WHEELS AND BRAKES - MAINTENANCE PRACTICES

EFFECTIVITY: ALL

1. General

A. This section gives the procedures to bleed the Normal Brake and Emergency Parking Brake systems.

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*
32-40-00-800-801-A	NORMAL BRAKE AND EMERGENCY PARKING BRAKE SYSTEMS - BLEEDING	ALL

TASK 32-40-00-800-801-A
EFFECTIVITY: ALL

2. NORMAL BRAKE AND EMERGENCY PARKING BRAKE SYSTEMS - BLEEDING

A. General

(1) This task gives the procedures to bleed the Normal and Emergency Parking Brake systems.

(2) Do this procedure when no problem is found in the brake system and during maintenance tasks with the brake tubes and components disconnected.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-44-00/100	- COMPONENT LOCATION
AMM TASK 12-13-01-600-801-A/300	HYDRAULIC SYSTEM RESERVOIR - FLUID LEVEL CHECK
AMM TASK 12-13-01-600-802-A/300	HYDRAULIC SYSTEM RESERVOIR - REPLENISHMENT
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL
AMM TASK 32-44-02-910-801-A/200	HYDRAULIC ACCUMULATOR EMERGENCY/PARKING BRAKE - RELEASE

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
532	532AB	Wing trailing edge
632	632AB	Wing trailing edge

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 108	Hose, wheel brake bleeding	To bleed the brake system	

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Bucket	To collect the hydraulic fluid	As necessary
Commercially available	Rubber Gloves, Phosphate Ester-Base, Fluid-Resistant	Protection for the hands	1
Commercially available	Rubber Goggles, Phosphate Ester-Base, Fluid-Resistant	Protection for the eyes	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Landing gear
1	Helps the other technician	Cockpit

I. Preparation

SUBTASK 841-002-A

(1) Make sure that the safety pins are installed on the landing gear (AMM TASK 32-00-01-910-801-A/200).

(2) Remove access panels 532AB and 632AB to get access to the hydraulic fuses (AMM MPP 06-44-00/100). See Figure 201 and Figure 202.

(3) Make sure that, on the Circuit Breaker Panel, the ELEC PUMP 1 and ELEC PUMP 2 circuit breakers are closed.

(4) Isolate the operational areas near the landing gear, rudder, spoiler, thrust reverser, ailerons, and flaps.

(5) Control the ailerons up and down, or the rudder to the left and to the right, until the pressure of the hydraulic system shows zero PSI on the EICAS.

(6) Fully release the pressure from the fluid chamber of the emergency/parking brake system hydraulic accumulator (AMM TASK 32-44-02-910-801-A/200).

(7) Get access to the Landing Gear Brake Assembly. See DET. D of Figure 201 and DET. D of Figure 202.

WARNING: OBEY ALL SAFETY INSTRUCTIONS RELATED TO SKYDROL FLUID.

(8) For aircraft with brake assembly with two bleeder valves, do the procedure to install GSE 108 to the bleeder valve (3) in all the brake assemblies as follows:

NOTE:
- Make sure that GSE 108 is decontaminated.
- There are two bleeder valves in each brake assembly. Install GSE 108 in the bleeder valve that is in a higher position than the other bleeder valve.

(a) Put the related container in position. Refer to DET. D of Figure 201.

(b) Use a standard tool to hold the bleeder valve assembly (4) while you remove the bolt (1) and washer (2) of the LH MLG outboard brake assembly. Refer to Figure 203.

(c) Remove the bolt (1) and washer (2) from the bleeder valve (3). Refer to Figure 203.

(d) Install the GSE 108 to the bleeder valve (3) and put the other end of the GSE 108 in the container. Refer to Figure 201, DET D and Figure 203.

WARNING: OBEY ALL SAFETY INSTRUCTIONS RELATED TO SKYDROL FLUID.

(9) For aircraft with brake assembly with four bleeder valves, do the procedure to install GSE 108 to the bleeder valve (3) in all the brake assemblies as follows:

NOTE:
- Make sure that GSE 108 is decontaminated.
- There are four bleeder valves in each brake assembly. Install GSE 108 in the two bleeder valves. Refer to DET. D of Figure 202.

(a) Put the related container in position. Refer to DET. D of Figure 202.

(b) Use a standard tool to hold the bleeder valve assembly (4) while you remove the bolt (1) and washer (2) of the LH MLG outboard brake assembly. Refer to Figure 203.

(c) Remove the bolt (1) and washer (2) from the bleeder valve (3). Refer to Figure 203.

(d) Install the GSE 108 to the two bleeder valves (3) and put the other end of the GSE 108 in the container. Refer to Figure 202, DET. D and Figure 203.

J. Bleeding of the Normal Brake and Emergency Parking Brake Systems

SUBTASK 870-002-A

(1) For aircraft with brake assembly with two bleeder valves, do the bleeding procedure as follows:

(a) Pressurize the hydraulic system (AMM TASK 29-10-00-860-802-A/200) with electric-motor driven pumps 1 and 2 (EMDP 1 and EMDP 2).

(b) Open the related hydraulic fuse by-pass valve with its actuating lever. Refer to Figure 201.

(c) With the left brake pedal pushed, slowly open the outboard brake-assembly bleeder valve, on the LH MLG.

(d) When you complete the bleeding of the outboard brake-assembly bleeder valve on the LH MLG, do the procedure as follows:

1 Close the bleeder valve. Use the torque wrench to torque the bleeder valve (3) to 3.9 - 6.2 N.m (35 - 55 lb.in), refer to Figure 203. Only after that, release the pressure on the left pedal.

WARNING: IT IS VERY IMPORTANT TO BLEED THE SYSTEM AS MANY TIMES AS NECESSARY TO MAKE SURE THAT THE FLUID IS FREE OF AIR BUBBLES. ENTRAPPED AIR CAUSES THE SYSTEM TO OPERATE INCORRECTLY. IF YOU DO NOT OBEY THIS PRECAUTION, DAMAGE TO THE EQUIPMENT AND/OR INJURY TO PERSONNEL CAN OCCUR.

(e) Do steps (c) and (d) to make sure that the air-free-fluid flows through the bleeder valves.

(f) Close the related hydraulic fuse by-pass valve through its actuating lever.

(g) Do steps (b) thru (f) for the LH MLG inboard brake assembly.

(h) Do steps (b) thru (f) for the RH MLG inboard brake assembly.

NOTE: When you do these steps for the RH MLG inboard brake assembly, push the right brake pedal.

(i) Do steps (b) thru (f) for the RH MLG outboard brake assembly.

NOTE: When you do these steps for the RH MLG outboard brake assembly, push the right brake pedal.

(j) Do steps below for the Emergency/Parking Brake:

1 With the emergency parking brake handle pulled, slowly open the brake-assembly bleeder valves, on the LH MLG.

NOTE: Do the bleeding of the outboard and inboard brake assemblies. Bleed each brake assembly at a time and make sure that air-free-fluid flows through its bleeder valves before you close them.

2 Do the preview step again for the RH MLG.

(2) For aircraft with brake assembly with four bleeder valves do the bleeding procedure as follows:

(a) Pressurize the hydraulic system (AMM TASK 29-10-00-860-802-A/200) with electric-motor driven pumps 1 and 2 (EMDP 1 and EMDP 2).

(b) Open the related hydraulic fuse by-pass valve with its actuating lever. Refer to Figure 202.

(c) With the left brake pedal pushed, slowly open the outboard brake-assembly bleeder valves, on the LH MLG.

NOTE: Do the bleeding of the two bleeder valves.

(d) When you complete the bleeding of the outboard brake-assembly bleeder valves, on the LH MLG do a procedure as follows:

1 Close the bleeder valves. Use the torque wrench to torque the bleeder valve (3) to 3.9 - 6.2 N.m (35 - 55 lb.in), refer to Figure 203. Only after that, release the pressure on the left pedal.

WARNING: IT IS VERY IMPORTANT TO BLEED THE SYSTEM AS MANY TIMES AS NECESSARY TO MAKE SURE THAT THE FLUID IS FREE OF AIR BUBBLES. ENTRAPPED AIR CAUSES THE SYSTEM TO OPERATE INCORRECTLY. IF YOU DO NOT OBEY THIS PRECAUTION, DAMAGE TO THE EQUIPMENT AND/OR INJURY TO PERSONNEL CAN OCCUR.

(e) Do steps (c) and (d) to make sure that the air-free-fluid flows through the bleed valves.

(f) Close the related hydraulic fuse by-pass valve through its actuating lever.

(g) Do steps (b) thru (f) for the LH MLG inboard brake assembly.

(h) Do steps (b) thru (f) for the RH MLG inboard brake assembly.

NOTE: When you do these steps for the RH MLG inboard brake assembly, push the right brake pedal.

(i) Do steps (b) thru (f) for the RH MLG outboard brake assembly.

NOTE: When you do these steps for the RH MLG outboard brake assembly, push the right brake pedal.

(j) Do steps below for the Emergency/Parking Brake:

1 With the emergency parking brake handle pulled, slowly open the brake-assembly bleeder valves, on the LH MLG.

NOTE:
- Do the bleeding of the outboard and inboard brake assemblies. Bleed each brake assembly at a time and make sure that air-free-fluid flows through its bleeder valves before you close them.
- Do the bleeding of the two bleeder valves.

2 Do the preview step again for the RH MLG.

K. Follow-on

SUBTASK 842-002-A

(1) Remove the GSE 108 from the left and right brake assemblies as follows:

(a) For aircraft with brake assembly that have two bleeder valves do as follows:

1 Remove the GSE 108 from the bleeder valve (3). Refer to Figure 201, DET. D and Figure 203.

2 Use a standard tool to hold the bleeder valve assembly (4) while you install the washer (2) and bolt (1). Refer to Figure 201, DET. D and Figure 203.

NOTE: Make sure that the bleeder valve assembly (4) does not turn while you install the washer (2) and the bolt (1). Refer to Figure 203.

3 Install the washer (2) and the bolt (1) to the bleeder valve (3). Refer to Figure 203.

4 Use a torque wrench to torque the bolt (1) to 2.3 - 3.4 N.m (20 - 30 lb.in). Refer to Figure 203.

NOTE: Make sure that there is no leakage on the bleeder valve assembly (4). Refer to Figure 203.

(b) For aircraft with brake assembly with four bleeder valves do as follows:

1 Remove the GSE 108 from the bleeder valve (3). Refer to Figure 202, DET. D and Figure 203.

2 Use a standard tool to hold the bleeder valve assembly (4) while you install the washer (2) and bolt (1). Refer to Figure 202, DET. D and Figure 203.

NOTE: Make sure that the bleeder valve assembly (4) does not turn while you install the washer (2) and the bolt (1). Refer to Figure 203.

3 Install the washer (2) and the bolt (1) to the bleeder valve (3). Refer to Figure 203.

4 Use a torque wrench to torque the bolt (1) to 2.3 - 3.4 N.m (20 - 30 lb.in). Refer to Figure 203.

NOTE: Make sure that there is no leakage on the bleeder valve assembly (4). Refer to Figure 203.

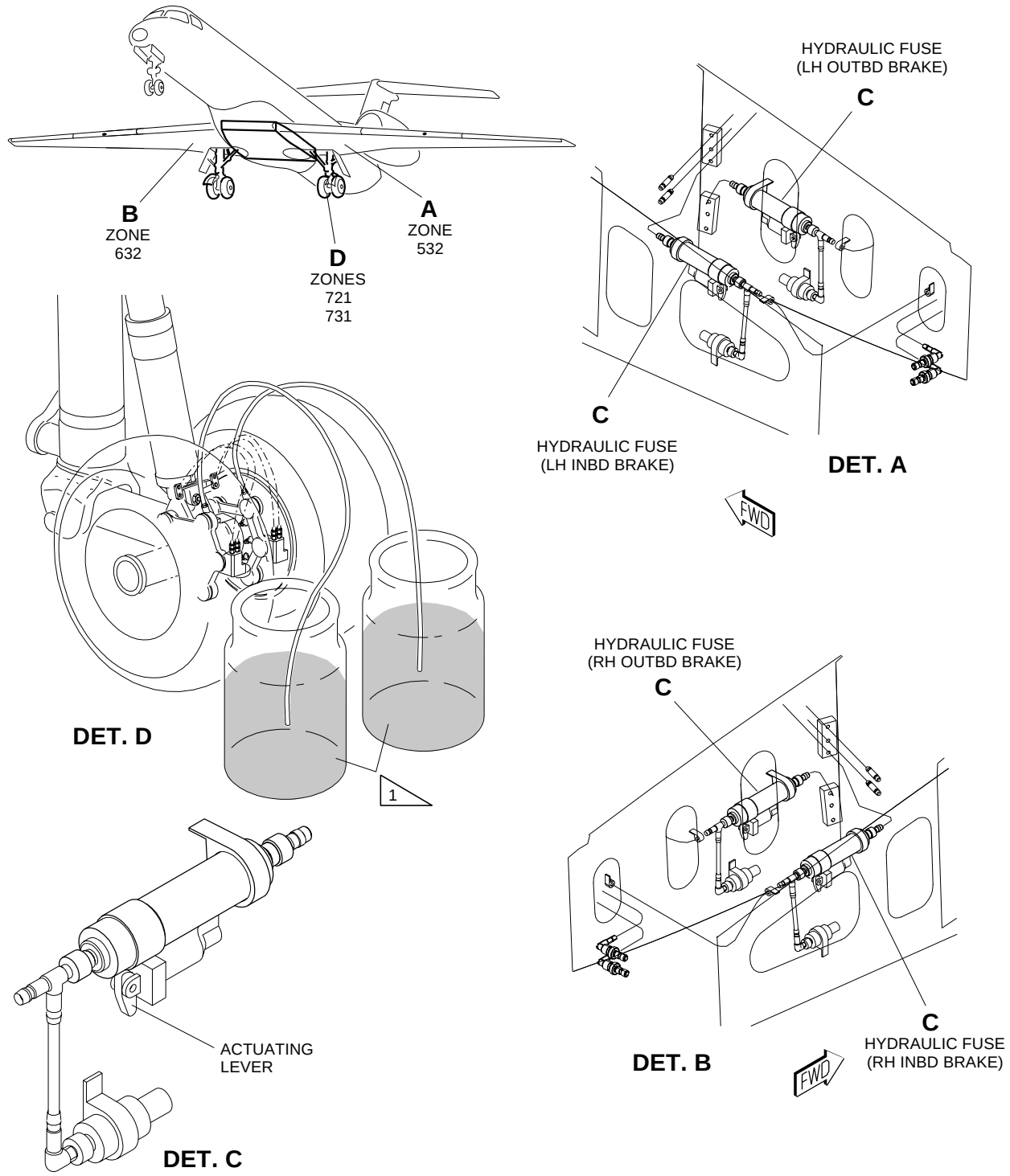
(2) Install access panels 532AB and 632AB (AMM MPP 06-44-00/100).

(3) Check the fluid level of the hydraulic system reservoir (AMM TASK 12-13-01-600-801-A/300).

(4) If its necessary, fill hydraulic systems reservoirs 1 and 2 (AMM TASK 12-13-01-600-802-A/300).

EFFECTIVITY: FOR AIRCRAFT WITH BRAKE ASSEMBLY THAT HAVE TWO BLEEDER VALVES

Hydraulic Fuse Locations and Brake Bleeding
Figure 201



1 IT IS VERY IMPORTANT TO BLEED THE SYSTEM AS MANY TIMES AS NECESSARY TO MAKE SURE THAT THE FLUID IS FREE OF AIR BUBBLES.

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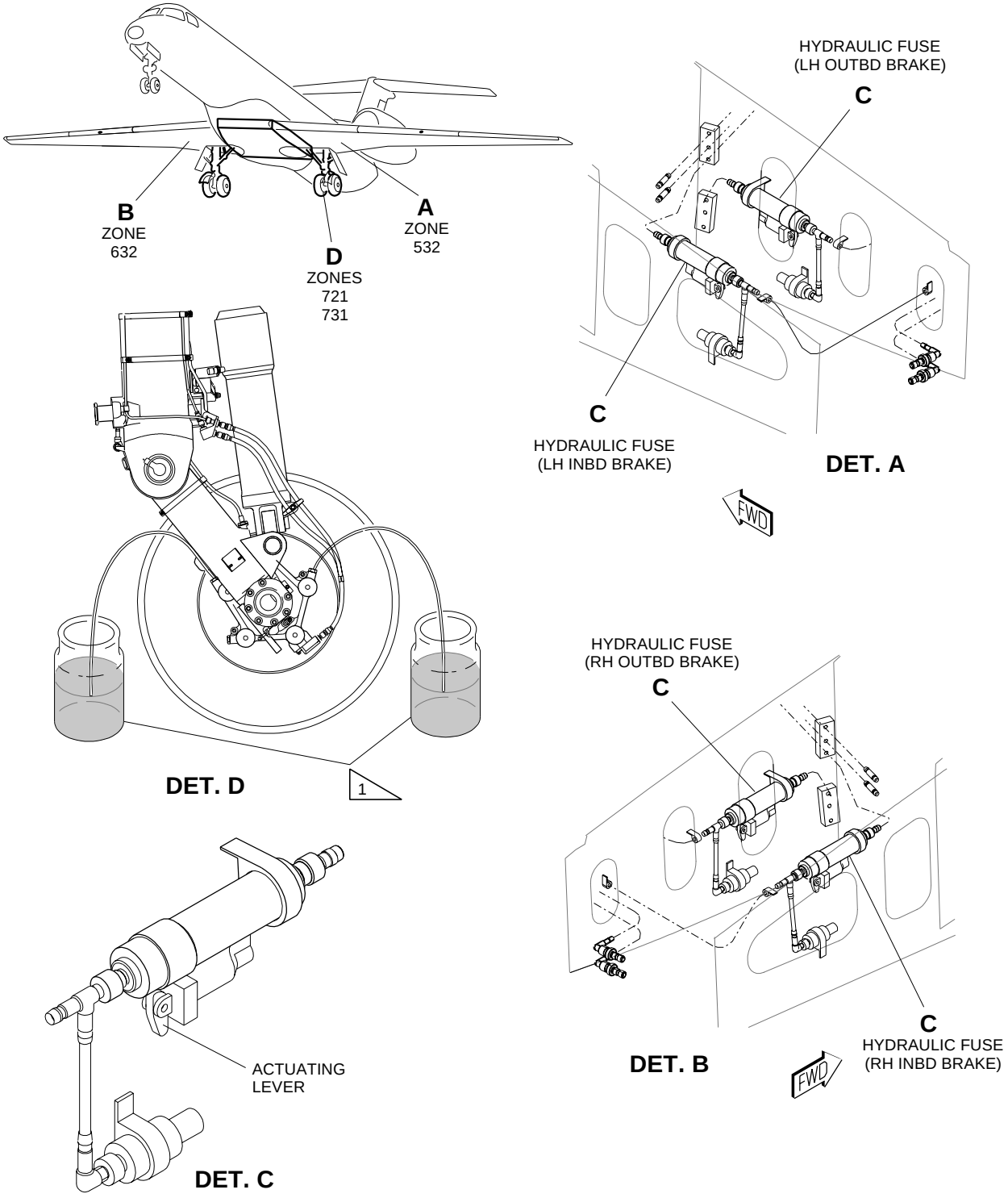
EFFECTIVITY: FOR AIRCRAFT WITH BRAKE ASSEMBLY THAT HAVE FOUR BLEEDER VALVES

Hydraulic Fuse Locations and Brake Bleeding
Figure 202



1 IT IS VERY IMPORTANT TO BLEED THE SYSTEM AS MANY TIMES AS NECESSARY TO MAKE SURE THAT THE FLUID IS FREE OF AIR BUBBLES.

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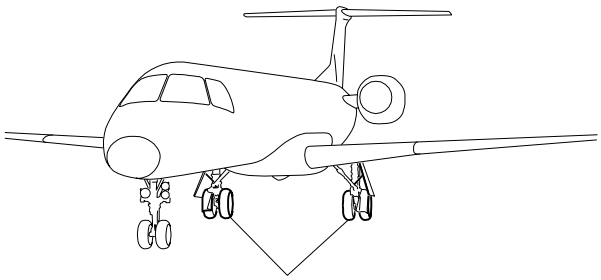
EFFECTIVITY: ALL
Bleeder Valve Assembly
Figure 203



A
ZONES
721
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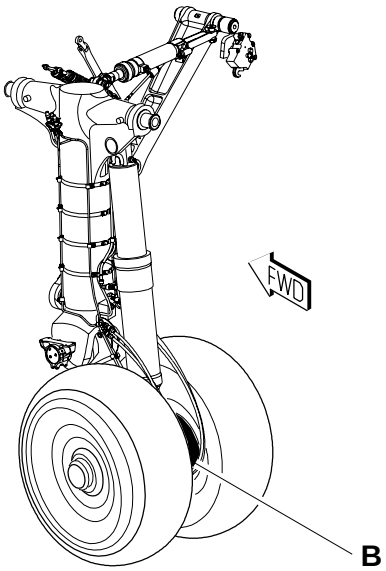
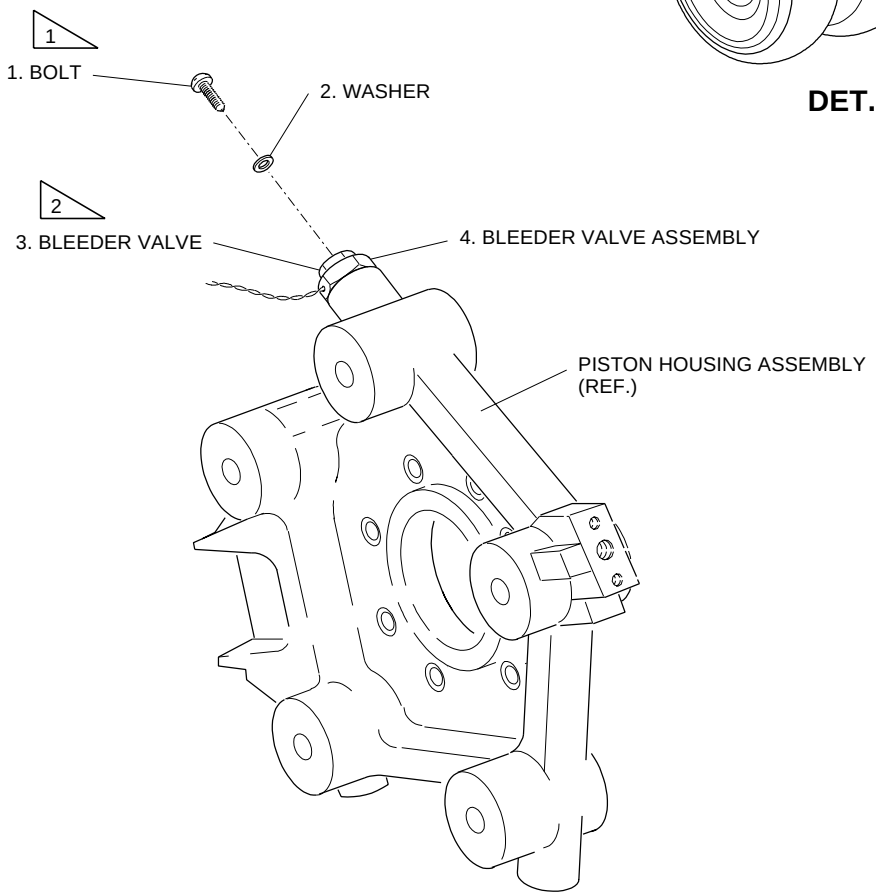


DET. A



1 TORQUE: 2.3 − 3.4 N.m (20 − 30 lb.in)

2 TORQUE: 3.9 − 6.2 N.m (35 − 55 lb.in)

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