><b>SUBTASK 47-32-03-030-007</b></p> <p>(6) Do these steps to disconnect the extension rod [23] (View E)</p> <p>(a) Remove the bolt [21], washer [17], bushing [22], washer [24], and nut [20].</p> <p>(b) Keep the fasteners for the installation.</p> <p><b>SUBTASK 47-32-03-020-001</b></p> <p>(7) Do these steps to remove the heat exchanger [11] from the attached bracket (View G):</p> <p>(a) Hold the heat exchanger [11] in its position.</p> <p>(b) Remove the bolt [21], washer [17], bonding jumper [26], washer [24], new shim [25] (if installed), bushing [22], washer [19], and nut [20].</p> <p>(c) Keep the fasteners for the installation.</p> <p><b>SUBTASK 47-32-03-913-001</b></p> <p>(8) Install protective covers on the duct openings to keep out unwanted material.</p> <p style="text-align: center;"><b>———— END OF TASK ————</b></p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>																	
<b>TASK 47-32-03-400-801</b> <b>2. Heat Exchanger Installation</b> (Figure 1)  <b>A. Expendables/Parts</b> <table border="1"> <thead> <tr> <th>AMM Item</th> <th>Description</th> <th>AIPC Reference</th> <th>AIPC Effectivity</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>O-ring</td> <td>47-21-01-01-025</td> <td>AKS ALL</td> </tr> <tr> <td>11</td> <td>Heat exchanger</td> <td>47-32-03-01-090</td> <td>AKS ALL</td> </tr> <tr> <td>25</td> <td>Shim</td> <td>47-32-03-01-050</td> <td>AKS ALL</td> </tr> </tbody> </table> <b>B. Prepare to Install the Heat Exchanger</b> SUBTASK 47-32-03-010-004 (1) Go to the heat exchanger [11] location in the left ram air bay. SUBTASK 47-32-03-020-002 (2) Remove the protective covers from the ducts. SUBTASK 47-32-03-100-002 (3) Make sure that the ducts, couplings, clamps, and fasteners are clean, free from grease and unwanted material. SUBTASK 47-32-03-110-001 (4) To clean the components, do this task: General Cleaning of Metal (Series 80), AMM TASK 20-30-80-910-801. SUBTASK 47-32-03-100-003 (5) Prepare these components for an electrical faying surface bond (SWPM 20-20-00): (a) mating surfaces of the attach brackets. (b) mating surfaces of the heat exchanger [11] attach brackets. (c) mating surfaces of the ram air valve and the heat exchanger [11].  <b>C. Install the Heat Exchanger</b> SUBTASK 47-32-03-430-002 (1) Do these steps to attach the heat exchanger [11] to the bracket (View D). (a) Make sure the bushings [18] are installed in the attached bracket. (b) Apply a thin layer of compound, C00852, to the bolt [16]. (c) Put the heat exchanger [11] in its position. (d) Install, but do not fully tighten, the bolt [16], washer [17], two bushings [18], washer [19] and nut [20]. SUBTASK 47-32-03-430-003 (2) Do these steps to attach the heat exchanger [11] to the extension rod [23] (View E). (a) Make sure the bushing [22] is installed. (b) Apply a thin layer of compound, C00852, to the bolt [21] (c) Put the heat exchanger [11] in its position. (d) Install, but do not fully tighten, the bolt [21], washer [17], bushing [22], washer [24] and nut [20].				AMM Item	Description	AIPC Reference	AIPC Effectivity	9	O-ring	47-21-01-01-025	AKS ALL	11	Heat exchanger	47-32-03-01-090	AKS ALL	25	Shim	47-32-03-01-050	AKS ALL	MECH	INSP
				AMM Item	Description	AIPC Reference	AIPC Effectivity														
9	O-ring	47-21-01-01-025	AKS ALL																		
11	Heat exchanger	47-32-03-01-090	AKS ALL																		
25	Shim	47-32-03-01-050	AKS ALL																		
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>																		

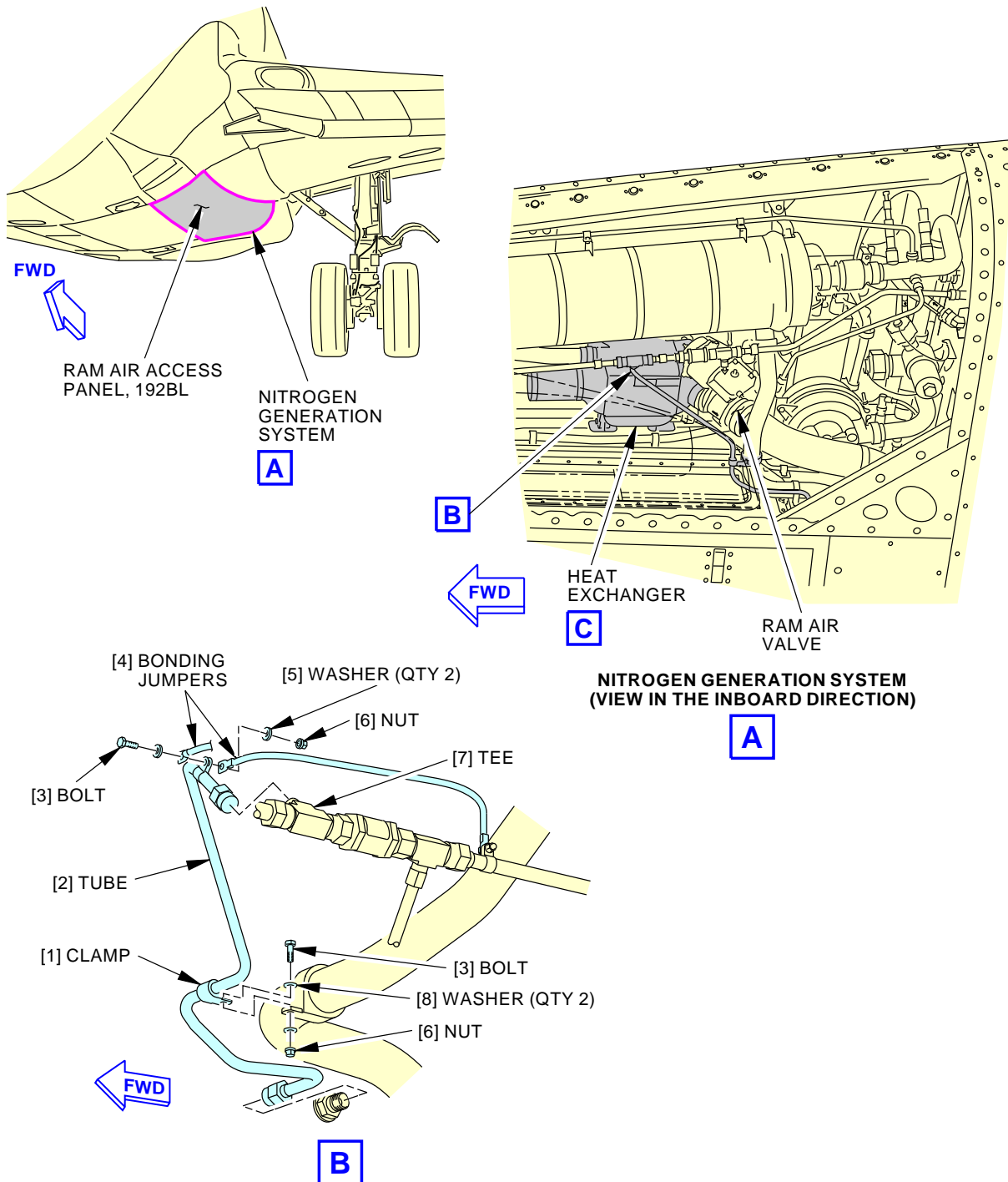
DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>	
<p><b>SUBTASK 47-32-03-430-004</b></p> <p>(3) Do these steps to attach the heat exchanger [11] to the bracket (View F).</p> <p>(a) Make sure the bushings [18] are installed in the attached bracket.</p> <p>(b) Put the heat exchanger [11] in its position.</p> <p>(c) Install, but do not fully tighten, the bolt [16], washer [17], two bushings [18], washer [19] and nut [20].</p> <p><b>SUBTASK 47-32-03-430-005</b></p> <p>(4) Do these steps to attach the heat exchanger [11] to the bracket (View G).</p> <p>(a) Make sure the bushing [22] is installed in the attached bracket.</p> <p>(b) Install, but do not fully tighten, the bolt [21], washer [17], bonding jumper [26], washer [24], new shim [25] (if necessary), bushing [22], washer [19], and nut [20].</p> <p><b>NOTE:</b> Use a shim [25] to fill the space between the bosses when necessary.</p> <p><b>SUBTASK 47-32-03-430-006</b></p> <p>(5) Do these steps to connect to the bleed air inlet duct (View C):</p> <p><b><u>WARNING:</u></b> KRYTOX 240AC IS AN AGENT THAT IS POISONOUS AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN KRYTOX 240AC IS USED.</p> <ul style="list-style-type: none"> <li>• DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.</li> <li>• CLOSE THE CONTAINER WHEN NOT USED.</li> <li>• DO NOT GET KRYTOX 240AC IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.</li> <li>• DO NOT BREATHE THE GAS.</li> <li>• DO NOT EAT KRYTOX 240AC.</li> </ul> <p>(a) Apply a thin layer of Krytox 240AC perfluoropolyether grease, D50063, to the two new o-rings [9].</p> <p>(b) Install the o-rings [9] on the bleed air inlet duct and the heat exchanger inlet.</p> <p>(c) Install the coupling [10] to the bleed air inlet.</p> <p><b>SUBTASK 47-32-03-430-007</b></p> <p>(6) Do these steps to connect to the bleed air outlet duct.</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>	
<p><b><u>WARNING:</u></b> KRYTOX 240AC IS AN AGENT THAT IS POISONOUS AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN KRYTOX 240AC IS USED.</p> <ul style="list-style-type: none"> <li>• DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.</li> <li>• CLOSE THE CONTAINER WHEN NOT USED.</li> <li>• DO NOT GET KRYTOX 240AC IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.</li> <li>• DO NOT BREATHE THE GAS.</li> <li>• DO NOT EAT KRYTOX 240AC.</li> </ul> <p>(a) Apply a thin layer of Krytox 240AC perfluoropolyether grease, D50063, to the two o-rings [9].</p> <p>(b) Install the o-rings [9] on the bleed air outlet duct and the heat exchanger outlet.</p> <p>(c) Install the coupling [10] to the bleed air outlet.</p> <p><b>SUBTASK 47-32-03-430-008</b></p> <p>(7) Do these steps to connect to the ram air valve.</p> <p><b><u>WARNING:</u></b> KRYTOX 240AC IS AN AGENT THAT IS POISONOUS AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY THE PRECAUTIONS WHEN KRYTOX 240AC IS USED.</p> <ul style="list-style-type: none"> <li>• DO NOT USE IN AREAS WHERE THERE IS HIGH HEAT, SPARKS, OR FLAMES.</li> <li>• CLOSE THE CONTAINER WHEN NOT USED.</li> <li>• DO NOT GET KRYTOX 240AC IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.</li> <li>• DO NOT BREATHE THE GAS.</li> <li>• DO NOT EAT KRYTOX 240AC.</li> </ul> <p>(a) Apply a thin layer of Krytox 240AC perfluoropolyether grease, D50063, to the seal [12].</p> <p>(b) Install the seal [12] to the ram air valve.</p> <p>(c) Install the coupling [13] to the bleed air outlet.</p> <p>1) Tighten the coupling [13] to 60 ±5 in-lb (7 ±1 N·m).</p> <p><b>SUBTASK 47-32-03-420-001</b></p> <p>(8) Tighten the bolts [16] and bolts [21] to 65 ±15 in-lb (7.3 ±1.7 N·m) (Views D, E, F, G).</p> <p><b>SUBTASK 47-32-03-280-001</b></p> <p>(9) Use an intrinsically safe approved bonding meter, COM-1550, to measure the electrical resistance between the bonding jumper [26] (View G) and the airplane structure (SWPM 20-20-00).</p> <p>(a) Make sure that the electrical resistance is 0.010 ohm (10 milliohms) or less (SWPM 20-20-00).</p>				MECH	INSP
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>													
<b>D. Install the Left Ram Air Duct</b>  SUBTASK 47-32-03-210-001 (1) Prepare to install the left ram air duct: (a) Examine the flex hose [15] and the hose clamp [14] that remained on the ram air duct. 1) Replace the flex hose [15] and hose clamp [14] if it is necessary. (b) Install, but do not tighten, the remaining hose clamp [14] on the flex hose.  SUBTASK 47-32-03-410-002 (2) Do this task to install the left ram air duct: Ram Air Ducts Installation, AMM TASK 21-51-24-400-801.  SUBTASK 47-32-03-430-001 (3) Do these steps to complete the installation: (a) Put the flex hose [15] on the heat exchanger [11] at the ram air inlet port. (b) Align the hose clamp [14] in its position on the heat exchanger [11]. (c) Tighten the hose clamp [14].  <b>E. Install the Tube Under the Heat Exchanger</b>  SUBTASK 47-32-03-420-002 (1) Do these steps to install the tube [2] under the heat exchanger [11] (View B): (a) Tighten the nut on the tube [2] to the airplane structure. (b) Tighten the nut on the other end of the tube [2] to the tee [7].  SUBTASK 47-32-03-420-003 (2) Install the washers [8], nut [6] and bolt [3] to install the clamp [1] on the tube [2].  SUBTASK 47-32-03-420-004 (3) Install the washers [5], nut [6] and bolt [3] to attach the bonding jumpers [4] to the tube [2]  SUBTASK 47-32-03-700-001 (4) Use an intrinsically safe approved bonding meter, COM-1550, to measure the electrical resistance between the tube [2] and the airplane structure (SWPM 20-20-00). (a) Make sure that the electrical resistance is 0.010 ohm (10 milliohms) or less (SWPM 20-20-00).  <b>F. Operational Test for the Heat Exchanger</b>  SUBTASK 47-32-03-710-001 (1) Prepare the airplane for the operational test: (a) Remove the safety tags and close these circuit breakers: <b>CAPT Electrical System Panel, P18-3</b> <table border="1"> <thead> <tr> <th>Row</th> <th>Col</th> <th>Number</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>17</td> <td>C01657</td> <td>NITROGEN GENERATION CONTROL</td> </tr> <tr> <td>E</td> <td>15</td> <td>C01680</td> <td>NGS ALT PWR</td> </tr> </tbody> </table> (b) Remove the DO-NOT-OPERATE tags from these switches on the P5 panel. 1) L PACK				Row	Col	Number	Name	D	17	C01657	NITROGEN GENERATION CONTROL	E	15	C01680	NGS ALT PWR	MECH	INSP
				Row	Col	Number	Name										
D	17	C01657	NITROGEN GENERATION CONTROL														
E	15	C01680	NGS ALT PWR														
EFFECTIVITY <b>AKS ALL</b>				SOURCE <b>MSG3</b>													
<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>				<b>Page 8 of 12</b> <b>Feb 15/2015</b>													

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>					
2) R PACK 3) BLEED 1 4) BLEED APU (c) Put the L PACK and R PACK selector switches to the AUTO position. (d) Put the BLEED 1, BLEED APU, and BLEED 2 switches to the ON position.  <b>SUBTASK 47-32-03-790-001</b> (2) Do this task: Leak Check of the Nitrogen Generation System, AMM TASK 47-00-00-790-801. (a) With the NGS pressurized, do a check for leaks around the heat exchanger [11]. (b) Repair the leaks that you find.  <b>G. Put the Airplane Back to the Usual Condition</b>  <b>SUBTASK 47-32-03-410-001</b> (1) Close this access door:  <table border="0"> <tr> <td><b><u>Number</u></b></td> <td><b><u>Name/Location</u></b></td> </tr> <tr> <td>192BL</td> <td>ECS Ram Air Inlet Mixing Duct Panel - Forward</td> </tr> </table> <div style="text-align: center;">————— <b>END OF TASK</b> —————</div>				<b><u>Number</u></b>	<b><u>Name/Location</u></b>	192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward	MECH	INSP
				<b><u>Number</u></b>	<b><u>Name/Location</u></b>				
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward								
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>						
			<b>Page 9 of 12</b> <b>Feb 15/2015</b>						

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>
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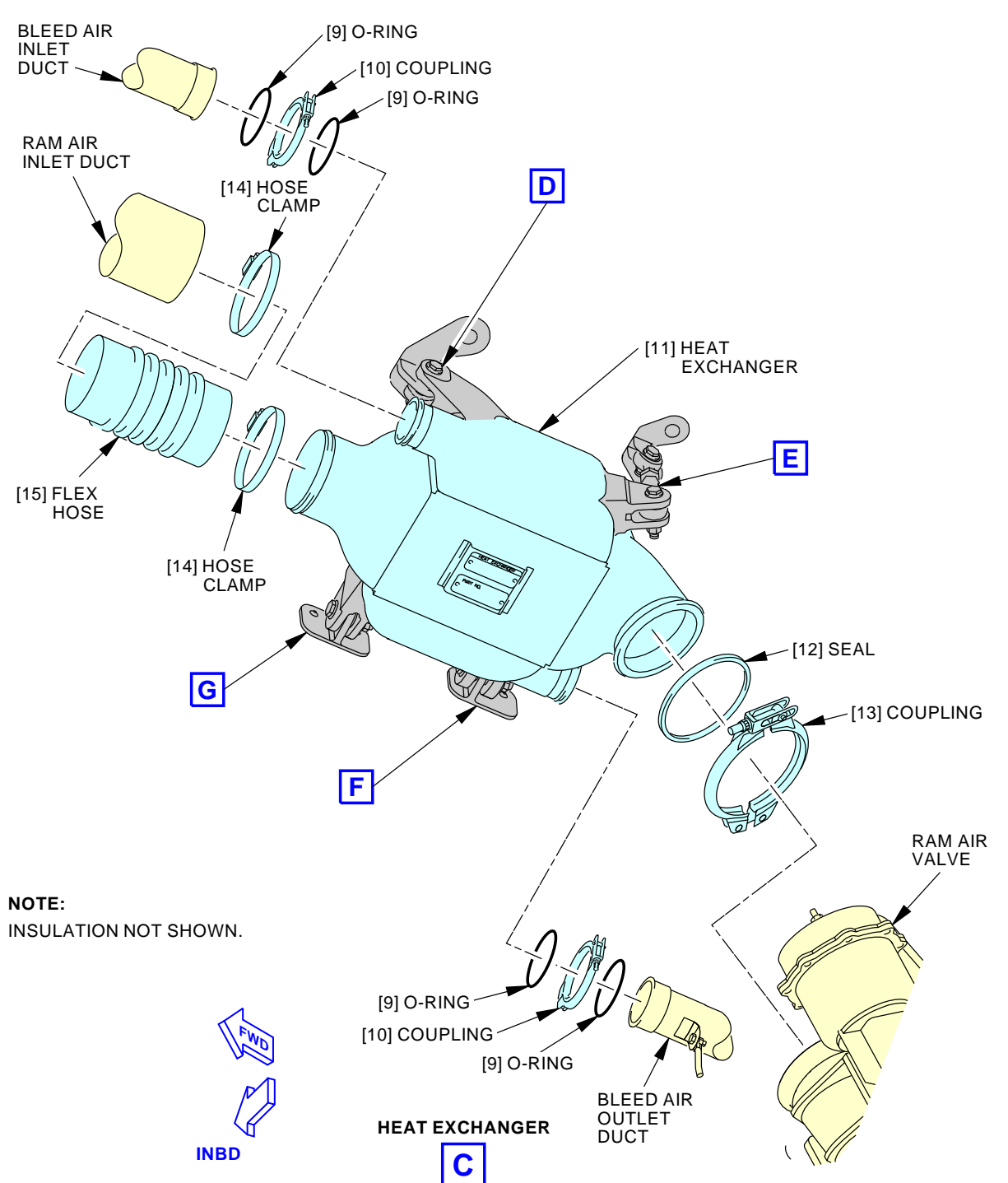


1497022 S0000272089\_V3

**Heat Exchanger**  
**Figure 1 (Sheet 1 of 3)**

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>
		<b>D633A109-AKS</b> <b>47-310-00-01</b>
		<b>Page 10 of 12</b> <b>Oct 15/2015</b>



DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>
 <p><b>NOTE:</b> INSULATION NOT SHOWN.</p> <p><b>FWD</b> <b>INBD</b></p> <p><b>D79539 S0000177985_V5</b></p>				
<p align="center"><b>Heat Exchanger Figure 1 (Sheet 2 of 3)</b></p>				
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>  <b>D633A109-AKS</b> <b>47-310-00-01</b>	
			<b>Page 11 of 12</b> <b>Oct 15/2015</b>	

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-310-00-01</b>
<div data-bbox="217 308 1396 1703" data-label="Image"> <p>Figure 1 (Sheet 3 of 3) illustrates the assembly of the Heat Exchanger. The figure is divided into four sub-views labeled D, E, F, and G, each showing a different perspective of the assembly process.</p> <ul style="list-style-type: none"> <li><b>View D:</b> Shows the heat exchanger (11) with a bolt (16), washer (17), and bushing (18) being installed. A nut (20) is also shown.</li> <li><b>View E:</b> Shows the heat exchanger (11) with a bolt (21), washer (17), bushing (22), extension rod (23), and nut (20). A washer (24) is also shown.</li> <li><b>View F:</b> Shows the heat exchanger (11) with a bolt (16), washer (17), bushing (18), and nut (20).</li> <li><b>View G:</b> Shows the heat exchanger (11) with a bolt (21), washer (17), bushing (22), nut (20), shim (25) (optional), and bonding jumper (26).</li> </ul> </div>				
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>NITROGEN GENERATION SYSTEM HEAT EXCHANGER</b>	
		<b>D633A109-AKS</b> <b>47-310-00-01</b>	<b>Page 12 of 12</b> <b>Oct 15/2015</b>	

AIRLINE CARD NO		TITLE <b>THERMAL SWITCH</b>			BOEING CARD NO. <b>47-400-00-01</b>
DATE	TASK <b>FUNCTIONAL</b>				RELATED CARD
TAIL NUMBER	WORK AREA <b>AC DIST BAY</b>	VERSION <b>1.1</b>	THRESHOLD <b>22500 FH</b>	REPEAT <b>22500 FH</b>	APPLICABILITY AIRPLANE <b>ALL</b> ENGINE <b>ALL</b> <b>NOTE</b>
STATION	SKILL <b>AIRPL</b>	ACCESS <b>192BL 192CL 192CR</b>			ZONE <b>131 212</b>

Functional test of the thermal switch (off aircraft).

**SPECIAL NOTE:** AWL task (47-AWL-04) interval for this task is 22500 FH. See MPD Section 9.

**AIRPLANE NOTE:** If Nitrogen Generation System is installed.

#### A. References

Reference	Title
AMM 20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
AMM 20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
AMM 36-00-00-860-806	Remove Pressure from the Pneumatic System (P/B 201)
AMM 47-00-00-010-801	Nitrogen Generation System (NGS) Precautions (P/B 201)
AMM 47-00-00-800-801	Ground Operation of the Nitrogen Generation System (P/B 201)
SWPM 20-25-14	ELECTRICAL CONNECTION OF SHIELDED CABLES AND CONNECTOR BACKSHELLS WITH SHIELD TERMINATOR BANDS
SWPM 20-25-15	ASSEMBLY OF COMPOSITE HEX COUPLING NUT BACKSHELLS THAT HAVE OR DO NOT HAVE A BRAIDED SHIELD SOCK

#### B. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50135	Leak Detector - Liquid, Non-Corrosive Soap Compound	MIL-PRF-25567

EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	THERMAL SWITCH  <b>D633A109-AKS 47-400-00-01</b>	Page 1 of 7 Jun 15/2015
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DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-400-00-01</b>	
<b>TASK 47-43-02-720-801</b>				MECH	INSP
<b>1. Thermal Switch Functional Test</b> (Figure 1)					
<b>A. General</b>					
(1) This task removes and bench tests the NGS thermal switch. (2) The thermal switch (S01129), is on the air duct that connects the air filter to the air separation module (ASM). (3) You get access to the thermal switch through the underwing fairing access panel for the ram air duct, 192BL.					
<b>B. Expendables/Parts</b>					
<b>AMM Item</b>	<b>Description</b>	<b>AIPC Reference</b>	<b>AIPC Effectivity</b>		
3	O-ring	47-43-02-01-005	AKS ALL		
<b>C. Remove the Thermal Switch</b>					
<b>SUBTASK 47-43-02-860-003</b>					
(1) Do this task to prepare for the removal: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806. (a) Make sure that the dual duct pressure gage shows less than 0.50 psig (3.45 kPa) in the L and R pneumatic ducts.					
<b>SUBTASK 47-43-02-860-004</b>					
(2) Put the L PACK and R PACK selector switches, found on the P5-10 air conditioning panel, to the OFF position. (a) Put DO-NOT-OPERATE tags on the L PACK and R PACK selector switches.					
<b>SUBTASK 47-43-02-860-005</b>					
(3) Open these circuit breakers and install safety tags:					
<b>CAPT Electrical System Panel, P18-3</b>					
<b>Row</b>	<b>Col</b>	<b>Number</b>	<b>Name</b>		
D	17	C01657	NITROGEN GENERATION CONTROL		
E	15	C01680	NGS ALT PWR		
<b>SUBTASK 47-43-02-020-005</b>					
(4) Open these access panels:					
<b>Number</b>	<b>Name/Location</b>				
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward				
192CR	ECS Access Door				
<b>EFFECTIVITY</b> <b>AKS ALL</b>		<b>SOURCE</b> <b>MSG3</b>	<b>THERMAL SWITCH</b>  <b>D633A109-AKS</b> <b>47-400-00-01</b>		

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-400-00-01</b>	MECH	INSP
<b>SUBTASK 47-43-02-910-002</b>  <b><u>WARNING:</u></b> DO NOT TOUCH THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM WHEN THEY ARE HOT. WHEN THE COMPONENTS ARE HOT, THEY CAN CAUSE INJURIES TO PERSONNEL.  <b><u>WARNING:</u></b> DO NOT DISCONNECT THE COMPONENTS OF THE NITROGEN GENERATION SYSTEM, OR DUCTS WHEN THE SYSTEM IS PRESSURIZED. THE HOT, HIGH-PRESSURE AIR CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.  <b><u>CAUTION:</u></b> MAKE SURE THAT THE MAINTENANCE AREA IS FREE OF CONTAMINATION FROM SKYDROL, LUBRICANTS, SOLVENTS, FUEL, FUMES, EXHAUST, OR DUST. DO NOT LET SOLVENTS, LUBRICANTS, OTHER FLUIDS, OR THEIR FUMES GO INTO THE FLOW PATH TO OR FROM THE ASM. CONTAMINATION WILL CAUSE DAMAGE TO THE FIBERS IN THE AIR SEPARATION MODULE AND DECREASE THEIR LIFE.  (5) Obey the nitrogen generation system (NGS) precautions (AMM TASK 47-00-00-010-801).  <b>SUBTASK 47-43-02-020-006</b> (6) Go to the thermal switch [2] location. <u>NOTE:</u> The thermal switch [2] is on the inlet duct [4] to the air separation module upstream of and adjacent to the overtemperature shutoff valve.  <b>SUBTASK 47-43-02-020-007</b> (7) Disconnect the electrical connector [1].  <b>SUBTASK 47-43-02-020-008</b> (8) Do these steps to remove the thermal switch [2]: (a) Remove the lockwire (AMM TASK 20-10-44-000-801) (b) Remove the thermal switch [2] from the duct [4]. <u>NOTE:</u> Use a second wrench on the duct [4] when you disconnect the thermal switch [2]. (c) Discard the o-ring [3]. (d) Put a protective cap on the thermal switch port of the duct [4].  <b>D. Functional Test</b>  <b>SUBTASK 47-43-02-720-001</b> (1) Test the thermal switch [2] (S01129) per the manufacturer's instructions. <u>NOTE:</u> Do the following installation procedure with either a new or serviceable thermal switch [2].  <b>E. Install the Thermal Switch</b>  <b>SUBTASK 47-43-02-020-009</b> (1) Remove the protective cap.  <b>SUBTASK 47-43-02-640-002</b> (2) Lubricate the new o-ring [3] with water.						
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>THERMAL SWITCH</b>  <b>D633A109-AKS 47-400-00-01</b>			

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-400-00-01</b>													
<p><b>SUBTASK 47-43-02-420-005</b></p> <p>(3) Install the new o-ring [3] on the thermal switch [2].</p> <p><b>SUBTASK 47-43-02-420-006</b></p> <p>(4) Carefully install the thermal switch [2] into the thermal switch port.</p> <p><u>NOTE:</u> Use a second wrench on the nut attached to the duct [4] when you tighten the thermal switch [2].</p> <p><b>SUBTASK 47-43-02-420-007</b></p> <p>(5) Tighten the thermal switch [2] to 100 ±10 in-lb (11 ±1 N·m).</p> <p>(a) Put a lockwire on the thermal switch [2] and the duct [4] (AMM TASK 20-10-44-400-801).</p> <p><b>SUBTASK 47-43-02-420-008</b></p> <p>(6) Connect the electrical connector [1] to the thermal switch [2].</p> <p><b>SUBTASK 47-43-02-210-002</b></p> <p>(7) Make sure that there is a shield band on the electrical connector [1].</p> <p>(a) If there is no shield band, install a shield band on the electrical connector [1] (SWPM 20-25-14 and SWPM 20-25-15).</p> <p>(b) If the shield band is damaged, repair the shield band (SWPM 20-25-14 and SWPM 20-25-15).</p> <p><b>F. Operational Test of the Thermal Switch</b></p> <p><b>SUBTASK 47-43-02-860-006</b></p> <p>(1) Remove the safety tags and close these circuit breakers:</p> <p><b>CAPT Electrical System Panel, P18-3</b></p> <table border="1"> <thead> <tr> <th>Row</th> <th>Col</th> <th>Number</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>17</td> <td>C01657</td> <td>NITROGEN GENERATION CONTROL</td> </tr> <tr> <td>E</td> <td>15</td> <td>C01680</td> <td>NGS ALT PWR</td> </tr> </tbody> </table> <p><b>SUBTASK 47-43-02-860-007</b></p> <p>(2) Remove the DO-NOT-OPERATE tags from the L PACK and R PACK selector switches on the P5 panel.</p> <p>(a) Put the L PACK and R PACK selector switches to the AUTO position.</p> <p><b>SUBTASK 47-43-02-740-002</b></p> <p>(3) Do this task to do a check of the thermal switch [2]: Ground Operation of the Nitrogen Generation System, AMM TASK 47-00-00-800-801.</p> <p>(a) Make sure the test is good and the BITE message for the thermal switch [2] does not show.</p> <p>(b) With the NGS pressurized, use the leak detector, G50135, to do a check for leaks around the thermal switch [2].</p> <p>(c) Use a clean cotton wiper, G00034, to remove the leak detector, G50135.</p> <p>(d) Repair the leaks that you find.</p>				Row	Col	Number	Name	D	17	C01657	NITROGEN GENERATION CONTROL	E	15	C01680	NGS ALT PWR	MECH	INSP
				Row	Col	Number	Name										
D	17	C01657	NITROGEN GENERATION CONTROL														
E	15	C01680	NGS ALT PWR														
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>THERMAL SWITCH</b>  <b>D633A109-AKS</b> <b>47-400-00-01</b>														

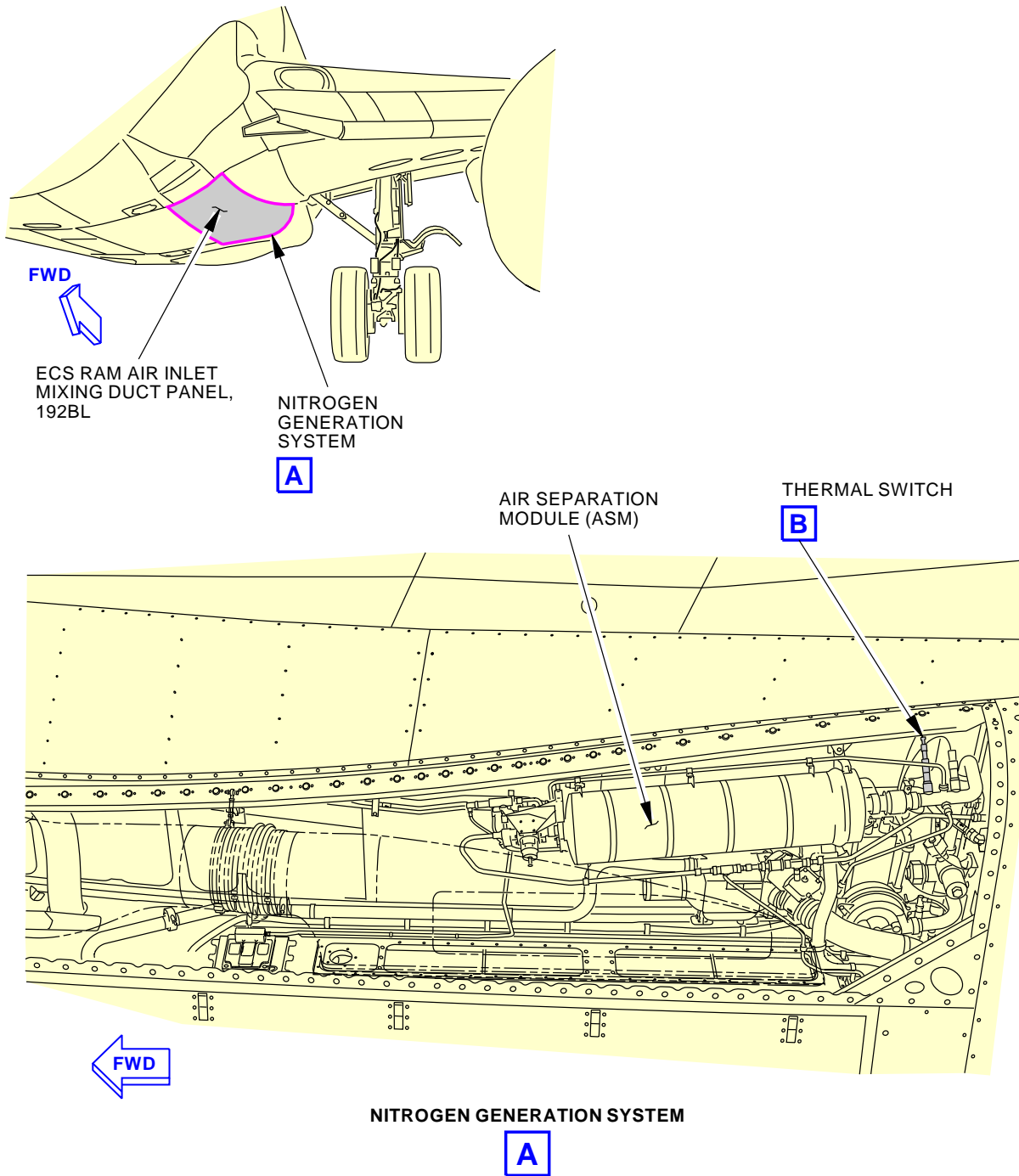
# AKS



## 737-600/700/800/900 TASK CARDS

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-400-00-01</b>							
<b>G. Put the Airplane Back to the Usual Condition</b>  SUBTASK 47-43-02-420-009 (1) Close these access panels: <table><thead><tr><th><u>Number</u></th><th><u>Name/Location</u></th></tr></thead><tbody><tr><td>192BL</td><td>ECS Ram Air Inlet Mixing Duct Panel - Forward</td></tr><tr><td>192CR</td><td>ECS Access Door</td></tr></tbody></table> <p style="text-align: center;">————— END OF TASK —————</p>				<u>Number</u>	<u>Name/Location</u>	192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward	192CR	ECS Access Door	MECH	INSP
				<u>Number</u>	<u>Name/Location</u>						
192BL	ECS Ram Air Inlet Mixing Duct Panel - Forward										
192CR	ECS Access Door										
EFFECTIVITY <b>AKS ALL</b>		SOURCE <b>MSG3</b>	<b>THERMAL SWITCH</b>  <b>D633A109-AKS</b> <b>47-400-00-01</b>								

DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. 47-400-00-01
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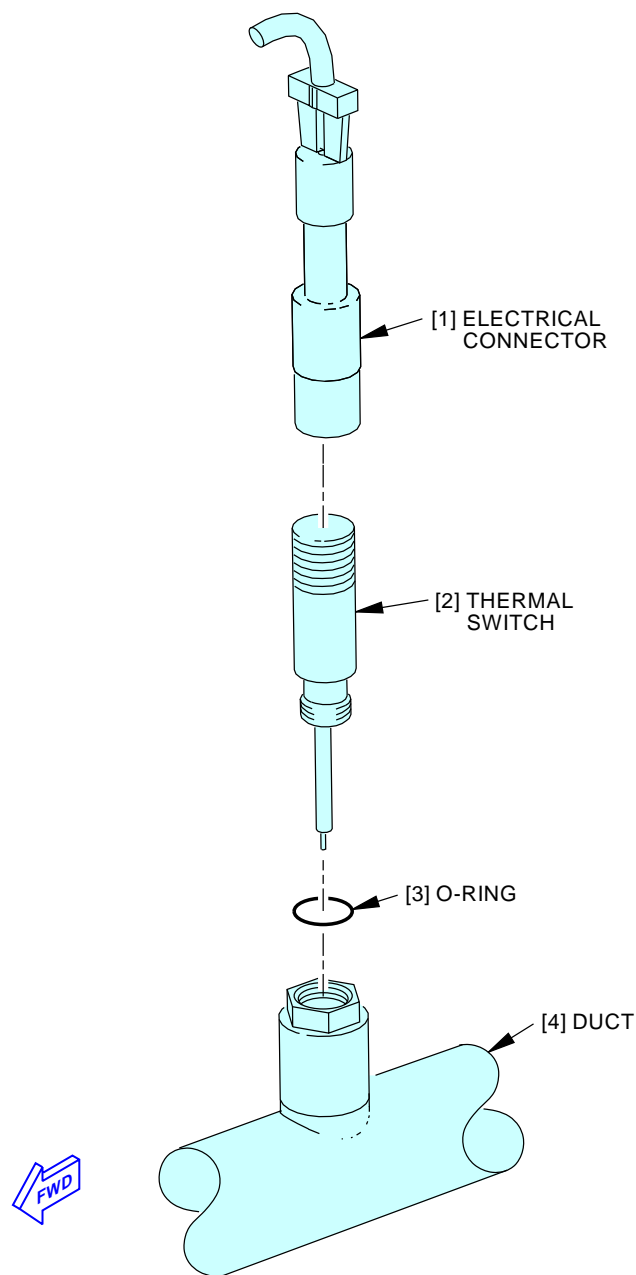
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**Thermal Switch**  
**Figure 1 (Sheet 1 of 2)**

EFFECTIVITY AKS ALL	SOURCE MSG3	THERMAL SWITCH  D633A109-AKS 47-400-00-01	Page 6 of 7 Oct 15/2015
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DATE	TAIL NUMBER	STATION	AIRLINE CARD NO.	BOEING CARD NO. <b>47-400-00-01</b>
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**THERMAL SWITCH**

**B**

**Thermal Switch  
Figure 1 (Sheet 2 of 2)**

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EFFECTIVITY <b>AKS ALL</b>	SOURCE <b>MSG3</b>	<b>THERMAL SWITCH</b>  <b>D633A109-AKS</b> <b>47-400-00-01</b>	<b>Page 7 of 7</b> <b>Oct 15/2015</b>
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