BLEED-AIR SERVO LINE - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

   A. This section gives the procedures to do the adjustment/test of the Bleed-Air Servo Line which is between the Fan Air Control Thermostat and the Fan Air Valve.

   B. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	*DESCRIPTION*	*EFFECTIVITY*
36-11-11-700-801-A	SERVO LINE - ADJUSTMENT/TEST	ALL

TASK 36-11-11-700-801-A
EFFECTIVITY: ALL

2. SERVO LINE - ADJUSTMENT/TEST

A. General

(1) The Servo Line connects the Fan Air Valve to the Fan-Air Control Thermostat.

(2) The Servo Line is also referred to as Pre-cooler Control Line.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-02/100	-
AMM MPP 06-41-05/100	- COMPONENT LOCATION
AMM MPP 06-43-00/100	- COMPONENT LOCATION
AMM TASK 25-51-01-000-801-A/400	BAGGAGE COMPARTMENT LINING - REMOVAL
AMM TASK 25-51-01-400-801-A/400	BAGGAGE COMPARTMENT LINING - INSTALLATION
AMM TASK 36-11-11-200-801-A/600	BLEED-AIR SERVO LINE - INSPECTION
AMM TASK 53-01-03-000-801-A/400	BAGGAGE-COMPARTMENT FLOOR PANELS - REMOVAL
AMM TASK 53-01-03-400-801-A/400	BAGGAGE-COMPARTMENT FLOOR PANELS - INSTALLATION

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
271	271ALW	Fuselage rear section I
272	272ARW	Fuselage rear section I
171	271AF	Floor panel of the baggage compartment
171	271BF	Floor panel of the baggage compartment
172	272AF	Floor panel of the baggage compartment
172	272BF	Floor panel of the baggage compartment
414	414AB	LH Pylon
414	414BB	LH Pylon
414	414CB	LH Pylon
414	414DB	LH Pylon
424	424AB	RH Pylon
424	424BB	RH Pylon
424	424CB	RH Pylon
424	424DB	RH Pylon

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 028	Nitrogen Service Regulator	To regulate the pressure supplied to the system	
GSE 081	Leakage test box	To apply measured pressure to the servo line ducts	
GSE 115	Hose assembly	To connect the leakage test box to the nitrogen source	
GSE 116	Hose assembly	To connect the leakage test box to the servo line	
GSE 250	Pressure gauge	To measure the pressure in the servo line ducts	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Brush	To apply the leak detector	1
Commercially available	Stopwatch	To measure the time necessary for the pressure to decrease	1
AN929-4	Cap	To seal the fan-air control thermostat	2
AS5168J04	Plug	To seal the servo line ducts	4
Commercially available	Tee	To seal the servo line ducts	1

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MIL-L-25567 or equivalent	LEAK TEC 160X (Leak detector)	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Baggage compartment and outside the aircraft
1	Helps the other technician	Baggage compartment and outside the aircraft

I. Preparation (Figure 501)

SUBTASK 841-002-A

NOTE: Because the servo line is divided into left and right sides, you can work on the related side each time.

(1) Make sure that there is no pressure in the servo line.

(2) Open access panels 414AB, 414BB, 414CB, 414DB, 424AB, 424BB, 424CB, and 424DB (AMM MPP 06-43-00/100).

(3) Remove access panels 271ALW and 272ARW (AMM MPP 06-41-05/100 and AMM TASK 25-51-01-000-801-A/400).

(4) Remove floor panels 271AF, 271BF, 272AF, and 272BF (AMM MPP 06-41-02/100 and AMM TASK 53-01-03-000-801-A/400).

CAUTION: MAKE SURE THAT THE PRESSURE REGULATOR KNOB OF THE TEST BOX (GSE 081) IS FULLY CLOSED IN THE COUNTERCLOCKWISE POSITION BEFORE YOU CONNECT THE HOSE ASSEMBLY (GSE 115) TO THE BOTTLE INLET COUPLING. IF YOU DO NOT OBEY THIS PROCEDURE DAMAGE TO THE EQUIPMENT CAN OCCUR.

(5) Connect the hose assembly (GSE 115) to the nitrogen service regulator (GSE 028) and the BOTTLE INLET coupling of the test box (GSE 081). Refer to DET. D, Figure 501, sheet 2.

(6) Connect the hose assembly (GSE 116) at the BOTTLE OUTLET coupling position of the test box (GSE 081). Refer to DET. D, Figure 501, sheet 2.

J. Servo Line Duct - Leakage Test (Figure 501) (Figure 502)

SUBTASK 790-002-A

EFFECTIVITY: ONLY A/C POST-MOD.SB.145-36-0009

WARNING: ISOLATE THE TEST AREA TO KEEP UNAUTHORIZED PERSONNEL AWAY FROM IT.

(1) Do a pressure decrease check in the servo line ducts as follows (Left Pylon):

(a) (If applicable to the aircraft configuration) Disconnect the servo line duct (1) from the damper (4). Refer to DET. B, Figure 501, sheet 2.

(b) (If applicable to the aircraft configuration) Disconnect the servo line duct (1) from the restrictor (4). Refer to DET. B, Figure 501, sheet 2.

(c) Disconnect the flexible tube-servo line (1) from the fan air valve (2). Refer to DET. C, Figure 502, sheet 3.

(d) Install the plug (3) to the flexible tube-servo line (1). Refer to DET. C, Figure 502, sheet 3.

(e) Connect the hose assembly (GSE 116) to the servo line duct (1). Refer to DET. D, Figure 501, sheet 2.

(f) Open the valve of the nitrogen service regulator (GSE 028) and move the selector lever (GSE 081) to the PRESSURE position.

(g) Move the operation selector lever (GSE 081) to the PRESSURE position.

CAUTION: MAKE SURE THAT THE TUBE ASSEMBLIES ARE SEALED WITH THE PLUGS.

(h) Turn the pressure regulator knob (GSE 081) to adjust the pressure from 90 to 100 psig and pressurize the servo line duct (1).

(i) Release the operation selector lever (GSE 081) and see the pressure decrease after 5 minutes.

NOTE: The total pressure decrease must not exceed 3 psig.

WARNING: DO NOT LOOSEN OR TIGHTEN FITTINGS OF PRESSURIZED LINES.

(j) If the total pressure decrease is higher than 3 psig, use the leak detector and identify the leakage points.

(k) Release the pressure in the servo line duct (1) and tighten the fittings at which you think that there is leakage or repair as necessary.

(l) Do the pressure decrease check again and again until you have a satisfactory result.

(m) Remove the hose assembly (GSE 116) from the servo line duct (1). Refer to DET. D, Figure 501, sheet 2.

(n) Connect the servo line duct, as follows:

1 (If applicable to the aircraft configuration) Connect the servo line duct (1) to the damper (4). Refer to DET. D, Figure 501, sheet 2.

2 (If applicable to the aircraft configuration) Connect the servo line duct (1) to the restrictor (4). Refer to DET. D, Figure 501, sheet 2.

(o) Remove the plug (3) from the flexible tube-servo line (1). Refer to DET. C, Figure 502, sheet 3.

(2) Do a pressure decrease check in the servo line ducts as follows (Right Pylon):

(a) (If applicable to the aircraft configuration) Disconnect the servo line duct (1) from the damper (4). Refer to DET. B, Figure 501, sheet 2.

(b) (If applicable to the aircraft configuration) Disconnect the servo line duct (1) from the restrictor (4). Refer to DET. B, Figure 501, sheet 2.

(c) Disconnect the duct (9) from the fan air valve (10). Refer to DET. C, Figure 502, sheet 3.

(d) Install the plug (11) to the duct (9). Refer to DET. C, Figure 502, sheet 3.

(e) Connect the hose assembly (GSE 116) to the servo line duct (1). Refer to DET. D, Figure 501, sheet 2.

(f) Open the valve of the nitrogen service regulator (GSE 028) and move the selector lever (GSE 081) to the PRESSURE position.

(g) Move the operation selector lever (GSE 081) to the PRESSURE position.

CAUTION: MAKE SURE THAT THE TUBE ASSEMBLIES ARE SEALED WITH THE PLUGS.

(h) Turn the pressure regulator knob (GSE 081) to adjust the pressure from 90 to 100 psig and pressurize the servo line duct (1).

(i) Release the operation selector lever (GSE 081) and see the pressure decrease after 5 minutes.

NOTE: The total pressure decrease must not exceed 3 psig.

WARNING: DO NOT LOOSEN OR TIGHTEN FITTINGS OF PRESSURIZED LINES.

(j) If the total pressure decrease is higher than 3 psig, use the leak detector and identify the leakage points.

(k) Release the pressure in the servo line duct (1) and tighten the fittings at which you think that there is leakage or repair as necessary.

(l) Do the pressure decrease check again and again until you have a satisfactory result.

(m) Remove the hose assembly (GSE 116) from the servo line duct (1). Refer to DET. D, Figure 501, sheet 2.

(n) Connect the servo line duct, as follows:

1 (If applicable to the aircraft configuration) Connect the servo line duct (1) to the damper (4). Refer to DET. D, Figure 501, sheet 2.

2 (If applicable to the aircraft configuration) Connect the servo line duct (1) to the restrictor (4). Refer to DET. D, Figure 501, sheet 2.

(o) Remove the plug (11) from the duct (9). Refer to DET. C, Figure 502, sheet 3.

(3) Do a pressure test in the servo line ducts as follows:

(a) Do a pressure test for the servo line ducts, as follows. Refer to DET. C, Figure 502, sheet 3 (Left Pylon):

NOTE: For the left pylon, it will be necessary to install a tube (6) to connect the tee (5) to the fan-air valve (2).

1 Connect the tube (6) to the fan-air valve (2).

2 Install one tee (5) between the flexible tube-servo line (4) and the tube (6).

3 Install the flexible tube-servo line (4) to the tee (5).

4 Install the hose assembly (GSE 116) to the tee (5).

(b) Do a pressure test for the servo line ducts, as follows. Refer to DET. C, Figure 502, sheet 3 (Right Pylon):

1 Remove the union (8) between the servo line duct (7) and the duct (9).

2 Install the tee (12) between the duct (9) and the servo line duct (7).

3 Install the hose assembly (GSE 116) to the tee (12).

(c) Install the pressure gauge (GSE 250) to the hose assembly (GSE 116). Refer to DET. C, Figure 502, sheet 3.

(d) Disconnect the fan-air valve line duct (15) from the bleed duct (14). Refer to DET. D, Figure 502, sheet 3.

(e) Install the hose assembly (GSE 115) fan-air valve line duct (15). Refer to DET. D, Figure 502, sheet 3

(f) NOTE: Do not use a pressure gauge installed in the regulator valve of the nitrogen bottle with a scale of more than 600 psig.

Pressurize the servo line duct with 50 psig.

(g) The pressure shown on the pressure gauge (GSE 250) must be between 2.4 to 3.1 psig.

NOTE:
- The pressure gauge must be read in the vertical position.
- A pressure value of less than 2.4 psig is caused by leakage points in the system.
- A pressure value higher than 3.1 psig is caused by a kinked, as clogged line or a fan air valve failure.

(h) Repair as necessary and do the pressure test again and again until you have a satisfactory result.

(i) Release the pressure in servo line duct and disconnect the pressure gauge (GSE 250). Refer to DET. C, Figure 502, sheet 3.

(j) Disconnect the pressure gauge (GSE 116), and do as follows. Refer to DET. C, Figure 502, sheet 3:

1 For the left pylon, do as follows:

1. Remove the tee (5) and the tube (6) from the flexible tube-servo line (4) and the fan air valve (2).
2. Install the flexible tube-servo line (1) to the fan air valve (2).

2 For the right pylon, do as follows:

1. Remove the tee (12) between the duct (9) and the servo line duct (7).
2. Install the union (8) between the duct (9) and servo line duct (7).

(4) Do a pressure test at the free points in the servo line ducts as follows:

(a) Disconnect the hose assembly (GSE 115) of the test box (GSE 081). Refer to DET. D, Figure 501, sheet 2.

(b) Install the hose assembly (GSE 115) connected on the nitrogen service regulator (GSE 028), to the fan-air valve line duct (15). Refer to DET. D, Figure 502, sheet 3.

(c) Pressurize the fan-air valve line duct (15) to 200 psig, while you monitor the gauge of nitrogen service regulator (GSE 028)

(d) Use the leak detector to do a check for leakage at the free points.

NOTE:
- There must be NO leakage.
- Leakage in the body of the fan air valve is normal.
- Check if the drain lines are not kinked, clogged or leaking.
- Check for the correct installation of the drain line to the Fan-air control thermostat.
- If you do not feel airflow out of the drain fairing, do the leak test again.

(e) Examine the fittings that were not checked during the previous leak test (AMM TASK 36-11-11-200-801-A/600).

(f) No leakage in those points is permitted.

(g) Be very careful with the fittings that you use to do this test.

(h) Disconnect the hose assembly (GSE115) from the fan-air valve line duct (15). Refer to DET. C, Figure 502, sheet 3.

(i) Connect the fan-air valve line duct (15) to the bleed duct (14). Refer to DET. C, Figure 502, sheet 3.

K. Servo Line Duct - Leakage Test (Figure 503)

SUBTASK 790-003-A

EFFECTIVITY: ONLY A/C PRE-MOD.SB. 145-36-0009

WARNING: THE TEST AREA MUST BE ISOLATED AND FREE OF PERSONS NOT RELATED TO THE TEST.

(1) Do a pressure decrease check in the servo line ducts as follows:

(a) Disconnect the servo line duct from the fan-air control thermostat. Refer to DET. B, Figure 503.

(b) Install the plug in the servo line duct from the fan-air control thermostat.

(c) Disconnect the servo line duct in the pylon from the fan-air valve.

(d) Install the hose assembly (GSE 116) to connect the BOTTLE OUTLET coupling of the test box (GSE 081) to the servo line duct near fan air valve.

(e) Connect the hose assembly (GSE 115) to the nitrogen bottle and the BOTTLE INLET coupling of the test box (GSE 081).

(f) Open the valve of the nitrogen bottle (GSE 028) and move the operation selector lever (GSE 081) to the PRESSURE position.

CAUTION: MAKE SURE THAT THE TUBE ASSEMBLIES ARE CONNECTED WITH THE PLUGS.

(g) Turn the pressure regulator knob (GSE 081) to adjust the pressure from 90 to 100 psig and pressurize the servo line duct.

(h) Release the operation selector lever (GSE 081) and see the pressure decrease after 5 minutes.

NOTE: The total pressure decrease must not be of more than 3 psig.

WARNING: DO NOT LOOSEN OR TIGHTEN FITTINGS OF THE PRESSURIZED LINES.

(i) If the total pressure decrease is more than 3 psig, use the leak detector and identify the leakage points.

(j) Release the pressure in the servo line duct and tighten the fittings at which you think that there is leakage or repair as necessary.

(k) Do the pressure decrease check as many times as necessary to have the satisfactory result.

(l) Remove the hose assembly (GSE 116) from the servo line duct.

(m) Connect the servo line duct to the fan-air valve and torque to 135 to 150 lb.in. Refer to DET. B, Figure 503.

(n) Remove the plug from the servo line duct. Refer to Figure 503.

(o) Connect the servo line duct again to the fan-air control thermostat (REF.) and torque to 135 to 150 lb.in. Refer to DET. B, Figure 503.

(p) Examine the fittings that were not checked during the previous leak test (AMM TASK 36-11-11-200-801-A/600).

L. Follow-on

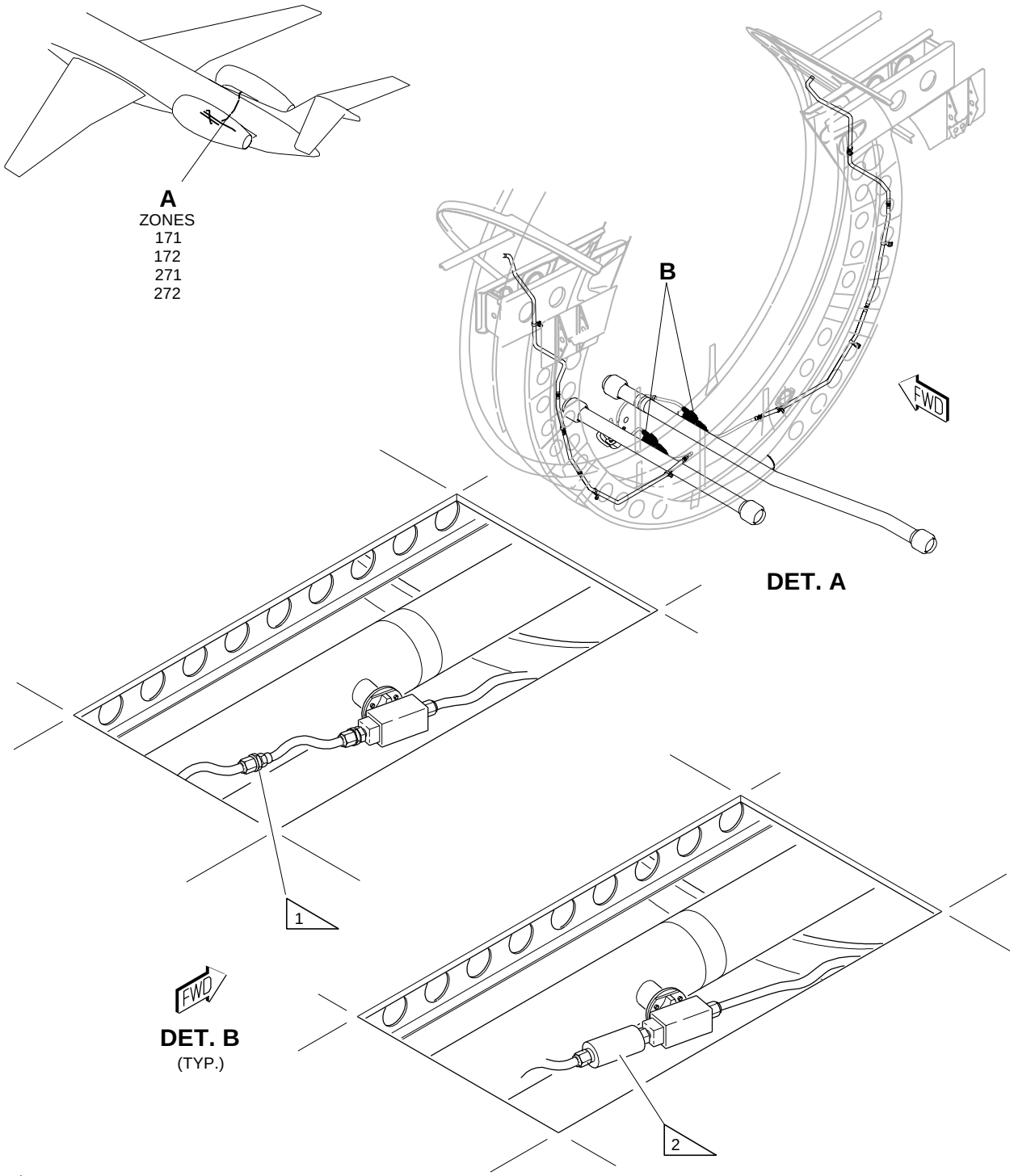
SUBTASK 842-002-A

(1) Close access panels 414AB, 414BB, 414CB, 414DB, 424AB, 424BB, 424CB, and 424DB (AMM MPP 06-43-00/100).

(2) Install access panels 271ALW and 272ARW (AMM MPP 06-41-05/100 and AMM TASK 25-51-01-400-801-A/400).

(3) Install floor panels 271AF, 271BF, 272AF, and 272BF (AMM MPP 06-41-02/100 and AMM TASK 53-01-03-400-801-A/400).

EFFECTIVITY: POST-MOD. S.B. 145-36-0009
Bleed Air Servo Line - Adjustment/Test
Figure 501 - Sheet 1



1 FAN−AIR CONTROL THERMOSTAT WITH RESTRICTOR INSTALLED.

2 FAN−AIR CONTROL THERMOSTAT WITH DAMPER INSTALLED.

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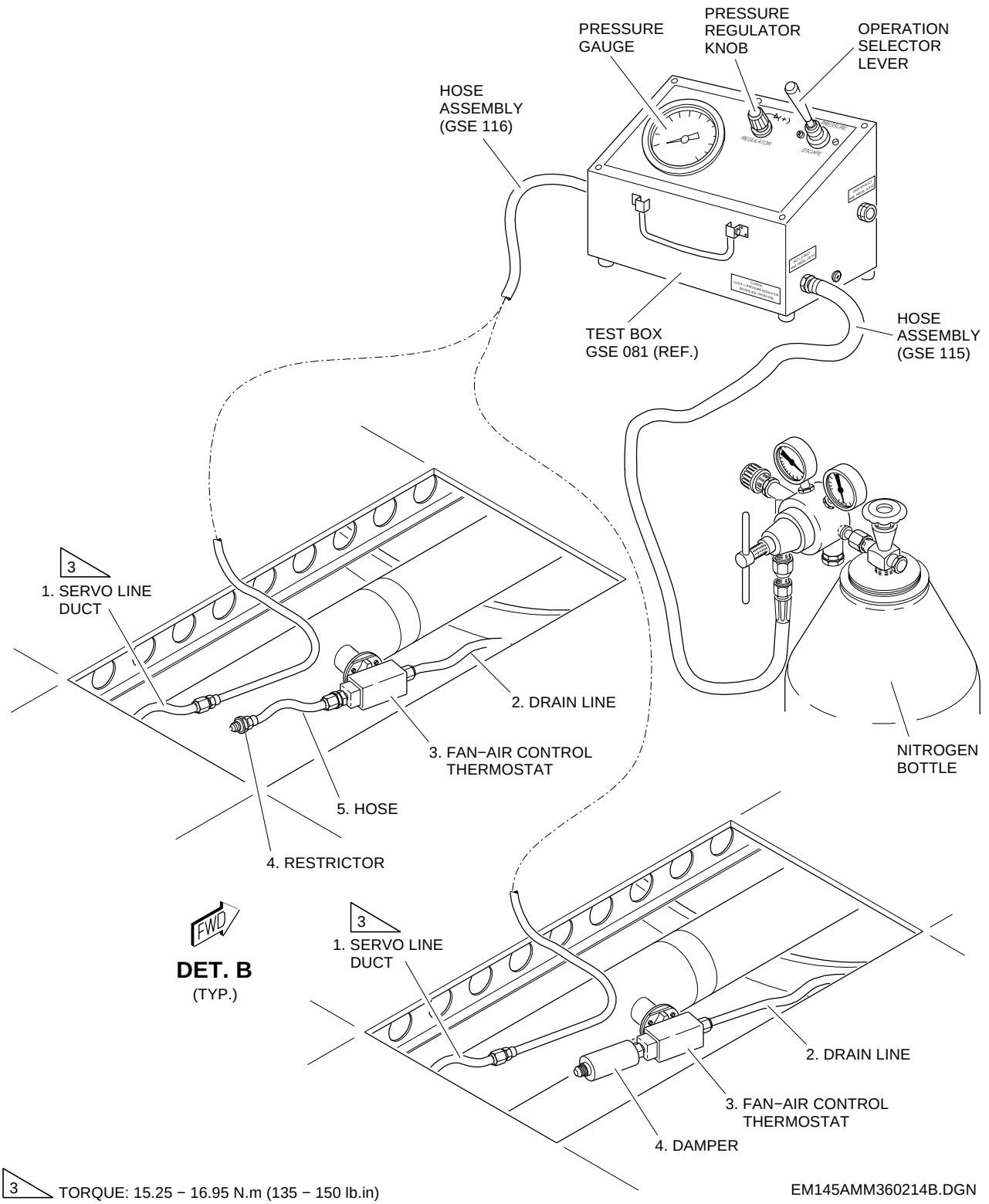
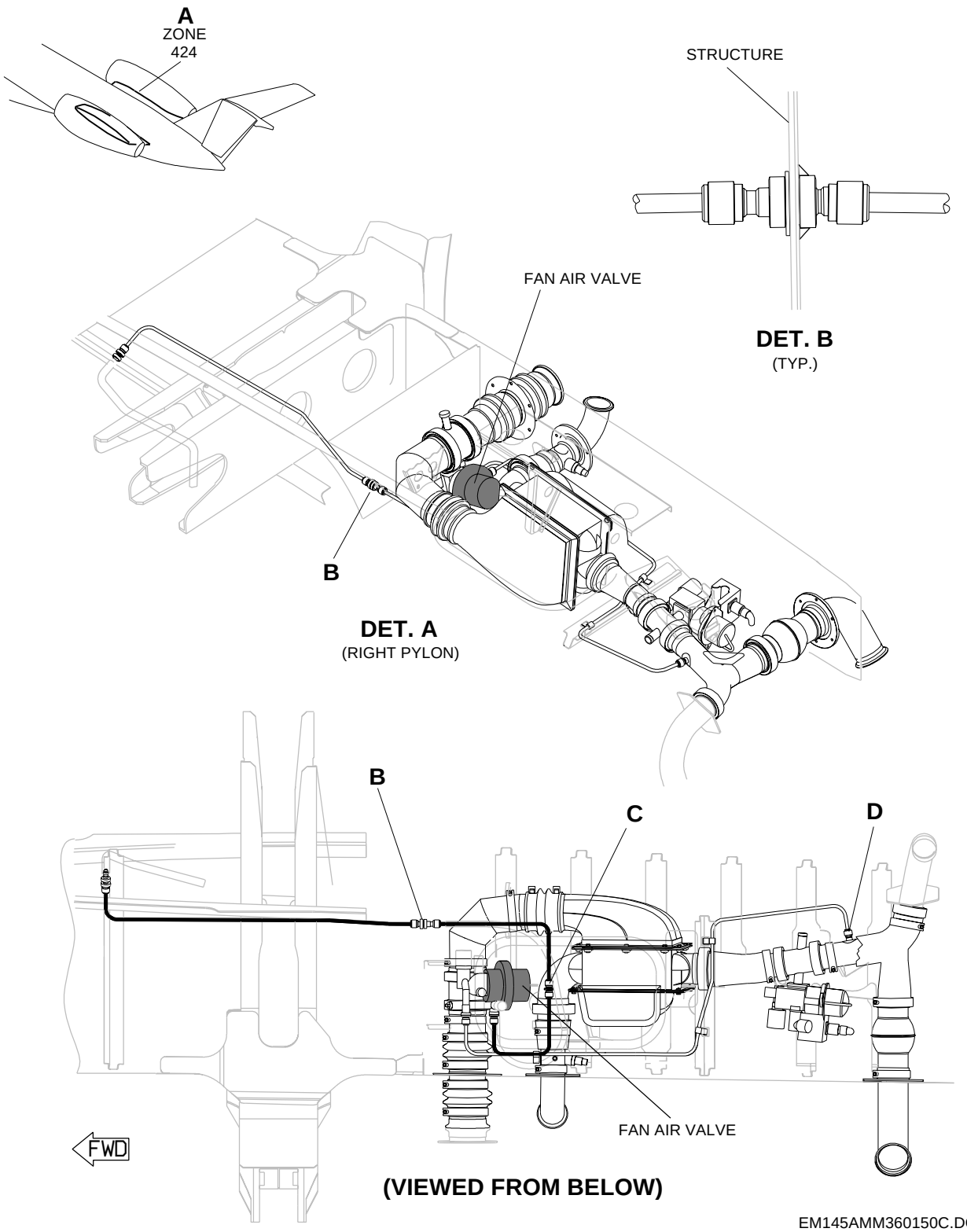
EFFECTIVITY: POST-MOD. S.B. 145-36-0009
Bleed Air Servo Line - Adjustment/Test
Figure 501 - Sheet 2



EFFECTIVITY: POST-MOD. S.B. 145-36-0009
Bleed Air Servo Line - Adjustment/Test
Figure 502 - Sheet 1



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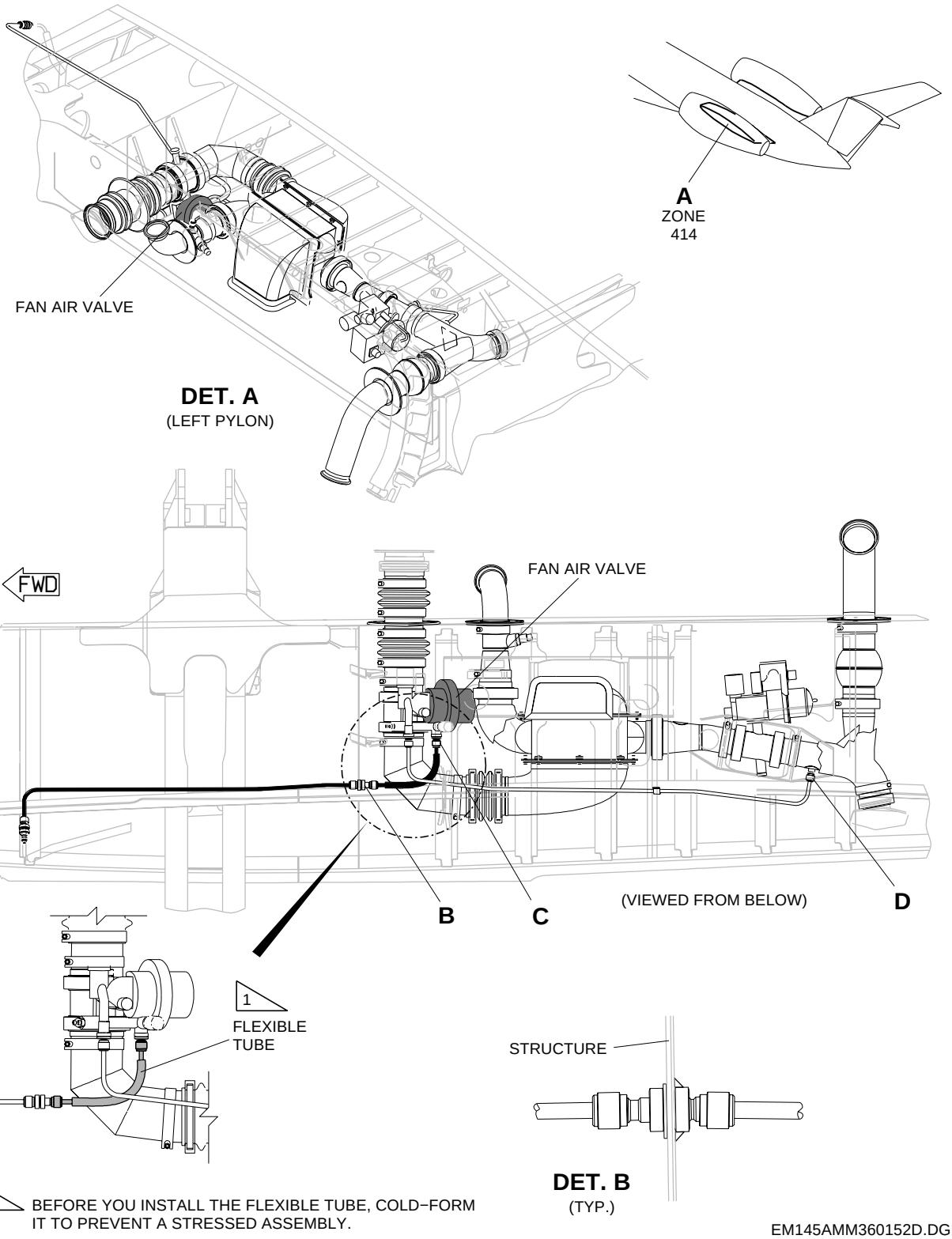
EFFECTIVITY: POST-MOD. S.B. 145-36-0009
Bleed Air Servo Line - Adjustment/Test
Figure 502 - Sheet 2



1 BEFORE YOU INSTALL THE FLEXIBLE TUBE, COLD−FORM IT TO PREVENT A STRESSED ASSEMBLY.

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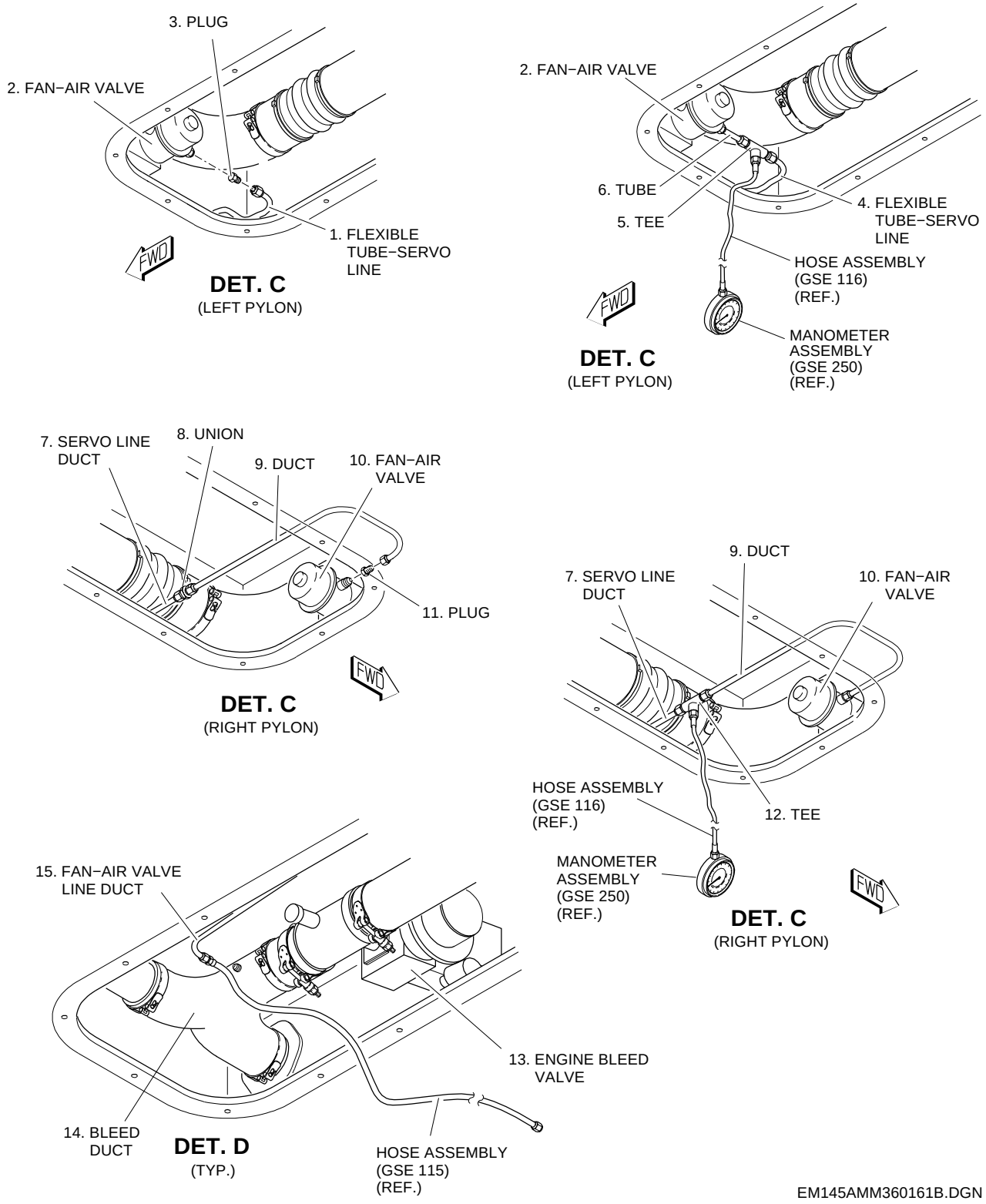
EFFECTIVITY: POST-MOD. S.B. 145-36-0009
Bleed Air Servo Line - Adjustment/Test
Figure 502 - Sheet 3



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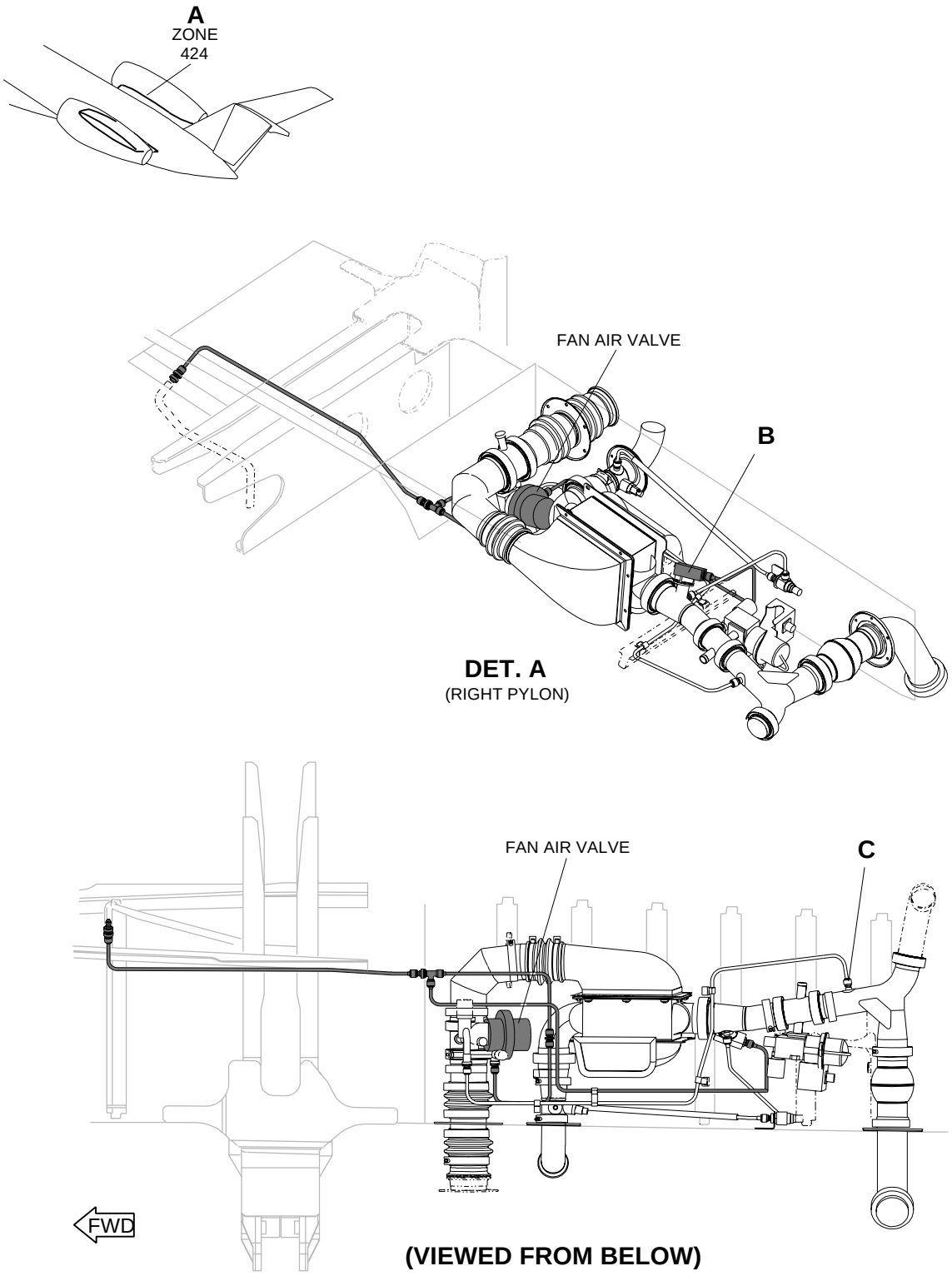
EFFECTIVITY: PRE-MOD. S.B. 145-36-0009
Bleed Air Servo Line - Adjustment/Test
Figure 503 - Sheet 1



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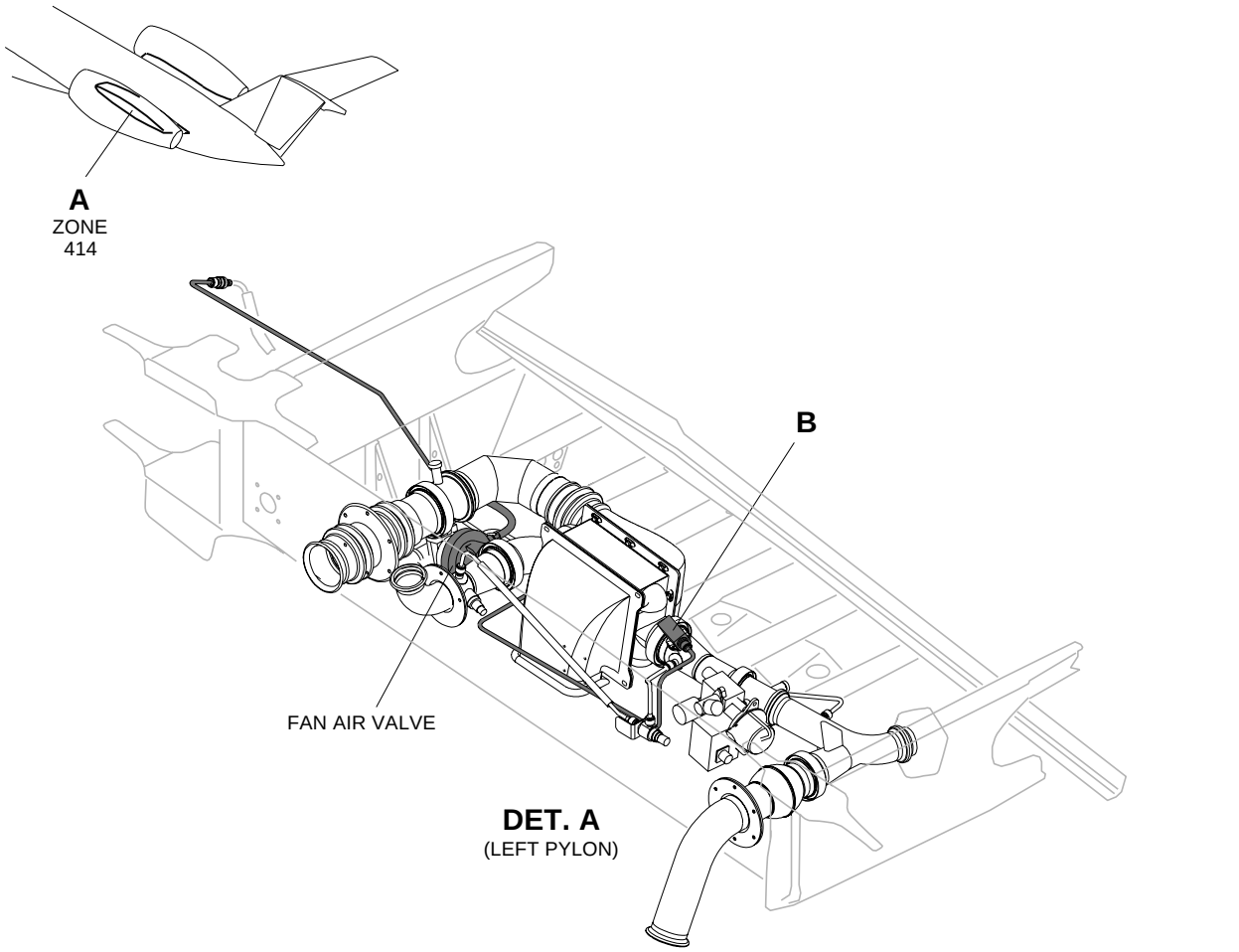
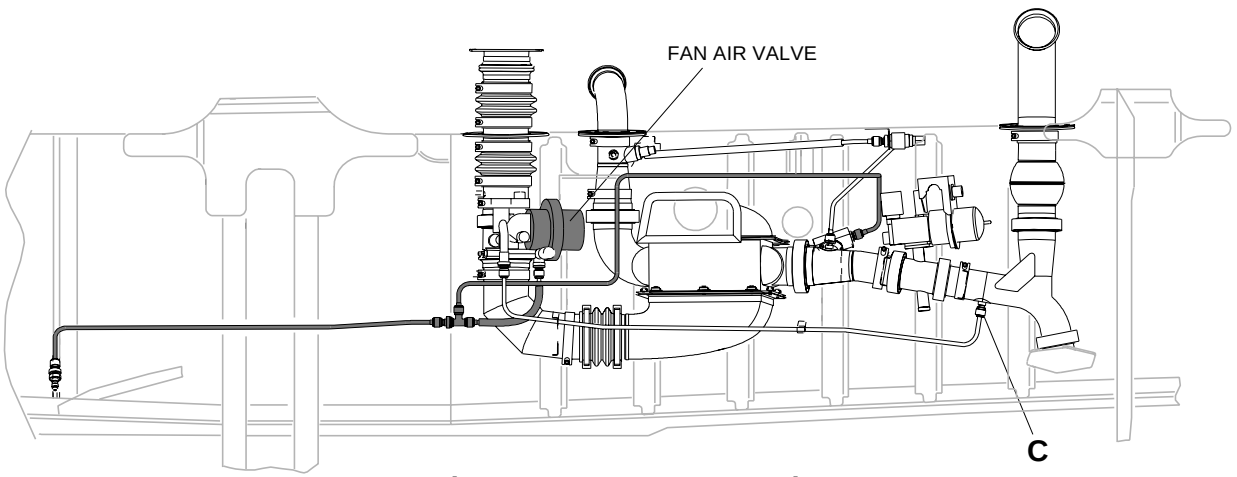
EFFECTIVITY: PRE-MOD. S.B. 145-36-0009
Bleed Air Servo Line - Adjustment/Test
Figure 503 - Sheet 2





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