MAIN-LANDING-GEAR LEG - REMOVAL/INSTALLATION

EFFECTIVITY: ACFT MODEL(S) EMB-145

1. General

   A. This section gives the procedures to remove and install the main landing-gear (MLG) legs.

   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*
32-10-01-000-801-A	MAIN LANDING-GEAR LEG - REMOVAL	ACFT MODEL(S) EMB-145
32-10-01-400-801-A	MAIN-LANDING-GEAR LEG - INSTALLATION	ACFT MODEL(S) EMB-145

TASK 32-10-01-000-801-A
EFFECTIVITY: ACFT MODEL(S) EMB-145

2. MAIN LANDING-GEAR LEG - REMOVAL

A. General

(1) This task gives the procedures to remove the MLG legs.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-01/100	-
AMM MPP 06-44-00/100	- COMPONENT LOCATION
AMM TASK 07-10-00-500-801-A/200	-
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL
AMM TASK 32-10-03-000-801-A/400	MAIN BRACE STRUT OF THE MAIN LANDING GEAR - REMOVAL
AMM TASK 32-10-05-000-801-A/400	SPRING ASSEMBLIES OF THE MAIN LANDING GEAR - REMOVAL
AMM TASK 32-10-06-000-801-A/400	MAIN DOOR ASSEMBLY OF THE MAIN LANDING GEAR - REMOVAL
AMM TASK 32-33-08-000-801-A/400	MAIN LANDING GEAR ACTUATOR - REMOVAL
AMM TASK 32-41-03-000-801-A/400	WHEEL SPEED TRANSDUCER - REMOVAL
AMM TASK 32-44-02-910-801-A/200	HYDRAULIC ACCUMULATOR EMERGENCY/PARKING BRAKE - RELEASE
AMM TASK 32-49-02-000-801-A/400	WHEEL ASSEMBLY OF THE MAIN LANDING GEAR - REMOVAL
AMM TASK 32-49-03-000-801-A/400	BRAKE ASSEMBLY OF THE MAIN LANDING GEAR - REMOVAL

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 002	Hydraulic Crane, MLG Removal/Installation	To remove the MLG legs	
GSE 101	Stand, MLG Maintenance/Transportation	For maintenance and transportation of the MLG	
GSE 105	Adapter, Hoist, MLG	To remove the MLG legs	

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Rubber Gloves Resistant to Phosphate Ester-Base Fluids	For protection of the hands	2

(Continued)

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Goggles Resistant to Phosphate Ester-Base Fluids	For protection of the eyes	2

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	MLG wheelwell
1	Helps the other technician	MLG wheelwell

I. Preparation

SUBTASK 841-008-B

(1) On the circuit breaker panel, open the ELEC PUMP 1, CMD, IND 1 and IND 2 circuit breakers and attach DO-NOT-CLOSE tags to them.

(2) Control the rudder to the left and right until the pressure of the hydraulic system shows zero PSI on the EICAS.

(3) 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).

(4) Open access door 114CR of the nose hydraulic compartment (AMM MPP 06-41-01/100) and release the pressure from the passenger door/LDG accumulator, installed in the nose hydraulic compartment. For this, open the discharge valve and monitor the pressure gage until it shows the nitrogen precharge.

(5) Slowly open the charging valve of the nitrogen chamber of the hydraulic accumulator to let all pressure in it go out.

(6) Make sure that the safety pins of the landing gears are installed (AMM TASK 32-00-01-910-801-A/200).

(7) Lift the aircraft on jacks. Refer to AMM TASK 07-10-00-500-801-A/200.

(8) Disconnect the connectors of the air/ground proximity switches and wheel speed transducer.

(9) Remove the MLG wheel assemblies (AMM TASK 32-49-02-000-801-A/400).

(10) Remove the wheel speed transducers (AMM TASK 32-41-03-000-801-A/400).

(11) Remove the brake assemblies (AMM TASK 32-49-03-000-801-A/400).

(12) Disconnect the ground cable from the MLG leg. For this, remove the nut, washer, and bolt.

(13) Release the main brace strut from the MLG leg (AMM TASK 32-10-03-000-801-A/400).

(14) Release the MLG actuator from the MLG leg (AMM TASK 32-33-08-000-801-A/400).

(15) Disconnect the MLG main door rods from the MLG leg (AMM TASK 32-10-06-000-801-A/400).

(16) Disconnect the main-landing-gear spring cartridge from the support at the aircraft structure (AMM TASK 32-10-05-000-801-A/400).

(17) Release, from the clamps, the wiring of the air/ground absorber proximity switches and wheel speed transducer.

(18) Open access panel 532CB (to the left wing) and 632CB (to the right wing). Refer to (AMM MPP 06-44-00/100).

J. Removal (Figure 401) (Figure 403)

SUBTASK 020-006-B

WARNING: THE HYDRAULIC SYSTEM CONTAINS PHOSPHATE-ESTER HYDRAULIC FLUID. THE FLUID CAN CAUSE IRRITATION IN YOUR SKIN OR INJURY TO YOUR EYES. USE THE APPLICABLE RUBBER GOGGLES AND GLOVES. IF THE FLUID TOUCHES YOU, FLUSH YOUR SKIN WITH WATER. IF IT GETS IN YOUR EYES, FLUSH THEM WITH WATER AND GET MEDICAL HELP.

(1) Disconnect the brake hydraulic hoses (1), (2), and (3) from the MLG leg (4).

NOTE: Use a drip pan to collect the remaining hydraulic fluid.

NOTE: Before disconnection, tag the hydraulic hoses to prevent inversion during their installation.

(2) Install the MLG leg (4) to GSE 002 and GSE 105.

NOTE: Before install the GSE 105, remove the special bolt (10). Refer to AMM TASK 32-10-03-000-801-A/400.

(3) Remove the nuts (9).

(4) For aircraft equipped with MLG with washers in the bolt head for installation of the lower and upper half-bearing, do as follows (Figure 401):

(a) Remove the washers (8) and (6).

(5) For aircraft equipped with MLG without washers in the bolt head for installation of the lower and upper half-bearing, do as follows (Figure 403):

(a) Remove the washers (6).

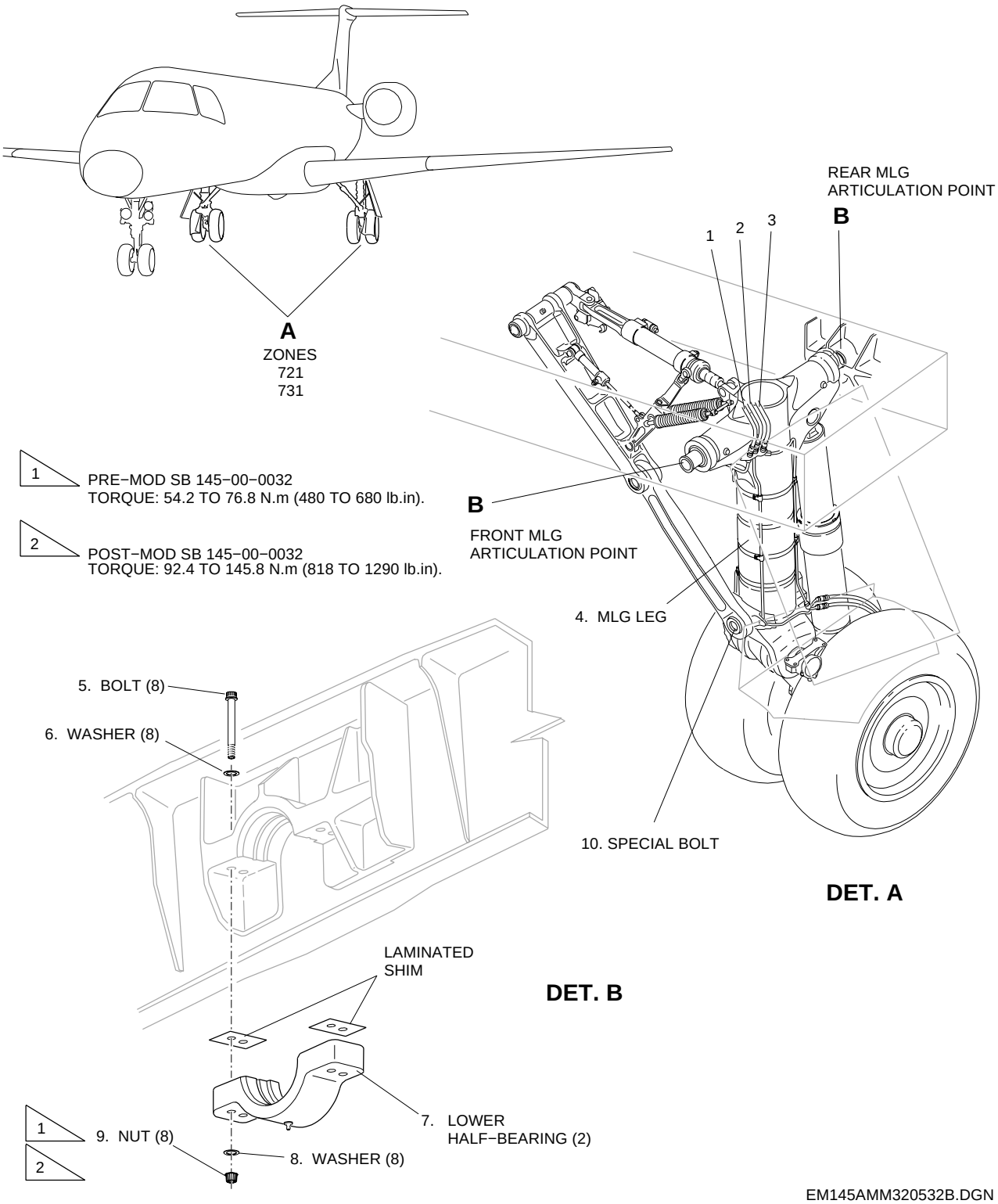
(6) Remove the bolts (5).

(7) Remove the half-bearings (7).

EFFECTIVITY: For MLG equipped with washers in the bolt head for installation of the lower and upper half-bearing

Main Landing-Gear Leg - Removal/Installation

Figure 401

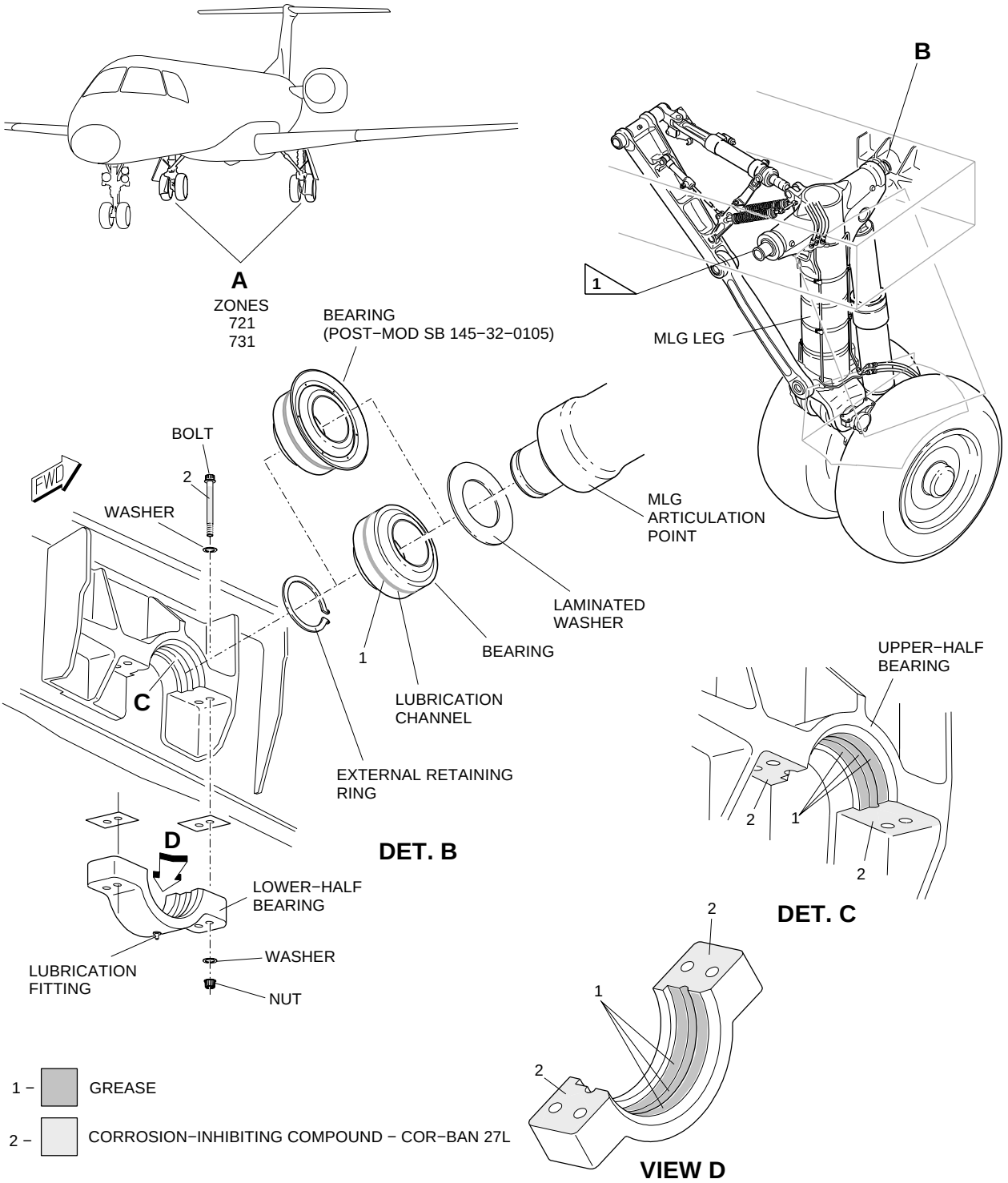


EM145AMM320532B.DGN

EFFECTIVITY: For MLG equipped with washers in the bolt head for installation of the lower and upper half-bearing

Main Landing-Gear Leg Ball - Joint Adjustment

Figure 402

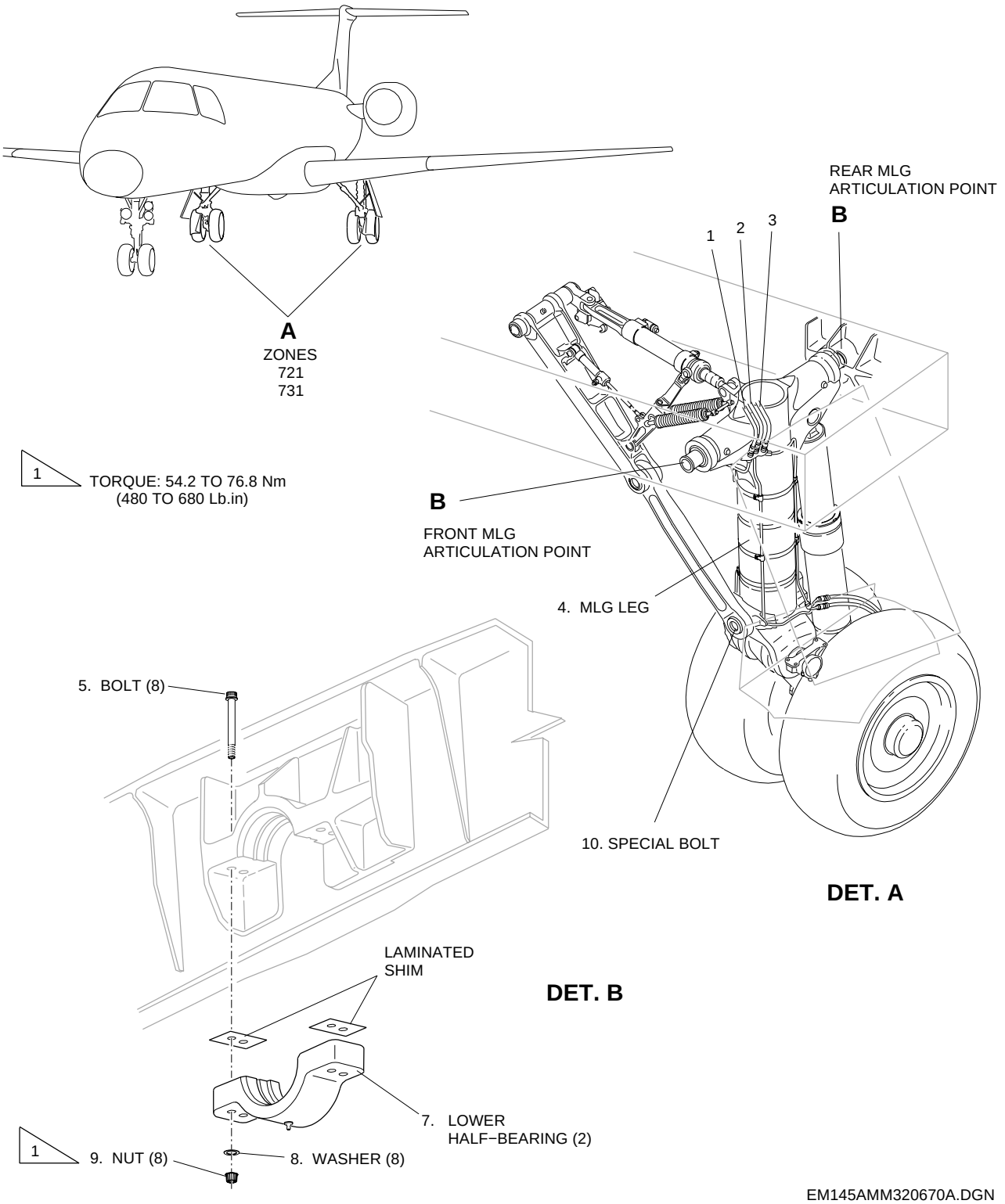


1 IN THIS SIDE USE ONLY THE SOLID WASHER INSTEAD OF LAMINATED WASHER.

EM145AMM320309G.DGN

EFFECTIVITY: For MLG equipped without washers in the bolt head for installation of the lower and upper half-bearing

Main Landing-Gear Leg - Removal/Installation
Figure 403

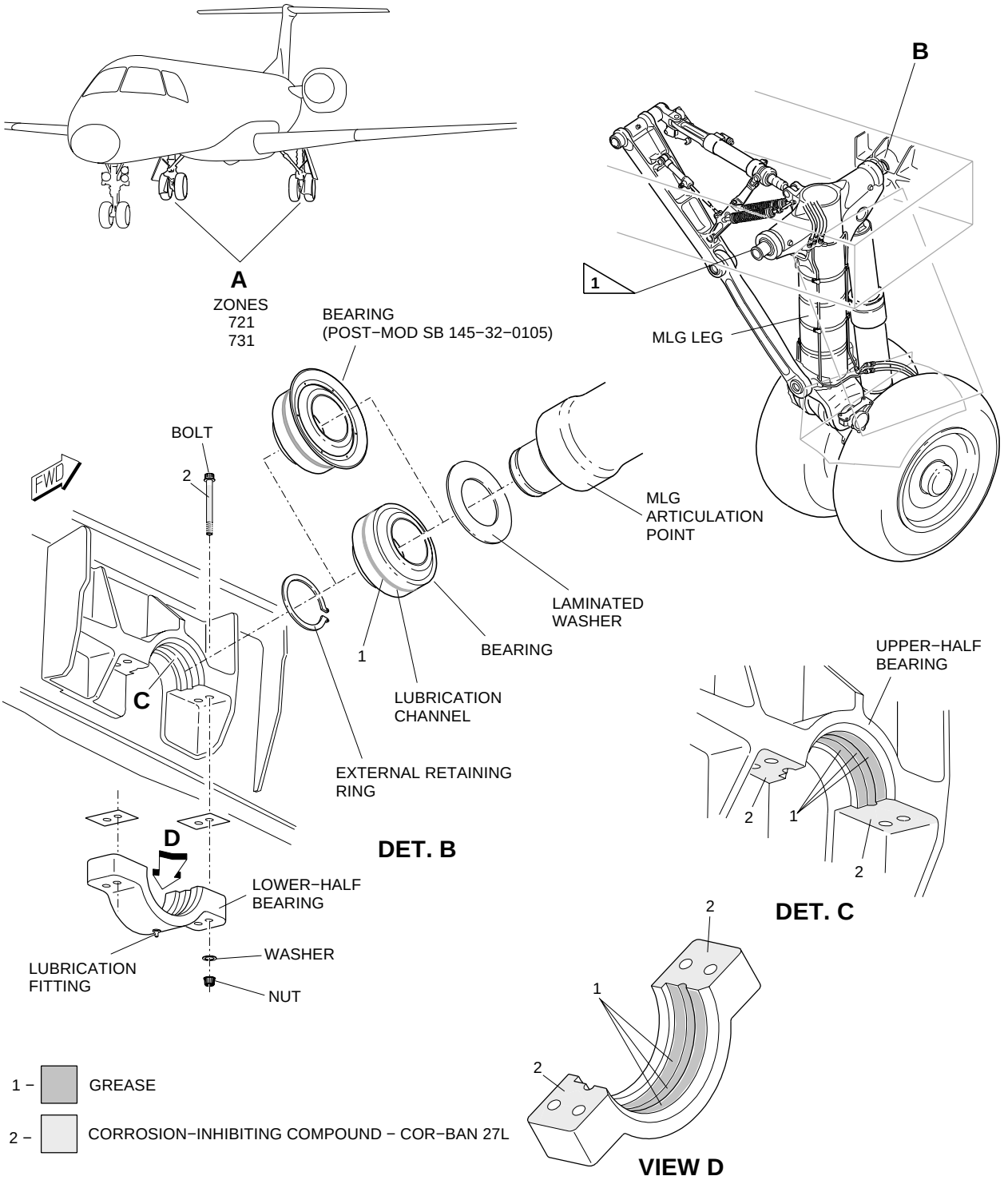


EM145AMM320670A.DGN

EFFECTIVITY: For MLG equipped without washers in the bolt head for installation of the lower and upper half-bearing

Main Landing-Gear Leg Ball - Joint Adjustment

Figure 404

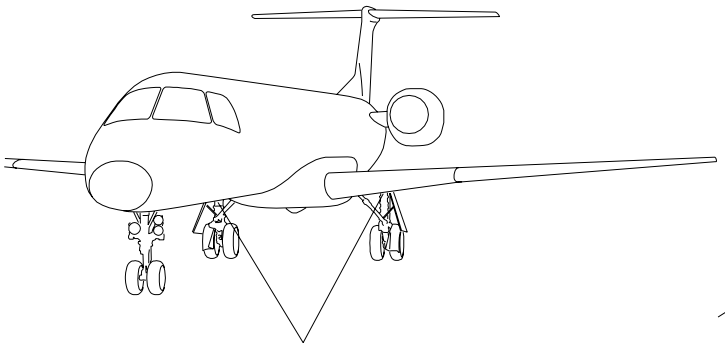


1 USE ONLY SOLID WASHER INSTEAD OF LAMINATED WASHER IN THIS SIDE

EM145AMM320669A.DGN

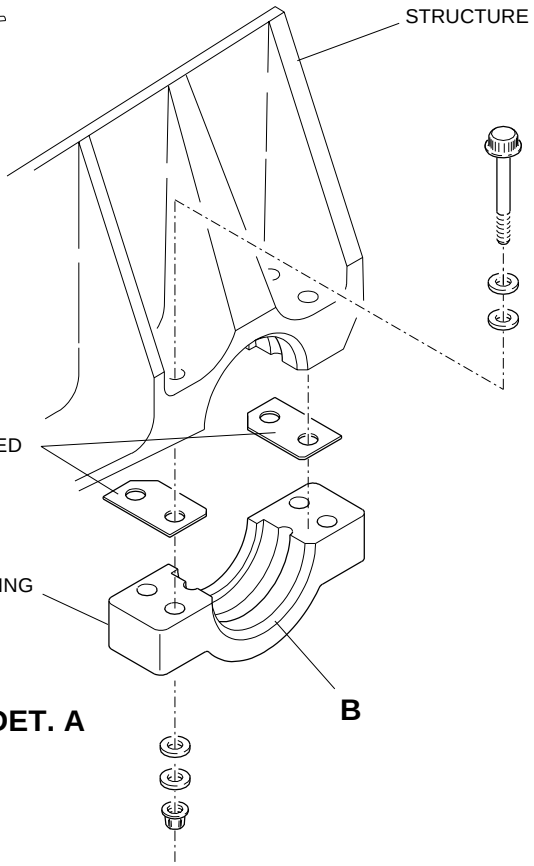
EFFECTIVITY: ACFT MODEL(S) EMB-145

Procedure to Find the Thickness of the Half - Bearing Shim
Figure 405

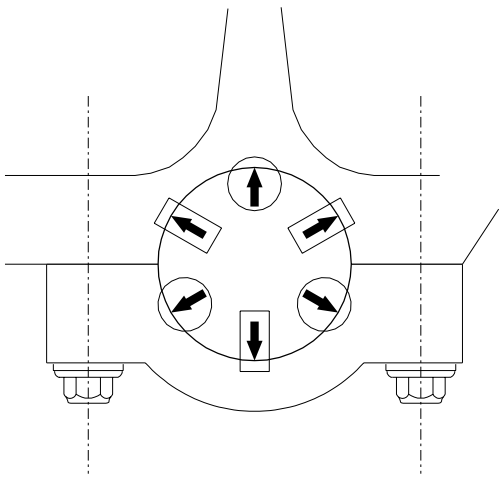


A

ZONES
721
731



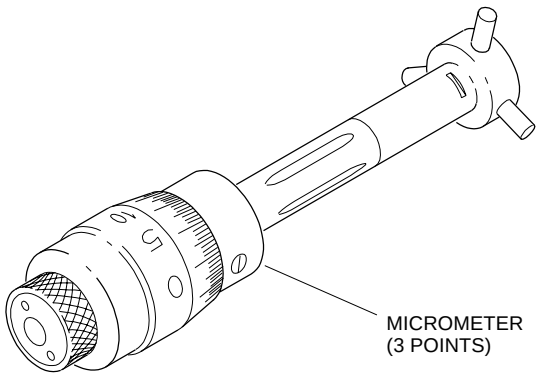
DET. A



FIRST MEASUREMENT

SECOND MEASUREMENT

DET. B



EM145AMM320269C.DGN

TASK 32-10-01-400-801-A
EFFECTIVITY: ACFT MODEL(S) EMB-145

3. MAIN-LANDING-GEAR LEG - INSTALLATION

A. General

(1) This task gives the procedures to install the MLG leg.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-44-00/100	- COMPONENT LOCATION
AMM TASK 07-10-00-500-802-A/200	-
AMM TASK 29-10-00-860-803-A/200	HYDRAULIC SYSTEM - BLEED OF AIR
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL
AMM TASK 32-10-02-600-801-A/300	MLG SHOCK ABSORBER - SERVICING
AMM TASK 32-10-03-400-801-A/400	MAIN BRACE STRUT OF THE MAIN LANDING GEAR - INSTALLATION
AMM TASK 32-10-05-400-801-A/400	SPRING ASSEMBLIES OF THE MAIN LANDING GEAR - INSTALLATION
AMM TASK 32-10-06-400-801-A/400	MAIN DOOR ASSEMBLY OF THE MAIN LANDING GEAR - INSTALLATION
AMM TASK 32-30-00-700-801-A/500	EXTENSION AND RETRACTION SYSTEM - OPERATIONAL CHECK
AMM TASK 32-33-08-400-801-A/400	MAIN LANDING GEAR ACTUATOR - INSTALLATION
AMM TASK 32-34-00-700-801-A/500	LG EMERGENCY EXTENSION - OPERATIONAL AND FUNCTIONAL CHECKS
AMM TASK 32-41-03-400-801-A/400	WHEEL SPEED TRANSDUCER - INSTALLATION
AMM TASK 32-44-02-600-801-A/300	EMERGENCY/PARKING BRAKE ACCUMULATOR - CHARGE
AMM TASK 32-49-02-400-801-A/400	WHEEL ASSEMBLY OF THE MAIN LANDING GEAR - INSTALLATION
AMM TASK 32-49-03-400-801-A/400	BRAKE ASSEMBLY OF THE MAIN LANDING GEAR - INSTALLATION
SB 145-00-0032	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
500	532CB	Left Wing
600	632CB	Right Wing

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 002	Hydraulic Crane, MLG Removal/Installation	To install the MLG legs	

(Continued)

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 101	Stand, MLG Maintenance/Transportation	For maintenance and transportation of the MLG	
GSE 105	Adapter, Hoist, MLG	To install the MLG legs	
Commercially available	Torque Wrench (Range: 0 to 1500 lb.in)	To torque the bolts of the MLG legs	
Commercially available	3-Point Micrometer (Internal Measurement)	To measure the inner diameter of the bearing housing	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves Resistant to Phosphate Ester-Base Fluids	For protection of the hands	2
Commercially available	Rubber Goggles Resistant to Phosphate Ester-Base Fluids	Protection for the eyes	2
Commercially available	Soft Lint-Free Cloth	To clean the components	AR

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MEP 09-075	Corrosion-Inhibiting Compound (COR-BAN 27L)	AR
MIL-PRF-81322	Aeroshell Grease 22	AR
MIL-PRF-23827	Aeroshell Grease 33 (alternative to Aeroshell 22	AR
MIL-L-87177	Lektro-Tech Super Corr-A	AR
MIL-S-8802 Type II, Class A	Sealant PR-1440-A2	AR
MEP 13-073	Rhodiasolve E-23	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	MLG wheelwell
1	Helps the other technician	MLG wheelwell

I. Preparation

SUBTASK 841-009-B

(1) Procedure to find the thickness of the half-bearing shim (Figure 405).

NOTE: This procedure is applicable when the shims of the half-bearings are lost or it is not possible to use them again.

(a) Install the lower half-bearing on the structure without the laminated shims.

(b) For aircraft PRE-MOD. SB 145-00-0032, apply a torque of 54.2 to 76.8 N.m (480 to 680 lb.in) to the nuts.

(c) For aircraft POST-MOD. SB 145-00-0032, apply a torque of 92.4 to 145.8 N.m (818 to 1290 lb.in) to the nuts.

(d) Measure the diameter in two different positions, as shown in (Figure 405). Write the values.

(e) Calculate the average between the two values found in step (d) with this formula:

M = (M1 + M2)/2, where:

M1 = the first measurement

M2 = the second measurement

M = the average between the two measurements

(f) Calculate the thickness of the laminated shims, as follows:

X = 92.087 - M

(g) Adjust the thickness of the laminated shims to the value "X" found in step (f).

(h) Install the lower half-bearing again on the structure, but, at this time, together with the laminated shims.

(i) For aircraft PRE-MOD. SB 145-00-0032, torque the nuts to 54.2 to 76.8 N.m (480 to 680 lb.in).

(j) For aircraft POST-MOD. SB 145-00-0032, torque the nuts to 92.4 to 145.8 N.m (818 to 1290 lb.in).

(k) Do step (d) and make sure that the values found are between 92.070 mm and 92.105 mm.

(l) Do steps (a) thru (k) for the other lower half-bearing.

J. Installation (Figure 401) (Figure 402) (Figure 403) (Figure 404)

SUBTASK 420-004-B

WARNING: THE HYDRAULIC SYSTEM CONTAINS PHOSPHATE-ESTER HYDRAULIC FLUID. THE FLUID CAN CAUSE IRRITATION IN YOUR SKIN OR INJURY TO YOUR EYES. USE THE APPLICABLE RUBBER GOGGLES AND GLOVES. IF THE FLUID TOUCHES YOU, FLUSH YOUR SKIN WITH WATER. IF IT GETS IN YOUR EYES, FLUSH THEM WITH WATER AND GET MEDICAL HELP.

(1) Use a dry lint-free cloth to remove unwanted old grease from the components as necessary.

WARNING: BE CAREFUL WHEN YOU USE SOLVENTS BECAUSE THEY ARE A HEALTH AND FIRE HAZARD. USE SAFETY GOGGLES AND PROTECTIVE CLOTHING. DO NOT BREATHE THE SOLVENT GASES AND WORK IN A WELL VENTILATED AREA.

(2) With a cloth soaked in Rhodiasolve E-23, clean the remaining grease from the components as necessary.

CAUTION: NO CLEARANCE IS PERMITTED ON MLG INSTALLATION.

(3) Put the MLG leg (4) in the upper half-bearings with the help of GSE 002 and GSE 105.

(4) Put the solid washer and bearing in the front MLG articulation point. Refer to DET. A, (Figure 401) or (Figure 403) as applicable to the aircraft configuration.

(5) Procedure to find the thickness of the laminated washer:

NOTE:
- This procedure is applicable when the laminated washer is lost or it is not possible to use it again, or when the MLG leg is replaced.
- Each MLG leg has a laminated washer installed in the rear MLG articulation point. In the front MLG articulation point only the solid washer is installed.

(a) Put the bearing in the rear MLG articulation point. Refer to DET. A, (Figure 401) or (Figure 403) as applicable to the aircraft configuration.

(b) Put the lower half-bearings (7) in their installation position.

(c) Push the MLG forward (in the direction of spar II) and measure the clearance with a feeler gage on the other side. Refer to (Figure 402) or (Figure 404) as applicable to the aircraft configuration.

(d) Prepare the laminated washer with the necessary thickness to eliminate the clearance found in step (c).

(e) Remove the MLG and remove the bearing from the rear MLG articulation point.

(6) Put the laminated washer and bearing in the rear MLG articulation point. Refer to (Figure 401) or (Figure 403) as applicable to the aircraft configuration.

CAUTION: AEROSHELL GREASE 22 MUST NOT BE MIXED WITH AEROSHELL GREASE 33. IF YOU DO NOT OBEY THIS PRECAUTION, THE MIXTURE CAN CAUSE DAMAGE TO THE COMPONENTS.

(7) Fill the lubrication channel of the MLG bearing, upper and lower half-bearings with grease. Refer to (Figure 402) or (Figure 404) as applicable to the aircraft configuration.

(8) Enter in the applicable document the grease that you used.

WARNING: COR-BAN 27L CORROSION-INHIBITING COMPOUND IS TOXIC TO SKIN, EYES, AND RESPIRATORY TRACT. USE GOGGLES AND PROTECTIVE GLOVES. USE ONLY IN WELL VENTILATED AREAS. OBEY THE MANUFACTURER'S HEALTH AND SAFETY INSTRUCTIONS.

(9) Apply COR-BAN 27L on the upper half-bearing (contact surface with the lower half-bearing). Refer to (Figure 402) or (Figure 404) as applicable to the aircraft configuration. Apply it on the bolts (5) as required. Refer to (Figure 401) or (Figure 403) as applicable to the aircraft configuration.

(10) Install the MLG again.

(11) Apply COR-BAN 27L on the lower half-bearing (contact surface with the upper half-bearing). Refer to (Figure 402) or (Figure 404) as applicable to the aircraft configuration.

(12) Put the lower half-bearing in its installation position.

(13) For aircraft equipped with MLG with washers in the bolt head for installation of the lower and upper half-bearing, do as follows (Figure 401):

(a) Install the washers (8) and (6).

(14) For aircraft equipped with MLG without washers in the bolt head for installation of the lower and upper half-bearing, do as follows (Figure 403):

(a) Install the washers (6).

(15) Install the bolts (5).

(16) Install the nuts (9).

For aircraft PRE-MOD. SB 145-00-0032, torque them to 54.2 to 76.8 N.m (480 to 680 lb.in).

For aircraft POST-MOD. SB 145-00-0032, torque them to 92.4 to 145.8 N.m (818 to 1290 lb.in).

(17) Apply the same grease as that used in step 7 on the bearing through the grease fitting installed at the bottom of the lower half-bearing until the grease comes out from the bearing.

(18) Connect the hydraulic hoses (1), (2), and (3) to the MLG leg (4).

NOTE: Obey the correct positions of the hydraulic hoses and remove the tags.

(19) Remove GSE 105.

K. Follow-on

SUBTASK 842-004-B

(1) Apply sealant PR-1440 A2 on all the bolts (5) and the nuts (9) exposed to environmental conditions to prevent corrosion. Refer to (Figure 401) or (Figure 403) as applicable to the aircraft configuration.

(2) Close access panel 532CB (left wing) and 632CB (right wing). Refer to (AMM MPP 06-44-00/100).

(3) Attach the wiring of the air/ground proximity switches and wheel speed transducer to the clamps.

(4) Connect the MLG actuator to the MLG leg (AMM TASK 32-33-08-400-801-A/400).

(5) Connect the main brace strut to the MLG leg (AMM TASK 32-10-03-400-801-A/400).

(6) Connect the MLG main door rods to the MLG leg (AMM TASK 32-10-06-400-801-A/400)

(7) Connect the MLG spring cartridge to the support at the aircraft structure (AMM TASK 32-10-05-400-801-A/400).

(8) Install the brake assemblies (AMM TASK 32-49-03-400-801-A/400).

(9) Install the wheel speed transducers (AMM TASK 32-41-03-400-801-A/400).

(10) Install the MLG wheel assemblies (AMM TASK 32-49-02-400-801-A/400).

(11) Connect the ground cable to the MLG leg. To do this, install the washer, bolt, and nut.

(12) Connect the connector of the air/ground proximity switches and wheel speed transducer.

NOTE:
- Make sure that the hook of the uplock box is in the unlocked position. If necessary, operate the free-fall handle to unlock it.
- Before the installation of the connector, apply the Lektro-Tech Super Corr-A into the plug connector to prevent corrosion and to clean the contacts.

(13) Pressurize the Emergency/Parking brake accumulator (AMM TASK 32-44-02-600-801-A/300).

(14) On the circuit breaker panel, close ELEC PUMP, CMD, IND 1, and IND 2 circuit breakers, and remove the DO-NOT-CLOSE tags from them.

(15) Do the check of the height "H" to make sure that the pressure in the shock absorber is correct. Refer to the instructions in AMM TASK 32-10-02-600-801-A/300.

(16) Do the bleed of air from the hydraulic system lines (AMM TASK 29-10-00-860-803-A/200).

(17) Do an operational check of the landing gear (AMM TASK 32-30-00-700-801-A/500).

(18) Install the landing gear safety pins (AMM TASK 32-00-01-910-801-A/200).

(19) Do the functional check of the landing gear free-fall system (AMM TASK 32-34-00-700-801-A/500).

(20) Lower the aircraft and remove the jacks (AMM TASK 07-10-00-500-802-A/200).